

# **Moxa Command Line Interface (FW\_4.x)**

---

**Edition 5.2, October 2017**

[www.moxa.com/product](http://www.moxa.com/product)



© 2017 Moxa Inc. All rights reserved.

# Moxa Command Line Interface (FW\_4.x)

The software described in this manual is furnished under a license agreement and may be used only in accordance with the terms of that agreement.

## Copyright Notice

© 2017 Moxa Inc. All rights reserved.

## Trademarks

The MOXA logo is a registered trademark of Moxa Inc.  
All other trademarks or registered marks in this manual belong to their respective manufacturers.

## Disclaimer

Information in this document is subject to change without notice and does not represent a commitment on the part of Moxa.

Moxa provides this document as is, without warranty of any kind, either expressed or implied, including, but not limited to, its particular purpose. Moxa reserves the right to make improvements and/or changes to this manual, or to the products and/or the programs described in this manual, at any time.

Information provided in this manual is intended to be accurate and reliable. However, Moxa assumes no responsibility for its use, or for any infringements on the rights of third parties that may result from its use.

This product might include unintentional technical or typographical errors. Changes are periodically made to the information herein to correct such errors, and these changes are incorporated into new editions of the publication.

## Technical Support Contact Information

[www.moxa.com/support](http://www.moxa.com/support)

### **Moxa Americas**

Toll-free: 1-888-669-2872  
Tel: +1-714-528-6777  
Fax: +1-714-528-6778

### **Moxa Europe**

Tel: +49-89-3 70 03 99-0  
Fax: +49-89-3 70 03 99-99

### **Moxa India**

Tel: +91-80-4172-9088  
Fax: +91-80-4132-1045

### **Moxa China (Shanghai office)**

Toll-free: 800-820-5036  
Tel: +86-21-5258-9955  
Fax: +86-21-5258-5505

### **Moxa Asia-Pacific**

Tel: +886-2-8919-1230  
Fax: +886-2-8919-1231

# Table of Contents

<b>1. Command Modes</b> .....	<b>1-1</b>
CLI (Command Line Interface) .....	1-1
Configuring a Switch to CLI Mode .....	1-1
Basic Operation .....	1-2
Useful Interactive "Help" Features .....	1-3
Understanding All Commands.....	1-3
<b>2. Commands</b> .....	<b>2-1</b>
access-ip .....	2-1
acl id.....	2-1
acl id ip-base .....	2-2
acl id mac-base .....	2-3
area.....	2-3
area range.....	2-4
area virtual-link.....	2-4
auth tacacs+ .....	2-5
auth tacacs+ auth-type.....	2-5
auth tacacs+ server .....	2-6
auto-backup.....	2-7
bind vlan .....	2-7
clear counters .....	2-8
clear logging event-log .....	2-8
clock set.....	2-8
clock summer-time .....	2-9
clock timezone .....	2-10
copy.....	2-10
dot1x auth.....	2-11
dot1x auth.....	2-12
dot1x local-userdb .....	2-12
dot1x reauth .....	2-13
dot1x reauth .....	2-13
dip-switch.....	2-13
eip.....	2-14
email-warning account .....	2-14
email-warning event .....	2-15
email-warning event .....	2-16
email-warning mail-address .....	2-17
email-warning send test email.....	2-18
email-warning server .....	2-18
exit .....	2-19
flowcontrol.....	2-19
gmrp.....	2-20
gvrp.....	2-20
hostname .....	2-21
interface mgmt.....	2-21
interface vlan .....	2-22
ip address.....	2-22
ip address.....	2-23
ip auto-assign .....	2-23
ip default-gateway .....	2-24
ip dhcp retry .....	2-24
ip dhcp-relay server .....	2-25
ip dhcp-relay option82 .....	2-25
ip dhcp-relay option82 remote-id-type .....	2-26
ip http-server.....	2-26
ip http-server auto-logout.....	2-27
ip igmp static-group.....	2-27
ip igmp-snooping .....	2-28
ip igmp-snooping enhanced .....	2-28
ip igmp-snooping querier vlan .....	2-29
ip igmp-snooping querier vlan vlan-id v3 .....	2-30
ip igmp-snooping query-interval .....	2-30
ip igmp-snooping vlan .....	2-31
ip filter-ip .....	2-31
ip name-server.....	2-32
ip ospf area.....	2-32
ip ospf auth .....	2-33
ip ospf cost .....	2-33
ip ospf dead-interval .....	2-34

ip ospf hello-interval .....	2-34
ip ospf priority .....	2-35
ip pim-dm .....	2-35
ip pim-sm .....	2-36
ip pim-sm dr-priority .....	2-36
ip pim-sm hello-interval .....	2-37
ip pim-sm join-prune-interval .....	2-37
ip proxy-arp .....	2-38
ip route .....	2-38
ipv6 address .....	2-38
line-swap-fast-recovery .....	2-39
lldp enable .....	2-40
lldp timer .....	2-40
logging .....	2-41
login mode .....	2-41
mac-address-table aging-time .....	2-42
mcast-filter .....	2-42
media cable-mode .....	2-43
modbus .....	2-43
monitor .....	2-44
Management-Interface .....	2-44
name .....	2-45
network .....	2-45
ntp refresh-time .....	2-46
ntp remote-server .....	2-47
ntp server .....	2-47
permit .....	2-48
ping .....	2-48
port-security .....	2-48
profinetio .....	2-49
ptp announce-receipt-timeout .....	2-49
ptp arb-time .....	2-50
ptp clockclass .....	2-50
ptp domain-number .....	2-51
ptp enable .....	2-51
ptp leap59 .....	2-52
ptp leap61 .....	2-52
ptp log-sync-interval .....	2-53
ptp log-announce-interval .....	2-53
ptp log-min-delay-req-interval .....	2-54
ptp log-min-pdelay-req-interval .....	2-54
ptp mode .....	2-55
ptp preferred-master .....	2-55
ptp priority1 .....	2-56
ptp priority2 .....	2-56
ptp timescale .....	2-57
ptp transport .....	2-57
ptp utc-offset .....	2-58
ptp utc-offset-valid .....	2-58
qos highest-priority .....	2-59
qos default-cos .....	2-59
qos inspect .....	2-60
qos mapping .....	2-60
qos mode .....	2-61
quit .....	2-61
rate-limit .....	2-62
redistribute .....	2-63
redundancy .....	2-63
redundancy mode .....	2-64
relay-warning config relay .....	2-64
relay-warning event .....	2-65
relay-warning event .....	2-65
relay-warning override .....	2-66
reload .....	2-67
router ospf .....	2-67
router rip .....	2-68
router vrrp .....	2-68
router vrrp adver-interval .....	2-69
save config .....	2-69
show acl .....	2-70
show auth tacacs+ .....	2-70
show clock .....	2-71

show dot1x .....	2-72
show dot1x local-userdb .....	2-72
show eip .....	2-73
show PROFINETIO .....	2-73
show email-warning config .....	2-73
show gmrp .....	2-75
show gvrp .....	2-75
show interfaces acl .....	2-75
show interfaces counters .....	2-76
show interfaces ethernet .....	2-77
show interfaces filter-ip .....	2-78
show interfaces mgmt .....	2-79
show interfaces mgmt access-ip .....	2-79
show interfaces rate-limit .....	2-80
show interfaces trunk .....	2-80
show interfaces vlan .....	2-81
show interfaces mgmt trusted-access .....	2-82
show ip auto-assign .....	2-82
show ip dhcp-relay config .....	2-83
show ip http-server status .....	2-84
show ip igmp .....	2-84
show ip ospf .....	2-85
show ip ospf database .....	2-86
show ip ospf interface .....	2-86
show ip ospf neighbor .....	2-87
show ip pim-dm .....	2-87
show ip pim-dm neighbor .....	2-88
show ip pim-sm .....	2-88
show ip pim-sm bsr .....	2-89
show ip pim-sm neighbor .....	2-89
show ip pim-sm routing .....	2-90
show ip pim-sm rp .....	2-91
show ip rip .....	2-91
show ip route .....	2-92
show ip vrrp .....	2-92
show lldp .....	2-93
show logging .....	2-94
show mac-address-table .....	2-95
show mac-address-table aging-time .....	2-96
show mcast-filter .....	2-96
show modbus .....	2-97
show port monitor .....	2-97
show port-security .....	2-97
show qos .....	2-98
show redundancy mst configure .....	2-99
show redundancy mst instance .....	2-100
show redundancy spanning-tree .....	2-101
show redundancy turbo-chain .....	2-101
show redundancy turbo-ring-v1 .....	2-102
show redundancy turbo-ring-v2 .....	2-103
show relay-warning .....	2-104
show running-config .....	2-105
show startup-config .....	2-106
show snmp .....	2-107
show storm-control .....	2-107
show system .....	2-108
show users .....	2-108
show vlan .....	2-109
show vlan config .....	2-109
shutdown .....	2-110
snmp-server community .....	2-111
snmp-server contact .....	2-111
snmp-server description .....	2-112
snmp-server host .....	2-112
snmp-server location .....	2-113
snmp-server trap-mode .....	2-113
snmp-server user .....	2-114
snmp-server version .....	2-114
spanning-tree forward-delay .....	2-115
spanning-tree hello-time .....	2-115
spanning-tree max-age .....	2-116
spanning-tree mst cist cost .....	2-116

spanning-tree mst cist port-priority.....	2-117
spanning-tree mst cist priority.....	2-117
spanning-tree mst edge-port.....	2-118
spanning-tree mst enable .....	2-118
spanning-tree mst forward-time .....	2-119
spanning-tree mst hello-time .....	2-119
spanning-tree mst instance.....	2-120
spanning-tree mst instance cost .....	2-120
spanning-tree mst instance port-priority.....	2-121
spanning-tree mst instance priority.....	2-121
spanning-tree mst max-age .....	2-122
spanning-tree mst max-hops .....	2-122
spanning-tree mst name.....	2-123
spanning-tree mst revision .....	2-123
spanning-tree priority.....	2-124
spanning-tree.....	2-124
spanning-tree cost.....	2-125
spanning-tree edge-port.....	2-125
spanning-tree priority.....	2-126
speed-duplex .....	2-126
storm-control .....	2-127
switchport access vlan.....	2-127
switchport hybrid fixed vlan add .....	2-128
switchport hybrid forbidden vlan add.....	2-128
switchport hybrid forbidden vlan remove .....	2-129
switchport hybrid native vlan .....	2-129
switchport pvlan .....	2-130
switchport trunk fixed vlan add .....	2-130
switchport trunk fixed vlan remove .....	2-131
switchport trunk forbidden vlan add .....	2-131
switchport trunk forbidden vlan remove.....	2-132
switchport trunk native vlan.....	2-132
trunk-group .....	2-133
trunk-mode.....	2-133
turbo-chain .....	2-134
turbo-ring-v1 .....	2-134
turbo-ring-v1 coupling.....	2-135
turbo-ring-v1 master .....	2-135
turbo-ring-v2 .....	2-136
turbo-ring-v2 coupling backup.....	2-137
turbo-ring-v2 coupling dual-homing .....	2-137
turbo-ring-v2 coupling primary.....	2-138
turbo-ring-v2 master .....	2-139
trusted-access.....	2-139
username .....	2-140
version .....	2-140
vlan create.....	2-141
vlan mode .....	2-142
vrrp .....	2-142
vrrp preempt.....	2-143
vrrp priority .....	2-143
warning-notification system-event .....	2-144
warning-notification port-event .....	2-145

## Command Modes

### CLI (Command Line Interface)

The CLI (command line interface) for Moxa switches can be accessed through either the serial console or Telnet console. For either type of connection, access to the command line interface is generally referred to as an EXEC session.

### Configuring a Switch to CLI Mode

The default configuration mode for both the serial console and Telnet console is MENU mode. To change the Moxa switch to CLI configuration mode, **Login Mode** from **Basic Settings** and then press **y** to activate the change. You will then be able to view the CLI display in the console. (Note that the default login user name is **admin**, without a password.)

1. Select **Basic Settings**.

```

EDS-408A series  V3.0 build 11062110
-----
1.Basic Settings      - Basic settings for network and system parameter.
2.SNMP Settings      - The settings for SNMP.
3.Comm. Redundancy    - Establish Ethernet communication redundant path.
4.Traffic Prioritization- Prioritize Ethernet traffic to help determinism.
5.Virtual LAN         - Set up a VLAN by IEEE802.1Q VLAN or Port-based VLAN.
6.Multicast Filtering - Enable the multicast filtering capability.
7.Bandwidth Management - Restrict unpredictable network traffic.
8.Auto Warning        - Warning email and/or relay output by events.
9.Line Swap           - Fast recovery after moving devices to different ports.
a.Set Device IP       - Assign IP addresses to connected devices.
b.Diagnosis           - Ping command and the settings for Mirror port, LLDP.
c.Monitor             - Monitor a port and network status.
d.MAC Address Table   - The complete table of Ethernet MAC Address List.
e.System log          - The settings for Syslog and Event log.
f.Exit                - Exit
                    - Use the up/down arrow keys to select a category,
                    and then press Enter to select. -

```

2. Select **Login mode**.

```

MOXA EtherDevice Switch EDS-408A-3M-SC-T
Basic Settings
[System] [Password] [Accessible IP] [Port] [Network] [Time] [DIP] [GARP Timer]
[Backup Media] [Restart] [Factory default] [Upgrade] [Login mode] [Activate]
[Main menu]
Toggle login mode
ESC: Previous menu  Enter: Select

Basic Settings

```

3. Press **y** to activate.

```

MOXA EtherDevice Switch EDS-408A-3M-SC-T
Basic Settings
[System] [Password] [Accessible IP] [Port] [Network] [Time] [DIP] [GARP Timer]
[Backup Media] [Restart] [Factory default] [Upgrade] [Login mode] [Activate]
[Main menu]
Toggle login mode
ESC: Previous menu   Enter: Select

Current login mode: Menu

Press Y to change to CLI mode? [y/N]

```

4. Now log in to access CLI display mode.

```

login as:

```

After changing to CLI mode, CLI mode will be the default setting for the next reboot.

## Basic Operation

The CLI is organized in different configuration levels. When you first enter CLI mode, type **?** to view a quick help panel that shows the basic commands of the first configuration level. Type any of the commands shown on the screen to access the next configuration level. The quick help panel, accessed from any level by typing **?**, is a useful tool for understanding the commands in any level.

```

EDS-408A series V3.0 build 11062110
-----
EDS-408A-3M-SC-T#
quit           - Exit command line interface
exit           - Exit command line interface
reload         - Halt and perform a cold restart
terminal       - Configure terminal page length
login          - Change login mode
copy           - Copy from one file to another
save           - Save running configuration to flash
ping           - Send echo messages
clear          - Clear information
show           - Show running system information
configure      - Enter configuration mode
EDS-408A-3M-SC-T#

```

To enter the next level, type the commands shown in the console.

```

EDS-408A-3M-SC-T# configure
EDS-408A-3M-SC-T(config)#

```

To leave access the next higher level, type **exit**.

```

EDS-408A-3M-SC-T(config)# exit
EDS-408A-3M-SC-T#

```

To jump directly back to the first level, type **Ctrl + z**.

```

EDS-408A-3M-SC-T(config-vlan)#
EDS-408A-3M-SC-T#

```



## Useful Interactive “Help” Features

The CLI includes several types of interactive commands. The **Help** commands are listed in the following table:

Command	Purpose
?	Provides a brief description of the Help feature in any command level.
Partial command?	Provides a list of commands that begin with the character string (no space between the command and the question mark).
Partial command<Tab>	Completes a partial command name (no space between the command and <Tab>).
Command ?	Lists the keywords, arguments, or both associated with the command (type a space between the command and the question mark).
Command keyword ?	Lists the arguments that are associated with the keyword (type a space between the keyword and the question mark).

## Understanding All Commands

To understand all the details of the commands supported in the CLI of Moxa switches, refer to the following table.

Mode	Access Method	Prompt	Exit Method	About This Mode
User EXEC	Begin a session with your switch and login with <b>user</b> .	Switch>	Enter exit or quit.	Use this mode to display system information.
Privileged EXEC	Begin a session with your switch and login with <b>admin</b> .	Switch#	Enter exit or quit.	Use this mode to verify commands that you have entered.
Global configuration	While in privileged EXEC mode, enter the configure command.	Switch(config)#	To exit to privileged EXEC mode, enter exit or press Ctrl-Z.	Use this mode to configure parameters that apply to the entire switch.
Redundancy configuration	From global configuration mode, enter the redundancy command.	Switch(config-rdnt)#	To exit to privileged EXEC mode, press Ctrl-Z. To exit to global configuration mode, enter the exit command.	Use this mode to configure Turbo Ring V1/V2, Turbo Chain, and Spanning Tree parameters.
Interface configuration	From global configuration mode, specify an interface by entering the interface command followed by an interface identification.	Switch(config-if)#	To exit to privileged EXEC mode, press Ctrl-Z. To exit to global configuration mode, enter the exit command.	
Router configuration	From global configuration mode, specify a protocol by entering the router command.	Switch(config-rip)# Switch(config-ospf)#	To exit to privileged EXEC mode, press Ctrl-Z. To exit to global configuration mode, enter the exit command.	

## access-ip

Use **access-ip** in the VLAN configuration command as to restrict access to the switch to specified IP addresses. Use the **no** form of this command to disable this feature or to remove the IP addresses from access list.

### Commands

**access-ip** [*ip-address netmask*]

**no access-ip** [*ip-address netmask*]

Syntax	<b>access-ip</b>	Enable the accessible IP list
Description	<i>ip-address</i>	IP address
	<i>netmask</i>	IP netmask
Defaults	The feature is disabled by default.	
Command Modes	VLAN configuration as management VLAN	
Usage Guidelines	This feature will take effect when the <b>access-ip</b> command is executed.	
Examples	<pre>PT-7828(config)# interface mgmt PT-7828(config-vlan)# access-ip 10.10.10.10 255.255.255.0   &lt;IPV4ADDR:ipaddr&gt;          - IP address   &lt;IPV4ADDR:netmask&gt;         - IP netmask PT-7828(config-vlan)# access-ip</pre>	
Error messages	IP or netmask invalid	
	Access IP list full	
Related commands	show interface mgmt access-ip	

## acl id

**NOTE** The command is supported only in Layer 3 switches

Use **acl id** interface configuration commands on the switch to attach ACL to the port. Use the **no** form of this command to return to the default setting.

### Commands

**acl id** { *in* | *out* }

**no acl id**

Syntax	<b>acl</b>	Configure access control list
Description	<i>id</i>	The access list ID
	<b>in</b>	Inbound traffic
	<b>out</b>	Outbound traffic
Defaults	N/A	
Command Modes	<b>Interface configuration</b>	

Usage Guidelines	N/A
Examples	PT-7828(config-if)# acl 10 in PT-7828(config-if)# no acl 10
Error messages	Invalid ID!
Related commands	

## acl id ip-base

**NOTE** The command is supported only in Layer 3 switches

Use the **acl id ip-base** global configuration commands on the switch to create an IP-base ACL and add rules. Use the **no** form of this command to remove the rule.

### Commands

**acl id ip-base { permit | deny } srcip [ dstip ] [ protocol ] [ port ]**

**acl id ip-base name name\_str**

**no acl id**

**no acl id rule ruleindex**

Syntax Description	<b>acl</b>	Configure access control list
	<i>Id</i>	Set ACL ID
	<b>ip-base</b>	IP-base ACL
	<b>permit</b>	Forward packets
	<b>deny</b>	Drop packets
	<i>srcip</i>	Set source IP address and subnet mask. Ex: 192.168.1.1/255.255.255.0 or 192.168.127.1
	<i>dstip</i>	Set destination IP address and subnet mask. Ex: 192.168.1.1/255.255.255.0 or 192.168.127.1
	<i>protocol</i>	Set protocol number, Ex: ICMP, TCP, UDP, etc.
	<i>port</i>	Set TCP/UDP port number
	<i>name_str</i>	ACL name
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	The ACL ID is 1 ~ 16.	
Examples	PT-7828(config)# acl 8 ip-base permit 172.3.1.1/255.255.255.0 201.16.9.7/255.255.0.0 6 23	
Error messages	Invalid ID!	
	This ID is used by MAC-base ACL!	
	Invalid IP address format!	
	Invalid subnet mask format!	
Related commands		

# acl id mac-base

**NOTE** The command is supported only in Layer 3 switches

Use the **acl id mac-base** global configuration commands on the switch to create an MAC-base ACL and add rules. Use the **no** form of this command to remove the rule.

## Commands

**acl id mac-base { permit | deny } srcmac [ dstmac ] [ ethertype ] [ vid ]**

**acl id mac-base name name\_str**

**no acl id**

**no acl id rule ruleindex**

Syntax	<b>Acl</b>	Configure access control list
Description	<i>Id</i>	Set ACL ID
	<b>mac-base</b>	MAC-base ACL
	<b>permit</b>	Forward packets
	<b>Deny</b>	Drop packets
	<i>srcmac</i>	Set source MAC address and MAC mask. Ex: 00:90:E8:1D:24:23/FF:FF:FF:FF:00:00 or 00:90:E8:1D:24:23
	<i>dstmac</i>	Set destination IP address and subnet mask. Ex: 192.168.1.1/255.255.255.0 or 192.168.127.1
	<i>ethertype</i>	Set ether type
	<i>Vid</i>	Set VLAN ID
	<i>name_str</i>	ACL name
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	The ACL ID is 1 ~ 100.	
Examples	PT-7828(config)# acl 10 mac-base deny 00:11:22:33:44:55/ff:ff:ff:ff:00:00:00 aa:bb:cc:dd:ee:ff/ff:ff:ff:ff:00:00:00:00 2048 10	
Error messages	Invalid ID!	
	This ID is used by IP-base ACL!	
	Invalid MAC address format!	
	Invalid MAC mask format!	
Related commands		

# area

Use the **area** command in Router configuration mode as OSPF to add an OSPF area and configure its type. Use the **no** form of this command to remove the area.

## Commands

**area area-id [ { stub | nssa } metric value ]**

**no area area-id**

Syntax	<b>area</b>	Configure OSPF Area
Description	<i>area-id</i>	OSPF Area id, format is ip address
	<b>stub</b>	Configure OSPF area type to stub
	<b>nssa</b>	Configure OSPF area type to NSSA
	<b>metric</b>	Configure OSPF area metric
	<i>value</i>	Metric value ( 1 to 65535)
Defaults	N/A	

Command Modes	Router configuration mode as OSPF
Usage Guidelines	Metric value: 1 to 65535
Examples	PT-7828(config-ospf)# area 2.2.2.2 PT-7828(config-ospf)# area 2.2.2.2 stub metric 4 PT-7828(config-ospf)# area 2.2.2.2 nssa metric 4
Error messages	Configuration Error!! Metric value error (1 to 65535)!!
Related commands	show ip ospf

## area range

To consolidate and summarize routes at an area boundary, use the **area range** command in router configuration mode. To disable this function, use the **no** form of this command.

### Commands

**area** *area-id* **range** *ip-address netmask*

**no area** *area-id range ip-address netmask*

Commands	<b>area</b>	Configure OSPF Area
	<i>area-id</i>	OSPF Area id, format is ip address
	<b>range</b>	Specify an address range for route aggregation
	<i>ip-address</i>	E.g., 11.22.33.44
	<i>netmask</i>	E.g., 255.255.255.0
Defaults	N/A	
Command Modes	Router configuration mode as OSPF	
Usage Guidelines	N/A	
Examples	PT-7828(config-ospf)# area 1.1.1.1 range 192.0.0.0 255.0.0.0	
Error messages	Configuration Error!!	
	IP Prefix format Error!!	
	Netmask format Error!!	
	IP format Error!!	
Related commands	show ip ospf	

## area virtual-link

Use the **area virtual-link** command in Router configuration mode as OSPF to add an OSPF virtual link. Use the **no** form of this command to remove the specified OSPF virtual link.

### Commands

**area** *area-id* **virtual-link** *router-id*

**no area** *area-id virtual-link router-id*

Syntax Description	<b>area</b>	Configure OSPF Area
	<i>area-id</i>	OSPF Area id
	<b>virtual-link</b>	Establish a virtual link
	<i>router-id</i>	Neighbor Router ID
Defaults	N/A	

Command Modes	Router configuration mode as OSPF
Usage Guidelines	N/A
Examples	PT-7828(config-ospf)# area 1.1.1.1 virtual-link 0.0.0.0
Error messages	Configuration Error!!
Related commands	show ip ospf

## auth tacacs+

Use the **auth tacacs+** global configuration command on the switch to enable TACACS+ authentication. Use the **no** form of this command to return to the default setting.

### Commands

**auth tacacs+**

**no auth tacacs+**

Syntax	<b>auth</b>	Configure authentication mechanism
Description	<b>tacacs+</b>	TACACS+ authentication
Defaults	The default setting is disabled.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# auth tacacs+	
Error messages	N/A	
Related commands	show auth tacacs+	

## auth tacacs+ auth-type

Use the **auth tacacs+ auth-type** global configuration command on the switch to specify the type of TACACS+ authentication. Use the **no** form of this command to return to the default setting.

### Commands

**auth tacacs+ auth-type { ascii | pap | chap | arap | mschap }**

**no auth tacacs+ auth-type**

Syntax Description	<b>auth</b>	Configure authentication mechanism
	<b>tacacs+</b>	TACACS+ authentication
	<b>auth-type</b>	Specify the authentication type
	<b>ascii</b>	Normal ASCII code authentication
	<b>pap</b>	Password Authentication Protocol
	<b>chap</b>	Challenge-handshake authentication protocol
	<b>arap</b>	AppleTalk Remote Access Protocol
	<b>mschap</b>	Microsoft Challenge-handshake authentication protocol
Defaults	Default type is ASCII code authentication	
Command Modes	Global configuration	
Usage Guidelines	To enable the TACACS+ authentication, the command "auth tacacs+" must be executed first.	

Examples	<pre>PT-7828(config)# auth tacacs+ auth-type   ascii          - Normal ASCII code authentication   pap            - Password Authentication Protocol   chap          - Challenge-handshake authentication protocol   arap          - AppleTalk Remote Access Protocol   mschap        - Microsoft Challenge-handshake authentication protocol</pre>
Error messages	N/A
Related commands	<pre>auth tacacs+ show auth tacacs+</pre>

## auth tacacs+ server

Use the **auth tacacs+ server** global configuration command on the switch to set the TACACS+ authentication server address and the shared key information. Use the **no** form of this command to remove the settings.

### Commands

**auth tacacs+ server** *server-address* **shared-key** *key* [**timeout** *seconds*]

**no auth tacacs+ server**

Syntax Description	<b>auth</b>	Configure authentication mechanism
	<b>tacacs+</b>	TACACS+ authentication
	<b>server</b>	TACACS+ authentication server
	<i>server-address</i>	Authentication server address
	<b>shared-key</b>	Configure the shared key
	<i>key</i>	Key string, max 15 characters
	<b>timeout</b>	Configure server timeout
	<i>seconds</i>	1 to 255 sec.
Defaults	Default timeout is 30 seconds Default tacacs+ server port is 49	
Command Modes	Global configuration	
Usage Guidelines	To enable the TACACS+ authentication, the command "auth tacacs+" must be executed first.	
Examples	<pre>PT-7828(config)# auth tacacs+ server   &lt;STRING:auth_server&gt; - Authentication server address PT-7828(config)# auth tacacs+ server tacacs.server.moxa.com   shared-key          - Configure the shared key PT-7828(config)# auth tacacs+ server tacacs.server.moxa.com shared-key   &lt;STRING:key&gt;        - Key string, max 15 characters PT-7828(config)# auth tacacs+ server tacacs.server.moxa.com shared-key 1234   &lt;LF&gt;   timeout            - Configure server timeout PT-7828(config)# auth tacacs+ server tacacs.server.moxa.com shared-key 1234   timeout   &lt;UINT:seconds&gt;     - 1 to 255 sec. PT-7828(config)# auth tacacs+ server tacacs.server.moxa.com shared-key 1234   timeout 200</pre>	
Error messages	Timeout value must be in the range from 1 to 255 seconds	
	Invalid IP protocol port	
Related commands	<pre>auth tacacs+ show auth tacacs+</pre>	

## auto-backup

Use **auto-backup** to enable Auto load system configurations when the system boots up. To disable it, use the **no** form of this command.

### Commands

**auto-backup**

**no auto-backup**

Syntax Description	<b>auto-backup</b>	Use auto backup configurator to restore configuration
Defaults	Auto-backup configuration is enabled by default.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	<pre>PT-7828# configure terminal PT-7828(config)# auto-backup PT-7828(config)# no au     auto-backup          - Deactive auto-backup configurator PT-7828(config)# no auto-backup</pre>	
Error messages	N/A	
Related commands	N/A	

## bind vlan

Use the **bind vlan** configuration command on the switch to bind the management address with a specified VLAN ID. Use the **no** form of this command to return to the default.

### Commands

**bind vlan** VLAN-ID

Syntax Description	<b>bind</b>	Bind VLAN as management VLAN
	<b>vlan</b>	VLAN parameters
	VLAN-ID	1 to 4094
Defaults	Default management VLAN ID is 1	
Command Modes	VLAN configuration mode as management VLAN	
Usage Guidelines	N/A	
Examples	<pre>PT-7828(config)# interface mgmt PT-7828(config-vlan)# bind vlan     &lt;UINT:vlanid&gt;      - 1 to 4094</pre>	
Error messages	L3 interface cannot be assigned as management interface	
	VLAN id is out of range!	
Related commands	show interfaces mgmt	



## clear counters

Use the **clear counters** user EXEC command on the switch to clear the switch's statistics counters.

### Commands

#### clear counters

Syntax	<b>clear</b>	Clear information
Description	<b>counters</b>	Clear statistic counters
Defaults	N/A	
Command Modes	Privileged	
Usage Guidelines	N/A	
Examples	PT-7828# clear counters - Clear statistic counters	
Error messages	N/A	
Related commands	show interfaces counters	

## clear logging event-log

Use the **clear logging event-log** user EXEC command on the switch to clear the system log of the switch.

### Commands

#### clear logging event-log

Syntax	<b>clear</b>	Clear information
Description	<b>logging</b>	System event logs
	<b>event-log</b>	System event logs
Defaults	N/A	
Command Modes	Privileged	
Usage Guidelines	N/A	
Examples	PT-7828# clear logging - System event logs PT-7828# clear logging event-log - System event logs	
Error messages	N/A	
Related commands	show logging	

## clock set

Use the **clock set** global configuration command on the switch to set the current switch time.

### Commands

#### clock set hh:mm:ss month day year

Syntax	<b>clock</b>	Configure time-of-day clock
Description	<b>set</b>	Adjust the clock
	hh:mm:ss	hh:mm:ss

	<i>month</i>	1 to 12
	<i>day</i>	1 to 31
	<i>year</i>	2000 to 2037
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# clock set 11:11:11 1 1 2010	
Error messages	Illegal parameters!	
Related commands	show clock	

## clock summer-time

Use the **clock summer-time** global configuration command on the switch to enable the daylight saving time offset and set the apply duration. Use the **no** form of this command to disable it.

### Commands

**clock summer-time start-date** *month week day hour*

**clock summer-time end-date** *month week day hour*

**clock summer-time offset** *offset-hour*

Syntax Description	<b>clock</b>	Configure time-of-day clock
	<b>summer-time</b>	Configure Summer time parameter
	<b>start-date</b>	The date when summer time offset start
	<b>end-date</b>	The date when summer time offset end
	<i>month</i>	From 'Jan', 'January' or '1' to 'Dec', 'December', or '12'
	<i>week</i>	From '1st' or '1' to 'Last' or '6'
	<i>day</i>	From 'Sun', 'Sunday' or '1' to 'Sat', 'Saturday' or '7'
	<i>hour</i>	0 to 23
	<b>offset</b>	Summer time offset
	<i>offset-hour</i>	1 to 12
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	When configuring the summer time offset, the start-date and end-date must be configured correctly first.	
Examples	PT-7828(config)# clock timezone gmst -4	
Error messages	Invalid parameter	
	Month must be configured as 'Jan', 'January' or a numerical '1'.	
	Week must be configured as '1st', '2nd', '3rd', '4th', '5th' or 'Last'	
	Day must be configured as 'Sun', 'Sunday' or a numerical '1'.	
	Hour must be in the range from 0 to 23.	
Related commands	show clock	

# clock timezone

Use the **clock timezone** global configuration command on the switch to set the current time zone.

## Commands

**clock timezone** *gmt* *offset-hour*

Syntax	<b>clock</b>	Configure time-of-day clock
Description	<b>timezone</b>	Time zone hour shifting
	<b>gmt</b>	Greenwich Mean Time
	<i>offset-hour</i>	-12 to 12
	<i>Half an hour</i>	Only type 30
	Defaults	N/A
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	EDS-G516E(config)# clock timezone gmt 5 30	
Error messages	This timezone doesn't support half an hour	
Related commands	show clock	

# copy

Use the **copy** privileged command on the switch to copy an image or configuration file from a remote server to the Flash memory or copy the running configuration, startup configuration, or event log to a remote server via TFTP.

## Commands

**copy tftp device-firmware**

**copy tftp running-config**

**copy {running-config|event-log|startup-config} tftp [tftp-address]**

Syntax Description	<b>copy</b>	Copy from one file to another
	<b>tftp</b>	Remote server through TFTP
	<b>device-firmware</b>	System firmware
	<b>running-config</b>	Current running configuration of system
	<b>startup-config</b>	System startup configuration
	<b>event-log</b>	Event log file
	<i>tftp-address</i>	TFTP address. E.g., tftp://192.168.127.1/abc.txt
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	<pre>PT-7828# copy tftp   device-firmware      - System firmware   running-config       - Current running configuration of system PT-7828# copy tftp running-config Address or name of remote host [192.168.127.1]? 192.168.127.95 Source file name ? cli.ini Save import config to flash ? [Y/n] Saving configuration ...Success</pre>	

Error messages	Input error
	Invalid TFTP Server IP/Name !!!
	TFTP Configuration File Download Failed
	Invalid Config Files Path and Name !!!
	Invalid Firmware Files Path and Name !!!
	TFTP Firmware Download Failed !!!
	TFTP Configuration File Upload Failed !!!
Related commands	TFTP Log File Upload Failed !!!
	N/A

## dot1x auth

Use the **dot1x auth** global configuration command to set dot1x authentication type and relative configurations.

### Commands

**dot1x auth local**

**dot1x auth radius server** *server* **port** *port* **shared-key** *string*

**dot1x auth radius-local server** *server* **port** *port* **shared-key** *string*

Syntax Description	<b>dot1x</b>	802.1x setting
	<b>auth</b>	802.1x auth type
	<b>local</b>	802.1x authentication uses local database
	<b>radius</b>	802.1x authentication uses radius server
	<b>radius-local</b>	802.1x authentication uses both local and radius server
	<b>server</b>	802.1x radius server name/ip
	<i>server</i>	802.1x radius server name/ip string
	<b>port</b>	802.1x radius server port
	<i>port</i>	802.1x radius server port (default 1812)
	<b>shared-key</b>	802.1x Shared Key
	<i>string</i>	Shared Key string
Defaults	802.1x local authentication	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	<pre>PT-7828(config)# dot1x auth local PT-7828(config)# dot1x auth radius server moxanet port 1812 shared-key moxa PT-7828(config)# dot1x auth radius-local server moxanet port 1812 shared-key moxa</pre>	
Error messages	Local Database is Full !!!	
	Invalid User Name !!!	
	Invalid User Password !!!	
	Invalid User Description !!!	
Related commands	show dot1x	

## dot1x auth

Use the **dot1x auth** interface configuration command on the switch to enable port 802.1x authentication. Use the **no** form of this command to return to the default setting.

### Commands

**dot1x auth**  
**no dot1x auth**

Syntax	<b>dot1x</b>	802.1x setting
Description	<b>auth</b>	802.1x port authentication enable/disable
Defaults	802.1x port authentication default disable	
Command Modes	interface configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# interface ethernet 1/1 PT-7828(config-if)# dot1x auth PT-7828(config-if)# no dot1x auth	
Error messages	N/A	

## dot1x local-userdb

To add 802.1x local user database, use the **dot1x local-userdb** global configuration command. To remove the user database, use the **no** form of this command.

### Commands

**dot1x local-userdb username user password password [desc description ]**  
**no dot1x local-userdb username user**

Syntax	<b>dot1x</b>	802.1x setting
Description	<b>local-userdb</b>	Local user settings
	<b>username</b>	Local user
	<i>user</i>	Local user name (max. 30 characters)
	<b>password</b>	Local user password
	<i>password</i>	Local user password (max. 16 characters)
	<b>desc</b>	User description
	<i>description</i>	Description string
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# dot1x local-userdb username moxa password moxanet PT-7828(config)# no dot1x local-userdb username moxa	
Error messages	Local Database is Full !!!	
	Invalid User Name !!!	
	Invalid User Password !!!	
	Invalid User Description !!!	
Related commands	show dot1x local-userdb	

## dot1x reauth

Use the **dot1x reauth** global configuration command on the switch to globally enable periodic re-authentication of the client. Use the **no** form of this command to return to the default setting.

### Commands

**dot1x reauth** [period period]

**no dot1x reauth** [period period]

Syntax	<b>dot1x</b>	802.1x setting
Description	<b>reauth</b>	802.1x reauth enable
	<b>period</b>	802.1x reauth period
	period	60 to 65535 seconds
Defaults	802.1x reauth default enable and period 3600 seconds	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# dot1x reauth period 3600 PT-7828(config)# no dot1x reauth	
Error messages	Invalid Re-Auth Period!!! Must not be smaller than 65535 or greater than 60	
Related commands	show dot1x	

## dot1x reauth

Use the **dot1x reauth** interface configuration command on the switch to trigger port 802.1x re-authenticate immediately.

### Commands

**dot1x reauth**

Syntax	<b>dot1x</b>	802.1x setting
Description	<b>reauth</b>	802.1x port re-authenticate immediately
Defaults	N/A	
Command Modes	interface configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# interface ethernet 1/1 PT-7828(config-if)# dot1x reauth	
Error messages	N/A	
Related commands	N/A	

## dip-switch

Use the **dip-switch** command to disable/enable HW dip-switch function.

### Commands

**dip-switch**

Syntax Description	<b>disable</b>	Disable HW dip-switch function.
	<b>enable</b>	Enable HW dip-switch function.
	<b>mode turbo-ring-v1</b>	set dip-switch function as turbo-ring-v1.

	<b>mode turbo-ring-v2</b>	set dip-switch function as turbo-ring-v2.
Defaults	1.Enable dip-switch. 2.set to turbo-ring-v2.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# dip-switch disable PT-7828(config-if)# dip-switch mode turbo-ring-v1	
Error messages	N/A	
Related commands	N/A	

## eip

Use the **eip** command to disable/enable Ethernet/IP support.

### Commands

**eip**

**no eip**

Syntax Description	<b>eip</b>	Enable Ethernet/IP
Defaults	Default is disable	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# eip	
Error messages	N/A	
Related commands	show eip	

## email-warning account

Use **email-warning account** to configure the account and the password to log in to the remote Mail Server. To clear the setting, use the **no** form of this command.

### Commands

**email-warning account** *name password*

**no email-warning account**

Syntax Description	<b>email-warning</b>	Email warning setting
	<b>account</b>	Email account on server
	<i>name</i>	User name
	<i>password</i>	User password
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# email-warning account test1 1234 PT-7828(config)# email-warning account test1	
Error messages	Length of SMTP User name is too long !!!	
	Invalid User name	

	Length of password is too long!!!
Related commands	show email-warning

## email-warning event

Use the **email-warning event** global configuration command to enable the system warning events to send through the email if the event occurs. Use the **no** form of this command to disable the specified warning event notifications.

### Commands

**email-warning event { all | cold-start | warm-start | power-trans-off | power-trans-on | config-change | auth-fail | topology-change }**

**no email-warning event { cold-start | warm-start | power-trans-off | power-trans-on | config-change | auth-fail | topology-change }**

Syntax	<b>Email-warning</b>	Email warning setting
Description	<b>event</b>	System events
	<b>all</b>	Enable all events
	<b>cold-start</b>	Switch cold start
	<b>warn-start</b>	Switch warm start
	<b>power-trans-off</b>	Power transition (on->off)
	<b>power-trans-on</b>	Power transition (off->on)
	<b>config-change</b>	Configuration changed
	<b>auth-fail</b>	Authentication failed
	<b>topology-change</b>	Topology changed (from redundant protocols)
Defaults	All system events are disabled by default.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	<pre>PT-7828(config)# email-warning event all                - Enable all events cold-start         - Switch cold start warm-start         - Switch warm start power-trans-off    - Power transition (on-&gt;off) power-trans-on     - Power transition (off-&gt;on) config-change      - Configuration changed auth-fail          - Authentication failed topology-change    - Communication redundancy topology changed  PT-7828(config)# email-warning event cold-start PT-7828(config)# email-warning event topology-change PT-7828(config)# email-warning event auth-fail PT-7828(config)# exit  PT-7828# show email-warning config Mail Server and Email Setup SMTP Server IP/Name : msl.hinet.net SMTP Port           : 25 Account Name        : test1 Account Password    : 1234  1st email address: test2@moxa.com 2nd email address : 3rd email address: test3@hinet.net</pre>	



	<pre> 4th email address : System Events Cold Start      : Enable Warm Start      : Disable Conf. Changed   : Disable Power On-&gt;Off   : Disable Power Off-&gt;On   : Disable Auth. Failure   : Enable Topology Changed : Enable --More-- </pre>
Error messages	N/A
Related commands	show email-warning

## email-warning event

Use the **email-warning event** interface configuration command to allow interface warning events to be sent through the email if the event occurs. Use the **no** form of this command to disable the specified warning event notifications.

### Commands

**email-warning event { link-on | link-off }**

**no mail-warning event { link-on | link-off }**

**email-warning event traffic-overload [rxThreshold duration]**

**no email-warning event traffic-overload**

Syntax	<b>email-warning</b>	Configure email warning
Description	<b>event</b>	Port events
	<b>link-on</b>	Link ON
	<b>link-off</b>	Link OFF
	<b>traffic-overload</b>	Traffic overloading
	<i>rxThreshold</i>	0 to 100
	<i>duration</i>	1 to 300
Defaults	All port events are disabled by default.	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	<pre> PT-7828# configure terminal PT-7828(config)# interface ethernet 3/1 PT-7828(config-if)# email-warning     event          - Port events PT-7828(config-if)# email-warning event     link-on        - Link ON     link-off       - Link OFF     traffic-overload - Traffic overloading PT-7828(config-if)# email-warning event link-on PT-7828(config-if)# email-warning event traffic-overload 80 20 PT-7828(config-if)# PT-7828# show email-warning config Mail Server and Email Setup SMTP Server IP/Name : msl.hinet.net SMTP Port           : 25 </pre>	

	Account Name : test1 Account Password : 1234  1st email address: test2@moxa.com 2nd email address : 3rd email address: test3@hinet.net 4th email address : System Events Cold Start : Enable Warm Start : Disable Conf. Changed : Disable Power On->Off : Disable Power Off->On : Disable Auth. Failure : Enable Topology Changed : Enable
Error messages	Threshold should be between 0 and 100 Duration should be between 1 and 300
Related commands	show email-warning

## email-warning mail-address

Use **email-warning mail-address** to configure the email address(es) to which warning messages will be sent. To clear the setting, use **no** form of this command.

### Commands

**email-warning mail-address** *mailIndex mailAddress*

**no email-warning mail-address** *mailIndex*

Syntax	<b>email-warning</b>	Email warning setting
Description	<b>mail-address</b>	Target email address
	<i>mailIndex</i>	1 to 4
	<i>mailAddress</i>	Email address
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# email-warning mail-address <UINT:mailIdx> - 1 to 4 PT-7828(config)# email-warning mail-address 1 test2@moxa.com PT-7828(config)# email-warning mail-address 3 test3@hinet.net	
Error messages	Index should be between 1 and 4	
	Length of email address is too long !!!	
	Invalid Email address format	
Related commands	show email-warning	

# email-warning send test email

Use **email-warning send test email** to send a test email.

## Commands

**switch(config)# email-warning send test email**

Syntax Description	<b>email-warning</b>	Email warning setting
	<b>send</b>	Send test email
	<b>test</b>	Test email
	<b>email</b>	Test email address
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	The test email will be sent to the mail address that " <b>email-warning mail-address</b> " command configured.	
Examples	<pre>PT-7828(config)# email-warning server 192.168.127.95 &lt;LF&gt; &lt;UINT:smtpPort&gt;      - SMTP Port PT-7828(config)# email-warning server 192.168.127.95 25 PT-7828(config)# email-warning account admin 1234 PT-7828(config)# email-warning mail-address 1 &lt;STRING:mailAddress&gt; - Email address PT-7828(config)# email-warning mail-address 1 alanc.wu@moxa.com PT-7828(config)# email-warning send test email Sending test email ... You may check if your dedicated email addresses have received this email! PT-7828(config)#</pre>	
Error messages	Warning !!! You must first do Email Setup before sending the test email.	
	Warning !!! You must first configure DNS Server IP Address before sending the test email.	
	Sending test email failed !!!	
Related commands	email-warning server email-warning account email-warning mail-address	

# email-warning server

Use **email-warning server** to configure Mail Server IP/Name (IP address or name) for the switch. To clear the setting, use the **no** form of this command.

## Commands

**email-warning server smtpServerIp [smtpPort]**

**no email-warning server**

Syntax Description	<b>email-warning</b>	Email warning setting
	<b>server</b>	Email Server
	<i>smtpServerIp</i>	Email Server name/address
	<i>smtpPort</i>	SMTP Port, 1 to 65535
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	

Examples	PT-7828(config)# email-warning server mail.hinet.net 25 PT-7828(config)# email-warning server msl.hinet.net
Error messages	Length of server address is too long !!! Invalid SMTP server name/address Invalid Mail Server Port, Range(1 to 65535) !!!
Related commands	show email-warning

## exit

Use **exit** to exit the current configuration mode.

### Commands

#### exit

Syntax	<b>exit</b>	Exit from configure mode
Description		Exit from port setting mode
		Exit command line interface
		Exit from management interface setting
Defaults	N/A	
Command Modes	N/A	
Usage Guidelines	N/A	
Examples	PT-7828(config)# exit PT-7828 #	
Error messages	N/A	
Related commands	quit	

## flowcontrol

To set the method of data flow control between the terminal or other device, use the **flowcontrol** interface configuration command. Use the **no** form of this command to disable flow control

### Commands

#### flowcontrol

#### no flowcontrol

Syntax	<b>flowcontrol</b>	Configure flowcontrol
Description		
Defaults	The default is disable	
Command Modes	Interface configuration	
Usage Guidelines		
Examples	PT-7828(config)# interface ethernet 1/1 PT-7828(config-if)# flowcontrol  PT-7828(config-if)# no flowcontrol	
Error messages	Fiber port can not be set flow control!!	
	Force speed can not be set flow control!!	

	Cannot configure on trunk member port 1/1!
	This setting cannot be applied on trunk port!
Related commands	show interfaces ethernet

## gmrp

Use the **gmrp** interface configuration command on the switch to active the IEEE 802.1D-1998 GMRP (GARP Multicast Registration Protocol). Use the **no** form of this command to stop this function.

### Commands

**gmrp**

**no gmrp**

Syntax Description	<b>gmrp</b>	Enable GMRP (GARP Multicast Registration Protocol)
Defaults	gmrp is default disable	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# interface ethernet 1/1 PT-7828(config-if)# gmrp  PT-7828(config-if)# no gmrp	
Error messages	GMRP cannot be enabled on static multicast member port!!!	
Related commands		

## gvrp

Use the **gvrp** global configuration command on the switch to enable GVRP. Use the **no** form of this command to disable it.

### Commands

**gvrp**

**no gvrp**

Syntax Description	<b>gvrp</b>	Enable/Disable GVRP
Defaults	The feature is enabled by default.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# gvrp gvrp - Enable GVRP	
Error messages	N/A	
Related commands	show gvrp	

# hostname

To specify or modify the host name for the network server, use the **hostname** global configuration command. To return to the default, use the no form of this command.

## Commands

**hostname** *name*

**no hostname**

Syntax	<b>hostname</b>	Set system's network name (maximum 30 characters)
Description	<i>name</i>	Switch name string
Defaults	Name is the default switch name with the serial number	
Command Modes	Global configuration	
Usage Guidelines	Maximum string tokens are 5. Maximum switch name length is 30 characters.	
Examples	<pre>PT-7828(config)# hostname MOXA Ethernet Switch PT 7828 PT-7828(config)# exit PT-7828# show system System Information   System Name           : MOXA Ethernet Switch PT 7828   System Location       : Switch Location   System Description    : MOXA PT-7828   Maintainer Information :   MAC Address           : 00:90:E8:1D:24:36   System Uptime         : 0d0h36m57s</pre>	
Error messages	Length of switch hostname is too long	
Related commands	show system	

# interface mgmt

Use the **interface mgmt** global configuration command on the switch to enter the VLAN configuration mode of Mgmt-VLAN.

## Commands

**interface mgmt**

Syntax	<b>interface</b>	Select an interface to configure
Description	<b>mgmt</b>	Configure management VLAN
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	<pre>PT-7828(config)# interface   mgmt           - Configure management VLAN PT-7828(config)# interface mgmt PT-7828(config-vlan)#</pre>	
Error messages	N/A	
Related commands	show interfaces mgmt	

# interface vlan

Use the **interface vlan** global configuration command on the switch to create or access a dynamic switch virtual interface (SVI) and to enter interface configuration mode. Use the no form of this command to delete an SVI.

## Commands

**interface vlan** *vlan-id*

**no interface vlan** *vlan-id*

Syntax	<b>interface</b>	Select an interface to configure
Description	<b>vlan</b>	Configure L3 interface
	<i>vlan-id</i>	Configure L3 interface vlan id
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	Management vlan id cannot be same as interface vlan id.	
Examples	<pre>PT-7828(config)# interface vlan 2 &lt;UINT:vlanid&gt;      - Configure L3 interface vlan id</pre>	
Error messages	interface vlan 2 is not exist	
	mgmt vlan id cannot be same as interface vlan id!!	
	vlan interface full	
Related commands	show interfaces vlan	

# ip address

Use the **ip address** VLAN configuration command on the switch to configure the address of a Layer 3 interface.

## Commands

**ip address** *ip-address netmask*

Syntax	<b>ip</b>	Configure L3 interface ip
Description	<b>address</b>	Interface ip setting
	<i>ip-address</i>	IP address
	<i>netmask</i>	IP netmask
Defaults	N/A	
Command Modes	VLAN configuration	
Usage Guidelines	N/A	
Examples	<pre>PT-7828(config-vlan)# ip address 10.10.10.10 255.255.255.0 ip                    - Configure L3 interface ip</pre>	
Error messages	IP or netmask invalid	
	vlan 4097 is invalid!! should be range from 1 to 4094	
	vlan interface full	
	Interface VLAN is not allowed to modify!!	
Related commands	show interfaces vlan	

## ip address

Use the **ip address** VLAN configuration command on the switch to configure the IP retrieve mechanism of the switch. Use **no** form of this command to return to the default.

### Commands

**ip address** {**static** *ip-address netmask* | **dhcp** | **bootp** }

**no ip address**

Syntax Description	<b>ip</b>	Configure IP paramters
	<b>address</b>	Congiore IP address
	<b>static</b>	E.g., 11.22.33.44
	<i>ip-address</i>	IP address
	<i>netmask</i>	Subnet mask
	<b>dhcp</b>	Use DHCP to retrieve IP setting automatically
	<b>bootp</b>	Use BOOTP to retrieve IP setting automatically
Defaults	N/A	
Command Modes	VLAN configuration as management VLAN	
Usage Guidelines	N/A	
Examples	<pre>PT-7828(config-vlan)# ip address static           - Configure static IP dhcp             - Use DHCP to retrieve IP setting automatically bootp           - Use BOOTP to retrieve IP setting automatically</pre>	
Error messages	N/A	
Related commands	show interfaces mgmt	

## ip auto-assign

Use the **ip auto-assign** interface configuration command on the switch to enable and set the auto IP assignment of specified interfaces. Use the **no** form of this command to remove an Ethernet port from a trunk group.

### Commands

**ip auto-assign** *ipaddr*

**no ip auto-assign**

Syntax Description	<b>ip</b>	Configure IP paramters
	<b>auto-assign</b>	Automatic port IP assignment through DHCP/BootP/RARP
	<i>ipaddr</i>	E.g., 11.22.33.44
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	This specified IP address must be in the same subnet of the system IP address	
Examples (static IP)	<pre>PT-7828(config-if)# ip auto-assign &lt;IPV4ADDR:ipaddr&gt; - E.g., 11.22.33.44</pre>	
Error messages	Cannot configure on trunk member port	
	This IP address must be in the same subnet of the system IP address	
Related commands	show ip auto-assign	



## ip default-gateway

Use the **ip default-gateway** VLAN configuration command on the switch to configure the IP default gateway address. Use the **no** form of this command to return to the default.

### Commands

**ip default-gateway** *ip-address*

**no default-gateway**

Syntax	<b>ip</b>	Configure IP parameters
Description	<b>default-gateway</b>	Configure default gateway address
	<i>ip-address</i>	IP address
Defaults	N/A	
Command Modes	VLAN configuration as management VLAN	
Usage Guidelines	N/A	
Examples	PT-7828(config-vlan)# ip default-gateway 192.168.1.1	
Error messages	Warning! IP and gateway are not in the same subnet	
Related commands	show interfaces mgmt	

## ip dhcp retry

Use **ip dhcp retry** to enable the DHCP request retry for a specified period and times. Use the **no** form of this command to return to the default.

### Commands

**ip dhcp retry** *times* **period** *seconds*

**no ip dhcp retry**

Syntax Description	<b>ip</b>	Global IP configuration subcommands
	<b>dhcp</b>	DHCP related configuration
	<b>retry</b>	Configure DHCP client request retry parameter
	<i>times</i>	0 - 65535 times, 0 means retry forever
	<b>Period</b>	Retry period
	<i>seconds</i>	1 - 30 seconds
Defaults	Default retry times = 0, retry period=1	
Command Modes	VLAN configuration as management VLAN	
Usage Guidelines	N/A	
Examples	<pre>PT-508(config-vlan)# ip dhcp retry 500 period 30 PT-508# show interfaces mgmt  IPv4   Management VLAN id   : 1   IP configuration     : DHCP   IP address           : 192.168.127.253   Subnet mask          : 255.255.255.0   Default gateway      : 0.0.0.0   DNS server           :   Dhcp Retry Periods   : 30 seconds   Dhcp Retry Times     : 500</pre>	

Error messages	Illegal parameter!
Related commands	show interface mgmt

## ip dhcp-relay server

Use **ip dhcp-relay server** to configure the DHCP server address that the switch will forward DHCP messages to. To remove the DHCP server address, use the **no** form of this command.

### Commands

**ip dhcp-relay server** *serverIndex* *serverAddr*

**no ip dhcp-relay server** *serverIndex*

Syntax	<b>ip</b>	Global IP configuration subcommands
Description	<b>dhcp-relay</b>	Configure DHCP relay agent parameter
	<b>server</b>	DHCP server IP address
	<i>serverIndex</i>	DHCP server address index, 1 to 4
	<i>serverAddr</i>	DHCP server IP address
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	<pre>PT-7828(config)# ip dhcp-relay server 1 192.168.127.100 PT-7828(config)# ip dhcp-relay server 3 192.168.127.200</pre>	
Error messages	Invalid server index	
	Invalid IPv4 address	
Related commands	show ip dhcp-relay	

## ip dhcp-relay option82

Use the **ip dhcp-relay option82** global and interface configuration command to enable DHCP Relay with Option 82 messages. To disable it, use the **no** form of this command.

### Commands

**ip dhcp-relay option82**

**no ip dhcp-relay option82**

Syntax	<b>Ip</b>	Configure IP parameters
Description	<b>dhcp-relay</b>	Configure DHCP relay agent parameter
	<b>option82</b>	Option 82
Defaults	Default is disabled.	
Command Modes	Global configuration / Interface configuration	
Usage Guidelines	N/A	
Examples	<pre>PT-7828(config)# ip dhcp-relay option82 ? &lt;LF&gt; remote-id-type      - Remote Id type man-id              - Manual remote ID PT-7828(config)# ip dhcp-relay option82</pre>	

Error messages	N/A
Related commands	N/A

## ip dhcp-relay option82 remote-id-type

Use the **ip dhcp-relay option82 remote-id-type** global configuration command to select the remote ID information of DHCP option82 messages. Use **ip dhcp-relay option82 man-id** to manually set the remote id instead of the predefined ones.

### Commands

**ip dhcp-relay option82 remote-id-type** *remoteIdType*

**ip dhcp-relay option82 man-id** *manualId*

Syntax	<b>ip</b>	Global IP configuration subcommands
Description	<b>dhcp-relay</b>	Configure DHCP relay agent parameter
	<b>option82</b>	Option 82
	<b>remote-id-type</b>	Remote Id type
	<i>remoteIdType</i>	ip   mac   client-id   other
	<b>man-id</b>	Manual remote ID
	<i>manualId</i>	Manual remote ID, maximum 15 characters
Defaults	DHCP-relay option82 is disable in factory default. Default remote-id-type is IP.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	<pre>PT-7828(config)# ip dhcp-relay option82 remote-id-type &lt;STRING:remoteIdType&gt; - ip   mac   client-id   other PT-7828(config)# ip dhcp-relay option82 remote-id-type mac  PT-7828(config)# ip dhcp-relay option82 remote-id-type other PT-7828(config)# ip dhcp-relay option82 man-id abcdef</pre>	
Error messages	Invalid remote ID type	
	Manual Id is over 15 characters	
Related commands	N/A	

## ip http-server

Use **ip http-server** global configuration commands on the switch to enable HTTP/HTTPS service. Use the **no** form of this command to disable HTTP/HTTPS service.

### Commands

**ip http-server**

**ip http-server secure**

**no ip http-sever**

Syntax	<b>ip</b>	Global IP configuration subcommands
Description	<b>http-server</b>	Enable HTTP/HTTPS web service
	<b>secure</b>	HTTPS support only
Defaults	HTTP service is enabled.	

Command Modes	Global configuration
Usage Guidelines	N/A
Examples	<pre>PT-7828(config)# ip http-server auto-logout          - Web auto-logout timer &lt;LF&gt; secure              - HTTPS support only PT-7828(config)# ip http-server secure PT-7828(config)# ip http-server PT-7828(config)# no ip http-server</pre>
Error messages	N/A
Related commands	show ip http-server

## ip http-server auto-logout

Use **ip http-server auto-logout** global configuration commands on the switch to enable the auto-logout for the HTTP/HTTPS connections with specified seconds. Use the **no** form of this command to disable it.

### Commands

**ip http-server auto-logout** *seconds*

Syntax Description	<b>ip</b>	Global IP configuration subcommands
	<b>http-server</b>	Enable HTTP/HTTPS web service
	<b>auto-logout</b>	Web auto-logout timer
	<i>seconds</i>	0 for disable, or 60 to 86400 seconds
Defaults	Auto-logout is disabled by default.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# ip http-server auto-logout 120	
Error messages	Switch Web auto-logout interval should be 0(disable) or 60 to 86400s !!!	
Related commands	show ip http-server	

## ip igmp static-group

Use the **ip igmp static-group** global configuration command on the switch to add a static multicast MAC address and its member ports. Use the **no** form of this command to remove the static multicast group or just its member ports.

### Commands

**ip igmp static-group** *MAC-address* **interface** *module/port*

**no ip igmp static-group** [*MAC-address*] [**interface** *module/port*]

Syntax Description	<b>Ip</b>	Global IP configuration subcommands
	<b>Igmp</b>	IGMP
	<b>static-group</b>	Add New Static Multicast MAC Address
	<i>Mac-address</i>	MAC address XX:XX:XX:XX:XX:XX
	<b>Interface</b>	Binding ports

	<i>Module/port</i>	Port(Trunk) ID or list. E.g., 1/1,2,4-5,2/1,Trk1,Trk2-Trk
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# ip igmp static-group 01:00:00:00:00:01 interface 1/2-3 PT-7828(config)# no ip igmp static-group	
Error messages	Add new static multicast MAC address Fail !!!	
	Please check the multicast mac address's type !!!	
	Add new static multicast MAC address Fail !!!	
	Not enough space to add a new static multicast MAC address !!!	
Related commands	The member port should not be GMRP-enabled port !!!	
	show mac-address-table mcast	

## ip igmp-snooping

Use the **ip igmp-snooping** global configuration command on the switch to globally enable Internet Group Management Protocol (IGMP) snooping on the switch. Use the command with keywords to enable IGMP snooping. Use the **no** form of this command to disable IGMP snooping.

### Commands

**ip igmp-snooping**

**no ip igmp-snooping**

Syntax	<b>ip</b>	Global IP configuration subcommands
Description	<b>igmp-snooping</b>	IGMP snooping
Defaults	IGMP snooping is globally disable	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# ip igmp-snooping PT-7828(config)# no ip igmp-snooping	
Error messages	IGMP Function is only supported by 802.1Q VLAN mode!	
Related commands	ip igmp-snooping vlan ip igmp-snooping querier ip igmp-snooping query-interval ip igmp-snooping enhanced show ip igmp	

## ip igmp-snooping enhanced

Use the **ip igmp-snooping enhanced** global configuration command on the switch to enable the enhanced mode. Use the **no** form of this command to disable the enhanced mode.

### Commands

**ip igmp-snooping enhanced**

**no ip igmp-snooping enhanced**

Syntax	<b>ip</b>	Global IP configuration subcommands
Description	<b>igmp-snooping</b>	IGMP snooping
	<b>enhanced</b>	IGMP snooping enhanced mode

Defaults	Enhanced mode is globally disabled on the switch
Command Modes	Global configuration
Usage Guidelines	The IGMP snooping function must be enabled first.
Examples	PT-7828(config)# ip igmp-snooping enhanced PT-7828(config)# no ip igmp-snooping enhanced
Error messages	IGMP Function is Disabled !!! IGMP Function is only supported by 802.1Q VLAN mode!
Related commands	ip igmp-snooping ip igmp-snooping vlan ip igmp-snooping querier ip igmp-snooping query-interval show ip igmp

## ip igmp-snooping querier vlan

Use the **ip igmp-snooping querier** global configuration command to enable and configure the IGMP querier feature on a VLAN interface. Use the **no** form of this command to disable the IGMP querier feature.

### Commands

**ip igmp-snooping querier vlan** *vlan-id*

**no ip igmp-snooping querier vlan** *vlan-id*

Syntax	<b>ip</b>	Global IP configuration subcommands
Description	<b>igmp-snooping</b>	IGMP snooping
	<b>querier</b>	IGMP snooping query enable
	<b>vlan</b>	VLAN parameters
	<i>vlan-id</i>	1 to 4094
Defaults	The IGMP snooping querier feature is globally disabled on the switch	
Command Modes	Global configuration	
Usage Guidelines	The IGMP snooping function must be enabled first.	
Examples	PT-7828(config)# ip igmp-snooping querier vlan 1 PT-7828(config)# no ip igmp-snooping querier vlan 1	
Error messages	Vlan entry not found!!!	
	Vlan IGMP Function is Disabled !!!	
	IGMP Function is Disabled !!!	
	IGMP Function is only supported by 802.1Q VLAN mode!	
Related commands	ip igmp-snooping ip igmp-snooping vlan ip igmp-snooping query-interval ip igmp-snooping enhanced show ip igmp	

## ip igmp-snooping querier vlan vlan-id v3

**NOTE** The command is supported only in Layer 3 switches

Use the **ip igmp-snooping querier** global configuration command to enable and configure the IGMP querier feature on a VLAN interface. Use **ip igmp-snooping querier vlan vlan-id v3** can make the switch to send IGMP V3 query, otherwise the default is V2 query.

Syntax	<b>ip</b>	Global IP configuration subcommands
Description	<b>igmp-snooping</b>	IGMP snooping
	<b>querier</b>	IGMP snooping query enable
	<b>vlan</b>	VLAN parameters
	<i>vlan-id</i>	1 ~ 4094
	<b>v3</b>	IGMPv3 mode
Defaults	The IGMP snooping querier feature is globally disabled on the switch	
Command Modes	Global configuration	
Usage Guidelines	The IGMP snooping function must be enabled first.	
Examples	PT-7828(config)# ip igmp-snooping querier vlan 1 v3	
Error messages	Vlan entry not found!!!	
	Vlan IGMP Function is Disabled !!!	
	IGMP Function is Disabled !!!	
	IGMP Function is only supported by 802.1Q VLAN mode!	
Related commands	ip igmp-snooping ip igmp-snooping vlan ip igmp-snooping query-interval	

## ip igmp-snooping query-interval

Use the **ip igmp-snooping query-interval** global configuration command on the switch to configure the interval between IGMP queries. Use the **no** form of this command to return to the default.

### Commands

**ip igmp-snooping query-interval** *interval*

Syntax	<b>ip</b>	Global IP configuration subcommands
Description	<b>igmp-snooping</b>	IGMP snooping
	<b>query-interval</b>	IGMP snooping query interval
	<i>interval</i>	20 to 600 seconds
Defaults	Query interval default value is 125 seconds	
Command Modes	Global configuration	
Usage Guidelines	The IGMP snooping function must be enabled first.	
Examples	PT-7828(config)# ip igmp-snooping query-interval 125	
Error messages	The range of Querier interval value should be between 20 and 600 !!!	
	IGMP Function is Disabled !!!	
	IGMP Function is only supported by 802.1Q VLAN mode!	
Related commands	ip igmp-snooping ip igmp-snooping vlan ip igmp-snooping querier ip igmp-snooping enhanced show ip igmp	

## ip igmp-snooping vlan

Use the **ip igmp-snooping vlan** global configuration command on the switch to globally enable Internet Group Management Protocol (IGMP) snooping on a VLAN. Use the **no** form of this command to disable IGMP snooping on a vlan.

### Commands

**ip igmp-snooping vlan** *vlan-id* [**mrouter** *module/port*]

**no ip igmp-snooping vlan** *vlan-id* [**mrouter** *module/port*]

Syntax	<b>ip</b>	Global IP configuration subcommands
Description	<b>igmp-snooping</b>	IGMP snooping
	<b>vlan</b>	VLAN parameters
	<i>vlan-id</i>	1 to 4094
	<b>mrouter</b>	IGMP snooping query port enable
	<i>Module/port</i>	Port(Trunk) ID or list. E.g., 1/1,2,4-5,2/1,Trk1,Trk2-Trk4
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	The IGMP snooping must be enabled first.	
Examples	PT-7828(config)# ip igmp-snooping vlan 1 mrouter 1/1 PT-7828(config)# no ip igmp-snooping vlan 1 mrouter 1/1	
Error messages	Vlan entry not found!!!	
	IGMP Function is Disabled !!!	
	IGMP Function is only supported by 802.1Q VLAN mode!	
Related commands	ip igmp-snooping ip igmp-snooping querier ip igmp-snooping query-interval ip igmp-snooping enhanced show ip igmp	

## ip filter-ip

Use the **ip filter-ip** interface configuration command on the switch to add the IP filtering address entries. Use the **no** form of this command to delete the filtering entries.

### Commands

**ip filter-ip allowed** *ip-address*

**no ip filter-ip allowed** *ip-address*

Syntax	<b>ip</b>	Configure IP paramters
Description	<b>filter-ip</b>	IP filter
	<b>allowed</b>	Configured traffic allowed from specified IP
	<i>ip-address</i>	E.g., 11.22.33.44
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config-if)# ip filter-ip allowed 192.168.127.1 <LF>	
Error messages	Not a unicast IP	
	Allowed only 8 filters at most	



Related commands	show interfaces filter-ip
------------------	---------------------------

## ip name-server

Use the **ip name-server** VLAN configuration command on the switch to configure the DNS server for the switch. Use the **no** form of this command to return to the default.

### Commands

**ip name-server** *dns-ip-address1* [*dns-ip-address2*]

**no name-server**

Syntax	<b>ip</b>	Configure IP paramters
Description	<b>name-server</b>	Configure DNS server address
	<i>ip-address</i>	IP address
Defaults	N/A	
Command Modes	VLAN configuration as management VLAN	
Usage Guidelines	N/A	
Examples	PT-7828(config-vlan)# ip name-server 192.168.1.1	
Error messages	Warning! IP and gateway are not in the same subnet	
Related commands	show interfaces mgmt	

## ip ospf area

Use the **ip ospf area** command in VLAN configuration mode to bind the interfaces with an OSPF area. Use **no ip ospf** to unbind the OSPF area.

### Commands

**ip ospf area** *area-id*

**no ip ospf**

Syntax	<b>ip</b>	Configure L3 interface ip
Description	<b>ospf</b>	Configure OSPF
	<b>area</b>	OSPF Area binding
	<i>area-id</i>	OSPF Area id
Defaults	This command is disabled by default.	
Command Modes	VLAN configuration	
Usage Guidelines	Auth Key lengths up to 8 characters MD5 Key ID range 1 to 255	
Examples	PT-7828(config-vlan)# ip ospf auth md5 5 auth-key abcdabcd	
Error messages	Auth Key lengths up to 8 characters MD5 Key ID range 1 to 255	
Related commands	show ip ospf interface	

## ip ospf auth

Use the **ip ospf auth** command in VLAN configuration mode to specify the authentication type for an interface. Use the **no** form of this command to remove the authentication type for an interface.

### Commands

**ip ospf auth simple auth-key** *key*

**ip ospf auth md5** *key-id* **auth-key** *key*

**no ip ospf auth**

Syntax Description	<b>ip</b>	Configure L3 interface ip
	<b>ospf</b>	Configure OSPF
	<b>auth</b>	Configure OSPF authentication type
	<b>simple</b>	Configure OSPF authentication type to SIMPLE
	<b>md5</b>	Configure OSPF authentication type to MD5
	<i>key-id</i>	MD5 key id
	<b>auth-key</b>	Configure authentication key
	<i>key</i>	Key string
Defaults	This command is disabled by default.	
Command Modes	VLAN configuration	
Usage Guidelines	Auth Key lengths up to 8 characters MD5 Key ID range 1 to 255	
Examples	PT-7828(config-vlan)# ip ospf auth md5 5 auth-key abcdabcd	
Error messages	Auth Key lengths up to 8 characters MD5 Key ID range 1 to 255	
Related commands	show ip ospf interface	

## ip ospf cost

Use the **ip ospf cost** command in VLAN configuration mode to explicitly specify the cost of sending a packet on a VLAN interface. Use the **no** form of this command to return to the default.

### Commands

**ip ospf cost** *cost*

**no ip ospf cost**

Syntax Description	<b>ip</b>	Configure L3 interface ip
	<b>ospf</b>	Configure OSPF
	<b>cost</b>	Configure OSPF Metric
	<i>cost</i>	Metric value ( 1 to 65535)
Defaults	Default cost is 1	
Command Modes	VLAN configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config-vlan)# ip ospf cost 10	
Error messages	Metric Range 1 to 65535	
Related commands	show ip ospf interface	

## ip ospf dead-interval

Use the **ip ospf dead-interval** command in interface configuration mode to set the interval at which hello packets must not be seen before neighbors declare the router down. Use the **no** form of this command to return to the default time.

### Commands

**ip ospf dead-interval** *seconds*

**no ip ospf dead-interval**

Syntax	<b>ip</b>	Configure L3 interface ip
Description	<b>ospf</b>	Configure OSPF
	<b>dead-interval</b>	Configure OSPF dead interval
	<i>seconds</i>	Dead Interval Range 1 to 65535
Defaults	Default dead interval is 40 seconds	
Command Modes	VLAN configuration	
Usage Guidelines	Dead interval Range 1 to 65535	
Examples	PT-7828(config-vlan)# ip ospf dead-interval 100	
Error messages	Dead Interval Range 1 to 65535	
Related commands	show ip ospf interface	

## ip ospf hello-interval

Use the **ip ospf hello-interval** command in VLAN configuration mode to specify the interval between hello packets sent on the interface. Use the **no** form of this command to return to the default.

### Commands

**ip ospf hello-interval** *seconds*

**no ip ospf hello-interval**

Syntax	<b>ip</b>	Configure L3 interface ip
Description	<b>ospf</b>	Configure OSPF
	<b>hello-interval</b>	Configure OSPF hello interval
	<i>seconds</i>	Hello Interval Range 1 to 65535
Defaults	Default interval is 10 seconds	
Command Modes	VLAN configuration	
Usage Guidelines	Hello Interval Range 1 to 65535	
Examples	PT-7828(config-vlan)# ip ospf hello-interval 100	
Error messages	Hello Interval Range 1 to 65535	
Related commands	show ip ospf interface	

## ip ospf priority

Use the **ip ospf priority** command in VLAN configuration mode to set the router priority for the determination of the designated router. Use the **no** form of this command to return to the default.

### Commands

**ip ospf priority** *priority*

**no ip ospf priority**

Syntax	<b>ip</b>	Configure L3 interface ip
Description	<b>ospf</b>	Configure OSPF
	<b>priority</b>	Configure OSPF router priority
	<i>priority</i>	priority range ( 0 to 255)
Defaults	Default priority is 1	
Command Modes	VLAN configuration	
Usage Guidelines	priority range 0 to 255	
Examples	PT-7828(config-vlan)# ip ospf priority 10	
Error messages	Priority Range 0 to 255	
Related commands	show ip ospf interface	

## ip pim-dm

**NOTE** This command is only supported by Layer 3 switches.

Use the **ip pim-dm** command to enable the PIM-DM function.

### Commands

**ip pim-dm**

**no ip pim-dm**

Syntax	<b>ip</b>	Configure L3 interface IP
Description	<b>pim-dm</b>	Configure PIM-DM
Defaults	This command is disabled by default	
Command Modes	VLAN interface configuration	
Usage Guidelines	N/A	
Examples	ICS-G7852A-4XG(config-vif)# ip pim-dm ICS-G7852A-4XG(config-vif)# no ip pim-dm	
Error messages	N/A	
Related commands	show ip pim-dm show ip pim-dm neighbor	

## ip pim-sm

**NOTE** This command is only supported by Layer 3 switches.

Use the **ip pim-sm** command to enable the PIM-SM function.

### Commands

**ip pim-sm**

**no ip pim-sm**

Syntax	<b>ip</b>	Configure L3 interface IP
Description	<b>pim-sm</b>	Configure PIM-SM
Defaults	This command is disabled by default	
Command Modes	VLAN interface configuration	
Usage Guidelines	N/A	
Examples	ICS-G7852A-4XG(config-vif)# ip pim-sm ICS-G7852A-4XG(config-vif)# no ip pim-sm	
Error messages	N/A	
Related commands	show ip pim-sm show ip pim-sm routing show ip pim-sm neighbor show ip pim-sm rp show ip pim-sm bsr	

## ip pim-sm dr-priority

**NOTE** This command is only supported by Layer 3 switches.

Use **ip pim-sm dr-priority** command in VLAN interface configuration mode to setup DR priority.

### Commands

**ip pim-sm dr-priority** *priority*

Syntax	<b>ip</b>	Configure L3 interface IP
Description	<b>pim-sm</b>	Configure PIM-SM
	<b>dr-priority</b>	Configure DR priority
	<i>priority</i>	Priority value
Defaults	Default priority is 0	
Command Modes	VLAN interface configuration	
Usage Guidelines	The priority range is 0 to 4294967296	
Examples	ICS-G7852A-4XG(config-vif)# ip pim-sm dr-priority 100	
Error messages	N/A	
Related commands	show ip pim-sm show ip pim-sm routing show ip pim-sm neighbor show ip pim-sm rp show ip pim-sm bsr	

## ip pim-sm hello-interval

**NOTE** This command is only supported by Layer 3 switches.

Use **ip pim-sm hello-interval** command in VLAN interface configuration mode to setup PIM-SM hello interval.

### Commands

**ip pim-sm hello-interval** *interval*

Syntax Description	<b>ip</b>	Configure L3 interface IP
	<b>pim-sm</b>	Configure PIM-SM
	<b>hello-interval</b>	Configure hello interval
	<i>interval</i>	Interval value
Defaults	Default hello-interval is 30	
Command Modes	VLAN interface configuration	
Usage Guidelines	The hello interval range is 1 to 65535	
Examples	ICS-G7852A-4XG(config-vif)# ip pim-sm hello-interval 10	
Error messages	N/A	
Related commands	show ip pim-sm show ip pim-sm routing show ip pim-sm neighbor show ip pim-sm rp show ip pim-sm bsr	

## ip pim-sm join-prune-interval

**NOTE** This command is only supported by Layer 3 switches.

Use **ip pim-sm join-prune-interval** command in VLAN interface configuration mode to setup PIM-SM join-prune interval.

### Commands

**ip pim-sm join-prune-interval** *interval*

Syntax Description	<b>ip</b>	Configure L3 interface IP
	<b>pim-sm</b>	Configure PIM-SM
	<b>join-prune-interval</b>	Configure hello interval
	<i>interval</i>	Interval value
Defaults	Default hello-interval is 30	
Command Modes	VLAN interface configuration	
Usage Guidelines	The join-prune interval range is 1 to 65535	
Examples	ICS-G7852A-4XG(config-vif)# ip pim-sm join-prune-interval 10	
Error messages	N/A	
Related commands	show ip pim-sm show ip pim-sm routing show ip pim-sm neighbor show ip pim-sm rp show ip pim-sm bsr	

## ip proxy-arp

Use the **ip proxy-arp** VLAN configuration command on the switch to enable Proxy ARP. Use the **no** form of this command to disable Proxy ARP.

### Commands

**ip proxy-arp**

**no ip proxy-arp**

Syntax	<b>ip</b>	Configure L3 interface ip
Description	<b>proxy-arp</b>	Enable L3 interface proxy arp
Defaults	N/A	
Command Modes	VLAN configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config-vlan)# ip proxy-arp proxy-arp - Enable L3 interface proxy arp	
Error messages	vlan 4097 is invalid!! should be range from 1 to 4094 Interface not exist! Please create interface and set ip and netmask first	
Related commands	show interfaces vlan	

## ip route

Use the **ip route** command in global configuration mode to establish static routes. Use the **no** form of this command to remove the specified static routes.

### Commands

**ip route** *prefix mask next-hop [distance]*

**no ip route** *prefix mask next-hop*

Syntax	<b>ip</b>	Global IP configuration subcommands
Description	<b>route</b>	Static routing entry
	<i>prefix</i>	Address prefix
	<i>mask</i>	Subnet mask
	<i>next-hop</i>	Next hop address
	<i>distance</i>	Distance metric
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# ip route 2.2.0.0 255.0.0.0 2.2.3.1 10	
Error messages	Route Entry Full!!!	
Related commands	show ip route show ip route static	

## ipv6 address

Use the **ipv6 address** command in VLAN configuration mode as a management VLAN to set the IPv6 address for the device. Use the **no** form of the command to return to the default.

**Commands****ipv6 address** *ipv6\_prefix***no ipv6 address**

Syntax	<b>ipv6</b>	Configure IPv6
Description	<b>address</b>	IPv6 address setting
	<i>ipv6_prefix</i>	IPv6 address prefix
Command Modes	VLAN configuration as management VLAN	
Usage Guidelines	N/A	
Examples	<pre>PT-510(config-vlan)# ipv6 address 1::1 PT-510# show interfaces mgmt  IPv4   Management VLAN id   : 1   IP configuration     : Static   IP address           : 192.168.127.253   Subnet mask          : 255.255.255.0   Default gateway      : 0.0.0.0   DNS server           :  IPv6   Global Unicast Address Prefix : 1:0:0:1:201:2ff:fe03   Global Unicast Address       : 1::1:201:2ff:fe03:405   Link-Local Address           : fe80::201:2ff:fe03:405</pre>	
Error messages	Invalid prefix!	
Related commands	show interface mgmt	

## line-swap-fast-recovery

Use the **line-swap-fast-recovery** global configuration command on the switch to enable the fast recovery feature of the MAC address table when line swapping. Use the **no** form of this command to disable it.

**Commands****line-swap-fast-recovery****no line-swap-fast-recovery**

Syntax	<b>line-swap-fast-recovery</b>	Enable Line Swap Fast Recovery feature
Description		
Defaults	This feature is enabled by default.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	<pre>PT-7828(config)# line-swap-fast-recovery &lt;LF&gt;</pre>	
Error messages	N/A	
Related commands	show mac-address-table	



## Ildp enable

Use the **lldp enable** global configuration command to enable LLDP. To stop LLDP, use the **no** form of this command.

### Commands

**lldp run**

**no lldp run**

Syntax	<b>lldp</b>	Configure LLDP parameters
Description	<b>run</b>	Start up
Defaults	LLDP is enable in factory default.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# lldp enable PT-7828(config)# no lldp enable	
Error messages	N/A	
Related commands	show lldp	

## Ildp timer

Use the **lldp timer** global configuration command to configure the transmission frequency of LLDP messages. To reset the timer to default, use the **no** form of this command.

### Commands

**lldp timer transFreq**

**no lldp timer**

Syntax	<b>lldp</b>	Configure LLDP parameters
Description	<b>timer</b>	Transmission frequency of LLDP updates
	<i>transFreq</i>	5 to 32768 seconds
Defaults	Transmission frequency of LLDP updates is 30 seconds.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# lldp timer <UINT:transFreq> - 5 to 32768 seconds PT-7828(config)# lldp timer 4 % LLDP transmit frequency should be between 5 to 32768 PT-7828(config)# lldp timer 50	
Error messages	LLDP transmit frequency should be between 5 to 32768	
Related commands	show lldp	

# logging

Use the **logging** global configuration command on the switch to configure the remote SYSLOG server. Use the **no** form of this command to remove the server.

## Commands

**logging** *ip-address*

**no logging** *ip-address*

Syntax	<b>logging</b>	Syslog server setting
Description	<i>ip-address</i>	IP or DNS name w/wo. port, Ex:1.2.3.4 or 1.2.3.4:5678
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# logging 192.168.1.1 <LF>	
Error messages	Logging server configurations are full!	
Related commands	show logging	

# login mode

Use the **login mode** global configuration command to change the login UI mode from the console or telnet connection of the switch.

## Commands

**login mode** { *cli* | *menu* }

Syntax	<b>login</b>	Change login mode
Description	<b>mode</b>	Login mode
	<b>cli</b>	Command line interface
	<b>menu</b>	Legacy Menu Mode
Defaults	Default UI mode is MENU mode	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# login mode menu                  - Legacy Menu Mode cli                   - Command line interface PT-7828(config)# login mode cli PT-7828(config)# login mode menu	
Error messages	N/A	
Related commands	N/A	

## mac-address-table aging-time

Use the **mac-address-table aging-time** global configuration command on the switch to configure the aging time of the MAC address. Use the **no** form of this command to return to the default.

### Commands

**mac-address-table aging-time** *seconds*

**no mac-address-table aging-time**

Syntax	<b>mac-address-table</b>	Configure MAC address table
Description	<b>aging-time</b>	Aging time
	<i>seconds</i>	15 to 3825 seconds
Defaults	Default aging time is 300 sec	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# mac-address-table aging-time <UINT:seconds> - 15 to 3825 seconds	
Error messages	N/A	
Related commands	show mac-address-table aging-time	

## mcast-filter

Use the **mcast-filter** interface configuration command on the switch to activate the multicast filter. Use the **no** form of this command to stop this function.

### Commands

**mcast-filter** [**forward-all** | **forward-unknown** | **filter-unknown**]

**no mcast-filter**

Syntax	<b>mcast-filter</b>	Multicast filter
Description	<b>forward-all</b>	Forward all
	<b>forward-unknown</b>	Forward unknown
	<b>filter-unknown</b>	Filter unknown
Defaults	Default forward unknown	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# interface ethernet 1/1 PT-7828(config-if)# mcast-filter forward-all PT-7828(config-if)# mcast-filter forward-unknown PT-7828(config-if)# mcast-filter filter-unknown PT-7828(config-if)# no mcast-filter	
Error messages	N/A	
Related commands	show mcast-filter	

## media cable-mode

Use the **media cable-mode** interface configuration command on the switch to enable the medium-dependent interface crossover feature on the interface. Use the **no** form of this command to disable Auto-MDIX.

### Commands

**media cable-mode [mdi | mdix | auto]**

**no media cable-mode**

Syntax Description	<b>media</b>	Select a media
	<b>cable-mode</b>	Select cable mode
	<b>mdi</b>	MDI
	<b>mdix</b>	MDIX
	<b>auto</b>	Auto select MDI/MDIX
Defaults	The default is <b>auto</b>	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	<pre>PT-7828(config)# interface ethernet 1/1 PT-7828(config-if)# media cable-mode auto  PT-7828(config-if)# no media cable-mode</pre>	
Error messages	Fiber port can not be set MDI/MDIX!!	
	This setting cannot be applied on trunk port!	
	Cannot configure on trunk member port 1/1!	
Related commands	show interface ethernet	

## modbus

Use the **modbus** global configuration command on the switch to enable Modbus/TCP industrial Ethernet protocol supported. Use the **no** form of this command to disable Modbus support.

### Commands

**modbus**

**no modbus**

Syntax Description	<b>modbus</b>	Enable Modbus
Defaults	Default is enable	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	<pre>PT-7828(config)# modbus</pre>	
Error messages	N/A	
Related commands	show modbus	

# monitor

Use **monitor** global configuration commands to enable the monitoring of data transmitted/received by a specific port. Use the **no** form of this command to disable the monitoring.

## Commands

**monitor source interface** *mod\_port* [*direction*]

**no monitor source interface**

**monitor destination interface** *mod\_port*

**no monitor destination interface**

Syntax Description	<b>monitor</b>	Configure Port mirror
	<b>source</b>	Monitored port
	<b>interface</b>	Port
	<b>destination</b>	Mirror port
	<i>modPort</i>	Port ID. E.g., 1/3, Trk2,...
	<i>direction</i>	tx   rx   both
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	Traffic send/receive by a source port (Monitored port) will be mirrored to the destination port (Mirror port).	
Examples	<pre>PT-7828(config)# monitor source interface 3/1 both Warning !!! Mirror Port don't set ! PT-7828(config)# monitor destination interface &lt;STRING:mirrorPort&gt; - Port ID. E.g., 1/3, 2/1,... PT-7828(config)# monitor destination interface 3/1,2 % Invalid format PT-7828(config)# monitor destination interface 3/1 % Monitored Port is the same with Mirror Port !!!  PT-7828(config)# monitor destination interface 3/2 PT-7828(config)# monitor source interface 1/1-2</pre>	
Error messages	Monitored Port is the same with Mirror Port !!!	
	Invalid parameter	
	Warning !!! Mirror Port don't set !	
	Warning !!! Monitored Port don't set !	
Related commands	show port monitor	

# Management-Interface

Use the **ip** global configuration command on the switch to set management interface

## Commands

**ip** { **http-server** [ **secure** ] | **telnet** | **ssh** } [ **port** *port-number* ]

**no ip** { **http-server** [ **secure** ] | **telnet** | **ssh** }

Syntax Description	<b>http-server</b>	Enable Http-server service
	<b>secure</b>	Enable SSL service
	<b>telnet</b>	Enable Telnet service
	<b>ssh</b>	Enable SSH service
	<b>Port</b>	Port

	<i>Port-number</i>	Listening port number
Defaults	The feature is enabled by default.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	<pre>EDS-G516E(config)# ip http-server port 80 EDS-G516E(config)# ip http-server secure port 443 EDS-G516E(config)# ip telnet 23 EDS-G516E(config)# ip ssh port 22 EDS-G516E(config)# no ip http-server secure</pre>	
Error messages	Assigning duplicate port numbers is not allowed	
	HTTP/SSH/Telnet/SSL port number is invalid, the interval is from 1 to 65535.	
Related commands		

## name

Use the **name** interface configuration command to configure the interface name. To remove the configuration, use the **no** form of this command.

### Commands

**name**

**no name**

Syntax Description	<b>name</b>	Port name
Defaults	None	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	<pre>PT-7828(config)# interface ethernet 1/1 PT-7828(config-if)# name interfacel_port1  PT-7828(config-if)# no name</pre>	
Error messages	The length of port name must between 1 and 63!	
	Cannot configure on trunk member port 1/1	
Related commands	<pre>show interfaces ethernet show interfaces trunk</pre>	

## network

Use the **network** command in router configuration mode to enable the routing process on the specified interface. Use the **no** form of this command to disable it.

### Commands

**network** *if-name*

**no network** *if-name*

Syntax Description	<b>network</b>	Enable dynamic routing on an IP network
	<i>if-name</i>	Interface name
Defaults	N/A	

Command Modes	Router configuration of RIP, OSPF, and Static routes
Usage Guidelines	N/A
Examples (for RIP settings)	<pre>PT-7828(config)# vlan create 2 % create vlan id:2 PT-7828(config)# interface vlan 2 PT-7828(config-vlan)# ip address 192.168.102.1 255.255.255.0 PT-7828(config-vlan)# name vlan2if PT-7828(config-vlan)# exit PT-7828(config)# router rip PT-7828(config-rip)# network &lt;STRING:ifname&gt; - Interface name PT-7828(config-rip)# network vlan2if PT-7828(config-rip)# PT-7828# show ip rip RIP Protocol      : Enable RIP version       : V1 Distribution   Connected       : Enable   Static          : Disable   OSPF            : Disable  RIP Enable Table Interface Name    IP                VID              Enable ----- vlan2if          192.168.102.1    2                Enable PT-7828#</pre>
Error messages	No such interface existed
Related commands	show ip rip

## ntp refresh-time

Use the **ntp refresh-time** global configuration command on the switch to configure the interval of each NTP query. Use the **no** form of this command to return to the default.

### Commands

**ntp refresh-time** *seconds*

**no ntp refresh-time**

Syntax Description	<b>ntp</b>	Configure Network Time Protocol
	<b>refresh-time</b>	Configure NTP query intervals
	<i>seconds</i>	1-9999 seconds
Defaults	Default query interval is 600 sec	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	<pre>PT-7828(config)# ntp refresh-time 600 &lt;LF&gt;</pre>	
Error messages	Time is out of range	

Related commands	show clock
------------------	------------

## ntp remote-server

Use the **ntp remote-server** global configuration command on the switch to configure the remote NTP server. Use the **no** form of this command to return to the default.

### Commands

**ntp remote-server** server-addr-1 [server-addr-2]

**no ntp remote-server**

Syntax	<b>ntp</b>	Configure Network Time Protocol
Description	<b>remote-server</b>	Configure NTP server for time query
	<b>Simple</b>	Configure Simple Network Time Protocol instead of Network Time Protocol
	server-addr-1	IP address or DNS name
	server-addr-2	IP address or DNS name
Defaults	The default configuration contains one time server "time.nist.gov".	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# ntp remote-server 192.168.127.1 time.stdtime.gov.tw	
Error messages	N/A	
Related commands	show clock	

## ntp server

Use the **ntp server** global configuration command on the switch to enable the switch as an NTP server. Use the **no** form of this command to return to disable it.

### Commands

**ntp server**

**no ntp server**

Syntax	<b>ntp</b>	Configure Network Time Protocol
Description	<b>server</b>	Enable NTP server
Defaults	Default is disabled	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# ntp server	
Error messages	N/A	
Related commands	show clock	



## permit

Use the **permit** ACL configuration command on the switch to add a permit rule in the current ACL for traffic with specified IPs. Use the **no** form of this command to delete the rule.

### Commands

**permit** *ip-address*

**no permit** *ip-address*

Syntax	<b>permit</b>	Configure PERMIT filter
Description	<i>ip-address</i>	E.g., 11.22.33.44
Defaults	N/A	
Command Modes	ACL configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config-acl)# permit <IPV4ADDR:ipaddr> - E.g., 11.22.33.44	
Error messages	Invalid IPv4 address	
Related commands	Show ip access-list ip access-list	

## ping

Use the **ping** user EXEC command on the switch to diagnose the remote host if it is alive.

### Commands

**ping** *ip-address*

Syntax	<b>ping</b>	Send echo messages
Description	<i>ip-address</i>	E.g., 11.22.33.44
Defaults	N/A	
Command Modes	Privileged	
Usage Guidelines	N/A	
Examples	PT-7828# ping 192.168.127.1  PING 192.168.127.1, Send/Recv/Lost = 4/4/0	
Error messages	N/A	
Related commands	N/A	

## port-security

Use the **port-security** interface configuration command on the switch to add a static unicast MAC-address on a specified port. Use the **no** form of this command to remove the specified MAC address.

### Commands

**port-security** *MAC-address*

**no port-security** *MAC-address*

Syntax	<b>port-security</b>	Set port security
--------	----------------------	-------------------

Description	<i>MAC-address</i>	MAC address XX:XX:XX:XX:XX:XX
Defaults	N/A	
Command Modes	interface configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config-if)# port-security 00:00:00:00:00:01 PT-7828(config-if)# no port-security 00:00:00:00:00:01	
Error messages	Add new static unicast MAC address Fail !!!	
Related commands	N/A	

## profinetio

Use the **profinetio** command to disable/enable PROFINET support (EDS-400A-PN series support only).

### Commands

**profinetio**

**no profinetio**

Syntax Description	<b>profinetio</b>	Enable PROFINET IO
Defaults	Default is disabled	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	EDS-G516E(config)# profinetio EDS-G516E(config)# no profinetio	
Error messages	N/A	
Related commands	Show profinetio	

## ptp announce-receipt-timeout

Use the **ptp announce-receipt-timeout** configuration command on the switch to set the *announce-receipt-timeout* parameter.

### Commands

**ptp announce-receipt-timeout** *interval*

Syntax Description	<b>ptp</b>	Configure PTP
	<b>announce-receipt-timeout</b>	Set the integral multiple of announceInterval
	<i>interval</i>	2 to 10
Defaults	default is 3	
Command Modes	configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# ptp announce-receipt-timeout	

Error messages	announceReceiptTimeout must be in the range from 2 to 10
Related commands	Show ptp settings Show ptp status Show ptp port

## ptp arb-time

Use the **ptp arb-time** configuration command on the switch to set the arb-time parameter of the local clock.

### Commands

**ptp arb-time** *time*

Syntax	<b>ptp</b>	Configure PTP
Description	<b>arb-time</b>	Set the ARB time parameter of the local clock
	<i>time</i>	0 to 2147483646
Defaults	default is 0	
Command Modes	configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# ptp arb-time 0	
Error messages	Arb time must be in the range from 0 to 2147483646	
Related commands	Show ptp settings Show ptp status Show ptp port	

## ptp clockclass

Use the **ptp clockclass** configuration command on the switch to set the clockclass parameter of the local clock.

### Commands

**ptp clockclass** *class*

Syntax	<b>ptp</b>	Configure PTP
Description	<b>clockclass</b>	Set the clock class parameter of the local clock
	<i>class</i>	0 to 255
Defaults	default is 248	
Command Modes	configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# ptp clockclass 248	
Error messages	clockclass must be in the range from 0 to 255	
Related commands	Show ptp settings Show ptp status Show ptp port	

## ptp domain-number

Use the **ptp domain-number** configuration command on the switch to set the domain number of the local clock.

### Commands

**ptp domain-number** *interval*

Syntax	<b>ptp</b>	Configure PTP
Description	<b>domain-number</b>	Set the domain number of the local clock
	<i>interval</i>	0 to 3
Defaults	default is 0	
Command Modes	configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# ptp domain-number	
Error messages	domainNum must be in the range from 0 to 3	
Related commands	Show ptp settings Show ptp status Show ptp port	

## ptp enable

Use the **ptp enable** command on the switch to enable the PTP operation. Use the **no** form of this command to disable the PTP operation on the switch.

### Commands

**ptp enable**

**no ptp**

Syntax	<b>ptp</b>	Configure PTP
Description	<b>enable</b>	Enable the ptp operation
Defaults	ptp is default disable	
Command Modes	Configuration Interface configuration mode	
Usage Guidelines	N/A	
Examples	PT-7828(config)# ptp enable PT-7828(config)# no ptp PT-7828(config-if)# ptp enable PT-7828(config-if)# no ptp	
Error messages	N/A	
Related commands	Show ptp settings Show ptp status Show ptp port	

## ptp leap59

Use the **ptp leap59** global configuration command on the switch to enable the PTP leap59. Use the **no** form of this command to disable the PTP leap59 on the switch.

### Commands

**ptp leap59**

**no ptp leap59**

Syntax	<b>ptp</b>	Configure PTP
Description	<b>leap59</b>	enable the last minute of the current UTC day contains 59 seconds
Defaults	default disable	
Command Modes	configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# ptp leap59 PT-7828(config)# no ptp leap59	
Error messages	N/A	
Related commands	Show ptp settings Show ptp status Show ptp port	

## ptp leap61

Use the **ptp leap61** global configuration command on the switch to enable the PTP leap61. Use the **no** form of this command to disable the PTP leap61 on the switch.

### Commands

**ptp leap61**

**no ptp leap61**

Syntax	<b>ptp</b>	Configure PTP
Description	<b>leap61</b>	enable the last minute of the current UTC day contains 61 seconds
Defaults	default disable	
Command Modes	configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# ptp leap61 PT-7828(config)# no ptp leap61	
Error messages	N/A	
Related commands	Show ptp settings Show ptp status Show ptp port	

## ptp log-sync-interval

Use the **ptp log-sync-interval** global configuration command on the switch to set the log-sync-interval parameter.

### Commands

**ptp log-sync-interval** *interval*

Syntax	<b>ptp</b>	Configure PTP
Description	<b>log-sync-interval</b>	Set the logarithm to the base 2 of the mean SyncInterval
	<i>interval</i>	-3 to 1
Defaults	default is 0	
Command Modes	configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# ptp log-sync-interval	
Error messages	logSyncInterval must be in the range from -3 to 1	
Related commands	Show ptp settings Show ptp status Show ptp port	

## ptp log-announce-interval

Use the **ptp log-announce-interval** global configuration command on the switch to set the log-announce-interval parameter.

### Commands

**ptp log-announce-interval** *interval*

Syntax	<b>ptp</b>	Configure PTP
Description	<b>log-announce-interval</b>	Set the logarithm to the base 2 of the mean AnnounceInterval
	<i>interval</i>	0 to 4
Defaults	default is 1	
Command Modes	configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# ptp log-announce-interval	
Error messages	logAnnounceInterval must be in the range from 0 to 4	
Related commands	Show ptp settings Show ptp status Show ptp port	

## ptp log-min-delay-req-interval

Use the **ptp log-min-delay-req-interval** global configuration command on the switch to set the *log-min-delay-req-interval* parameter.

### Commands

**ptp log-min-delay-req-interval** *interval*

Syntax	<b>ptp</b>	Configure PTP
Description	<b>log-min-delay-req-interval</b>	Set the logarithm to the base 2 of the mean minDelayReqInterval
	<i>interval</i>	0 to 5
Defaults	default is 0	
Command Modes	configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# ptp log-min-delay-req-interval	
Error messages	logMinDelayReqInterval must be in the range from 0 to 5	
Related commands	Show ptp settings Show ptp status Show ptp port	

## ptp log-min-pdelay-req-interval

Use the **ptp log-min-pdelay-req-interval** global configuration command on the switch to set the *log-min-pdelay-req-interval* parameter.

### Commands

**ptp log-min-pdelay-req-interval** *interval*

Syntax	<b>ptp</b>	Configure PTP
Description	<b>log-min-delay-req-interval</b>	Set the logarithm to the base 2 of the mean minPDelayReqInterval
	<i>interval</i>	-1 to 5
Defaults	default is 0	
Command Modes	configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# ptp log-min-pdelay-req-interval	
Error messages	logMinPDelayReqInterval must be in the range from -1 to 5	
Related commands	Show ptp settings Show ptp status Show ptp port	

## ptp mode

Use the **ptp mode** global configuration command on the switch to set the PTP operation mode.

### Commands

**ptp mode v1-bc**

**ptp mode v2-e2e-bc**

**ptp mode v2-p2p-bc**

**ptp mode v2-e2e-2step-tc**

**ptp mode v2-p2p-2step-tc**

Syntax	<b>ptp</b>	Configure PTP
Description	<b>mode</b>	Set the ptp operation mode
	<b>v1-bc</b>	ptp v1 boundary clock mode
	<b>v2-e2e-bc</b>	ptp v2 end-to-end boundary clock mode
	<b>v2-p2p-bc</b>	ptp v2 peer-to-peer boundary clock mode
	<b>v2-e2e-2step-tc</b>	ptp v2 end-to-end 2-step transparent clock mode
	<b>v2-p2p-2step-tc</b>	ptp v2 peer-to-peer 2-step transparent clock mode
Defaults	Default setting of ptp is v1-bc mode	
Command Modes	configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# ptp mode v1-bc	
Error messages	N/A	
Related commands	Show ptp settings Show ptp status Show ptp port	

## ptp preferred-master

Use the **ptp enable** configuration command on the switch to enable PTP operation. Use the **no** form of this command to disable PTP operation on the switch.

### Commands

**ptp enable**

**no ptp**

Syntax	<b>ptp</b>	Configure PTP
Description	<b>preferred-master</b>	Set the local clock as the master clock(only valid in v1-bc mode)
Defaults	default disable	
Command Modes	configuration	
Usage Guidelines	N/A	
Examples (set switch as local master clock)	PT-7828(config)# ptp preferred-master	
Error messages	N/A	



Related commands	Show ptp settings Show ptp status Show ptp port
------------------	---

## ptp priority1

Use the **ptp priority1** configuration command on the switch to set the *priority1* parameter of the local clock.

### Commands

**ptp priority1** *priority*

Syntax	<b>ptp</b>	Configure PTP
Description	<b>priority1</b>	Set the priority1 parameter of the local clock
	<i>priority</i>	0 to 255
Defaults	default is 128	
Command Modes	configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# ptp priority1 128	
Error messages	priority1 must be in the range from 0 to 255	
Related commands	Show ptp settings Show ptp status Show ptp port	

## ptp priority2

Use the **ptp priority2** configuration command on the switch to set the *priority2* parameter of the local clock.

### Commands

**ptp priority2** *priority*

Syntax	<b>ptp</b>	Configure PTP
Description	<b>Priority2</b>	Set the priority2 parameter of the local clock
	<i>priority</i>	0 to 255
Defaults	default is 128	
Command Modes	configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# ptp priority2 128	
Error messages	priority2 must be in the range from 0 to 255	
Related commands	Show ptp settings Show ptp status Show ptp port	

## ptp timescale

Use the **ptp timescale** configuration command on the switch to set the transport type of the ptp domain.

### Commands

#### ptp timescale [arb|ptp]

Syntax	<b>ptp</b>	Configure PTP
Description	<b>timescale</b>	Set the timescale parameter of the local clock
	<b>arb</b>	Set the timescale parameter of the local clock to ARB
	<b>ptp</b>	Set the timescale parameter of the local clock to PTP
Defaults	default is ptp	
Command Modes	configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# ptp timescale arb PT-7828(config)# ptp timescale ptp	
Error messages	N/A	
Related commands	Show ptp settings Show ptp status Show ptp port	

## ptp transport

Use the **ptp transport** configuration command on the switch to set the transport type of the ptp domain.

### Commands

#### ptp transport [802\_3|ipv4]

Syntax	<b>ptp</b>	Configure PTP
Description	<b>transport</b>	Set the transport type of the ptp domain
	<b>802_3</b>	Set the transport type of the PTP domain to 802.3/Ethernet
	<b>ipv4</b>	Set the transport type of the PTP domain to IPv4
Defaults	default is ipv4	
Command Modes	configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# ptp transport 802_3 PT-7828(config)# ptp transport ipv4	
Error messages	N/A	
Related commands	Show ptp settings Show ptp status Show ptp port	

## ptp utc-offset

Use the **ptp utc-offset** configuration command on the switch to set the PTP utc-offset field.

### Commands

**ptp utc-offset** *interval*

Syntax	<b>ptp</b>	Configure PTP
Description	<b>utc-offset</b>	sets the offset between TAI and UTC
	<i>interval</i>	0 to 65535
Defaults	default is 0	
Command Modes	configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# ptp utc-offset 0	
Error messages	utc_offset must be in the range from 0 to 65535	
Related commands	Show ptp settings Show ptp status Show ptp port	

## ptp utc-offset-valid

Use the **ptp utc-offset-valid** configuration command on the switch to enable the PTP utc-offset field. Use the **no** form of this command to disable the PTP utc-offset field on the switch.

### Commands

**ptp utc-offset-valid**

**no ptp utc-offset-valid**

Syntax	<b>ptp</b>	Configure PTP
Description	<b>utc-offset-valid</b>	UTC Offset field is valid
Defaults	default disable	
Command Modes	configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# ptp utc-offset-valid PT-7828(config)# no ptp utc-offset-valid	
Error messages	N/A	
Related commands	Show ptp settings Show ptp status Show ptp port	

## qos highest-priority

Use the **qos highest-priority** interface configuration command on the switch to set the Port Priority of the ingress frames to "High" queues of the Ethernet ports/Trunks. Use the **no** form of this command to return to the default.

### Commands

**qos highest-priority**

**no qos highest-priority**

Syntax	<b>qos</b>	Configure QoS
Description	<b>highest-priority</b>	Enable port highest priority queue
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	EDS-518A(config-if)# qos highest-priority	
Error messages	Cannot configure on trunk member port 1/1!	
Related commands	show qos	

## qos default-cos

Use the **qos default-cos** interface configuration command on the switch to configure the default CoS priority of the Ethernet ports/Trunks. Use the **no** form of this command to return to the default.

### Commands

**qos default-cos** *cos-value*

**no qos default-cos**

Syntax	<b>qos</b>	Configure QoS
Description	<b>default-cos</b>	Configure Default CoS of each port
	<i>cos-value</i>	CoS value (0 to 7)
Defaults	Default CoS value is 3	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config-if)# qos default-cos <UINT:cos> - CoS value (0 to 7)	
Error messages	Cannot configure on trunk member port 1/1!	
Related commands	show qos	

## qos inspect

Use the **qos inspect** global/interface configuration command on the switch to enable the inspect criteria. Use the **no** form of this command to disable it.

### Commands

```
qos inspect dscp module_id
no qos inspect dscp module_id
qos inspect cos
no qos inspect cos
```

Syntax	<b>qos</b>	Configure QoS
Description	<b>inspect</b>	Configure inspection criteria
	<b>dscp</b>	Enable DSCP inspection
	module_id	Module ID from 1 to 4
	<b>cos</b>	Enable CoS inspection of each port
Defaults	N/A	
Command Modes	Global configuration Interface configuration	
Usage Guidelines	In product with 88E6095, the "qos inspect dscp" command is configured in interface configuration mode. In product with BCM5650, the "qos inspect dscp" command is configured in global configuration mode with module index.	
Examples	<pre>PT-7828(config)# qos inspect     dscp          - Enable DSCP inspection PT-7828(config-if)# qos inspect     cos           - Enable CoS inspection of each port</pre>	
Error messages	Cannot configure on trunk member port 1/1!	
Related commands	show qos	

## qos mapping

Use the **qos mapping** global configuration command on the switch to configure the CoS and DSCP mappings. Use the **no** form of this command to return to the default.

### Commands

```
qos mapping cos-to-queue cos-value queue
no qos mapping cos-to-queue
qos mapping dscp-to-cos dscp-value cos-value
no qos mapping dscp-to-cos
qos mapping dscp-to-queue dscp-value queue
no qos mapping dscp-to-queue
```

Syntax	<b>qos</b>	Configure QoS
Description	<b>mapping</b>	Configure QoS mapping
	<b>cos-to-queue</b>	CoS to traffic queue
	cos-value	CoS value (0 to 7)
	queue	Traffic queue
	<b>dscp-to-cos</b>	DSCP to CoS mapping
	dscp-value	DSCP value (0 to 63)
	<b>dscp-to-queue</b>	DSCP to traffic queue

Defaults	Cos (queue): 0 (0), 1(0), 2(1), 3(1), 4(2), 5(2), 6(3), 7(3) DSCP(Cos): 0-7(0), 8-15(1), 16-23(2), 24-31(3), 32-39(4), 40-47(5), 48-55(6), 56-63(7)
Command Modes	Global configuration
Usage Guidelines	N/A
Examples	PT-7828(config)# qos mapping cos-to-queue 7 <UINT:queue>          - Traffic queue PT-7828(config)# qos mapping cos-to-queue 7 3 PT-7828(config)# qos mapping dscp-to-cos 23 <UINT:cos>            - CoS value (0 to 7) PT-7828(config)# qos mapping dscp-to-cos 23 7
Error messages	Invalid parameter. CoS value must be 0 to 7 and queue number must be 0 to 3 Invalid parameter. CoS value must be 0 to 7 and DSCP value must be 0 to 63
Related commands	show qos

## qos mode

Use the **qos mode** global configuration command on the switch to configure the current QoS strategy. Use the **no** form of this command to return to the default.

### Commands

**qos mode { weighted-fair | strict }**

**no qos mode**

Syntax	<b>qos</b>	Configure QoS
Description	<b>mode</b>	Configure queuing mechanism
	<b>weighted-fair</b>	Weighted fair queuing
	<b>strict</b>	Strict queuing
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# qos mode weighted-fair      - Weighted fair queuing strict             - Strict queuing	
Error messages	N/A	
Related commands	show qos	

## quit

Use **quit** to quit the current configuration mode.

### Commands

**exit**

Syntax	<b>quit</b>	Exit command line interface
Description		
Defaults	N/A	
Command Modes	N/A	

Usage Guidelines	N/A
Examples	PT-7828 # quit
Error messages	N/A
Related commands	Exit

## rate-limit

Use the **rate-limit** interface configuration command on the switch to configure the traffic rate allowed for the specified port. Use the **no** form of this command to return to the default. For Marvell 88E6095 chipsets, use **rate-limit ingress rate** to set the ingress rate limiting; for Broadcom chipsets, use **rate-limit ingress percentage** to set the ingress rate limiting.

### Commands

**rate-limit { ingress | egress } percentage** *percentage*

**no rate-limit { ingress | egress }**

**rate-limit ingress rate { none | 128k | 256k | 512k | 1M | 2M | 4M | 8M }**

**rate-limit ingress mode { bcast | bcast-mcast | bcast-mcast-dlf | all }**

**rate-limit mode { normal | port-disable }**

**rate-limit normal { ingress | egress } percentage** *percentage*

**no rate-limit normal { ingress | egress }**

**rate-limit normal ingress rate { none | 128k | 256k | 512k | 1M | 2M | 4M | 8M }**

**rate-limit normal ingress mode { bcast | bcast-mcast | bcast-mcast-dlf | all }**

**rate-limit port-disable period** *period*

**rate-limit port-disable ingress rate { none | 44640 | 74410 | 148810 | 223220 | 372030 | 520840 | 744050 }**

Syntax Description	<b>rate-limit</b>	Rate limiting
	<b>normal</b>	Rate limiting normal mode
	<b>port-disable</b>	Rate limiting port-disable mode
	<b>ingress</b>	Ingress rate limiting
	<b>egress</b>	Egress rate limiting
	<b>percentage</b>	Percentage correspond to current port speed
	<i>percentage</i>	Limit percentage, and will take effect at the percentage 0/3/5/10/15/25/35/50/65/85
	<b>rate</b>	Specify the rate
	<b>mode</b>	Specify the mode
	<b>bcast</b>	Limit broadcast frames
	<b>bcast-mcast</b>	Limit broadcast and multicast frames
	<b>bcast-mcast-dlf</b>	Limit broadcast, multicast and DLF frames
	<b>all</b>	All traffic
	<b>period</b>	Port disable period
<i>period</i>	Seconds	
Defaults	<b>0</b> or <b>none</b> means unlimiting.	
Command Modes	Interface configuration	
Usage Guidelines	The <i>percentage</i> will only take effect at the 0/3/5/10/15/25/35/50/65/85 %. For port disable mode, the port will be disabled when the ingress rate reach the specified packet rate.	

Examples	<pre>PT-7828(config-if)# rate-limit percentage &lt;UINT:percent&gt;      - Limit percentage, and will take effect at the percentage 0/3/5/10/15/25/35/50/65/85 EDS-408A-1M2S-SC(config-if)# rate-limit ingress rate none none none none  PT-7828(config-if)# rate-limit port-disable ingress period 30 EDS-408A-1M2S-SC(config-if)# rate-limit port-disable ingress rate 148810</pre>
Error messages	<p>Cannot configure on trunk member port 1/1!</p> <p>This setting cannot be applied on trunk port!</p>
Related commands	show interfaces rate-limit

## redistribute

Use the **redistribute** commands to enable learning routes from another IP routing protocol. Use the **no** form of this command to disable it.

### Commands

**redistribute connected**

**no redistribute connected**

**redistribute static**

**no redistribute static**

**redistribute rip**

**no redistribute rip**

**redistribute ospf**

**no redistribute ospf**

Commands	<b>redistribute</b>	Enable the switch's import routes learned through another IP routing protocol
	<b>connected</b>	Import routes learned through directly connected
	<b>Static</b>	Import routes learned through static route
	<b>rip</b>	Import routes learned through RIP
	<b>ospf</b>	Import routes learned through OSPF
Defaults	N/A	
Command Modes	Router configuration mode as OSPF / RIP	
Usage Guidelines	N/A	
Examples	<pre>PT-7828(config-ospf)# redistribute rip PT-7828(config-rip)# redistribute ospf</pre>	
Error messages	N/A	
Related commands	<pre>show ip ospf show ip rip</pre>	

## redundancy

Use the **redundancy** global configuration command on the switch to enter the redundancy configuration mode.

### Commands

**redundancy**

Syntax Description	<b>redundancy</b>	Enter redundancy configuration mode
--------------------	-------------------	-------------------------------------



Defaults	N/A
Command Modes	Global configuration
Usage Guidelines	N/A
Examples	PT-7828(config)# redundancy PT-7828(config-rdnt)#
Error messages	N/A
Related commands	N/A

## redundancy mode

Use the **redundancy mode** global configuration command on the switch to change the redundancy protocol mode.

### Commands

**redundancy mode { mst | rstp | turbo-ring-v1 | turbo-ring-v2 | turbo-chain }**

Syntax Description	<b>redundancy</b>	Enter redundancy configuration mode
	<b>mode</b>	Specify the redundancy protocol
	<b>mst</b>	MSTP
	<b>rstp</b>	Rapid Spanning Tree
	<b>turbo-ring-v1</b>	Turbo ring version 1
	<b>turbo-ring-v2</b>	Turbo ring version 2
	<b>turbo-chain</b>	Turbo chain
Defaults	The default redundancy protocol mode is RSTP.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	<pre>PT-7828(config)# redundancy mode rstp                - Rapid Spanning Tree turbo-ring-v1      - Turbo ring version 1 turbo-ring-v2      - Turbo ring version 2 turbo-chain         - Turbo chain mst                 - MSTP</pre>	
Error messages	N/A	
Related commands	show redundancy mode	

## relay-warning config relay

Use **relay-warning config relay** to select relay to trigger when a warning event occurs.

### Commands

**relay-warning config relay [ relayId ]**

Syntax Description	<b>relay-warning</b>	Configure relay warning
	<b>config</b>	Choose which relay to configure
	<b>relay</b>	Relay
	<i>relayId</i>	Relay's ID = 1 or 2
Defaults	N/A	

Command Modes	Global configuration / Interface configuration
Usage Guidelines	These commands only existed in device with multiple relays.
Examples	N/A
Error messages	Please designate the relay ID Invalid relay ID
Related commands	show relay-warning

## relay-warning event

Use **relay-warning event** global configuration commands to enable the warning events trigger to the relay. Use the **no** form of this command to disable it.

### Commands

**relay-warning event { power-input1-fail | power-input2-fail | turbo-ring-break }**  
**no relay-warning event { power-input1-fail | power-intput2-fail | turbo-ring-break }**

Syntax Description	<b>relay-warning</b>	Configure relay warning
	<b>event</b>	System events
	<b>power-input1-fail</b>	Power input 1 failure (On->Off)
	<b>power-input2-fail</b>	Power input 2 failure (On->Off)
	<b>turbo-ring-break</b>	Turbo Ring break
Defaults	All system events are disabled by default.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	<pre>PT-7828# configure terminal PT-7828(config)# relay-warning   override          - Override the relay warning setting   event             - System events PT-7828(config)# relay-warning event   power-input1-fail - Power input 1 failure (ON-&gt;Off)   power-input2-fail - Power input 2 failure (ON-&gt;Off)   turbo-ring-break  - Turbo Ring break PT-7828(config)# relay-warning event turbo-ring-break</pre>	
Error messages	N/A	
Related commands	show relay-warning	

## relay-warning event

Use **relay-warning event** interface configuration commands to enable the warning events trigger to the relay. Use the **no** form of this command to disable it.

### Commands

**relay-warning event { link-on | link-off }**  
**relay-warning event traffic-overload [ rxThreshold duration]**  
**no relay-warning event { link | traffic-overload }**

Syntax Description	<b>relay-warning</b>	Configure relay warning
	<b>event</b>	Port events
	<b>link-on</b>	Link ON
	<b>link-off</b>	Link OFF
	<b>traffic-overload</b>	Traffic overloading
	<i>rxThreshold</i>	0 to 100
	<i>duration</i>	1 to 300
	<b>link</b>	All link events
Defaults	All interface events are disabled by default.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	<pre>PT-7828(config)# interface ethernet 3/1 PT-7828(config-if)# relay-warning event ?   link-on           - Link ON   link-off          - Link OFF   traffic-overload  - Traffic overloading PT-7828(config-if)# relay-warning event link-off PT-7828(config-if)# relay-warning event traffic-overload</pre>	
Error messages	Threshold should be between 0 and 100	
	Duration should be between 1 and 300	
Related commands	show relay-warning	

## relay-warning override

Use **relay-warning override relay** to override the relay warning setting temporarily. Releasing the relay output will allow administrators to fix any problems with the warning condition. Use the **no** form of this command to disable the override.

### Commands

**relay-warning override relay** [ *relayId* ]

**no relay-warning override relay** [ *relayId* ]

Syntax Description	<b>relay-warning</b>	Configure relay warning
	<b>override</b>	Override the relay warning setting
	<b>relay</b>	Relay
	<i>relayId</i>	Relay's ID = 1 or 2
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	<i>relayId</i> will only be used on the product that have multiple relays.	
Examples	PT-7828(config)# relay-warning override relay	
Error messages	Please designate the relay ID Invalid relay ID	
Related commands	show relay-warning	

## reload

Use the **reload** privileged command on the switch to restart the Moxa Switch. Use the **reload factory-default** privileged command to restore the switch configuration to the factory default values.

### Commands

#### reload [factory-default]

Syntax	<b>reload</b>	Halt and perform a cold restart
Description	<b>factory-default</b>	Halt and perform a cold restart with factory default
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	<pre>PT-7828# reload &lt;LF&gt; factory-default      - Halt and perform a cold restart with factory default PT-7828# rel reload              - Halt and perform a cold restart PT-7828# reload factory-default &lt;LF&gt; PT-7828# reload Proceed with reload ? [Y/n] PT-7828# reload factory-default Proceed with reload to factory default? [Y/n]</pre>	
Error messages	N/A	
Related commands	N/A	

## router ospf

To configure an Open Shortest Path First (OSPF) routing process, use the **router ospf** command in global configuration mode. To terminate an OSPF routing process, use the **no** form of this command.

### Commands

#### router ospf [router-id]

#### no router ospf

Syntax	<b>router</b>	Enable a routing process
Description	<b>ospf</b>	Enable OSPF routing, and enter router configuration mode
	<i>router-id</i>	OSPF routing ID has a unique value
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	Use <b>router ospf</b> commands to enable OSPF routing process. Use <b>router ospf router-id</b> to entering the Router configuration mode as OSPF.	
Examples	<pre>PT-7828(config)# router ospf PT-7828(config)# router ospf 0.0.1.1 PT-7828(config-ospf)#</pre>	
Error messages	Invalid parameters!	
Related commands	show ip ospf	

## router rip

Use the **router rip** global configuration command to Enable a RIP routing process, and enter router configuration mode. To turn off the RIP routing process, use the **no** form of this command.

### Commands

**router rip**

**no router rip**

Syntax	<b>router</b>	Enable a routing process
Description	<b>rip</b>	Enable RIP (Routing Information Protocol)
Defaults	RIP is disabled in factory default.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# router rip PT-7828(config-rip)#	
Error messages	N/A	
Related commands	show ip rip	

## router vrrp

To enable Virtual Router Redundancy Protocol (VRRP), use the **router vrrp** command in global configuration mode. To disable the VRRP, use the **no** form of this command

### Commands

**router vrrp**

**no router vrrp**

Syntax	<b>router</b>	Enable a routing process
Description	<b>vrrp</b>	Enable VRRP (Virtual Router Redundancy Protocol)
Defaults	VRRP is not default disabled.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# router vrrp  PT-7828(config)# no router vrrp	
Error messages	N/A	
Related commands	show ip vrrp	

## router vrrp adver-interval

**NOTE** This command is only supported by Layer 3 switches.

Use **router vrrp adver-interval** command in global configuration mode to setup VRRP advertisement interval.

### Commands

**router vrrp adver-interval** *interval*

Syntax	<b>router</b>	Enable a routing process
Description	<b>vrrp</b>	Enable VRRP (Virtual Router Redundancy Protocol)
	<b>adver-interval</b>	Configure advertisement interval
	<i>interval</i>	Interval value
Defaults	Default VRRP adver-interval is 1000 ms	
Command Modes	Global configuration	
Usage Guidelines	The join-prune interval range is 25 to 1000 ms	
Examples	ICS-G7852A-4XG(config)# router vrrp adver-interval 25	
Error messages	N/A	
Related commands	show ip vrrp	

## save config

Use the **save config** command to save the running configuration to the startup configuration on flash.

### Commands

**save config**

Syntax	<b>save</b>	Save running configuration to flash
Description	<b>config</b>	Save running configuration to flash
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	PT-7828# save config  Saving configuration ...Success	
Error messages	N/A	
Related commands	N/A	

# show acl

**NOTE** The command is supported only in Layer 3 switches

Use the **show acl** user EXEC command to display the ACL configuration.

## Commands

**show acl** [*id*]

**show acl summary**

Syntax	<b>show</b>	Show running system information
Description	<b>acl</b>	Display ACL information
	<i>id</i>	The access list ID
	<b>summary</b>	Display active ACL status
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage	N/A	
Guidelines	N/A	
Examples	<pre> <b>PT-7828# show acl 10</b> ACL ID      : 10 Name       : Type       : MAC-base  Rule Index      : 1 Action         : deny Source MAC Address : 00:11:22:33:44:55/FF:FF:FF:00:00:00 Destination MAC Address : AA:BB:CC:DD:EE:FF/FF:FF:FF:00:00:00 Ether Type     : 2048 VLAN ID       : 10 Ingress Port Map : 0 Egress Port Map : 0 -----  <b>PT-7828# show acl summary</b>  Type   ID   Attached Port   Name ----- MAC-base 1 MAC-base 10 test_acl1 </pre>	
Error messages	Invalid ID!	
Related commands		

# show auth tacacs+

Use the **show auth tacacs+** user EXEC command to display the setting of TACACS+ authentication traffic statistic information of interfaces.

## Commands

**show auth tacacs+**

Syntax	<b>auth</b>	Display authentication settings
Description	<b>tacacs+</b>	Tacacs+ authentication
Defaults	N/A	

Command Modes	Privileged EXEC/ User EXEC
Usage Guidelines	N/A
Examples	<pre>PT-7828# show auth tacacs+  Tacacs+ information:   Status           : Disabled   Auth server      : tacacs.server.moxa.com, port:49   Shared key       :   Auth type        : ASCII   Server Timeout   : 23 sec.</pre>
Error messages	N/A
Related commands	<pre>auth tacacs+ auth tacacs+ server auth tacacs+ auth-type</pre>

## show clock

Use the **show clock** user EXEC command to display time-related settings.

### Commands

#### **show clock**

Syntax Description	<b>clock</b>	Display the system clock
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	<pre>PT-7828# show clock  Current Time           : Fri Jan 01 08:38:28 2010 Daylight Saving   Start Date           :   End Date              :   Offset                : Time Zone              : GMT-4:00 Time Server            : Query Period           : 600 sec NTP/SNTP Server        : Disabled</pre>	
Error messages	N/A	
Related commands	<pre>clock set clock summer-time clock timezone ntp refresh-time ntp remote-server ntp server</pre>	



## show dot1x

To check the 802.1x setting, use the **show dot1x** command.

### Commands

#### show dot1x

Syntax	<b>dot1x</b>	Display 802.1x settings
Description		
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	<pre>PT-7828# show dot1x Database Option: Local Radius Server  : localhost Server Port   : 1812 Shared Key    : Re-Auth       : Enable Re-Auth Period : 3600  Port 802.1X Enable ----- 1-1  Disable 1-2  Enable 1-3  Disable 1-4  Disable</pre>	
Examples	N/A	
Error messages	N/A	
Related commands	dot1x auth dot1x reauth	

## show dot1x local-userdb

To check the 802.1x local user database, use the **show dot1x local-userdb** command.

### Commands

#### show dot1x local-userdb

Syntax	<b>dot1x</b>	Display 802.1x settings
Description	<b>local-userdb</b>	Display current local database
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	<pre>PT-7828# show dot1x local-userdb Index User Name                Description ----- 1      moxanet                  moxanet</pre>	
Examples	N/A	
Error messages	N/A	
Related commands	dot1 local-userdb	

## show eip

### Commands

show eip

Syntax	<b>eip</b>	Display Ethernet/IP configuration
Description		
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	PT-7828# show eip eip disable	
Examples	N/A	
Error messages	N/A	
Related commands	eip	

## show PROFINETIO

Use the **show profinetio** user EXEC command to display PROFINET configuration

### Commands

**show profinetio**

Syntax	<b>show</b>	Show running system information
Description	<b>profinetio</b>	Display PROFINET configuration
Defaults	N/A	
Command Modes	Privileged EXEC / User EXEC	
Usage Guidelines	N/A	
Examples	EDS-G516E> show profinetio profinet io disable	
Error messages	N/A	
Related commands	profinetio	

## show email-warning config

### Commands

**show email-warning config**

Syntax	<b>show</b>	Show running system information
Description	<b>email-warning</b>	Display Email warning configuration
	<b>config</b>	Email warning configuration
Defaults	N/A	
Command Modes	Privileged EXEC /User EXEC	
Usage Guidelines	N/A	

<p>Examples</p>	<pre>PT-7828# show email-warning config Mail Server and Email Setup SMTP Server IP/Name : SMTP Port           : 25 Account Name        : Account Password    :  1st email address  : 2nd email address  : 3rd email address  : 4th email address  : System Events Cold Start         : Disable Warm Start         : Disable Conf. Changed      : Disable Power On-&gt;Off      : Disable Power Off-&gt;On      : Disable Auth. Failure      : Disable Topology Changed   : Disable --More-- Port Events Setting Port              Link   Link   Traffic  RX      Traffic                   ON    OFF    Overload Threshold(%)  Duration(s) ----- 1-1              Disable Disable Disable   0         1 1-2              Disable Disable Disable   0         1 1-3              Disable Disable Disable   0         1 1-4              Disable Disable Disable   0         1 1-5              Disable Disable Disable   0         1 1-6              Disable Disable Disable   0         1 1-7              Disable Disable Disable   0         1 1-8              Disable Disable Disable   0         1 3-1              Disable Disable Disable   0         1 3-2              Disable Disable Disable   0         1 3-3              Disable Disable Disable   0         1 3-4              Disable Disable Disable   0         1 3-5              Disable Disable Disable   0         1 3-6              Disable Disable Disable   0         1 3-7              Disable Disable Disable   0         1 3-8              Disable Disable Disable   0         1 PT-7828#</pre>
<p>Error messages</p>	<p>N/A</p>
<p>Related commands</p>	<p>email-warning event  email-warning account  email-warning server  email-warning mail-address</p>



Defaults	N/A
Command Modes	Privileged EXEC/ User EXEC
Usage Guidelines	N/A
Examples	<pre>PT-7828# show interfaces ethernet 2/1 acl  Type      ID      Direction  Index -----  - IP-base  2       Inbound    1 MAC-base  4       Inbound    2 IP-base  7       Inbound    3 MAC-base  11      Outbound   4</pre>
Error messages	Invalid ID!
Related commands	

## show interfaces counters

Use the **show interfaces counters** user EXEC command to display traffic statistics information of interfaces.

### Commands

**show interfaces counters**

**show interfaces ethernet *port-id* counters**

**show interfaces trunk *trunk-id* counters**

Syntax Description	<b>interfaces</b>	Interface status and configuration
	<b>counters</b>	Display counters
	<i>port-id</i>	Port ID or list. E.g., 1/1,2,3,2/1-3,5,...
	<i>trunk-id</i>	Trunk ID (or list)
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	Detail counter information will contain the differences information from last query.	
Examples	<pre>PT-7828# show interfaces counters  Port      Tx Packets (Load%)      Rx Packets (Load%) -----  - 1/ 5             662 ( 0)                364 ( 0) 1/ 6              0 ( 0)                  0 ( 0) Trk1           1608 ( 0)               1608 ( 0) Trk2              0 ( 0)                  0 ( 0)</pre> <pre>PT-7828# show interfaces ethernet 1/5 counters Port 1/5 (last sample time: 16577 sec. ago) - TX -   Unicast Packets   : 108      +108   Multicast Packets : 553      +553   Broadcast Packets : 2        +2   Collision Packets : 0        +0 - RX -   Unicast Packets   : 109      +109</pre>	

	<pre> Multicast Packets : 0          +0 Broadcast Packets : 255       +255 Pause Packets     : 0          +0 - Error - TX Late           : 0          +0 TX Excessive      : 0          +0 RX CRC error      : 0          +0 RX Discard        : 0          +0 RX Undersize      : 0          +0 RX Fragments      : 0          +0 RX Oversize       : 0          +0 RX Jabber         : 0          +0 </pre>
Error messages	N/A
Related commands	N/A

## show interfaces ethernet

To check the status of interfaces, use the **show interfaces ethernet** command.

### Commands

**show interfaces ethernet [ module/port [config] ]**

Syntax Description	<b>interfaces</b>	Interface status and configuration
	<b>ethernet</b>	IEEE 802.3/IEEE 802.3z
	<i>module/port</i>	Port ID or list. E.g., 1/1,2,3,2/1-3,5,...
	<b>config</b>	Show interface module/port settings
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	<pre> PT-7828# show interfaces ethernet Port Link      Description                Speed    FDX Flow Ctrl MDI/MDIX ----- 1-1 Down       100TX,RJ45.                --       --             -- 1-2 Down       100TX,RJ45.                --       --             -- 1-3 Down       100TX,RJ45.                --       --             -- 1-4 Down       100TX,RJ45.                --       --             -- 1-5 Up         100TX,RJ45.                100M-Full Off        MDI 1-6 Down       100TX,RJ45.                --       --             -- 1-7 Down       100TX,RJ45.                --       --             -- 1-8 Down       100TX,RJ45.                --       --             --  PT-7828# show interfaces ethernet 1/1-3 config Port Enable Description                Speed    FDX Flow Ctrl MDI/MDIX ----- 1-1 Yes   100FX,SC,Single,40.        100M-Full Disable   Auto 1-2 Yes   100FX,SC,Single,40.        100M-Full Disable   Auto 1-3 Yes   100TX,RJ45.                Auto     Disable   Auto </pre>	
Examples	N/A	
Error messages	N/A	
Related commands	N/A	

# show interfaces filter-ip

Use the **show interfaces** filter-ip user EXEC command to display the setting of IP filtering entries.

## Commands

**show interfaces ethernet** module/port filter-ip

Syntax	<b>interfaces</b>	Interface status and configuration
Description	<b>ethernet</b>	IEEE 802.3/IEEE 802.3z
	module/port	Port ID or list. E.g., 1/1,2,3,2/1-3,5,...
	<b>filter-ip</b>	Rate limiting configuration
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	<pre>PT-7828# show interfaces ethernet 1/1-6 filter-ip Allowed IP in Port 1/1:     192.168.127.1     192.168.127.2     192.168.127.3     192.168.127.4     192.168.127.5     192.168.127.6     192.168.127.7     192.168.127.8  Allowed IP in Port 1/2:  Allowed IP in Port 1/3:  Allowed IP in Port 1/4:  --More-- Allowed IP in Port 1/5:     192.168.127.1  Allowed IP in Port 1/6:</pre>	
Error messages	N/A	
Related commands	ip filter-ip	

## show interfaces mgmt

Use the **show interfaces mgmt** user EXEC command to display the Mgmt-VLAN settings.

### Commands

#### show interfaces mgmt

Syntax	<b>interfaces</b>	Interface status and configuration
Description	<b>mgmt</b>	Display management VLAN information
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	<pre>PT-7828# show interfaces mgmt  IPv4   Management VLAN id : 1   IP configuration   : Static   IP address        : 192.168.127.253   Subnet mask       : 255.255.255.0   Default gateway   : 0.0.0.0   DNS server        :</pre>	
Error messages	N/A	
Related commands	ip address ip default-gateway ip name-server bind vlan	

## show interfaces mgmt access-ip

Use the **show interfaces mgmt access-ip** user EXEC command to display the settings of accessible IP list.

### Commands

#### show interfaces mgmt access-ip

Syntax	<b>show</b>	Show running system information
Description	<b>interfaces</b>	Interface status and configuration
	<b>mgmt</b>	Display management VLAN information
	<b>access-ip</b>	Display accessible IP list
Defaults	N/A	
Command Modes	Privileged EXEC / User EXEC	
Usage Guidelines	N/A	
Examples	<pre>PT-7828# show interfaces mgmt access-ip Accessible IP List: Enable Index  IP / Netmask 1      192.168.127.253 / 255.255.255.0</pre>	
Error messages	N/A	
Related commands	access-ip	



## show interfaces rate-limit

Use the **show interfaces rate-limit** user EXEC command to display the setting of Rate-limiting.

### Commands

**show interfaces ethernet module/port rate-limit**

Syntax	<b>interfaces</b>	Interface status and configuration
Description	<b>ethernet</b>	IEEE 802.3/IEEE 802.3z
	<i>module/port</i>	Port ID or list. E.g., 1/1,2,3,2/1-3,5,...
	<b>rate-limit</b>	Rate limiting configuration
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	<pre>PT-508# show interfaces ethernet 1/1-3 rate-limit  Port 1/1:   Ingress Limit Mode: Broadcast, Multicast, DLF   Ingress Limit Rate: 8M   Egress Limit Rate : Not Limited  Port 1/2:   Ingress Limit Mode: Broadcast   Ingress Limit Rate: 8M   Egress Limit Rate : Not Limited  Port 1/3:   Ingress Limit Mode: Broadcast   Ingress Limit Rate: 8M   Egress Limit Rate : Not Limited</pre>	
Error messages	N/A	
Related commands	rate-limit	

## show interfaces trunk

Use the **show interfaces trunk** user EXEC command to display spanning-tree state information

### Commands

**show interfaces trunk** [*trunk-id-list*]

Syntax	<b>interfaces</b>	Interface status and configuration
Description	<b>trunk</b>	Show interface trunk information
	<i>trunk-id-list</i>	Trunk ID (or list)
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	

Examples	<pre>PT-7828# show interfaces trunk Trk#  Type  Enable  Description                               Speed -----  - 1     Static  Yes                                   100M-Full 2     Static  Yes                                   100M-Full  PT-7828# show interfaces trunk 1-2 Trunk-1 (Static):   Member  Status   -----  -   1/1     Success   1/2     Success  Trunk-2 (Static):   Member  Status   -----  -   1/3     Fail   1/4     Fail</pre>
Error messages	There is no member in Trunk 1
Related commands	trunk-mode trunk-group

## show interfaces vlan

Use the **show interfaces vlan** user EXEC command to display vlan ip interface information.

### Commands

**show interfaces vlan** [vlan-id-list]

Syntax	<b>show</b>	Show running system information
Description	<b>Interfaces</b>	Interface status and configuration
	<b>Vlan</b>	Display layer3 IP interface settings
	<i>vlan-id-list</i>	1 to 4094
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	<pre>PT-7828# show interfaces vlan  Interface Name: VLAN2 IP Address: 10.10.10.10 Subnet Mask: 255.255.255.0 VLAN ID: 2 Proxy ARP: Disable</pre>	
Error messages	N/A	
Related commands	Interface vlan	

## show interfaces mgmt trusted-access

Same as **show interfaces mgmt access-ip**.

### Commands

**show interfaces mgmt trusted-access**

Syntax Description	show	Show running system information
	interfaces	Interface status and configuration
	mgmt	Display management VLAN information
	trusted-access	Display trusted access IP list
Defaults	N/A	
Command Modes	Privileged EXEC / User EXEC	
Usage Guidelines	N/A	
Examples	<pre>PT-7828# show interfaces mgmt trusted-access Trusted Access IP List: Enable Index  IP / netmask 1      192.168.127.253 / 255.255.255.0</pre>	
Error messages	N/A	
Related commands	trusted-access	

## show ip auto-assign

Use the **show ip auto-assign** user EXEC command to display the setting of the Auto IP Assignment feature.

### Commands

**show ip auto-assign**

Syntax Description	ip	Display IP information
	auto-assign	Display automatic ip assignment settings
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	<pre>PT-7828# show ip auto-assign Port Device's Current IP Active Function    Desired IP ----- 1/ 6                                     NA          -- 192.168.127.8 Trk1                                     NA          -- 192.168.127.7</pre>	
Error messages	N/A	
Related commands	ip auto-assign	

# show ip dhcp-relay config

Use the **show ip dhcp-relay config** user EXEC command to display the setting of the DHCP relay feature.

## Commands

### show ip dhcp-relay config

Syntax	<b>show</b>	Show running system information
Description	<b>ip</b>	Display IP information
	<b>dhcp-relay</b>	Display DHCP relay configuration
	<b>config</b>	DHCP relay configuration
Defaults	N/A	
Command Modes	Privileged EXEC / User EXEC	
Usage Guidelines	N/A	
Examples	<pre>PT-7828# show ip dhcp-relay config DHCP Relay Agent Setting  1st server IP :  2nd server IP :  3rd server IP :  4th server IP :  DHCP Relay Option 82: Enable  Remote ID type   : Other  Remote ID value  : 1234567890123  Remote ID display: 31323334353637383930313233  --More--  DHCP Function Table Port  Circuit-ID      Option 82 ----- 1-1   01000101         Disable 1-2   01000102         Disable 1-3   01000103         Disable 1-4   01000104         Disable 1-5   01000105         Disable 1-6   01000106         Disable 1-7   01000107         Disable 1-8   01000108         Disable 3-1   01000111         Disable 3-2   01000112         Disable 3-3   01000113         Disable 3-4   01000114         Disable 3-5   01000115         Disable 3-6   01000116         Disable 3-7   01000117         Disable 3-8   01000118         Disable  PT-7828#</pre>	
Error messages	N/A	
Related commands	N/A	

# show ip http-server status

Use **show ip http-server status** to display HTTP server related settings.

## Commands

### show ip http-server status

Syntax Description	<b>show</b>	Show running system information
	<b>ip</b>	Display IP information
	<b>http-server</b>	HTTP server information
	<b>status</b>	Status
Defaults	N/A	
Command Modes	Privileged EXEC / User EXEC	
Usage Guidelines	N/A	
Examples	<pre>PT-7828# show ip http-server status HTTP service is enable HTTP server capability: Present HTTPS secure server capability: Present Auto-logout: disable</pre>	
Error messages	N/A	
Related commands	N/A	

# show ip igmp

Use the **show ip igmp** user EXEC command to display the Internet Group Management Protocol (IGMP) snooping configuration and IGMP table of the switch.

## Commands

### show ip igmp

Commands	<b>ip</b>	Display IP information
	<b>igmp</b>	Show IGMP snooping settings
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	<pre>PT-7828# show ip igmp IGMP Snooping           :Enable IGMP Snooping Enhanced Mode :Enable Query Interval          :125(sec)  VID  Static(S) / Learned(L)             Active IGMP Groups  Multicast Querier Port &amp;  IP            MAC            Members Port  Querier(Q) connected Port                          ----- 1   1-1(S)                 224.1.1.8     01-00-5E-01-01-08   1-1                                239.255.255.250 01-00-5E-7F-FF-FA   1-1</pre>	
Examples	N/A	
Error messages	N/A	

Related commands	ip igmp ip igmp snooping
------------------	-----------------------------

## show ip ospf

Use the **show ip ospf** user EXEC command to display general information about OSPF routing processes.

### Commands

#### show ip ospf

Syntax	<b>show</b>	Show running system information
Description	<b>ip</b>	Display IP information
	<b>ospf</b>	Display OSPF configurations
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	<pre>PT-7828# show ip ospf  OSPF Global Configuration ----- OSPF                Enabled Router ID           192.168.1.1 Current Router ID  192.168.1.1 Redistribute        [Connected]  OSPF Area Configuration Idx Area ID        Area Type      Metric ----- 1   192.168.1.1     Normal        0  OSPF Virtual Link Configuration Idx Transit Area ID  Neighbor Router ID ----- 1   192.168.1.1      192.168.0.0  OSPF Aggregation Configuration Idx Area ID        Network Address  Network Mask -----</pre>	
Error messages	N/A	
Related commands	area area virtual-link network area redistribute	

## show ip ospf database

Use the **show ip ospf database** user EXEC command to display information related to the OSPF database for a specific router.

### Commands

#### show ip ospf database

Syntax	<b>show</b>	Show running system information
Description	<b>ip</b>	Display IP information
	<b>ospf</b>	Display OSPF configurations
	<b>database</b>	OSPF database
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	PT-7828# show ip ospf database	
Error messages	N/A	
Related commands	ip ospf area	

## show ip ospf interface

Use the **show ip ospf interface** user EXEC command to display the OSPF related interfaces information.

### Commands

#### show ip ospf interface

Syntax	<b>show</b>	Show running system information
Description	<b>ip</b>	Display IP information
	<b>ospf</b>	Display OSPF configurations
	<b>interface</b>	OSPF routing interface
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	PT-7828# show ip ospf interface	
Error messages	N/A	
Related commands	ip ospf area ip ospf priority ip ospf hello-interval ip ospf dead-interval ip ospf cost	

## show ip ospf neighbor

Use the **show ip ospf neighbor** user EXEC command to display OSPF neighbor information.

### Commands

#### show ip ospf neighbor

Syntax	<b>show</b>	Show running system information
Description	<b>ip</b>	Display IP information
	<b>ospf</b>	Display OSPF configurations
	<b>neighbor</b>	OSPF neighbor information
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	PT-7828# show ip ospf neighbor	
Error messages	N/A	
Related commands	ip ospf area	

## show ip pim-dm

**NOTE** This command is only supported by Layer 3 switches.

Use **show ip pim-dm** command to display the settings of PIM-DM.

### Commands

#### show ip pim-dm

Syntax	<b>show</b>	Show running system information
Description	<b>ip</b>	Display IP information
	<b>pim-dm</b>	Display PIM-DM information
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	<pre>ICS-G7852A-4XG# show ip pim-dm PIM-DM: Enable Interface      Address          VID      Enable  Mode ----- V100           172.100.1.2     100      V V200           172.200.1.2     200      V V10            172.10.1.2      10       V V20            172.20.1.2      20       V</pre>	
Error messages	N/A	
Related commands	ip pim-dm no ip pim-dm	



# show ip pim-dm neighbor

**NOTE** This command is only supported by Layer 3 switches.

Use **show ip pim-dm neighbor** command to display PIM-DM neighbor information.

## Commands

### show ip pim-dm neighbor

Syntax	<b>show</b>	Show running system information
Description	<b>ip</b>	Display IP information
	<b>pim-dm</b>	Display PIM-DM information
	<b>neighbor</b>	PIM-DM neighbor information
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	<pre>ICS-G7852A-4XG# show ip pim-dm neighbor PIM Neighbor Table Index Neighbor Address Interface Uptime Expire ----- 1 172.100.1.4 V100 89 --- 2 172.100.1.1 V100 89 --- 3 172.200.1.3 V200 75 ---</pre>	
Error messages	N/A	
Related commands	ip pim-dm no ip pim-dm	

# show ip pim-sm

**NOTE** This command is only supported by Layer 3 switches.

Use **show ip pim-sm** command to display the settings of PIM-SM.

## Commands

### show ip pim-sm

Syntax	<b>show</b>	Show running system information
Description	<b>ip</b>	Display IP information
	<b>pim-sm</b>	Display PIM-SM information
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	<pre>ICS-G7852A-4XG# show ip pim-sm PIM-SM: Enable Interface Address VID Enable Mode ----- V100 172.100.1.2 100 V V200 172.200.1.2 200 V V10 172.10.1.2 10 V</pre>	

	V20	172.20.1.2	20	V
Error messages	N/A			
Related commands	ip pim-sm no ip pim-sm ip pim-sm dr-priority ip pim-sm hello-interval ip pim-sm join-prune-interval			

## show ip pim-sm bsr

**NOTE** This command is only supported by Layer 3 switches.

Use **show ip pim-sm bsr** command to display PIM-SM BSR information.

### Commands

#### show ip pim-sm bsr

Syntax	<b>show</b>	Show running system information
Description	<b>ip</b>	Display IP information
	<b>pim-sm</b>	Display PIM-SM information
	<b>bsr</b>	PIM-SM BSR information
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	ICS-G7852A-4XG# show ip pim-sm bsr PIM BSR BSR Address Priority Hash Mask Length ----- 172.230.1.1 0 4	
Error messages	N/A	
Related commands	ip pim-sm no ip pim-sm ip pim-sm dr-priority ip pim-sm hello-interval ip pim-sm join-prune-interval	

## show ip pim-sm neighbor

**NOTE** This command is only supported by Layer 3 switches.

Use **show ip pim-sm neighbor** command to display PIM-SM neighbor information.

### Commands

#### show ip pim-sm neighbor

Syntax	<b>show</b>	Show running system information
Description	<b>ip</b>	Display IP information
	<b>pim-sm</b>	Display PIM-SM information
	<b>neighbor</b>	PIM-SM neighbor information
Defaults	N/A	

Command Modes	Privileged EXEC/ User EXEC
Usage Guidelines	N/A
Examples	<pre>ICS-G7852A-4XG# show ip pim-sm neighbor PIM Neighbor Table Index Neighbor Address Interface Uptime Expire ----- 1 172.100.1.4 V100 89 --- 2 172.100.1.1 V100 89 --- 3 172.200.1.3 V200 75 ---</pre>
Error messages	N/A
Related commands	<pre>ip pim-sm no ip pim-sm ip pim-sm dr-priority ip pim-sm hello-interval ip pim-sm join-prune-interval</pre>

## show ip pim-sm routing

**NOTE** This command is only supported by Layer 3 switches.

Use **show ip pim-sm routing** command to display current PIM-SM routing table entries.

### Commands

#### show ip pim-sm

Syntax Description	<b>show</b>	Show running system information
	<b>ip</b>	Display IP information
	<b>pim-sm</b>	Display PIM-SM information
	<b>routing</b>	Display routing entries
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	<pre>ICS-G7852A-4XG# show ip pim-sm routing PIM-SM Routing Multicast   Source   RP Address   VID   Left time   Downstream Group Address   Address       (Second)   Interface VID ===== 0.0.0.0 * 0.0.0.0 local - NULL 232.0.0.1 172.20.2.1 0.0.0.0 20 38s 100 200 10 0 232.0.0.1 * 0.0.0.0 local - NULL 232.0.0.2 172.20.2.1 0.0.0.0 20 48s 100 200 10 0</pre>	
Error messages	N/A	

Related commands	ip pim-sm no ip pim-sm ip pim-sm dr-priority ip pim-sm hello-interval ip pim-sm join-prune-interval
------------------	---

## show ip pim-sm rp

**NOTE** This command is only supported by Layer 3 switches.

Use **show ip pim-sm rp** command to display PIM-SM RP information.

### Commands

#### show ip pim-sm rp

Syntax	<b>show</b>	Show running system information
Description	<b>ip</b>	Display IP information
	<b>pim-sm</b>	Display PIM-SM information
	<b>rp</b>	PIM-SM RP information
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	<pre>ICS-G7852A-4XG# show ip pim-sm rp PIM-SM RP Set   Group Address  R   RP Address    Holdtime   Priority   Hash ===== 224.0.0.0/4      172.230.1.4    112       0       7331bd32 224.0.0.0/4      172.230.1.1     78        0       2a523511 224.0.0.0/4      *172.200.1.3    86        0       7d18d1eb 224.0.0.0/4      172.200.1.2    112       0       3edf2058</pre>	
Error messages	N/A	
Related commands	ip pim-sm no ip pim-sm ip pim-sm dr-priority ip pim-sm hello-interval ip pim-sm join-prune-interval	

## show ip rip

Use the **show ip rip** command to display the settings of RIP.

### Commands

#### show ip rip

Syntax	<b>show</b>	Show running system information
Description	<b>ip</b>	Display IP information
	<b>rip</b>	Display RIP configurations
Defaults	N/A	
Command Modes	Privileged EXEC / User EXEC	

Usage Guidelines	N/A
Examples	<pre>PT-7828# show ip rip RIP Protocol      : Enable RIP version       : V2 Distribution   Connected       : Enable   Static          : Disable   OSPF            : Disable  RIP Enable Table Interface Name    IP                VID             Enable ----- vlan2if          192.168.102.1    2              Enable</pre>
Error messages	N/A
Related commands	N/A

## show ip route

Use the **show ip route** user EXEC command to display current routing table entries.

### Commands

#### show ip route [static]

Syntax	<b>show</b>	Show running system information
Description	<b>ip</b>	Display IP information
	<b>route</b>	Display routing entries
	<b>static</b>	Static routing entries
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	PT-7828# show ip ospf neighbor	
Error messages	N/A	
Related commands	N/A	

## show ip vrrp

To display a detailed status of all Virtual Router Redundancy Protocol (VRRP) virtual routers, use the **show ip vrrp** command in EXEC mode.

### Commands

#### show ip vrrp

Commands	<b>ip</b>	Display IP information
	<b>vrrp</b>	Display VRRP information
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	

Usage	PT-7828# show ip vrrp
Guidelines	<pre> VRRP Enable          Enable VRRP Interface Table   Interface Name  IP Address  VID Status   1              1.1.1.1    2   Init  VRRP Basic Setting   VRRP Entry Enable  :Enable   Virtual IP         :0.0.0.0   Virtual Router ID  :0   Priority           :100   Preemption Mode    :Enable ----- Interface Name  IP Address  VID Status   2              2.2.2.2    3   Init  VRRP Basic Setting   VRRP Entry Enable  :Disable   Virtual IP         :0.0.0.0   Virtual Router ID  :0   Priority           :100   Preemption Mode    :Enable ----- </pre>
Examples	N/A
Error messages	N/A
Related commands	<pre> router vrrp vrrp vrrp preempt vrrp priority </pre>

## show lldp

Use the **show lldp** command to display the LLDP settings and the LLDP neighbor information.

### Commands

#### **show lldp**

#### **show lldp entry**

Syntax	<b>show</b>	Show running system information
Description	<b>lldp</b>	Display LLDP information
	<b>entry</b>	LLDP entries
Defaults	N/A	
Command Modes	Privileged EXEC / User EXEC	
Usage Guidelines	N/A	

Examples	<pre>PT-7828# show lldp LLDP Enable           : Enable Message Transmit Interval: 30 seconds  PT-7828# show lldp entry Port   : 23 Neighbor ID           : 00:90:e8:0a:0a:0a Neighbor Port         : 3 Neighbor Port Descript : 100TX,RJ45. Neighbor System       : Managed Redundant Switch 00000  Port   : 19 Neighbor ID           : 00:90:e8:0a:0a:0a Neighbor Port         : 2 Neighbor Port Descript : 100TX,RJ45. Neighbor System       : Managed Redundant Switch 00000  Port   : 24 Neighbor ID           : 00:90:e8:0a:0a:0a Neighbor Port         : 1 Neighbor Port Descript : 100TX,RJ45. Neighbor System       : Managed Redundant Switch 00000</pre>
Error messages	N/A
Related commands	lldp timer lldp run

## show logging

Use the **show logging** user EXEC command to display the setting of the IP filter feature.

### Commands

#### show logging [event-log]

Syntax	<b>logging</b>	Display syslog information
Description	<b>event-log</b>	Display system event logs
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	<pre>PT-7828# show logging Syslog server #1: Syslog server #2: 192.168.1.2, port: 514 Syslog server #3: 192.168.1.3, port: 514  PT-7828# show logging event-log Idx Boot      Time or Uptime                               Log -----  1 337 2037/06/23, 20:46:08   192.168.127.1 admin Auth. ok  2 337 2037/06/23, 20:52:47   Authentication fail  3 338 2037/06/23, 21:51:59   Port 1-1(Trk1) link on  4 338 2037/06/23, 21:51:59   Port 1-2 link on  5 338 2037/06/23, 21:51:59   Port 1-5 link on  6 338 2037/06/23, 21:52:03   Port 1-5 link off</pre>	

	7 338 2037/06/23, 21:52:03 Warm start by Firmware Upgrade
	8 338 2037/06/23, 21:52:04 Port 1-5 link on
	9 338 2037/06/23, 22:03:43 192.168.127.1 admin Auth. ok
	10 338 2037/06/23, 22:04:04 192.168.127.1 admin Auth. ok
	11 338 2037/06/24, 00:02:47 Port 1-5 link off
	12 338 2037/06/24, 00:02:48 Port 1-5 link on
Error messages	N/A
Related commands	logging

## show mac-address-table

Use the **show mac-address-table** user EXEC command to display MAC addresses in the MAC address table.

### Commands

**show mac-address-table [static | learned | mcast]**

**show mac-address-table [interface{ ethernet module/port | trunk trunk-id } ]**

Syntax Description	<b>mac-address-table</b>	Display MAC address forwarding table
	<b>static</b>	Retrieve static MAC addresses
	<b>learned</b>	Retrieve learned MAC addresses
	<b>mcast</b>	Retrieve Multicast address
	<b>interface</b>	Retrieve MAC address by interface
	<b>ethernet</b>	Ethernet Port interface
	<i>module/port</i>	Port ID. E.g., 1/3, 2/1,...
	<b>trunk</b>	Trunk interface
	<i>trunk-id</i>	Trunk ID. From 1 to 4
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	<pre>PT-7828# show mac-address-table Line Swap Fast Recovery : Enabled    MAC           Type  VLAN   Port ----- 00-40-F4-8D-0D-F7 ucast(1)   1 1/5  PT-7828# show mac-address-table learned    MAC           Type  VLAN   Port ----- 00-40-F4-8D-0D-F7 ucast(1)   1 1/5</pre>	
Error messages	N/A	
Related commands	N/A	



## show mac-address-table aging-time

Use the **show mac-address-table aging-time** user EXEC command to display the aging time setting of the MAC address table.

### Commands

#### show mac-address-table aging-time

Syntax	<b>mac-address-table</b>	Display MAC address forwarding table
Description	<b>aging-time</b>	MAC entry aging time
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	<pre>PT-7828# show mac-address-table aging-time          - MAC entry aging time PT-7828# show mac-address-table aging-time MAC address aging time: 300 sec</pre>	
Error messages	N/A	
Related commands	mac-address-table aging-time	

## show mcast-filter

Use the **show mcast-filter** user EXEC command to display the multicast filter configuration.

### Commands

#### show mcast-filter [module/port]

Commands	<b>mcast-filter</b>	Multicast Filtering Behavior
	Module/port	Port(Trunk) ID or list. E.g., 1/1,2,4-5,2/1,Trk1,Trk2-Trk4
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	<pre>PT-7828# show mcast-filter Port Multicast Filtering Behavior ----- 1-1 Forward All 1-2 Forward Unknown 1-3 Filter Unknown</pre>	
Examples	N/A	
Error messages	N/A	
Related commands	mcast-filter	

## show modbus

Use the **show modbus** user EXEC command to display Modbus configuration.

### Commands

#### show modbus

Syntax	<b>modbus</b>	Display Modbus configuration
Description		
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	PT-7828# show modbus Modbus enable	
Examples	N/A	
Error messages	N/A	
Related commands	modbus	

## show port monitor

Use the **show port monitor** EXEC command to display the port mirror settings.

### Commands

#### show port monitor

Syntax Description	<b>show</b>	Show running system information
	<b>port</b>	Display Port configuration
	<b>monitor</b>	Display Port mirror configuration
Defaults	N/A	
Command Modes	Privileged EXEC / User EXEC	
Usage Guidelines	N/A	
Examples	<pre>PT-7828# show port monitor Port Being Monitored           Direction  Mirror Port ----- 1-1 1-2                        both      3-2 PT-7828#</pre>	
Error messages	N/A	
Related commands	monitor	

## show port-security

To check the port access control table, use the **show port-security** command.

### Commands

#### show port-security [module/port]

Commands	<b>port-security</b>	Display port access control table
	<i>module/port</i>	Port ID or list. E.g., 1/1,2,3,2/1-3,5,...
Defaults	N/A	

Command Modes	Privileged EXEC/ User EXEC
Usage Guidelines	PT-7828# show port-security Port Index Mac Address Status ----- 1-2 1 00-00-00-00-00-01 static lock
Examples	N/A
Error messages	N/A
Related commands	port-security

## show qos

Use the **show qos** user EXEC command to display QoS related settings.

### Commands

**show qos [ cos-to-queue | dscp-to-cos | dscp-to-queue ]**

Syntax Description	<b>qos</b>	Display QoS configuration
	<b>cos-to-queue</b>	CoS to traffic queue mappings
	<b>dscp-to-cos</b>	DSCP to CoS mappings
	<b>dscp-to-queue</b>	DSCP to traffic queue mappings
Defaults	N/A	
Command Modes	Privileged	
Usage Guidelines	N/A	
Examples	<pre>PT-7828# show qos  Queuing Mechanism : Weighted Fair (1:2:4:8) Tos Inspection   Module 1       : Disabled   Module 3       : Disabled  Int# CoS Inspection CoS ----- 1/3      Enabled  3 1/4      Enabled  3 1/5      Enabled  3 1/6      Enabled  3 3/1      Enabled  3 3/2      Enabled  3 3/3      Enabled  3 3/4      Enabled  3 3/5      Enabled  3 3/6      Enabled  3 3/7      Enabled  3 3/8      Enabled  3 Trk1     Enabled  3  PT-7828# show qos cos-to-queue  CoS Queue # -----</pre>	

	<pre> 0 Q0 1 Q0 2 Q1 3 Q1 4 Q2 5 Q2 6 Q3 7 Q3 PT-7828# show qos dscp-to-cos  DSCP Cos DSCP Cos DSCP Cos DSCP Cos -----  0  0   1  0   2  0   3  0  4  0   5  0   6  0   7  0  8  1   9  1  10  1  11  1 12  1  13  1  14  1  15  1 16  2  17  2  18  2  19  2 20  2  21  2  22  2  23  2 24  3  25  3  26  3  27  3 28  3  29  3  30  3  31  3 32  4  33  4  34  4  35  4 36  4  37  4  38  4  39  4 40  5  41  5  42  5  43  5 44  5  45  5  46  5  47  5 48  6  49  6  50  6  51  6 52  6  53  6  54  6  55  6 56  7  57  7  58  7  59  7 60  7  61  7  62  7  63  7                 </pre>
Error messages	N/A
Related commands	<pre> qos mode qos inspect qos mapping qos default-cos                 </pre>

## show redundancy mst configure

Use the **show redundancy mst configure** user EXEC command to display settings of Multiple Spanning Tree (MSTP).

### Commands

#### show redundancy mst configuration

Syntax Description	<b>show</b>	Show running system information
	<b>redundancy</b>	Display redundancy protocol status
	<b>mst</b>	Display multiple spanning tree settings
	<b>configure</b>	Display multiple spanning tree global settings
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	

Examples	PT-7828# show redundancy mst configuration MSTP global setting: Forwarding Delay:    15 Hello Time:          2 Max Hops:            20 Max Age:              20 Revision Level:      0 Region Name:          MSTP
Error messages	N/A
Related commands	spanning-tree mst

## show redundancy mst instance

Use the **show redundancy mst instance** user EXEC command to display Multiple Spanning Tree (MSTP) instance state information.

### Commands

**show redundancy mst instance** *instance-id*

Syntax	<b>show</b>	Show running system information
Description	<b>redundancy</b>	Display redundancy protocol status
	<b>mst</b>	Display multiple spanning tree settings
	<b>instance</b>	Display MSTP msti status
	<i>instance-id</i>	MSTP instance ID
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	PT-7828# show redundancy mst instance 1 MSTP msti root status:  MSTI Root: --- MSTP msti 1 bridge status: Vlan Mapping: Birdge Priority: 32768  Int#  Enable  Prio  Cost  Oper Cost  Edge  State  Role -----	
Error messages	N/A	
Related commands	spanning-tree mst instance	

## show redundancy spanning-tree

Use the **show redundancy spanning-tree** user EXEC command to display spanning-tree state information

### Commands

#### show redundancy spanning-tree

Syntax	<b>redundancy</b>	Display redundancy protocol status
Description	<b>spanning-tree</b>	Display spanning tree settings
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	<pre>PT-7828# show redundant spanning-tree Spanning tree status: Enabled Role           : Root Bridge priority : 32768 Hello time     : 2 sec Forwarding delay: 30 sec Max age time   : 20 sec  Int#  Enable  Edge Port  Prio   Cost      Status ----  - 1/1   Disabled Auto      128    200000    --- 1/2   Disabled Auto      128    200000    --- 1/3   Disabled Auto      128    200000    --- 1/4   Disabled Auto      128    200000    --- 1/5   Disabled Auto      128    200000    --- 1/6   Disabled Auto      128    200000    ---</pre>	
Error messages	N/A	
Related commands	spanning-tree forward-delay spanning-tree hello-time spanning-tree max-age spanning-tree priority spanning-tree spanning-tree cost spanning-tree edge-port spanning-tree priority show redundancy spanning-tree	

## show redundancy turbo-chain

Use the **show redundancy turbo-chain** user EXEC command to display turbo-chain state information

### Commands

#### show redundancy turbo-chain

Commands	<b>redundancy</b>	Display redundant settings
	<b>turbo-chain</b>	Display turbo chain status
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	

Usage Guidelines	N/A
Examples	<pre>PT-7828# show redundancy turbo-chain       Role           :HEAD ----- Port Role           Port Number   Port Status -----       Head Port      1-1           Forwarding       Member Port    1-2           Forwarding</pre>
Error messages	N/A
Related commands	turbo-chain

## show redundancy turbo-ring-v1

Use the **show redundancy turbo-ring-v1** user EXEC command to display Turbo Ring v1 configure and state information.

### Commands

#### show redundancy turbo-ring-v1

Syntax Description	<b>show</b>	Show running system information
	<b>redundancy</b>	Display redundancy protocol status
	<b>turbo-ring-v1</b>	Display turbo ring v1 status
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	<pre>PT-7828# show redundancy turbo-ring-v1  Turbo Ring V1 settings:   Set as master: Disabled   1st port:      4-3   2nd port:      4-4   Ring Coupling: Disabled   Coupling Port: 4-1   Coupling Control Port: 4-2  Turbo Ring V1 status:   Master/Slave:  ---   Redundant Ports Status:     1st port:     ---     2nd port:     ---   Ring Coupling Ports Status:  ---   Coupling Port:  ---   Coupling Control Port:  ---</pre>	
Error messages	N/A	

Related commands	turbo-ring-v1
------------------	---------------

## show redundancy turbo-ring-v2

Use the **show spanning-tree turbo-ring-v2** user EXEC command to display Turbo Ring v2 configuration and state information.

### Commands

#### show redundancy turbo-ring-v2

Syntax	<b>show</b>	Show running system information
Description	<b>redundancy</b>	Display redundancy protocol status
	<b>turbo-ring-v2</b>	Display turbo ring v2 status
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	<pre>PT-7828# show redundancy turbo-ring-v2  Turbo Ring V2 settings:   Ring 1: Enabled            Set as master: Disabled            1st port:      4-3            2nd port:      4-4   Ring 2: Disabled            Set as master: Disabled            1st port:      4-1            2nd port:      4-2   Ring Coupling: Disabled            Primary Port:4-1            Backup Port:4-2  Turbo Ring V2 status:   Ring 1:            Status:---            Master/Slave:---            1st Ring Port Status:---            2nd Ring Port Status:---   Ring 2:            Status:---            Master/Slave:---            1st Ring Port Status:---            2nd Ring Port Status:---   Coupling:            Mode:---            Coupling Port Status: ---</pre>	
Error messages	N/A	
Related commands	turbo-ring-v2	



# show relay-warning

Use the **show relay-warning** command to display the Relay Warning settings.

## Commands

**show relay-warning config**

**show relay-warning status**

Syntax	<b>show</b>	Show running system information
Description	<b>relay-warning</b>	Display relay warning configuration
	<b>config</b>	Relay warning configuration
	<b>status</b>	Current relay warning list
Defaults	N/A	
Command Modes	Privileged EXEC / User EXEC	
Usage Guidelines	N/A	
Examples	<pre>PT-7828# show relay-warning config System Events Setting   Override Relay Warning Settings      : Disable   Power Input 1 failure(On-&gt;Off)      : Disable   Power Input 2 failure(On-&gt;Off)      : Disable   Turbo Ring Break                     : Disable --More-- Port Events Setting Port          Link          Traffic      RX          Traffic Overload     Threshold(%)  Duration(s) ----- 1-1          Ignore          Disable      1           1 1-2          Ignore          Disable      1           1 1-3          Ignore          Disable      1           1 1-4          Ignore          Disable      1           1 1-5          Ignore          Disable      1           1 1-6          Ignore          Disable      1           1 1-7          Ignore          Disable      1           1 1-8          Ignore          Disable      1           1 3-1          Ignore          Disable      1           1 3-2          Ignore          Disable      1           1 3-3          Ignore          Disable      1           1 3-4          Ignore          Disable      1           1 3-5          Ignore          Disable      1           1 3-6          Ignore          Disable      1           1 3-7          Ignore          Disable      1           1 3-8          Ignore          Disable      1           1 PT-7828#</pre>	
Error messages	N/A	
Related commands	N/A	

# show running-config

Use **show running-config** to display the current running configuration of the switch.

## Commands

### show running-config

Syntax	<b>show</b>	Show running system information
Description	<b>running-config</b>	Current operating configuration
Defaults	N/A	
Command Modes	Privileged EXEC / User EXEC	
Usage Guidelines	N/A	
Examples	<pre>PT-7828# show running-config Building configuration ...  ! ip telnet ip http-server ip http-server auto-logout 120 ! ntp remote-server time.nist.gov ! ! vlan mode lqvlan gvrp ! snmp-server version v1-v2c snmp-server community public ro snmp-server community private rw snmp-server trap-mode trap ! lldp run lldp timer 30 ! ! dhcp-relay option82 dhcp-relay option82 remote-id-type other dhcp-relay option82 man-id 1234567890123 ! ! interface ethernet 1/1 no shutdown speed-duplex Auto no flowcontrol media cable-mode auto --More--</pre>	
Error messages	N/A	
Related commands	show startup-config	

# show startup-config

Use **show startup-config** to display the system startup configuration of the switch.

## Commands

### show running-config

Syntax	<b>show</b>	Show running system information
Description	<b>startup-config</b>	Contents of startup configuration
Defaults	N/A	
Command Modes	Privileged EXEC / User EXEC	
Usage Guidelines	N/A	
Examples	<pre>PT-7828# show startup-config Building configuration ...  ! ip telnet ip http-server ip http-server auto-logout 120 ! ntp remote-server time.nist.gov ! ! vlan mode lqvlan gvrp ! snmp-server version v1-v2c snmp-server community public ro snmp-server community private rw snmp-server trap-mode trap ! lldp run lldp timer 30 ! ! dhcp-relay option82 dhcp-relay option82 remote-id-type other dhcp-relay option82 man-id 1234567890123 ! ! interface ethernet 1/1 no shutdown speed-duplex Auto no flowcontrol media cable-mode auto --More--</pre>	
Error messages	N/A	
Related commands	show running-config	

## show snmp

To check the status of Simple Network Management Protocol (SNMP) communications, use the **show snmp** command.

### Commands

#### show snmp

Syntax Description	<b>snmp</b>	Display SNMP configuration
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	<pre>PT-7828# show snmp SNMP Read/Write Settings   SNMP Versions           : v1-v2c   V1,V2c Read Community   : public   V1,V2c Write/Read Community: private Trap Settings   1st Trap Server IP/Name :   1st Trap Community      : public   2nd Trap Server IP/Name :   2nd Trap Community      : public Trap Mode   Mode                    : Trap Private MIB information   Switch Object ID       : enterprise.8691.7.15</pre>	
Examples	N/A	
Error messages	N/A	
Related commands	<pre>snmp-server community snmp-server host snmp-server trap-mode snmp-server user snmp-server version</pre>	

## show storm-control

Use the **show storm-control** user EXEC command to display the setting of storm protection.

### Commands

#### show storm-control

Syntax Description	<b>stom-control</b>	Display storm protection settings
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	<pre>PT-7828# show storm-control  Storm Supress: Broadcast,DLF</pre>	
Error messages	N/A	

Related commands	storm-control
------------------	---------------

## show system

Use the **show system** command to display system identification settings.

### Commands

#### show system

Syntax	<b>show</b>	Show running system information
Description	<b>system</b>	System hardware and software status
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	<pre>PT-7828# show system System Information   System Name       : Managed Redundant Switch 09458   System Location   : Xidian No. 135 6F Taiwan   System Description : MOXA PT Series   Maintainer Information : 8860289191230   MAC Address       : 00:90:E8:1D:24:36   System Uptime     : 0d0h6m46s</pre>	
Error messages	N/A	
Related commands	snmp-server description snmp-server contact snmp-server location	

## show users

Use the **show users** user EXEC command to display the username/password configuration.

### Commands

#### show users

Syntax	<b>show</b>	Show running system information
Description	<b>Users</b>	Display login user settings
Defaults	N/A	
Command Modes	Privileged EXEC/ User EXEC	
Usage Guidelines	N/A	
Examples	<pre>EDS-G516E# show users Login account information:   Name           Authority   -----   admin          admin   user           user</pre>	
Error messages	N/A	

Related commands	username
------------------	----------

## show vlan

Use the **show vlan** user EXEC command to display VLAN status information.

### Commands

#### show vlan

Syntax	<b>show</b>	Show running system information
Description	<b>vlan</b>	Display VLAN status
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	
Examples	<pre>PT-7828# show vlan vlan mode: 802.1Q vlan mgmt vlan: 1  VLAN 1:   Access Ports: 1-1, 1-2, 1-3, 1-4, 1-5, 1-6, 1-7, 1-8,   Trunk Ports:   Hybrid Ports:                                PT</pre>	
Error messages	N/A	
Related commands	N/A	

## show vlan config

Use the **show vlan** user EXEC command to display VLAN configuration information.

### Commands

#### show vlan config

Syntax	<b>show</b>	Show running system information
Description	<b>vlan</b>	Display VLAN status
	<b>config</b>	Display VLAN configuration
Defaults	N/A	
Command Modes	Privileged EXEC	
Usage Guidelines	N/A	

Examples	<pre> vlan mode: 802.1Q vlan VLAN   Ports (Type) ----- 1      1-1 (A), 1-2 (A), 1-3 (A), 1-4 (A), 1-5 (A), 1-6 (A), 1-7 (A), 1-8 (A),  Port   Trunk Native vlan  Port   Fixed VLAN (Tagged)  Port   Forbidden VLAN  Port   Fixed VLAN (Untagged)  Current VLAN interface vid:       1, 2,         </pre>
Error messages	N/A
Related commands	interface vlan

## shutdown

To disable an interface, use the **shutdown** interface configuration command. To restart a disabled interface, use the **no** form of this command.

### Commands

**shutdown**

**no shutdown**

Syntax Description	<b>shutdown</b>	Shutdown the selected interface
Defaults	None	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	<pre> PT-7828(config-if)# shutdown  PT-7828(config-if)# no shutdown         </pre>	
Error messages	Cannot configure on trunk member port 1/1!	
Related commands	<pre> show interfaces ethernet show interfaces trunk         </pre>	

## snmp-server community

To set up the community access string to permit access to the Simple Network Management Protocol (SNMP), use the **snmp-server community** global configuration command.

### Commands

**snmp-server community** *text mode*

Syntax	<b>snmp-server</b>	Configure SNMP server
Description	<b>community</b>	SNMP community setting
	<i>text</i>	SNMP community string
	<i>mode</i>	ro   rw
Defaults	Public community is ro Private community is rw	
Command Modes	Global configuration	
Usage Guidelines	Specifies read-only access. Authorized management stations are only able to retrieve MIB objects. Specifies read-write access. Authorized management stations are able to both retrieve and modify MIB objects	
Examples	PT-7828(config)# snmp-server community public ro	
Error messages	SNMP community mode must be ( ro rw )!!	
	The longest snmp community string length is 30!!	
Related commands	show snmp	

## snmp-server contact

To set the system contact string, use the **snmp-server contact** global configuration command. To remove the contact string, use the **no snmp-server contact** command.

### Commands

**snmp-server contact** *text*

**no snmp-server contact**

Syntax	<b>snmp-server</b>	Configure SNMP server
Description	<b>contact</b>	Switch maintainer contact information
	<i>text</i>	Maintainer contact information
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	"text" parameter can be set as string separated by space. Maximum string tokens are 5. Maximum length of switch maintainer contact info is 40.	
Examples	PT-7828(config)# snmp-server contact <STRING:token1>       - Maintainer contact information  PT-7828(config)# no snmp-server contact	
Error messages	Length of maintainer info is too long	
Related commands	show snmp	



## snmp-server description

To set the system description string, use the **snmp-server description** global configuration command. To remove the description string, use the **no** form of this command.

### Commands

**snmp-server description** *text*

**no snmp-server description**

Syntax	<b>snmp-server</b>	Configure SNMP server
Description	<b>description</b>	Switch description
	<i>text</i>	Description string
Defaults	The default description is the model name.	
Command Modes	Global configuration	
Usage Guidelines	<p>"<i>text</i>" parameter can be set as string separated by space.</p> <p>Maximum string tokens are 5.</p> <p>Maximum length of switch maintainer contact info is 40.</p>	
Examples	<pre>PT-7828(config)# snmp-server description MOXA PT Series PT-7828(config)# exit PT-7828# show system System Information   System Name       : Managed Redundant Switch 09458   System Location   : Xidian No. 135 6F Taiwan   System Description : MOXA PT Series   Maintainer Information : 8860289191230   MAC Address       : 00:90:E8:1D:24:36   System Uptime     : 0d0h6m46s</pre>	
Error messages	Length of system description is too long	
Related commands	show snmp	

## snmp-server host

To specify the recipient of a Simple Network Management Protocol (SNMP) notification operation, use the **snmp-server host** global configuration command. To remove the specified host, use the **no** form of this command

### Commands

**snmp-server host** *host-addr* *community-string*

**no snmp-server host** [*host-addr*]

Syntax	<b>snmp-server</b>	Configure SNMP server
Description	<b>host</b>	SNMP host setting
	<i>host-addr</i>	SNMP host address
	<i>community-string</i>	SNMP Community string
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	<pre>PT-7828(config)# snmp-server host 192.168.127.253 moxacli PT-7828(config)# no snmp-server host</pre>	

Error messages	Trap server are full, please remove at least one first!!!
Related commands	show snmp

## snmp-server location

To set the system location string, use the **snmp-server location** global configuration command. To remove the location string, use the **no** form of this command.

### Commands

**snmp-server location** *text*

**no snmp-server location**

Syntax	<b>snmp-server</b>	Configure SNMP server
Description	<b>location</b>	Switch location
	<i>text</i>	Location string
Defaults	The default text is Switch Location	
Command Modes	Global configuration	
Usage Guidelines	<p>"<i>text</i>" parameter can be set as string separated by space.</p> <p>Maximum string tokens are 5.</p> <p>Maximum length of switch location is 80.</p>	
Examples	<pre>PT-7828(config)# snmp-server location     &lt;STRING:token1&gt;      - Location string token 1  PT-7828(config)# no snmp-server location</pre>	
Error messages	Length of location is too long	
Related commands	show snmp	

## snmp-server trap-mode

To enable all Simple Network Management Protocol (SNMP) notifications (traps or informs) available on your system, use the **snmp-server trap-mode** global configuration command. To disable all available SNMP notifications, use the **no** form of this command

### Commands

**snmp-server trap-mode trap**

**snmp-server trap-mode trap-v2c**

**snmp-server trap-mode inform** [*retry times* *timeout seconds*]

**no snmp-server trap-mode**

Syntax	<b>snmp-server</b>	Configure SNMP server
Description	<b>trap-mode</b>	SNMP Trap/Inform mode setting
	<b>trap</b>	SNMP Trap
	<b>trap-v2c</b>	SNMP Trap v2c instead of v1
	<b>inform</b>	SNMP Inform
	<b>retry</b>	Inform retries times
	<i>times</i>	1 to 99
	<b>timeout</b>	Timeout timer
	<i>seconds</i>	1 to 300 seconds

Defaults	The default mode is "trap"
Command Modes	Global configuration
Usage Guidelines	N/A
Examples	PT-7828(config)# snmp-server trap-mode trap PT-7828(config)# snmp-server trap-mode inform retry 3 timeout 10  PT-7828(config)# no snmp-server trap-mode
Error messages	Invalid inform retries value !!! Invalid inform timeout value !!!
Related commands	show snmp

## snmp-server user

To configure a user and its authentication type and password to a Simple Network Management Protocol (SNMP), use the **snmp-server user** global configuration command.

### Commands

**snmp-server user** *username* **auth** *auth-type* *password*

Syntax Description	<b>snmp-server</b>	Configure SNMP server
	<b>user</b>	SNMP user setting
	<i>user-privilege</i>	SNMP user privilege
	<b>auth</b>	Specifies which authentication level should be used
	<i>auth-type</i>	no-auth   md5   sha
	<i>password</i>	Password (maximum 30 characters)
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	<i>username</i> is only allowed to be set as "admin" or "user" <i>auth-type</i> is only allowed to be set as "no-auth", "md5" or "sha"	
Examples	PT-7828(config)# snmp-server user admin auth md5 moxacli	
Error messages	SNMP user must be ( admin   user )!!	
	SNMP authtype must be ( no-auth   md5   sha )!!	
	Admin/User Password must be at least 8 bytes !!!	
	Admin/User Data Encryption must be at least 8 bytes !!!	
Related commands	show snmp	

## snmp-server version

To set up the snmp version, use the **snmp-server version** global configuration command.

### Commands

**snmp-server version** [**v1-v2c-v3** | **v1-v2c** | **v3**]

Syntax Description	<b>snmp-server</b>	Configure SNMP server
	<b>version</b>	SNMP version setting
	<b>v1-v2c-v3</b>	Version 1, 2C and 3 support
	<b>v1-v2c</b>	Version 1 and 2C support
	<b>v3</b>	Only version 3 support
Defaults	Default version is v1-v2c	

Command Modes	Global configuration
Usage Guidelines	N/A
Examples	PT-7828(config)# snmp-server version v1-v2c-v3 - Version 1, 2C and 3 support v1-v2c - Version 1 and 2C support v3 - Only version 3 support
Error messages	N/A
Related commands	show snmp

## spanning-tree forward-delay

Use the **spanning-tree forward-delay** redundancy configuration command on the switch to set the forward-delay time for the spanning-tree. The forwarding time specifies how long each of the listening and learning states last before the interface begins forwarding. Use the **no** form of this command to return to the default setting.

### Commands

**spanning-tree forward-delay** *seconds*

**no spanning-tree forward-delay**

Syntax	<b>spanning-tree</b>	Configure spanning tree
Description	<b>forward-delay</b>	Configure spanning tree BPDU forward delay
	<i>seconds</i>	Range from 4 to 30 seconds
Defaults	Forward delay = 15 sec.	
Command Modes	Redundancy configuration	
Usage Guidelines	$2 * (\text{hello-time} + 1.0 \text{ sec}) \leq \text{max-age} \leq 2 * (\text{forward-delay} - 1.0 \text{ sec})$	
Examples	PT-7828(config-rdnt)# spanning-tree forward-delay <UINT:seconds> - Range from 4 to 30 seconds	
Error messages	The BPDU forward delay time must be in the range from 4 to 30 sec.	
	The formula must be obeyed: $2 \times (\text{Hello Time} + 1 \text{ sec}) \leq \text{Max age} \leq 2 \times (\text{Forward Delay} - 1 \text{ sec})$	
Related commands	spanning-tree hello-time spanning-tree max-age show redundancy spanning-tree	

## spanning-tree hello-time

Use the **spanning-tree hello-time** redundancy configuration command on the switch to set the interval between hello bridge protocol data units (BPDUs) sent by root switch configuration messages. Use the **no** form of this command to return to the default setting.

### Commands

**spanning-tree hello-time** *seconds*

**no spanning-tree hello-time**

Syntax	<b>spanning-tree</b>	Configure spanning tree
Description	<b>hello-time</b>	Configure spanning tree BPDU hello time
	<i>seconds</i>	Range from 1 to 2 seconds

Defaults	Hello time = 2 sec.
Command Modes	Redundancy configuration
Usage Guidelines	$2 * (\text{hello-time} + 1.0 \text{ sec}) \leq \text{max-age} \leq 2 * (\text{forward-delay} - 1.0 \text{ sec})$
Examples	PT-7828(config-rdnt)# spanning-tree hello-time <UINT:seconds> - Range from 1 to 2 seconds
Error messages	BPDU hello time must be in the range from 1 to 2 sec. The formula must be obeyed: $2 \times (\text{Hello Time} + 1 \text{ sec}) \leq \text{Max age} \leq 2 \times (\text{Forward Delay} - 1 \text{ sec})$
Related commands	spanning-tree forward-delay spanning-tree max-age show redundancy spanning-tree

## spanning-tree max-age

Use the **spanning-tree max-age** redundancy configuration command on the switch to set the interval between messages that the spanning tree receives from the root switch. If a switch does not receive a bridge protocol data unit (BPDU) message from the root switch within this interval, it recomputes the spanning-tree topology. Use the **no** form of this command to return to the default setting.

### Commands

**spanning-tree max-age** seconds

**no spanning-tree max-age**

Syntax	<b>spanning-tree</b>	Configure spanning tree
Description	<b>max-age</b>	Configure spanning tree max age
	seconds	Range from 6 to 40 seconds
Defaults	Forward delay = 20 sec.	
Command Modes	Redundancy configuration	
Usage Guidelines	$2 * (\text{hello-time} + 1.0 \text{ sec}) \leq \text{max-age} \leq 2 * (\text{forward-delay} - 1.0 \text{ sec})$	
Examples	PT-7828(config-rdnt)# spanning-tree max-age <UINT:seconds> - Range from 6 to 40 seconds	
Error messages	The BPDU forward delay time must be in the range from 4 to 30 sec.	
	The formula must be obeyed: $2 \times (\text{Hello Time} + 1 \text{ sec}) \leq \text{Max age} \leq 2 \times (\text{Forward Delay} - 1 \text{ sec})$	
Related commands	spanning-tree forward-delay spanning-tree max-age show redundancy spanning-tree	

## spanning-tree mst cist cost

Use the **spanning-tree mst cist cost** interface configuration command on the switch to set the port cost of the Multiple Spanning Tree (MSTP). Use the **no** form of this command to return to the default setting.

### Commands

**spanning-tree mst cist cost** cost

**no spanning-tree mst cist cost**

Syntax	<b>spanning-tree</b>	Configure spanning tree
Description	<b>mst</b>	Configure mstp
	<b>cist</b>	Configure mstp cist port

	<b>cost</b>	Configure mstp cist port path cost
	<i>cost</i>	Configure mstp cist port path cost
Defaults	<i>cost=0</i>	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config-if)# spanning-tree mst cist cost 2000000 <UINT:time> - Set mstp forwarding delay	
Error messages	MSTP port path cost must be in the range from 0 to 200000000 MSTP port 2/1 path cost set error	
Related commands	show redundancy mst configuration	

## spanning-tree mst cist port-priority

Use the **spanning-tree mst cist port-priority** interface configuration command on the switch to set the port priority for the Multiple Spanning Tree (MSTP). Use the **no** form of this command to return to the default setting.

### Commands

**spanning-tree mst cist port-priority** *priority*

**no spanning-tree mst cist port-priority**

Syntax	<b>spanning-tree</b>	Configure spanning tree
Description	<b>mst</b>	Configure mstp
	<b>cist</b>	Configure mstp cist port
	<b>port-priority</b>	Configure mstp cist port priority
	<i>priority</i>	Configure mstp cist port priority
	Defaults	<i>priority =128</i>
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config-if)# spanning-tree mst cist port-priority 128 <UINT:priority> - Configure mstp cist port priority	
Error messages	MSTP port priority must be in the range from 0 to 240 MSTP port %s priority set error MSTP port priority should be 16 times the value	
Related commands	show redundancy mst configuration	

## spanning-tree mst cist priority

Use the **spanning-tree mst cist priority** redundancy configuration command on the switch to set the switch priority for the Multiple Spanning Tree (MSTP). Use the **no** form of this command to return to the default setting.

### Commands

**spanning-tree mst cist priority** *priority*

**no spanning-tree mst cist priority**

Syntax	<b>spanning-tree</b>	Configure spanning tree
Description	<b>mst</b>	Configure mstp

	<b>cist</b>	Configure mstp cist
	<b>priority</b>	Set mstp cist bridge priority
	<i>priority</i>	Set mstp cist bridge priority
Defaults	priority = 32768	
Command Modes	Redundancy configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config-rdnt)# spanning-tree mst cist priority 32768 <UINT:priority> - Set mstp cist bridge priority	
Error messages	MSTP bridge priority must be in the range from 0 to 61140	
	MSTP cist bridge priority set error	
	CIST bridge priority should be 4096 times the value	
Related commands	show redundancy mst cist	

## spanning-tree mst edge-port

Use the **spanning-tree mst edge-port** interface configuration command on the switch to enable the Edge port feature for the Multiple Spanning Tree (MSTP). Use the **no** form of this command to disable the setting.

### Commands

**spanning-tree mst edge-port**

**no spanning-tree mst edge-port**

Syntax Description	<b>spanning-tree</b>	Configure spanning tree
	<b>mst</b>	Configure mstp
	<b>edge-port</b>	Enable mstp edge port
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config-if)# spanning-tree mst edge <edge> - Enable mstp edge port	
Error messages	MSTP edge port enable set error	
Related commands	show redundancy mst configuration	

## spanning-tree mst enable

Use the **spanning-tree mst enable** interface configuration command on the switch to enable the Multiple Spanning Tree (MSTP) feature on the port. Use the **no** form of this command to disable the setting.

### Commands

**spanning-tree mst enable**

**no spanning-tree mst**

Syntax Description	<b>spanning-tree</b>	Configure spanning tree
	<b>mst</b>	Configure mstp
	<b>enable</b>	Enable mstp port
Defaults	N/A	

Command Modes	Interface configuration
Usage Guidelines	N/A
Examples	PT-7828(config-if)# spanning-tree mst enable <enable> - Enable mstp port
Error messages	MSTP port 2-1 enable set error
Related commands	show redundancy mst configuration

## spanning-tree mst forward-time

Use the **spanning-tree mst forward-time** redundancy configuration command on the switch to set the forward delay of Multiple Spanning Tree (MSTP). Use the **no** form of this command to return to the default setting.

### Commands

**spanning-tree mst forward-time** *time*

**no spanning-tree mst forward-time**

Syntax Description	<b>spanning-tree</b>	Configure spanning tree
	<b>mst</b>	Configure mstp
	<b>forward-time</b>	Set mstp forwarding delay
	<i>time</i>	Set mstp forwarding delay
Defaults	<i>time=15</i>	
Command Modes	Redundancy configuration	
Usage Guidelines	2*( hello-time + 1.0 sec) <= max-age <= 2*( forward-delay - 1.0 sec)	
Examples	PT-7828(config-rdnt)# spanning-tree mst forward-time 15 <UINT:time> - Set mstp forwarding delay	
Error messages	MSTP forward delay must be in the range from 4 to 30	
	MSTP forward delay set error	
Related commands	show redundancy mst configuration	

## spanning-tree mst hello-time

Use the **spanning-tree priority** redundancy configuration command on the switch to set the hello time of Multiple Spanning Tree (MSTP). Use the **no** form of this command to return to the default setting.

### Commands

**spanning-tree mst hello-time** *time*

**no spanning-tree mst hello-time**

Syntax Description	<b>spanning-tree</b>	Configure spanning tree
	<b>mst</b>	Configure mstp
	<b>hello-time</b>	set mstp hello time
	<i>time</i>	set mstp hello time
Defaults	<i>time=2</i>	
Command Modes	Redundancy configuration	



Usage	$2 * (\text{hello-time} + 1.0 \text{ sec}) \leq \text{max-age} \leq 2 * (\text{forward-delay} - 1.0 \text{ sec})$
Guidelines	
Examples	PT-7828(config-rdnt)# spanning-tree mst hello-time 1 <UINT:time> - set mstp hello time
Error messages	MSTP hello time must be in the range from 1 to 10 MSTP hello time set error
Related commands	show redundancy mst configuration

## spanning-tree mst instance

Use the **spanning-tree mst instance** redundancy configuration command on the switch to setting the MSTP instances. Use the **no** form of this command to remove the setting.

### Commands

**spanning-tree mst instance** *instance-id* **vlan** *vlan-id-list*

**no spanning-tree mst instance** *instance-id* **vlan** *vlan-id-list*

Syntax Description	<b>spanning-tree</b>	Configure spanning tree
	<b>mst</b>	Configure mstp
	<b>Instance</b>	Configure mstp msti
	<i>instance-id</i>	MSTP instance ID
	<b>vlan</b>	Configure mstp msti vlan mapping
	<i>vlan-id-list</i>	Configure mstp msti vlan mapping
Defaults	N/A	
Command Modes	Redundancy configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# spanning-tree mst instance 1 vlan 2 <STRING:instids> - Configure mstp msti <STRING:vidlist> - Configure mstp msti vlan mapping	
Error messages	The instance id must be in the range from 1 to 16.	
	vlan 4097 is invalid!! should be range from 1 to 4094	
	The maximum VLAN mapping is 64.	
	The vlan id 2 setting is exist in another instance. MSTI 1 vlan id 2 set error	
Related commands	show redundancy mst instance	

## spanning-tree mst instance cost

Use the **spanning-tree mst instance cost** interface configuration command on the switch to set the port cost of the MSTP instances. Use the **no** form of this command to return to the default setting.

### Commands

**spanning-tree mst instance** *instance-id-list* **cost** *cost*

**no spanning-tree mst instance** *instance-id-list* **cost**

Syntax Description	<b>spanning-tree</b>	Configure spanning tree
	<b>mst</b>	Configure mstp
	<b>instance</b>	Configure mstp msti port
	<i>instance-id-list</i>	MSTP instance IDs
	<b>cost</b>	Configure mstp msti port path cost

	<code>cost</code>	Configure mstp msti port path cost
Defaults	<code>cost =0</code>	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config-if)# spanning-tree mst cist cost 0 <UINT:cost> - Configure mstp msti port path cost	
Error messages	MSTP port path cost must be in the range from 0 to 200000000	
	MSTP forward delay set error	
Related commands	show redundancy mst configuration	

## spanning-tree mst instance port-priority

Use the **spanning-tree mst instance port-priority** interface configuration command on the switch to set the port priority for the MSTP instances. Use the **no** form of this command to return to the default setting.

### Commands

**spanning-tree mst instance** *instance-id-list* **port-priority** *priority*

**no spanning-tree mst instance** *instance-id-list* **port-priority**

Syntax Description	<b>spanning-tree</b>	Configure spanning tree
	<b>mst</b>	Configure mstp
	<b>instance</b>	Configure mstp msti port
	<i>instance-id-list</i>	MSTP instance ID
	<b>port-priority</b>	Configure mstp msti port priority
	<i>priority</i>	Configure mstp msti port priority
Defaults	<code>priority =128</code>	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config-if)# spanning-tree mst instance 1 port-priority 128 <STRING:instids> - Configure mstp msti port priority <UINT:priority> - Configure mstp msti port priority	
Error messages	MSTP port priority must be in the range from 0 to 240	
	MSTI 2 port 2-1 priority set error	
	MSTI 2 port priority should be 16 times the value	
Related commands	show redundancy mst configuration	

## spanning-tree mst instance priority

Use the **spanning-tree mst instance priority** redundancy configuration command on the switch to set the switch priority for the MSTP instances. Use the **no** form of this command to return to the default setting.

### Commands

**spanning-tree mst instance** *instance-id-list* **priority** *priority*

**no spanning-tree mst instance** *instance-id-list* **priority**

Syntax Description	<b>spanning-tree</b>	Configure spanning tree
	<b>mst</b>	Configure mstp
	<b>instance</b>	Configure mstp msti

	<i>instance-id</i>	MSTP instance ID
	<b>priority</b>	Set mstp msti bridge priority
	<i>priority</i>	Set mstp msti bridge priority
Defaults	priority = 32768	
Command Modes	Redundancy configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config-rdnt)# spanning-tree mst instance 1 priority 32768 <UINT:priority> - Set mstp msti bridge priority	
Error messages	MSTP bridge priority must be in the range from 0 to 61140	
	MSTP cist bridge priority set error	
	MSTI bridge priority should be 4096 times the value	
Related commands	show redundancy mst instance	

## spanning-tree mst max-age

Use the **spanning-tree mst max-age** redundancy configuration command on the switch to set the switch maximum age time for Multiple Spanning Tree (MSTP). Use the **no** form of this command to return to the default setting.

### Commands

**spanning-tree mst max-age** *age*

**no spanning-tree mst max-age**

Syntax Description	<b>spanning-tree</b>	Configure spanning tree
	<b>mst</b>	Configure mstp
	<b>max-age</b>	Set mstp max age
	<i>age</i>	Set mstp max age
Defaults	<i>age=20</i>	
Command Modes	Redundancy configuration	
Usage Guidelines	2*( hello-time + 1.0 sec) <= max-age <= 2*( forward-delay - 1.0 sec)	
Examples	PT-7828(config-rdnt)# spanning-tree mst max-age 10 <UINT:age> - Set mstp max age	
Error messages	MSTP max age must be in the range from 6 to 40	
	MSTP max age set error	
Related commands	show redundancy mst configuration	

## spanning-tree mst max-hops

Use the **spanning-tree max-hops** redundancy configuration command on the switch to set the switch maximum hop number for Multiple Spanning Tree (MSTP). Use the **no** form of this command to return to the default setting.

### Commands

**spanning-tree mst max-hops** *hops*

**no spanning-tree mst max-hops**

Syntax	<b>spanning-tree</b>	Configure spanning tree
Description	<b>mst</b>	Configure mstp

	<b>max-hops</b>	Set mstp max hops
	<i>hops</i>	Set mstp max hops
Defaults	<i>hops=20</i>	
Command Modes	Redundancy configuration	
Usage Guidelines	2*( hello-time + 1.0 sec) <= max-age <= 2*( forward-delay - 1.0 sec)	
Examples	PT-7828(config-rdnt)# spanning-tree mst max-hops 10 <UINT:hops> - Set mstp max hops	
Error messages	MSTP max hops must be in the range from 6 to 40 MSTP max hops set error	
Related commands	show redundancy mst configuration	

## spanning-tree mst name

Use the **spanning-tree mst name** redundancy configuration command on the switch stack to set the name of MSTP region for the spanning-tree.

### Commands

**spanning-tree mst name** *region-name*

Syntax	<b>spanning-tree</b>	Configure spanning tree
Description	<b>mst</b>	Configure mstp
	<b>name</b>	Set mstp regional name
	<i>region-name</i>	Set mstp regional name
Defaults	N/A	
Command Modes	Redundancy configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config-rdnt)# spanning-tree mst name mstp <STRING:region> - Set mstp regional name	
Error messages	The length of mstp regional name should be smaller than 32 MSTP regional name set error	
Related commands	show redundancy mst instance	

## spanning-tree mst revision

Use the **spanning-tree mst revision** redundancy configuration command on the switch to set revision level for Multiple Spanning Tree (MSTP).

### Commands

**spanning-tree mst revision** *revision-level*

Syntax	<b>spanning-tree</b>	Configure spanning tree
Description	<b>mst</b>	Configure mstp
	<b>revision</b>	Set mstp revision level
	<i>revision-level</i>	Set mstp revision level
Defaults	<i>revision-level=0</i>	
Command Modes	Redundancy configuration	

Usage Guidelines	N/A
Examples	PT-7828(config-rdnt)# spanning-tree mst revision 1 <UINT:level> - Set mstp revision level
Error messages	MSTP revision level must be in the range from 0 to 65535 MSTP revision level set error
Related commands	show redundancy mst configuration

## spanning-tree priority

Use the **spanning-tree priority** redundancy configuration command on the switch to set the switch priority for the spanning-tree. Use the **no** form of this command to return to the default setting.

### Commands

**spanning-tree priority** *priority*

**no spanning-tree priority**

Syntax	<b>spanning-tree</b>	Configure spanning tree
Description	<b>priority</b>	Configure spanning tree bridge priority
	<i>priority</i>	Range from 0 to 61440, and must be the multiples of 4096
Defaults	priority = 32768	
Command Modes	Redundancy configuration	
Usage Guidelines	0 <= priority <= 61440, and must be multiples of 4096.	
Examples	PT-7828(config-rdnt)# spanning-tree priority <UINT:prio> - Range from 0 to 61440, in steps of 4096	
Error messages	The bridge priority must be in the range from 0 to 61440	
	The bridge priority must be the multiples of 4096	
Related commands	show redundancy spanning-tree	

## spanning-tree

Use the **spanning-tree** interface configuration command on the switch to enable the spanning-tree feature of the specified interfaces. Use the **no** form of this command to disable it.

### Commands

**spanning-tree**

**no spanning-tree**

Syntax	<b>spanning-tree</b>	Enable spanning tree
Description		
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config-if)# spanning-tree	
Error messages	Cannot configure on trunk member port 1/1!	
Related commands	redundancy mode show redundancy spanning-tree	

# spanning-tree cost

Use the **spanning-tree cost** interface configuration command on the switch to set the path cost for spanning-tree algorithms calculations. If a loop occurs, spanning tree considers the path cost when selecting an interface to put in the forwarding state. Use the **no** form of this command to return to the default setting.

**Commands**

**spanning-tree cost** cost  
**no spanning-tree cost**

Syntax	<b>spanning-tree</b>	Enable spanning tree
Description	<b>cost</b>	Configure port path cost
	cost	Range from 1 to 200000000
Defaults	cost = 200000	
Command Modes	Interface configuration	
Usage Guidelines	1 <= Cost <= 200000000	
Examples	PT-7828(config-if)# spanning-tree cost <UINT:cost> - Range from 1 to 200000000	
Error messages	Cost value must be in the range 1 to 200000000	
	Cannot configure on trunk member port 1/1!	
Related commands	show redundancy spanning-tree	

# spanning-tree edge-port

Use the **spanning-tree edge-port** interface configuration command on the switch to enable the Edge Port feature on an interface in all its associated VLANs. When the Edge Port feature is enabled, the interface changes directly from a blocking state to a forwarding state without making the intermediate spanning-tree state changes. Use the **no** form of this command to disable the feature.

**Commands**

**spanning-tree edge-port { auto | force }**  
**no spanning-tree edge-port**

Syntax Description	<b>spanning-tree</b>	Enable spanning tree
	<b>edge-port</b>	Configure as edge port
	<b>auto</b>	Auto determine as edge port
	<b>force</b>	Force the port as edge port
Defaults	port-fast = auto	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config-if)# spanning-tree edge-port auto - Auto determine as edge port force - Force the port as edge port	
Error messages	Cannot configure on trunk member port 1/1!	
Related commands	show redundancy spanning-tree	

## spanning-tree priority

Use the **spanning-tree priority** interface configuration command on the switch to set the interfaces priority for the spanning-tree. Use the **no** form of this command to return to the default setting.

### Commands

**spanning-tree priority** *priority*

**no spanning-tree priority**

Syntax	<b>spanning-tree</b>	Enable spanning tree
Description	<b>priority</b>	Configure port priority
	<i>priority</i>	Range from 0 to 240, in steps of 16
Defaults	priority = 128	
Command Modes	interface configuration	
Usage Guidelines	0 <= priority <= 240, and must be multiples of 16.	
Examples	PT-7828(config-rdnt)# spanning-tree priority <UINT:prio> - Range from 0 to 61440, in steps of 4096	
Error messages	The bridge priority must be in the range from 0 to 240	
	The bridge priority must be multiples of 16	
Related commands	show redundancy spanning-tree	

## speed-duplex

Use the **speed-duplex** interface configuration command to specify the speed of the interface and its duplex mode. Use the **no** form of this command to return the interface to its default value.

### Commands

**speed-duplex** {**10M-Full** | **10M-Half** | **100M-Full** | **100M-Half** | **1G-Full** | **Auto**}

**no speed-duplex**

Syntax	<b>speed-duplex</b>	Configure speed and duplex operation
Description	<b>10M-Full</b>	Speed 10M-full
	<b>10M-Half</b>	Speed 10M-Half
	<b>100M-Full</b>	Speed 100M-Full
	<b>100M-Half</b>	Speed 100M-Half
	<b>1G-Full</b>	Speed 1G-Full
	<b>Auto</b>	Speed Auto
Defaults	The default is <b>Auto</b>	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config)# interface ethernet 1/1 PT-7828(config-if)# speed-duplex 100M-Full	
Error messages	Fiber port can not be set speed-duplex!!!	
	This port can not be set to 1G!!!	
	Parameter does not be defined!!!	
	Cannot configure on trunk member port 1/1	
	This setting cannot be applied on trunk port!	
Related commands	show interfaces ethernet	

## storm-control

Use the **storm-control** global configuration command on the switch to enable the storm protection. Use the **no** form of this command to disable it or return to the default.

### Commands

**storm-control { bcast | mcast }**

**no storm-control bcast**

**no storm-control mcast**

**no storm-control**

Syntax	<b>storm-control</b>	Storm protection
Description	<b>bcast</b>	Storm protection for broadcast traffic
	<b>mcast</b>	Storm protection for Multicast traffic
Defaults	The broadcast storm protection is default enabled.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	<pre> storm-control   bcast          - Storm protection for broadcast traffic   mcast          - Storm protection for Multicast traffic </pre>	
Error messages	N/A	
Related commands	show storm-control	

## switchport access vlan

Use the **switchport access vlan** interface configuration command on the switch to configure a port as a static-access or dynamic-access port. If the switchport mode is set to access, the port operates as a member of the specified VLAN. If set to dynamic, the port starts discovery of VLAN assignment based on the incoming packets it receives. Use the **no** form of this command to reset the access mode to the default VLAN for the switch.

### Commands

**switchport access vlan** *vlan-id*

**no switchport access vlan**

Syntax	<b>switchport</b>	Set switching mode characteristics
Description	<b>access</b>	Set access mode characteristics of the interface
	<b>vlan</b>	Set (default) pvid in access mode
	<i>vlan-id</i>	1 to 4094
Defaults	<i>vlan-id</i> = 1	
Command Modes	Interface configuration	
Usage Guidelines	You can only use this command mode for configuring normal-range VLANs, that is, VLAN IDs 1 to 4094.	
Examples	<pre> PT-7828(config-if)# switchport access vlan 2 &lt;UINT:vlanid&gt;          - 1 to 4094 </pre>	
Error messages	vlan 4097 is invalid!! should be range from 1 to 4094	
Related commands	show vlan show vlan config	



## switchport hybrid fixed vlan add

Use the **switchport hybrid fixed vlan add** interface configuration command on the switch to add the trunk hybrid characteristics when the interface is in hybrid mode. Use the **no** form of this command to reset to the default.

### Commands

**switchport hybrid fixed vlan add** *vlan-id-list* **tag**

**switchport hybrid fixed vlan add** *vlan-id-list* **untag**

**no switchport hybrid fixed vlan tag**

**no switchport hybrid fixed vlan untag**

Syntax	<b>switchport</b>	Set switching mode characteristics
Description	<b>hybrid</b>	Set hybrid mode characteristics of the interface
	<b>fixed</b>	Set fixed VLAN characteristics
	<b>vlan</b>	1 to 4094
	<b>add</b>	Add VLANs to the current list
	<i>vlan-id-list</i>	VLAN IDs of the VLANs
	<b>untag</b>	Configure egress traffic as VLAN untagged traffic
	<b>tag</b>	Configure egress traffic as VLAN tagged traffic
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	You can only use this command mode for configuring normal-range VLANs, that is, VLAN IDs 1 to 4094.	
Examples	PT-7828(config-if)# switchport hybrid fixed vlan add 1,3-5,7 tag <STRING:vlanids> - VLAN IDs of the VLANs	
Error messages	vlan 4097 is invalid!! should be range from 1 to 4094	
	vlan interfaces are full, total vlan interface is 64 !!	
Related commands	show vlan show vlan config switchport trunk hybrid vlan remove	

## switchport hybrid forbidden vlan add

Use the **switchport hybrid forbidden vlan add** interface configuration command on the switch to add the trunk forbidden characteristics when the interface is in hybrid mode. Use the **no** form of this command to reset to the default.

### Commands

**switchport hybrid forbidden vlan add** *vlan-id-list*

**no switchport hybrid forbidden vlan**

Syntax	<b>switchport</b>	Set switching mode characteristics
Description	<b>hybrid</b>	Set hybrid mode characteristics of the interface
	<b>forbidden</b>	Set forbidden VLAN characteristics
	<b>vlan</b>	1 to 4094
	<b>add</b>	Add VLANs to the current list
	<i>vlan-id-list</i>	VLAN IDs of the VLANs
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	You can only use this command mode for configuring normal-range VLANs, that is, VLAN IDs 1 to 4094.	

Examples	PT-7828(config-if)# switchport hybrid forbidden vlan add 1,3-5,7 <STRING:vlanids> - VLAN IDs of the VLANs
Error messages	vlan 4097 is invalid!! should be range from 1 to 4094 vlan interfaces are full, total vlan interface is 64 !!
Related commands	show vlan show vlan config switchport hybrid forbidden vlan remove

## switchport hybrid forbidden vlan remove

Use the **switchport hybrid forbidden vlan add** interface configuration command on the switch to remove the trunk forbidden characteristics when the interface is in hybrid mode. Use the **no** form of this command to reset to the default.

### Commands

**switchport hybrid forbidden vlan remove** *vlan-id-list*

**no switchport hybrid forbidden vlan**

Syntax Description	<b>switchport</b>	Set switching mode characteristics
	<b>hybrid</b>	Set hybrid mode characteristics of the interface
	<b>forbidden</b>	Set forbidden VLAN characteristics
	<b>vlan</b>	1 to 4094
	<b>remove</b>	Remove VLANs from the current list
	<i>vlan-id-list</i>	VLAN IDs of the VLANs
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	You can only use this command mode for configuring normal-range VLANs, that is, VLAN IDs 1 to 4094.	
Examples	PT-7828(config-if)# switchport hybrid forbidden vlan remove 1,3-5,7 <STRING:vlanids> - VLAN IDs of the VLANs	
Error messages	vlan 4097 is invalid!! should be range from 1 to 4094 vlan interfaces are full, total vlan interface is 64 !!	
Related commands	show vlan show vlan config switchport hybrid forbidden vlan add	

## switchport hybrid native vlan

Use the **switchport hybrid native vlan** interface configuration command on the switch to configure PVID of a port. Use the **no** form of this command to return to the default PVID.

### Commands

**switchport hybrid native vlan** *vlan-id*

**no switchport hybrid native vlan**

Syntax Description	<b>switchport</b>	Set switching mode characteristics
	<b>hybrid</b>	Set hybrid mode characteristics of the interface
	<b>native</b>	Set trunking native characteristics
	<b>vlan</b>	Set pvid vlanid in hybrid mode
	<i>vlan-id</i>	1 to 4094
Defaults	vlan-id = 1	
Command Modes	Interface configuration	

Usage Guidelines	You can only use this command mode for configuring normal-range VLANs, that is, VLAN IDs 1 to 4094.
Examples	PT-7828(config-if)# switchport hybrid native vlan 2 <UINT:vlanid> - 1 to 4094
Error messages	vlan 4097 is invalid!! should be range from 1 to 4094
Related commands	show vlan show vlan config

## switchport pvlan

Use the **switchport pvlan** interface configuration command on the switch stack to define a port-based VLAN association for an isolated or community port or a mapping for a promiscuous port. Use the **no** form of this command to remove the port-based VLAN association or mapping from the port.

### Commands

**switchport pvlan** *vlan-groups*

**no switchport pvlan** *vlan-groups*

Syntax Description	<b>switchport</b>	Set switching mode characteristics
	<b>pvlan</b>	Configure port-based vlan
	<i>vlan-groups</i>	Set/unset port-based vlan group
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config-if)# switchport pvlan 2,3,4 <STRING:groups> - set port-based vlan group	
Error messages	vlan 4097 is invalid!! should be range from 1 to 4094	
Related commands	show vlan show vlan config	

## switchport trunk fixed vlan add

Use the **switchport trunk fixed vlan add** interface configuration command on the switch to add the trunk characteristics when the interface is in trunking mode. Use the **no** form of this command to reset a trunking characteristic to the default.

### Commands

**switchport trunk fixed vlan add** *vlan-id-list*

**no switchport trunk fixed vlan**

Syntax Description	<b>switchport</b>	Set switching mode characteristics
	<b>trunk</b>	Set trunking mode characteristics of the interface
	<b>fixed</b>	Set fixed VLAN characteristics
		1 to 4094
	<b>add</b>	Add VLANs to the current list

Usage Guidelines	You can only use this command mode for configuring normal-range VLANs, that is, VLAN IDs 1 to 4094.
Examples	PT-7828(config-if)# switchport trunk fixed vlan add 1,3-5,7 <STRING:vlanids> - VLAN IDs of the VLANs
Error messages	vlan 4097 is invalid!! should be range from 1 to 4094 vlan interfaces are full, total vlan interface is 64 !!
Related commands	show vlan show vlan config switchport trunk fixed vlan remove

## switchport trunk fixed vlan remove

Use the **switchport trunk fixed vlan add** configuration command on the switch stack to remove the trunk characteristics when the interface is in trunking mode. Use the **no** form of this command to reset a trunking characteristic to the default.

### Commands

**switchport trunk fixed vlan remove** *vlan-id-list*

**no switchport trunk fixed vlan**

Syntax Description	<b>switchport</b>	Set switching mode characteristics
	<b>trunk</b>	Set trunking mode characteristics of the interface
	<b>fixed</b>	Set fixed VLAN characteristics
	<b>vlan</b>	1 to 4094
	<b>remove</b>	Remove VLANs from the current list
	<i>vlan-id-list</i>	VLAN IDs of the VLANs
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	You can only use this command mode for configuring normal-range VLANs, that is, VLAN IDs 1 to 4094.	
Examples	PT-7828(config-if)# switchport trunk fixed vlan remove 1,3-5,7 <STRING:vlanids> - VLAN IDs of the VLANs	
Error messages	vlan 4097 is invalid!! should be range from 1 to 4094 vlan interfaces are full, total vlan interface is 64 !!	
Related commands	show vlan show vlan config switchport trunk fixed vlan add	

## switchport trunk forbidden vlan add

Use the **switchport trunk forbidden vlan add** configuration command on the switch to add the trunk forbidden characteristics when the interface is in trunking mode. Use the **no** form of this command to reset a trunking characteristic to the default.

### Commands

**switchport trunk forbidden vlan add** *vlan-id-list*

**no switchport trunk forbidden vlan**

Syntax Description	<b>switchport</b>	Set switching mode characteristics
	<b>trunk</b>	Set trunking mode characteristics of the interface
	<b>forbidden</b>	Set forbidden VLAN characteristics
	<b>vlan</b>	1 to 4094
	<b>add</b>	Add VLANs to the current list

	<i>vlan-id-list</i>	VLAN IDs of the VLANs
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	You can only use this command mode for configuring normal-range VLANs, that is, VLAN IDs 1 to 4094.	
Examples	PT-7828(config-if)# switchport trunk forbidden vlan add 1,3-5,7 <STRING:vlanids> - VLAN IDs of the VLANs	
Error messages	vlan 4097 is invalid!! should be range from 1 to 4094	
	vlan interfaces are full, total vlan interface is 64 !!	
Related commands	show vlan show vlan config switchport trunk forbidden vlan remove	

## switchport trunk forbidden vlan remove

Use the **switchport trunk forbidden vlan remove** configuration command on the switch stack or on a standalone switch to remove the trunk forbidden characteristics when the interface is in trunking mode. Use the **no** form of this command to reset a trunking characteristic to the default.

### Commands

**switchport trunk forbidden vlan remove** *vlan-id-list*

**no switchport trunk forbidden vlan**

Syntax Description	<b>switchport</b>	Set switching mode characteristics
	<b>trunk</b>	Set trunking mode characteristics of the interface
	<b>forbidden</b>	Set forbidden VLAN characteristics
	<b>vlan</b>	1 to 4094
	<b>remove</b>	Remove VLANs from the current list
	<i>vlan-id-list</i>	VLAN IDs of the VLANs
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	You can only use this command mode for configuring normal-range VLANs, that is, VLAN IDs 1 to 4094.	
Examples	PT-7828(config-if)# switchport trunk forbidden vlan remove 1,3-5,7 <STRING:vlanids> - VLAN IDs of the VLANs	
Error messages	vlan 4097 is invalid!! should be range from 1 to 4094	
	vlan interfaces are full, total vlan interface is 64 !!	
Related commands	show vlan show vlan config switchport trunk forbidden vlan add	

## switchport trunk native vlan

Use the **switchport trunk native vlan** interface configuration command on the switch to configure PVID of a port as a trunking port. Use the **no** form of this command to return to the default.

### Commands

**switchport trunk native vlan** *vlan-id*

**no switchport trunk native vlan**

Syntax	<b>switchport</b>	Set switching mode characteristics
Description	<b>trunk</b>	Set trunking mode characteristics of the interface

	<b>native</b>	Set trunking native characteristics
	<b>vlan</b>	Set pvid vlanid in trunk mode
	<i>vlan-id</i>	1 to 4094
Defaults	vlan-id = 1	
Command Modes	Interface configuration	
Usage Guidelines	You can only use this command mode for configuring normal-range VLANs, that is, VLAN IDs 1 to 4094.	
Examples	PT-7828(config-if)# switchport trunk native vlan 2 <UINT:vlanid> - 1 to 4094	
Error messages	vlan 4097 is invalid!! should be range from 1 to 4094	
Related commands	show vlan show vlan config	

## trunk-group

Use the **trunk-group** interface configuration command on the switch to assign an Ethernet port to a trunk group. Use the **no** form of this command to remove an Ethernet port from a trunk group.

### Commands

**trunk-group** *trunk\_id*

**no trunk-group**

Syntax	<b>trunk-group</b>	Join trunk group as members
Description	<i>trunk_id</i>	Trunk ID. From 1 to 4
Defaults	N/A	
Command Modes	Interface configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config-if)# trunk-group <UINT:trunk_id> - Trunk ID. From 1 to 4	
Error messages	This setting cannot be applied on trunk port! Trunk ID is only allowed from 1 to 4	
Related commands	show interfaces trunk	

## trunk-mode

Use the **trunk-mode** interface configuration command on the switch to set the trunk mode of the specified trunk group. Use the **no** form of this command to return to the default setting.

### Commands

**trunk-mode** { **static** | **lACP** }

**no trunk-mode**

Syntax	<b>trunk-mode</b>	Trunk mode configuration
Description	<b>static</b>	Configure as static trunk
	<b>lACP</b>	Configure as LACP trunk
Defaults	The default trunk mode of creating trunk manually is static.	
Command Modes	Interface configuration	

Usage Guidelines	N/A
Examples	PT-7828(config-if)# trunk-mode static                 - Configure as static trunk lacp                   - Configure as LACP trunk
Error messages	This setting cannot be applied on normal port!
Related commands	show interfaces trunk

## turbo-chain

Use the **turbo-chain** redundancy configuration command on the switch stack or on a standalone switch to configure Turbo Chain.

### Commands

**turbo-chain role {head | member | tail} primary interface module/port secondary interface module/port**

Syntax Description	<b>turbo-chain</b>	Configure turbo chain
	<b>role</b>	Turbo chain role setting
	<b>head</b>	Turbo chain role head setting
	<b>member</b>	Turbo chain role member setting
	<b>tail</b>	Turbo chain role tail setting
	<b>primary</b>	Turbo chain primary port setting
	<b>interface</b>	Turbo chain port interface setting
	<b>secondary</b>	Turbo chain secondary port setting
	<i>module/port</i>	Port ID. E.g., 1/3, 2/1,...
Defaults	N/A	
Command Modes	redundancy configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config-rdnt)# turbo-chain role head primary interface 1/1 secondary interface 1/2	
Error messages	N/A	
Related commands	show redundancy turbo-chain	

## turbo-ring-v1

Use the **turbo-ring-v1** redundancy configuration command on the switch to enable the Turbo Ring v1 with specified Ring ports.

### Commands

**turbo-ring-v1 primary interface primary-port secondary interface secondary-port**

Syntax Description	<b>turbo-ring-v1</b>	Configure turbo ring v1
	<b>primary</b>	Turbo ring v1 ring ports setting
	<b>interface</b>	Turbo ring v1 ring ports setting
	<i>primary-port</i>	Port ID. E.g., 1/3, Trk2,...
	<b>secondary</b>	Turbo ring v1 ring ports setting
	<b>interface</b>	Turbo ring v1 ring ports setting

	<i>secondary-port</i>	Port ID. E.g., 1/3, Trk2,...
Defaults	N/A	
Command Modes	Redundancy configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config-rdnt)# turbo-ring-v1 primary interface 2/1 secondary interface 2/2 <STRING:pri_port> - Port ID. E.g., 1/3, Trk2, ... <STRING:sec_port> - Port ID. E.g., 1/3, Trk2, ...	
Error messages	Interface 2-1 not exist	
	One port is the same in ring ports or coupling ports	
Related commands	show turbo-ring-v1	

## turbo-ring-v1 coupling

Use the **turbo-ring-v1 coupling** redundancy configuration command on the switch to set the coupling for Turbo Ring v1. Use the **no** form of this command to disable it.

### Commands

**turbo-ring-v1 coupling interface** *primary-port* **coupling-control-port interface** *secondary-port*  
**no turbo-ring-v1 coupling**

Syntax Description	<b>turbo-ring-v1</b>	Configure turbo ring v1
	<b>coupling</b>	Configure ring coupling
	<b>interface</b>	Turbo ring v1 ring ports setting
	<i>primary-port</i>	Primary port ID. E.g., 1/3, Trk2,...
	<b>coupling-control-port interface</b>	Turbo ring v1 coupling ports setting
	<b>interface</b>	Turbo ring v1 ring ports setting
	<i>secondary-port</i>	Secondary port ID. E.g., 1/3, Trk2,...
Defaults	N/A	
Command Modes	Redundancy configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config-rdnt)# turbo-ring-v1 coupling interface 2/1 coupling-control-port interface 2/2 <STRING:pri_port> - Port ID. E.g., 1/3, Trk2, ... <STRING:sec_port> - Port ID. E.g., 1/3, Trk2, ...	
Error messages	Interface 2-1 not exist	
	One port is the same in ring ports or coupling ports	
Related commands	show turbo-ring-v1	

## turbo-ring-v1 master

Use the **turbo-ring-v1 master** redundancy configuration command on the switch to set the switch as the Turbo Ring v1 Master. Use the **no** form of this command to return to the normal Turbo Ring v1 member.

### Commands

**turbo-ring-v1 master**  
**no turbo-ring-v1 master**

Syntax	<b>turbo-ring-v1</b>	Configure turbo ring v1
--------	----------------------	-------------------------



Description	<b>master</b>	Set ring as master
Defaults	N/A	
Command Modes	Redundancy configuration	
Usage Guidelines	N/A	
Examples	PT-7828(config-rdnt)# turbo-ring-v1 master master - Set ring as master	
Error messages	N/A	
Related commands	show turbo-ring-v1	

## turbo-ring-v2

Use the **turbo-ring-v2** redundancy configuration command on the switch to configure the Turbo Ring v2 with specified Ring ports. Use the **no** form of this command to disable the specified ring.

### Commands

**turbo-ring-v2** *ring-id* **primary interface** *primary-port* **secondary interface** *secondary-port*  
**no turbo-ring-v2** *ring-id*

Syntax	<b>turbo-ring-v2</b>	Configure turbo ring v2
Description	<i>ring-id</i>	Turbo ring v2 ring id
	<b>primary</b>	Turbo ring v2 ring ports setting
	<b>interface</b>	Turbo ring v2 ring ports setting
	<i>primary-port</i>	Port ID. E.g., 1/3, 2/1,...
	<b>secondary</b>	Turbo ring v2 ring ports setting
	<b>interface</b>	Turbo ring v2 ring ports setting
	<i>secondary-port</i>	Port ID. E.g., 1/3, 2/1,...
Defaults	N/A	
Command Modes	Redundancy configuration	
Usage Guidelines	At least enable one turbo-ring domain or coupling. But cannot enable two turbo-ring domains and coupling in the same time.	
Examples	PT-7828(config-rdnt)# turbo-ring-v2 1 primary interface 2/1 secondary interface 2/2  <STRING:pri_port> - Port ID. E.g., 1/3, Trk2, ... <STRING:sec_port> - Port ID. E.g., 1/3, Trk2, ...	
Error messages	Turbo ring v2 only supports maximum 2 ring domains	
	Interface 2-1 not exist	
	Ring1: One port couldn't be set as 1st and 2nd redundant port simultaneously !!!	
	Ring2: One port couldn't be set as Ring1 redundant port simultaneously !!!	
	Coupling: One port couldn't be set as 1st and 2nd redundant port simultaneously !!!	
	Primary port couldn't be set as Ring2 redundant port simultaneously !!!	
	Backup port couldn't be set as Ring2 redundant port simultaneously !!!	
	Coupling port couldn't be set as Ring2 redundant port simultaneously !!!	
	Please select at least one Ring!!!	
Ring1, ring2, coupling couldn't be enabled simultaneously!!!		
Please enable one Ring in "Ring Coupling" mode!!!		
Related commands	show turbo-ring-v2	

## turbo-ring-v2 coupling backup

Use the **turbo-ring-v2 coupling** redundancy configuration command on the switch to configure the backup port of Ring coupling for Turbo Ring v2. Use the **no** form of this command to disable the coupling.

### Commands

**turbo-ring-v2 coupling backup interface** *backup-port*  
**no turbo-ring-v2 coupling**

Syntax Description	<b>turbo-ring-v2</b>	Configure turbo ring v2
	<b>coupling</b>	Configure ring coupling
	<b>backup</b>	Configure ring coupling mode
	<b>interface</b>	Turbo ring v2 coupling ports setting
	<i>backup-port</i>	Port ID. E.g., 1/3, 2/1,...
Defaults	N/A	
Command Modes	Redundancy configuration	
Usage Guidelines	At least enable one turbo-ring domain or coupling. But cannot enable two turbo-ring domains and coupling in the same time.	
Examples	PT-7828(config-rdnt)# turbo-ring-v2 coupling backup interface 2/1 <STRING:pri_port> - Port ID. E.g., 1/3, Trk2,...	
Error messages	Turbo ring v2 only supports maximum 2 ring domains	
	Ring1: One port couldn't be set as 1st and 2nd redundant port simultaneously !!!	
	Ring2: One port couldn't be set as Ring1 redundant port simultaneously !!!	
	Coupling: One port couldn't be set as 1st and 2nd redundant port simultaneously !!!	
	Primary port couldn't be set as Ring2 redundant port simultaneously !!!	
	Backup port couldn't be set as Ring2 redundant port simultaneously !!!	
	Coupling port couldn't be set as Ring2 redundant port simultaneously !!!	
	Please select at least one Ring!!!	
	Ring1, ring2, coupling couldn't be enabled simultaneously!!!	
Please enable one Ring in "Ring Coupling" mode!!!		
Related commands	show turbo-ring-v2	

## turbo-ring-v2 coupling dual-homing

Use the **turbo-ring-v2 coupling dual-homing** redundancy configuration command on the switch to enable dual homing feature of Ring coupling for the Turbo Ring v2. Use the **no** form of this command to disable it.

### Commands

**turbo-ring-v2 coupling dual-homing primary interface** *primary-port* **backup interface** *secondary-port*  
**no turbo-ring-v2 coupling**

Syntax Description	<b>turbo-ring-v2</b>	Configure turbo ring v2
	<b>coupling</b>	Configure ring coupling
	<b>dual-homing</b>	Configure dual homing mode
	<b>primary</b>	Turbo ring v2 ring ports setting
	<b>interface</b>	Turbo ring v2 ring ports setting
	<i>primary-port</i>	Port ID. E.g., 1/3, 2/1,...
	<b>backup</b>	Turbo ring v2 ring ports setting
	<b>interface</b>	Turbo ring v2 ring ports setting
	<i>secondary-port</i>	Port ID. E.g., 1/3, 2/1,...
Defaults	N/A	

Command Modes	Redundancy configuration
Usage Guidelines	At least enable one turbo-ring domain or coupling. But cannot enable two turbo-ring domains and coupling in the same time.
Examples	PT-7828(config-rdnt)# turbo-ring-v2 coupling dual-homing primary interface 2/1 secondary interface 2/2  <STRING:pri_port> - Port ID. E.g., 1/3, Trk2,... <STRING:sec_port> - Port ID. E.g., 1/3, Trk2,...
Error messages	Turbo ring v2 only supports maximum 2 ring domains
	Ring1: One port couldn't be set as 1st and 2nd redundant port simultaneously !!!
	Ring2: One port couldn't be set as Ring1 redundant port simultaneously !!!
	Coupling: One port couldn't be set as 1st and 2nd redundant port simultaneously !!!
	Primary port couldn't be set as Ring2 redundant port simultaneously !!!
	Backup port couldn't be set as Ring2 redundant port simultaneously !!!
	Coupling port couldn't be set as Ring2 redundant port simultaneously !!!
	Please select at least one Ring!!!
Related commands	show turbo-ring-v2

## turbo-ring-v2 coupling primary

Use the **turbo-ring-v2 coupling primary** redundancy configuration command on the switch to configure the primary port of Ring coupling for Turbo Ring v2. Use the no form of this command to return to the default setting.

### Commands

**turbo-ring-v2 coupling primary interface** *primary-port*

**no turbo-ring-v2 coupling**

Syntax Description	<b>turbo-ring-v2</b>	Configure turbo ring v2
	<b>coupling</b>	Configure ring coupling
	<b>primary</b>	Configure ring coupling mode
	<b>interface</b>	Turbo ring v2 coupling ports setting
	<i>primary-port</i>	Port ID. E.g., 1/3, 2/1,...
Defaults	N/A	
Command Modes	Redundancy configuration	
Usage Guidelines	At least enable one turbo-ring domain or coupling. But cannot enable two turbo-ring domains and coupling in the same time.	
Examples	PT-7828(config-rdnt)# turbo-ring-v2 coupling primary interface 2/1 <STRING:pri_port> - Port ID. E.g., 1/3, Trk2,...	
Error messages	Turbo ring v2 only supports maximum 2 ring domains	
	Ring1: One port couldn't be set as 1st and 2nd redundant port simultaneously !!!	
	Ring2: One port couldn't be set as Ring1 redundant port simultaneously !!!	
	Coupling: One port couldn't be set as 1st and 2nd redundant port simultaneously !!!	
	Primary port couldn't be set as Ring2 redundant port simultaneously !!!	
	Backup port couldn't be set as Ring2 redundant port simultaneously !!!	
	Coupling port couldn't be set as Ring2 redundant port simultaneously !!!	
	Please select at least one Ring!!!	
Related commands	Ring1, ring2, coupling couldn't be enabled simultaneously!!!	
	Please enable one Ring in "Ring Coupling" mode!!!	

Related commands	show turbo-ring-v2
------------------	--------------------

## turbo-ring-v2 master

Use the **turbo-ring-v2 master** redundancy configuration command on the switch to configure the switch as the Ring Master of specified ring for Turbo Ring v2. Use the **no** form of this command to configure the switch as the normal member of specified ring for Turbo Ring v2.

### Commands

**turbo-ring-v2 ring-id master**

**no turbo-ring-v2 ring-id master**

Syntax	<b>turbo-ring-v2</b>	Configure turbo ring v2
Description	<i>ring-id</i>	Turbo ring v2 ring id
	<b>master</b>	Set turbo ring v2 ring id as master
Defaults	N/A	
Command Modes	Redundancy configuration	
Usage Guidelines	N/A	
Examples	<pre>PT-7828(config-rdnt)# turbo-ring-v2 1 master master                - Set turbo ring v2 ring id as master</pre>	
Error messages	Turbo ring v2 only supports maximum 2 ring domains	
Related commands	show turbo-ring-v2	

## trusted-access

Same as **access-ip**.

### Commands

**trusted-access [ip-address netmask]**

**no trusted-access [ip-address netmask]**

Syntax Description	<b>trusted-access</b>	Enable the trusted IP list for access
	<i>ip-address</i>	IP address
	<i>netmask</i>	IP netmask
Defaults	The feature is disabled by default.	
Command Modes	VLAN configuration as management VLAN	
Usage Guidelines	This feature will take effect when the " <b>trusted-access</b> " command is executed.	
Examples	<pre>PT-7828(config)# interface mgmt PT-7828(config-vlan)# trusted-access 10.10.10.10 255.255.255.0 &lt;IPV4ADDR:ipaddr&gt;          - IP address &lt;IPV4ADDR:netmask&gt;        - IP netmask PT-7828(config-vlan)# trusted-access</pre>	
Error messages	Trusted access ip list full	
	IP: IP-format mask: mask-format does not exist in trusted access IP list	

Related commands	show interface mgmt trusted-access
------------------	------------------------------------

## username

Use the **username** global configuration command on the switch to set the username and password of the local login user. Use the **no** form of this command will clear the password setting of the specified user.

### Commands

**username** { admin | user } password password

**no username** { admin | user } password

Syntax	<b>username</b>	Configuration for login account authentication
Description	<i>username</i>	User name
	<b>privilege</b>	Privilege for account
	<i>privilege-level</i>	3 values, "admin" and "user" for account level, "no login" indicates account as non-login user
	<b>password</b>	Specify the password
	<i>password</i>	Password string (Length of password should be from 4 to 16, and empty password is no longer allowed)
Defaults	There is no password for each user	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	<pre>PT-7828(config)# username admin password 1234 &lt;LF&gt; PT-7828(config)# username user password 5678 &lt;LF&gt;</pre>	
Error messages	N/A	
Related commands	show users	

## version

Use the **version** command in router configuration mode as RIP on the switch to change the version of the current running RIP.

### Commands

**version** version

Syntax	<b>version</b>	Set RIP version
Description	<i>version</i>	1   2   1c
Defaults	Default is 1 (i.e. RIP version 1 )	
Command Modes	Router configuration as RIP	
Usage Guidelines	N/A	

Examples	<pre> PT-7828# configure terminal PT-7828(config)# router rip PT-7828(config-rip)# version 2 PT-7828(config-rip)# PT-7828# show ip rip RIP Protocol      : Enable RIP version       : V2 Distribution   Connected       : Enable   Static          : Disable   OSPF            : Disable  RIP Enable Table Interface Name    IP             VID            Enable ----- vlan2if          192.168.102.1  2              Enable </pre>
Error messages	Invalid version
Related commands	N/A

## vlan create

Use the **vlan create** global configuration command on the switch to create a VLAN in the VLAN database. Use the **no** form of this command to delete a VLAN.

### Commands

**vlan create** *vlan-id-list*

**no vlan create** *vlan-id-list*

Syntax	<b>vlan</b>	Configure VLAN parameters
Description	<b>create</b>	Configure VLAN parameters
	<i>vlan-id-list</i>	VLAN IDs of the VLANs
Defaults	N/A	
Command Modes	Global configuration	
Usage Guidelines	You can only use this command mode for configuring normal-range VLANs, that is, VLAN IDs 1 to 4094.	
Examples	<pre> PT-7828(config)# vlan create 1,3-5,7 &lt;STRING:vlanids&gt; - VLAN IDs of the VLANs </pre>	
Error messages	vlan 4097 is invalid!! should be range from 1 to 4094	
	vlan interfaces are full, total vlan interface is 64 !!	
Related commands	show vlan config	

## vlan mode

Use the **vlan mode** configuration command on the switch to change current VLAN mode operated on the switch. Use the **no** form of this command to return to the default.

### Commands

**vlan mode { 1qvlan | pvlan | unaware }**

**no vlan mode**

Syntax Description	<b>vlan</b>	Configure VLAN parameters
	<b>mode</b>	Set (default) vlan mode
	<b>1qvlan</b>	IEEE 802.1Q
	<b>pvlan</b>	Port-based vlan
	<b>unaware</b>	Unaware vlan
Defaults	The default mode is 802.1Q mode in the product with 802.1Q supported; otherwise is port-based VLAN mode.	
Command Modes	Global configuration	
Usage Guidelines	N/A	
Examples	<pre>PT-7828(config)# vlan mode 1qvlan  1qvlan           - IEEE 802.1Q pvlan             - Port-based vlan unaware           - Unaware vlan</pre>	
Error messages	N/A	
Related commands	show vlan	

## vrrp

To configure the Virtual Router Redundancy Protocol (VRRP) on an interface, use the **vrrp** command in VRRP interface configuration mode. To disable the VRRP configuration, use the **no** form of this command

### Commands

**vrrp**

**vrrp vrid vrip ip-address**

**no vrrp**

Syntax Description	<b>vrrp</b>	VRRP interface setting
	<i>vrid</i>	VRRP interface virtual router ID
	<b>vrip</b>	set virtual router ID and virtual IP
	<i>ip-address</i>	virtual IP(IPv4 address)
Defaults	VRRP is not configured	
Command Modes	VRRP interface configuration	
Usage Guidelines	Use <b>vrrp</b> command in VLAN configuration mode to enable vrrp in the VLAN interface.	
Examples	<pre>PT-7828(config-vlan)# vrrp 1 vrip 1.1.1.1  PT-7828(config-vlan)# no vrrp</pre>	
Error messages	Entry not Found!	

Related commands	vrrp preempt vrrp priority show ip vrrp
------------------	---

## vrrp preempt

VRRP preempt is enabled by default. This means that a VRRP router with higher priority than the master VRRP router will take over as master router. To disable this feature, use the **no** form of this command.

### Commands

**vrrp preempt**

**no vrrp preempt**

Syntax	<b>vrrp</b>	VRRP interface setting
Description	<b>preempt</b>	VRRP preemption mode enable VRRP preemption mode disable
Defaults	VRRP preempt is enable	
Command Modes	VRRP interface configuration	
Usage Guidelines	Use <b>vrrp</b> command in VLAN configuration mode to enable vrrp in the VLAN interface.	
Examples	PT-7828(config-vlan)# vrrp preempt  PT-7828(config-vlan)# no vrrp preempt	
Error messages	Entry not Found!	
Related commands	vrrp vrrp priority	

## vrrp priority

To set the priority of the virtual router, use the **vrrp priority** command in VRRP interface configuration mode. To remove the priority of the virtual router, use the **no** form of this command.

### Commands

**vrrp priority**

**no vrrp priority**

Syntax	<b>vrrp</b>	VRRP interface setting
Description	<b>priority</b>	VRRP priority (1 to 254) Set VRRP priority to default(100)
Defaults	priority 100	
Command Modes	VRRP interface configuration	
Usage Guidelines	Use <b>vrrp</b> command in VLAN configuration mode to enable vrrp in the VLAN interface.	
Examples	PT-7828(config-vlan)# vrrp priority 100  PT-7828(config-vlan)# no vrrp priority	
Error messages	Entry not Found! Invalid parameters!	
Related commands	vrrp vrrp preempt	



## warning-notification system-event

Use **warning-notification system-event** global configuration commands to enable the system warning events trigger to email, relay, syslog or trap. Use **no** form of this command to disable it.

### Commands

**warning-notification system-event** { cold-start | warm-start | config-changed | pwr1-trans-on | pwr2-trans-on | pwr1-trans-off | pwr2-trans-off | auth-fail | password-changed | tacacs-auth-fail | radius-auth-fail | topology-changed | coupling-changed | master-changed | rstp-admin-changed | rstp-topology-changed | turbo-ring-break | di1-trans-on|di1-trans-off } {action *action-index* | severity *severity-level* | active}

**no warning-notification system-event** { cold-start | warm-start | config-changed | pwr1-trans-on | pwr2-trans-on | pwr1-trans-off | pwr2-trans-off | auth-fail | password-changed | tacacs-auth-fail | radius-auth-fail | topology-changed | coupling-changed | master-changed | rstp-admin-changed | rstp-topology-changed | turbo-ring-break | di1-trans-on|di1-trans-off } active}

Syntax Description	<b>warning-notification</b>	
	<b>system-event</b>	
	<b>cold-start</b>	
	<b>warm-start</b>	
	<b>config-changed</b>	
	<b>pwr1-trans-on</b>	
	<b>pwr2-trans-on</b>	
	<b>pwr1-trans-off</b>	
	<b>pwr2-trans-off</b>	
	<b>auth-fail</b>	
	<b>password-changed</b>	
	<b>tacacs-auth-fail</b>	
	<b>radius-auth-fail</b>	
	<b>topology-changed</b>	
	<b>coupling-changed</b>	
	<b>master-changed</b>	
	<b>rstp-admin-changed</b>	
	<b>rstp-topology-changed</b>	
	<b>turbo-ring-break</b>	
	<b>di1-trans-on</b>	
<b>di1-trans-off</b>		
<b>action</b>		
<i>action-index</i>		
<b>severity</b>		
<i>severity-level</i>		
<b>active</b>		
Defaults	N/A	

Command Modes	Global configuration
Usage Guidelines	<p><i>action-index</i> as follow,</p> <p>Trap only(1), Email only(2), Trap+Email(3), Syslog only(4), Trap+Syslog(5), Email+Syslog(6), Trap+Email+Syslog(7), Relay1 only(8), Trap+Relay1(9), Email+Relay1(10), Trap+Email+Relay1(11), Syslog+Relay1(12), Trap+Syslog+Relay1(13), Email+Syslog+Relay1(14), Trap+Email+Syslog+Relay1(15), Relay2 only(16), Trap+Relay2(17), Email+Relay2(18), Trap+Email+Relay2(19), Syslog+Relay2(20), Trap+Syslog+Relay2(21), Email+Syslog+Relay2(22), Trap+Email+Syslog+Relay2(23), Relay1+Relay2(24), Trap+Relay1+Relay2(25), Syslog+Relay1+Relay2(28), Email+Syslog+Relay1+Relay2(30), Trap+Email+Syslog+Relay1+Relay2(31), None(0)</p> <p><i>severity-level</i> as follow,</p> <p>Emergency(0), Alert(1), Critical(2), Error(3), Warning(4), Notice(5), Information(6), Debug(7)</p>
Examples	<pre>EDS-G516E(config)# warning-notification system-event cold-start action 5 EDS-G516E(config)# warning-notification system-event cold-start severity 3 EDS-G516E(config)# no warning-notification system-event cold-start active</pre>
Error messages	<p>Invalid action value or non-support this combination action</p> <p>Invalid severity type</p>
Related commands	show relay-warning config

## warning-notification port-event

Use **warning-notification port-event** interface configuration commands to enable the port warning events trigger to email, relay, syslog or trap. Use **no** form of this command to disable it.

### Commands

**warning-notification port-event** {event { link-on | link-off | traffic-overload rx-threshold duration} | action action-index |severity severity-level | active}

**no warning-notification port-event** {event { link-on | link-off | traffic-overload} | active}

Syntax Description	<b>warning-notification</b>	
	<b>port-event</b>	
	<b>event</b>	
	<b>link-on</b>	
	<b>link-off</b>	
	<b>traffic-overload</b>	
	<i>rx-threshold</i>	
	<i>duration</i>	
	<b>action</b>	
	<i>action-index</i>	
	<b>severity</b>	
	<i>severity-level</i>	
<b>active</b>		

Defaults	N/A
Command Modes	Interface configuration
Usage Guidelines	<p><i>action-index</i> as follow,  Trap only(1), Email only(2), Trap+Email(3), Syslog only(4), Trap+Syslog(5),  Email+Syslog(6), Trap+Email+Syslog(7), Relay1 only(8), Trap+Relay1(9),  Email+Relay1(10), Trap+Email+Relay1(11), Syslog+Relay1(12),  Trap+Syslog+Relay1(13), Email+Syslog+Relay1(14),  Trap+Email+Syslog+Relay1(15), Relay2 only(16), Trap+Relay2(17),  Email+Relay2(18), Trap+Email+Relay2(19), Syslog+Relay2(20),  Trap+Syslog+Relay2(21), Email+Syslog+Relay2(22),  Trap+Email+Syslog+Relay2(23), Relay1+Relay2(24), Trap+Relay1+Relay2(25),  Syslog+Relay1+Relay2(28), Email+Syslog+Relay1+Relay2(30),  Trap+Email+Syslog+Relay1+Relay2(31), None(0)</p> <p><i>severity-level</i> as follow,  Emergency(0), Alert(1), Critical(2), Error(3), Warning(4), Notice(5), Information(6),  Debug(7)</p>
Examples	<pre>EDS-G516E(config-if)#warning-notification port-event event traffic-overload 30 150 EDS-G516E(config-if)# no warning-notification port-event event link-on</pre>
Error messages	<p>Invalid action value or non-support this combination action</p> <p>Invalid severity type</p>
Related commands	show relay-warning config