Ethernet Configuration Commands

1. Interface Commands
2. MAC Address Commands
3. Aggregate Port Commands
4. VLAN Commands
5. MAC VLAN Commands
6. Protocol VLAN Commands
7. Private VLAN Commands
8. MSTP Commands
9. GVRP Commands
10. LLDP Commands
11. QinQ Commands
12. ERPS Commands

1 Interface Commands

1.1 bandwidth

Use this command to set the bandwidth on the interface. Use the **no** form of this command to restore the default setting.

bandwidth *kilobits*

no bandwidth

Parameter Description

Parameter	Description
kilobits	Bandwidth per second, in the unit of Kbps.

Defaults If this command is not configured on the interface, use the show interface command to display the default setting in privileged EXEC mode.

Command Mode Interface configuration mode

Usage Guide This command does not affect the actual bandwidth on the interface. Instead, it is used to display the system the bandwidth specification. By default, the bandwidth is determined by the actual link rate on the interface. It can be set by the user as well.

Configuration Examples The following example sets the bandwidth on the interface to 64 Kbps.

```
Orion Alpha A28X(config)#interface gigabitEthernet 0/1
Orion Alpha A28X(config-if-GigabitEthernet 0/1)# bandwidth 64
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

1.2 carrier-delay

Use this command to set the carrier delay on the interface. Use the no form of this command to restore the default value.

carrier-delay { [*milliseconds*] *num* | **up** [*milliseconds*] *num* **down** [*milliseconds*] *num*}

no carrier-delay

Parameter Description

Parameter	Description
num	(Optional) in the range from 0 to 60 in the unit of seconds.
milliseconds	(Optional) in the range from 0 to 60000 in the unit of milliseconds.

up	(Optional) Configures the delay after which DCD changes from Down to Up in status.
down	(Optional) Configures the delay after which DCD changes from Up to Down in status.

Defaults The default is 2 seconds.

Command Mode Interface configuration mode

Usage Guide This parameter refers to the delay after which the carrier detection signal DCD of the interface link changes from the Down status to the Up status or vice versa. If the DCD changes within the delay, the system will ignore such changes without disconnecting the upper data link layer for renegotiation.
If the DCD carrier is disconnected for a long time, the parameter should be set longer to accelerate route aggregation so that the routing table can be converged more quickly. On the contrary, if the DCD carrier interruption period is shorter than the time used for route aggregation, you should set the parameter to a higher value to avoid unnecessary route vibration.

Configuration Examples The following example sets the carrier delay of serial interface to 5 seconds.

```
Orion Alpha A28X(config)# interface gigabitethernet 1/1
Orion Alpha A28X(config)# carrier-delay 5
```

The following example sets the carrier delay of serial interface to 100 milliseconds.

```
Orion Alpha A28X(config)# interface GigabitEthernet 1/1
Orion Alpha A28X(config-if-GigabitEthernet 1/1)#carrier-delay
milliseconds 100
```

The following example sets the DCD delay from Down to Up in status to 100 milliseconds and from Up to Down to 200 milliseconds.

```
Orion Alpha A28X(config)# interface GigabitEthernet 1/1
Orion Alpha A28X(config-if-GigabitEthernet 1/1)# carrier-delay
up milliseconds 100 down milliseconds 200
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

1.3 clear counters

Use this command to clear the counters on the specified interface.
clear counters [*interface-id*]

Parameter Description

Parameter	Description
interface-id	Interface type and interface ID

Defaults N/A

Command Mode Privileged EXEC mode.

Usage Guide In the privileged EXEC mode, use the **show interfaces** command to display the counters or the **clear counters** command to clear the counters. If the interface is not specified, the counters on all interfaces will be cleared.

Configuration Examples The following example clears the counters on interface gigabitethernet 1/1.

```
Orion Alpha A28X# clear counters gigabitethernet 1/1
```

Related Commands

Command	Description
show interfaces	Displays the interface information.

Platform Description N/A

1.4 clear interface

Use this command to reset the interface.

clear interface *interface-type interface-number*

Parameter Description

Parameter	Description
interface-type interface-number	Interface type and interface ID

Defaults N/A

Command Mode Privileged EXEC mode.

Usage Guide This command is only used on the switch port, member port of the L2 Aggregate port, routing port, and member port of the L3 aggregate port. This command is equal to the **shutdown** and **no shutdown** commands.

Configuration Examples The following example resets the interface gigabitethernet 1/1.

```
Orion Alpha A28X# clear interface gigabitethernet 1/1
```

Related Commands

Command	Description
shutdown	Disables the interface.

Platform Description N/A

1.5 description

Use this command to configure the alias of interface. Use the **no** form of this command to restore the default setting.

description *string*

no description

Parameter Description

Parameter	Description
string	Interface alias

Defaults No alias is configured by default.

Command Mode Interface configuration mode.

Usage Guide Use **show interfaces** to display the interface information, including the alias.

Configuration Examples The following example configures the alias of interface.

```
Orion Alpha A28X(config)# interface gigabitethernet 1/1
Orion Alpha A28X(config-if)# description GBIC-1
```

Related Commands

Command	Description
show interfaces	Displays the interface information.

Platform Description N/A

1.6 duplex

Use this command to specify the duplex mode for the interface. Use the **no** form of this command to restore the default setting.

duplex { **auto** | **full** | **half** }

no duplex

Parameter Description

Parameter	Description
auto	Self-adaptive full duplex and half duplex
full	Full duplex
half	Half duplex

Defaults The default is **auto**,

Command Mode Interface configuration mode.

Usage Guide The duplex mode is associated with the interface type. Use **show interfaces** to display the duplex

mode of the interface

Configuration Examples The following example specifies the duplex mode for the interface.

```
Orion Alpha A28X(config-if)# duplex full
```

Related Commands

Command	Description
show interfaces	Displays the interface information.

Platform Description N/A

1.7 eee enable

Use this command to enable Energy Efficient Ethernet (EEE) on the interface.

eee enable

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is disabled by default.

Command Mode Interface configuration mode

Usage Guide Use this command to achieve EEE on the interface in Low Power Idle(LPI) mode,

Configuration Examples The following example enables EEE on GigabitEthernet 0/1.

```
Orion Alpha A28X(config)#interface GigabitEthernet 0/1
Orion Alpha A28X(config-if-GigabitEthernet 0/1)# eee enable
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

1.8 errdisable recovery

Use this command to recover the interface in violation.

errdisable recovery [**interval** *time*]

Parameter Description

Parameter	Description
interval *time*	Time for the command to take effect. The range is from 30 to 86,400 seconds.

Defaults By default, it is disabled.

Command Mode Global configuration mode.

Usage Guide Use the command to recover the port that triggers violation after being configured with the **violation shutdown** command.

Configuration Examples The following example recovers the violation interface gigabitethernet 1/1.

```
Orion Alpha A28X(config)# interface gigabitethernet 1/1
Orion Alpha A28X(config-if)# errdisable recovery
```

Related Commands

Command	Description
switchport port-security violation shutdown	Configures the port security violation to shutdown.

Platform Description N/A.

1.9 fiber antifake enable

Use this command to enable or disable the optical module antifake detection. Use the **no** form of this command to restore the default setting.

fiber antifake {ignore | enable}

no fiber antifake enable

Parameter Description

Parameter	Description
ignore	N/A
enable	

Defaults By default, optical module antifake detection is disabled.

Command Mode Global configuration mode

Usage Guide If the optical module antifake detection is enabled by default, when a non-original optical module is inserted, alarm logs are printed.

Configuration Examples The following example enables the optical module antifake detection.

```
Orion Alpha A28X(config)# fiber antifake enable
```

Related Commands

Command	Description
N/A	N/A

Platform N/A

Description

1.10 flowcontrol

Use this command to enable or disable the flow control. Use the **no** form of this command to restore the default setting.

flowcontrol { **auto** | **off** | **on**}

no flowcontrol

Parameter Description

Parameter	Description
auto	Self-negotiates the flow control.
off	Disables the flow control.
on	Enables the flow control.

Defaults This function is disabled by default.

Command Mode Interface configuration mode.

Usage Guide Use the **show interfaces** command to display the flow control configuration.

Configuration Examples The following example enables flow control on fastEthernet port 1/1.

```
Orion Alpha A28X(config)# interface gigabitethernet 1/1
Orion Alpha A28X(config-if)# flowcontrol on
```

Related Commands

Command	Description
show interfaces	Displays the interface information.

Platform Description N/A

1.11 interface

Use this command to enter the interface configuration mode.

interface *interface-type interface-number*

Parameter Description

Parameter	Description
interface-type	The interface type.
interface-number	The interface ID.

Defaults N/A

Command Mode Interface configuration mode

Usage Guide This command is used to enter interface configuration mode. The user can modify the interface configuration next,

Configuration Examples The following example enters configuration mode on Aggregateport 1.

```
Orion Alpha A28X(config)# interface Aggregateport 1
Orion Alpha A28X(config-if-Aggregateport 1)#
```

The following example enters configuration mode on GigabitEthernet 1/2.

```
Orion Alpha A28X(config)# interface GigabitEthernet 1/2
Orion Alpha A28X(config-if-GigabitEthernet 1/2)#
```

The following example configuration mode on VLAN 1.

```
Orion Alpha A28X(config)# interface vlan 1
Orion Alpha A28X(config-if-VLAN 1)#
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

1.12 interface range

Use this command to enter interface configuration mode on multiple interfaces.
interface range { *port-range* | **macro** *macro_name* }
Use this command to define the macro name of the **interface range** command.
define interface-range *macro_name*

Parameter Description

Parameter	Description
port-range	The interface type and ID range, entered in the form of *interface-type slot-number/interface-number*. The interface can be either an Ethernet physical interface or a loopback interface.
macro *macro_name*	The macro name which represents the interface range.

Defaults The **interface range** command is disabled by default.

Command Mode Global configuration mode

Usage Guide Use the define interface-range command to define a range of interfaces as the macro name and then use the **interface** range macro macro_name command to enter interface configuration mode on multiple interfaces.

Configuration Examples The following example enters interface configuration mode on multiple interfaces by setting the interface range.

```
Orion Alpha A28X(config)# interface range gigabitEthernet 0/0, 0/2
Orion Alpha A28X(config-if-range)# bandwidth 100
```

The following example enters interface configuration mode on multiple interfaces by defining the

macro name.

```
Orion Alpha A28X(config)# define interface-range route1 gigabitEthernet
0/0-2
Orion Alpha A28X(config)# interface range macro route1
Orion Alpha A28X(config-if-range)# bandwidth 100
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

1.13 line-detect

Use this command to detect the cable connection status.

line-detect

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

Command Mode Interface configuration mode.

Usage Guide This command is used to detect the line status and locate the problem in case of a line failure, for example, the line is torn down.

Configuration Examples The following example detects the cable connection status on gigabitEthernet 0/1.

```
Orion Alpha A28X(config)#interface gigabitEthernet 0/1
Orion Alpha A28X(config-if-GigabitEthernet 0/1)#line-detect

Interface : GigabitEthernet 0/1
start cable-diagnoses,please wait...
cable-daignoses end!this is result:
4 pairs
pair state      length(meters)
---- ---------- --------------
A    Ok         1
pair state      length(meters)
---- ---------- --------------
B    Ok         2
pair state      length(meters)
---- ---------- --------------
C    Short      1
pair state      length(meters)
```

```
---- ---------- --------------
D    Short      1
```

Field	Description
pairs	Number of line pairs included. For example, the twisted pair includes four pairs of lines.
state	Status of the current line pair: OK, Short or Open. In general, the 100M twisted pairs A and B are OK, C and D are Short. The 1000M twisted pairs A, B, C and D are all OK.
length	Length of the line in meter. Only the length of the line pair whose status is OK takes effect. Since the length is calculated based on the transmission time of signal, there may have a certain difference. The length of the line pair whose status is Short or Open is the length from the port to the faulty point.

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

1.14 load-interval

Use this command to set the interval for calculating load on the interface. Use the **no** form of this command to restore the default setting.
load-interval *seconds*
no load-interval

Parameter Description

Parameter	Description
seconds	In the range from 5 to 600 in the unit of seconds.

Defaults The default is 10.

Command Mode Interface configuration mode

Usage Guide This command is used to set the interval for calculating load on the interface. In general, the numbers of incoming and outgoing packets and bytes are calculated every 10 seconds. For example, if the parameter is set to 180 seconds, the following outcome is displayed when the **show interface gigabitEthernet 0/1** command is run.

```
3 minutes input rate 15 bits/sec, 0 packets/sec
3 minutes output rate 14 bits/sec, 0 packets/sec
```

Configuratio The following example sets the interval for calculating load on interface GigabitEthernet 0/1 to 180

n Examples seconds.

```
Orion Alpha A28X(config)# interface gigabitEthernet 0/1
Orion Alpha A28X(config-if-GigabitEthernet 0/1)# load-interval
180
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

1.15 logging

Use this command to print information on the interface.

logging [**link-updown** | **error-frame** | **link-dither**]

Parameter Description

Parameter	Description
link-updown	Prints the status change information.
error-frame	Prints the error frame information.
link-dither	Prints the oscillation information.

Defaults This function is enabled by default.

Command Mode Global configuration mode

Usage Guide N/A

Configuration Examples The following example prints information on the interface..

```
Orion Alpha A28X(config)# logging link-updown
Orion Alpha A28X(config)# logging error-frame
Orion Alpha A28X(config)# logging link-dither
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

1.16 medium-type

Use this command to specify the medium type for an interface. Use the **no** form of this command to restore the default setting.

medium-type { **auto-select** [**prefer** [**fiber | copper**]] **| fiber** | **copper** }

no medium-type

Parameter Description

Parameter	Description
fiber	Optical interface.
prefer [**fiber** | **copper**]	The preferred medium type for the interface is selected.
auto-select	Auto-selects the medium type for the interface.
copper	Copper interface.

Defaults The default is **copper**.

Command Mode Interface configuration (physical interface, except for AP and SVI)

Usage Guide Select either fiber or copper as the medium type of a port when both medium types are available. Once the medium type is selected, all interface attributes, including the status, duplex mode, and speed, are configured for the interface of the selected medium type. If the interface type is changed, the attributes of the new interface type are the default attributes. You can reconfigure these attributes as required.
If you enable automatic selection of the medium type, the device uses the current medium if only one medium is available. If both media are available, the device uses the preferred medium as configured. By default, the preferred medium is copper. You can run the **medium-type auto-select prefer fiber** command to configure fiber as the preferred media. In automatic medium selection mode, the interface adopts the default settings of attributes, such as the speed, duplex mode, and flow control mode.

Configuration Examples The following example specifies the medium type for interface gigabitethernet 1/1.

```
Orion Alpha A28X(config)# interface gigabitethernet 1/1
Orion Alpha A28X(config-if)# medium-type copeer
```

Related Commands

Command	Description
show interfaces	Displays the interface information.

Platform Description

1.17 mtu

Use this command to set the MTU supported on the interface.
mtu *num*

Parameter Description

Parameter	Description
num	64 to 9216 (or 65536, which varies by products)

Defaults The default is 1500.

Command Interface configuration mode.

Mode

Usage Guide This command is used to set the maximum transmission unit (MTU) supported on the interface.

Configuration Examples The following example sets the MTU supported on interface gigabitethernet 1/1 to 9000.

```
Orion Alpha A28X(config)# interface GigabitEthernet 1/1
Orion Alpha A28X(config-if-GigabitEthernet)# mtu 9000
```

Related Commands

Command	Description
show interfaces	Displays the interface information.

Platform Description N/A

1.18 negotiation mode

Use this command to enable or disable auto-negotiation mode. Use the **no** form of this command to restore the default setting.

negotiation mode { **on** | **off** }

no negotiation mode

Parameter Description

Parameter	Description
on	Enables auto-negotiation.
off	Disables auto-negotiation.

Defaults This function is disabled by default.

Command Mode Interface configuration mode

Usage Guide In general, the auto-negotiation status is determined by interface speed, duplex, flow control and auto-negotiation factor mode.

Configuration Examples The following example enables auto-negotiation mode on interface GigabitEthernet 1/1.

```
Orion Alpha A28X(config)# interface GigabitEthernet 1/1
Orion Alpha A28X(config-if-GigabitEthernet 1/1)# negotiation mode on
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

1.19 physical-port dither protect

Use this command to enable oscillation protection on the port.
physical-port dither protect

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is enabled by default.

Command Mode Global configuration mode

Usage Guide After you configure the **physical-port dither protect** command, the port will be shut down when the oscillation occurs for certain times.

- If oscillation occurs on the port for 6 times within 2 seconds, a syslog will be printed. If syslog is printed for 10 consecutive times, the port will be shut down, If oscillation occurs on the port for over 10 times within 10 seconds, a syslog will be printed but the port will not be shut down.

Configuration Examples The following example enables oscillation protection on the port.

```
Orion Alpha A28X(config)# physical-port dither protect
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

1.20 protected-ports route-deny

Use this command to configure L3 routing between the protected ports. Use the **no** form of this command to restore the default setting.
protected-ports route-deny
no protected-ports route-deny

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is disabled by default..

Command Mode Global configuration mode.

Usage Guide The ports that are set as the protected ports can route on L3. Use this command to deny the L3 communication between protected ports. Use the **show running-config** command to display

configuration.

Configuration Examples

The following example configures L3 routing between the protected ports.

```
Orion Alpha A28X(config)# protected-ports route-deny
```

Related Commands

Command	Description
show running-config	Displays the protected ports route-deny configuration.

Platform Description

N/A

1.21 show eee interfaces status

Use this command to display interface EEE status.

show eee interfaces { *interface-type interface-number* | *status* }

Parameter Description

Parameter	Description
interface-type interface-number	Interface type and ID.
status	All interface EEE status.

Defaults

N/A

Command Mode

Privileged EXEC mode

Usage Guide

If the interface is specified, the EEE status of the specified interface is displayed; otherwise, the EEE status of all interfaces is displayed.

Configuration Examples

The following example displays EEE status of interface GigabitEthernet 0/1.

```
Orion Alpha A28X#show eee interface gigabitEthernet 0/1
Interface                : Gi0/1
EEE Support              : Yes
Admin Status             : Enable
Oper Status              : Disable
Remote Status            : Disable
Trouble Cause            : Remote Disable
```

Field	Description
EEE Support	Whether EEE is supported
Admin Status	Configuration status
Oper Status	Operation status
Trouble Cause	Trouble cause

The following example displays EEE status of all interfaces.

```
Orion Alpha A28X#show eee interface status
```

```
Interface EEE     Admin    Oper     Remote   Trouble
          Support Status   Status   Status   Cause
--------- ------- -------- -------- -------- --------------------
Gi0/1     Yes     Enable   Disable  Disable   Remote Disable
Gi0/2     Yes     Enable   Disable  Unknown   None
Gi0/3     Yes     Enable   Enable   Enable    None
Gi0/4     Yes     Enable   Enable   Enable    None
Gi0/5     Yes     Enable   Enable   Enable    None
Gi0/6     Yes     Enable   Enable   Enable    None
Gi0/7     Yes     Enable   Enable   Enable    None
Gi0/8     Yes     Enable   Enable   Enable    None
Gi0/9     Yes     Enable   Enable   Enable    None
Gi0/10    Yes     Enable   Enable   Enable    None
Gi0/11    Yes     Enable   Enable   Enable    None
Gi0/12    Yes     Enable   Enable   Enable    None
Gi0/13    Yes     Enable   Enable   Enable    None
Gi0/14    Yes     Enable   Enable   Enable    None
Gi0/15    Yes     Enable   Enable   Enable    None
Gi0/16    Yes     Enable   Enable   Enable    None
Gi0/17    Yes     Enable   Enable   Enable    None
Gi0/18    Yes     Enable   Enable   Enable    None
Gi0/19    Yes     Enable   Enable   Enable    None
Gi0/20    Yes     Enable   Enable   Enable    None
Gi0/21    Yes     Enable   Enable   Enable    None
Gi0/22    Yes     Enable   Enable   Enable    None
Gi0/23    Yes     Enable   Enable   Enable    None
Gi0/24    Yes     Enable   Enable   Enable    None
Gi0/25    No      -        -        -              -
Gi0/26    No      -        -        -              -
Gi0/27    No      -        -        -              -
Gi0/28    No      -        -        -              -
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

1.22 show interfaces

Use this command to display the interface information and optical module information.

show interfaces [*interface-type interface-number*] [**description | switchport | trunk**]

Parameter Description

Parameter	Description

interface-id *interface-number*	Interface (including Ethernet interface, aggregate port, SVI or loopback interface).
description	The description of the interface, including the link status.
switchport	Layer 2 interface information.
trunk	Trunk port, applicable for physical port and aggregate port.

Defaults

Command Mode Privileged EXEC mode.

Usage Guide This command is used to show all basic information if no parameter is specified.

Configuration Examples The following example displays the interface information when the Gi0/1 is a Trunk port.

```
SwitchA#show interfaces gigabitEthernet 0/1
Index(dec):1 (hex):1
GigabitEthernet 0/1 is DOWN  , line protocol is DOWN
Hardware is Broadcom 5464 GigabitEthernet
Interface address is: no ip address
  MTU 1500 bytes, BW 1000000 Kbit
  Encapsulation protocol is Bridge, loopback not set
  Keepalive interval is 10 sec , set
  Carrier delay is 2 sec
  RXload is 1 ,Txload is 1
  Queueing strategy: FIFO
    Output queue 0/0, 0 drops;
    Input queue 0/75, 0 drops
  Switchport attributes:
    interface's description:""
    medium-type is copper
    lastchange time:0 Day: 0 Hour: 0 Minute:13 Second
    Priority is 0
    admin duplex mode is AUTO, oper duplex is Unknown
    admin speed is AUTO, oper speed is Unknown
flow receive control admin status is OFF,flow send control admin status is
OFF,flow receive control oper status is Unknown,flow send control oper status
is Unknown
broadcast Storm Control is OFF,multicast Storm Control is OFF,unicast Storm
Control is OFF
 Port-type: trunk
   Native vlan:1
Allowed vlan lists:1-4094
Active vlan lists:1, 3-4
  5 minutes input rate 0 bits/sec, 0 packets/sec
  5 minutes output rate 0 bits/sec, 0 packets/sec
    0 packets input, 0 bytes, 0 no buffer, 0 dropped
    Received 0 broadcasts, 0 runts, 0 giants
```

```
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 abort
    0 packets output, 0 bytes, 0 underruns , 0 dropped
0 output errors, 0 collisions, 0 interface resets
```

The following example displays the interface information when the Gi0/1 is an Access port.

```
SwitchA#show interfaces gigabitEthernet 0/1
Index(dec):1 (hex):1
GigabitEthernet 0/1 is DOWN  , line protocol is DOWN
Hardware is Broadcom 5464 GigabitEthernet
Interface address is: no ip address
  MTU 1500 bytes, BW 1000000 Kbit
  Encapsulation protocol is Bridge, loopback not set
  Keepalive interval is 10 sec , set
  Carrier delay is 2 sec
  RXload is 1 ,Txload is 1
  Queueing strategy: FIFO
    Output queue 0/0, 0 drops;
    Input queue 0/75, 0 drops
  Switchport attributes:
    interface's description:""
    medium-type is copper
    lastchange time:0 Day: 0 Hour: 0 Minute:13 Second
    Priority is 0
    admin duplex mode is AUTO, oper duplex is Unknown
    admin speed is AUTO, oper speed is Unknown
    flow receive control admin status is OFF,flow send control admin status is
OFF,flow receive control oper status is Unknown,flow send control oper status
is Unknown
broadcast Storm Control is OFF,multicast Storm Control is OFF,unicast Storm
Control is OFF
Port-type: access
Vlan id : 2
  5 minutes input rate 0 bits/sec, 0 packets/sec
  5 minutes output rate 0 bits/sec, 0 packets/sec
    0 packets input, 0 bytes, 0 no buffer, 0 dropped
    Received 0 broadcasts, 0 runts, 0 giants
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 abort
    0 packets output, 0 bytes, 0 underruns , 0 dropped
0 output errors, 0 collisions, 0 interface resets
```

The following example displays the layer-2 interface information when the Gi0/1 is a Hybrid port.

```
SwitchA#show interfaces gigabitEthernet 0/1
Index(dec):1 (hex):1
GigabitEthernet 0/1 is DOWN  , line protocol is DOWN
Hardware is Broadcom 5464 GigabitEthernet
Interface address is: no ip address
```

```
  MTU 1500 bytes, BW 1000000 Kbit
  Encapsulation protocol is Bridge, loopback not set
  Keepalive interval is 10 sec , set
  Carrier delay is 2 sec
  RXload is 1 ,Txload is 1
  Queueing strategy: FIFO
    Output queue 0/0, 0 drops;
    Input queue 0/75, 0 drops
  Switchport attributes:
    interface's description:""
    medium-type is copper
    lastchange time:0 Day: 0 Hour: 0 Minute:13 Second
    Priority is 0
    admin duplex mode is AUTO, oper duplex is Unknown
    admin speed is AUTO, oper speed is Unknown
    flow receive control admin status is OFF,flow send control admin status is
OFF,flow receive control oper status is Unknown,flow send control oper status
is Unknown
broadcast Storm Control is OFF,multicast Storm Control is OFF,unicast Storm
Control is OFF
Port-type: hybrid
Tagged vlan id:2
Untagged vlan id:none
  5 minutes input rate 0 bits/sec, 0 packets/sec
  5 minutes output rate 0 bits/sec, 0 packets/sec
    0 packets input, 0 bytes, 0 no buffer, 0 dropped
    Received 0 broadcasts, 0 runts, 0 giants
    0 input errors, 0 CRC, 0 frame, 0 overrun, 0 abort
    0 packets output, 0 bytes, 0 underruns , 0 dropped
0 output errors, 0 collisions, 0 interface resets
```

The following example displays the layer-2 information of the Gi0/1.

```
Orion Alpha A28X# show interfacesgigabitEthernet 0/1 switchport
Interface Switchport ModeAccess Native Protected VLAN lists
--------- ---------- --------- ------ ------ ---------
GigabitEthernet 0/1 enabled Access 11  Disabled  ALL
```

Related Commands

Command	Description
duplex	Duplex
flowcontrol	Flow control status.
interface gigabitEthernet	Selects the interface and enter the interface configuration mode.
interface aggregateport	Creates or accesses the aggregate port, and enters the interface configuration mode.
interface vlan	Creates or accesses the switch virtual interface

	(SVI), and enters the interface configuration mode.
shutdown	Disables the interface.
speed	Configures the speed on the port.
switchport priority	Configures the default 802.1q interface priority.
switchport protected	Configures the interface as a protected port.

Platform Description N/A

1.23 show interfaces counters

Use this command to display the received and transmitted packet statistics.

show interfaces [*interface-type interface-number*] **counters** [**increment** | **error** | **rate** | **summary**] [*up* | *down*]

Parameter Description

Parameter	Description
interface-type interface-number	(Optional) The interface type and ID.
increment	Displays the packet statistics increased during the last sample interval.
error	Displays error packet statistics.
rate	Displays packet receiving and transmitting rate.
summary	Displays packet statistics summary.
up	(Optional) Displays the port up statistics.
down	(Optional) Displays the port down statistics.

Defaults N/A

Command Mode Any CLI mode

Usage Guide If you do not specify an interface, the packet statistics on all interfaces are displayed.

Configuration Examples The following example displays packet statistics on interface GigabitEthernet 0/1.

```
Orion Alpha A28X#show interfaces GigabitEthernet 0/1 counters
Interface : GigabitEthernet 0/1
5 minute input rate  : 9144 bits/sec, 9 packets/sec
5 minute output rate : 1280 bits/sec, 1 packets/sec
Rxload               : 1%
InOctets             : 17310045
InPkts               : 1000(Unicast: 10%, Multicast: 10%, Broadcast: 80%)
InUcastPkts          : 100
InMulticastPkts      : 100
InBroadcastPkts      : 800
Txload               : 1%
OutOctets            : 1282535
```

```
OutPkts              : 1000(Unicast: 10%, Multicast: 10%, Broadcast: 80%)
OutUcastPkts         : 100
OutMulticastPkts     : 100
OutBroadcastPkts     : 800
Undersize packets    : 0
Oversize packets     : 0
collisions           : 0
Fragments            : 0
Jabbers              : 0
CRC alignment errors : 0
AlignmentErrors      : 0
FCSErrors            : 0
dropped packet events (due to lack of resources): 0
packets received of length (in octets):
  64:46264
  65-127: 47427
  128-255: 3478
  256-511: 658
  512-1023: 18016
  1024-1518: 125
Packet increment in last sampling interval(5 seconds):
  InOctets             : 10000
  InPkts               : 1000(Unicast: 10%, Multicast: 10%, Broadcast:
80%)
  InUcastPkts          : 100
  InMulticastPkts      : 100
  InBroadcastPkts      : 800
  OutOctets            : 10000
  OutPkts              : 1000(Unicast: 10%, Multicast: 10%, Broadcast:
80%)
  OutUcastPkts         : 100
 OutMulticastPkts     : 100
```

- Rxload refers to the receive bandwidth usage and Txload refers to the Tx bandwidth usage. InPkts is the total number of receive unicast, multicast and broadcast packets. OutPkts is the total number of transmit unicast, multicast and broadcast packets.
  Packet increment in last sampling interval (5 seconds) represents the packet statistics increased during the last sample interval (5 seconds).

The following example displays the packet statistics on interface GigabitEthernet 0/1 increased during the last sample interval.

```
Orion Alpha A28X#show interfaces GigabitEthernet 0/1 counters increment
Interface : GigabitEthernet 0/1
Packet increment in last sampling interval(5 seconds):
  InOctets             : 10000
  InPkts               : 1000(Unicast: 10%, Multicast: 10%, Broadcast:
80%)
```

```
  InUcastPkts          : 100
  InMulticastPkts      : 100
  InBroadcastPkts      : 800
  OutOctets            : 10000
  OutPkts              : 1000(Unicast: 10%, Multicast: 10%, Broadcast:
80%)
  OutUcastPkts         : 100
  OutMulticastPkts     : 100
```

The following example displays error packet statistics on interface GigabitEthernet 0/1.

```
Orion Alpha A28X#show interfaces GigabitEthernet 0/1 counters increment
Interface    UnderSize            OverSize             Collisions
Fragments
------------ -------------------- --------------------
-------------------- --------------------
Gi0/1        0                    0                    0
0
Interface    Jabbers              CRC-Align-Err        Align-Err
FCS-Err
------------ -------------------- --------------------
-------------------- --------------------
Gi0/1        0                    0                    0
0
```

- UnderSize is the number of valid packets smaller than 64 bytes.
  OverSize is the number of valid packets smaller than 1518 bytes.
  Collisions is the number of colliding transmit packets.
  Fragments is the number of packets with CRC error or frame alignment error which are smaller than 64 bytes.
  Jabbers is the number of packets with CRC error or frame alignment error which are smaller than 1518 bytes.
  CRC-Align-Err is the number of receive packets with CRC error.
  Align_Err is the number of receive packets with frame alignment error.
  FCS-Err is the number of receive packets with FCS error.

The following example displays packet receiving and transmitting rate on interface GigabitEthernet 0/1.

```
Orion Alpha A28X#show interface gigabitEthernet 0/1 counters rate
Interface    Sampling Time         Input Rate           Input Rate
Output Rate          Output Rate
                                   (bits/sec)           (packets/sec)
(bits/sec)           (packets/sec)
------------ -------------------- --------------------
-------------------- -------------------- --------------------
Gi0/1         5 seconds              23391                  23
124                   0
```

- Sampling Time is the time when packets are sampled. Input rate is packet receiving rate and

Output rate is packet transmitting rate.

The following example displays packet statistics summary on interface GigabitEthernet 0/1.

```
Orion Alpha A28X#show interface gigabitEthernet 0/1 counters summary
Interface     InOctets             InUcastPkts          InMulticastPkts
InBroadcastPkts
------------ -------------------- --------------------
-------------------- --------------------
Gi0/1         1475788005           1389                 45880503
11886621
Interface     OutOctets            OutUcastPkts         OutMulticastPkts
OutBroadcastPkts
------------ -------------------- --------------------
-------------------- --------------------
Gi0/1          6667915               6382                   31629
13410
```

- InOctets is the total number of packets received on the interface. InUcastPkts is the number of unicast packets received on the interface. InMulticastPkts is the number of multicast packets received on the interface. InBroadcastPkts is the number of broadcast packets received on the interface.
  OutOctets is the total number of packets transmitted on the interface. OutUcastPkts is the number of unicast packets transmitted on the interface. OutMulticastPkts is the number of multicast packets transmitted on the interface. OutBroadcastPkts is the number of broadcast packets transmitted on the interface.

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

1.24 show interfaces link-state-change statistics

Use this command to display the link state change statistics, including the time and count.

show interfaces [*interface-type interface-number*] **link-state-change statistics**

Parameter Description

Parameter	Description
interface-type interface-number	The interface type and ID.

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide If you do not specify an interface, the link state statistics of all interfaces are displayed.

Configuration Examples The following example displays the link state statistics of interface GigabitEthernet 0/1.

```
Orion Alpha A28X# show interfaces GigabitEthernet 0/1 link-state-change
statistics
Interface     Link state     Link state change times      Last change time
-----------  ---------      -----------------------
------------------
Gi 0/1         down            100                          2012-
12-24 15:00:00
```

Interface	Description
Link state	Current link state.
Link state change times	The count of link state change.
Last change time	The time when the last link state change occurs.

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

1.25 show interfaces status

Use this command to display interface status information.

show interfaces [*interface-type interface-number*] **status**

Parameter Description

Parameter	Description
interface-type interface-number	The interface type and ID.
status	Displays interface status information, including speed and duplex.

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide If you do not specify an interface, the status information of all interfaces is displayed.

Configuration Examples The following example displays the status information of interface GigabitEthernet 0/1.

```
Orion Alpha A28X#show interfaces GigabitEthernet 0/1 status
Interface              Status       Vlan     Duplex  Speed   Type
```

```
------------------   ----------   ------   ------  ------  ------
GigabitEthernet 0/1    up            1        Full    1000M
copper
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

1.26 show interfaces status err-disable

Use this command to display the interface violation status.

show interfaces [*interface-type interface-number*] **status err-disable**

Parameter Description

Parameter	Description
interface-type interface-number	(Optional) The interface type and ID.

Defaults

Command Mode Any CLI mode

Usage Guide If you do not specify an interface, violation status of all interfaces is displayed.

Configuration Examples The following example displays the violation status of interface GigabitEthernet 0/1.

```
Orion Alpha A28X#show interface gigabitEthernet 0/1 status err-disabled
Interface                      Status           Reason
------------------------------ ---------------- ----------------
GigabitEthernet 0/1            err-disabled     BPDU Guard
```

- The violation status is displayed as **err-disabled**.

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

1.27 show interfaces transceiver

Use this command to display transceiver information of the interface.

show interfaces [*interface-type interface-number*] **transceiver** [**alarm** | **diagnosis**]

Parameter Description

Parameter	Description
interface-type interface-number	The interface type and ID.
transceiver	Displays the transceiver information.
alarm	Displays the alarm message of the transceiver. If there is no alarm message, it is displayed as None.
diagnosis	Displays the diagnostic parameters of the transceiver.

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide If you do not specify an interface, the transceiver information of all interfaces is displayed.

Configuration Examples The following example displays the transceiver information of interface Gigabitethernet 5/4.

```
Orion Alpha A28X#show interfaces GigabitEthernet 5/4 transceiver
Transceiver Type    :  1000BASE-SX-SFP
Connector Type      :  LC
Wavelength(nm)      :  850
Transfer Distance   :
    50/125 um OM2 fiber
        -- 550m
    62.5/125 um OM1 fiber
        -- 270m
Digital Diagnostic Monitoring  : YES
Vendor Serial Number           : 101680093602489
```

The following example displays the alarm message of the transceiver of interface Gigabitethernet 5/4.

```
Orion Alpha A28X#show interfaces GigabitEthernet 5/4 transceiver alarm
gigabitEthernet 5/4 transceiver current alarm information:
RX  loss of signal
```

The following example displays the diagnostic parameters of the transceiver of interface Gigabitethernet 5/4.

```
Orion Alpha A28X#show interfaces GigabitEthernet 5/4 transceiver diagnosis
Current diagnostic parameters[AP:Average Power]:
Temp(Celsius)   Voltage(V)      Bias(mA)            RX power(dBm)       TX
power(dBm)
38(OK)            3.20(OK)         0.04(OK)             -
40.00(alarm)[AP]   -40.00(alarm)
```

Related Commands

Command	Description
N/A	N/A

Platform N/A

Description

1.28 show interfaces usage

Use this command to display bandwidth usage of the interface.
show interfaces [*interface-type interface-number*] **usage** [*up* | *down*]

Parameter Description

Parameter	Description
interface-type interface-number	(Optional) The interface type and ID.
up	(Optional) Displays the port up statistics.
down	(Optional) Displays the port down statistics.

Defaults N/A

Command Mode Any CLI mode

Usage Guide If you do not specify an interface, the bandwidth usage of all interfaces is displayed. Bandwidth refers to the actual link bandwidth rather than the *bandwidth* parameter configured on the interface.

Configuration Examples The following example displays bandwidth usage of interface GigabitEthernet 0/1.

```
Interface                   Bandwidth     Average Usage      Output Usage
Input Usage
--------------------------- ------------ ------------------
----------------- ------------------
GigabitEthernet 0/0         1000 Mbit     0.002822759%       0.001183280%
0.004462237%
```

- Bandwidth refers to the interface link bandwidth, the maximum speed of link. Average Usage refers to the current usage.

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

1.29 shutdown

Use this command to disable an interface. Use the **no** form of this command to enable a disabled port.
shutdown
no shutdown

Parameter Description

Parameter	Description
N/A	N/A

Defaults By default, the administrative status of an interface is Up.

Command Mode Interface configuration mode

Usage Guide Use this command to stop the forwarding on the interface (Gigabit Ethernet interface, Aggregate port or SVI). You can enable the port with the **no shutdown** command. If you shut down the interface, the configuration of the interface exists, but does not take effect. You can view the interface status by using the **show interfaces** command.

- If you use the script to run no shutdown frequently and rapidly, the system may prompt the interface status reversal.

Configuration Examples The following example disables an interface.

```
Orion Alpha A28X(config)# interface aggregateport 1
Orion Alpha A28X(config-if)# shutdown
```

The following example enables an interface.

```
Orion Alpha A28X(config)# interface aggregateport 1
Orion Alpha A28X(config-if)# no shutdown
```

Related Commands

Command	Description
clear interface	Resets the hardware.
show interfaces	Displays the interface information.

Platform Description N/A

1.30 snmp trap link-status

Use this command to send LinkTrap on a port. Use the **no** form of this command to disable this function.

snmp trap link-status

no snmp trap link-status

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is enabled by default

Command Mode Interface configuration mode.

Usage Guide For an interface (for instance, Ethernet interface, AP interface, and SVI interface), this command sets whether to send LinkTrap on the interface. If the function is enabled, the SNMP sends the LinkTrap when the link status of the interface changes.

Configuration Examples The following example disables the interface from sending LinkTrap on the interface.

```
Orion Alpha A28X(config)# interface gigabitEthernet 1/1
Orion Alpha A28X(config-if)# no snmp trap link-status
```

The following example enables the interface to forward Link trap.

```
Orion Alpha A28X(config)# interface gigabitEthernet 1/1
Orion Alpha A28X(config-if)# snmp trap link-status
```

Related Commands

Command	Description
snmp trap link-status	Enables the interface to send LinkTrap on the interface.
no snmp trap link-status	Disables the interface from sending LinkTrap on the interface.

Platform Description N/A

1.31 snmp-server if-index persist

Use this command to set the interface index persistence. The interface index remains the same after the device is restarted.

snmp-server if-index persist

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is disabled by default.

Command Mode Global configuration mode

Usage Guide After this command is configured, all interface indexes are saved in the configuration file. After the device is restarted, interface indexes remain the same as before.

Configuration Examples The following example enables the interface index persistence.

```
Orion Alpha A28X(config)# snmp-server if-index persist
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

1.32 speed

Use this command to configure the speed on the port. Use the **no** form of this command to restore the default setting.

speed [**10** | **100** | **1000** | **auto**]

Parameter Description

Parameter	Description
10	The transmission rate of the interface is 10Mbps.
100	The transmission rate of the interface is 100Mbps.
1000	The transmission rate of the interface is 1000Mbps.
auto	Self-adaptive

Defaults The default is **auto**.

Command Mode Interface configuration mode.

Usage Guide If an interface is the member of an aggregate port, the rate of the interface depends on the rate of the aggregate port. You can set the rate of the interface, but it does not take effect until the interface exits the aggregate port. Use **show interfaces** to display configuration. The rate varies by interface types. For example, you cannot set the rate of a SFP interface to 10M or 100M.

Configuration Examples The following example sets the speed on interface gigabitethernet 1/1 to 100Mbps.

```
Orion Alpha A28X(config)# interface gigabitethernet 1/1
Orion Alpha A28X(config-if)# speed 100
```

Related Commands

Command	Description
show interfaces	Displays the interface information.

Platform Description N/A

1.33 switchport

Use this command to configure a Layer 3 interface. Use the **no** form of this command to restore the default setting.

switchport

no switchport

Parameter Description

Parameter	Description
N/A	N/A

Defaults All the interfaces are in Layer 2 mode by default.

Command Interface configuration mode.

Mode

Usage Guide This command is valid only for physical interfaces. The **switchport** command is used to disable the interface and re-enable it. In this status, the device will send the information to indicate the connect status. If the interface is changed to Layer 3 mode from Layer 2, all the attributes in Layer 2 mode will be cleared.

Configuration Examples The following example configures a Layer 3 interface.

```
Orion Alpha A28X(config-if)# switchport
```

Related Commands

Command	Description
show interfaces	Displays the interface information.

Platform Description N/A

1.34 switchport access

Use this command to configure an interface as a statics access port and add it to a VLAN. Use the **no** form of this command to restore the default setting.
switchport access vlan *vlan-id*
no switchport access vlan

Parameter Description

Parameter	Description
vlan-id	The VLAN ID at which the port to be added.

Defaults By default, the switch port is an access port and the VLAN is VLAN 1.

Command Mode Interface configuration mode.

Usage Guide Enter one VLAN ID. The system will create a new one and add the interface to the VLAN if you enter a new VLAN ID. If the VLAN ID already exists, the command adds the interface to the VLAN.
If the port is a trunk port, the operation does not take effect.

Configuration Examples The following example configures interface gigabitethernet 1/1 as a statistic access port and adds it to VLAN 2.

```
Orion Alpha A28X(config)# interface gigabitethernet 1/1
Orion Alpha A28X(config-if)# switchport access vlan 2
```

Related Commands

Command	Description
switchport mode	Configures the interface as Layer 2 mode (switch port mode).
switchport trunk	Configures a native VLAN and the allowed-VLAN list for the trunkport.

Platform Description N/A

1.35 switchport mode

Use this command to specify a L2 interface (switch port) mode. You can specify this interface to be an access port or a trunk port or an 802.1Q tunnel. Use the **no** form of this command to restore the default setting.

switchport mode { **access** | **trunk** }

no switchport mode

Parameter Description

Parameter	Description
access	Configures the switch port as an access port.
trunk	Configures the switch port as a trunk port.

Defaults The default is **access**.

Command Mode Interface configuration mode.

Usage Guide If a switch port mode is access port, it can be the member port of only one VLAN. Use **switchport access vlan** to specify the member of the VLAN.

A trunk port can be the member port of various VLANs defined by the allowed-VLAN list. The allowed VLAN list of the interface determines the VLANs to which the interface may belong. The trunk port is the member of all the VLANs in the allowed VLAN list. Use **switchport trunk** to define the allowed-VLANs list.

Configuration Examples The following example specifies a L2 interface (switch port) mode.

```
Orion Alpha A28X(config-if)# switchport mode trunk
```

Related Commands

Command	Description
switchport access	Configures an interface as a statics access port and assigns it to a VLAN.
switchport trunk	Configures a native VLAN and the allowed-VLAN list for the trunk port.

Platform Description N/A

1.36 switchport protected

Use this command to configure the interface as the protected port. Use the **no** form of this command to restore the default setting.

switchport protected

no switchport protected

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is disabled by default.

Command Mode Interface configuration mode.

Usage Guide The ports that are set as the protected ports cannot switch on L2, but can route on L3. A protected port can communicate with an unprotected port. Use the **show interfaces** command to display configuration.

Configuration Examples The following example configures interface gigabitethernet 1/1 as a protected port.

```
Orion Alpha A28X(config)#interface gigabitethernet 1/1
Orion Alpha A28X(config-if)# switchport protected
```

Related Commands

Command	Description
show interfaces	Displays the interface information.

Platform Description N/A

1.37 switchport trunk

Use this command to specify a native VLAN and the allowed-VLAN list for the trunk port. Use the **no** form of this command to restore the default setting.

switchport trunk { **allowed vlan** { **all** | [**add** | **remove** | **except**] *vlan-list* } | **native vlan** *vlan-id* }

no switchport trunk { **allowed vlan** | **native vlan** }

Parameter Description

Parameter	Description
allowed vlan *vlan-list*	Configures the list of VLANs allowed on the trunk port. *vlan-list* can be a VLAN or a range of VLANs starting with the smaller VLAN ID and ending with the larger VLAN ID and being separated by hyphen, for example, 10 to 20. The segments can be separated with a comma (,), for example, 1 to 10, 20 to 25, 30, 33. all means that the allowed VLAN list contains all the supported VLANs; add means to add the specified VLAN list to the allowed VLAN list; remove means to remove the specified VLAN list from the allowed VLAN list; except means to add all the VLANs other than those in the specified VLAN list to the allowed VLAN list;
native vlan *vlan-id*	Configures the native VLAN.

Defaults The allowed VLAN list is all, the Native VLAN is VLAN1.

Command Mode Interface configuration mode.

Usage Guide Native VLAN:
A trunk port belongs to one native VLAN. A native VLAN means that the untagged packets received/sent on the trunk port belong to the VLAN. Obviously, the default VLAN ID of the interface (that is, the PVID in the IEEE 802.1Q) is the VLAN ID of the native VLAN. In addition, when frames belonging to the native VLAN are sent over the trunk port, they are untagged.
Allowed-VLAN List:
By default, a trunk port sends traffic to and received traffic from all VLANs (ID 1 to 4094). However, you can prevent the traffic from passing over the trunk by configuring allowed VLAN lists on a trunk.
Use show interfaces switchport to display configuration.

Configuration Examples The following example removes port 1/15 from VLAN 2.

```
Orion Alpha A28X(config)# interface fastethernet 1/15
Orion Alpha A28X(config-if)# switchport trunk allowed vlan remove 2
Orion Alpha A28X(config-if)# end
Orion Alpha A28X# show interfaces fastethernet1/15 switchport
Switchport is enabled
Mode is trunk port
Access vlan is 1,Native vlan is 1
Protected is disabled
Vlan lists is
1,3-4094
```

Related Commands

Command	Description
show interfaces	Displays the interface information.
switchport access	Configures an interface as a statics access port and assigns it to a VLAN.

Platform Description N/A

2 MAC Address Commands

2.1 clear mac-address-table dynamic

Use this command to clear the dynamic MAC address.

clear mac-address-table dynamic [**address** *mac-addr* [**interface** *interface-id*] [**vlan** *vlan-id*] | { [**interface** *interface-id*] [**vlan** *vlan-id*] }]

Parameter Description

Parameter	Description
dynamic	Clears all the dynamic MAC addresses.
address *mac-addr*	Clears the specified dynamic MAC address.
interface *interface-id*	Clears all the dynamic MAC addresses of the specified interface.
vlan *vlan-id*	Clears all the dynamic MAC addresses of the specified VLAN, in the range from 1 to 4094.

Defaults N/A

Command Mode Privileged EXEC mode.

Usage Guide Use the **show mac-address-table dynamic** command to display all the dynamic MAC addresses.

Configuration Examples The following command clears all the dynamic MAC addresses.

```
Orion Alpha A28X# clear mac-address-table dynamic
```

Related Commands

Command	Description
show mac-address-table dynamic	Displays dynamic MAC address.

Platform Description N/A

2.2 mac-address-learning

Use this command to enable the port address learning. Use the **no** or **default** form of this command to restore the default setting.

mac-address-learning

no mac-address-learning

default mac-address-learning

Parameter Description

Parameter	Description
N/A	N/A

Defaults The address learning function is enabled.

Command Mode Interface configuration mode.

Usage Guide MAC address learning cannot be disabled on the port where the security function is enabled. The security function cannot be configured on the port where address learning is disabled.

Configuration Examples The following example disables the port address learning function.

```
Orion Alpha A28X(config-if)# no mac-address-learning
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

2.3 mac-address-learning (global)

Use this command to enable MAC address learning globally. Use the **no** or **default** form of this command to restore the default setting.

mac-address-learning enable

Use this command to disable MAC address learning globally.

mac-address-learning disable

Use this command to restore MAC address learning globally.

default mac-address-learning

Parameter Description

Parameter	Description
enable	Enables MAC address learning globally.
disable	Disables MAC address learning globally.

Defaults The **mac-address-learning enable** command is enabled by default.

Command Mode Global configuration mode

Usage Guide When this function is enabled, the MAC address is learned in global configuration mode the same as learned in interface configuration mode.

Configuration Examples The following example disables MAC address learning globally.

```
Orion Alpha A28X(config)# mac-address-learning disable
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

2.4 mac-address-table aging-time

Use this command to specify the aging time of the dynamic MAC address. Use the **no** or **default** form of the command to restore the default setting.

mac-address-table aging-time *seconds*

no mac-address-table aging-time

default mac-address-table aging-time

Parameter Description

Parameter	Description
seconds	Aging time of the dynamic MAC address (in seconds). The time range depends on the switch.

Defaults The default is 300.

Command Mode Global configuration mode.

Usage Guide Use **show mac-address-table aging-time** to display configuration.

Configuration Examples The following example sets the aging time of the dynamic MAC address to 500 seconds.

```
Orion Alpha A28X(config)# mac-address-table aging-time 500
```

Related Commands

Command	Description
show mac-address-table aging-time	Displays the aging time of the dynamic MAC address.
show mac-address-table dynamic	Displays dynamic MAC address.

Platform Description N/A

2.5 mac-address-table filtering

Use this command to configure the filtering MAC address. Use the **no** or **default** form of the command to restore the default setting.

mac-address-table filtering *mac-address* **vlan** *vlan-id*

no mac-address-table filtering *mac-address* **vlan** *vlan-id*

default mac-address-table filtering *mac-address* **vlan** *vlan-id*

Parameter Description

Parameter	Description
mac-address	Filtering Address
vlan-id	VLAN ID, in the range from 1 to 4094.

Defaults No filtering address is configured by default.

Command Mode Global configuration mode.

Usage Guide The filtering MAC address shall not be a multicast address.

Configuration Examples

The following example configures the filtering MAC address for VLAN 1.

```
Orion Alpha A28X(config)#mac-address-table filtering 0000.0202.0303  vlan 3
```

Related Commands

Command	Description
clear mac-address-table filtering	Clears the filtering MAC address.

Platform Description

N/A

2.6 mac-address-table notification

Use this command to enable the MAC address notification function. Use The **no** or **default** form of the command to restore the default setting.

mac-address-table notification [**interval** *value* | **history-size** *value*]

no mac-address-table notification [**interval** | **history-size**]

default mac-address-table notification [interval | history-size]

Parameter Description

Parameter	Description
interval *value*	Sets the interval of sending the MAC address trap message, 1 second by default.
history-size *value*	Sets the maximum number of the entries in the MAC address notification table, 50 entries by default.

Defaults

By default, the interval is 1 and the maximum number of the entries in the MAC address notification table is 50.

Command Mode

Global configuration mode.

Usage Guide

The MAC address notification function is specific for only dynamic MAC address and secure MAC address. No MAC address trap message is generated for static MAC addresses. In the global configuration mode, you can use the **snmp-server enable traps mac-notification** command to enable or disable the switch to send the MAC address trap message.

Configuration Examples

The following example enables the MAC address notification function.

```
Orion Alpha A28X(config)# mac-address-table notification
Orion Alpha A28X(config)# mac-address-table notification interval 40
Orion Alpha A28X(config)# mac-address-table notification history-size 100
```

Related Commands

Command	Description
snmp-server enable traps	Sets the method of handling the MAC address trap message..
show mac-address-table notification	Displays the MAC address notification configuration and the MAC address trap notification table.
snmp trap mac-notification	Enables the MAC address trap notification function on the specified interface.

Platform Description N/A

2.7 mac-address-table static

Use this command to configure a static MAC address. Use the **no** or **default** form of the command to restore the default setting.
mac-address-table static *mac-addr* **vlan** *vlan-id* **interface** *interface-id*
no mac-address-table static *mac-addr* **vlan** *vlan-id* **interface** *interface-id*
default mac-address-table static *mac-addr* **vlan** *vlan-id* **interface** *interface-id*

Parameter Description

Parameter	Description
mac-addr	Destination MAC address of the specified entry
vlan-id	VLAN ID of the specified entry, in the range from 1 to 4094.
interface-id	Interface (physical interface or aggregate port) that packets are forwarded to

Defaults No static MAC address is configured by default.

Command Mode Global configuration mode.

Usage Guide A static MAC address has the same function as the dynamic MAC address that the switch learns. Compared with the dynamic MAC address, the static MAC address will not be aged out. It can only be configured and removed by manual. Even if the switch is reset, the static MAC address will not be lost. A static MAC address shall not be configured as a multicast address. Use **show mac-address-table static** to display the static MAC address.

Configuration Examples

```
N/A
```

Related Commands

Command	Description
show mac-address-table static	Displays the static MAC address.

Platform Description N/A

2.8 max-dynamic-mac-count

Use this command to set the maximum number of MAC address learned dynamically on the VLAN or interface. Use the **no** or **default** form of this command to restore the default setting.
max-dynamic-mac-count *num*
no max-dynamic-mac-count
default max-dynamic-mac-count

Parameter Description

Parameter	Description
num	Sets the maximum number of MAC addresses.

Defaults The maximum number is not set by default.

Command Mode VLAN configuration mode / Interface configuration mode

Usage Guide This command is used to set the maximum number of MAC addresses learned dynamically on the VLAN or interface.
If the number of MAC addresses dynamically learned on the VLAN or interface reaches the upper limit, MAC address learning is disabled on the VLAN or interface.
If the number of MAC addresses reaches the upper limit when this command is configured, the surplus MAC addresses are not cleared. Instead, they remain and then age. MAC address learning is disabled on the VLAN or interface.
Use the **show mac-address-table max-dynamic-mac-count** command to display the maximum number of MAC addresses learned dynamically on the VLAN or interface.

Configuration Examples The following example sets the maximum number of MAC addresses dynamically learned on VLAN 1.

```
Orion Alpha A28X#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Orion Alpha A28X(config)#vlan 1
Orion Alpha A28X(config-vlan)#max-dynamic-mac-count 160
```

The following example sets the maximum number of MAC addresses dynamically learned on interface GigabitEthernet 0/1.

```
Orion Alpha A28X#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Orion Alpha A28X(config)#interface GigabitEthernet 0/1
Orion Alpha A28X(config-if-GigabitEthernet 0/1)#max-dynamic-mac-count 160
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

2.9 show mac-address-learning

Use this command to display the MAC address learning.
show mac-address-learning

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

Command Mode All modes.

Usage Guide N/A

Configuration Examples The following example displays the MAC address learning.

```
Orion Alpha A28X# show mac-address-learning
GigabitEthernet 0/0      learning ability: disable
GigabitEthernet 0/1      learning ability: enable
GigabitEthernet 0/2      learning ability: enable
GigabitEthernet 0/3      learning ability: enable
```

Related Commands	Command	Description
	N/A	N/A

Platform Description N/A

2.10 show mac-address-table

Use this command to display all types of MAC addresses (including dynamic address, static address and filter address).

show mac-address-table [**address** *mac-addr*] [**interface** *interface-id*] [**vlan** *vlan-id*]

Parameter Description

Parameter	Description
address *mac-addr*	The MAC address.
interface *interface-id*	The Interface ID.
vlan *vlan-id*	The VLAN ID, in the range from 1 to 4094.

Defaults N/A

Command Mode All modes

Usage Guide N/A

Configuration Examples The following example displays the MAC address.

```
Orion Alpha A28X# show mac-address-table address 00d0.f800.1001
Vlan        MAC Address          Type     Interface
-------    ------------       --------   --------
1           00d0.f800.1001       STATIC  GigabitEthernet 1/1
Orion Alpha A28X# show mac-address-table
Vlan        MAC Address          Type     Interface
-------    ------------       --------   --------
1           00d0.f800.1001       STATIC  GigabitEthernet 1/1
1           00d0.f800.1002       DYNAMIC GigabitEthernet 1/1
1           00d0.f800.1003       OTHER   GigabitEthernet 1/1
1           00d0.f800.1004       FILTER
```

Field	Description
Vlan	The interface address.
MAC Address	The MAC address.

Type	The MAC address type.
Interface	The interface corresponding to the MAC address.

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

2.11 show mac-address-table aging-time

Use this command to display the aging time of the dynamic MAC address.

show mac-address-table aging-time

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

Command Mode All modes.

Usage Guide N/A

Configuration Examples The following example displays the aging time of the dynamic MAC address.

```
Orion Alpha A28X# show mac-address-table aging-time
Aging time  : 300
```

Related Commands

Command	Description
mac-address-table aging-time	Sets the aging time of the dynamic MAC address.

Platform Description N/A

2.12 show mac-address-table count

Use this command to display the number of address entries in the address table.

show mac-address-table count [**interface** *interface-id* | **vlan** *vlan-id*]

Parameter Description

Parameter	Description
interface *interface-id*	Interface ID
vlan *vlan-id*	VLAN ID, in the range from 1 to 4094.

Defaults N/A

Command Privileged EXEC mode.

Mode

Usage Guide The **show mac-address-table count** command is used to display the number of entries based on the type of MAC address entry.
The **show mac-address-table count interface** command is used to display the number of entries based on the interface associated with the MAC address entry.
The **show mac-address-table count vlan** command is used to display the number of entries based on the VLAN of MAC address entries.

Configuration Examples The following example displays the number of MAC address entries.

```
Orion Alpha A28X# show mac-address-table count
Dynamic Address Count : 51
Static Address Count : 0
Filter Address Count : 0
Total Mac Addresses  : 51
Total Mac Address Space Available: 8139
```

The following example displays the number of MAC address in VLAN 1.

```
Orion Alpha A28X# show mac-address-table count vlan 1
Dynamic Address Count : 7
Static Address Count : 0
Filter Address Count : 0
Total Mac Addresses   : 7
```

The following example displays the number of MAC addresses on interface g0/1.

```
Orion Alpha A28X# show mac-address-table interface g0/1
Dynamic Address Count : 10
Static Address Count : 0
Filter Address Count : 0
Total Mac Addresses   : 10
```

Related Commands

Command	Description
show mac-address-table static	Displays the static address.
show mac-address-table filtering	Displays the filtering address.
show mac-address-table dynamic	Displays the dynamic address.
show mac-address-table address	Displays all the address information of the specified address.
show mac-address-table interface	Displays all the address information of the specified interface.
show mac-address-table vlan	Displays all the address information of the specified vlan.

Platform Description N/A

2.13 show mac-address-table dynamic

Use this command to display the dynamic MAC address.

show mac-address-table dynamic [**address** *mac-add r*] [**interface** *interface-id*] [**vlan** *vlan-id*]

Parameter Description

Parameter	Description
mac-addr	Destination MAC address of the entry
vlan-id	VLAN of the entry, in the range from 1 to 4094.
interface-id	Interface that the packet is forwarded to. It may be a physical port or an aggregate port

Defaults

Command Mode All modes.

Usage Guide N/A

Configuration Examples The following example displays the dynamic MAC address.

```
Orion Alpha A28X# show mac-address-table dynamic
Vlan   MAC Address     Type   Interface
------------------------ -------- -------------------
1   0000.0000.0001    DYNAMIC gigabitethernet 1/1
1   0001.960c.a740    DYNAMIC gigabitethernet 1/1
1   0007.95c7.dff9    DYNAMIC gigabitethernet 1/1
1   0007.95cf.eee0    DYNAMIC gigabitethernet 1/1
1   0007.95cf.f41f    DYNAMIC gigabitethernet 1/1
1   0009.b715.d400    DYNAMIC gigabitethernet 1/1
1   0050.bade.63c4    DYNAMIC gigabitethernet 1/1
```

Related Commands

Command	Description
clear mac-address-table dynamic	Clears the dynamic MAC address.

Platform Description N/A

2.14 show mac-address-table filtering

Use this command to display the filtering MAC address.

show mac-address-table filtering [**ddr** *mac-addr*] [**vlan** *vlan-Id*]

Parameter Description

Parameter	Description
mac-addr	Destination MAC address of the entry
vlan-id	VLAN ID of the entry, in the range from 1 to 4094.

Defaults N/A

Command Mode Privileged EXEC mode.

Usage Guide N/A

Configuration Examples

The following example displays the filtering MAC address.

```
Orion Alpha A28X# show mac-address-table filtering
Vlan    MAC Address    Type   Interface
------- ---------------- ------- -----------
 1    0000.2222.2222   FILTER Not available
```

Related Commands

Command	Description
mac-address-table filtering	Configures the filtering MAC address.

Platform Description

N/A

2.15 show mac-address-table interface

Use this command to display all the MAC addresses on the specified interface including static and dynamic MAC address

show mac-address-table interface [*interface-id*] [**vlan** *vlan-id*]

Parameter Description

Parameter	Description
interface-id	Displays the MAC address information of the specified Interface (physical interface or aggregate port).
vlan-id	VLAN ID of the entry, in the range from 1 to 4094..

Defaults

N/A

Command Mode

Privileged EXEC mode.

Usage Guide

N/A

Configuration Examples

The following example displays all the MAC addresses on interface gigabitethernet 1/1.

```
Orion Alpha A28X# show mac-address-table interface
gigabitethernet 1/1
Vlan  MAC Address  Type   Interface
----- ------------- -------- ----------------
1   00d0.f800.1001 STATIC  gigabitethernet 1/1
1   00d0.f800.1002 STATIC  gigabitethernet 1/1
1   00d0.f800.1003 STATIC  gigabitethernet 1/1
1   00d0.f800.1004 STATIC  gigabitethernet 1/1
```

Related Commands

Command	Description
show mac-address-table static	Displays the static MAC address.
show mac-address-table filtering	Displays the filtering MAC address.
show mac-address-table dynamic	Displays the dynamic MAC address.
show mac-address-table address	Displays all types of MAC addresses.
show mac-address-table vlan	Displays all types of MAC addresses of the specified VLAN.
show mac-address-table count	Displays the address counts in the MAC address table.

Platform Description N/A

2.16 show mac-address-table max-dynamic-mac-count

Use this command to display the maximum number of dynamic MAC addresses learned on the VLAN or interface.

show mac-address-table max-dynamic-mac-count { **vlan** [*vlan-id*] | **interface** [*interface-id*] }

Parameter Description

Parameter	Description
vlan	Displays the dynamic MAC address learned on all VLANs which are configured with the maximum number of dynamic MAC address learning.
vlan-id	Displays the dynamic MAC address learned on the specified VLAN.
interface	Displays the dynamic MAC address learned on all interfaces which are configured with the maximum number of dynamic MAC address learning.
interface-id	Displays the dynamic MAC address learned on the specified interface.

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide N/A

Configuration Examples The following example displays the MAC address learned on all VLANs which are configured with the maximum number of dynamic MAC addresses.

```
Orion Alpha A28X#show mac-address-table max-dynamic-mac-count vlan
Vlan Limit   MAC count Learning
---- ------- --------- --------
1    160        6         YES
```

The following example displays the MAC address learned dynamically on the specified VLAN.

```
Orion Alpha A28X#show mac-address-table max-dynamic-mac-count vlan 1
Vlan Limit   MAC count Learning
---- ------- --------- --------
1    160         6          YES
```

Field	Description
Vlan	The VLAN ID.
Limit	The maximum number of MAC addresses.
MAC count	The number of MAC address learned dynamically on the VLAN.
Learning	Whether MAC address learning is disabled on the VLAN.

The following example displays the MAC address learned on all interfaces which are configured with the maximum number of the dynamic MAC address.

```
Orion Alpha A28X#show mac-address-table max-dynamic-mac-count interface
Interface               Limit   MAC count Learning
----------------------- ------- --------- --------
GigabitEthernet 0/1     160      6          YES
```

The following example displays the MAC address learned dynamically on the specified interface.

```
Orion Alpha A28X#show mac-address-table max-dynamic-mac-count interface
GigabitEthernet 0/1
Interface               Limit   MAC count Learning
----------------------- ------- --------- --------
GigabitEthernet 0/1     160      6          YES
```

Field	Description
Interface	The Interface ID
Limit	The maximum number of MAC addresses.
MAC count	The number of MAC address learned dynamically on the interface.
Learning	Whether MAC address learning is disabled on the interface

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

2.17 show mac-address-table notification

Use this command to display the MAC address notification configuration and the MAC address notification table.

show mac-address-table notification [**interface** [*interface-id*] | **history**]

Parameter Description

Parameter	Description
interface	Displays the MAC address notification configuration on all interfaces.
interface *interface-id*	Displays the MAC address notification configuration on a specific interface.
history	Displays the MAC address notification history.

Defaults

Command Mode Privileged EXEC mode.

Usage Guide N/A

Configuration Examples

The following example displays the MAC address notification configuration globally.

```
Orion Alpha A28X#show mac-address-table notification
MAC Notification Feature : Enabled
Interval(Sec): 300
Maximum History Size : 50
Current History Size : 0
```

Related Commands

Command	Description
mac-address-table notification	Enables MAC address notification.
snmp trap mac-notification	Enables the MAC address trap notification function on the specified interface.

Platform Description

N/A

2.18 show mac-address-table static

Use this command to display the static MAC address.

show mac-address-table static [**addr** *mac-addr*] [**interface** *interface-Id*] [**vlan** *vlan-id*]

Parameter Description

Parameter	Description
mac-addr	Destination MAC address of the entry
vlan-id	VLAN ID of the entry, within the range from 1 to 4094.
interface-id	Interface of the entry physical interface or aggregate port

Defaults

N/A

Command Mode

Privileged EXEC mode.

Usage Guide

N/A

Configuration Examples

The following example displays the static MAC addresses

```
Orion Alpha A28X# show mac-address-table static
Vlan    MAC Address     Type   Interface
---------- ------------------- -------- ---------
1  00d0.f800.1001  STATIC  gigabitethernet 1/1
1  00d0.f800.1002  STATIC  gigabitethernet 1/1
1  00d0.f800.1003  STATIC  gigabitethernet 1/1
```

Related Commands

Command	Description
mac-address-table static	Configures the static MAC address.

Platform Description

N/A

2.19 show mac-address-table vlan

Use this command to display all addresses of the specified VLAN.

show mac-address-table vlan [*vlan-id*]

Parameter Description

Parameter	Description
vlan-id	VLAN ID of the entry, within the range from 1 to 4094.

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide N/A

Configuration Examples The following example displays all addresses of the specified VLAN.

```
Orion Alpha A28X# show mac-address-table vlan 1
Vlan  MAC Address    Type    Interface
----- -------------  ------- ------------------
1   00d0.f800.1001  STATIC  gigabitethernet 1/1
1   00d0.f800.1002  STATIC  gigabitethernet 1/1
1   00d0.f800.1003  STATIC  gigabitethernet 1/1
```

Related Commands

Command	Description
show mac-address-table static	Displays static addresses.
show mac-address-table filtering	Displays filtered addresses.
show mac-address-table dynamic	Displays dynamic addresses.
show mac-address-table address	Displays all address information about the specified address.
show mac-address-table interface	Displays all address information about the specified interface.
show mac-address-table count	Displays the number of addresses in the address table.

Platform Description N/A

2.20 snmp trap mac-notification

Use this command to enable the MAC address trap notification on the specified interface. Use The **no** or **default** form of the command to restore the default setting.

snmp trap mac-notification { **added** | **removed** }

no snmp trap mac-notification { **added** | **removed** }

default snmp trap mac-notification { added | removed }

Parameter Description

Parameter	Description
added	Notifies when a MAC address is added.
removed	Notifies when a MAC address is removed

Defaults

Command Mode Interface configuration mode.

Usage Guide Use **show mac-address-table notification interface** to display configuration.

Configuration Examples The following example enables the MAC address trap notification on interface gigabitethernet 1/1.

```
Orion Alpha A28X(config)# interface gigabitethernet 1/1
Orion Alpha A28X(config-if)# snmp trap mac-notification added
```

Related Commands

Command	Description
mac-address-table notification	Enables MAC address notification.
show mac-address-table notification	Displays the MAC address notification configuration and the MAC address notification table.

Platform Description N/A

3 Aggregate Port Commands

3.1 aggregateport load-balance

Use this command to configure a global load-balance algorithm for aggregate ports or a load-balance algorithm for an aggregate port . Use the **no** form of this command to return the default setting.

aggregateport load-balance { **dst-mac** | **src-mac** | **src-dst-mac** | **dst-ip** | **src-ip** | **src-dst ip** }

no aggregateport load-balance

Parameter Description

Parameter	Description
dst-mac	Load balance based on the destination MAC addresses of the incoming packets. For all the links of an aggregate port, the messages with the same destination MAC addresses are sent to the same port, and those with different destination MAC addresses are sent to different ports.
src-mac	Load balance based on the source MAC addresses of the incoming packets. For all the links of an aggregate port, the messages from different addresses are distributed to different ports, and those from the same addresses are distributed to the same port.
src-dst-ip	Load balance based on the source IP address and destination IP address. Packets with different source and destination IP address pairs are forwarded through different ports. The packets with the same source and destination IP address pairs are forwarded through the same links. At layer 3, this load balancing style is recommended.
dst-ip	Load balance based on the destination IP addresses of the incoming packets. For all the links of an aggregate port, the messages with the same destination IP addresses are sent to the same port, and those with different destination IP addresses are sent to different ports.
src-ip	Load balance based on the source IP addresses of the incoming packets. For all the links of an aggregate port, the messages from different addresses are distributed to different ports, and those from the same addresses are distributed to the same port.
src-dst-mac	Load balance based on the source and destination MAC addresses. Packets with different source and destination MAC address pairs are forwarded through different ports. The packets with the same source and destination MAC address pairs are forwarded through the same port.

Defaults Load balancing can be based on source and destination MAC addresses, source and destination IP addresses (applicable to gateways), or the profile of enhanced load balancing (applicable to switches with CB line cards).

Command Mode Global configuration mode/Interface configuration mode

Usage Guide You can run aggregateport load-balance in interface configuration mode of an AP port on devices that support load balancing configuration on a specific AP port. The configuration in interface configuration mode prevails. To disable the load balancing algorithm, run no aggregateport load-balance in interface configuration mode of the AP port. After that, the load balancing algorithm configured in global configuration mode takes effect.

Configuration Examples The following example configures a load-balance algorithm globally based on the destination MAC address.

```
Orion Alpha A28X(config)# aggregateport load-balance dst-mac
```

Related Commands

Command	Description
show aggregateport load-balance	Displays aggregate port configuration.

Platform Description N/A

3.2 aggregateport member linktrap

Use this command to send LinkTrap to aggregate port members. Use the **no** form of this command to restore the default setting.

aggregateport member linktrap

no aggregateport member linktrap

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is disabled by default.

Command Mode Global configuration mode

Usage Guide This function cannot be enabled by running the **snmp trap link-status** command in interface configuration mode. However, it can be enabled by running the **aggregateport member linktrap** command in global configuration mode.

Configuration Examples The following example enables the LinkTrap function on the aggregate port members.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# aggregateport member linktrap
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

3.3 aggregateport member minimum

Use this command to set the minimum number of AP member ports. Use the **no** form of this command to restore the default setting.
aggregateport member minimum *number*
no aggregateport member minimum *number*
Use this command to set actions for the minimum AP member ports. Use the **no** form of this command to restore the default setting.
aggregateport member minimum action {shutdown}

Parameter Description

Parameter	Description
number	The minimum number of AP member ports
shutdown	Shutdown AP to enable action.

Defaults The default is 1. And no action is set.

Command Mode Interface configuration mode

Usage Guide Optional. For static AP, its peer end also has to apply the function.

Configuration Examples The following example sets the minimum number of AP member ports to 2.

```
Orion Alpha A28X(config)# interface GigabitEthernet 0/1
Orion Alpha A28X(config-if-GigabitEthernet 0/1)# port-group 1 mode active
Orion Alpha A28X(config-if-GigabitEthernet 0/1)# aggregateport minimum member 2
Orion Alpha A28X(config-if-GigabitEthernet 0/1)# end
Orion Alpha A28X# show interface aggregateport 1
…
Aggregate Port Informations:
    Aggregate Number: 1
    Name: "AggregatePort 1"
    Members: (count=1)      GigabitEthernet 0/1      Link Status: Up    Lacp Status: susp  …
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

3.4 interfaces aggregateport

Use this command to create the aggregate port or enter interface configuration mode of the aggregate port. Use the **no** form of this command to restore the default setting.
interfaces aggregateport *ap-number*
no interfaces aggregateport *ap-number*

Parameter Description

Parameter	Description
ap-number	Aggregate port number.

Defaults The aggregate port is not created by default.

Command Mode Global configuration mode

Usage Guide If the aggregate port is created, this command is used to enter the interface configuration mode. Otherwise, this command is used to create the aggregate port and then enter its interface configuration mode.

Configuration Examples The following example creates AP 5 and enters its interface configuration mode.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# interfaces aggregateport 5
Orion Alpha A28X(config-if-Aggregateport 5)# end
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

3.5 lacp port-priority

Use this command to set the priority of the LACP AP member port. Use the **no** form of this command to restore the default setting.

lacp port-priority *port-priority*

no lacp port-priority

Parameter Description

Parameter	Description
port-priority	The LACP port priority, in the range from 0 to 65535.

Defaults The default is 32768.

Command Mode Interface configuration mode

Usage Guide N/A

Configuration Examples This example sets the LACP port priority of interface Gi0/1 to 4096.

```
Orion Alpha A28X(config)# interface gigabitEthernet 0/1
Orion Alpha A28X(config-if-GigabitEthernet 0/1)# lacp port-priority 4096
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

3.6 lacp short-timeout

Use this command to configure the short-timeout mode for the LACP AP member port. Use the no form of this command to restore the default setting.

lacp short-timeout

no lacp short-timeout

Parameter Description

Parameter	Description
N/A	N/A

Defaults The default is long-timeout mode.

Command Mode Interface configuration mode

Usage Guide In long-timeout mode, the port sends an LACP packet every 30 seconds. If the packet is not received in 90 seconds, the connection times out.
In short-timeout mode, the port sends an LACP packet every 1 second. If the packet is not received in 3 seconds, the connection times out.

Configuration Examples The following example configures the short-timeout mode for the LACP AP member port.

```
Orion Alpha A28X(config)# interface gigabitEthernet 0/1
Orion Alpha A28X(config-if-GigabitEthernet 0/1)# lacp short-timeout
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

3.7 lacp system-priority

Use this command to set the LACP system priority. Use the **no** form of this command to restore the default setting.

lacp system-priority *system-priority*

no lacp system-priority

Parameter Description

Parameter	Description
system-priority	The LACP system priority, in the range from 0 to 65535.

Defaults The default is 32768.

Command Mode Global configuration mode.

Usage Guide

Configuration Examples The following example sets the LACP system priority to 4096.

```
Orion Alpha A28X(config)# lacp system-priority 4096
```

Related Commands

Command	Description
port-group *key* **mode** { **active** | **passive** }	Enables the LACP on the port and specifies the aggregation group ID and operation mode.
lacp port-priority	Sets the LACP port priority.

Platform Description N/A

3.8 port-group

Use this command to assign a physical interface to be a member port of a static aggregate port or an LACP aggregate port. Use the **no** form of this command to restore the default setting.

port-group *port-group-number*

port-group *key-number* **mode** { **active** | **passive** }

no port-group

Parameter Description

Parameter	Description
port-group-number	Member group ID of an aggregate port, the interface number of the aggregate port.
key-number	Member group ID of an LACP aggregate port, the interface number of the LACP aggregate port.
active	Places a port into an active negotiating state, in which the port initiates negotiations with remote ports by sending LACP packets.
passive	Places a port into a passive negotiating state, in which the port responds to LACP packets it receives but does not initiate LACP negotiation.

Defaults By default, the physical port does not belong to any aggregate port.

Command Mode Interface configuration mode.

Usage Guide All the members of an aggregate port belong to a VLAN or configured to be trunk ports. The ports belonging to different native VLANs cannot form an aggregate port.

Configuration Examples The following example specifies the Ethernet interface 1/3 as a member of the static AP 3.

```
Orion Alpha A28X(config)# interface gigabitethernet 1/3
```

```
Orion Alpha A28X(config-if-GigabitEthernet 1/3)# port-group 3
```

The following example specifies the Ethernet interface 2/3 as a member of the LACP AP4 and set the aggregation mode to active.

```
Orion Alpha A28X(config)# interface gigabitethernet 2/3
Orion Alpha A28X(config-if-GigabitEthernet 2/3)# port-group 4 mode active
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

3.9 show aggregateport

Use this command to display the aggregate port configuration.

show aggregateport { [*aggregate-port-number*] **summary** | **load-balance** }

Parameter Description

Parameter	Description
aggregate-port-number	Number of the aggregate port.
load-balance	Displays the load-balance algorithm on the aggregate port.
summary	Displays the summary of the aggregate port.

Defaults N/A

Command Mode Any mode

Usage Guide If the aggregate port number is not specified, all the aggregate port information will be displayed.

Configuration Examples The following example displays the aggregate port configuration.

```
Orion Alpha A28X# show aggregateport 1 summary
AggregatePort  MaxPorts       SwitchPort Mode    Load balance              Ports
-------------  -------------- ---------- ------  ------------------------- ------------------------
Ag1            8              Enabled    ACCESS  dst-mac                   Gi0/2
```

Related Commands

Command	Description
aggregateport load-balance	Configures a load-balance algorithm of AP.

Platform Description N/A

3.10 show lacp summary

Use this command to display the LACP aggregation information.

show lacp summary [*key*]

Parameter Description

Parameter	Description

key	Specifies the aggregation group id to show. If it is not specified, all aggregation group information is displayed by default.

Defaults N/A

Command Mode Any mode.

Usage Guide N/A

Configuration Examples The following example displays the LACP aggregation information.

```
Orion Alpha A28X(config)# show lacp summary 3
System Id:32768, 00d0.f8fb.0002
Flags:  S - Device is requesting Slow LACPDUs
F - Device is requesting Fast LACPDUs.
A - Device is in active mode.       P - Device is in passive mode.
Aggregate port 3:
Local information:
LACP port      Oper    Port     Port
Port     Flags     State     Priority       Key     Number  State
---------------------------------------------------------------------
Gi0/1     SA        bndl       4096        0x3     0x1      0x3d
Gi0/2     SA        bndl       4096        0x3     0x2      0x3d
Gi0/3     SA        bndl       4096        0x3     0x3      0x3d
Partner information:
                LACP port               Oper    Port     Port
Port     Flags     Priority      Dev ID       Key     Number   State
---------------------------------------------------------------------
Gi0/1     SA        61440     00d0.f800.0002   0x3     0x1     0x3d
Gi0/2     SA        61440     00d0.f800.0002   0x3     0x2     0x3d
Gi0/3     SA        61440     00d0.f800.0002   0x3     0x3     0x3d
```

Field	Description
Local information	Displays the local LACP information.
Port	Displays the system port ID.
Flags	Displays the port state flag: “S” indicates that the LACP is stable and in the state of periodically sending the LACPPDU; “A” indicates that the port is in the active mode.
State	Show the port aggregation information: “bndl” indicates that the port is aggregated; “Down” represents the disconnection port state; “susp” indicates that the port is not aggregated.
LACP Port Priority	Displays the LACP port priority.
Oper Key	Displays the port operation key.
Port Number	Displays the port number.

Port State	Displays the flag bit for the LACP port state.
Partner information	Partly Displays the LACP information of the peer port.
Dev ID	Partly Displays the system MAC information of the peer device.

Related Commands

Command	Description
port-group *key* **mode**	Enables the LACP on the port and specifies the aggregation group ID and operation mode.

Platform Description N/A

4 VLAN Commands

4.1 add

Use this command to add one or a group Access interface into current VLAN. Use the **no** or **default** form of the command to remove the Access interface.

add interface { *interface-id* | **range** *interface-range* }

no add interface { *interface-id* | **range** *interface-range* }

default add interface { *interface-id* | **range** *interface-range* }

Parameter Description

Parameter	Description
interface-id	Layer-2 Ethernet interface or layer-2 AP port.
range *interface-range*	Range of the Layer-2 Ethernet interface or layer-2 AP port.

Defaults All layer-2 Ethernet interfaces are in the VLAN1.

Command mode VLAN configuration mode.

Usage Guide This command is only valid for the access port.

The configuration of this command is the same as specifying the VLAN to which interface belongs in the interface configuration mode (that is the **switchport access vlan** *vlan-id* command). For the two commands of adding the interface to the VLAN, the command configured later will overwrite the one configured before and take effect.

The configuration of adding the layer-2 AP into current VLAN through this command will only take effect for the layer-2 AP port, but not for the member port of the layer-2 AP port.

Configuration Examples The following example adds the interface GigabitEthernet 0/10 to VLAN20.

```
Orion Alpha A28X# configure terminal
SwitchA(config)#vlan 20
SwitchA(config-vlan)#add interface GigabitEthernet 0/10
Orion Alpha A28X# show interface GigabitEthernet 0/10 switchport
Interface  Switchport   Mode  Access  Native Protected  VLAN lists
----------  --------       -----  -----  ---- ---------- -------
GigabitEthernet 0/10 enabled  ACCESS  20   1   Disabled  ALL
```

The following example adds the interface range GigabitEthernet 0/1-10 to VLAN200.

```
Orion Alpha A28X# configure terminal
SwitchA(config)#vlan 200
SwitchA(config-vlan)#add interface range GigabitEthernet 0/1-10
Orion Alpha A28X# show vlan
SwitchA#show vlan
VLAN Name         Status                        Ports
---- -------    ------------    ----------------------------
```

```
1 VLAN0001    STATIC   Gi0/11,Gi0/12,Gi0/13,Gi0/14,Gi0/15,
Gi0/16,Gi0/17,Gi0/18,Gi0/19,Gi0/20,Gi0/21, Gi0/22, Gi0/23, Gi0/24
200 VLAN0200 STATIC  Gi0/1,Gi0/2,Gi0/3,Gi0/4,Gi0/5,
Gi0/6,Gi0/7,Gi0/8,Gi0/9,Gi0/10
```

The following example adds the AggregatePort10 to VLAN20.

```
Orion Alpha A28X# configure terminal
SwitchA(config)#vlan 20
SwitchA(config-vlan)#add interface aggregateport 10
Orion Alpha A28X# show interface aggregateport 10 switchport
Interface  Switchport   Mode  Access  Native Protected  VLAN lists
----------  --------       -----  -----  ---- ---------- -------
AggregatePort 10 enabled  ACCESS  20   1   Disabled  ALL
```

Related Commands

Command	Description
show interface *interface-id* **switchport**	Displays the layer-2 interfaces.

Platform Description N/A

4.2 name

Use this command to specify the name of a VLAN. Use the **no** or **default** form of this command to restore the default setting.

name *vlan-name*

no name

default name

Parameter Description

Parameter	Description
vlan-name	VLAN name

Defaults The default name of a VLAN is the combination of “VLAN” and VLAN ID, for example, the default name of the VLAN 2 is “VLAN0002”.

Command mode VLAN configuration Mode.

Usage Guide N/A

Configuration Examples The following example sets the name of VLAN to 10.

```
Orion Alpha A28X(config)# vlan 10
Orion Alpha A28X(config-vlan)# name vlan10
```

Related Commands

Command	Description
show vlan	Displays member ports of the VLAN.

Platform Description N/A

4.3 show vlan

Use this command to display member ports of the VLAN.

show vlan [**id** *vlan-id*]

Parameter Description

Parameter	Description
vlan-id	VLAN ID

Defaults N/A

Command mode All modes

Usage Guide N/A

Configuration Examples The following command displays the status of VLAN 1.

```
Orion Alpha A28X(config-vlan)#show vlan id 20
VLAN Name                                Status    Ports
---- ----------------------------------- ---------
-----------------------------------
  20 VLAN0020                            STATIC    Gi0/1
```

The following command displays the status of all VLANs.

```
Orion Alpha A28X(config-vlan)#show vlan
VLAN Name                    Status    Ports
---- ------------------------------ --------- ----------------------------------
  1 VLAN0001                 STATIC    Gi0/1, Gi0/2, Gi0/4, Gi0/5
                                       Gi0/6, Gi0/7, Gi0/8, Gi0/9
                                       Gi0/10, Gi0/11, Gi0/12, Gi0/13
                                       Gi0/14, Gi0/15, Gi0/16, Gi0/17
                                       Gi0/18, Gi0/19, Gi0/20, Gi0/21
                                       Gi0/22, Gi0/23, Gi0/24
  2 VLAN0002                 STATIC    Gi0/1
   20 VLAN0020                         STATIC    Gi0/1
```

Related Commands

Command	Description
name	VLAN name.
switchport access	Adds the interface to a VLAN.

Platform Description N/A

4.4 switchport access

Use this command to configure an interface as a static access port and assign it to a VLAN. Use the **no** or **default** form of the command to assign the port to the default VLAN.
switchport access vlan *vlan-id*
no switchport access vlan
default switchport access vlan

Parameter Description

Parameter	Description
vlan-id	The VLAN ID at which the port to be added.

Defaults By default, the switch port is an access port and the VLAN is VLAN 1.

Command mode Interface configuration mode.

Usage Guide Enter one VLAN ID. The system will create a new one and add the interface to the VLAN if you enter a new VLAN ID. If the VLAN ID already exists, the command adds the port to the VLAN.
If the port is a trunk port, the operation does not take effect.

Configuration Examples

```
Orion Alpha A28X(config)# interface gigabitethernet 1/1
Orion Alpha A28X(config-if)# switchport access vlan 2
```

Related Commands

Command	Description
switchport mode	Specifies the interface as Layer 2 mode (switch port mode).
switchport trunk	Specifies a native VLAN and the allowed-VLAN list for the trunkport.

Platform Description N/A

4.5 switchport hybrid allowed

Use this command to add the port to the VLAN or remove the port from the VLAN, Use the **no** or **default** form of this command to restore the default setting.
switchport hybrid allowed vlan { { [**add** | **only**] **tagged** *vlist* | [**add**] **untagged** *vlist* } | **remove** *vlist* }
no switchport hybrid allowed vlan
default switchport hybrid allowed vlan

Parameter Description

Parameter	Description
add	Adds the port to the VLAN.
only	Adds the port to the VLAN and removes the port from the VLANs not

	on the VLAN list.
tagged	Adds the port to the VLAN and the VLAN packets going out on the port are tagged with VLAN ID.
untagged	Adds the port to the VLAN and the VLAN packets going out on the port are not tagged with VLAN ID.
remove	Removes the port from the VLAN.
vlist	Specifies the VLAN.

Defaults By default, the hybrid port is in all VLANs. All VLAN packets (except native VLAN packets) going out on the port are tagged with VLAN ID. Native VLAN packets are not tagged with VLAN ID.

Command mode Interface configuration mode

Usage Guide N/A

Configuration Examples The following example adds the hybrid port to VLAN 20 and VLAN 30 and the VLAN packets going out on the port are not tagged with VLAN ID.

```
Orion Alpha A28X(config)# interface gigabitEthernet 0/1
Orion Alpha A28X(config-if-GigabitEthernet 0/1)# switchport mode hybrid
Orion Alpha A28X(config-if-GigabitEthernet 0/1)#switchport hybrid allowed
vlan untagged 20
Orion Alpha A28X(config-if-GigabitEthernet 0/1)#switchport hybrid allowed
vlan add untagged 30
```

The following example adds the hybrid port to VLAN 40 and VLAN 50 and the VLAN packets going out on the port are tagged with VLAN ID,

```
Orion Alpha A28X(config)# interface gigabitEthernet 0/1
Orion Alpha A28X(config-if-GigabitEthernet 0/1)#switchport mode hybrid
Orion Alpha A28X(config-if-GigabitEthernet 0/1)#switchport hybrid allowed
vlan tagged 40
Orion Alpha A28X(config-if-GigabitEthernet 0/1)#switchport hybrid allowed
vlan tagged 50
```

The following example removes the hybrid port from VLAN 20.

```
Orion Alpha A28X(config)# interface gigabitEthernet 0/1
Orion Alpha A28X(config-if-GigabitEthernet 0/1)#switchport mode hybrid
Orion Alpha A28X(config-if-GigabitEthernet 0/1)#switchport
hybrid allowed vlan remove 20
```

The following example adds the hybrid port to VLAN 20 and deletes all the other VLANs. The VLAN packets going out on the port are tagged with VLAN ID.

```
Orion Alpha A28X(config)# interface gigabitEthernet 0/1
Orion Alpha A28X(config-if-GigabitEthernet 0/1)#switchport mode hybrid
Orion Alpha A28X(config-if-GigabitEthernet 0/1)#switchport
hybrid allowed vlan only tagged 20
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

4.6 switchport hybrid native

Use this command to configure the native VLAN for the hybrid port. Use the **no** or **default** form of this command to restore the default setting.

switchport hybrid native vlan *vlan-id*

no switchport hybrid native vlan

default switchport hybrid native vlan

Parameter Description

Parameter	Description
vlan-id	Configures the native VLAN for the hybrid port.

Defaults The default is VLAN 1.

Command mode Interface configuration mode

Usage Guide Native VLAN packets going out on the hybrid port are not tagged with VLAN ID. Packets not tagged with VLAN ID coming in on the hybrid port are taken as native VLAN packets.

Configuration Examples The following example configures VLAN 20 as the native VLAN for hybrid port GigabitEthernet 0/1.

```
Orion Alpha A28X(config-if-GigabitEthernet 0/1)#interface gigabitEthernet 0/1
Orion Alpha A28X(config-if-GigabitEthernet 0/1)#switchport mode hybrid
Orion Alpha A28X(config-if-GigabitEthernet 0/1)#switchport hybrid native vlan 20
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

4.7 switchport mode

Use this command to specify a L2 interface (switch port) mode. You can specify this interface to be an access port or a trunk port or a servicechain port. Use the **no** or **default** form of this command to restore the default setting.

switchport mode { **access** | **trunk** | **hybrid** | **uplink** }

no switchport mode

default switchport mode

Parameter Description

Parameter	Description
access	Configures the switch port as an access port.
trunk	Configures the switch port as a trunk port.
hybrid	Configures the switch port as a hybrid port.
uplink	Configures the switch port as an uplink port.

Defaults By default, the switch port is an access port.

Command mode Interface configuration mode.

Usage Guide If a switch port is an access port, the port can be added only to one VLAN. You can run the **switchport access vlan** command to specify the VLAN to which the port belongs.
If a switch port is a trunk port, the port is added to all VLANs by default. You can also run the **switchport trunk allowed** command to add the port to or remove the port from a specified VLAN.
If a switch port is an uplink port, the port is added to all VLANs by default. Different from the trunk port, the uplink port sends packets with a tag carried, that is, the tag of packets from default VLANs will not be deleted. You can run the **switchport trunk allowed** command to add the port to or remove the port from a specified VLAN.
If a switch port is a hybrid port, the port is added to all VLANs by default. Different from a trunk port, a hybrid port can be added to a VLAN in tag or untag mode by running the **switchport hybrid allowed** command.

Configuration Examples The following example configures port 1 as an access port.

```
Orion Alpha A28X(config)#int g 0/1
Orion Alpha A28X(config-if-GigabitEthernet 0/1)#switchport mode access
```

The following example configures port 1 as a trunk port.

```
Orion Alpha A28X(config)#int g 0/1
Orion Alpha A28X(config-if-GigabitEthernet 0/1)# switchport mode trunk
```

The following example configures port 1 as an uplink port.

```
Orion Alpha A28X(config)#int g 0/1
Orion Alpha A28X(config-if-GigabitEthernet 0/1)# switchport mode uplink
```

The following example configures port 1 as a hybrid port.

```
Orion Alpha A28X(config)#int g 0/1
Orion Alpha A28X(config-if-GigabitEthernet 0/1)# switchport mode hybrid
```

Related Commands

Command	Description
switchport access	Configures an interface as a statics access port and assigns it to a VLAN.

switchport trunk	Specifies a native VLAN and the allowed-VLAN list for the trunkport.

Platform Description N/A

4.8 switchport accept-frame-type tag-only

Use this command to restrict the port forward untag packet.

Use the **no** form of this command to restore the default settings.

switchport { **trunk** | **hybrid** |**dot1q-tunnel** } **accept-frame-type tag-only**

no switchport { **trunk** | **hybrid** |**dot1q-tunnel** } **accept-frame-type tag-only**

Parameter Description

Parameter	Description
trunk	Configure on a trunk port or a uplink port.
hybrid	Configure on a hybrid port.
uplink	Configure on a QinQ port.

Defaults By default, this function is disabled.

Command mode Interface configuration mode

Usage Guide With this function enabled, the untagged packet will be discarded directly as the port receives it.

Configuration Examples The following example configures the port 1 as a trunk or uplink port.

```
Orion Alpha A28X(config)#int g 0/1
Orion Alpha A28X(config-if-GigabitEthernet 0/1)# switchport
trunk accept-frame-type tag-only
```

The following example configures the port 1 as a hybrid port.

```
Orion Alpha A28X(config)#int g 0/1
Orion Alpha A28X(config-if-GigabitEthernet 0/1)# switchport
hybrid accept-frame-type tag-only
```

The following example configures the port 1 as a QinQ port.

```
Orion Alpha A28X(config)#int g 0/1
Orion Alpha A28X(config-if-GigabitEthernet 0/1)# switchport
dot1q-tunnel accept-frame-type tag-only
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

4.9 switchport trunk allowed vlan

Use this command to add the trunk/uplink port to the VLAN or remove a trunk/uplink port from the VLAN. Use the **no** or **default** form of the command to restore the default setting.

switchport trunk allowed vlan { **all** | { **add** *vlan-list* | **remove** *vlan-list* | **except** *vlan-list* | **only** *vlan-list* } }

no switchport trunk allowed vlan

default switchport trunk allowed vlan

Parameter Description

Parameter	Description
all	Adds the trunk/uplink port to all VLANs.
add	Adds the trunk/uplink port to the VLAN.
remove	Removes the trunk/uplink port from the VLAN port.
except	Removes the trunk/uplink port from the VLAN and adds the port to all the other VLANs.
only	Adds the trunk/uplink port to the specified VLAN and removes the port from the VLANs not on the VLAN list.
vlan-list	Specifies the VLAN.

Defaults The trunk/unlink port is in all VLANs by default.

Command mode Interface configuration mode.

Usage Guide A trunk/uplink port transmits all VLAN (1-4094) data by default. You can block some VLAN data by configuring this command. Use the **show interfaces** command to display configuration.

Configuration Examples The following example removes trunk port GigabitEthernet 0/10 from VLAN 2.

```
Orion Alpha A28X(config)# interface gigabitEthernet 0/10
Orion Alpha A28X(config-if-GigabitEthernet 0/10)# switchport mode trunk
Orion Alpha A28X(config-if-GigabitEthernet 0/10)# switchport trunk allowed
vlan remove 2
```

The following example removes trunk port GigabitEthernet 0/10 from VLAN 2.

```
Orion Alpha A28X(config)# interface gigabitEthernet 0/10
Orion Alpha A28X(config-if-GigabitEthernet 0/10)# switchport trunk allowed
vlan except 10
```

The following example removes uplink port GigabitEthernet 0/10 from VLAN 10.

```
Orion Alpha A28X(config)# interface gigabitEthernet 0/10
Orion Alpha A28X(config-if-GigabitEthernet 0/10)# switchport mode uplink
Orion Alpha A28X(config-if-GigabitEthernet 0/10)# switchport trunk allowed
vlan remove 10
```

The following example adds uplink port GigabitEthernet 0/10 to all VLANs except VLAN10.

```
Orion Alpha A28X(config)# interface gigabitEthernet 0/10
Orion Alpha A28X(config-if-GigabitEthernet 0/10)# switchport
trunk allowed vlan except 10
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

4.10 switchport trunk native vlan

Use this command to configure the native VLAN for the trunk/uplink port. Use the **no** or **default** form of this command to restore the default setting.

switchport trunk native vlan *vlan-id*

no switchport trunk native vlan

default switchport trunk native vlan

Parameter Description

Parameter	Description
vlan-id	Native VLAN ID.

Defaults By default, the native VLAN for the trunk/uplink port is VLAN 1.

Command mode Interface configuration mode

Usage Guide After this function is enabled, packets not tagged with VLAN ID are taken as native VLAN packets. Tags are removed from native VLAN packets going out on the trunk port.

Configuration Examples The following example configures VLAN 10 as the native VLAN for trunk port GigabitEthernet 0/10.

```
Orion Alpha A28X(config)#interface gigabitEthernet 0/10
Orion Alpha A28X(config-if-GigabitEthernet 0/10)# switchport mode trunk
Orion Alpha A28X(config-if-GigabitEthernet 0/10)# switch trunk native vlan
10
```

The following example configures VLAN 10 as the native VLAN for unlink port GigabitEthernet 0/10.

```
Orion Alpha A28X(config)#interface gigabitEthernet 0/10
Orion Alpha A28X(config-if-GigabitEthernet 0/10)# switchport mode uplink
Orion Alpha A28X(config-if-GigabitEthernet 0/10)# switch trunk
native vlan 10
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

4.11 vlan

Use this command to enter the VLAN configuration mode. Use the **no** or **default** form of this command to restore the default setting.

vlan { *vlan-id* | **range** *vlan-range* }

no vlan { *vlan-id* | **range** *vlan-range* }

default vlan { *vlan-id* | **range** *vlan-range* }

Parameter Description

Parameter	Description
vlan-id	VLAN ID Default VLAN (VLAN 1) cannot be removed.
vlan-range	VLAN ID range.

Defaults The default is static VLAN.

Command mode Global configuration mode.

Usage Guide N/A

Configuration Examples The following example creates VLAN 10.

```
Orion Alpha A28X(config)# vlan 10
Orion Alpha A28X(config-vlan)#
```

Related Commands

Command	Description
show vlan	Displays member ports of the VLAN.

Platform Description N/A

5 MAC VLAN Commands

5.1 mac-vlan enable

Use this command to enable the MAC VLAN function on the port.
Use the **no** form or **default** form of this command to restore the default setting.
mac-vlan enable
no mac-vlan enable
default mac-vlan enable

Parameter Description

Parameter	Description
N/A	N/A

Defaults By default, MAC VLAN is disabled.

Command mode Interface configuration mode

Usage Guide The MAC VLAN entries configured globally will not take effect on the port unless the MAC VLAN function is enabled on this port.
The MAC VLAN function can be enabled on the hybrid port only.

Configuration Examples The following example enables MAC VLAN.

```
Orion Alpha A28X(config-if-interface-id)# mac-vlan enable
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

5.2 mac-vlan mac-address

Use this command to configure the static MAC VLAN entries.
Use the **no** form or **default** form of this command to restore the default setting.
mac-vlan mac-address *mac-address* [**mask** *mac-mask*] **vlan** *vlan-id* [**priority** *pri_val*]
no mac-vlan mac-address *mac-address* [**mask** *mac-mask*] **vlan** *vlan-id* [**priority** *pri_val*]
default mac-vlan mac-address *mac-address* [**mask** *mac-mask*] **vlan** *vlan-id* [**priority** *pri_val*]

Parameter Description

Parameter	Description
mac-address	Specifies the MAC address.
mac-mask	Specifies the MAC address mask, with the high bits being all 1 in

	binary. This field is full of F by default.
vlan-id	Specifies the VLAN corresponding to the MAC address. The range is from 1 to 4,094.
pri_val	Specifies the 802.1p priority of the VLAN corresponding to the MAC address. The range is from 0 to 7. The default value is 0.

Defaults No static MAC VLAN entry is configured by default.

Command mode Global configuration mode

Usage Guide Use this command to configure a static MAC VLAN entry including the MAC address, VLAN ID and VLAN priority. Use the **no** form of this command to remove the static MAC VLAN entry.

Configuration Examples The following example configures a static MAC VLAN entry.

```
Orion Alpha A28X(config)# mac-vlan mac-address 0001.0001.0001 vlan 100
priority 3
Orion Alpha A28X(config)# mac-vlan mac-address 0002.0002.0000 mask
ffff.ffff.0000 vlan 200 priority 5
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

5.3 show mac-vlan

Use this command to display the MAC VLAN entries.

show mac-vlan { **all** | **dynamic** | **static** | **vlan** *vlan-id* | **mac-address** *mac-address* [**mask** *mac-mask*] }

Parameter Description

Parameter	Description
all	Displays all MAC VLAN entries.
dynamic	Displays the dynamic MAC VLAN entries.
static	Displays the static MAC VLAN entries.
mac-address mac-address	Displays the MAC VLAN entry of the specified MAC address.
mask mac-mask	Displays the MAC VLAN entry of the specified MAC address range.
vlan vlan-id	Displays the MAC VLAN entries of the specified VLAN.

Defaults N/A

Command mode All configuration modes

Usage Guide If the **mac-address** parameter is specified without the **mask** parameter, the MAC-VLAN entry of the

single MAC address is displayed.

If parameters both of **mac-address** and **mask** are specified, the MAC-VLAN entries in the specified MAC address range are displayed.

Configuration Examples The following example displays all MAC VLAN entries.

```
Orion Alpha A28X# show mac-vlan all
The following MAC VLAN addresses exist:
S: Static   D: Dynamic
MAC ADDR           MASK             VLAN ID   PRIO   STATE
-------------------------------------------------------
0011.1100.0000   ffff.ff00.0000   100       1      S
0022.2222.0000   ffff.ffff.0000   200       2      S
0000.0000.0003   ffff.ffff.ffff   300       3      D
0000.0000.0004   ffff.ffff.ffff   400       4      D
0000.0000.0005   ffff.ffff.ffff   500       5      S&D
0000.0000.0006   ffff.ffff.ffff   600       6      S
0000.0000.0007   ffff.ffff.ffff   700       7      S&D
Total MAC VLAN address count: 7
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

5.4 show mac-vlan interface

Use this command to display the interfaces which are enabled with MAC VLAN.

show mac-vlan interface

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

Command mode All configuration modes

Usage Guide Use this command to verify whether the MAC VLAN function is enabled on the interface.

Configuration Examples The following example displays the interfaces which are enabled with MAC VLAN.

```
Orion Alpha A28X# show mac-vlan interface
MAC VLAN is enabled on following interface:
  ---------------------------------------
  fastethernet 0/3
  fastethernet 0/10
```

Related Commands

Command	Description
N/A	N/A

Platform Description

N/A

6 Protocol VLAN Commands

6.1 protocol-vlan ipv4 (in interface configuration mode)

Use this command to enable subnet VLAN. Use the **no** form of this command to restore the default setting.

protocol vlan ipv4

no protocol vlan ipv4

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is disabled by default.

Command mode Interface configuration mode.

Usage Guide An interface must work in Trunk/Hybrid mode.

Configuration Examples The following example enables the subnet VLAN.

```
Orion Alpha A28X(config)# interface GigabitEthernet 0/1
Orion Alpha A28X(config-if-GigabitEthernet 0/1)# switchport
Orion Alpha A28X(config-if-GigabitEthernet 0/1)# switchport mode hybrid
Orion Alpha A28X(config-if-GigabitEthernet 0/1)# protocol-vlan ipv4
```

Related Commands

Command	Description
no protocol-vlan ipv4	N/A

Platform Description N/A

6.2 protocol-vlan ipv4 (in global configuration mode)

Use this command to configure VLAN for the specified subnet.

protocol-vlan ipv4 *addr* **mask** *addr* **vlan** *id*

Use this command to remove VLAN configuration for the specified subnet.

no protocol-vlan ipv4 *addr* **mask** *addr*

Use this command to remove VLAN configuration for all subnets.

no protocol-vlan ipv4

Parameter Description

Parameter	Description

addr	IP address in the x.x.x.x format.
id	VLAN ID, the maximal VLAN the product supports

Defaults It is disabled by default.

Command mode Global configuration mode.

Usage Guide N/A

Configuration Examples The following example configures VLAN 100 for the specified subnet.

```
Orion Alpha A28X(config)# protocol-vlan ipv4 192.168.100.3 mask 255.
255.255.0 vlan 100
```

Related Commands

Command	Description
show protocol-vlan ipv4	N/A
no protocol-vlan ipv4 *addr* **mask** *addr*	N/A
no protocol-vlan ipv4	N/A

Platform Description N/A

6.3 protocol-vlan profile (in interface configuration mode)

Use this command to apply some profile to an interface.
protocol-vlan profile *num* **vlan** *id*
Use this command to clear the specified profile on the port.
no protocol-vlan profile *id*
Use this command to clear all profiles on the port.
no protocol-vlan profile

Parameter Description

Parameter	Description
num	Profile indexes
id	VLAN ID, the maximal VLAN the product supports.

Defaults This function is disabled by default.

Command mode Interface mode.

Usage Guide The interface must be in Trunk or Hybrid mode.

Configuration Examples The following example applies profile 1 to VLAN 101.

```
Orion Alpha A28X(config-if)# protocol-vlan profile 1 vlan 101
```

Related Commands

Command	Description

show protocol-vlan profile	N/A
show protocol-vlan profile *num*	N/A
no protocol-vlan profile	N/A
no protocol-vlan profile *num*	N/A

Platform Description N/A

6.4 protocol-vlan profile (in global configuration mode)

Use this command to configure the profile for the VLAN.
protocol-vlan profile *num* **frame-type** *type* **ether-type** *type*
protocol-vlan profile *num* **frame-type LLC DSAP** *value* **SSAP** *value*
Use this command to delete the specified profile.
no protocol-vlan profile *num*
Use this command to delete all profiles.
no protocol-vlan profile

Parameter Description

Parameter	Description
num	Profile indexes
type	Type of message and Ethernet
value	Service access point type.

Defaults It is disabled by default.

Command mode Global configuration mode.

Usage Guide N/A

Configuration Examples The following example configures the profile for the VLAN.

```
Orion Alpha A28X(config)# protocol-vlan  profile 1 frame-type ETHERII
ether-type aarp
Orion Alpha A28X(config)# protocol-vlan  profile 2 frame-type LLC DSAP 255
SSAP 255
```

Related Commands

Command	Description
show protocol-vlan profile	N/A
show protocol-vlan profile *num*	N/A
no protocol-vlan profile	N/A
no protocol-vlan profile *num*	N/A

Platform Description N/A

6.5 show protocol-vlan

Use this command to display a protocol VLAN.

show protocol-vlan [**profile** [*id*] | **ipv4**]

Parameter Description

Parameter	Description
id	Profile index.

Defaults N/A

Command mode Privileged EXEC mode.

Usage Guide N/A

Configuration Examples The following example displays the configuration of protocol VLAN.

```
Orion Alpha A28X#show protocol-vlan

ip              mask            vlan
--------------- --------------- ----
1.2.1.0         255.255.255.0   5

interface            ipv4 status
-------------------- -----------
Gi0/1                enable

profile frame-type       ether-type/DSAP+SSAP   interface       vlan
------- ---------------- ---------------------- --------------- ----
1       ETHERII          0x5fa
                                                Gi0/1           12
```

Related Commands

Command	Description
N/A	N/A

Platform Description

7 Private VLAN Commands

7.1 debug bridge pvlan

Use this command to enable private VLAN debugging. Use the **no** or **default** form of this command to restore the default setting.

debug bridge pvlan

no debug bridge pvlan

Parameter Description

Parameter	Description
N/A	N/A

Defaults Debugging is disabled by default.

Command mode Privileged EXEC mode

Usage Guide Debugging information includes error and prompt messages appearing during private VLAN configuration.

This command can be used to troubleshoot VLAN and interface configuration failure.

- With private VLAN debugging enabled, all super VLAN configuration and packet processing on SVI is displayed.
- Debugging information helps troubleshooting and fault location.

Configuration Examples The following example enables private VLAN debugging.

```
Orion Alpha A28X# debug bridge pvlan
```

The following example disables private VLAN debugging.

```
Orion Alpha A28X# no debug bridge pvlan
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

7.2 private-vlan

Use this command to configure the private VLAN feature. Use the **no** or **default** form of this command to restore the default setting.

private-vlan { **community** | **isolated** | **primary** }

no private-vlan { **community** | **isolated** | **primary** }

default private-vlan { **community** | **isolated** | **primary** }

Parameter Description

Parameter	Description
community	Sets the community VLAN.
isolated	Sets the isolated VLAN.
primary	Sets the primary VLAN.

Defaults No private VLAN feature is configured by default.

Command mode VLAN configuration mode

Usage Guide N/A

Configuration Examples The following example configures the private VLAN feature.

```
Orion Alpha A28X(config)#vlan 90
Orion Alpha A28X(config-vlan)#private-vlan primary
Orion Alpha A28X(config-vlan)#vlan 91
Orion Alpha A28X(config-vlan)#private-vlan isolated
Orion Alpha A28X(config-vlan)#vlan 92
Orion Alpha A28X(config-vlan)#private-vlan community
```

The following example disables the private VLAN feature using the **no private-vlan** command.

```
Orion Alpha A28X(config)#vlan 90
Orion Alpha A28X(config-vlan)#no private-vlan primary
Orion Alpha A28X(config-vlan)#vlan 91
Orion Alpha A28X(config-vlan)#no private-vlan isolated
Orion Alpha A28X(config-vlan)#vlan 92
Orion Alpha A28X(config-vlan)#no private-vlan community
```

The following example disables the private VLAN feature using the **default private-vlan** command.

```
Orion Alpha A28X(config)#vlan 90
Orion Alpha A28X(config-vlan)#default private-vlan primary
Orion Alpha A28X(config-vlan)#vlan 91
Orion Alpha A28X(config-vlan)#default private-vlan isolated
Orion Alpha A28X(config-vlan)#vlan 92
Orion Alpha A28X(config-vlan)#default private-vlan community
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

7.3 private-vlan association

Use this command to associate the secondary VLAN with the primary VLAN on layer 2. Use the **no** or **default** form of this command to restore the default setting.

private-vlan association { *svlist* | **add** *svlist* | **remove** *svlist* }
no private-vlan association
default private-vlan association

Parameter Description

Parameter	Description
svlist	The secondary VLAN list
add *svlist*	Adds the associated secondary VLAN.
remove *svlist*	Removes the associated secondary VLAN.

Defaults This function is disabled by default.

Command mode VLAN configuration Mode.

Usage Guide N/A

Configuration Examples The following example associates the secondary VLAN with the primary VLAN on layer 2.

```
Orion Alpha A28X(config)# vlan 22
Orion Alpha A28X(config-vlan)# private-vlan association add 24-26
```

The following example removes the association between the secondary VLAN with the primary VLAN.

```
Orion Alpha A28X(config)# vlan 22
Orion Alpha A28X(config-vlan)# private-vlan association remove 24
```

Related Commands

Command	Description
show vlan private-vlan	N/A

Platform Description N/A

7.4 show vlan private-vlan

Use this command to display the private VLAN configuration.
show vlan private-vlan [**community** | **primary** | **isolated**]

Use this command to display all the private VLANs configuration.
show vlan private-vlan

Parameter Description

Parameter	Description
primary	Displays the primary VLAN information.
community	Displays the community VLAN information.
isolated	Displays the isolated VLAN information.

Defaults N/A

Command mode All modes

Usage Guide N/A

Configuration Examples The following example displays the private VLAN configuration.

```
Orion Alpha A28X# show vlan private-vlan
VLAN  Type      Status   Routed   Ports                          Associated VLANs
----- ---------- -------- -------- ------------------------------ ------------------
30    primary    inactive Enabled
31    isolated   inactive Disabled                               No Association
90    primary    active   Disabled                               91-92
91    isolated   active   Disabled                               90
92    community  active   Disabled Gi0/1                          90
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

7.5 switchport mode private-vlan

Use this command to declare the private VLAN mode of the interface. Use the **no** or **default** form of this command to restore the default setting.

switchport mode private-vlan { **host** | **promiscuous** }

no switchport mode

default switchport mode

Parameter Description

Parameter	Description
host	Host mode of the private VLAN
promiscuous	Promiscuous mode of the private VLAN

Defaults The port is an access port by default.

Command mode Interface configuration mode.

Usage Guide Before a port is configured as an isolated port or promiscuous port, and the port mode must be configured as the host port mode.

The port mode must be configured as the promiscuous mode.

Configuratio The following example applies the private host mode to the interface.

n Examples

```
Orion Alpha A28X(config)# interface gigabitEthernet0/2
Orion Alpha A28X(config-if)# switchport mode private-vlan host
```

The following example applies the promiscuous mode to the interface.

```
Orion Alpha A28X(config)# interface gigabitEthernet 0/2
Orion Alpha A28X(config-if-GigabitEthernet 0/2)#sw mode private-vlan promiscuous
```

Related Commands

Command	Description
show vlan private-vlan	N/A

Platform Description N/A

7.6 switchport private-vlan host-association

Use this command to associate the primary VLAN, which is associated with the private VLAN mode of the interface, with the secondary VLAN. Use the **no** or **default** form of this command to restore the default setting.

switchport private-vlan host-association *p_vid s_vid*

no switchport private-vlan host-association

default switchport private-vlan host-association

Parameter Description

Parameter	Description
p_vid	Primary VID.
s_vid	Secondary VID

Defaults This function is disabled by default.

Command mode Interface configuration mode.

Usage Guide Before a port is configured as an isolated port or promiscuous port, and the port mode must be configured as the host port mode.

Whether a port is configured as an isolated port or community port depends on the s_vid parameter. p_vid and s_vid must be respectively the IDs of the primary VLAN and secondary VLAN in a PVLAN pair, on which Layer-2 association is performed.

One host port can be associated with only one PVLAN pair.

Configuration Examples The following example associates the secondary VLAN with the primary VLAN on the host port.

```
Orion Alpha A28X(config)# interface gigabitEthernet 0/1
Orion Alpha A28X(config-if)# switchport mode private-vlan host
Orion Alpha A28X(config-if)# switchport private-vlan host-association 22
23
Orion Alpha A28X(config-if)# default switchport private-vlan host-
asscioation
Orion Alpha A28X(config-if)# switchport private-vlan host-association 22
```

```
25
```

Related Commands

Command	Description
show vlan private-vlan	N/A

Platform Description

N/A

8 MSTP Commands

8.1 bpdu src-mac-check

Use this command to enable the BPDU source MAC address check function on the interface. Use the **no** form of this command to restore the default setting.

bpdu src-mac-check *H.H.H*

no bpdu src-mac-check

Parameter Description

Parameter	Description
H.H.H	Indicates that only the BPDU messages from this MAC address are received.

Defaults This function is disabled by default.

Command Mode Interface configuration mode.

Usage Guide BPDU source MAC address check prevents BPDU packets from maliciously attacking switches and causing MSTP abnormal. When the switch connected to a port on a point-to-point link is determined, you can enable BPDU source MAC address check to receive BPDU packets sent only by the peer switch and discard all other BPDU packets, thereby preventing malicious attacks. You can enable the BPDU source MAC address check in interface configuration mode for a specific port. One port can only filter one MAC address.

Configuration Examples The following example indicates only the BPDU with 00d0.f800.1e2f as the source MAC address will be received by interface Gi 1/1 .

```
Orion Alpha A28X(config)# interface gigabitethernet 1/1
Orion Alpha A28X(config-if-interface-id-interface-id)# bpdu src-mac-check
00d0.f800.1e2f
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

8.2 bridge-frame forwarding protocol bpdu

Use this command to enable BPDU transparent transmission. Use the **no** form of this command to restore the default setting.

bridge-frame forwarding protocol bpdu

no bridge-frame forwarding protocol bpdu

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is disabled by default.

Command Mode Global configuration mode

Usage Guide In the IEEE 802.1Q standard, 01-80-C2-00-00-00, the destination MAC address of BPDU frames, is reserved. Devices following the IEEE 802.1Q standard don't forward BPDU frames. In real network deployment, devices may be required to support BPDU transparent transmission. For example, when a device is not enabled with STP, BPDU transparent transmission can help implement STP calculation.
BPDU transparent transmission works only when STP is disabled.

Configuration Examples The following example enables BPDU transparent transmission.

```
Orion Alpha A28X(config)# bridge-frame forwarding protocol bpdu
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

8.3 clear spanning-tree counters

Use this command to clear the statistics of the sent and received STP packets.
clear spanning-tree detected-protocols [**interface** *interface-id*]

Parameter Description

Parameter	Description
interface-id	ID of the interface

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide It is used to clear the statistics of the sent and received STP packets.

Configuration Examples The following example clears the statistics of the sent and received STP packets.

```
Orion Alpha A28X# clear spanning-tree counters
```

The following example clears the statistics of the sent and received packets on interface Gi 0/1.

```
Orion Alpha A28X# clear spanning-tree counters interface gigabitethernet
```

```
0/1
```

Related Commands

Command	Description
show spanning-tree counters	Displays the statistics of STP transceived packets.

Platform Description N/A

8.4 clear spanning-tree detected-protocols

Use this command to force the interface to send the RSTP BPDU message and check the BPDU messages.

clear spanning-tree detected-protocols [**interface** *interface-id*]

Parameter Description

Parameter	Description
interface-id	ID of the interface

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide Use this command to force the interface to send the RSTP BPDU message.

Configuration Examples Forces to check the version of all interfaces.

```
Orion Alpha A28X# clear spanning-tree detected-protocols
```

Related Commands

Command	Description
show spanning-tree interface	Displays the STP configuration of the interface.

Platform Description N/A

8.5 clear spanning-tree mst topochange record

Use this command to clear STP topology change record.

clear spanning-tree mst *instance-id* **topochange record**

Parameter Description

Parameter	Description
instance-id	Instance ID. For STP and RSTP protocols, only instance 0 is valid.

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide N/A

Configuration Examples The following example clears STP topology change record.

```
Orion Alpha A28X# show spanning-tree mst 0 topochange record
Topology change information on mst 0:
 Time                Interface           Old status   New status   Type
 ------------------- ------------------- ------------ ------------
----------------
 2013.5.1 4:18:46    GI0/6               Learning     Forwarding   Normal
Orion Alpha A28X# clear spanning-tree mst 0 topochange record
Orion Alpha A28X# show spanning-tree mst 0 topochange record
%There's no topology change information has been record on mst
0.
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

8.6 instance instance-id vlan vlan-range

Use this command to set instance and VLAN mapping relations. Use the **no** form of the command to restore the default setting.

instance *instance-id* **vlan** *vlan-range*

no instance *instance-id* { **vlan** *vlan-range* }

Parameter Description

Parameter	Description
instance-id	Instance ID, in the range from 0 to 64
vlan-range	VLAN range, in the range from 1 to 4094.

Defaults The default is instance 0.

Command Mode MST configuration mode

Usage Guide **instance** *instance-id* **vlan** *vlan-range*: Add VLAN to MST instance. Instance-ID is in the range from 0 to 64 and VLAN is in the range from 1 to 4094. Use commas to separate VLAN IDs and use hyphen to indicate VLAN range, e.g., instance 10 vlan 2,3,6-9, which adds VLAN 2, 3, 4, 5, 6, 7, 8, 9 to instance 10. By default, all VLANs are in instance 0. Use the no form of this command to remove VLAN from instance 1-64.

If you create 64 instances by stacking on a Orion Alpha A28X device with a small memory (e.g.,

64M), the memory may be undersized. It is recommended to limit stacking instance number.

Configuration Examples

This example enters MST mode and maps VLAN 3 and 5-10 to MST instance1.

```
Orion Alpha A28X(config)# spanning-tree mst configuration
Orion Alpha A28X(config-mst)# instance 1 vlan 3, 5-10
Orion Alpha A28X(config-mst)# show spanning-tree mst configuration
Multi spanning tree protocol : Enable
Name     :
Revision : 0
Instance  Vlans Mapped
----------  --------------------
0        1-2,4,11-4094
1        3,5-10
-----------------------------------
Orion Alpha A28X(config-mst)# exit
Orion Alpha A28X(config)#
```

The following example removes VLAN3 from instance 1.

```
Orion Alpha A28X(config-mst)# no instance 1 vlan 3
```

The following example removes instance 1.

```
Orion Alpha A28X(config-mst)# no instance 1
```

Related Commands

Command	Description
N/A	N/A

Platform Description

N/A

8.7 l2protocol-tunnel stp

Use this command to enable BPDU TUNNEL globally. Use the **no** form of this command to disable this function.

l2protocol-tunnel stp

no l2protocol-tunnel stp

Parameter Description

Parameter	Description
N/A	N/A

Defaults

N/A

Command Mode

Global configuration mode

Usage Guide

If you want to BPDU TUNNEL globally, enable BPDU TUNNEL on the interface first.

Configuration Examples

The following example enables BPDU TUNNEL globally.

```
Orion Alpha A28X(config)# l2protocol-tunnel stp
```

```
Orion Alpha A28X(config)# show l2protocol-tunnel stp

L2protocol-tunnel: stp Enable
L2protocol-tunnel destination mac address: 01d0.f800.0005
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

8.8 l2protocol-tunnel stp enable

Use this command to enable BPDU TUNNEL on the interface. Use the **no** form of this command to disable this function.

l2protocol-tunnel stp enable

no l2protocol-tunnel stp enable

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

Command Mode Interface configuration mode

Usage Guide If you want to BPDU TUNNEL globally, enable BPDU TUNNEL on the interface first.

Configuration Examples The following example enables BPDU TUNNEL on the interface.

```
Orion Alpha A28X(config-if-interface-id)# l2protocol-tunnel stp enable
Orion Alpha A28X(config-if-interface-id)# show l2protocol-tunnel stp

L2protocol-tunnel: stp Enable
L2protocol-tunnel destination mac address: 01d0.f800.0005
GigabitEthernet 0/1 l2protocol-tunnel stp enable
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

8.9 l2protocol-tunnel stp tunnel-dmac

Use this command to configure the STP address for transparent transmission through BPDU TUNNEL. Use the **no** form of this command to restore the default setting.

l2protocol-tunnel stp tunnel-dmac *mac-address*

no l2protocol-tunnel stp tunnel-dmac

Parameter Description

Parameter	Description
mac-address	The STP address for transparent transmission.

Defaults The defualt is 01d0.f800.0005.

Command Mode Global configuration mode

Usage Guide The available STP address includes 01d0.f800.0005, 011a.a900.0005, 010f.e200.0003, 0100.0ccd.cdd0, 0100.0ccd.cdd1, and 0100.0ccd.cdd2.

Configuration Examples The following example configures the STP address for transparent transmission through BPDU TUNNEL.

```
Orion Alpha A28X(config)# l2protocol-tunnel stp tunnel-dmac 011a.a900.0005
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

8.10 name

Use this command to set MST name. Use the **no** form of the command to restore the default setting.

name *name*

no name

Parameter Description

Parameter	Description
name	MST name, up to 32 characters.

Defaults The default is NULL.

Command Mode MST configuration mode

Usage Guide **name** *name*: Sets the MST name, up to 32 characters.

show spanning-tree mst configuration: Displays MST region information.

Configuration Examples This example sets MST name to region1.

```
Orion Alpha A28X(config)# spanning-tree mst configuration
Orion Alpha A28X(config-mst)# name region1
Orion Alpha A28X(config-mst)# show spanning-tree mst configuration
Multi spanning tree protocol : Enable
Name     : region1
Revision : 0
Instance  Vlans Mapped
-------- ---------------------------------------------
0        : ALL
Orion Alpha A28X(config-mst)# exit
Orion Alpha A28X(config)#
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

8.11 revision

Use this command to set revision number of MSTP region. Use the **no** form of the command to restore the default setting.

revision *version*

no revision

Parameter Description

Parameter	Description
version	MST revision number, in the range from 0 to 65535.

Defaults The default is 0.

Command Mode MST configuration mode

Usage Guide **revision** *version*: Sets the MST version, in the range from 0 to 65535.

show spanning-tree mst configuration: Displays MST region information.

Configuration Examples This example sets revision number to1.

```
Orion Alpha A28X(config)# spanning-tree mst configuration
Orion Alpha A28X(config-mst)# revision 1
Orion Alpha A28X(config-mst)# show spanning-tree mst configuration
Multi spanning tree protocol : Enable
Name     :
Revision : 1
Instance  Vlans Mapped
```

```
-------- ----------------------------------------
0        : ALL
Orion Alpha A28X(config-mst)# exit
Orion Alpha A28X(config)#
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

8.12 spshow l2protocol-tunnel stp

Use this command to display BPDU TUNNEL configuration.

show l2protocol-tunnel stp

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

Command Mode Privileged EXEC mode / Global configuration mode / Interface configuration mode

Usage Guide N/A

Configuration Examples The following example displays BPDU TUNNEL configuration.

```
Orion Alpha A28X# show l2protocol-tunnel stp

L2protocol-tunnel: stp Enable
L2protocol-tunnel destination mac address:011a.a900.0005
GigabitEthernet 0/1 l2protocol-tunnel stp enable
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

8.13 show spanning-tree

Use this command to display the global spanning-tree configuration.

show spanning-tree [summary | forward-time | hello-time | max-age | inconsistentports| tx-hold-count | pathcost method | max_hops | counters]

Parameter Description

Parameter	Description
summary	Displays the information of MSTP instances and forwarding status of the interfaces.
inconsistentports	Displays the block port due to root guard or loop guard.
forward-time	Displays BridgeForwardDelay.
hello-time	Displays BridgeHelloTime.
max-age	Displays BridgeMaxAge.
max-hops	Displays the maximum hops of an instance.
tx-hold-count	Displays TxHoldCount.
pathcost method	Displays the method used for calculating path cost.
counters	Displays the statistics of STP transceived packets.

Defaults N/A

Command Mode Privileged EXEC mode, global configuration mode and interface configuration mode.

Usage Guide N/A

Configuration Examples The following example displays the global spanning-tree configuration.

```
Orion Alpha A28X# show spanning-tree hello-time
```

The following example displays the sent and received STP packets.

```
Orion Alpha A28X# show spanning-tree counters
---------------------- STP BPDU count ----------------------
 Port                        Receive      Send
 GigabitEthernet 0/3             0          122594


------------------------- STP TC or TCN count -------------------------
 MSTID      Port                        Receive      Send
 0          GigabitEthernet 0/3             0          0
```

Related Commands

Command	Description
spanning-tree pathcost method	Sets the pathcost method.
spanning-tree forward-time	Sets BridgeForwardDelay.
spanning-tree hello-time	Sets BridgeHelloTime.
spanning-tree max-age	Sets BridgeMaxAge.
spanning-tree max-hops	Sets the maximum hops of an instance.
spanning-tree tx-hold-count	Displays TxHoldCount.

Platform Description N/A

8.14 show spanning-tree interface

Use this command to display the STP configuration of the interface, including the optional spanning tree.

show spanning-tree interface *interface-id* [{ **bpdufilter** | **portfast** | **bpduguard** | **link-type** }]

Parameter Description

Parameter	Description
interface-id	Interface ID
bpdufilter	Displays the status of BPDU filter.
portfast	Displays the status of portfast.
bpduguard	Displays the status of BPDU guard.
link-type	Displays the link type of an interface.

Defaults N/A

Command Mode Privileged EXEC mode, global configuration mode and interface configuration mode.

Usage Guide N/A

Configuration Examples The following example displays the STP configuration on interface Gi 0/1.

```
Orion Alpha A28X# show spanning-tree int gi 0/1

PortAdminPortFast : Disabled
PortOperPortFast : Disabled
PortAdminAutoEdge : Enabled
PortOperAutoEdge : Disabled
PortAdminLinkType : auto
PortOperLinkType : point-to-point
PortBPDUGuard : Disabled
PortBPDUFilter : Disabled
PortGuardmode  : None

###### MST 0 vlans mapped :ALL
PortState : forwarding
PortPriority : 128
PortDesignatedRoot : 32768.001a.a979.00ea
PortDesignatedCost : 0
PortDesignatedBridge :32768.001a.a979.00ea
PortDesignatedPortPriority : 128
PortDesignatedPort : 1
PortForwardTransitions : 1
PortAdminPathCost : 200000
PortOperPathCost : 200000
Inconsistent states : normal
PortRole : rootPort
```

Related Commands

Command	Description
spanning-tree bpdufilter	Enables the BPDU filter feature someone the interface.
spanning-tree portfast	Enables the portfast on the interface.
spanning-tree bpduguard	Enables the BPDU guard on the interface.
spanning-tree link-type	Sets the link type of the interface to point-to-point.

Platform Description N/A

8.15 show spanning-tree mst

Use this command to display the information of MST and instances.

show spanning-tree mst { **configuration** | *instance-id* [**interface** *interface-id*] }

Parameter Description

Parameter	Description
configuration	The MST configuration of the equipment.
instance-id	Instance number
interface-id	Interface number

Defaults N/A

Command Mode Privileged EXEC mode/Global configuration mode/Interface configuration mode

Usage Guide N/A

Configuration Examples The following example displays the information of MST and instances.

```
Orion Alpha A28X# show spanning-tree mst configuration
Multi spanning tree protocol : Enable
Name      : test
Revision : 0
Instance  Vlans Mapped
-------- ---------------------------------------------
0        : 2-4094
1        : 1
```

Field Description

Field	Description
Multi spanning tree protocol	Enables MSTP protocol.
Name	Name of the MST region
Revision	Revision of the MST region
Instance Vlans Mapped	Mapping relation between the instance and VLAN

Related Commands

Command	Description
spanning-tree mst configuration	Configures the MST region.
spanning-tree mst cost	Displays the path cost of the instance.
spanning-tree mst max-hops	Displays the maximum hops of the instance.
spanning-tree mst priority	Displays the equipment priority of the instance.
spanning-tree mst port-priority	Displays the port priority of the instance.

Platform Description N/A

8.16 show spanning-tree mst topochange record

Use this command to display the STP topology change record.

show spanning-tree mst *instance-id* **topochange record**

Parameter Description

Parameter	Description
instance-id	Instance ID.

Defaults N/A

Command Mode Privileged EXEC mode / Global configuration mode / Interface configuration mode

Usage Guide N/A

Configuration Examples The following example displays the STP topology change record of instance 0.

```
Orion Alpha A28X# show spanning-tree mst 0 topochange record
Topology change information on mst 0:
 Time                Interface            Old status   New status   Type
 ------------------- -------------------- ------------ ------------
----------------
 2013.5.1 4:18:46    GI0/6                Learning     Forwarding   Normal
```

Field	Description
Time	The time when the topology changes.
Interface	The interface whose topology changes.
Old status	Old STP status on the interface.
New status	New STP status on the interface.
Type	Topology change may be caused by the following causes: Normal: UP/DOWN state change on the interface, LoopGuard Block: Loop-inconsistence causes the interface to be blocked.

	RootGuard Block: Root-inconsistence causes the interface to be blocked. Inferior Block: Receiving inferior BPDU frames causes the interface to be blocked. LoopGuard Unblock: The interface returns to Forward status from loop-inconsistence. RootGuard Unblock: The interface returns to Forward status from root-inconsistence. Inferior Unblock-The interface returns to Forward status after not receiving inferior BPDU frames.

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

8.17 spanning-tree

Use this command to enable MSTP and configure its basic settings globally. The **no** form of the command disables the spanning-tree function. The **no** form of the command with parameters only restores the corresponding parameters to the default values, but does not disable the spanning-tree function.

spanning-tree [**forward-time** *seconds* | **hello-time** *seconds* | **max-age** *seconds*]

no spanning-tree [**forward-time** | **hello-time** | **max-age**]

Parameter Description

Parameter	Description
forward-time *seconds*	Interval at which the port status changes, in the range from 4 to 30 in the unit of seconds. The default is 15.
hello-time *seconds*	Interval at which the switch sends the BPDU message, in the range from 1 to 10 in the unit of seconds. The default is 2.
max-age *seconds*	Maximum aging time of the BPDU message, in the range from 6 to 40 in the unit of seconds. The default is 20.

Defaults This function is disabled by default.

Command Mode Global configuration mode.

Usage Guide The values of **forward-time, hello time** and **max-age** are interrelated. Modifying one of these three parameters will affect the others. There is a restricted relationship among the above three values.

2*(Hello Time+1.0snd) <= Max-Age Time <= 2*(Forward-Delay–1.0snd)

If the values do not according with the condition, the settings do not work.

Configuration Examples

The following example enables the spanning-tree function.

```
Orion Alpha A28X(config)# spanning-tree
```

The following example configures the BridgeForwardDelay.

```
Orion Alpha A28X(config)# spanning-tree  forward-time 10
```

Related Commands

Command	Description
show spanning-tree	Displays the global STP configuration.
spanning-tree mst cost	Sets the PathCost of an STP interface.
spanning-tree tx-hold-count	Sets the global TxHoldCount of STP.

Platform Description

N/A

8.18 spanning-tree autoedge

Use this command to enable Autoedge on the interface. Use the **disabled** form of this command to disable this function.

spanning-tree autoedge [**disabled**]

Parameter Description

Parameter	Description
disabled	Disabled Autoedge on the interface.

Defaults

This function is enabled by default.

Command Mode

Interface configuration mode.

Usage Guide

If the designated port of a device does not receive a BPDU from the downlink port within a specific period (3 seconds), the device regards a network device connected to the designated port, configures the port as an edge port, and switches the port directly into the forwarding state. The edge port will be automatically identified as a non-edge port after receiving a BPDU.

You can run the spanning-tree autoedge disabled command to disable Auto Edge.

Configuration Examples

The following example disables Autoedge on the interface.

```
Orion Alpha A28X(config)# interface gigabitethernet 1/1
Orion Alpha A28X(config-if-interface-id-interface-id)# spanning-tree
autoedge disabled
```

Related Commands

Command	Description
show spanning-tree interface	Displays the STP configuration information of the interface.

Platform Description

N/A

8.19 spanning-tree bpdufilter

Use this command to enable BPDU filter on the interface. You can use the **enabled** or **disabled** option of the command to enable or disable the BPDU filter function on the interface.

spanning-tree bpdufilter [**enabled** | **disabled**]

Parameter Description

Parameter	Description
enabled	Enables BPDU filter on the interface.
disabled	Disables BPDU filter on the interface.

Defaults This function is disabled by default,

Command Mode Interface configuration mode.

Usage Guide If BPDU filter is enabled on a port, the port neither sends nor receives BPDUs.

Configuration Examples The following example enables BPDU filter on interface Gi 1/1.

```
Orion Alpha A28X(config)# interface gigabitethernet 1/1
Orion Alpha A28X(config-if-interface-id-interface-id)# spanning-tree
bpdufilter enable
```

Related Commands

Command	Description
show spanning-tree interface	Displays the STP configuration of the interface.

Platform Description N/A

8.20 spanning-tree bpduguard

Use this command to enable the BPDU guard function on the interface. You can use the **enabled** or **disabled** option of the command to enable or disable the BPDU guard function on the interface.

spanning-tree bpduguard [**enabled** | **disabled**]

Parameter Description

Parameter	Description
enabled	Enables BPDU guard on the interface.
disabled	Disables BPDU guard on the interface.

Defaults This function is disabled by default.

Command Mode Interface configuration mode.

Usage Guide

1. If BPDU guard is enabled on a port, the port enters the error-disabled state after receiving a BPDU.

2. Run command **errdisable recovery** [**interval** *seconds*] to recover the interface in Error-disabled state.

Configuration Examples

The following example enables the BPDU guard function on the interface.

```
Orion Alpha A28X(config)# interface gigabitethernet 1/1
Orion Alpha A28X(config-if-interface-id-interface-id)# spanning-tree bpduguard enable
```

Related Commands

Command	Description
show spanning-tree interface	Displays the STP configuration of the interface.

Platform Description

N/A

8.21 spanning-tree compatible enable

Use this command to send the message selectively carried with MSTI according to the interface attribute of current port to realize interconnection with other vendors. Use the **no** form of this command to restore the default setting.

spanning-tree compatible enable

no spanning-tree compatible enable

Parameter Description

Parameter	Description
N/A	N/A

Defaults

This function is disabled by default. .

Command Mode

Interface configuration mode.

Usage Guide

If the compatibility mode is enabled on a port, this port will add different MSTI information into the to-be-sent BPDU based on the current port to realize interconnection between Orion Alpha A28X devices and other SPs' devices.

Configuration Examples

The following example enables the compatibility mode on interface Gi 0/1.

```
Orion Alpha A28X(config)# interface gigabitethernet 0/1
Orion Alpha A28X(config-if-interface-id-interface-id)#spanning-tree compatible enable
```

Related Commands

Command	Description
N/A	N/A

Platform Description

N/A

8.22 spanning-tree guard loop

Use this command to enable **loop guard** on the interface to prevent the root port or backup port from generating loop since they cannot receive bpdu. Use the **no** form of this command to disable **loop guard**.

spanning-tree guard loop

no spanning-tree guard loop

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is disabled by default.

Command Mode Interface configuration mode.

Usage Guide

1. Enabling loop guard on a root port or backup port will prevent possible loops caused by BPDU receipt failure.
2. The loop guard function and root guard function cannot be enabled at the same time.

Configuration Examples The following example enables **loop guard** on interface Gi 0/1.

```
Orion Alpha A28X(config)# interface gigabitethernet 0/1
Orion Alpha A28X(config-if-interface-id)# spanning-tree guard loop
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

8.23 spanning-tree guard none

Use this command to disable **guard** on the interface. Use the **no** form of this command to enable this function

spanning-tree guard none

no spanning-tree guard none

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is enabled by default.

Command Mode Interface configuration mode.

Usage Guide N/A

Configuration Examples The following example disables **guard** on interface Gi 0/1.

```
Orion Alpha A28X(config)# interface gigabitethernet 0/1
Orion Alpha A28X(config-if-interface-id)# spanning-tree guard none
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

8.24 spanning-tree guard root

Use this command to enable **root guard** on the interface to prevent the change of current root bridge position because of error configuration and illegal packet attack. Use the **no** form of this command to restore the default setting.

spanning-tree guard root

no spanning-tree guard root

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is disabled by default.

Command Mode Interface configuration mode.

Usage Guide

3. If root guard is enabled, the current root bridge will not change due to incorrect configuration or illegal packet attacks.
4. The loop guard function and root guard function cannot be enabled at the same time.

Configuration Examples The following example enables **root guard** on the interface.

```
Orion Alpha A28X(config)# interface gigabitethernet 0/1
Orion Alpha A28X(config-if-interface-id)# spanning-tree guard root
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

8.25 spanning-tree ignore tc

Use this command to enable the tc filtering on the interface. Use the **no** form of this command to

restore the default setting. With tc filtering enabled, the TC packets received on the interface will not be processed.

spanning-tree ignore tc

no spanning-tree ignore tc

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is disabled by default.

Command Mode Interface configuration mode.

Usage Guide If TC filter is enabled on a port, the port does not process received TC packets.

Configuration Examples The following example enables the tc filtering on the interface.

```
Orion Alpha A28X(config)# interface gigabitethernet 0/1
Orion Alpha A28X(config-if-interface-id)# spanning-tree ignore tc
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

8.26 spanning-tree link-type

Use this command to configure the link type of the interface. Use the **no** form of this command to restore the default setting.

spanning-tree link-type [**point-to-point** | **shared**]

no spanning-tree link-type

Parameter Description

Parameter	Description
point-to-point	Sets the link type of the interface to point-to-point.
shared	Forcibly sets the link type of the interface to shared.

Defaults For a full-duplex interface, its link type is set to point-to-point link; for a half-duplex interface, its link type is set to shared.

Command Mode Interface configuration mode.

Usage Guide If the link type of a port is point-to-point connection, RSTP can rapidly converge. If the link type is not configured, the device automatically sets the link type based on the duplex mode of the port.

Configuratio The following example configures the link type of the interface.

n Examples

```
Orion Alpha A28X(config)# interface gigabitethernet 1/1
Orion Alpha A28X(config-if-interface-id)# spanning-tree link-type point-to-point
```

Related Commands

Command	Description
show spanning-tree interface	Displays the STP configuration of the interface.

Platform Description

N/A

8.27 spanning-tree loopguard default

Use this command to enable **loop guard** globally to prevent the root port or backup port from generating loop since they cannot receive bpdu. Use the **no** form of this command to restore the default setting.

spanning-tree loopguard default

no spanning-tree loopguard default

Parameter Description

Parameter	Description
N/A	N/A

Defaults

This function is disabled by default.

Command Mode

Global configuration mode.

Usage Guide

Enabling loop guard on a root port or backup port will prevent possible loops caused by BPDU receipt failure.

Configuration Examples

The following example enables **loop guard** globally to prevent the root port or backup port from generating loop since they cannot receive bpdu.

```
Orion Alpha A28X(config)# spanning-tree loopguard default
```

Related Commands

Command	Description
N/A	N/A

Platform Description

N/A

8.28 spanning-tree max-hops

Use this command to set the maximum number of hops(Max-hopsCount) of the BPDU message in the global configuration mode, the number of hops in a region that the BPDU message passes before being dropped. This parameter takes effect for all instances. Use the **no** form of this

command to restore the default setting.

spanning-tree max-hops *hop-count*

no spanning-tree max-hops

Parameter Description

Parameter	Description
hop-count	Number of hops in a region that the BPDU message passes before being dropped. The range is 1 to 40 hops.

Defaults The default is 20 hops.

Command Mode Global configuration mode.

Usage Guide In the region, the BPDU message sent by the root bridge includes a Hot Count field. When the BPDU message passes a device, the Hop Count is decreased by 1 until it reaches 0, which indicates the BPDU message times out. The device will drop the BPDU message whose Hop Count is 0.

Changing the max-hops command affects all instances.

Configuration Examples This example sets the max-hops of the spanning tree to 10 for all instances.

```
Orion Alpha A28X(config)# spanning-tree  max-hops 10
```

Related Commands

Command	Description
show spanning-tree	Displays the MSTP information.

Platform Description N/A

8.29 spanning-tree mode

Use this command to set the STP version. Use the **no** form of the command to restore the default setting.

spanning-tree mode [**stp** | **rstp** | **mstp**]

no spanning-tree mode

Parameter Description

Parameter	Description
stp	Spanning tree protocol(IEEE 802.1d)
rstp	Rapid spanning tree protocol(IEEE 802.1w)
mstp	Multiple spanning tree protocol(IEEE 802.1s)

Defaults The default is **mstp**.

Command Mode Global configuration mode.

Usage Guide However, some vendors' devices do not work according to 802.1 protocol standards, possibly

causing incompatibility. If other vendors' devices are incompatible with Orion Alpha A28X devices, run this command to switch the STP mode to a lower version.

Configuration Examples

The following example sets the STP version.

```
Orion Alpha A28X(config)# spanning-tree mode stp
```

Related Commands

Command	Description
show spanning-tree	Displays the spanning-tree configuration.

Platform Description

N/A

8.30 spanning-tree mst configuration

Use this command to enter the MST configuration mode in the global configuration mode and configure the MSTP region. Use the **no** form of the command to restore the default setting.

spanning-tree mst configuration

no spanning-tree mst configuration

Parameter Description

Parameter	Description
N/A	N/A

Defaults

Command Mode

Global configuration mode.

Usage Guide

To return to the privileged EXEC mode, enter end or Ctrl+C.

To return to the global configuration mode, enter exit.

After entering the MST configuration mode, you can configure MSTP Region parameters:

Configuration Examples

This example enters the MST configuration mode.

```
Orion Alpha A28X(config)# spanning-tree mst configuration
Orion Alpha A28X(config-mst)# instance 1 vlan  3, 5-10
Orion Alpha A28X(config-mst)# name region 1
Orion Alpha A28X(config-mst)# revision  1
Orion Alpha A28X(config-mst)# show spanning-tree mst configuration
Multi spanning tree protocol : Enable
Name     : region1
Revision : 1Instance  Vlans Mapped
----------  --------------------
0        1-2,4,11-4094
1        3,5-10
-----------------------------------
```

```
Orion Alpha A28X(config-mst)# exit
Orion Alpha A28X(config)#
```

Related Commands

Command	Description
show spanning-tree mst	Displays the MST region configuration.
instance *instance-id* **vlan** *vlan-range*	Adds VLANs to the MST instance.
name	Configures the name of MST.
revision	Configures the version of MST.

Platform Description N/A

8.31 anning-tree mst cost

Use this command to set the path cost of an instance in the interface configuration mode. Use the **no** form of the command to restore the default setting.

spanning-tree [**mst** *instance-id*] **cost** *cost*

no spanning-tree [**mst** *instance-id*] *cost*

Parameter Description

Parameter	Description
instance-id	Instance ID in the range from 0 to 64.
cost	Path cost in the range from 1 to 200,000,000.

Defaults The default instance-id is 0.

The default value is calculated by the link rate of the interface automatically.

1000 Mbps—20000

100 Mbps—200000

10 Mbps—2000000

Command Mode Interface configuration mode.

Usage Guide A higher cost value means a higher path cost.

Configuration Examples This example sets the path cost to 400 on the interface associated with instances 3.

```
Orion Alpha A28X(config)# interface gigabitethernet 1/1
Orion Alpha A28X(config-if)# spanning-tree mst 3 cost 400
```

Related Commands

Command	Description
show spanning-tree mst	Displays the MSTP information of an interface.
spanning-tree mst port-priority	Configures the priority of an interface.
spanning-tree mst priority	Configures the priority of an instance.

Platform N/A

Description

8.32 spanning-tree mst port-priority

Use this command to configure the interface priority for different instances in the interface configuration mode. It will determine which interface of a loop in a region is in charge of forwarding.
Use the **no** form of this command to restore the default setting.
spanning-tree [**mst** *instance-id*] **port-priority** *priority*
no spanning-tree [**mst** *instance-id*] **port-priority**

Parameter Description

Parameter	Description
instance-id	Instance ID, in the range of 0 to 64
priority	Interface priority. Sixteen integers are available: 0, 16, 32, 48, 64, 80, 96, 112, 128, 144, 160, 176, 192, 208, 224, 240, which are the multiples of 16.

Defaults
The default instance-id is 0.
The default priority is 128.

Command Mode
Interface configuration mode.

Usage Guide
When a loop occurs in the region, the interface of the higher priority will be in charge of forwarding. If all interfaces have the same priority value, the interface of the smaller number will be in charge of the forwarding.
Run this command to determine which port in the loop of a region enters the forwarding state.

Configuration Examples
This example sets the priority of **gigabitethernet 1/1** to 10 in instance 20.

```
Orion Alpha A28X(config)# interface gigabitethernet 1/1
Orion Alpha A28X(config-if-interface-id)# spanning-tree mst 20 port-priority 0
```

Related Commands

Command	Description
show spanning-tree mst	Displays the MSTP information of an interface.
spanning-tree mst cost	Sets the path cost.
spanning-tree mst priority	Sets the device priority for different instances.

Platform Description
N/A

8.33 spanning-tree mst priority

Use this command to set the device priority for different instances in the global configuration mode.
Use the **no** form of this command to restore the default setting.
spanning-tree [**mst** *instance-id*] **priority** *priority*

no spanning-tree [**mst** *instance-id*] **priority**

Parameter Description

Parameter	Description
instance-id	Instance ID, in the range of 0 to 64
priority	Device priority. Sixteen integers are available: 0, 4096, 8192, 12288, 16384, 20480, 24576, 28672, 32768, 36864, 40960, 45056, 49152,53248, 57344 and 61440, which are all multiples of 4096.

Defaults

The default instance ID is 0.
The default device priority is 32768.

Command Mode

Global configuration mode.

Usage Guide

Configure the switch priority to determine a device as the root of the entire network and to determine the topology of the entire network.

Configuration Examples

The following example sets the device priority of the Instance to 8192.

```
Orion Alpha A28X(config)# spanning-tree mst 20 priority 8192
```

Related Commands

Command	Description
show spanning-tree mst	Displays the MSTP information of an interface.
spanning-tree mst cost	Sets path cost.
spanning-tree mst port-priority	Sets the port priority of an instance.

Platform Description

N/A

8.34 spanning-tree pathcost method

Use this command to configure the path cost of the port. Use the **no** form of this command to restore the default setting.

spanning-tree pathcost method { { **long** [**standard** } | **short** }

no spanning-tree pathcost method

Parameter Description

Parameter	Description
Long [**standard**]	Adopts the 802.1t standard to configure path cost. The standard indicates that use the expression recommended by the standard to calculate the cost value.
short	Adopts the 802.1d standard to configure path cost.

Defaults

802.1T standard is adopted to set path cost by default.

Command Mode

Global configuration mode.

Usage Guide If the port path cost uses the default value, the device automatically calculates the port path cost based on the port rate.

Configuration Examples The following example configures the path cost of the port.

```
Orion Alpha A28X(config-if)# spanning-tree pathcost method long
```

Related Commands

Command	Description
show spanning-tree interface	Displays the STP configuration of the interface.

Platform Description N/A

8.35 spanning-tree portfast

Use this command to enable the portfast on the interface. Use the disabled form of this command to restore the default setting,

spanning-tree portfast [**disabled**]

Parameter Description

Parameter	Description
disabled	Disables the portfast on the interface.

Defaults This function is disabled by default.

Command Mode Interface configuration mode.

Usage Guide After PortFast is enabled on a port, the port directly enters the forwarding state. However, since the Port Fast Operational State becomes disabled due to receipt of BPDUs, the port can properly run the STP algorithm and enter the forwarding state.

Configuration Examples The following example enables the portfast on the interface.

```
Orion Alpha A28X(config)# interface gigabitethernet 1/1
Orion Alpha A28X(config-if-interface-id)# spanning-tree portfast
```

Related Commands

Command	Description
show spanning-tree interface	Displays the STP configuration of the interface.

Platform Description N/A

8.36 spanning-tree portfast bpdufilter default

Use this command to enable the BPDU filter function globally. You can use the **no** form of the command to restore the default setting.

spanning-tree portfast bpdufilter default
no spanning-tree portfast bpdufilter default

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is disabled by default,

Command Mode Global configuration mode.

Usage Guide Once the BPDU filter is enabled, the BPDU message is neither received nor sent on the Port Fast interface. Use the **show spanning-tree** command to display the configuration.

Configuration Examples The following example enables the BPDU filter function globally.

```
Orion Alpha A28X(config)# spanning-tree portfast bpdufilter default
```

Related Commands

Command	Description
show spanning-tree interface	Displays the global STP configuration.

Platform Description N/A

8.37 spanning-tree portfast bpduguard default

Use this command to enable the BPDU guard globally. Use the **no** form of this command to restore the default setting,
spanning-tree portfast bpduguard default
no spanning-tree portfast bpduguard default

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is disabled by default.

Command Mode Global configuration mode.

Usage Guide Once the BPDU guard is enabled on the interface, it will enter the error-disabled status if the BPDU message arrives at the interface. Use the **show spanning-tree** command to display the configuration.

- The global BPDU guard takes effect only when PortFast is enabled on a port.

Configuration Examples The following example enables the GPDU guard globally.

```
Orion Alpha A28X(config)# spanning-tree portfast bpduguard
default
```

Related Commands

Command	Description
show spanning-tree interface	Displays the global STP configuration.

Platform Description N/A

8.38 spanning-tree portfast default

Use this command to enable the portfast feature on all interfaces globally. Use the **no** form of this command to restore the default setting.

spanning-tree portfast default

no spanning-tree portfast default

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is disabled by default.

Command Mode Global configuration mode.

Usage Guide N/A

Configuration Examples The following example enables the portfast feature on all interfaces globally.

```
Orion Alpha A28X(config)# spanning-tree portfast default
```

Related Commands

Command	Description
show spanning-tree interface	Displays the global STP configuration.

Platform Description N/A

8.39 spanning-tree reset

Use this command to restore the **spanning-tree** configuration to the default setting.

spanning-tree reset

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

Command Global configuration mode.

Mode

Usage Guide The function do not have a **no** command.

Configuration Examples The following example resets STP.

```
Orion Alpha A28X(config)# spanning-tree reset
```

Related Commands

Command	Description
show spanning-tree	Displays the global STP configuration.
show spanning-tree interface	Displays the STP configuration of the interface.

Platform Description N/A

8.40 spanning-tree tc-guard

Use this command to enable **tc-guard** on the interface to prevent the spread of TC messages. Use the **no** form of this command to disable this function on the interface.

spanning-tree tc-guard

no spanning-tree tc-guard

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is disabled by default.

Command Mode Global configuration mode.

Usage Guide Enable TC guard to prevent TC packets from spreading

Configuration Examples The following example enables **tc-guard** on the interface to prevent the spread of TC messages.

```
Orion Alpha A28X(config)# spanning-tree tc-guard
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

8.41 spanning-tree tc-protection

Use this command to enable **tc-protection** globally. Use The **no** form of this command to disable this function.

spanning-tree tc- protection

no spanning-tree tc- protection

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is enabled by default.

Command Mode Global configuration mode.

Usage Guide N/A

Configuration Examples The following example enables **tc-protection** globally.

```
Orion Alpha A28X(config)# spanning-tree tc-protection
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

8.42 spanning-tree tc-protection tc-guard

Use this command to enable tc-guard to prevent TC packets from being flooded. Use the **no** form of this command to restore the default setting.

spanning-tree tc-protection tc-guard

no spanning-tree tc-protection tc-guard

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is disabled by default.

Command Mode Global configuration mode.

Usage Guide Enable TC guard to prevent TC packets from spreading.

Configuration Examples The following example enables tc-guard to prevent TC packets from being flooded.

```
Orion Alpha A28X(config)# spanning-tree tc-protection tc-guard
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

8.43 spanning-tree tx-hold-count

Use this command to configure the TxHoldCount of the STP, the maximum number of the BPDU messages sent in one second. Use the **no** form of this command to restore the default setting.

spanning-tree tx-hold-count *tx-hold-count*

no spanning-tree tx-hold-count

Parameter Description

Parameter	Description
tx-hold-count	Indicates the maximum number of BPDUs sent per second. The value ranges from 1 to 10. The default value is 3.

Defaults The default is 3.

Command Mode Global configuration mode.

Usage Guide N/A

Configuration Examples The following example sets the maximum number of the BPDU messages sent in one second.

```
Orion Alpha A28X(config)# spanning-tree tx-hold-count 5
```

Related Commands

Command	Description
show spanning-tree	Displays the global MSTP configuration.

Platform Description N/A

9 GVRP Commands

9.1 bridge-frame forwarding protocol gvrp

Use this command to enable GVRP PDUs transparent transmission. Use the **no** form of this command to restore the default setting.

bridge-frame forwarding protocol gvrp

no bridge-frame forwarding protocol gvrp

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is disabled by default.

Command mode Global configuration mode

Usage Guide In the IEEE 802.1Q standard, the MAC address 01-80-C2-00-00-21 of GVRP PDUs is reserved for future standardization. In other words, the device following the IEEE 802.1Q standard does not forward GVRP PDUs frames. However, in actual network deployment, GVRP PDUs transparent transmission may be required. For example, the device not enabled with GVRP needs to transmit GVRP PDUs frames transparently to ensure proper GVRP topology calculation.

Configuration Examples The following example enables GVRP PDUs transparent transmission.

```
Orion Alpha A28X(config)# bridge-frame forwarding protocol gvrp
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

9.2 clear gvrp statistic

Use this command to clear the GVRP statistics for re-counting.

clear gvrp statistics { *interface-id* | **all** }

Parameter Description

Parameter	Description
interface-id	Interface id

Defaults N/A

Command Privileged EXEC mode.

mode

Usage Guide Use the **show gvrp statistics** to display the statistics.

Configuration Examples The following example clears GVRP statistics.

```
Orion Alpha A28X# clear gvrp statistics all
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

9.3 gvrp applicant state

Use this command configures the GVRP advertisement mode on the interface.. Use the **no** form of this command to restore default setting.

gvrp applicant state { **normal** | **non-applicant** }

no gvrp applicant state

Parameter Description

Parameter	Description
normal	The interface sends VLAN advertisement.
non-applicant	The interface does not send VLAN advertisement.

Defaults The interface sends GVRP advertisement by default.

Command mode Interface configuration mode.

Usage Guide N/A

Configuration Examples The following example configures the GVRP advertisement mode on the interface.

```
Orion Alpha A28X(config-if)# gvrp applicant state normal
```

Related Commands

Command	Description
show gvrp configuration	Displays the GVRP configurations.

Platform Description N/A

9.4 gvrp dynamic-vlan-creation

Use this command to enable dynamic VLAN creation. Use the **no** form of this command to restore the default setting.

gvrp dynamic-vlan-creation enable
no gvrp dynamic-vlan-creation enable

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is disabled by default.

Command mode Global configuration mode.

Usage Guide Use the **show gvrp configuration** to display the configuration.

Configuration Examples The following example enables dynamic VLAN creation.

```
Orion Alpha A28X(config)# gvrp dynamic-vlan-creation enable
```

Related Commands

Command	Description
show gvrp configuration	Displays the GVRP configurations.

Platform Description N/A

9.5 gvrp enable

Use this command to enable the GVRP function. Use the **no** form of this command to restore the default setting.
gvrp enable
no gvrp enable

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is disabled by default.

Command mode Global configuration mode

Usage Guide This command is used to display the configuration.

Configuration Examples The following example enables the GVRP function.

```
Orion Alpha A28X(config)#gvrp enable
```

Related Commands

Command	Description
show gvrp configuration	Displays the GVRP configurations.

Platform N/A

Description

9.6 gvrp registration mode

Use this command to set the registration mode to control whether to enable dynamic VLAN creation/registration/canceling on the port. Use the **no** form of this command to restore the default setting.

gvrp registration mode { **normal** | **disabled** }

no gvrp registration mode

Parameter Description

Parameter	Description
normal	Enables dynamic VLAN creation/registration/canceling on the port.
disabled	Disables dynamic VLAN creation/registration/canceling on the port.

Defaults Dynamic VLAN creation/registration/canceling is enabled by default,

Command mode Interface configuration mode.

Usage Guide N/A

Configuration Examples The following example sets the registration mode.

```
Orion Alpha A28X(config-if)# gvrp registration mode normal
```

Related Commands

Command	Description
show gvrp configuration	Displays the GVRP configurations.

Platform Description N/A

9.7 gvrp timer

Use this command to set the GVRP timer. Use the **no** form of this command to restore the default setting.

gvrp timer { **join** *timer_value* | **leave** *timer_value* | **leaveall** *timer_value* }

no gvrp timer

Parameter Description

Parameter	Description
join *timer_value*	Controls the maximum delay before sending the advertisement on the port. The actual sending interval is in the range of 0 to the maximum delay.
leave *timer_value*	Controls the waiting time before removing the VLAN from the port with the Leave Message received. If the Join Message is received again within this time range, the port-VLAN relation still exists and

	the timer becomes invalid. If no Join Message is received on the port, the port status will be the Empty and removed from the VLAN member list.
leave all *timer_value*	Controls the minimum interval of sending the LeaveAll Message on the port. If the LeaveAll Message is received before the timer expires, the timer re-counts. If the timer expires, send the LeaveAll Message on the port and also send this Message to the port, so that the Leave timer begins counting. The actual sending interval ranges from leaveall to leaveall+join.

Defaults Join timer: 200 milliseconds;
Leave timer: 600 milliseconds;
Leaveall timer: 10000 milliseconds.

Command mode Global configuration mode

Usage Guide Use the **show gvrp configuration** to display the configuration.
Use the **no gvrp timer** command to restore **join**, **leave** and **leaveall timer** to default settings.

Configuration Examples The following example configures the join timer.

```
Orion Alpha A28X(config)# gvrp timer join 200
```

Related Commands

Command	Description
show gvrp configuration	Displays the GVRP configuration.

Platform Description N/A

9.8 l2protocol-tunnel gvrp

Use this command to enable global GVRP PDUs TUNNEL globally. Use the **no** form of this command to restore the default setting.
l2protocol-tunnel gvrp
no l2protocol-tunnel gvrp

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is disabled by default.

Command mode Global configuration mode

Usage Guide If you want to enable global GVRP PDUs TUNNEL, enable GVRP PDUs TUNNEL on the interface first.

Configuration Examples

The following example enables GVRP PDUs TUNNEL globally.

```
Orion Alpha A28X(config)# l2protocol-tunnel gvrp
Orion Alpha A28X(config)# show l2protocol-tunnel gvrp

L2protocol-tunnel: Gvrp Disable
L2protocol-tunnel destination mac address:01d0.f800.0006
```

Related Commands

Command	Description
N/A	N/A

Platform Description

N/A

9.9 l2protocol-tunnel gvrp enable

Use this command to enable GVRP PDUs TUNNEL on the interface. Use this command to restore the default setting.

l2protocol-tunnel gvrp enable

no l2protocol-tunnel gvrp enable

Parameter Description

Parameter	Description
N/A	N/A

Defaults

This function is disabled by default.

Command mode

Interface configuration mode

Usage Guide

If you want to enable global GVRP PDUs TUNNEL, enable GVRP PDUs TUNNEL on the interface first.

Configuration Examples

The following example enables GVRP PDUs TUNNEL on the interface.

```
Orion Alpha A28X(config-if-interface-id)# l2protocol-tunnel gvrp enable
Orion Alpha A28X(config-if-interface-id)# show l2protocol-tunnel gvrp

L2protocol-tunnel: Gvrp Disable
L2protocol-tunnel destination mac address:01d0.f800.0006
GigabitEthernet 0/1 l2protocol-tunnel gvrp enable
```

Related Commands

Command	Description
N/A	N/A

Platform Description

N/A

9.10 l2protocol-tunnel gvrp tunnel-dmac

Use this command to configure the MAC address for transparent transmission in GVRP PDUs TUNNEL. Use the **no** form of this command to restore the default setting.

l2protocol-tunnel gvrp tunnel-dmac *mac-address*

no l2protocol-tunnel gvrp tunnel-dmac

Parameter Description

Parameter	Description
mac-address	The MAC address for transparent transmission in GVRP PDUs TUNNEL.

Defaults The default is 01d0.f800.0006.

Command mode Global configuration mode

Usage Guide The available MAC address f ranges from 01d0.f800.0006 to 011a.a900.0006.

Configuration Examples The following example configures the MAC address for transparent transmission in GVRP PDUs TUNNEL.

```
Orion Alpha A28X(config)# l2protocol-tunnel gvrp tunnel-dmac
011a.a900.0006
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

9.11 show gvrp configuration

Use this command to display the GVRP configuration.

show gvrp configuration

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

Command mode Privileged EXEC mode.

Usage Guide Use the **show gvrp configuration** to display the configuration.

Configuratio The following example displays GVRP configuration.

n Examples

```
Global GVRP Configuration:
GVRP Feature:enabled
GVRP dynamic VLAN creation:enabled
Join Timers(ms):200
Leave Timers(ms):600
Leaveall Timers(ms):1000
Port based GVRP Configuration:
        PORT               Applicant Status         Registration Mode
----------------------  --------------------     ---------------------
GigabitEthernet 0/2            normal                    normal
```

Field	Description
GVRP Feature	Whether to enable GVRP
GVRP dynamic VLAN creation	Whether to enable dynamic VLAN creation
Join Timers	Join timer
Leave Timers	Leave timer
Leaveall Timers	Leaveall timer
PORT	Port
Applicant Status	Advertisement mode
Registration Mode	Registration mode

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

9.12 show gvrp statistics

Use this command to display the GVRP statistics of one interface or all interfaces.

show gvrp statistics { *interface-id* | **all** }

Parameter Description

Parameter	Description
interface-id	Interface id.

Defaults N/A

Command mode Privileged EXEC mode

Usage Guide Use the **show gvrp statistics** to display the statistics of one interface or all interfaces.

Configuration Examples

```
Orion Alpha A28X# show gvrp statistics gigabitethernet 1/1
Interface       GigabitEthernet 3/1
RecValidGvrpPdu         0
```

```
RecInvalidGvrpPdu       0
RecJoinEmpty    0
RecJoinIn       0
RecEmpty        0
RecLeaveEmpty   0
RecLeaveIn      0
RecLeaveAll     0
SentGvrpPdu     0
SentJoinEmpty   0
SentJoinIn      0
SentEmpty       0
SentLeaveEmpty  0
SentLeaveIn     0
SentLeaveAll    0
JoinIndicated   0
LeaveIndicated  0
JoinPropagated  0
LeavePropagated  0
```

Field	Description
RecValidGvrpPdu	Number of received valid GPDU packets.
RecInvalidGvrpPdu	Number of received unvalid GPDU packets.
RecJoinEmpty/ SentJoinEmpty	Number of received/sent JoinEmpty messages.
RecJoinIn/ SentJoinIn	Number of received/sent JoinIn messages.
RecEmpty/SentEmpty	Number of received/sent Empty messages.
RecLeaveEmpty/SentLeaveEmpty	Number of received/sent LeaveEmpty messages,
RecLeaveIn/ SentLeaveIn	Number of received/sent LeaveIn messages.
RecLeaveAll/SentLeaveAll	Number of received/sent LeaveAll messages.
SentGvrpPdu	Number of sent GPDU messages.
JoinIndicated/ LeaveIndicated	Number of Join/Leave service requests.
JoinPropagated / LeavePropagated	Number of Join/Leave topology update requests.

Related Commands

Command	Description
clear gvrp statistics	Clears the statistics of one interface or all interfaces.

Platform Description N/A

9.13 show gvrp status

Use this command to display all dynamic VLAN ports generated by GVRP and the dynamic VLAN

ports added to the static VLAN.

show gvrp status

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

Command mode Privileged EXEC mode.

Usage Guide Use the **show gvrp status** command to display the GVRP status.

Configuration Examples The following example displays the GVRP status.

```
Orion Alpha A28X# show gvrp status
VLAN 1
Dynamic Ports:
DVLAN 2
Dynamic Ports:
```

Field	Description
VLAN	Static VLAN
DVLAN	Dynamic VLAN
Dynamic Ports	Dynamic ports.

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

9.14 show l2protocol-tunnel gvrp

Use this command to display GVRP PDUs TUNNEL configuration.

show l2protocol-tunnel gvrp

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

Command mode Privileged EXEC mode/Global configuration mode/Interface configuration mode

Usage Guide N/A

Configuration Examples The following example displays GVRP PDUs TUNNEL configuration.

```
Orion Alpha A28X# show l2protocol-tunnel gvrp

L2protocol-tunnel: Gvrp Enable
L2protocol-tunnel destination mac address:011a.a900.0006
GigabitEthernet 0/1 l2protocol-tunnel gvrp enable
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

10 LLDP Commands

10.1 { voice | voice-signaling } vlan

Use this command to configure the LLDP network policy. Use the **no** form of this command to delete the policy.

{ **voice | voice-signaling** } **vlan** { { *vlan-id* [**cos** *cvalue* **| dscp** *dvalue*] } | { **dot1p** [**cos** *cvalue* **| dscp** *dvalue*] } **| none | untagged** }

no { **voice | voice-signaling** } **vlan**

Parameter Description

Parameter	Description
voice	Voice application
voice-signaling	Voice-signaling application
vlan-id	(Optional) VLAN ID of voice flow. The value ranges from 1 to 4094.
cos	(Optional) Class of service
cvalue	(Optional) CoS of the configured voice flow. The value ranges from 0 to 7, and the default value is **5**.
dscp	(Optional) Differentiated services code point
dvalue	(Optional) DSCP value of the configured voice flow. The value ranges from 0 to 63. The default value is 46.
dot1p	(Optional) 802.1p priority tagging. The tag frame includes user_priority and vlan id is 0.
none	(Optional) The network policy is not advertised. VoIP determines the network policy based on its configuration.
untagged	(Optional) The untag frame is sent in the voice vlan in VoIP. In this case, the value of vlan id and cos are ignored.

Defaults N/A

Command Mode LLDP network policy configuration mode

Usage Guide In the LLDP network policy configuration mode, configure the LLDP network policy.

Voice indicates the voice data type, and voice-signaling indicates the voice signal type.

If a device connects to an IP phone and the IP phone supports LLDP-MED, the network policy TLV can be configured to deliver policies to the IP phone, so that the IP phone changes the voice stream tag and QoS.Excluding the preceding policy, the following operations need to be performed on the device:

1. Enable the voice VLAN function and add the port connected to the IP phone to the voice VLAN in static mode.
2. Configure the port connected to the IP phone to a QoS trusted port. (It is recommended to use the trusted DSCP mode.)
3. If 802.1X authentication is enabled on the port at the same time, a security channel needs to be

configured to transmit packets from the voice VLAN.
If the IP phone does not support LLDP-MED, the voice VLAN function must be enabled. In addition, the MAC address of the IP phone needs to be added to the voice VLAN OUI list manually.

For details about how to configure the QoS trusted mode, see chapter "IP QoS." For details about how to configure the voice VLAN, see chapter "Voice VLAN." For details about how to configure the security channel, see chapter "ACL."

Configuration Examples The following example configures the LLDP network policy (profile-num is 1).

```
Orion Alpha A28X#config
Orion Alpha A28X(config)#lldp network-policy profile 1
Orion Alpha A28X(config-lldp-network-policy)# voice vlan untagged
Orion Alpha A28X(config-lldp-network-policy)# voice-signaling vlan 3 cos 4
Orion Alpha A28X(config-lldp-network-policy)# voice-signaling vlan 3 dscp
6
```

Related Commands

Command	Description
show lldp network-policy profile [*profile-num*]	Displays the LLDP network policy.

Platform Description N/A

10.2 civic-location

Use this command to configure a common LLDP address. Use the **no** form of this command to delete the address.

civic-location { **country | state | county | city | division | neighborhood | street-group | leading-street-dir | trailing-street-suffix | street-suffix | number | street-number-suffix | landmark | additional-location-information | name | postal-code | building | unit | floor | room | type-of-place | postal-community-name | post-office-box | additional-code** } *ca-word*

no civic-location { **country | state | county | city | division | neighborhood | street-group | leading-street-dir | trailing-street-suffix | street-suffix | number | street-number-suffix | landmark | additional-location-information | name | postal-code | building | unit | floor | room | type-of-place | postal-community-name | post-office-box | additional-code** } *ca-word*

Parameter Description

Parameter	Description
country	Country code, two bytes. For example, the country code of China is CH.
state	Address information, CA type 1
county	CA type 2
city	CA type 3
division	CA type 4
neighborhood	CA type 5
street-group	CA type 6

leading-street-dir	CA type 16
trailing-street-suffix	CA type 17
street-suffix	CA type 18
number	CA type 19
street-number-suffix	CA type 20
landmark	CA type 21
additional-location-information	CA type 22
name	CA type 23
postal-code	CA type 24
building	CA type 25
unit	CA type 26
floor	CA type 27
room	CA type 28
type-of-place	CA type 29
postal-community-name	CA type 30
post-office-box	CA type 31
additional-code	CA type 32
ca-word	Address information

Defaults N/A

Command Mode LLDP Civic address configuration mode

Usage Guide This command is used to configure a common LLDP address in LLDP Civic address configuration mode.

Configuration Examples The following example configures an LLDP Civic Address (ID: 1).

```
Orion Alpha A28X#config
Orion Alpha A28X(config)# lldp location civic-location identifier 1
Orion Alpha A28X(config-lldp-civic)# country CH
Orion Alpha A28X(config-lldp-civic)# city Fuzhou
```

Related Commands

Command	Description
show lldp location civic-location { **identifier** *id* **| interface** *interface-name* **| static** }	Displays the information about an LLDP Civic address.

Platform Description N/A

10.3 clear lldp statistics

Use this command to clear LLDP statistics.

clear lldp statistics [**interface** *interface-name*]

Parameter

Parameter	Description

Description	*interface-name*	Interface name

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide **interface** parameter: clear the LLDP statistics of the specified interface

Configuration Examples The following example clears LLDP statistics of interface 1.

```
Orion Alpha A28X# clear lldp statistics interface GigabitEthernet 0/1
Orion Alpha A28X# show lldp statistics interface GigabitEthernet 0/1
Lldp statistics information of port [GigabitEthernet 0/1]
------------------------------------------------------------
The number of lldp frames transmitted  : 0
The number of frames discarded    : 0
The number of error frames     : 0
The number of lldp frames received   : 0
The number of TLVs discarded    : 0
The number of TLVs unrecognized    : 0
The number of neighbor information aged out : 0
```

Related Commands	**Command**	**Description**
	N/A	N/A

Platform Description N/A

10.4 clear lldp table

Use this command to clear LLDP neighbor information.

clear lldp table [**interface** *interface-name*]

Parameter Description	**Parameter**	**Description**
	interface-name	Interface name

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide If the **interface** parameter is specified, the LLDP neighbor information on the specified interface is cleared.

If the **interface** parameter is not specified, the LLDP neighbor information on all interfaces is cleared.

Configuration Examples The following example clears the LLDP neighbor information on interface 1.

```
Orion Alpha A28X# show lldp neighbors interface GigabitEthernet 0/1
Lldp statistics information of port [GigabitEthernet 0/1]
```

```
-------------------------------------------------------------
The number of lldp frames transmitted  : 0
The number of frames discarded    : 0
The number of error frames     : 0
The number of lldp frames received   : 0
The number of TLVs discarded    : 0
The number of TLVs unrecognized    : 0
The number of neighbor information aged out : 0
Orion Alpha A28X# clear lldp table interface GigabitEthernet 0/1
Orion Alpha A28X# show lldp neighbors interface GigabitEthernet 0/1
```

Related Commands	Command	Description
	N/A	N/A

Platform Description N/A

10.5 device-type

Use this command to configure the device type. Use the **no** form of this command to restore the default setting.

device-type *device-type*

no device-type

Parameter Description	Parameter	Description
	device-type	Device type. The value ranges from 0 to 2. 0: The device type is DHCP Server. 1: The device type is switch. 2: The device type is LLDP MED terminal.

Defaults

Command Mode LLDP Civic address configuration mode

Usage Guide This command is used to configure the device type in a common LLDP address in LLDP Civic address configuration mode.

Configuration Examples The following example sets the device type to switch.

```
Orion Alpha A28X#config
Orion Alpha A28X(config)# lldp location civic-location identifier 1
Orion Alpha A28X(config-lldp-civic)# device-type 1
```

Related Commands	Command	Description
	show lldp location civic-location { **identifier** *id* | **interface** *interface-name* | **static** }	Displays LLDP Civic Address information.

Platform N/A

Description

10.6 lldp compliance vendor

Use this command to enable detection of compatible neighbors.

lldp compliance vendor

no lldp compliance vendor

Parameter Description	**Parameter**	**Description**
	N/A	N/A

Defaults This function is disabled by default.

Command Mode Global configuration mode

Usage Guide N/A

Configuration Examples The following example enables detection of compatible neighbors.

```
Orion Alpha A28X#configure terminal
Orion Alpha A28X(config)# lldp compliance vendor
```

Related Commands	**Command**	**Description**
	N/A	N/A

Platform Description N/A

10.7 lldp enable

Use this command to enable the LLDP globally or on the interface. Use **no** form of this command to disable this function.

lldp enable

no lldp enable

Parameter Description	**Parameter**	**Description**
	N/A	N/A

Defaults This function is enabled by default.

Command Mode Global (or interface) configuration mode

Usage Guide LLDP takes effect on an interface only when LLDP is enabled globally.

Configuration Examples The following example disables LLDP globally and on the interface.

```
Orion Alpha A28X#config
```

```
Orion Alpha A28X(config)#no lldp enable
Orion Alpha A28X(config)#interface gigabitethernet 0/1
Orion Alpha A28X(config-if)# no lldp enable
```

Related Commands	Command	Description
	show lldp status	Displays LLDP status information.

Platform Description N/A

10.8 lldp encapsulation snap

Use this command to configure the encapsulation format of LLDP packets. Use the **no** form of this command to restore the default setting.

lldp encapsulation snap

no lldp encapsulation snap

Parameter Description	Parameter	Description
	N/A	N/A

Defaults By default, Ethernet II encapsulation format is used.

Command Mode Interface configuration mode.

Usage Guide

- To guarantee the normal communication between local device and neighbor device, the same LLDP packet encapsulation format must be used.

Configuration Examples

```
The following example sets LLDP packet encapsulation format to SNAP.Orion
Alpha A28X#config
Orion Alpha A28X(config)#interface gigabitethernet 0/1
Orion Alpha A28X(config-if)#lldp encapsulation snap
```

Related Commands	Command	Description
	show lldp status	Displays LLDP status information.

Platform Description N/A

10.9 lldp error-detect

Use this command to configure the LLDP error detection, including the detection of VLAN configurations on both sides of the link, port state detection, port aggregation configuration detection, MTU configuration detection and loop detection. If any error is detected by LLDP, warning message will be printed to notify the administrator. Use the **no** form of this command to disable this function.

lldp error-detect

no lldp error-detect

Parameter Description	Parameter	Description
	N/A	N/A

Defaults This function is enabled by default.

Command Mode Interface configuration mode.

Usage Guide LLDP error detection relies on the specific TLV in the LLDP packets exchanged between devices on both sides of the link. To ensure normal functioning of the detection feature, correct TLVs must be advertised.

Configuration Examples The following example configures LLDP error detection.

```
Orion Alpha A28X#config
Orion Alpha A28X(config)#interface gigabitethernet 0/1
Orion Alpha A28X(config-if)#lldp error-detect
```

Related Commands	Command	Description
	show interface status	Displays LLDP status information.

Platform Description N/A

10.10 lldp fast-count

When a new neighbor is detected or when LLDP operating mode changes from shutdown or Rx to TxRx or Tx, to allow the neighbor device to quickly study the information about this device, the fast sending mechanism will be initiated. The fast sending mechanism shortens the LLDPDU sending interval to 1 second and continuously transmits a certain number of LLDPDUs before restoring to the normal transmit interval. Use the **no** form of this command to restore the default setting.

lldp fast-count *value*

no lldp fast-count

Parameter Description	Parameter	Description
	value	The number of fast sent LLDP packets, in the range from 1 to 10.

Defaults The default is 3.

Command Mode Global configuration mode.

Usage Guide N/A

Configuration Examples The following example sets the number of fast sent LLDP packets to 5.

```
Orion Alpha A28X#config
Orion Alpha A28X(config)#lldp fast-count 5
```

Related	Command	Description

Commands	show interface status	Displays LLDP status information.

Platform Description N/A

10.11 lldp hold-multiplier

Use this command to set the TTL multiplier. Use the **no** form of this command to restore to default setting.

lldp hold-multiplier *value*

no lldp hold-multiplier

Parameter Description	Parameter	Description
	value	TTL multiplier, in the range from 2 to 10.

Defaults The default is 4.

Command Mode Global configuration mode.

Usage Guide The value of Time To Live (TLV) in LLDP packet = TTL multiplier × LLDP packet transmit interval + 1. Therefore, the TTL of local device information on the neighbor device can be controlled by adjusting TTL multiplier.

Configuration Examples The following example sets TTL multiplier to 5.

```
Orion Alpha A28X#config
Orion Alpha A28X(config)#lldp hold-multiplier 5
```

Related Commands	Command	Description
	show lldp status	Displays LLDP status information.

Platform Description N/A

10.12 lldp location civic-location identifier

Use this command to create a common address of a device connected to the network in LLDP Civic Address configuration mode. Use the **no** form of this command to delete the address.

lldp location civic-location identifier *id*

no lldp location civic-location identifier *id*

Parameter Description	Parameter	Description
	id	ID of a common address of a network device, in the range from 1 to 1024.

Defaults N/A

Command Mode Global configuration mode

Usage Guide This command can be used to enter the LLDP Civic Address configuration mode.

Configuration Examples The following example creates the Civic Address information in LLDP MED-TLV as follows: set *id* to **1**.

```
Orion Alpha A28X#config
Orion Alpha A28X(config)#lldp location civic-location identifier 1
Orion Alpha A28X(config-lldp-civic)#
```

Related Commands

Command	Description
show lldp location civic-location { **identifier** *id* **| interface** *interface-name* **| static** }	Displays the LLDP Civic Address information.

Platform Description N/A

10.13 lldp location elin identifier

Use this command to set an emergency number encapsulated in a Location Identification TLV. Use the **no** form of this command to delete the number.
lldp location elin identifier *id* **elin-location** *tel-number*
no lldp location elin identifier *id*

Parameter Description

Parameter	Description
id	ID of an emergency number, in the range from 1 to 1024.
tel-number	Emergency number, in the range from 10 to 25 bytes.

Defaults N/A

Command Mode Global configuration mode

Usage Guide This command is used to configure an emergency number.

Configuration Examples The following example sets an emergency number.

```
Orion Alpha A28X#config
Orion Alpha A28X(config)#lldp location elin identifier 1 elin-location
085283671111
```

Related Commands

Command	Description
show lldp location elin-location { **identifier** *id* **| interface** *interface-name* **| static }**	Displays an LLDP emergency number.

Platform Description N/A

10.14 lldp management-address-tlv

Use this command to configure the management address advertised in LLDP packets. Use the **no** form of this command to disable the advertisement of management address.

lldp management-address-tlv [*ip-address*]

no lldp management-address-tlv

Parameter Description

Parameter	Description
ip-address	The management address advertised in LLDP packets.

Defaults N/A

Command Mode Interface configuration mode.

Usage Guide By default, the management address is advertised in LLDP packets, and is the IPv4 address of the lowest-ID VLAN carried on the port. If IPv4 address is not configured for this VLAN, the next lowest-ID VLAN carried on the port will be tried until the IPv4 address is obtained.

If the IPv4 address is still not found, the IPv6 address of the lowest-ID VLAN carried on the port will be tried.

If the IPv6 address is still not found, the MAC address of the device will be advertised as the management address.

Configuration Examples The following example configures the management address advertised in LLDP packets to 192.168.1.1.

```
Orion Alpha A28X#config
Orion Alpha A28X(config)#interface gigabitethernet 0/1
Orion Alpha A28X(config-if)#lldp management-address-tlv 192.168.1.1
```

Related Commands

Command	Description
show lldp local-information	Displays LLDP local information

Platform Description N/A

10.15 lldp mode

Use this command to configure the LLDP operating mode. Use **no** form of this command to restore the default setting.

lldp mode { **rx** | **tx** | **txrx** }

no lldp mode

Parameter Description

Parameter	Description
rx	Only sends LLDPDUs.
tx	Only receives LLDPDUs.
txrx	Sends and receives LLDPDUs.

Defaults The default is **txrx**.

Command Mode Interface configuration mode

Usage Guide Disable LLDP operating mode on the interface. The interface won't send and receive LLDP packets. The precondition for enabling LLDP on the interface is that LLDP has been enabled globally and LLDP operates in tx, rx or txrx mode.

Configuration Examples The following example sets LLDP operating mode to tx on the interface.

```
Orion Alpha A28X#config
Orion Alpha A28X(config)#interface gigabitethernet 0/1
Orion Alpha A28X(config-if)#lldp mode tx
```

Related Commands

Command	Description
show lldp status	Displays LLDP status information

Platform Description N/A

10.16 lldp network-policy profile

Use this command to create an LLDP network policy and enter the LLDP network policy configuration mode. Use the no form of this command to delete the policy.
lldp network-policy profile *profile-num*
no lldp network-policy profile *profile-num*

Parameter Description

Parameter	Description
profile-num	ID of an LLDP network policy, in the range from 1 to 1024.

Defaults N/A

Command Mode Global configuration mode

Usage Guide This command is used to enter the LLDP network policy configuration mode. When this command is run, the policy ID must be specified.
In LLDP network-policy mode, the { **voice** | **voice-signaling** } **vlan** command can be used to configure the specific network policy.

Configuration Examples The following example creates an LLDP network policy whose ID is 1.

```
Orion Alpha A28X#config
Orion Alpha A28X(config)#lldp network-policy profile 1
Orion Alpha A28X(config-lldp-network-policy)#
```

Related Commands

Command	Description
show lldp network-policy profile [*profile-num*]	Displays an LLDP network policy.

Platform Description	N/A

10.17 lldp notification remote-change enable

Use this command to configure LLDP Trap. Use the **no** form of this command to restore the default setting.

lldp notification remote-change enable

no lldp notification remote-change enable

Parameter Description

Parameter	Description
N/A	N/A

Defaults	This function is disabled by default.
Command Mode	Interface configuration mode.
Usage Guide	By configuring LLDP Trap, the LLDP information of local device (such as information about the detection of new neighbor or the fault on the communication link) can be sent to the network management server. The administrator can monitor the network operation status according to such information.
Configuration Examples	The following example configures LLDP Trap.

```
Orion Alpha A28X#config
Orion Alpha A28X(config)#interface gigabitethernet 0/1
Orion Alpha A28X(config-if)#lldp notification remote-change enable
```

Related Commands

Command	Description
show lldp status	Displays LLDP status information.

Platform Description	N/A

10.18 lldp timer notification-interval

Use this command to set an interval of sending LLDP Traps. Use the **no** form of this command to restore the default setting.

lldp timer notification-interval *seconds*

no lldp timer notification-interval

Parameter Description

Parameter	Description
seconds	Interval of sending LLDP Traps, in the range from 5 to 3600 in the unit of seconds.

Defaults	The default is 5.

Command Mode Global configuration mode.

Usage Guide To prevent excessive LLDP traps from being sent, you can set an interval of sending LLDP Traps. If LLDP information change is detected during this interval, traps will be sent to the network management server.

Configuration Examples The following example sets the interval of sending LLDP Traps to 10 seconds.

```
Orion Alpha A28X#config
Orion Alpha A28X(config)#lldp timer notification-interval 10
```

Related Commands

Command	Description
show lldp status	Displays LLDP status information.

Platform Description N/A

10.19 lldp timer reinit-delay

Use this command to set port initialization delay. Use the **no** form of this command to restore he default setting.
lldp timer reinit-delay *seconds*
no lldp timer reinit-delay

Parameter Description

Parameter	Description
seconds	Port initialization delay, in the range from 1 to 10 in the unit of seconds.

Defaults The default is 2.

Command Mode Global configuration mode.

Usage Guide To prevent LLDP from being initialized too frequently due to the frequent operating mode change, you can configure port initialization delay.

Configuration Examples The following example sets LLDP port initialization delay to 3 seconds.

```
Orion Alpha A28X#config
Orion Alpha A28X(config)#lldp timer reinit-delay 3
```

Related Commands

Command	Description
show lldp status	Displays LLDP status information.

Platform Description N/A

10.20 lldp timer tx-delay

Use this command to set LLDP packet transmission delay. Use the **no** form of this command to restore the default setting.

lldp timer tx-delay *seconds*

no lldp timer tx-delay

Parameter Description

Parameter	Description
seconds	LLDP packet transmission delay, in the range from 1 to 8192 in the unit of seconds.

Defaults The default is 2.

Command Mode Global configuration mode.

Usage Guide An LLDP-enabled port will send LLDP packets when the local device information changes. To avoid frequently sending LLDP packets due to the frequent local device information change, configure the LLDP packet transmission delay to control the frequent transmission of LLDP packets.

Configuration Examples The following example sets LLDPDU transmission delay to 3 seconds.

```
Orion Alpha A28X#config
Orion Alpha A28X(config)#lldp timer tx-delay 3
```

Related Commands

Command	Description
show lldp status	Displays LLDP status information.

Platform Description N/A

10.21 lldp timer tx-interval

Use this command to set the interval of sending the LLDP packets. Use **no** form of this command to restore the default setting.

lldp timer tx-interval *seconds*

no lldp timer tx-interval

Parameter Description

Parameter	Description
seconds	Interval of sending the LLDP packets, in the range from 5 to 32768 in the unit of seconds.

Defaults The default is 30.

Command Mode Global configuration mode.

Usage Guide N/A

Configuration Examples

The following example sets the interval of sending the LLDP packets to 10 seconds.

```
Orion Alpha A28X#config
Orion Alpha A28X(config)#lldp timer tx-interval 10
```

Related Commands

Command	Description
show lldp status	Displays LLDP status information.

Platform Description

N/A

10.22 lldp tlv-enable

Use this command to configure the types of advertisable TLVs. Use the **no** form of this command to restore the default setting.

lldp tlv-enable { **basic-tlv** { **all | port-description | system-capability | system-description | system-name** } **| dot1-tlv** { **all | port-vlan-id | protocol-vlan-id** [*vlan-id*] **| vlan-name** [*vlan-id*] } **| dot3-tlv** { **all | link-aggregation | mac-physic | max-frame-size | power** } **| med-tlv** { **all | capability | inventory | location** { **civic-location | elin** } **identifier** *id* **| network-policy profile** [*profile-num*] **| power-over-ethernet** } }

no lldp tlv-enable { **basic-tlv** { **all | port-description | system-capability | system-description | system-name** } **| dot1-tlv** { **all | port-vlan-id | protocol-vlan-id | vlan-name** } **| dot3-tlv** { **all | link-aggregation | mac-physic | max-frame-size | power** } **| med-tlv** { **all | capability | inventory | location** { **civic-location | elin** } **identifier** *id* **| network-policy profile** [*profile-num*] **| power-over-ethernet** } }

Parameter Description

Parameter	Description
basic-tlv	Basic management TLV
port-description	Port Description TLV
system-capability	System Capabilities TLV
system-description	System Description TLV
system-name	System Name TLV
dot1-tlv	802.1 organizationally specific TLV
port-vlan-id	Port VLAN ID TLV
protocol-vlan-id	Port And Protocol VLAN ID TLV
vlan-id	VLAN ID
vlan-name	VLAN Name TLV
vlan-id	VLAN ID corresponding to the specified VLAN name
dot3-tlv	802.3 organizationally specific TLV
link-aggregation	Link Aggregation TLV
mac-physic	MAC/PHY Configuration/Status TLV
max-frame-size	Maximum Frame Size TLV
power	Power Via MDI TLV

med-tlv	LLDP MED TLV
capability	LLDP-MED Capabilities TLV
inventory	Inventory management TLVs, including hardware revision TLVs, firmware revision TLVs, software revision TLVs, serial number TLVs, manufacturer name TLVs, model name TLVs, and asset ID TLVs.
location	Location Identification TLV
civic-location	Common address information about the network device in location identification TLVs.
elin	Encapsulated emergency number
id	Policy ID
network-policy	Network Policy TLV
profile-num	ID of network policy
power-over-ethernet	Extended Power-via-MDI TLV

Defaults By default, all TLVs other than Location Identification TLV can be advertised on the interface for products other than S12000. For the S12000 product series, only basic TLVs and IEEE 802.1 TLVs are advertised. To advertise IEEE 802.3 TLVs and LLDP-MED TLVs, run the **lldp tlv-enable** command.

Command Mode Interface configuration mode

Usage Guide During configuration of basic management TLVs, IEEE 802.1 TLVs, and IEEE 802.3 TLVs, if the **all** parameter is specified, all optional TLVs of the types are advertised.
During configuration of LLDP-MED TLVs, if the **all** parameter is specified, all LLDP-MED TLVs except Location Identification TLVs are advertised.
When configuring LLDP-MED Capability TLVs, configure LLDP-MED MAC/PHY TLVs first. When canceling LLDP-MED MAC/PHY TLVs, cancel LLDP-MED Capability TLVs first.
When configuring LLDP-MED TLVs, configure LLDP-MED Capability TLVs first so that LLDP-MED TLVs of other types can be configured.
To cancel LLDP-MED TLVs, cancel LLDP-MED TLVs of other types first so that LLDP-MED Capability TLVs can be canceled.

Configuration Examples The following example configures all IEEE 802.1 TLVs to be advertised.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)#interface gigabitethernet 0/1
Orion Alpha A28X(config-if-GigabitEthernet 0/1)#lldp tlv-enable dot1-tlv
all
```

The following example applies LLDP network policy 1 on the 0/1 interface.

```
Orion Alpha A28X#config
Orion Alpha A28X(config)#interface gigabitethernet 0/1
Orion Alpha A28X(config-if-GigabitEthernet 0/1)#lldp tlv-enable med-tlv
network-policy profile 1
```

The following example applies the LLDP Civic Address (ID: 1) configuration on the 0/1 interface.

```
Orion Alpha A28X#config
```

```
Orion Alpha A28X(config)#interface gigabitethernet 0/1
Orion Alpha A28X(config-if-GigabitEthernet 0/1)#lldp tlv-enable med-tlv
location civic-location identifier 1
```

The following example applies the emergency number (ID: 1) on the 0/1 interface.

```
Orion Alpha A28X#config
Orion Alpha A28X(config)#interface gigabitethernet 0/1
Orion Alpha A28X(config-if-GigabitEthernet 0/1)#lldp location elin
identifier 1
```

Related Commands

Command	Description
show lldp tlv-config interface	Displays the attributes of advertisable TLVs

Platform Description N/A

10.23 show lldp local-information

Use this command to display the LLDP information of local device. The information will be encapsulated in the TLVs and sent to the neighbor device.

show lldp local-information [**global** | **interface** *interface-name*]

Parameter Description

Parameter	Description
interface-name	Interface name

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide

- **global** parameter: display the global LLDP information to be sent.
- **Interface** parameter: displays the LLDP information to be sent out the interface specified.
- No parameter: display all LLDP information, including global and interface-based LLDP information.

Configuration Examples

The following example displays the device information to be sent to neighbor device.

```
Orion Alpha A28X# show lldp local-information
Global LLDP local-information:
 Chassis ID type     : MAC address
 Chassis id      : 00d0.f822.33aa
 System name       : System name
 System description   : System description
 System capabilities supported  : Repeater, Bridge, Router
 System capabilities enabled  : Repeater, Bridge, Router

 LLDP-MED capabilities    : LLDP-MED Capabilities, Network Policy,
Location Identification, Extended Power via MDI-PD, Inventory
 Device class      : Network Connectivity
 HardwareRev      : 1.0
 FirmwareRev      :
 SoftwareRev      : Orion Alpha A28X 10.4(3) Release(94786)
 SerialNum       : 1234942570001
 Manufacturer name     : Manufacturer name
 Asset tracking identifier   :
-------------------------------------------------------
Lldp local-information of port [GigabitEthernet 0/1]
-------------------------------------------------------
 Port ID type      : Interface name
 Port id       : GigabitEthernet 0/1
 Port description     :

 Management address subtype  : 802 mac address
 Management address    : 00d0.f822.33aa
 Interface numbering subtype  :
 Interface number     : 0
 Object identifier     :


 802.1 organizationally information
 Port VLAN ID      : 1
 Port and protocol VLAN ID(PPVID) : 1
  PPVID Supported    : YES
  PPVID Enabled     : NO
 VLAN name of VLAN 1    : VLAN0001
 Protocol Identity     :


 802.3 organizationally information
 Auto-negotiation supported  : YES
 Auto-negotiation enabled   : YES
```

```
 PMD auto-negotiation advertised : 100BASE-TX full duplex mode, 100BASE-TX
half duplex mode
 Operational MAU type    :
 PoE support      : NO
 Link aggregation supported  : YES
 Link aggregation enabled   : NO
 Aggregation port ID    : 0
 Maximum frame Size    : 1500

 LLDP-MED organizationally information
 Power-via-MDI device type   : PD
 Power-via-MDI power source  : Local
 Power-via-MDI power priority  :
 Power-via-MDI power value   :
 Model name      : Model name
```

show lldp local-information command output description:

Field	Description
Chassis ID type	Chassis ID type for identifying the Chassis ID field
Chassis ID	Used to identify the device, and is generally represented with MAC address
System name	Name of the sending device
System description	Description of the sending device, including hardware/software version, operating system and etc.
System capabilities supported	Capabilities supported by the system
System capabilities enabled	Capabilities currently enabled by the system
LLDP-MED capabilities	LLDP-MED capabilities supported by the system
Device class	MED device class, which is divided into 2 categories: network connectivity device and terminal device. Network connectivity device Class I: normal terminal device Class II: media terminal device; besides Class I capabilities, it also supports media streams. Class III: communication terminal device; it supports all the capabilities of Class I and Class II and IP communication.
HardwareRev	Hardware version
FirmwareRev	Firmware version
SoftwareRev	Software version
SerialNum	Serial number
Manufacturer name	Device manufacturer
Asset tracking identifier	Asset tracking ID
Port ID type	Port ID type
Port ID	Port ID
Port description	Port description

Management address subtype	Management address type
Management address	Management address
Interface numbering subtype	Type of the interface identified by the management address
Interface number	ID of the interface identified by the management address
Object identifier	ID of the object identified by the management address
Port VLAN ID	Port VLAN ID
Port and protocol VLAN ID	Port and Protocol VLAN ID
PPVID Supported	Indicates whether port and protocol VLAN is supported
PPVID Enabled	Indicates whether port and protocol VLAN is enabled
VLAN name of VLAN 1	Name of VLAN 1
Protocol Identity	Protocol identifier
Auto-negotiation supported	Indicates whether auto-negotiation is supported
Auto-negotiation enabled	Indicates whether auto-negotiation is enabled
PMD auto-negotiation advertised	Auto-negotiation advertising capability of the port
Operational MAU type	Speed and duplex state of the port
PoE support	Indicates whether POE is supported
Link aggregation supported	Indicates whether link aggregation is supported
Link aggregation enabled	Indicates whether link aggregation is enabled
Aggregation port ID	ID of the link aggregation port
Maximum frame Size	Maximum frame size supported by the port
Power-via-MDI device type	Device type, including: PSE (power sourcing equipment) PD (powered device)
Power-via-MDI power source	Power source type
Power-via-MDI power priority	Power supply priority
Power-via-MDI power value	Available power on port
Model name	Name of model

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

10.24 show lldp location

Use this command to display the common LLDP address or emergency number of the local device.

show lldp location { **civic-location | elin** } { **identifier** *id* **| interface** *interface-name* **| static** }

Parameter Description

Parameter	Description
civic-location	Encapsulates a common address of a network device.
elin	Encapsulates an emergency number.
identifier	Displays one address or emergency number configured.

id	Policy ID of configured information
interface	Displays the address or emergency number on an interface.
interface-name	Interface name
static	Displays all addresses or emergency numbers configured.

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide If the policy ID is specified, the specified address or emergency number is displayed.
If the interface name is specified, the address or emergency number configured on the interface is displayed.
If no parameter is specified, all addresses or emergency numbers are displayed.

Configuration Examples The following example displays all addresses.

```
Orion Alpha A28X# show lldp location civic-location static
LLDP Civic location information
---------------------------
Identifier     : testt
County      : china
City Division    : 22
Leading street direction : 44
Street number    : 68
Landmark     : 233
Name      : liuy
Building     : 19bui
Floor      : 1
Room      : 33
City      : fuzhou
Country     : 86
Additional location  : aaa
Ports      : Gi0/1
---------------------------
Identifier     : tee
---------------------------
```

The following example displays all emergency numbers.

```
Orion Alpha A28X# show lldp location elin-location static
Elin location information
---------------------------
Identifier : t
Elin  : iiiiiiiiii
Ports      : Gi1/0/3
---------------------------
```

Related Commands	Command	Description
	N/A	N/A

Platform Description N/A

10.25 show lldp neighbors

Use this command to display the LLDP information about a neighboring device.

show lldp neighbors [**interface** *interface-name*] [**detail**]

Parameter Description	Parameter	Description
	interface-name	Interface name
	detail	All information about a neighboring device

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide If the **detail** parameter is not specified, the brief information about a neighboring device is displayed. If the **detail** parameter is specified, the detailed information about a neighboring device is displayed. If the **interface** parameter is specified, the neighboring device information received on the specified interface is displayed.

Configuration Examples The following example displays the neighboring device information received on all ports.

```
Orion Alpha A28X# show lldp neighbors detail
Lldp neighbor-information of port [GigabitEthernet 0/1]
 Neighbor index     : 1
 Device type      : LLDP Device
 Update time      : 1hour 53minutes 30seconds
Aging time       : 5seconds

 Chassis ID type     : MAC address
 Chassis id      : 00d0.f822.33cd
 System name      : System name
 System description    : System description
 System capabilities supported  : Repeater, Bridge, Router
 System capabilities enabled  : Repeater, Bridge, Router

 Management address subtype  : 802 mac address
 Management address    : 00d0.f822.33cd
 Interface numbering subtype  :
 Interface number     : 0
 Object identifier     :
```

```
 LLDP-MED capabilities    :
 Device class      :
 HardwareRev      :
 FirmwareRev      :
 SoftwareRev      :
 SerialNum       :
 Manufacturer name     :
 Asset tracking identifier   :

 Port ID type      : Interface name
 Port id       : GigabitEthernet 0/1
 Port description     :

 802.1 organizationally information
 Port VLAN ID      : 1
 Port and protocol VLAN ID(PPVID) : 1
  PPVID Supported    : YES
  PPVID Enabled     : NO
 VLAN name of VLAN 1    : VLAN0001
 Protocol Identity     :
 802.3 organizationally information
 Auto-negotiation supported  : YES
 Auto-negotiation enabled   : YES
 PMD auto-negotiation advertised : 1000BASE-T full duplex mode, 100BASE-TX
full duplex mode, 100BASE-TX half duplex mode, 10BASE-T full duplex mode,
10BASE-T half duplex mode
 Operational MAU type    : speed(1000)/duplex(Full)
 PoE support      : NO
 Link aggregation supported  : YES
 Link aggregation enabled   : NO
 Aggregation port ID    : 0
 Maximum frame Size    : 1500
 LLDP-MED organizationally information
 Power-via-MDI device type   :
 Power-via-MDI power source  :
 Power-via-MDI power priority  :
Power-via-MDI power value   :
```

Description of fields:

Field	Description
Neighbor index	Neighbor index
Device type	Type of neighboring device
Update time	Latest update time of neighbor information

Aging time	Aging time of a neighbor, namely the time after which a neighbor is aged and deleted
Chassis ID type	Chassis ID type
Chassis ID	Used to identify a device. Usually, a MAC address is used.
System name	Device name
System description	Device description, including hardware/software version and operating system
System capabilities supported	Functions supported by the system
System capabilities enabled	Functions enabled by the system
Management address subtype	Type of management address
Management address	Management address
Interface numbering subtype	Interface type of management address
Interface number	Interface ID of management address
Object identifier	Object ID of management address
Device class	MED device type: network connectivity device and terminal device Network connectivity device: Class I: general terminal device Class II: media terminal device, including capabilities of Class I and supporting media stream Class III: communication terminal device, including capabilities of Class I and Class II and supporting IP communication
HardwareRev	Hardware version
FirmwareRev	Firmware version
SoftwareRev	Software version
SerialNum	Serial number
Manufacturer name	Manufacturer name
Asset tracking identifier	Asset ID
Port ID type	Port ID type
Port ID	Port ID
Port description	Port description
Port VLAN ID	VLAN ID of a port
Port and protocol VLAN ID	Port and protocol VLAN ID
PPVID Supported	Whether port and protocol VLAN is supported
PPVID Enabled	Whether port and protocol VLAN is enabled
VLAN name of VLAN 1	VLAN 1 name
Protocol Identity	Protocol ID
Auto-negotiation supported	Whether auto-negotiation is supported
Auto-negotiation enabled	Whether auto-negotiation is enabled
PMD auto-negotiation advertised	Port auto-negotiation advertisement capability
Operational MAU type	Rate and duplex status of port auto-negotiation
PoE support	Whether POE is supported
Link aggregation supported	Whether link aggregation is supported

Link aggregation enabled	Whether link aggregation is enabled
Aggregation port ID	ID of link aggregation port
Maximum frame Size	Maximum frame length supported by a port
Power-via-MDI device type	Device type, including: ● PSE ● PD
Power-via-MDI power source	Power type
Power-via-MDI power priority	Power supply priority
Power-via-MDI power value	Power value of a port where power is supplied

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

10.26 show lldp network-policy profile

Use this command to display the information about an LLDP network policy.

show lldp network-policy { **profile** [*profile-num*] | **interface** *interface-name* }

Parameter Description

Parameter	Description
profile-num	ID of a network policy, in the range from 1 to 1024.
interface-name	Interface name

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide If *profile-num* is specified, the information about the specified network policy is displayed.

If no parameter is specified, the information about all network policies is displayed.

Configuration Examples

```
The following example displays the information about a network
policy.Orion Alpha A28X# show lldp network-policy profile
network-policy information:
-------------------------
Network Policy Profile 1
   voice vlan 2 cos 4 dscp 6
   voice-signaling vlan 2000 cos 4 dscp 6
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

10.27 show lldp statistics

The following example displays LLDP statistics.

show lldp statistics [**global** | **interface** *interface-name*]

Parameter Description

Parameter	Description
interface-name	Interface name

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide

- **global** parameter: display the global LLDP statistics.
- **Interface** parameter: display the LLDP statistics of the specified interface.

Configuration Examples The following example displays all LLDP statistics.

```
Orion Alpha A28X# show lldp statistics
lldp statistics global Information:
Neighbor information last changed time  : 1hour 52minute 22second
The number of neighbor information inserted : 2
The number of neighbor information deleted : 0
The number of neighbor information dropped : 0
The number of neighbor information age out : 1

------------------------------------------------------------
Lldp statistics information of port [GigabitEthernet 0/1]
------------------------------------------------------------
The number of lldp frames transmitted  : 26
The number of frames discarded    : 0
The number of error frames     : 0
The number of lldp frames received   : 12
The number of TLVs discarded    : 0
The number of TLVs unrecognized    : 0
The number of neighbor information aged out : 0
```

show lldp statistics command output description:

Field	Description
Neighbor information last change time	Time the neighbor information is latest updated
The number of neighbor information inserted	Number of times of adding neighbor information
The number of neighbor information deleted	Number of times of removing neighbor information

The number of neighbor information dropped	Number of times of dropping neighbor information
The number of neighbor information aged out	Number of the neighbor information entries that have aged out
The number of lldp frames transmitted	Total number of the LLDPDUs transmitted
The number of frames discarded	Total number of the LLDPDUs discarded
The number of error frames	Total number of the LLDP error frames received
The number of lldp frames received	Total number of the LLDPDUs received
The number of TLVs discarded	Total number of the LLDP TLVs dropped
The number of TLVs unrecognized	Total number of the LLDP TLVs that cannot be recognized
The number of neighbor information aged out	Number of the neighbor information entries that have aged out

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

10.28 show lldp status

Use this command to display LLDP status information.

show lldp status [**interface** *interface-name*]

Parameter Description

Parameter	Description
interface-name	Interface name

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide **interface** parameter: display the LLDP status information of the specified interface.

Configuration Examples The following example displays LLDP status information of all ports.

```
Orion Alpha A28X# show lldp status
Global status of LLDP     : Enable
Neighbor information last changed time : 1hour 52minute 22second
Transmit interval      : 30s
Hold multiplier      : 4
Reinit delay       : 2s
Transmit delay       : 2s
Notification interval     : 5s
Fast start counts      : 3
```

```
------------------------------------------------------------
Port [GigabitEthernet 0/1]
------------------------------------------------------------
Port status of LLDP    : Enable
Port state      : UP
Port encapsulation    : Ethernet II
Operational mode    : RxAndTx
Notification enable    : NO
Error detect enable    : YES
Number of neighbors    : 1
Number of MED neighbors   : 0
```

show lldp status command output description:

Field	Description
Global status of LLDP	Whether LLDP is globally enabled
Neighbor information last changed time	Time the neighbor information is latest updated
Transmit interval	LLDPDU transmit interval
Hold multiplier	TTL multiplier
Reinit delay	Port re-initialization delay
Transmit delay	LLDPDU transmit delay
Notification interval	Interval for sending LLDP Traps
Fast start counts	The number of fast sent LLDPDUs
Port status of LLDP	Whether LLDP is enabled on the port
Port state	Link status of port: UP or DOWN
Port encapsulation	LLDPDU encapsulation format
Operational mode	Operating mode of LLDP
Notification enable	Whether LLDP Trap is enabled on the port
Error detect enable	Whether error detection is enabled on the port
Number of neighbors	Number of neighbors
Number of MED neighbors	Number of MED neighbors

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

10.29 show lldp tlv-config

Use this command to display the advertisable TLV configuration of a port.

show lldp tlv-config [**interface** *interface-name*]

Parameter

Parameter	Description

Description		
	interface-name	Interface name

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide **Interface** parameter: display the LLDP TLV configuration of the specified interface.

Configuration Examples The following example displays TLV information of port 1.

```
Orion Alpha A28X# show lldp tlv-config interface GigabitEthernet 0/1
LLDP tlv-config of port [GigabitEthernet 0/1]
-----------------------------------------------------
    NAME    STATUS DEFAULT
-------------------------------- ------ -----------
Basic optional TLV:
Port Description TLV    YES YES
System Name TLV     YES YES
System Description TLV   YES YES
System Capabilities TLV   YES YES
Management Address TLV   YES YES

IEEE 802.1 extend TLV:
Port VLAN ID TLV     YES YES
Port And Protocol VLAN ID TLV  YES YES
VLAN Name TLV      YES YES

IEEE 802.3 extend TLV:
MAC-Physic TLV     YES YES
Power via MDI TLV     YES YES
Link Aggregation TLV    YES YES
Maximum Frame Size TLV   YES YES

LLDP-MED extend TLV:
Capabilities TLV     YES YES
Network Policy TLV    YES YES
Location Identification TLV  NO  NO
Extended Power via MDI TLV  YES YES
Inventory TLV      YES YES
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

11 QinQ Commands

11.1 dot1q new-outer-vlan *new-vid* translate old-outer-vlan *vid* inner-vlan *v-list*

Use this command to modify the policy list of outer vid based on the inner Tag VID and outer Tag VID on the access, trunk, hybrid, uplink port. Use the **no** form of this command to restore the default setting.

dot1q new-outer-vlan *new-vid* **translate old-outer-vlan** *vid* **inner-vlan** *v_list*

no dot1q new-outer-vlan *new-vid* **translate old-outer-vlan** *vid* **inner-vlan** *v_list*

Parameter Description

Parameter	Description
new-vid	Vid list of the
vid	Vid of outer tag.
no	Removes the setting.

Defaults The policy list is null by default.

Command Mode Interface configuration mode.

Usage Guide N/A.

Configuration Examples The following example modifies the vid to 3888 when the input packets inner tag vid.

```
Orion Alpha A28X(config)# vlan 1888, 3888
Orion Alpha A28X(config)# interface gigabitEthernet 0/1
Orion Alpha A28X(config-if)# switchport mode trunk
Orion Alpha A28X(config-if)# dot1q new-outer-vlan 3888 translate old-outer-vlan 1888 inner-vlan 2001-3000
Orion Alpha A28X(config-if)# end
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

11.2 dot1q outer-vid vid register inner-vid v-list

Use this command to configure the add policy list of outer vid based on protocol on tunnel port. Use the **no** or **default** form of this command to restore the default setting.

dot1q outer-vid *vid* **register inner-vid** *v_list*

no dot1q outer-vid *vid* **register inner-vid** *v_list*

Parameter Description

Parameter	Description
v_list	Inner vlan id list
vid	Outer vlan id list

Defaults The policy list is null by default.

Command Mode Interface configuration mode.

Usage Guide N/A

Configuration Examples The following example specifies vid in the tag of input message as 4-22 and setss the vid to 3.

```
Orion Alpha A28X#configure
Orion Alpha A28X(config)#interface gigabitEthernet 0/1
Orion Alpha A28X(config-if)#switchport mode dot1q-tunnel
Orion Alpha A28X(config-if)#dot1q outer-vid 3 register inner-vid 4-22
Orion Alpha A28X(config-if)#end
```

Related Commands

Command	Description
show registration-table [**interface** *intf-id*]	N/A

Platform Description N/A

11.3 dot1q relay-vid vid translate local-vid v-list

Use this command to configure the modify policy list of outer vid based on protocol on access, trunk, hybrid port. Use the **no** or **default** form of this command to restore the default setting.
dot1q relay-vid *vid* **translate local-vid** *v-list*
no dot1q relay-vid *vid* **translate local-vid** *v-list*
default dot1q relay-vid *vid* **translate local-vid** *v-list*

Parameter Description

Parameter	Description
v_list	Outer vlan list of input message
vid	Modified outer vlan id list
no	Removes the settings.

Defaults The policy list is null by default.

Command Mode Interface configuration mode.

Usage Guide N/A

Configuration Examples The following example specifies vid in the outer tag of input message as 10-20 and sets the vid to 100.

```
Orion Alpha A28X(config)# interface gigabitEthernet 0/1
Orion Alpha A28X(config-if)# switchport mode access
Orion Alpha A28X(config-if)# dot1q relay-vid 100 translate local-vid 10-20
Orion Alpha A28X(config-if)# end
```

Related Commands

Command	Description
show translation-table [interface *intf-id*]	N/A

Platform Description N/A

11.4 dot1q relay-vid vid translate inner-vid v-list

Use this command to configure the modify policy list of outer vid based on protocol on access, trunk, hybrid port. Use the **no** or **default** form of this command to restore the default setting.
dot1q relay-vid *vid* **translate inner-vid** *v-list*
no dot1q relay-vid *vid* **translate inner-vid** *v-list*
default dot1q relay-vid *vid* **translate inner-vid** *v-list*

Parameter Description

Parameter	Description
v_list	Outer vlan list of input message
vid	Modified outer vlan id list

Defaults The policy list is null by default.

Command Mode Interface configuration mode.

Usage Guide N/A

Configuration Examples The following example configures vid in the outer tag of input message as 10-20 and sets the vid to 100.

```
Orion Alpha A28X(config)# interface gigabitEthernet 0/1
Orion Alpha A28X(config-if)# switchport mode access
Orion Alpha A28X(config-if)# dot1q relay-vid 100 translate inner-vid 10-20
Orion Alpha A28X(config-if)# end
```

Related Commands

Command	Description
show translation-table [interface *intf-id*]	N/A

Platform Description N/A

11.5 dot1q-tunnel cos inner-cos-value remark-cos outer-cos-value

Use this command to map the priority from the outer tag to the inner tag for the packets on the interface. Use the **no** form of this command to restore the default setting.

dot1q-tunnel cos inner-cos-value remark-cos outer-cos-value

no dot1q-tunnel cos inner-cos-value remark-cos outer-cos-value

default dot1q-Tunnel cos *inner-cos-value* **remark-cos** *outer-cos-value*

Parameter Description

Parameter	Description
inner-cos-value	Indicates the CoS value of the inner tag.
outer-cos-value	Indicates the CoS value of the outer tag.
no	Cancels the priority mapping of the packets on the interface.

Defaults The policy list is null by default.

Command Mode Interface configuration mode.

Usage Guide If the QoS policy based on the COS value is set for the service provider's network to which a user network connects, the COS value of the outer tag can be set to different values based on the data packet importance. In this case, important services can be preferentially processed and transmitted.

Configuration Examples The following example configures the priority mapping from the outer tag to the inner tag.

```
Orion Alpha A28X# configure
Orion Alpha A28X(config)# interface gigabitEthernet 0/2
Orion Alpha A28X(config-if)# dot1q-tunnel cos 3 remark-cos 5
Orion Alpha A28X(config-if)# end
```

Related Commands

Command	Description
show interface intf-name remark	N/A

Platform Description N/A

11.6 frame-tag tpid

Use this command to set the packet TPID compatible with the manufacturer TPID. Use the **no** or **default** form of this command to restore the default setting.

frame-tag tpid *tpid*

no frame-tag tpid

default frame-tag tpid

Parameter Description

Parameter	Description
tpid	Packet TPID.

Defaults The default is 0x8100.

Command Mode Interface configuration mode.

Usage Guide If the TPID value of the connected third-party device is not 0x8100 (default value) defined in IEEE802.1Q, the TPID value on the egress used to connect to the third-party device is the TPID value of the third-party device.

Configuration Examples The following example sets the packet TPID compatible with the manufacturer TPID.

```
Orion Alpha A28X(config)# interface g0/3
Orion Alpha A28X(config-if)# frame-tag tpid 0x9100
Orion Alpha A28X(config-if)# end
Orion Alpha A28X# show frame-tag tpid
Port     tpid
------  ---------
Gi0/3     0x9100
```

Related Commands

Command	Description
show frame-tag tpid	N/A

Platform Description N/A

11.7 inner-priority-trust enable

Use this command to copy the priority of the inner tag to the outer tag of the packets on the interface. Use the **no** or **default** form of this command to restore the default setting.
inner-priority-trust enable
no inner-priority-trust enable
default inner-priority-trust enable

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is disabled by default.

Command Mode Interface configuration mode.

Usage Guide If the QoS policy is configured based on the COS value of the user's VLAN tag for the service provider's network to which a user network connects, the user's VLAN tag priority can be copied to the outer VLAN tag, so that the user's packets are encapsulated with the outer VLAN tag and have the same priority as the user's VLAN tag. In this case, the user's packets can be preferentially processed and transmitted on the service provider's network.

Configuration Examples The following example copies the priority of the inner tag to the outer tag of the packets on the interface.

```
Orion Alpha A28X#configure terminal
Orion Alpha A28X(config)# interface gigabitEthernet 0/2
Orion Alpha A28X(config-if)# inner-priority-trust enable
Orion Alpha A28X(config-if)#end
```

Related Commands

Command	Description
show inner-priority-trust	N/A

Platform Description N/A

11.8 l2protocol-tunnel

Use this command to set the dot1q-tunnel port to receive L2 protocol message. Use the **no** or **default** form of this command to disable this function.

l2protocol-tunnel { **stp | gvrp** }

no l2protocol-tunnel { **stp | gvrp** }

default l2protocol-tunnel { **stp** | **gvrp** }

Parameter Description

Parameter	Description
stp	Receives stp message.
gvrp	Receives gvrp message.

Defaults N/A

Command Mode Global configuration mode.

Usage Guide If the STP and GVRP packets need to be transparently transmitted, this function must be enabled in global configuration mode.

Configuration Examples The following example enables the function of receiving L2 protocol gvrp and stp.

```
Orion Alpha A28X#configure
Orion Alpha A28X(config)# l2protocol-tunnel stp
Orion Alpha A28X(config)# l2protocol-tunnel gvrp
Orion Alpha A28X(config)#end
```

Related Commands

Command	Description
show l2protocol-tunnel { gvrp | stp }	N/A

Platform Description N/A

11.9 l2protocol-tunnel enable

Use this command to enable transparent transmission of L2 protocol message. Use the **no** or **default** form of this command to restore the default setting.

l2protocol-tunnel { **stp | gvrp** } **enable**

no l2protocol-tunnel { **stp | gvrp** } **enable**

Parameter Description

Parameter	Description
stp	Transparently transmits stp message.
gvrp	Transparently transmits gvrp message.

Defaults It is disabled by default.

Command Mode Intereface configuration mode.

Usage Guide If this function is enabled in global and interface configuration modes, STP packets can be transparently transmitted after the bridge-frame forwarding protocol bpdu command is enabled in global configuration mode.

Configuration Examples Here is an example of enabling transparent transmission of L2 protocol message :

```
Orion Alpha A28X#configure
Orion Alpha A28X(config)# interface fa 0/1
Orion Alpha A28X(config-if)# l2protocol-tunnel gvrp enable
Orion Alpha A28X(config-if)#end
```

Related Commands

Command	Description
show l2protocol-tunnel { gvrp | stp }	N/A

Platform Description N/A

11.10 l2protocol-tunnel tunnel-dmac

Use this command to set the MAC address for the transparent transmission of the corresponding protocol messages. Use the **no** or **default** form of this command to restore the default setting.

l2protocol-tunnel { **stp|gvrp** } **tunnel-dmac** *mac-address*

no l2protocol-tunnel { **stp|gvrp** } **tunnel-dmac** *mac-address*

default l2protocol-tunnel { **stp** | **gvrp** } **tunnel-dmac** *mac-address*

Parameter Description

Parameter	Description
stp	Sets the STP transparent transmission address.
gvrp	Sets the GVRP transparent transmission address.

Defaults The first three bytes of the address are 01d0f8 and the last three bytes are 000005 for **stp** and 000006 for **gvrp** by default.

Command Mode Global configuration mode.

Usage Guide N/A

Configuration Examples The following example sets the MAC address for the L2-protocol transparent transmission function:

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config-if)# l2protocol-tunnel gvrp tunnel-dmac 011AA9
000005
Orion Alpha A28X(config-if)#end
```

Related Commands

Command	Description
show l2protocol-tunnel { gvrp | stp }	N/A

Platform Description N/A

11.11 show dot1q-tunnel

Use this command to display whether dot1q-tunnel of interface is enabled or not.

show dot1q-tunnel [**interface** *intf-id*]

Parameter Description

Parameter	Description
intf-id	The specified interface.

Defaults N/A

Command Mode Any mode

Usage Guide N/A

Configuration Examples The following example displays whether dot1q-tunnel of interface is enabled or not.

```
Orion Alpha A28X# show dot1q-tunnel
Ports   Dot1q-tunnel
-----   ---------
Gi0/1    Enable
```

Related Commands

Command	Description
N/A	N/A

Platform Description

11.12 show frame-tag tpid

Use this command to display the configuration of interface tpid.

show frame-tag tpid [**interface <***intf-id***>**]

Parameter Description

Parameter	Description
intf-id	Specifies the interface.

Defaults N/A

Command Mode Any mode

Usage Guide N/A

Configuration Examples The following example displays the configuration of interface tpid.

```
Orion Alpha A28X# show frame-tag tpid
Ports     tpid
-----  ---------
Gi0/1    0x9100
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

11.13 show inner-priority-trust

Use this command to display whether the priority copy function is enabled.

show inner-priority-trust

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

Command Mode Any mode

Usage Guide N/A

Configuration Examples The following example displays whether the priority copy function is enabled.

```
Orion Alpha A28X# show inner-priority-trust
Port    inner-priority-trust
```

```
----    ----------
Gi0/1    enable
```

Related Commands

Command	Description
N/A	N/A

Platform Description

11.14 show interfaces dot1q-tunnel

Use this command to display the VLAN configuration on the dot1q-tunnel port.

show interfaces [*intf-Id*] **dot1q-tunnel**

Parameter Description

Parameter	Description
intf-id	Specifies the interface.

Defaults N/A

Command Mode Any mode

Usage Guide N/A

Configuration Examples The following example displays the VLAN configuration on the dot1q-tunnel port.

```
Orion Alpha A28X# show interfaces dot1q-tunnel
Interface: Gi0/3
Native vlan: 10
Allowed vlan list: 4-6, 10, 30-60
Tagged vlan list: 4, 6, 30-60
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

11.15 show interfaces mac-address-mapping

Use this command to display the MAC address mapping configuration.

show interfaces mac-address-mapping

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

Command Mode Any mode

Usage Guide N/A

Configuration Examples The following example displays the MAC address mapping configuration.

```
Orion Alpha A28X# show interfaces mac-address-mapping
Ports        Status     Index      Destination-VID Source-VID-list
------------ ---------- ---------- --------------- ------------------
Gi0/1        active     2          3               2
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

11.16 show interfaces remark

Use this command to display the priority mapping configuration.

show interfaces [*intf-id*] **remark**

Parameter Description

Parameter	Description
intf-id	specifies an interface

Defaults N/A

Command Mode Any mode

Usage Guide N/A

Configuration Examples The following example displays the priority mapping configuration.

```
Orion Alpha A28X# show interfaces remark
Ports          Type         From value  To value
------------ ----------- ----------- --------
Gi0/1          Cos-To-Cos  3             5
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

11.17 show interfaces vlan-mapping

Use this command to display the VLAN mapping configuration.

show interfaces vlan-mapping

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

Command Mode Any mode

Usage Guide N/A

Configuration Examples The following example displays the VLAN mapping configuration.

```
Orion Alpha A28X# show interfaces vlan-mapping
Ports          Type    Status Destination-VID  Source-VID-list
------------  ------  -----  ---------------- ---------------
Gi0/1          in         active         5                  3
Gi0/1          out        active         3                  5
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

11.18 show l2protocol-tunnel

Use this command to display transparent transmission configuration of L2 protocol.

show l2protocol-tunnel { **gvrp** | **stp** }

Parameter Description

Parameter	Description
gvrp	Displays configuration of transparently transmitting gvrp protocol.
stp	Displays configuration of transparently transmitting stp protocol.

Defaults N/A

Command Mode Any mode

Usage Guide N/A

Configuratio The following example displays transparent transmission configuration of L2 protocol.

n Examples

```
Orion Alpha A28X# show l2protocol-tunnel stp
L2protocol-tunnel: Stp Enable
Orion Alpha A28X# show l2protocol-tunnel gvrp
L2protocol-tunnel: gvrp Disable
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

11.19 show registration-table

Use this command to display vid add policy list of prorocol-based dot1q-tunnel port.

show registration-table [**interface** *intf-id*]

Parameter Description

Parameter	Description
intf-id	Specifies the interface.

Defaults N/A

Command Mode Any mode

Usage Guide N/A

Configuration Examples The following example displays vid add policy list of prorocol-based dot1q-tunnel port.

```
Orion Alpha A28X# show registration-table
Ports       Type    Outer-VID  Inner-VID-list
---------   ------  ------- ------------------
Gi0/7          Add-outer  5            7-10,15,20-30
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

11.20 show traffic-redirect

Use this command to display flow-based vid change or add policy list.

show traffic-redirect [**interface** *intf-id*]

Parameter

Parameter	Description

Description

intf-id	Specifies the interface.

Defaults N/A

Command Mode Any mode

Usage Guide N/A

Configuration Examples The following example displays flow-based vid change or add policy list.

```
Orion Alpha A28X# show traffic-redirect
Ports            Type            VID   Match-filter
------------ ----------- ---- ------------
Gi0/3          Mod-outer    23   11
Gi0/3          Mod-outer    3    4
Gi0/3          Mod-outer    6    5
Gi0/3          Mod-inner    8    inner-to-8
Gi0/6          Mod-inner    9    100
Gi0/7          Nested-vid   13   nest-13
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

11.21 show translation-table

Use this command to display vid modify policy list of prorocol-based access, trunk, hybrid port.

show translation-table [**interface** *intf-id*]

Parameter Description

Parameter	Description
intf-id	Specifies the interface.

Defaults N/A

Command Mode Any mode

Usage Guide N/A

Configuration Examples The following example displays vid modify policy list of prorocol-based access, trunk, hybrid port.

```
Orion Alpha A28X# show translation-table
Ports        Type       Relay-VID  Old-local  Local\inner-VID-list
------------ ---------- ---------- ---------- ------------------
Gi0/7        Inner-CVID 8          N/A        10-20
```

```
Gi0/7        Local-SVID 1001       N/A        30-60
Gi0/7        In+Out     8          20         50
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

11.22 switchport dot1q-tunnel allowed vlan

Use this command to configure the allowed VLAN of dot1q-tunnel. Use the **no** or **default** form of this command to restore the default setting.

switchport dot1q-tunnel allowed vlan { [**add**] **tagged** *vlist* | [**add**] **untagged** *vlist* | **remove** *vlist* }

no switchport dot1q-tunnel allowed vlan

default switchport dot1q-tunnel allowed vlan

Parameter Description

Parameter	Description
add	Add allowed VLAN.
tagged	Tag-carried.
untagged	Not tag-carried.
v_list	vlan id list.
no	Remove the settings.

Defaults The default is **untagged** 1.

Command Mode Interface configuration mode.

Usage Guide N/A

Configuration Examples The following example specifies vlan 3-6 of dot1q-tunnel port as allowed VLAN and outputting the frame with tag.

```
Orion Alpha A28X(config)#interface gigabitEthernet 0/1
Orion Alpha A28X(config-if)#switchport dot1q-tunnel allowed vlan tagged 3-
6
Orion Alpha A28X(config)#end
```

Related Commands

Command	Description
show interface dot1q-tunnel	N/A

Platform Description N/A

11.23 switchport dot1q-tunnel native vlan

Use this command to configure the default vlan id of dot1q-tunnel. Use the **no** or **default** form of this command to restore the default setting.

switchport dot1q-tunnel native vlan *vid*

no switchport dot1q-tunnel native vlan

default switchport dot1q-tunnel native vlan

Parameter Description

Parameter	Description
vid	Configures default vlan id.

Defaults The default is VLAN 1.

Command Mode Interface configuration mode.

Usage Guide N/A

Configuration Examples The following example specifies default VLAN of dot1q-tunnel port as 8.

```
Orion Alpha A28X(config)#interface gigabitEthernet 0/1
Orion Alpha A28X(config-if)#switchport dot1q-tunnel native vlan 8
Orion Alpha A28X(config)#end
```

Related Commands

Command	Description
show interface dot1q-tunnel	N/A

Platform Description N/A

11.24 switchport mode dot1q-tunnel

Use this command to configure the interface as the dot1q-tunnel interface. Use the **no** or **default** form of this command to restore the default setting.

switchport mode dot1q-tunnel

no switchport mode

default switchport mode

Parameter Description

Parameter	Description
N/A	N/A

Defaults The interface is not a tunnel port by default.

Command Mode Interface configuration mode.

Usage Guide N/A

Configuration Examples The following example configures the interface as the dot1q-tunnel interface.

```
Orion Alpha A28X(config)# interface gigabitEthernet 0/1
Orion Alpha A28X(config-if)# switchport mode dot1q-tunnel
Orion Alpha A28X(config)# end
```

Related Commands

Command	Description
show vlan	N/A

Platform Description N/A

11.25 vlan-mapping-out vlan src-vlan remark dest-vlan

Use this command to configure the policy list of the one-to-one VLAN mapping in the outgoing direction on the acess, trunk, hybrid, uplink port. Use the **no** or **default** form of this command to restore the default setting.

vlan-mapping-out vlan *src-vlan* **remark** *dest-vlan*

no vlan-mapping-out vlan *src-vlan* **remark** *dest-vlan*

default vlan-mapping-out vlan *src-vlan* **remark** *dest-vlan*

Parameter Description

Parameter	Description
src-vlan	Vid of the input packets
dest-vlan	The modified vid
no	Removes the settings.

Defaults The policy list is null by default.

Command Mode Interface configuration mode.

Usage Guide N/A

Configuration Examples The following example specifies the vid of the incoming messages whose vid in the tag is 3 as 4 and forwards it.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# vlan range 3-4
Orion Alpha A28X(config-vlan-range)# exit
Orion Alpha A28X(config)# interface gigabitEthernet 0/1
Orion Alpha A28X(config-if)# switchport mode trunk
Orion Alpha A28X(config-if)# vlan-mapping-out vlan 3 remark 4
Orion Alpha A28X(config-if)# end
```

Related Commands

Command	Description

show interface [*intf-id*] vlan-mapping	N/A

Platform Description N/A

12 ERPS Commands

12.1 associate sub-ring

Use this command to associate the ethernet ring with its sub-rings.

associate sub-ring raps-vlan *vlan-list*

no associate sub-ring raps-vlan *vlan-list*

Parameter Description

Parameter	Description
vlan-list	Sub-rings' R-APS VLAN.

Defaults By default, Ethernet ring is not associated with its sub-rings.

Command Mode ERPS configuration mode.

Usage Guide You need to configure this command on all nodes of the Ethernet ring, so as to transmit its sub-ring's ERPS protocol packets in the Ethernet ring.

Configuring the association is mainly to make the sub-ring's protocol packets transmit in the Ethernet ring. Users can also adopt the configuration command provided by the VLAN module to configure elaborately the VLAN and the relation between ports and VLAN, so as to transmit the sub-ring's protocol packets in other Ethernet rings and not leak the packets to the user network.

Configuration Examples The following example associates the Ethernet sub-ring with other Ethernet rings:

#Enter the privileged EXEC mode

```
Orion Alpha A28X# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
```

Configure the link mode of the Ethernet ring port and the default VLAN.

```
Orion Alpha A28X(config)# interface fastEthernet 0/1
Orion Alpha A28X(config-if)# switchport mode trunk
Orion Alpha A28X(config-if)# exit
Orion Alpha A28X(config)# interface fastEthernet 0/2
Orion Alpha A28X(config-if)# switchport mode trunk
Orion Alpha A28X(config-if)# exit
```

Enter the erps configuration mode.

```
Orion Alpha A28X(config)# erps raps-vlan 4093
```

#Add the ports that participate in the ERPS protocol computing to the Ethernet ring.

```
Orion Alpha A28X(config-erps4093)#  ring-port west fastEthernet 0/1 east
fastEthernet 0/2
```

Configure the Ethernet subring

```
Orion Alpha A28X(config)# erps raps-vlan 100
Orion Alpha A28X(config)# interface fastEthernet 0/3
Orion Alpha A28X(config-if)# switchport mode trunk
Orion Alpha A28X(config-if)# exit
Orion Alpha A28X(config)# erps raps-vlan 100
Orion Alpha A28X(config-erps100)#  ring-port west fastEthernet 0/3 east
virtual-channel
Orion Alpha A28X(config-if)# exit
```

Associate the subring with other Ethernet rings.

```
Orion Alpha A28X(config)# erps raps-vlan 4093
Orion Alpha A28X(config-erps4093)#  associate sub-ring raps-vlan 100
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

12.2 erps enable

Use this command to enable/disable the ERPS function in the global configuration mode.

erps enable

no erps enable

Parameter Description

Parameter	Description
N/A	N/A

Defaults Disabled

Command Mode Global configuration mode.

Usage Guide The ERPS protocol of the specified ring will begin running truly only after the global ERPS protocol and the ERPS protocol of the specified ring are both enabled.

Configuration Examples The following example enables the ERPS protocol globally:

Enter the privileged EXEC mode

```
Orion Alpha A28X# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
```

Enable the ERPS function globally.

```
Orion Alpha A28X(config)# erps enable
```

Enter the ERPS configuration mode
```
Orion Alpha A28X(config)# erps raps-vlan 4093
```

Enable the ERPS function for the specified ring.
```
Orion Alpha A28X(config-erps4093)#  state enable
```

Related Commands

Command	Description
state enable	After entering the ERPS configuration mode of the specified ring, configure this command to enable the ERPS protocol of this specified ring.

Platform Description N/A

12.3 erps monitor link-state by oam

Use this command to configure the method of monitoring the ERPS link state.
erps monitor link-state by oam vlan *vlan-id*
no erps monitor link-state by oam

Parameter Description

Parameter	Description
vlan-id	Indicates the VLAN that monitors link state.

Defaults By default, it adopts the directly monitoring the link physical state (up or down) rather than the oam method.

Command Mode Global configuration mode.

Usage Guide For the link state monitoring, use the method of directly monitoring the link physical state (up or down), also monitor the logic state (unidirectional fault, bidirectional fault or normal) of the link by the OAM. By default, the former is adopted. If the OAM method is used, the inefficient link state monitoring may cause the convergence time longer when the topology changes.

Configuration Examples The following example configures the method of monitoring the link state.

Enter the privileged EXEC mode.
```
Orion Alpha A28X# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.

```

Configure the method of monitoring the link state.
```
Orion Alpha A28X(config)# erps monitor link-state by oam vlan 100
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

12.4 erps raps-vlan

Use this command to configure the R-APS VLAN of Ethernet ring.
erps raps-vlan *vlan-id*
no erps raps-vlan *vlan-id*

Parameter Description

Parameter	Description
vlan-id	R-APS VLAN ID

Defaults No R-APS VLAN is configured.

Command Mode Global configuration mode.

Usage Guide The R-APS VLAN must be the VLAN that is not used on the device. Cannot set the VLAN1 to the R-APS VLAN.
The same Ethernet ring of different devices needs the same R-APS VLAN.
If you want to transparently transmit the ERPS protocol packets on a device without the ERPS function configured, make sure that only the two ports connected to the Ethernet ring on this device allow the R-APSA VLAN packets corresponding to this ERPS ring passing through. Otherwise, the other VLAN packets may enter the R-APS VLAN through the transparent transmission, causing the shock to the ERPS ring.

Configuration Examples

Enter the privileged EXEC mode.

```
Orion Alpha A28X# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
```

#Configure the R-APS VLAN globally.

```
Orion Alpha A28X(config)# erps raps-vlan 4093
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

12.5 protected-instance

Use this command to configure the VLAN protected by the Ethernet ring to implement the load balance function.
protected-instance *instance-id-list*
no protected-instance

Parameter Description

Parameter	Description
instance-id-list	Instance protected by this Ethernet ring. (The VLANs corresponding to these instances are the VLANs protected by the Ethernet ring.)

Defaults By default, all VLANs are protected.

Command Mode EPRS configuration mode.

Usage Guide The protected VLAN consists of the R-APS VLAN of this Ethernet ring and the data VLAN protected by this Ethernet ring.

Configuration Examples Suppose that the ERP1 and ERP2 are configured on the switch to implement the load balance. The R-APS VLAN of the ERPS1 is 100, the protected data VLAN is in the range of 1 to 99 and 101-2000, the R-APS VLAN of the ERPS2 is 4093, and the protected data VLAN is in the range of 2001 to 4092 and 4094. Configuration for the load balance is shown as below:

```
# Enter the privileged EXEC mode.
Orion Alpha A28X# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
```

```
# Configure the VLAN configured by the ERP1.
Orion Alpha A28X(config)# spanning-tree mst configuration
Orion Alpha A28X(config-mst)# instance 1 vlan 100, 1-99, 101-2000
Orion Alpha A28X(config-mst)# exit
Orion Alpha A28X(config)# erps raps-vlan 100
Orion Alpha A28X(config-erps100)#protected-instance 1
```

```
# Configure the VLAN configured by the ERP2.
Orion Alpha A28X(config)# spanning-tree mst configuration
Orion Alpha A28X(config-mst)# instance 2 vlan 4093, 2001-4092, 4094
Orion Alpha A28X(config-mst)# exit
Orion Alpha A28X(config)# erps raps-vlan 4093
Orion Alpha A28X(config-erps4093)#protected-instance 2
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

12.6 ring-port

Use this command to configure the ERPS ring.

ring-port west { *interface-name1* | **virtual-channel** } **east** { *interface-name2* | **virtual-channel** }

no ring-port

Parameter Description

Parameter	Description
interface-name1	Name of the West port.
interface-name2	Name of the East port.

Defaults No ERPS ring is configured.

Command Mode EPRS configuration mode.

Usage Guide

1) After adding the port to the ERP ring, the trunk attribute of the port is not allowed to be modified any more.

2) If the ring port is configured on the virtual-channel, this ring will be considered as a sub-ring.

3) Ports running the ERPS do not participate in the STP computing. ERPS, RERP and REUP do not share the port.

Configuration Examples

The following example is for the ERPS ring.

Enter the privileged EXEC mode.

```
Orion Alpha A28X# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
```

Configure the link mode of the Ethernet ring port and the default VLAN.

```
Orion Alpha A28X(config)# interface fastEthernet 0/1
Orion Alpha A28X(config-if)# switchport mode trunk
Orion Alpha A28X(config-if)# exit
Orion Alpha A28X(config)# interface fastEthernet 0/2
Orion Alpha A28X(config-if)# switchport mode trunk
Orion Alpha A28X(config-if)# exit
```

Enter the ERPS configuration mode.

```
Orion Alpha A28X(config)# erps raps-vlan 4093
```

#Add the ports that participate in the ERPS protocol computing to the Ethernet ring.

```
Orion Alpha A28X(config-erps4093)#  ring-port west fastEthernet 0/1 east
fastEthernet 0/2
```

Related Commands

Command	Description
state enable	Enable the ERPS protocol of the specified ring in the ERPS mode of the specified ring.
sub-ring associate raps-vlan *vlan-id*	Establish the association between the subring and other Ethernet rings in the subring ERPS configuration mode.

Platform Description N/A

12.7 rpl-port

Use this command to configure the RPL port and RPL owner.

rpl-port { **west** | **east** } [**rpl-owner**]

no rpl-port

Parameter Description

Parameter	Description
west	Name of the West port.
east	Name of the East port.

Defaults No RPL port and RPL owner are configured.

Command Mode EPRS configuration mode.

Usage Guide Up to one RPL link and one RPL owner node are needed and configurable for each ring.

Configuration Examples The following example configures the RPL port and RPL owner.

Enter the privileged EXEC mode.

```
Orion Alpha A28X# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
```

Configure the link mode of the Ethernet ring port and the default VLAN.

```
Orion Alpha A28X(config)# interface fastEthernet 0/1
Orion Alpha A28X(config-if)# switchport mode trunk
Orion Alpha A28X(config-if)# exit
Orion Alpha A28X(config)# interface fastEthernet 0/2
Orion Alpha A28X(config-if)# switchport mode trunk
Orion Alpha A28X(config-if)# exit
```

Enter the ERPS configuration mode.

```
Orion Alpha A28X(config)# erps raps-vlan 4093
```

Add the ports that participate in the ERPS protocol computing to the Ethernet ring.

```
Orion Alpha A28X(config-erps4093)#  ring-port west fastEthernet 0/1 east
fastEthernet 0/2
```

Specify the port where the RPL link is and the RPL owner.

```
Orion Alpha A28X(config-erps4093)#  rpl-port west rpl-owner
```

Related Commands

Command	Description
ring-port west { *interface-name1* | **virtual-channel** } **east** { *interface-name2* | **virtual-**	Configure the specified ERP ring in the ERPS configuration mode of the specified ring.

channel }	
state enable	Enable the ERPS protocol of the specified ring in the ERPS configuration mode of the specified ring.

Platform Description N/A

12.8 show erps

Use this command to show the parameters and states of the ERPS.

show erps [{ **global** | **raps_vlan** *vlan-id* [**sub-ring**] }]

Parameter Description

Parameter	Description
global	Displays global ERPS information.
raps_vlan *vlan-id*	Displays specified ERPS information.
sub-ring]	Displays specified sub ring information.

Defaults N/A

Command Mode Any mode.

Usage Guide N/A

Configuration Examples The following example shows the use of this command.

```
Orion Alpha A28X# show erps
ERPS Information
Global Status                : Enabled
Link monitored by            : Not Oam
----------------------------------------------
R-APS VLAN                   : 4092
Ring Status                  : Enabled
West Port                    : Gi 0/5 (Blocking)
East Port                    : Gi 0/7 (Forwarding)
RPL Port                     : West Port
RPL Port Blocked VLAN        : All
RPL Owner                    : Enabled
Holdoff Time                 : 0 milliseconds
Guard Time                   : 500 milliseconds
WTR Time                     : 5 minutes
Current Ring State           : Idle
----------------------------------------------
R-APS VLAN                   : 4093
Ring Status                  : Enabled
West Port                    : Virtual Channel
```

```
East Port                    : Gi 0/10 (Forwarding)
RPL Port                     : None
RPL Port Blocked VLAN        : All
RPL Owner                    : Disabled
Holdoff Time                 : 0 milliseconds
Guard Time                   : 500 milliseconds
WTR Time                     : 5 minutes
Current Ring State           : Idle
---------------------------------------------
R-APS VLAN                   : 4094
Ring Status                  : Enabled
West Port                    : Virtual Channel
East Port                    : 12 (Forwarding)
RPL Port                     : None
RPL Port Blocked VLAN        : All
RPL Owner                    : Disabled
Holdoff Time                 : 0 milliseconds
Guard Time                   : 500 milliseconds
WTR Time                     : 5 minutes
Current Ring State           : Idle

Orion Alpha A28X# show erps raps_vlan 4093 sub-ring
R-APS VLAN: 4093
Sub-Ring R-APS VLANs    TC Propagation State
------------------      --------------------
100                     Enable
200                     Enable
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

12.9 state enable

Use this command to enable/disable the specified R-APS ring.

state enable

no state enable

Parameter Description

Parameter	Description
N/A	N/A

Defaults Disabled

Command Mode EPRS configuration mode.

Usage Guide Only after the global ERPS protocol and the ERPS protocol of the specified ring are both enabled, the ERPS protocol of the specified ring will begin truly running.

Configuration Examples The following example enables the specified ERPS ring:

#Enter the privileged EXEC mode.

```
Orion Alpha A28X# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
```

#Configure the link mode of the Ethernet ring port and the default VLAN.

```
Orion Alpha A28X(config)# interface fastEthernet 0/1
Orion Alpha A28X(config-if)# switchport mode trunk
Orion Alpha A28X(config-if)# exit
Orion Alpha A28X(config)# interface fastEthernet 0/2
Orion Alpha A28X(config-if)# switchport mode trunk
Orion Alpha A28X(config-if)# exit
```

Enter the ERPS configuration mode.

```
Orion Alpha A28X(config)# erps raps-vlan 4093
```

Add the ports that participate in the ERPS protocol computing to the Ethernet ring.

```
Orion Alpha A28X(config-erps4093)#  ring-port west fastEthernet 0/1 east
fastEthernet 0/2
```

Enable the ERPS function for the specified ring.

```
Orion Alpha A28X(config-erps4093)#state enable
```

Enable the global ERPS function.

```
Orion Alpha A28X(config-erps4093)# exit
Orion Alpha A28X(config)# erps enable
```

Related Commands

Command	Description
erps enable	Enable the global ERPS protocol.

Platform Description N/A

12.10 sub-ring tc-propagation

Use this command to specify the devices corresponding to the crossing node on the crossing ring whether to send out the notification when the subring topology changes.

sub-ring tc_propagation enable

no sub-ring tc_propagation

Parameter Description

Parameter	Description
N/A	N/A

Defaults By default, the topology changing notification is not sent.

Command Mode EPRS configuration mode.

Usage Guide This command is just needed to be configured on the crossing nodes on the crossing ring.

Configuration Examples The following example is configured when the subring topology changes.

Enter the privileged EXEC mode.

```
Orion Alpha A28X# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
```

#Configure the link mode of the Ethernet ring port and the default VLAN.

```
Orion Alpha A28X(config)# interface fastEthernet 0/1
Orion Alpha A28X(config-if)# switchport mode trunk
Orion Alpha A28X(config-if)# exit
Orion Alpha A28X(config)# interface fastEthernet 0/2
Orion Alpha A28X(config-if)# switchport mode trunk
Orion Alpha A28X(config-if)# exit
```

Enter the ERPS configuration mode.

```
Orion Alpha A28X(config)# erps raps-vlan 4093
```

Add the ports that participate in the ERPS protocol computing to the Ethernet ring.

```
Orion Alpha A28X(config-erps4093)#  ring-port west fastEthernet 0/1 east
fastEthernet 0/2
```

#Configure the Ethernet subring.

```
Orion Alpha A28X(config)# erps raps-vlan 100
Orion Alpha A28X(config)# interface fastEthernet 0/3
Orion Alpha A28X(config-if)# switchport mode trunk
Orion Alpha A28X(config-if)# exit
Orion Alpha A28X(config)# erps raps-vlan 100
Orion Alpha A28X(config-erps100)#  ring-port west fastEthernet 0/3 east
virtual-channel
```

Associate the subring with other Ethernet rings.

```
Orion Alpha A28X(config-erps100)#  sub-ring associate raps-vlan 4093
```

Enable the topology changing notification for the subring.

```
Orion Alpha A28X(config-erps100)#  sub-ring tc-propagation enable
```

Related

Command	Description

Commands		
	N/A	N/A

Platform Description N/A

12.11 timer

Use this command to configure the timer of the ERPS protocol.

timer { **holdoff-time** *interval1* | **guard-time** *interval2* | **wtr-time** *interval3* }

no timer { **holdoff-time** | **guard-time** | **wtr-time** }

Parameter Description

Parameter	Description
holdoff-time *interval1*	Value of the Holdoff timer in 100 milliseconds, the valid range is 0 to 100.
guard-time *interval2*	Value of the Guard timer in 10 milliseconds, the valid range is 1 to 200.
wtr-time *interval3*	Value of the WTR in minute, the valid range is 5 to 12.

Defaults Holdoff timer: 0.
Guard timer: 500 milliseconds.
WTP timer: 5 seconds.

Command Mode EPRS configuration mode.

Usage Guide **Holdoff timer:** This timer is used to avoid the ERPS from topology swithcingswitching continuously due to the link intermittent fault. With this timer configured, if the link fault is detected, the ERPS does not perform the topology switching immediately until the timer times out and the link fault is verified.
Guard timer: This timer is used to prevent the device receiving the timed-out R-APS messages. When the device detects the recovery from failure of the link, it sends out the message of link recovery and starts up the Guard timer. Before the Guard times out, except for the flush packets indicating the subring topology change, other packets are discarded directly without being handled.
WTR (Wait-to-restore) timer: This timer is only valid for the RPL owner device. It is mainly used to prevent the RPL owner making the erroneous judgment to the ring network status. When the RPL detects the fault recovery, it does not perform the topology switching immediately until the WTR times out and the Ethernet ring indeed recovers from the fault. If the ring network fault is checked again before the WTR times out, then the WTR timer will be canceled and topology switching will be not executed any longer.

Configuration Examples The following example configures the timer of the ERPS protocol.

```
# Enter the privileged EXEC mode.
Orion Alpha A28X# configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
# Enter the ERPS configuration mode.
```

```
Orion Alpha A28X(config)# erps raps-vlan 4093

# Configure the protocol timer.
Orion Alpha A28X(config-erps4093)#  timer holdoff-time 10
Orion Alpha A28X(config-erps4093)#  timer guard-time 10
Orion Alpha A28X(config-erps4093)#  timer wtr-time 10
```

Related Commands

Command	Description
N/A	N/A

Platform Description

N/A