Security Configuration Commands

1 AAA Commands

16.1 aaa accounting commands

Use this command to configure NAS command accounting.

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

aaa accounting commands *level* **{ default |** *list-name* **} start-stop** *method1* [*method2*…]

no aaa accounting commands *level* { **default |** *list-name* }

Parameter Description

Parameter	Description
level	The accounting command level, 0-15. The message shall be recorded before which command level is executed is determined.
default	When this parameter is used, the following defined method list is used as the default method for command accounting.
list-name	Name of the command accounting method list, which could be any character strings.
method	It must be one of the keywords listed in the following table. One method list can contain up to four methods.
none	Does not perform accounting.
group	Uses the server group for accounting, the TACACS+ server group is supported.

Defaults This function is disabled by default.

Command Mode Global configuration mode

Usage Guide switch enables the accounting command function after enabling the login authentication. After enabling the accounting function, it sends the command information to the security service.
The configured accounting command method must be applied to the terminal line that needs accounting command; otherwise it is ineffective.

Configuration Examples The following example enables NAS command accounting.

```
Orion Alpha A28X(config)# aaa accounting commands 15 default start-stop
group tacacs+
```

Related Commands

Command	Description
aaa new-model	Enables the AAA security service.
aaa authentication	Defines AAA authentication.
accounting commands	Applies the accounting commands to the terminal line.

Platform Description N/A

16.2 aaa accounting exec

Use this command to enable NAS access accounting.

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

aaa accounting exec { **default |** *list-name* } **start-stop** *method1* [*method2...*]

no aaa accounting exec { **default** | *list-name* }

Parameter Description

Parameter	Description
default	When this parameter is used, the following defined method list is used as the default method for Exec accounting.
list-name	Name of the Exec accounting method list, which could be any character strings
method	It must be one of the keywords: **none** and **group**. One method list can contain up to four methods.
none	Does not perform accounting.
group	Uses the server group for accounting, the RADIUS and TACACS+ server group is supported.

Defaults This function is disabled by default.

Command Mode Global configuration mode

Usage Guide Switch enables the exec accounting function after enabling the login authentication.

After enabling the accounting function, it sends the account start information to the security server when the users log in the NAS CLI, and sends the account stop information to the security server when the users log out. If it does not send the account start information to the security server when a user logs in, it does not send the account stop information to the security server when a user logs out, either.

The configured exec accounting method must be applied to the terminal line that needs accounting command; otherwise it is ineffective.

Configuration Examples The following example enables NAS access accounting.

```
Orion Alpha A28X(config)# aaa accounting network start-stop group radius
```

Related Commands

Command	Description
aaa new-model	Enables the AAA security service.
aaa authentication	Defines AAA authentication.
accounting commands	Applies the Exec accounting to the terminal line.

Platform Description N/A

16.3 aaa accounting network

Use this command to enable network access accounting.

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

aaa accounting network { default | *list-name* **} start-stop** *method1* [*method2*..]

no aaa accounting network { **default** | *list-name* }

Parameter Description

Parameter	Description
default	When this parameter is used, the following defined method list is used as the default method for Network accounting.
list-name	Name of the accounting method list
method	Sends accounting messages at both the start time and the end time of access. Users are allowed to access the network, no matter whether the start accounting message enables the accounting successfully.
none	Does not perform accounting.
group	Uses the server group for accounting, the RADIUS and TACACS+ server group is supported.

Defaults This function is disabled by default.

Command Mode Global configuration mode

Usage Guide switch performs accounting of user activities by sending record attributes to the security server. Use the **start-stop** keyword to set the user accounting option.

Configuration Examples The following example enables network access accounting.

```
Orion Alpha A28X(config)# aaa accounting network start-stop group radius
```

Related Commands

Command	Description
aaa new-model	Enables the AAA security service.
aaa authorization network	Defines a network authorization method list.
aaa authentication	Defines AAA authentication.
username	Defines a local user database.

Platform Description N/A

16.4 aaa accounting update

Use this command to enable the accounting update function.

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

aaa accounting update

no aaa accounting update

Parameter Description N/A

Defaults This function is disabled by default.

Command Mode Global configuration mode

Usage Guide If the AAA security service is not enabled, the accounting update function cannot be used. This command is used to set the accounting interval if the AAA security service has been enabled.

Configuration Examples The following example enables the accounting update function.

```
Orion Alpha A28X(config)# aaa new-model
Orion Alpha A28X(config)# aaa accounting update
```

Related Commands

Command	Description
aaa new-model	Enables the AAA security service.
aaa accounting network	Defines a network accounting method list.

Platform Description N/A

16.5 aaa accounting update periodic

Use this command to set the interval of sending the accounting update message.

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

aaa accounting update periodic *interval*

no aaa accounting update periodic

Parameter Description

Parameter	Description
interval	Interval of sending the accounting update message, in the unit of minutes. The shortest interval is 1 minute.

Defaults The default is 5 minutes.

Command Mode Global configuration mode

Usage Guide If the AAA security service is not enabled, the accounting update function cannot be used. This command is used to set the accounting interval if the AAA security service has been enabled.

Configuration Examples The following example sets the interval of accounting update to 1 minute.

```
Orion Alpha A28X(config)# aaa new-model
Orion Alpha A28X(config)# aaa accounting update
Orion Alpha A28X(config)# aaa accounting update periodic 1
```

Related Commands

Command	Description
aaa new-model	Enables the AAA security service.
aaa accounting network	Defines a network accounting method list.

Platform Description N/A

16.6 aaa authentication enable

Use this command to enable AAA Enable authentication and configure the Enable authentication method list.

Use the **no** form of this command to delete the user authentication method list.

aaa authentication enable default *method1* [*method2*...]

no aaa authentication enable default

Parameter Description

Parameter	Description
default	When this parameter is used, the following defined authentication method list is used as the default method for Enable authentication.
method	It must be one of the keywords: **local, none** and **group**. One method list can contain up to four methods.
local	Uses the local user name database for authentication.
none	Does not perform authentication.
group	Uses the server group for authentication. At present, the RADIUS and TACACS+ server groups are supported.
enable	Enables AAA Enable authentication.

Defaults N/A

Command Mode Global configuration mode

Usage Guide If the AAA Enable authentication service is enabled on the device, users must use AAA for Enable authentication negotiation. You must use the **aaa authentication enable** command to configure a default or optional method list for Enable authentication.

The next method can be used for authentication only when the current method does not work.

The Enable authentication function automatically takes effect after configuring the Enable

authentication method list.

Configuration Examples

The following example defines an AAA Enable authentication method list. In the authentication method list, first the RADIUS security server is used for authentication. If the RADIUS security server does not respond, the local user database is used for authentication.

```
Orion Alpha A28X(config)# aaa authentication enable default group radius local
```

Related Commands

Command	Description
aaa new-model	Enables the AAA security service.
enable	Switchover the user level.
username	Defines a local user database.

Platform Description

N/A

16.7 aaa authentication login

Use this command to enable AAA Login authentication and configure the Login authentication method list.

Use the **no** form of this command to delete the authentication method list.

aaa authentication login { **default** | *list-name* } *method1* [*method2*..]

no aaa authentication login { **default** | *list-name* }

Parameter Description

Parameter	Description
default	When this parameter is used, the following defined authentication method list is used as the default method for Login authentication.
list-name	Name of the user authentication method list, which could be any character strings
method	It must be one of the keywords: **local**, **none**, **group** and **subs**. One method list can contain up to four methods.
local	Uses the local user name database for authentication.
none	Does not perform authentication.
group	Uses the server group for authentication. At present, the RADIUS and TACACS+ server groups are supported.
subs	Uses the subs database for authentication.

Defaults

N/A

Command Mode

Global configuration mode

Usage Guide

If the AAA Login authentication security service is enabled on the device, users must use AAA for Login authentication negotiation. You must use the **aaa authentication login** command to configure

a default or optional method list for Login authentication.
The next method can be used for authentication only when the current method does not work.
You need to apply the configured Login authentication method to the terminal line which needs Login authentication. Otherwise, the configured Login authentication method is invalid.

Configuration Examples

The following example defines an AAA Login authentication method list named list-1. In the authentication method list, first the RADIUS security server is used for authentication. If the RADIUS security server does not respond, the local user database is used for authentication.

```
Orion Alpha A28X(config)# aaa authentication login list-1 group radius local
```

Related Commands

Command	Description
aaa new-model	Enables the AAA security service.
login authentication	Applies the Login authentication method to the terminal lines.
username	Defines a local user database.

Platform Description

N/A

16.8 aaa authorization commands

Use this command to authorize the command executed by the user who has logged in the NAS CLI.
Use the **no** form of this command to restore the default setting.
aaa authorization commands *level* { **default** | *list-name* } *method1* [*method2*...]
no aaa authorization commands *level* { **default** | *list-name* }

Parameter Description

Parameter	Description
level	Command level to be authorized in the range from 0 to 15
default	When this parameter is used, the following defined method list is used as the default method for command authorization.
list-name	Name of the user authorization method list, which could be any character strings
method	It must be one of the keywords: **none** and **group**. One method list can contain up to four methods.
none	Do not perform authorization.
group	Uses the server group for authorization. At present, the TACACS+ server group is supported.

Defaults

This function is disabled by default.

Command Mode

Global configuration mode

Usage Guide

Switch supports authorization of the commands executed by the users. When the users input and

attempt to execute a command, AAA sends this command to the security server. This command is to be executed if the security server allows to. Otherwise, it will prompt command deny.
It is necessary to specify the command level when configuring the command authorization, and this specified command level is the default command level.
The configured command authorization method must be applied to terminal line which requires the command authorization. Otherwise, the configured command authorization method is ineffective.

Configuration Examples

The following example uses the TACACS+ server to authorize the level 15 command.

```
Orion Alpha A28X(config)# aaa authorization commands 15 default group tacacs+
```

Related Commands

Command	Description
aaa new-model	Enables the AAA security service.
authorization commands	Applies the command authorization for the terminal line.

Platform Description

N/A

16.9 aaa authorization config-commands

Use this command to authorize the configuration commands (including in the global configuration mode and its sub-mode).
Use the **no** form of this command to restore the default setting.
aaa authorization config-commands
no aaa authorization config-commands

Parameter Description

Parameter	Description
N/A	N/A

Defaults

This function is disabled by default.

Command Mode

Global configuration mode

Usage Guide

If you only authorize the commands in the non-configuration mode (for example, privileged EXEC mode), you can use the **no** form of this command to disable the authorization function in the configuration mode, and execute the commands in the configuration mode and its sub-mode without command authorization.

Configuration Examples

The following example enables the configuration command authorization function.

```
Orion Alpha A28X(config)# aaa authorization config-commands
```

Related Commands

Command	Description
aaa new-model	Enables the AAA security service.
aaa authorization commands	Defines the AAA command authorization.

Platform Description N/A

16.10 aaa authorization console

Use this command to authorize the commands of the users who have logged in the console.
Use the **no** form of this command to restore the default setting.
aaa authorization console
no aaa authorization console

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is disabled by default.

Command Mode Global configuration mode

Usage Guide switch supports to identify the users logged in from the console and from other terminals, configure whether to authorize the users logged in from the console or not. If the command authorization function is disabled on the console, the authorization method list applied to the console line is ineffective.

Configuration Examples The following example enables the aaa authorization console function.

```
Orion Alpha A28X(config)# aaa authorization console
```

Related Commands

Command	Description
aaa new-model	Enables the AAA security service.
aaa authorization commands	Defines the AAA command authorization.
authorization commands	Applies the command authorization to the terminal line.

Platform Description N/A

16.11 aaa authorization exec

Use this command to authorize the users logged in the NAS CLI and assign the authority level.
Use the **no** form of this command to restore the default setting.
aaa authorization exec { **default** | *list-name* } *method1* [*method2*...]
no aaa authorization exec { **default** | *list-name* }

Parameter Description

Parameter	Description
default	When this parameter is used, the following defined method list is used

	as the default method for Exec authorization.
list-name	Name of the user authorization method list, which could be any character strings
method	It must be one of the keywords listed in the following table. One method list can contain up to four methods.
local	Uses the local user name database for authorization.
none	Does not perform authorization.
group	Uses the server group for authorization. At present, the RADIUS server group is supported.

Defaults This function is disabled by default.

Command Mode Global configuration mode

Usage Guide switch supports authorization of users logged in the NAS CLI and assignment of CLI authority level (0-15). The **aaa authorization exec** function is effective on condition that Login authentication function has been enabled. It cannot enter the CLI if it fails to enable the **aaa authorization exec**. You must apply the exec authorization method to the terminal line; otherwise the configured method is ineffective.

Configuration Examples The following example uses the RADIUS server to authorize Exec.

```
Orion Alpha A28X(config)# aaa authorization exec default group radius
```

Related Commands

Command	Description
aaa new-model	Enables the AAA security service.
authorization exec	Applies the command authorization to the terminal line.
username	Defines a local user database.

Platform Description N/A

16.12 aaa authorization network

Use this command to authorize the service requests (including such protocols as PPP and SLIP) from the users that access the network.
Use the **no** form of this command to restore the default setting.
aaa authorization network { **default** | *list-name* } *method1* [*method2*...]
no aaa authorization network { **default** | *list-name* }

Parameter Description

Parameter	Description
default	When this parameter is used, the following defined method list is used as the default method for Network authorization.
method	It must be one of the keywords: none and group. One method list can

	contain up to four methods.
none	Does not perform authorization.
group	Uses the server group for authorization. At present, the RADIUS server group is supported.

Defaults This function is disabled by default.

Command Mode Global configuration mode

Usage Guide switch supports authorization of all the service requests related to the network, such as PPP and SLIP. If authorization is configured, all the authenticated users or interfaces will be authorized automatically.
Three different authorization methods can be specified. Like authorization, the next method can be used for authorization only when the current authorization method does not work. If the current authorization method fails, other subsequent authorization method is not used.
The RADIUS server authorizes authenticated users by returning a series of attributes. Therefore, RADIUS authorization is based on RADIUS authorization. RADIUS authorization is performed only when the user passes the RADIUS authorization.

Configuration Examples The following example uses the RADIUS server to authorize network services.

```
Orion Alpha A28X(config)# aaa authorization network default group radius
```

Related Commands

Command	Description
aaa new-model	Enables the AAA security service.
aaa accounting	Defines AAA accounting.
aaa authentication	Defines AAA authentication.
username	Defines a local user database.

Platform Description N/A

16.13 aaa domain

Use this command to configure the domain attributes.
Use the **no** form of this command to restore the default setting.
aaa domain { **default** | *domain-name* }
no aaa domain { **default |** *domain-name* }

Parameter Description

Parameter	Description
default	Uses this parameter to configure the default domain.
domain-name	The name of the specified domain

Defaults No domain is configured by default.

Command Mode Global configuration mode

Usage Guide Use this command to configure the domain-name–based AAA service. The **default** is to configure the default domain. That is the method list used by the network device if the users are without domain information. The *domain-name* is the specified domain name, if the users are with this *domain name*, the method lists associated with this domain are used. At present, the system can configure up to 32 domains.

Configuration Examples The following example configures the domain name.

```
Orion Alpha A28X(config)# aaa domain Orion Alpha A28X.com
Orion Alpha A28X(config-aaa-domain)#
```

Related Commands

Command	Description
aaa new-model	Enables the AAA security service.
aaa domain enable	Enables the domain-name-based AAA service.
show aaa domain	Displays the domain configuration.

Platform Description N/A

16.14 aaa domain enable

Use this command to enable domain-name-based AAA service.
Use the **no** form of this command to restore the default setting.
aaa domain enable
no aaa domain enable

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is disabled by default.

Command Mode Global configuration mode

Usage Guide To perform the domain-name-based AAA service configuration, enable this service.

Configuration Examples The following example enables the domain-name-based AAA service.

```
Orion Alpha A28X(config)# aaa domain enable
```

Related Commands

Command	Description
aaa new-model	Enables the AAA security service.
show aaa doamain	Displays the domain configuration.

Platform N/A

Description

16.15 aaa local authentication attempts

Use this command to set login attempt times.

aaa local authentication attempts *max-attempts*

Parameter Description	**Parameter**	**Description**
	max-attempts	In the range from 1 to 2,147,483,647

Defaults The default is 3.

Command Mode Global configuration mode

Usage Guide Use this command to configure login attempt times.

Configuration Examples The following example sets login attempt times to 6.

```
Orion Alpha A28X #configure terminal
Orion Alpha A28X(config)#aaa local authentication attempts 6
```

Related Commands	**Command**	**Description**
	show running-config	Displays the current configuration of the switch.
	show aaa lockout	Displays the lockout configuration parameter of current login.

Platform Description N/A

16.16 aaa local authentication lockout-time

Use this command to configure the lockout-time period when the login user has attempted for more than the limited times.

aaa local authentication lockout-time *lockout-time*

Parameter Description	**Parameter**	**Description**
	lockout-time	In the range from 1 to 2,147,483,647 in the unit of minutes

Defaults The default is 15 minutes.

Command Mode Global configuration mode

Usage Guide Use this command to configure the length of lockout-time when the login user has attempted for more than the limited times.

Configuration Examples

The following example sets the lockout-time period to 5 minutes.

```
Orion Alpha A28X#configure terminal
Orion Alpha A28X(config)#aaa local authentication lockout-time 5
```

Related Commands

Command	Description
show running-config	Displays the current configuration of the switch.
show aaa lockout	Displays the lockout configuration parameter of current login.

Platform Description

N/A

16.17 aaa log enable

Use this command to enable the system to print the syslog informing AAA authentication success.

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

aaa log enable

no aaa log enable

Parameter Description

Parameter	Description
N/A	N/A

Defaults

This function is disabled by default.

Command Mode

Global configuration mode

Usage Guide

Use this command to enable the system to print the syslog informing aaa authentication success.

Configuration Examples

The following example disables the system to print the syslog informing aaa authentication success.

```
Orion Alpha A28X(config)# no aaa log enable
```

Related Commands

Command	Description
N/A	N/A

Platform Description

N/A

16.18 aaa log rate-limit

Use this command to set the rate of printing the syslog informing AAA authentication success.

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

aaa log rate-limit *num*

no aaa log rate-limit

Parameter

Parameter	Description

Description		
	num	The number of syslog entries printed per second. The range is from 0 to 65,535. 0 indicates the printing rate is not limited.

Defaults The default is 5.

Command Mode Global configuration mode

Usage Guide Too much printing may flood the screen or even reduce device performance. In this case, use this command to adjust the printing rate.

Configuration Examples The following example sets the rate of printing the syslog informing AAA authentication success to 10.

```
Orion Alpha A28X(config)# aaa log rate-limit 10
```

Related Commands	Command	Description
	N/A	N/A

Platform Description N/A

16.19 aaa new-model

Use this command to enable the Switch AAA security service.
Use the **no** form of this command to restore the default setting.
aaa new-model
no aaa new-model

Parameter Description	Parameter	Description
	N/A	N/A

Defaults This function is disabled by default.

Command Mode Global configuration mode

Usage Guide Use this command to enable AAA. If AAA is not enabled, none of the AAA commands can be configured.

Configuration Examples The following example enables the AAA security service.

```
Orion Alpha A28X(config)# aaa new-model
```

Related Commands	Command	Description
	aaa authentication	Defines a user authentication method list.

aaa authorization	Defines a user authorization method list.
aaa accounting	Defines a user accounting method list.

Platform Description N/A

16.20 access-limit

Use this command to configure the number of users limit for the domain, which is only valid for the IEEE802.1 users.

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

access-limit *num*

no access-limit

Parameter Description

Parameter	Description
num	The number used for the user limitation is only valid for the IEEE802.1 users.

Defaults By default, no number of users is limited.

Command Mode Domain configuration mode

Usage Guide This command limits the number of users for the domain.

Configuration Examples The following example sets the number of users to 20 for the domain named Orion Alpha A28X.com.

```
Orion Alpha A28X(config)# aaa domain Orion Alpha A28X.com
Orion Alpha A28X(config-aaa-domain)# access-limit 2
```

Related Commands

Command	Description
aaa new-model	Enables the AAA security service.
aaa domain enable	Switchover the user level.
show aaa domain	Defines a local user database.

Platform Description N/A

16.21 accounting network

Use this command to configure the Network accounting list.

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

accounting network { **default** | *list-name* }

no accounting network

Parameter Description

Parameter	Description
default	Uses this parameter to specify the default method list.
list-name	The name of the network accounting list

Defaults With no method list specified, if the user sends the request, the device will attempt to specify the default method list for the user.

Command Mode Domain configuration mode

Usage Guide Use this command to configure the Network accounting method list for the specified domain.

Configuration Examples The following example sets the Network accounting method list for the specified domain.

```
Orion Alpha A28X(config)# aaa domain Orion Alpha A28X.com
Orion Alpha A28X(config-aaa-domain)# accounting network default
```

Related Commands

Command	Description
aaa new-model	Enables the AAA security service.
aaa domain enable	Enables the domain-name-based AAA service.
show aaa domain	Displays the domain configuration.

Platform Description N/A

16.22 authentication dot1x

Use this command to configure the IEEE802.1x authentication list.
Use the **no** form of this command to restore the default setting.
authentication dot1x { **default** | *list-name* }
no authentication dot1x

Parameter Description

Parameter	Description
default	Uses this parameter to specify the default method list
list-name	The name of the specified method list

Defaults With no method list specified, if users send the request, the device will attempt to specify the default method list for users.

Command Mode Domain configuration mode

Usage Guide Specify an IEEE802.1x authentication method list for the domain.

Configuration Examples The following example sets an IEEE802.1x authentication method list for the specified domain.

```
Orion Alpha A28X(config)# aaa domain Orion Alpha A28X.com
```

```
Orion Alpha A28X(config-aaa-domain)# authentication dot1x default
```

Related Commands

Command	Description
aaa new-model	Enables the AAA security service.
aaa domain enable	Enables the domain-name-based AAA service.
show aaa domain	Displays the domain configuration.

Platform Description N/A

16.23 authorization network

Use this command to configure the Network authorization list.

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

authorization network { **default** | *list-name* }

no authorization network

Parameter Description

Parameter	Description
default	Uses this parameter to specify the default method list.
list-name	The name of the specified method list

Defaults With no method list specified, if users send the request, the device will attempt to specify the default method list for users.

Command Mode Domain configuration mode

Usage Guide Specify an authorization method list for the domain.

Configuration Examples The following example sets an authorization method list for the specified domain.

```
Orion Alpha A28X(config)# aaa domain Orion Alpha A28X.com
Orion Alpha A28X(config-aaa-domain)# authorization network default
```

Related Commands

Command	Description
aaa new-model	Enables the AAA security service.
aaa domain enable	Enables the domain-name-based AAA service.
show aaa domain	Displays the domain configuration.

Platform Description N/A

16.24 clear aaa local user lockout

Use this command to clear the lockout user list.

clear aaa local user lockout { **all | user-name** *word* }

Parameter Description

Parameter	Description
all	Indicates all locked users.
user-name *word*	Indicates the ID of the locked User.

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide Use this command to clear all the user lists or a specified user list.

Configuration Examples The following example clears the lockout user list.

```
Orion Alpha A28X(config)# clear aaa local user lockout all
```

Related Commands

Command	Description
show running-config	Displays the current configuration of the switch.
show aaa lockout	Displays the lockout configuration parameter of current login.

Platform Description N/A

16.25 show aaa accounting update

Use this command to display the accounting update information.

show aaa accounting update

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

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

Usage Guide Use this command to display the accounting update interval and whether the accounting update is enabled.

Configuration Examples The following example displays the accounting update information.

```
Orion Alpha A28X# show aaa accounting update
```

Related Commands

Command	Description
aaa new-model	Enables the AAA security service.
aaa domain enable	Enables the domain-name-based AAA service.

Platform N/A

Description

16.26 show aaa domain

Use this command to display all current domain information.

show aaa domain [**default** | *domain-name*]

Parameter Description

Parameter	Description
default	Displays the default domain.
domain-name	Displays the specified domain.

Defaults N/A

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

Usage Guide If no domain-name is specified, all domain information will be displayed.

Configuration Examples The following example displays the domain named domain.com.

```
Orion Alpha A28X(config)# show aaa domain domain.com
=============Domain domain.com=============
State: Active
Username format: Without-domain
Access limit: No limit
802.1X Access statistic: 0

Selected method list:
 authentication dot1x default
```

Related Commands

Command	Description
aaa new-model	Enables the AAA security service.
aaa domain enable	Enables the domain-name-based AAA service.

Platform Description N/A

16.27 show aaa group

Use this command to display all the server groups configured for AAA.

show aaa group

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 command displays all the server groups.

```
Orion Alpha A28X# show aaa group
Type       Reference  Name
---------- ---------- ----------
radius     1          radius
tacacs+    1          tacacs+
radius     1          dot1x_group
radius     1          login_group
radius     1          enable_group
```

Related Commands

Command	Description
aaa group server	Configures the AAA server group.

Platform Description N/A

16.28 show aaa lockout

Use this command to display the lockout configuration.

show aaa lockout

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

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

Usage Guide Use this command to display the lockout configuration.

Configuration Examples The following example displays the lockout configuration.

```
Orion Alpha A28X# show aaa lockout
Lock tries:    3
Lock timeout:  15 minutes
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

16.29 show aaa method-list

Use this command to display all AAA method lists.

show aaa method-list

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

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

Usage Guide Use this command to display all AAA method lists.

Configuration Examples The following example displays the AAA method list.

```
Orion Alpha A28X# show aaa method-list
Authentication method-list
aaa authentication login default group radius
aaa authentication ppp default group radius
aaa authentication dot1x default group radius
aaa authentication dot1x san-f local  group angel group rain none
aaa authentication enable default group radius
Accounting method-list
aaa accounting network default start-stop group radius
Authorization method-list
aaa authorization network default group radius
```

Related Commands

Command	Description
aaa authentication	Defines a user authentication method list
aaa authorization	Defines a user authorization method list
aaa accounting	Defines a user accounting method list

Platform Description N/A

16.30 show aaa user

Use this command to display AAA user information.

show aaa user { all | lockout | by-id *session-id* **| by-name** *user-name* **}**

Parameter Description

Parameter	Description
all	Displays all AAA user information.
lockout	Displays the locked AAA user information.
by-id *session-id*	Displays the information of the AAA user that with a specified session ID.
by-name *user-name*	Displays the information of the AAA user with a specified user name.

Defaults N/A

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

Usage Guide Use this command to display AAA user information.

Configuration Examples The following example displays AAA user information.

```
Orion Alpha A28X#show aaa user all
------------------------------

        Id ----- Name

 2345687901      wwxy

------------------------------

Orion Alpha A28X# show aaa user by-id 2345687901
------------------------------

        Id ----- Name

 2345687901      wwxy

Orion Alpha A28X# show aaa user by-name wwxy
------------------------------

        Id ----- Name

 2345687901      wwxy

------------------------------


Orion Alpha A28X# show aaa user lockout


Name                            Tries      Lock       Timeout(min)

------------------------------- ---------- ---------- ------------

Orion Alpha A28X#
```

Related

Command	Description

Commands	N/A	N/A

Platform Description N/A

16.31 state

Use this command to set whether the configured domain is valid.

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

state { **block | active** }

no state

Parameter Description

Parameter	Description
block	The configured domain is invalid.
active	The configured domain is valid.

Defaults The default is active.

Command Mode Domain configuration mode

Usage Guide Use this command to set whether the specified configured domain is valid.

Configuration Examples The following example sets the configured domain to be invalid.

```
Orion Alpha A28X(config)# aaa domain Orion Alpha A28X.com
Orion Alpha A28X(config-aaa-domain)# state block
```

Related Commands

Command	Description
aaa new-model	Enables the AAA security service.
aaa domain enable	Enables the domain-name-based AAA service.
show aaa domain enable	Displays the domain configuration.

Platform Description N/A

16.32 username-format

Use this command to configure the user name whether to be with the domain information when the NAS interacts with the servers.

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

username-format { **without-domain** | **with-domain** }

no username-format

Parameter

Parameter	Description

Description	**without-domain**	Sets the user name without the domain information.
	with-domain	Sets the user name with the domain information.

Defaults The default is without-domain.

Command Mode Domain configuration mode

Usage Guide Use this command to configure the user name whether to be with the domain information when the NAS interacts with the servers.

Configuration Examples The following example sets the user name without the domain information.

```
Orion Alpha A28X(config)# aaa domain Orion Alpha A28X.com
Orion Alpha A28X(config-aaa-domain)# username-domain without-domain
```

Related Commands

Command	Description
aaa new-model	Enables the AAA security service.
aaa domain enable	Enables the domain-name-based AAA service.
show aaa domain	Displays the domain configuration.

Platform Description N/A

17 RADIUS Commands

17.1 aaa group server radius

Use this command to enter AAA server group configuration mode.

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

aaa group server radius *name*

no aaa group server radius *name*

Parameter Description

Parameter	Description
name	Server group name. Keywords “radius” and “tacacs +” are excluded as they are the default RADIUS and TACACS+ server group names.

Defaults N/A

Command Mode Global configuration mode

Usage Guide This command is used to configure a RADIUS AAA server group.

Configuration Examples The following example configures a RADIUS AAA server group named ss.

```
Orion Alpha A28X(config)# aaa group server radius ss
Orion Alpha A28X(config-gs-radius)# end
Orion Alpha A28X# show aaa group
Type       Reference  Name
---------- ---------- ----------
radius     1          radius
tacacs+    1          tacacs+
radius     1          ss
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

17.2 ip radius source-interface

Use this command to specify the source IP address for the RADIUS packet.

Use the **no** form of this command to delete the source IP address for the RADIUS packet.

ip radius source-interface *interface-name*
no radius source-interface *interface-name*

Parameter Description

Parameter	Description
interface-name	Interface that the source IP address of the RADIUS packet belongs to.

Defaults The source IP address of the RADIUS packet is set by the network layer.

Command mode Global configuration mode

Usage Guide In order to reduce the NAS information to be maintained on the RADIUS server, use this command to set the source IP address of the RADIUS packet. This command uses the first IP address of the specified interface as the source IP address of the RADIUS packet. This command is used in the layer 3 devices.

Configuration Examples The following example specifies that the RADIUS packet obtains an IP address from the fastEthernet 0/0 interface and uses it as the source IP address of the RADIUS packet.

```
Orion Alpha A28X(config)# ip radius source-interface fastEthernet 0/0
```

Related Commands

Command	Description
radius-server host	Defines the RADIUS server.
ip address	Configures the IP address of the interface.

Platform Description N/A

17.3 radius attribute

Use this command to set the private attribute type value.
Use the **no** form of this command to restore the default setting.
radius attribute { *id* **| down-rate-limit | dscp | mac-limit | up-rate-limit** } **vendor-type** *type*
no radius attribute { *id* | **down-rate-limit** | **dscp** | **mac-limit | up-rate-limit** } **vendor-type**

Parameter Description

Parameter	Description
id	Function ID, in the range from 1 to 255
type	Private attribute type, in the range from 1 to 255.

Defaults Only the default configuration of private attributes in Orion Alpha A28X is recognized.

id	Function	type

1	max down-rate	1
2	qos	2
3	user ip	3
4	vlan id	4
5	version to client	5
6	net ip	6
7	user name	7
8	password	8
9	file-directory	9
10	file-count	10
11	file-name-0	11
	2 file-name-1	12
13	file-name-2	13
14	file-name-3	14
15	file-name-4	15
16	max up-rate	16
17	version to server	17
18	flux-max-high32	18
19	flux-max-low32	19
20	proxy-avoid	20
21	dailup-avoid	21
22	ip privilege	22
23	login privilege	42

Extended attributes:

id	Function	type
1	max down-rate	76
2	qos	77
3	user ip	3
4	vlan id	4
5	version to client	5
6	net ip	6
7	user name	7

8	password	8
9	file-directory	9
10	file-count	10
11	file-name-0	11
12	file-name-1	12
13	file-name-2	13
14	file-name-3	14
15	file-name-4	15
16	max up-rate	75
17	version to server	17
18	flux-max-high32	18
19	flux-max-low32	19
20	proxy-avoid	20
21	dailup-avoid	21
22	ip privilege	22
23	login privilege	42
24	limit to user number	50

Command Mode Global configuration mode

Usage Guide This command is used to configure the private attribute type value.

Configuration Examples The following example sets the type of max up-rate to 211.

```
Orion Alpha A28X(config)# radius attribute 16 vendor-type 211
```

Related Commands

Command	Description
radius set qos cos	Sets the qos value sent by the RADIUS server as the cos value of the interface.

Platform Description N/A

17.4 radius set qos cos

Use this command to set the QoS value sent by the RADIUS server as the CoS value of the

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

radius set qos cos

no radius set qos cos

Parameter Description

Parameter	Description
N/A	N/A

Defaults Set the QoS value sent by the RADIUS server as the DSCP value.

Command Mode Global configuration mode.

Usage Guide This command is used to set the QoS value sent by the RADIUS server as the CoS value, and the DSCP value by default.

Configuration Examples The following example sets the QoS value sent by the RADIUS server as the CoS value of the interface:

```
Orion Alpha A28X(config)# radius set qos cos
```

Related Commands

Command	Description
radius vendor-specific extend	Extends RADIUS as not to differentiate the IDs of private vendors.

Platform Description N/A

17.5 radius support cui

Use this command to enable RADIUS to support the cui function.

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

radius support cui

no radius support cui

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 enable RADIUS to support the cui function.

Configuration Examples

The following example enables RADIUS to support the cui function.

```
Orion Alpha A28X(config)# radius support cui
```

Related Commands

Command	Description
N/A	N/A

Platform Description

N/A

17.6 radius vendor-specific extend

Use this command to extend RADIUS not to differentiate the IDs of private vendors.

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

radius vendor-specific extend

no radius vendor-specific extend

Parameter Description

Parameter	Description
N/A	N/A

Defaults

Only the private vendor IDs of Orion Alpha A28X are recognized.

Command Mode

Global configuration mode

Usage Guide

This command is used to identify the attributes of all vendor IDs by type.

Configuration Examples

The following example extends RADIUS so as not to differentiate the IDs of private vendors:

```
Orion Alpha A28X(config)# radius vendor-specific extend
```

Related Commands

Command	Description
radius attribute	Configures vendor type.
radius set qos cos	Sets the QoS value sent by the RADIUS server as the cos value of the interface.

Platform Description

N/A

17.7 radius-server account attribute

Use this command to enable account-request packets to contain a specified RADIUS attribute.

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

radius-server account attribute *type* **package**
no radius-server account attribute *type* **package**
default radius-server account attribute *type* **package**

Use this command to disable account-request packets to contain a specified RADIUS attribute.
Use the **no** or **default** form of this command to restore the default setting.
radius-server account attribute *type* **unpackage**
no radius-server account attribute *type* **unpackage**
default radius-server account attribute *type* **unpackage**

Parameter Description

Parameter	Description
type	RADIUS attribute in the range from 1 to 255

Defaults RFC-compliant

Command Mode Global configuration mode

Usage Guide Use this command to enable or disable account-request packets to contain a specified RADIUS attribute.

Configuration Examples The following example disables account-request packets to contain attribute NAS-PORT-ID.

```
Orion Alpha A28X(config)# radius-server account attribute 87 unpackage
```

Platform Description N/A

17.8 radius-server account update retransmit

Use this command to configure accounting update packet retransmission for the second generation Web authentication user.
Use the **no** form of this command to restore the default setting,
radius-server account update retransmit
no radius-server account update retransmit

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 configure accounting update packet retransmission for the second

generation Web authentication user exclusively.

Configuration Examples

The following example configures accounting update packet retransmission for the second generation Web authentication user.

```
Orion Alpha A28X(config)#radius-server account update retransmit
```

Related Commands

Command	Description
N/A	N/A

Platform Description

N/A

17.9 radius-server account vendor

Use this command to enable account-request packets to contain vendor-specific RADIUS attributes.

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

radius-server account vendor *vendor_name* **package**

no radius-server account vendor *vendor_name* **package**

default radius-server account vendor *vendor_name* **package**

Parameter Description

Parameter	Description
vendor_name	**cmcc/ microsoft/cisco**

Defaults

Account-request packets do not contain vendor- specific RADIUS attributes by default.

Command Mode

Global configuration mode

Usage Guide

Use this command to enable account-request packets to contain vendor-specific RADIUS attributes.

Configuration Examples

The following example enables account-request packets to contain “cmcc”.

```
Orion Alpha A28X(config)# radius-server account vendor cmcc package
```

Platform Description

N/A

17.10 radius-server attribute class

Use this command to analyze the flow control value of the RADIUS CLASS attributes.

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

radius-server attribute class

no radius-server attribute class

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 required if the server pushes the flow control through the CLASS attribute.

Configuration Examples N/A

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

17.11 radius-server attribute 31

Use this command to specify the MAC-based format of RADIUS Calling-Station-ID attribute.
Use the **no** form of this command to restore the default setting.
radius-server attribute 31 mac format { **ietf** | **normal** | **unformatted** }
no radius-server attribute 31 mac format

Parameter Description

Parameter	Description
ietf	The standard format specified by the IETF RFC3580. '-'is used as the separator, for example: 00-D0-F8-33-22-AC.
normal	Normal format representing the MAC address. ;.'is used as the separator. For example: 00d0.f833.22ac.
unformatted	No format and separator. By default, unformatted is used. For example: 00d0f83322ac.

Defaults The default format is unformatted.

Command Mode Global configuration mode

Usage Guide Some RADIUS security servers (mainly used to 802.1x authentication) may identify the IETF format only. In this case, the RADIUS Calling-Station-ID attribute shall be set as the IETF format type.

Configuration Examples The following example defines the RADIUS Calling-Station-ID attribute as IETF format.

```
Orion Alpha A28X(config)# radius-server attribute 31 mac format ietf
```

Related Commands

Command	Description
radius-server host	Defines the RADIUS server.

Platform Description N/A

17.12 radius-server authentication attribute

Use this command to enable access-request packets to contain a specified RADIUS attribute.
Use the **no** or **default** form of this command to restore the default setting.
radius-server authentication attribute *type* **package**
no radius-server authentication attribute *type* **package**
default radius-server authentication attribute *type* **package**

Use this command to disable access-request packets to contain a specified RADIUS attribute.
Use the **no** or **default** form of this command to restore the default setting.
radius-server authentication attribute *type* **unpackage**
no radius-server authentication attribute *type* **unpackage**
default radius-server authentication attribute *type* **unpackage**

Parameter Description

Parameter	Description
type	RADIUS attribute in the range from 1 to 255

Defaults RFC-compliant

Command Mode Global configuration mode

Usage Guide Use this command to enable access-request packets to contain a specified RADIUS attribute.

Configuration Examples The following example disables access-request packets to contain attribute NAS-PORT-ID.

```
Orion Alpha A28X(config)# radius-server authentication attribute 87
unpackage
```

Platform Description N/A

17.13 radius-server authentication vendor

Use this command to enable access-request packets to contain vendor-specific RADIUS attributes.
Use the **no** or **default** form of this command to restore the default setting.

radius-server authentication vendor *vendor_name* **package**

no radius-server authentication vendor *vendor_name* **package**

default radius-server authentication vendor *vendor_name* **package**

Parameter Description

Parameter	Description
vendor_name	**cmcc/ microsoft/cisco**

Defaults Access-request packets do not contain vendor- specific RADIUS attributes by default.

Command Mode Global configuration mode

Usage Guide Use this command to enable access-request packets to contain vendor- specific RADIUS attributes.

Configuration Examples The following example enables access-request packets to contain “cmcc”.

```
Orion Alpha A28X(config)# radius-server authentication vendor cmcc package
```

Platform Description N/A

17.14 radius-server dead-criteria

Use this command to configure criteria on a device to determine that the Radius server is unreachable.

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

radius-server dead-criteria { **time** *seconds* [**tries** *number*] **| tries** *number* }

no radius-server dead-criteria { **time** *seconds* [**tries** *number*] **| tries** *number* }

Parameter Description

Parameter	Description
time *seconds*	Configures the timeout value. If the device does not receive a correct response packet from the Radius server within the specified time, the Radius server is considered to be unreachable. The value is in the range from 1 to 120 in the unit of seconds.
tries *number*	Configures the successive timeout times. When sending a request from the device to the Radius server times out for the specified times, the device considers that the Radius server is unreachable. The value is in the range from 1 to 100 in the unit of seconds.

Defaults The default **time** *seconds* is 60 and **tries** *number* is 10.

Command Mode Global configuration mode

Usage Guide If a Radius server meets the timeout and timeout times at the same time, it is considered to be unreachable. This command is used to adjust the parameter conditions of timeout and timeout times.

Configuration Examples The following example sets the timeout to 120 seconds and timeout times to 20.

```
Orion Alpha A28X(config)# radius-server dead-criteria time 120 tries 20
```

Related Commands

Command	Description
radius-server host	Defines the RADIUS security server.
radius-server deadtime	Defines the duration when a device stops sending any requests to an unreachable Radius server.
radius-server timeout	Defines the timeout for the packet re-transmission.

Platform Description N/A

17.15 radius-server deadtime

Use this command to configure the duration when a device stops sending any requests to an unreachable Radius server.
Use the **no** form of this command to restore the default setting.
radius-server deadtime *minutes*
no radius-server deadtime

Parameter Description

Parameter	Description
minutes	Defines the duration in minutes when the device stops sending any requests to the unreachable Radius server. The value is in the range from 1 to 1,440 in the unit of minutes.

Defaults The default value of minutes is 0, that is, the device keeps sending requests to the unreachable Radius server.

Command Mode Global configuration mode

Usage Guide If active Radius server detection is enabled on the device, the time parameter of this command does not take effect on the Radius server. Otherwise, the Radius server becomes reachable when the duration set by this command is shorter than the unreachable time.

Configuration Examples The following example sets the duration when the device stops sending requests to 1 minute.

```
Orion Alpha A28X(config)# radius-server deadtime 1
```

Related Commands

Command	Description
radius-server host	Defines the RADIUS security server.
radius-server dead-criteria	Defines the criteria to determine that a Radius server is unreachable.

Platform Description N/A

17.16 radius-server host

Use this command to specify a RADIUS security server host.

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

radius-server host { *ipv4-address* | *ipv6-address* } [**auth-port** *port-number*] [**acct-port** *port-number*] [**test username** *name* [**idle-time** *time*] [**ignore-auth-port**] [**ignore-acct-port**]] [**key** [**0** | **7**] *text-string*]

no radius-server host { *ipv4-address* | *ipv6-address* }

Parameter Description

Parameter	Description
ipv4-address	IPv6 address of the RADIUS security server host.
ipv6-address	IPv4 address of the RADIUS security server host.
auth-port	UDP port used for RADIUS authentication.
port-number	Number of the UDP port used for RADIUS authentication. If it is set to 0, this host does not perform authentication.
acct-port	UDP port used for RADIUS accounting.
port-number	Number of the UDP port used for RADIUS accounting. If it is set to 0, this host does not perform accounting.
test username *name*	(Optional) Enables the active detection to the RADIUS security server and specify the username used by the active detection.
idle-time *time*	(Optional) Sets the interval of sending the test packets to the reachable RADIUS security server, which is 60 minutes by default and in the range of 1 to 1440 minutes (namely 24 hours).
ignore-auth-port	(Optional) Disables the detection to the authentication port on the RADIUS security server. It is enabled by default.
ignore-acct-port	(Optional) Disables the detection to the authentication port on the RADIUS security server. It is enabled by default.
key [**0** | **7**] *text-string*	Configure a shared key for the server. The type of encryption can be specified. 0 is no encryption and 7 is simple encryption. The default is 0.

Defaults No RADIUS host is specified by default.

Command Mode Global configuration mode

Usage Guide In order to implement the AAA security service using RADIUS, you must define a RADIUS security server. You can define one or more RADIUS security servers using the **radius-server host** command.

Configuration Examples The following example defines a RADIUS security server host:

```
Orion Alpha A28X(config)# radius-server host 192.168.12.1
```

The following example defines a RADIUS security server host in the IPv4 environment, enable the active detection with the detection interval 60 minutes and disable the accounting UDP port detection:

```
Orion Alpha A28X(config)# radius-server host 192.168.100.1 test username
viven idle-time 60 ignore-acct-port
```

The following example defines a RADIUS security server host in the IPv6 environment

```
Orion Alpha A28X(config)# radius-server host 3000::100
```

Related Commands

Command	Description
aaa authentication	Defines the AAA authentication method list
radius-server key	Defines a shared password for the RADIUS security server.
radius-server retransmit	Defines the number of RADIUS packet retransmissions.

Platform Description N/A

17.17 radius-server key

Use this command to define a shared password for the network access server (device) to communicate with the RADIUS security server.
Use the **no** form of this command to restore the default setting.
radius-server key [**0 | 7**] *text-string*
no radius-server key

Parameter Description

Parameter	Description
text-string	Text of the shared password
**0	7**	Password encryption type. 0: no encryption;

	7: Simply-encrypted.

Defaults No shared password is specified by default.

Command Mode Global configuration mode.

Usage Guide A shared password is the basis for communications between the device and the RADIUS security server. In order to allow the device to communicate with the RADIUS security server, you must define the same shared password on the device and the RADIUS security server.

Configuration Examples The following example defines the shared password **aaa** for the RADIUS security server:

```
Orion Alpha A28X(config)# radius-server key aaa
```

Related Commands

Command	Description
radius-server host	Defines the RADIUS security server.
radius-server retransmit	Defines the number of RADIUS packet retransmissions.
radius-server timeout	Defines the timeout for the RADIUS packet.

Platform Description N/A

17.18 radius-server retransmit

Use this command to configure the number of packet retransmissions before the device considers that the RADIUS security server does not respond.
Use the **no** form of this command to restore the default setting.
radius-server retransmit *retries*
no radius-server retransmit

Parameter Description

Parameter	Description
retries	Number of retransmissions in the range from 1 to 100

Defaults The default is 3.

Command Mode Global configuration mode.

Usage Guide AAA uses the next method to authenticate users only when the current security server for authentication does not respond. When the device retransmits the RADIUS packet for the specified times and the interval between every two retries is timeout, the device considers that the security sever does not respond.

Configuration Examples The following example sets the number of retransmissions to 4.

```
Orion Alpha A28X(config)# radius-server retransmit 4
```

Related Commands

Command	Description
radius-server host	Defines the RADIUS security server.
radius-server key	Defines a shared password for the RADIUS server.
radius-server timeout	Defines the timeout for the RADIUS packet.

Platform Description N/A

17.19 radius-server source-port

Use this command to configure the source port to send RADIUS packets.

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

radius-server source-port *port*

no radius-server source-port

Parameter Description

Parameter	Description
port	The port ID, in the range from 0 to 65535.

Defaults The default is a random number.

Command Mode Global configuration mode

Usage Guide The source port is random by default. This command is used to specify a source port.

Configuration Examples The following example configures source port 10000 to send RADIUS packets.

```
Orion Alpha A28X(config)# radius-server source-port 10000
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

17.20 radius-server timeout

Use this command to set the time for the device to wait for a response from the security server after

retransmitting the RADIUS packet.

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

radius-server timeout *seconds*

no radius-server timeout

Parameter Description

Parameter	Description
seconds	Timeout in the range from 1 to 1,000 in the unit of seconds.

Defaults The default is 5 seconds.

Command Mode Global configuration mode

Usage Guide This command is used to change the timeout of packet retransmission.

Configuration Examples The following example sets the timeout to 10 seconds.

```
Orion Alpha A28X(config)# radius-server timeout  10
```

Related Commands

Command	Description
radius-server host	Defines the RADIUS security server.
radius-server retransmit	Defines the number of the RADIUS packet retransmissions.
radius-server key	Defines a shared password for the RADIUS server.

Platform Description N/A

17.21 server auth-port acct-port

Use this command to add the server of the AAA server group.

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

server { *ipv4-addr* | *ipv6-addr*} [**auth-port** *port1*] [**acct-port** *port2*]

no server { *ipv4-addr* | *ipv6-addr*} [**auth-port** *port1*] [**acct-port** *port2*]

Parameter Description

Parameter	Description
ip-addr	Server IP address
Ipv6-addr	Server IPv6 address
port1	Server authentication port
port2	Server accounting port

Defaults No server is configured by default.

Command Mode Server group configuration mode

Usage Guide N/A

Configuration Examples The following example adds server 192.168.4.12 to server group ss and sets the accounting port and authentication port to 5 and 6 respectively.

```
Orion Alpha A28X(config)# aaa group server radius ss
Orion Alpha A28X(config-gs-radius)# server 192.168.4.12 acct-port 5 auth-port 6
Orion Alpha A28X(config-gs-radius)# end
Orion Alpha A28X# show aaa group
Type       Reference  Name
---------- ---------- ----------
radius     1          radius
tacacs+    1          tacacs+
radius     1          ss
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

17.22 show radius acct statistics

Use this command to display RADIUS accounting statistics.

show radius acct statistics

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

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

Usage Guide N/A

Configuration Examples The following example displays RADIUS accounting statistics.

```
Orion Alpha A28X#show radius acct statistics
Accounting Servers:

Server Index..................................... 1
```

```
Server Address.................................. 192.168.1.1
Server Port..................................... 1813
Msg Round Trip Time............................. 0 (msec)
First Requests.................................. 1
Retry Requests.................................. 1
Accounting Responses............................ 0
Malformed Msgs.................................. 0
Bad Authenticator Msgs.......................... 0
Pending Requests........
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

17.23 show radius attribute

Use this command to display standard Radius attributes.

show radius attribute

Parameter Description

Parameter	Description
N/A	N/A

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

Usage Guide N/A

Configuration Examples

The following example displays standard RADIUS attributes.

```
Orion Alpha A28X#sh radius attribute
type          implicate
----          ---------
   1.........User-Name
   2.........User-Password
   3.........Chap-Password
   4.........NAS-Ip-Addr
   5.........Nas-Ip-Port
   6.........Service-Type
   7.........Framed-Protocol
   8.........Frame-Ip-Address
   9.........Framed-Ip-Mask
  10.........Framed-Routing
  11.........Filter-Id
  12.........Framed-Mtu
  13.........Framed-Compress
  14.........Login-Ip-Host
  15.........Login-Service
  16.........Login-Tcp-Port
  18.........Reply-Message
  19.........Callback-Num
  20.........Callback-Id
  22.........Framed-Route
  23.........Framed-IPX-Network
  24.........State
  25.........Class
  26.........Vendor-Specific
  27.........Session-Timeout
  28.........Idle-Timeout
  29.........Termination-Action
  30.........Called-Station-Id
  31.........Calling-Station-Id
  32.........Nas-Id
  33.........Proxy-State
  34.........Login-LAT-Service
  35.........Login-LAT-Node
  36.........Login-LAT-Group
  37.........Framed-AppleTalk-Link
  38.........Framed-AppleTalk-Net
  39.........Framed-AppleTalk-Zone
  40.........Acct-Status-Type
  41.........Acct-Delay-Time
```

```
 42..........Acct-Input-Octets
 43..........Acct-Output-Octets
 44..........Acct-Session-Id
 45..........Acct-Authentic
 46..........Acct-Session-Time
 47..........Acct-Input-Packet
 48..........Acct-Output-Packet
 49..........Acct-Terminate-Cause
 50..........Acct-Multi-Session-ID
 51..........Acct-Link-Count
 52..........Acct-Input-Gigawords
 53..........Acct-Output-Gigawords
 60..........Chap-Challenge
 61..........Nas-Port-Type
 62..........Port-Limit
 63..........Login-Lat-Port
 64..........Tunnel-Type
 65..........Tunnel-Medium-Type
 66..........Tunnel-Client-EndPoint
 67..........Tunnel-Service-EndPoint
 79..........eap msg
 80..........Message-Authenticator
 81..........group id
 85..........Acct-Interim-Interval
 87..........Nas-Port-Id
 89..........cui
 95..........Nas-Ipv6-Addr
 96..........Framed-Interface-Id
 97..........Framed-Ipv6-Prefix
 98..........Login-Ipv6-Host
 99..........Framed-Ipv6-Route
100..........Framed-Ipv6-Pool
168..........Framed-Ipv6-Addr
```

Platform Description	N/A

17.24 show radius auth statistics

Use this command to display RADIUS authentication statistics.

show radius auth statistics

Parameter	**Parameter**	**Description**

Description		
	N/A	N/A

Defaults N/A

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

Usage Guide N/A

Configuration Examples The following example displays RADIUS authentication statistics.

```
Orion Alpha A28X#show radius auth statistics
Authentication Servers:

Server Index..................................... 1
Server Address................................... 192.168.1.1
Server Port...................................... 1812
Msg Round Trip Time.............................. 0 (msec)
First Requests................................... 0
Retry Requests................................... 0
Accept Responses................................. 0
Reject Responses................................. 0
Challenge Responses.............................. 0
Malformed Msgs................................... 0
Bad Authenticator Msgs........................... 0
Pending Requests................................. 0
Timeout Requests................................. 0
Unknowntype Msgs................................. 0
Other Drops...................................... 0
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

17.25 show radius group

Use this command to display RADIUS server group configuration.

show radius group

Parameter Description

Parameter	Description

N/A	N/A

Defaults N/A

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

Usage Guide N/A

Configuration Examples The following example displays RADIUS server group configuration.

```
Orion Alpha A28X#show radius group
==========Radius group radius==========
Vrf:not-set
Server:192.168.1.1
  Server key:Orion Alpha A28X
  Authentication port:1812
  Accounting port:1813
  State:Active
```

- Series do not support the VRF parameter. The above example is for reference purpose. Please take the actual device as standard.

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

17.26 show radius parameter

Use this command to display global RADIUS server parameters.

show radius parameter

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

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

Usage Guide N/A

Configuration Examples

The following example displays global RADIUS server parameters.

```
Orion Alpha A28X# show radius parameter
Server Timout:   5 Seconds
Server Deadtime: 0 Minutes
Server Retries:  3
Server Dead Critera:
Time:        10 Seconds
Tries:       10
```

Related Commands

Command	Description
N/A	N/A

Platform Description

N/A

17.27 show radius server

Use this command to display the configuration of the RADIUS server.

show radius server

Parameter Description

Parameter	Description
N/A	N/A

Defaults

N/A

Command Mode

Privileged EXEC mode

Usage Guide

N/A

Configuration Examples

The following example displays the configuration of the RADIUS server.

```
Orion Alpha A28X# show radius server
Server IP:    192.168.4.12
Accounting  Port:  23
Authen  Port:     77
Test Username:    viven
Test Idle Time:   10 Minutes
Test Ports:        Authen
Server State:     Active
    Current duration 765s, previous duration 0s
Dead: total time 0s, count 0
Statistics:
```

```
Authen: request 15, timeouts 1
Author: request 0, timeouts 0
Account: request 0, timeouts 0

Server IP:    192.168.4.13
Accounting Port:  45
Authen  Port:     74
Test Username:    <Not Configured>
Test Idle Time:   60 Minutes
Test Ports:        Authen and Accounting
Server State:     Active
Current duration 765s, previous duration 0s
Dead: total time 0s, count 0
Statistics:
Authen: request 0, timeouts 0
Author: request 0, timeouts 0
Account: request 20, timeouts 0
```

Related Commands

Command	Description
radius-server host	Defines the RADIUS security server.
radius-server retransmit	Defines the number of RADIUS packet retransmissions.
radius-server key	Defines a shared password for the RADIUS server.
radius-server timeout	Defines the packet transmission timeout.

Platform Description N/A

17.28 show radius vendor-specific

Use this command to display the configuration of the private vendors.

show radius vendor-specific

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide N/A

Configuration Examples The following example displays the configuration of the private vendors.

```
Orion Alpha A28X#show radius vendor-specific
id    vendor-specific      type-value
----- -------------------- ----------
1     max-down-rate        1
2     port-priority        2
3     user-ip              3
4     vlan-id              4
5     last-supplicant-vers 5
      ion
6     net-ip               6
7     user-name            7
8     password             8
9     file-directory       9
10    file-count           10
11    file-name-0          11
12    file-name-1          12
13    file-name-2          13
14    file-name-3          14
15    file-name-4          15
16    max-up-rate          16
17    current-supplicant-version 17
18    flux-max-high32      18
19    flux-max-low32       19
20    proxy-avoid          20
21    dialup-avoid         21
22    ip-privilege         22
23    login-privilege      42
26    ipv6-multicast-addre 79
      ss
27    ipv4-multicast-addre 87
      ss
```

Related Commands

Command	Description
radius-server host	Defines the RADIUS security server.
radius-server retransmit	Defines the number of RADIUS packet retransmissions.
radius-server key	Defines a shared password for the RADIUS server.
radius-server timeout	Defines the packet transmission timeout.

Platform	N/A
Description	

18 TACACS+ Commands

18.1 aaa group server tacacs+

Use this command to configure different groups of TACACS+ server hosts.
Use the **no** form of this command to remove a specified TACACS server group.
aaa group server tacacs+ *group_name*
no aaa group server tacacs+ *group_name*

Parameter Description

Parameter	Description
group_name	TACACS+ server group name, which cannot be **radius** or **tacacs+** The two names are the built-in group name.

Defaults No TACACS+ server group is configured.

Command Mode Global configuration mode

Usage Guide After you group different TACACS+ servers, the tasks of authentication, authorization and accounting can be implemented by different server groups.

Configuration Examples The following example configures a TACACS+ server group named tac1, and configures a TACACS+ server with IP address 1.1.1.1 in this group:

```
Orion Alpha A28X(config)#aaa group server tacacs+ tac1
Orion Alpha A28X(config-gs-tacacs+)# server 1.1.1.1
```

Related Commands

Command	Description
server	Configures server list of TACACS+ server group.

Platform Description N/A

18.2 ip tacacs source-interface

Use this command to use the IP address of a specified interface for all outgoing TACACS+ packets.
Use the **no** form of this command to disable use of the specified interface IP address.
ip tacacs source-interface *interface-name*
no ip tacacs source-interface *interface-name*

Parameter Description

Parameter	Description
interface-name	Interface for the outgoing TACACS+ packets

Defaults The source IP address of TACACS+ packets is set on the network layer.

Command Mode Global configuration mode

Usage Guide To decrease the work of maintaining massive NAS messages in TACACS+ server, use this command to use the IP address of a specified interface for all outgoing TACACS+ packets.
This command specifies the primary IP address of the specified interface as the source address of TACACS+ packets on Layer 3 devices.

Configuration Examples The following example specifies the IP address of GigabitEthernet 0/0 for the outgoing TACACS+ packets.

```
Orion Alpha A28X(config)# ip tacacs source-interface gigabitEthernet 0/0
```

Related Commands

Command	Description
tacacs-server host	Defines a TACACS+ server.
ip address	Configures the IP address of an interface.

Platform Description N/A

18.3 server

Use this command to configure the IP address of the TACACS+ server for the group server.
Use the **no** form of this command to remove the TACACS+ server.
server { *ipv4-address* | *ipv6-address* }
no server { *ipv4-address* | *ipv6-address* }

Parameter Description

Parameter	Description
ipv4-address	IPv4 address of the TACACS+ server
ipv6-address	IPv6 address of the TACACS+ server

Defaults No TACACS+ server is configured by default.

Command Mode TACACS+ server group configuration mode

Usage Guide You must configure the **aaa group server tacacs+** command before configuring this command.
To configure server address in TACACS+ group server, you must use the **tacacs-server host**

command in global configuration mode.
If there is no response from the first host entry, the next host entry is tried.

Configuration Examples

The following example configures a TACACS+ server group named tac1 and a TACACS+ server address 1.1.1.1 in this group.

```
Orion Alpha A28X(config)#aaa group server tacacs+ tac1
Orion Alpha A28X(config-gs-tacacs+)# server 1.1.1.1
```

Related Commands

Command	Description
aaa group server tacacs+	Configures a TACACS+ server group.

Platform Description

N/A

18.4 show tacacs

Use this command to display the TACACS+ server configuration.
show tacacs

Parameter Description

Parameter	Description
N/A	N/A

Defaults

N/A

Command Mode

Privileged EXEC mode/Global configuration/Interface configuration mode

Usage Guide

N/A

Configuration Examples

The following example displays the TACACS+ server configuration.

```
Orion Alpha A28X# show tacacs
Tacacs+ Server : 172.19.192.80/49
Socket Opens: 0
Socket Closes: 0
Total Packets Sent: 0
Total Packets Recv: 0
Reference Count: 0
```

Related Commands

Command	Description
tacacs-server host	Defines a TACACS+ secure server host.

Platform Description N/A

18.5 tacacs-server host

Use this command to configure a TACACS+ host.

Use the **no** form of this command to remove the TACACS+ host.

tacacs-server host {*ipv4-address* | *ipv6-address*} [**port** *integer*] [**timeout** *integer*] [**key** [**0** | **7**] *text-string*]

no tacacs-server host { *ip-address* | *ipv6-address* }

Parameter Description

Parameter	Description
ip-address	IPv4 address of the TACACS+ host
ipv6-address	IPv6 address of the TACACS+ host
port *integer*	Port number of the server. The range is from 1 to 65,535. The default is 49.
timeout *integer*	Timeout time of TACACS+ host. The range is from 1 to 1,000.
key *string*	Configures an authentication and encryption key. The value can be 0 or 7. 0 indicates no encryption, while 7 indicates simple encryption. The default is 0.

Defaults No TACACS+ host is specified by default.

Command Mode Global configuration mode

Usage Guide The TACACS+ host must be configured to implement AAA security service You can use this command to configure one or multiple TACACS+ hosts.

Configuration Examples The following example configures a TACACS+ host.

```
Orion Alpha A28X(config)# tacacs-server host 192.168.12.1
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

18.6 tacacs-server key

Use this command to configure the authentication encryption key used for TACACS+ communications between the access server and the TACACS+ server.
Use the **no** form of this command to remove the authentication encryption key.
tacacs-server key [**0** | **7**] *string*
no tacacs-server key

Parameter Description

Parameter	Description
string	Key string
0 | 7	Encryption type of key 0 indicates no encryption; 7 indicate simple encryption.

Defaults No authentication encryption key is configured by default.

Command Mode Global configuration mode

Usage Guide Use command to configure a global authentication and encryption key for TACACS+ communication.
Use the **key** parameter in the **tacacs-server host** command to configure a server-based key.

Configuration Examples The following example defines the authentication encryption key of TACACS+ server as aaa:

```
Orion Alpha A28X(config)# tacacs-server key aaa
```

Related Commands

Command	Description
tacacs-server host	Defines a TACACS+ host.

Platform Description N/A

18.7 tacacs-server timeout

Use this command to set the interval for which the server waits for a server host to reply. Use the **no** form of this command to restore the default timeout interval.
tacacs-server timeout *seconds*
no tacacs-server timeout

Parameter Description

Parameter	Description
seconds	Timeout interval in the range from 1 to 1,000 in the unit of seconds

Defaults The default is 5 seconds.

Command Mode Global configuration mode

Usage Guide Use command to configure a global timeout interval. Use the **timeout** parameter in the **tacacs-server host** command to configure a server-based interval.

Configuration Examples The following example configures the timeout interval to 10 seconds.

```
Orion Alpha A28X(config)# tacacs-server timeout 10
```

Related Commands

Command	Description
tacacs-server host	Defines a TACACS+ secure server host.

Platform Description N/A

19 Global IP-MAC Binding Commands

19.1 address-bind

Use this command to configure global IP-MAC address binding. Use the **no** form of this command to restore the default setting.

address-bind { *ip-address* | *ipv6-address* } mac-address

no address-bind { *ip-address* | *ipv6-address* }

Parameter Description

Parameter	Description
ip-address	IPv4 address to be bound
ipv6-address	IPv6 address to be bound
mac-address	MAC address to be bound

Defaults N/A

Command Mode Global configuration mode

Usage Guide N/A

Configuration Examples

```
The following example configures global IP-MAC address binding.Orion Alpha A28X# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Orion Alpha A28X(config)# address-bind 192.168.5.1 00d0.f800.0001
```

Related Commands

Command	Description
show address-bind	Displays the IP address-MAC address binding table.

Platform Description N/A

19.2 address-bind binding-filter logging

Use this command to enable the logging filter. Use the **no** form of this command to restore the default setting.

address-bind binding-filter logging [**rate-limit** *rate*]

no address-bind binding-filter logging

Parameter Description

Parameter	Description
rate-limit ***rate***	Printing rate of the logging filter of global IPv4 MAC binding. By

	default, the rate is 10 logs per minute. The configurable range is from 1 to 120 logs per minute.

Defaults Logging filter is disabled.

Command Mode Global configuration mode

Usage Guide By default, the rate is 10 logs per minute.
When a logging filter is configured, alert logs are printed if IP packets not containing matched IP address and MAC address are detected.
When a logging filter is configured, the number of non-printed logs is prompted if the actual printing rate exceeds the set rate.

Configuration Examples The following example enables logging filter:

```
Orion Alpha A28X# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Orion Alpha A28X(config)# address-bind binding-filter logging
Orion Alpha A28X(config)# end
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

19.3 address-bind install

Use this command to enable a binding policy globally. Use the **no** form of this command to restore the default setting.
address-bind install
no address-bind install

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

Command Mode Global configuration mode

Usage Guide If you bind an IP address to a MAC address, run this command to make the installation policy take effect.

Configuration Examples The following example enables a binding policy.

```
Orion Alpha A28X# configure terminal
```

```
Enter configuration commands, one per line. End with CNTL/Z.
Orion Alpha A28X(config)# address-bind 3.3.3.3 00d0.f811.1112
Orion Alpha A28X(config)# address-bind install
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

19.4 address-bind ipv6-mode

This command is used to set the IPv6 address binding mode. Use the **no** form of this command to restore the default setting.
This command is also used to set the compatible mode.
address-bind ipv6-mode { compatible | loose | strict }
no address-bind ipv6-mode

Parameter Description

Parameter	Description
compatible	Compatible mode
loose	Loose mode
strict	Strict mode

Defaults The default is strict mode.

Command Mode Global configuration mode.

Usage Guide N/A

Configuration Examples The following example configures the IPv6 address binding mode.

```
Orion Alpha A28X# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Orion Alpha A28X(config)# address-bind ipv6-mode compatible
```

Related Commands

Command	Description
show address-bind uplink	Displays the exceptional port of the address binding.

Platform Description N/A

19.5 address-bind uplink

This command is used to configure the exception port. Use the **no** form of this command to restore

the default setting.

address-bind uplink *interface-id*

no address-bind uplink *interface-id*

Parameter Description

Parameter	Description
interface-id	Switching port or layer 2 aggregate port.

Defaults All ports are non-exception ports by default.

Command Mode Global configuration mode.

Usage Guide If you have bound an IP address and a MAC address, the switch will discard the packets that have the same source IP address but different source MAC address.
If the port is an exceptional port and is installed (see address-bind install), this binding policy does not take effect.

Configuration Examples The following example configures the exception port.

```
Orion Alpha A28X# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Orion Alpha A28X(config)# address-bind uplink GigabitEthernet 0/1
```

Related Commands

Command	Description
show address-bind uplink	Displays the exceptional port of address binding.

Platform Description N/A

19.6 show address-bind

Use this command to display global IP address-MAC address binding.

show address-bind

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

Command Mode Privileged EXEC mode.

Usage Guide N/A

Configuration Examples The following example displays global IPv4 address-MAC address binding.

```
Orion Alpha A28X#show address-bind
Total Bind Addresses in System : 1
```

```
IP Address          Binding MAC Addr
---------------     ----------------
192.168.5.1         00d0.f800.0001
```

Field	Description
Total Bind Addresses in System	IPv4 address-MAC address binding count
IP Address	Bound IP address
Binding MAC Addr	Bound MAC address

Related Commands

Command	Description
address-bind	Enables IP address-MAC address binding.

Platform Description N/A

19.7 show address-bind uplink

Use this command to display the exception port.

show address-bind uplink

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

Command mode N/A

Usage Guide N/A

Configuration Examples The following example displays the exception port.

```
Orion Alpha A28X#show address-bind uplink
Port       State
---------- ---------
Gi0/1      Enabled
Default    Disabled
```

Field	Description
Port	Short for exception ports. All ports are non-exception ports by default.
State	Indicates whether the port is exception port. State Enabled indicates that it is an exception port while state Disabled indicates that it it not.

Related Commands	Command	Description
	address-bind uplink	Sets the exception port.

Platform Description N/A

20 Password-Policy Commands

20.1 password policy life-cycle

Use this command to set the password lifecycle. Use the **no** form of this command to restore the default setting.

password policy life-cycle days

no password policy life-cycle

Parameter Description

Parameter	Description
days	Sets the password lifecycle, in the range from 1 to 65535 in the unit of days.

Defaults No password lifecycle is set by default.

Command Mode Global configuration mode

Usage Guide This command is used to set the password lifecycle. After the password lifecycle expires, the system reminds you to change the password when you login next time.

- This function is valid for the global password (the **enable password** and the **enable secret** commands) and the local user password (the **username** *name* **password** *password* command) while not valid for the password in line mode.

Configuration Examples The following example sets the password lifecycle to 90 days.

```
Orion Alpha A28X(config)# password policy life-cycle 90
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

20.2 password policy min-size

Use this command to set the minimum length of the password. Use the **no** form of this command to restore the default setting.

password policy min-size *length*

no password policy min-size

Parameter Description

Parameter	Description
length	Sets the minimum length of the password, in the range from 1 to 31.

Defaults No minimum length of the password is set by default.

Command Mode Privileged EXEC mode

Usage Guide This command is used to set the minimum length of the password,

- This function is valid for the global password (the **enable password** and the **enable secret** commands) and the local user password (the **username** *name* **password** *password* command) while not valid for the password in line mode.

Configuration Examples The following example sets the minimum length of the password to 8.

```
Orion Alpha A28X(config)# password policy min-size 8
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

20.3 password policy no-repeat-times

Use this command to ban the use of passwords used in the past several times. Use the no form of this command to restore the default setting.

password policy no-repeat-times *times*

no password policy no-repeat-times

Parameter Description

Parameter	Description
times	The past several times when passwords are configured, in the range from 1 to 31.

Defaults This function is disabled by default.

Command Mode Global configuration mode

Usage Guide After this function is enabled, passwords used in the past several times are recorded. If the new password has been used, the alarm message is displayed and password configuration fails.

This command is used to set the maximum number of password entries. When the actual

number of password entries exceeds the configured number, the new password overwrites the oldest password.

- This function is valid for the global password (the **enable password** and the **enable secret** commands) and the local user password (the **username** *name* **password** *password* command) while not valid for the password in line mode.

Configuration Examples

The following example bans the use of passwords used in the past five times.

```
Orion Alpha A28X(config)# password policy no-repeat-times 5
```

Related Commands

Command	Description
N/A	N/A

20.4 password policy strong

Use this command to enable strong password check.

password policy strong

no password policy strong

Parameter Description

Parameter	Description
N/A	N/A

Defaults

This function is disabled by default.

Command Mode

Global configuration mode

Usage Guide

If the following two kinds of passwords are set not matching the strength policy, the alarm message is displayed.

1. The password the same as the username.
2. The simple password containing only characters or numbers.

- This function is valid for the global password (the **enable password** and the **enable secret** commands) and the local user password (the **username** *name* **password** *password* command) while not valid for the password in line mode.

Configuration Examples

The following example configures the strong password check.

```
Orion Alpha A28X(config)# password policy strong
```

Related Commands

Command	Description
N/A	N/A

Platform Description	N/A

1.7 service password-encryption

Use this command to encrypt a password. Use the **no** form of this command to restore default setting.

service password-encryption

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 disabled by default. Various passwords are displayed in plain text, unless they are encrypted. After you run the **service password-encryption** and **show running** or **write** command to save your configuration, the password changes into cipher text. If you disable the command, the password in cipher text cannot be restored to plain text.
Configuration Examples	The following example encrypts the password: `Orion Alpha A28X(config)# service password-encryption`

Related Commands	**Command**	**Description**
	enable password	Sets passwords of different privileges.

Platform Description	N/A

1.8 show password policy

Use this command to display the password security policy set by the user.

show password policy

Parameter Description	**Parameter**	**Description**
	N/A	N/A

Defaults	N/A
Command	Privileged EXEC mode

Mode

Usage Guide This command is used to display the password security policy set by the user.

Configuration Examples The following example displays the password security policy set by the user.

```
Orion Alpha A28X#show password policy
Global password policy configurations:
 Password encryption:                 Enabled
 Password strong-check:               Enabled
 Password min-size:                   Enabled (6 characters)
 Password life-cycle:                 Enabled (90 days)
 Password no-repeat-times:            Enabled (max history record: 5)
```

Field	Description
Password encryption	Whether to encrypt the password.
Password strong-check	Whether to enable password strong-check.
Password min-size	Whether to set the minimum length of the password.
Password life-cycle	Whether to set the password lifecycle.
Password no-repeat-times	

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

21 Port Security Commands

21.1 show port-security

Use this command to display the port security configuration and the secure address.

show port-security [**address** [**interface** *interface-id*] | **binding** [**interface** *interface-id*] | **interface** *interface-id* | **all**]

Parameter Description

Parameter	Description
address	Displays all secure addresses, or the secure address of the specified port.
binding	Displays all port security bindings, or the port security bindings of the specified port.
interface *interface-id*	Displays the port security configuration of the specified port.
all	Displays all valid secure addresses and valid port security bindings.

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide To display all port security configuration and violation management, execute the command without any parameter. To display the security configuration, the secure address, or the port security binding of the specified interface, execute the command with the corresponding parameter.

Configuration Examples The following example displays the port security statistics.

```
Orion Alpha A28X#show port-security
NO.  SecurePort MaxSecureAddr CurrentAddr CurrentIpBind CurrentIpMacBind
SecurityAction
                    (Count)       (Count)       (Count)          (Count)
---- ---------- ------------- ----------- ------------- ----------------
--------------
1    Gi0/1      128           2           2             1
protect
-------------------------------------------------------------------------------
----------
Total secure addresses in System : 2
Total secure bindings  in System : 3
```

Field	Description

NO.	Serial number.
Secure Port	Port name
MaxSecureAddr(count)	The maximum number of secure addresses on the port.
CurrentAddr(count)	The current number of secure addresses on the port.
CurrentIpBind (count)	The current number of IP addresses bindings on the port.
CurrentIpMacBind (count)	The current number of IP-MAC address bindings on the port.
Security Action	Violation management.
Total secure addresses in System	The total number of secure addresses on the device.
Total secure bindings in System	The total number of port security bindings on the device,

The following example displays the port security configuration on interface Gigabitethernet 0/1.

```
Orion Alpha A28X#show port-security interface gigabitEthernet 0/1
Interface                    : GigabitEthernet 0/1
Port status                  : down
Port Security                : enabled
SecureStatic address aging   : disabled
Sticky dynamic address       : disabled
Violation mode               : protect
Maximum MAC Addresses        : 128
Total MAC Addresses          : 2
Configured MAC Addresses     : 2
Dynamic MAC Addresses        : 0
Sticky MAC Addresses         : 0
Total security binding       : 3
IPv4-ONLY Binding Addresses  : 1
IPv6-ONLY Binding Addresses  : 1
IPv4-MAC Binding Addresses   : 1
IPv6-MAC Binding Addresses   : 0
Aging time(min)              : 0
```

Field	Description
Interface	Port name.
Port status	Port status.
Port Security	Displays whether the port security is enabled.
SecureStatic address aging	Displays whether the static secure address aging is enabled.

Sticky dynamic address	Displays whether the dynamic secure address is converted to the sticky secure address,
Violation mode	Port violation management.
Maximum MAC Addresses	The maximum number of secure addresses on the port.
Total MAC Addresses	The number of valid secure addresses on the port.
Configured MAC Addresses	The number of static secure addresses.
Dynamic MAC Addresses	The number of dynamic secure addresses.
Sticky MAC Addresses	The number of sticky secure addresses,
Total security binding	The number of valid port security bindings.
IPv4-ONLY Binding Addresses	The number of IPv4 addresses bindings.
IPv6-ONLY Binding Addresses	The number of IPv6 addresses bindings.
IPv4-MAC Binding Addresses	The number of IPv4-MAC address bindings.
IPv6-MAC Binding Addresses	The number of IPv6-MAC address bindings.
Aging time(min)	The aging time of the secure address.

The following example displays all secure addresses on the device.

```
Orion Alpha A28X#show port-security address
NO.  VLAN  MacAddress      PORT                      TYPE
RemainingAge(mins)  STATUS
---- ----- --------------- ------------------------ ----------
-----------------  ---------
1    1     00d0.f800.073c  GigabitEthernet 0/1       Configured         --
active
2    1     00d0.f800.073d  GigabitEthernet 0/1       Configured         --
active
```

Field	Description
NO.	Serial number.
Vlan	VLAN ID.
Mac Address	MAC address.
Port	Port name.
Type	Secure address type.
Remaining Age(mins)	The aging time of the secure address.
STATUS	The secure address status.

The following example displays all port security bindings on the device.

```
Orion Alpha A28X#show port-security binding
NO.  VLAN MacAddress     PORT       IpAddress
FilterType FilterStatus
---- ---- -------------- ---------- ---------------------------------------
```

```
---------- ------------
1    1    00d0.f800.073c Gi0/1      192.168.12.202
ipv4-mac   active
2     --        --       Gi0/1      192.168.0.1
ipv4-only  active
3     --        --       Gi0/1      ffaa:ddcc::1
ipv6-only  activ
```

Field	Description
NO.	Serial number.
Vlan	VLAN ID.
Mac Address	MAC address.
Port	Port name.
IpAddress	IP address.
FilterType	The filtering type of the port security binding.
FilterStatus	The status of the port security binding.

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

21.2 switchport port-security

Use this command to configure port security and the way to deal with violation.

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

switchport port-security [**violation** { **protect | restrict | shutdown** }]

no switchport port-security [**violation**]

Parameter Description

Parameter	Description
protect	Discards the packets breaching security.
restrict	Discards the packets breaching security and sends the Trap message.
shutdown	Discards the packets breaching the security, sends the Trap message and disables the interface.

Defaults This function is disabled by default.

Command Mode Interface configuration mode

Usage Guide With port security, you can strictly control the input on a specific port by restricting access to the MAC address and IP address (optional) of the port on the switch. After you configure some secure addresses for the port security-enabled port, only the packets from these addresses can be forwarded. In addition, you can also restrict the maximum number of secure addresses on a port. If you set the maximum value to 1 and configure one secure address for this port, the workstation (whose address is the configured secure Mac address) connected to this port will occupy all the bandwidth of this port exclusively.

- If the violation handling mode is changed after violation occurs, the new mode takes effect only after the violation mode is restarted.

Configuration Examples The following example enables port security on interface gigabitethernet 1/1, and the way to deal with violation is **shutdown**:

```
Orion Alpha A28X(config)#interface gigabitethernet 1/1
Orion Alpha A28X(config-if)# switchport port-security
Orion Alpha A28X(config-if)# switchport port-security violation shutdown
```

Related Commands

Command	Description
show port-security	Displays port security settings.

Platform Description N/A

21.3 switchport port-security aging

Use this command to set the aging time for all secure addresses on an interface.
Use the **no** form of this command to restore the default setting.
switchport port-security aging {**static** | **time** *time* }
no switchport port-security aging {**static** | **time** }

Parameter Description

Parameter	Description
static	Applies the aging time to both manually configured secure addresses and automatically learned addresses. Otherwise, apply it to only the automatically learned secure addresses.
time *time*	Specifies the aging time for the secure address on this port. Its range is 0-1,440 in minutes. If you set it to 0, the aging function is disabled actually.

Defaults No secure address is aged by default.

Command Mode Interface configuration mode

Usage Guide

In interface configuration mode, use the **no switchport port-security aging time** command to disable the aging for security addresses on the port. Use the **no switchport port-security aging static** command to apply the aging time to only the dynamically learned security address.
Use the **show port-security** command to display configuration.
When both port security and 802.1X authentication functions are enabled, 802.1X clients must get re-authenticated for network access once the secure addresses are aged.

- To enable this function, you need to set the maximum number of secure addresses. In this way, you can make the switch automatically add or delete the secure addresses on the interface.

Configuration Examples

The following example sets the aging time for all secure addresses on interface gigabitethernet 1/1 to eight minutes.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# interface gigabitethernet 1/1
Orion Alpha A28X(config-if)# switchport port-security aging time 8
Orion Alpha A28X(config-if)# switchport port-security aging static
Orion Alpha A28X(config-if)# end
```

Related Commands

Command	Description
show port-security	Displays port security settings.

Platform Description

N/A

21.4 switchport port-security binding

Use these commands to configure secure address binding manually in the interface configuration mode through performing the source IP address plus source MAC address binding or only the source IP address binding. With this binding configured, only the packets match the binding secure address could enter the switch, others will be discarded.
Use the **no** form of these commands to remove the binding addresses.
switchport port-security binding [*mac-address* **vlan** *vlan_id*] { *ipv4-address* | *ipv6-address* }
switchport port-security binding { *ipv4-address* | *ipv6-address* }
no switchport port-security binding [*mac-address* **vlan** *vlan_id*] { *ipv4-address* | *ipv6-address* }
no switchport port-security binding { *ipv4-address* | *ipv6-address* }

Parameter Description

Parameter	Description
mac-address	The source MAC addresses to be bound
vlan_id	VLAN ID of the binding source MAC address
ipv4-address	Binds IPv4 addresses.
ipv6-address	Binds IPv6 addresses.

Defaults N/A

Command Mode Interface configuration mode

Usage Guide 1. For packets complying with IP/IP-MAC binding, they can be forwarded only if MAC addresses are secure addresses.
2. For dynamic secure addresses, packets cannot be forwarded before bound even if their addresses comply with the binding list.
Network is often accessible to static users with secure addresses without authorization. If authorization is configured, these users must comply with it.

Configuration Examples The following example binds the IP address 192.168.1.100 on interface g 0/10:

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)#interface gigabitethernet 0/10
Orion Alpha A28X(config-if)# switchport port-security binding
192.168.1.100
Orion Alpha A28X(config-if)# end
```

The following example binds the IP address 192.168.1.100 and MAC address 00d0.f800.5555 with VLAN ID 1 on interface g 0/10.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)#interface gigabitethernet 0/10
Orion Alpha A28X(config-if)# switchport port-security binding
00d0.f800.5555 vlan 1 192.168.1.100
Orion Alpha A28X(config-if)# end
```

Related Commands

Command	Description
show port-security	Displays port security settings.
switchport port-security	Enables the port-security.
switchport port-security binding interface	Configures the secure address binding in privileged EXEC mode.
switchport port-security mac-address	Sets the static secure address.
switchport port-security aging	Sets the aging time for secure address.

Platform Description N/A

21.5 switchport port-security binding-filter logging

Use this command to enable binding filter logging.
Use the **no** form of these commands to restore the default setting.

switchport port-security binding-filter logging [**rate-limit** *rate*]
no switchport port-security binding-filter logging

Parameter Description

Parameter	Description
rate-limit *rate*	Indicates the printing rate of binding filter logging. The default rate is 10logs/minute. The configurable range is from 1 to 120 logs per minute.

Defaults By default, binding filter logging is disabled.

Command Mode Global configuration mode

Usage Guide
1. If you run the **switchport port-security binding-filter logging** command without configuring the *rate* parameter, binding filter logging is enabled and the default printing rate, 10logs/minute, is adopted.
2. After binding filter logging is enabled, for packets that do not comply with IP/IP-MAC binding, warmings are printed.
3. After binding filter logging is enabled, if the printing rate exceeds the configured rate, the number of suppressed packets is displayed.

Configuration Examples The following example enables binding filter logging.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# switchport port-security binding-filter logging
Orion Alpha A28X(config)# end
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

21.6 switchport port-security interface binding

Use these commands to configure secure address binding manually in the privileged EXEC mode through performing the source IP address plus source MAC address binding or only the source IP address binding. With this binding configured, only the packets match the binding secure address could enter the switch, others will be discarded.
Use the **no** form of these commands to remove the binding addresses.
switchport port-security interface i*nterface-id* **binding** [*mac-address* **vlan** *vlan_id*] {*ipv4-address* | *ipv6-address}*
switchport port-security interface *interface-id* **binding** {*ipv4-address* | *ipv6-address}*

no switchport port-security interface i*nterface-id* **binding** [*mac-address* **vlan** *vlan_id*] {*ipv4-address* | *ipv6-address}*
no switchport port-security interface *interface-id* **binding** {*ipv4-address* | *ipv6-address}*

Parameter Description

Parameter	Description
interface-id	Binds interface ID.
mac-address	Binds source MAC address.
vlan_id	VLAN ID of the binding source MAC address
ipv4-address	Binds IPv4 address.
ipv6-address	Binds IPv6 address .

Defaults N/A

Command Mode Global configuration mode

Usage Guide 1. For packets complying with IP/IP-MAC binding, they can be forwarded only if MAC addresses are secure addresses.
2. For dynamic secure addresses, packets cannot be forwarded before bound even if their addresses comply with the binding list.

Configuration Examples The following example binds the IP address 192.168.1.100 on the interface g 0/10.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# switchport port-security binding interface g0/10
binding 192.168.1.100
Orion Alpha A28X(config)# end
```

The following example binds the IP address 192.168.1.100 and MAC address 00d0.f800.5555 with VLAN ID 1 on the interface g 0/10.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# switchport port-security binding interface g0/10
binding 00d0.f800.5555 vlan 1 192.168.1.100
Orion Alpha A28X(config)# end
```

Related Commands

Command	Description
show port-security	Displays port security settings.
switchport port-security	Enables the port-security.
switchport port-security binding	Configures the secure address binding in interface configuration mode.
switchport port-security mac-address	Sets the static secure address.
switchport port-security aging	Sets the aging time for secure address.

Platform N/A

Description

21.7 switchport port-security interface mac-address

Use this command to configure the static secure address.

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

switchport port-security interface *interface-id* **mac-address** *mac-address* [**vlan** *vlan-id*]

no switchport port-security interface *interface-id* **mac-address** *mac-address* [**vlan** *vlan-id*]

Parameter Description

Parameter	Description
interface-id	Interface ID
mac-address	Static secure address
vlan-id	VLAN ID of the MAC address ● The configuration of vlan-id is only supported on the TRUNK port.

Defaults N/A

Command Mode Glocal configuration mode

Usage Guide N/A

Configuration Examples The following example sets the static secure address and VLAN ID of TRUNK port 10 to 00d0.f800.5555 and 2 respectively.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# switchport port-security interface g0/10 mac-address 00d0.f800.5555 vlan 2
Orion Alpha A28X(config)# end
```

Related Commands

Command	Description
show port-security	Displays port security settings.
switchport port-security	Enables the port-security.
switchport port-security binding	Configures the secure address binding.
switchport port-security mac-address	Sets the static secure address in interface configuration mode.
switchport port-security aging	Sets the aging time for the secure address.

Platform Description N/A

21.8 switchport port-security mac-address

Use this command to configure the static secure address.

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

switchport port-security mac-address *mac-address* [**vlan** *vlan-id*]

no switchport port-security mac-address *mac-address* [**vlan** *vlan-id*]

Parameter Description

Parameter	Description
mac-address	Static secure MAC address
vlan-id	VLAN ID of the MAC address ● The configuration of vlan-id is only supported on the TRUNK port.

Defaults N/A

Command Mode Interface configuration mode

Usage Guide N/A

Configuration Examples The following example sets the static secure address and VLAN ID of TRUNK port 10 to 00d0.f800.5555 and 2 respectively.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)#interface gigabitethernet 0/10
Orion Alpha A28X(config-if)# switchport port-security mac-address
00d0.f800.5555 vlan 2
Orion Alpha A28X(config-if)# end
```

Related Commands

Command	Description
show port-security	Displays port security settings.
switchport port-security	Enables the port-security.
switchport port-security binding	Configures the secure address binding.
switchport port-security mac-address interface	Sets the static secure address in privileged EXEC mode.
switchport port-security aging	Sets the aging time for the secure address.

Platform Description N/A

21.9 switchport port-security mac-address sticky

Use this command to configure the Sticky MAC secure address.

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

switchport port-security mac-address sticky *mac-address* [**vlan** *vlan-id*]

no switchport port-security mac-address sticky *mac-address* [**vlan** *vlan-id*]

Use the command without parameters to enable the Sticky MAC address learning.

Use the **no** form of this command to disable the Sticky MAC address learning.

switchport port-security mac-address sticky

no switchport port-security mac-address sticky

Parameter Description

Parameter	Description
mac-address	Static secure address
vlan-id	Vlan ID of the MAC address ● The configuration of vlan-id is only supported on the TRUNK port.

Defaults This function is disabled by default.

Command Mode Interface configuration mode

Usage Guide Sticky MAC addresses, either static or dynamic, are special addresses free from aging.

Configuration Examples The following example sets the MAC address and VLAN ID of TRUNK port 10 to 00d0.f800.5555 to 2 respectively.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)#interface gigabitethernet 0/10
Orion Alpha A28X(config-if)# switchport port-security mac-address
00d0.f800.5555 vlan 2
Orion Alpha A28X(config-if)# end
```

The following example enables the Sticky MAC address learning on interface g0/10.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)#interface gigabitethernet 0/10
Orion Alpha A28X(config-if)# switchport port-security sticky mac-address
Orion Alpha A28X(config-if)# end
```

Related Commands

Command	Description
show port-security	Displays port security settings.
switchport port-security	Enables the port-security.

switchport port-security binding	Configures the secure address binding.
switchport port-security mac-address interface	Sets the static secure address in privileged EXEC mode.
switchport port-security mac-address	Sets the static secure address in interface configuration mode.
switchport port-security aging	Sets the aging time for the secure address.

Platform Description N/A

21.10 switchport port-security maximum

Use this command to set the maximum number of port secure addresses.
Use the **no** form of this command to restore the default setting.
switchport port-security maximum *value*
no switchport port-security maximum

Parameter Description

Parameter	Description
value	Maximum number of the secure address, in the range from 1 to 128.

Defaults The default is 128.

Command Mode Interface configuration mode

Usage Guide The number of the secure address contains the sum of static secure address and dynamically learnt secure address, 128 by default.
If the number of the secure address you set is less than current number, it will prompt this setting failure.

Configuration Examples The following example sets the maximum number of the secure address to 2 for interface g 0/10.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)#interface gigabitethernet 0/10
Orion Alpha A28X(config-if)# switchport port-security maximum 2
Orion Alpha A28X(config-if)# end
```

Related Commands

Command	Description
show port-security	Displays port security settings.
switchport port-security	Enables the port-security.
switchport port-security binding	Configures the secure address binding.
Switchport port-security mac-address	Sets the static secure address in the interface configuration mode.

switchport port-security aging	Sets the aging time for the port secure address.

Platform Description N/A

22 Storm Control Commands

22.1 show storm-control

Use this command to display storm suppression information.

show storm-control [*interface-type interface-number*]

Parameter Description

Parameter	Description
interface-type interface-number	Specifies an interface.

Defaults N/A

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

Usage Guide N/A

Configuration Examples The following example displays storm control configuration on FastEthernet 0/1.

```
Orion Alpha A28X# show storm-control fastEthernet 0/1
Interface                 Broadcast Control Multicast Control Unicast
Control Action
------------------------- ----------------- -----------------
--------------- --------
FastEthernet 0/1           1%                50%              1%     none
```

Related Commands

Command	Description
storm-control	Enables storm suppression.

Platform Description N/A

22.2 storm-control

Use this command to enable the storm suppression for unknown unicast packets.

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

storm-control unicast [{ **level** *percent* | **pps** *packets* | *rate-bps* }]

no storm-control unicast

default storm-control unicast

Use this command to enable the storm suppression for multicast packets.

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

storm-control multicast [{ **level** *percent* | **pps** *packets* | *rate-bps* }]

no storm-control multicast
default storm-control multicast

Use this command to enable the storm suppression for broadcast packets.
Use the **no** or **default** form of this command to restore the default setting.
storm-control broadcast [{ **level** *percent* | **pps** *packets* | *rate-bps* }]
no storm-control broadcast
default storm-control broadcast

Parameter Description

Parameter	Description
level *percent*	Sets the bandwidth percentage, for example, 20 means 20%.
pps *packets*	Sets the pps, which means packets per second.
rate-bps	Rate allowed

Defaults This function is disabled by default.

Command Mode Interface configuration mode

Usage Guide Too many broadcast, multicast or unicast packets received on a port may cause storm and thus slow network and increase timeout. Protocol stack implementation errors or wrong network configuration may also lead to such storms.
A device can implement the storm suppression to a broadcast, a multicast, or a unicast storm respectively. When excessive broadcast, multicast or unknown unicast packets are received, the switch temporarily prohibits forwarding of relevant types of packets till data streams are recovered to the normal state (then packets will be forwarded normally).

Configuration Examples The following example enables the multicast storm suppression on FastEthernet 0/1 and sets the allowed rate to 4M.

```
Orion Alpha A28X(config)# int fastEthernet 0/1
Orion Alpha A28X(config-if-FastEthernet 0/1)# storm-control multicast 4096
```

Related Commands

Command	Description
show storm-control	Displays storm suppression information.

Platform Description N/A

23 SSH Commands

23.1 crypto key generate

Use this command to generate a public key to the SSH server.

crypto key generate { **rsa | dsa** }

Parameter Description

Parameter	Description
rsa	Generates an RSA key.
dsa	Generates a DSA key.

Defaults By default, the SSH server does not generate a public key.

Command Mode Global configuration mode

Usage Guide When you need to enable the SSH SERVER service, use this command to generate a public key on the SSH server and enable the SSH SERVER service by command **enable service ssh-server** at the same time. SSH 1 uses the RSA key; SSH 2 uses the RSA or DSA key. Therefore, if a RSA key has been generated, both SSH1 and SSH2 can use it. If only a DSA key is generated, only SSH2 can use it.

- Only DSA/RSA authentication is available for one connection. Also, the key algorithm may differ in different client. Thus, it is recommended to generate both RSA and DSA keys so as to ensure connection with the portal server.
- RSA has a minimum modulus of 512 bits and a maximum modulus of 2,048 bits; DSA has a minimum modulus of 360 bits and a maximum modulus of 2,048 bits. For some clients like SCP clients, a 768-bit or more key is required. Thus, it is recommended to generate the key of 768 bits or more.
- A key can be deleted by using the **no crypto key generate** command. The **no crypto key zeroize** command is not available.

Configuration Examples The following example generates an RSA key to the SSH server.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(con fig)# crypto key generate rsa
```

Related Commands

Command	Description
show ip ssh	Displays the current status of the SSH server.
crypto key zeroize { **rsa** | **dsa** }	Deletes DSA and RSA keys and disables the SSH server function.

Platform Description N/A

23.2 crypto key zeroize

Use this command to delete a public key to the SSH server.

crypto key zeroize { **rsa | dsa** }

Parameter Description

Parameter	Description
rsa	Deletes the RSA key.
dsa	Deletes the DSA key.

Defaults N/A

Command Mode Global configuration mode

Usage Guide This command deletes the public key to the SSH server. After the key is deleted, the SSH server state becomes DISABLE. If you want to disable the SSH server, run the **no enable service ssh-server** command.

Configuration Examples The following example deletes a RSA key to the SSH server.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# crypto key zeroize rsa
```

Related Commands

Command	Description
show ip ssh	Displays the current status of the SSH server.
crypto key generate { **rsa	dsa** }	Generates DSA and RSA keys.

Platform Description N/A

23.3 disconnect ssh

Use this command to disconnect the established SSH connection.

disconnect ssh [**vty**] *session-id*

Parameter Description

Parameter	Description
vty	Established VTY connection
session-id	ID of the established SSH connection, in the range from 0 to 35

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide You can disconnect a SSH connection by entering the ID of the SSH connection or disconnect a SSH connection by entering the specified VTY connection ID. Only connections of the SSH type can be disconnected.

Configuratio The following example disconnects the established SSH connection by specifying the SSH session

n Examples ID.

```
Orion Alpha A28X# disconnect ssh 1
```

The following example disconnects the established SSH connection by specifying the VTY session ID.

```
Orion Alpha A28X# disconnect ssh vty 1
```

Related Commands	**Command**	**Description**
	show ssh	Displays the information about the established SSH connection.
	clear line vty *line_number*	Disconnects the current VTY connection.

Platform Description N/A

23.4 ip scp server enable

Use this command to enable the SCP server function on a network device.

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

ip scp server enable

no ip scp server enable

Parameter Description	**Parameter**	**Description**
	N/A	N/A

Defaults This function is disabled by default.

Command Mode Global configuration mode

Usage Guide Secure Copy (SCP) enables an authenticated user to transfer files to/from a remote device in an encrypted way, with high security and guarantee.

Configuration Examples The following example enables the SCP server function.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# ip scp server enable
```

Related Commands	**Command**	**Description**
	show ip ssh	Displays the current status of the SSH server.

Platform Description N/A

23.5 ip ssh authentication-retries

Use this command to set the authentication retry times of the SSH server.

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

ip ssh authentication-retries *retry times*

no ip ssh authentication-retries

Parameter Description

Parameter	Description
retry times	Authentication retry times, ranging from 0 to 5

Defaults The default is 3.

Command Mode Global configuration mode

Usage Guide User authentication is considered failed if authentication is not successful when the configured authentication retry times on the SSH server is exceeded. Use the **show ip ssh** command to display the configuration of the SSH server

Configuration Examples The following example sets the authentication retry times to 2.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# ip ssh authentication-retries 2
```

Related Commands

Command	Description
show ip ssh	Displays the current status of the SSH server.

Platform Description N/A

23.6 ip ssh cipher-mode

Use this command to set the SSH server encryption mode.

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

ip ssh cipher-mode { **cbc** | **ctr** | **others** }

no ip ssh cipher-mode

Parameter Description

Parameter	Description
cbc	Encryption mode: CBC (Cipher Block Chaining) Encryption algorithm: DES-CBC, 3DES-CBC, AES-128-CBC, AES-192-CBC, AES-256-CBC, Blow fish-CBC
ctr	Encryption mode: CTR (Counter) Encryption algorithm: AES128-CTR, AES192-CTR, AES256-CTR
others	Encryption mode: Others Encryption algorithm: RC4

Defaults All encryption modes are supported by default.

Command Mode Global configuration mode

Usage Guide This command is used to set the SSH server encryption mode.

For Orion Alpha A28X Networks, the SSHv1 server supports DES-CBC, 3DES-CBC, and Blowfish-CBC; the SSHv2 server supports AES128-CTR, AES192-CTR, AES256-CTR, DES-CBC, 3DES-CBC, AES-128-CBC, AES-192-CBC, AES-256-CBC, Blowfish-CBC, and RC4. All these algorithms

can be grouped into CBC, CTR and Other as shown above.
With the advancement of cryptography study, CBC and Others encryption modes are proved to easily decipher. It is recommended to enable the CTR mode to raise assurance for organizations and enterprises demanding high security.

Configuration Examples

The following example enables CTR encryption mode.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# ip ssh cipher-mode ctr
```

Platform Description

N/A

23.7 ip ssh hmac-algorithm

Use this command to set the algorithm for message authentication.
Use the **no** form of this command to restore the default setting.
ip ssh hmac-algorithm { **md5** | **md5-96** | **sha1** | **sha1-96** }
no ip ssh hmac-algorithm

Parameter Description

Parameter	Description
md5	MD5 algorithm
md5-96	MD5-96 algorithm
sha1	SHA1 algorithm
sha1-96	SHA1-96 algorithm

Defaults

SSHv1: all the algorithms are not supported.
SSHv2: all the algorithms are supported.

Command Mode

Global configuration mode

Usage Guide

Orion Alpha A28X SSHv1 servers do not support algorithms for message authentication.
For Orion Alpha A28X Networks, the SSHv1 server does not support message authentication algorithms; the SSHv2 server supports MD5, MD5-96, SHA1, and SHA1-96 algorithms. Set the algorithm on your demand.

Configuration Examples

The following example sets the algorithm for message authentication to SHA1.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# ip ssh hmac-algorithm sha1
```

Platform Description

N/A

23.8 ip ssh peer

Use this command to associate the public key file and the user name on the client. During client login authentication, you can specify a public key file based on the user name.
Use the **no** form of this command to restore the default setting.

ip ssh peer *username* **public-key** { **rsa** | **dsa** } *filename*

no ip ssh peer *username* **public-key** { **rsa** | **dsa** } *filename*

Parameter Description

Parameter	Description
username	User name
filename	Name of a public key file
rsa	The public key is a RSA key
dsa	The public key is a DSA key

Defaults N/A

Command Mode Global configuration mode

Usage Guide N/A

Configuration Examples The following example sets RSA and DSA key files associated with user **test**.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# ip ssh peer test public-key rsa flash:rsa.pub
Orion Alpha A28X(config)# ip ssh peer test public-key dsa flash:dsa.pub
```

Related Commands

Command	Description
show ip ssh	Displays the current status of the SSH server.

Platform Description N/A

23.9 ip ssh time-out

Use this command to set the authentication timeout for the SSH server.

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

ip ssh time-out *time*

no ip ssh time-out

Parameter Description

Parameter	Description
time	Authentication timeout, in the range from 1 to 120 in the unit of seconds

Defaults The default is 120 seconds.

Command Mode Global configuration mode

Usage Guide The authentication is considered timeout and failed if the authentication is not successful within 120 seconds starting from receiving a connection request. Use the **show ip ssh** command to display the configuration of the SSH server.

Configuration Examples The following example sets the timeout value to 100 seconds.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# ip ssh time-out 100
```

Related Commands	Command	Description
	show ip ssh	Displays the current status of the SSH server.

Platform Description N/A

23.10 ip ssh version

Use this command to set the version of the SSH server.

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

ip ssh version { **1** | **2** }

no ip ssh version

Parameter Description	Parameter	Description
	1	Supports the SSH1 client connection request.
	2	Supports the SSH2 client connection request.

Defaults SSH1 and SSH2 are compatible by default.

Command Mode Global configuration mode

Usage Guide This command is used to configure the SSH connection protocol version supported by SSH server. By default, the SSH server supports SSH1 and SSH2. If Version 1 or 2 is set, only the SSH client of this version can connect to the SSH server. Use the **show ip ssh** command to display the current status of SSH server.

Configuration Examples The following example sets the version of the SSH server.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# ip ssh version 2
```

Related Commands	Command	Description
	show ip ssh	Displays the current status of the SSH server.

Platform Description N/A

23.11 show crypto key mypubkey

Use this command to display the information about the public key part of the public key to the SSH server.

show crypto key mypubkey { **rsa | dsa** }

Parameter Description	Parameter	Description
	rsa	Displays the RSA key.
	dsa	Displays the DSA key.

Defaults N/A

Command Mode Privileged EXEC mode/Global configuration mode

Usage Guide This command is used to show the information about the public key part of the generated public key on the SSH server, including key generation time, key name, contents in the public key part, etc.

Configuration Examples The following example displays the information about the public key part of the public key to the SSH server.

```
Orion Alpha A28X(config)#show crypto key mypubkey rsa
% Key pair was generated at: 7:1:25 UTC Jan 16 2013
 Key name: RSA1 private
 Usage: SSH Purpose Key
 Key is not exportable.
 Key Data:
        AAAAAwEA AQAAAEEA 2m6H/J+2 xOMLW5MR 8tOmpW1I XU1QItVN mLdR+G7O
Q10kz+4/
        /IgYR0ge 1sZNg32u dFEifZ6D zfLySPqC MTWLfw==

% Key pair was generated at: 7:1:25 UTC Jan 16 2013
 Key name: RSA private
 Usage: SSH Purpose Key
 Key is not exportable.
 Key Data:
        AAAAAwEA AQAAAEEA 0E5w2H0k v744uTIR yZBd/7AM 8pLItnW3 XH3LhEEi
BbZGZvn3
        LEYYfQ9s pgYL0ZQf S0s/GY0X gJOMsc6z i8OAkQ==
```

Related Commands

Command	Description
crypto key generate { **rsa** | **dsa** }	Generates DSA and RSA keys.

Platform Description N/A

23.12 show ip ssh

Use this command to display the information of the SSH server.

show ip ssh

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

Command Mode Privileged EXEC mode/Global configuration mode

Usage Guide This command is used to display the information of the SSH server, including version, enablement state, authentication timeout, and authentication retry times.
Note: If no key is generated for the SSH server, the SSH version is still unavailable even if this SSH version has been configured.

Configuration Examples The following example displays the information of the SSH server.

```
SSH and SCP disabled:
Orion Alpha A28X(config)#show ip ssh
SSH Disable - version 1.99
please generate rsa and dsa key to enable SSH
Authentication timeout: 120 secs
Authentication retries: 3
SSH SCP Server: disabled

SSH and SCP enabled:
Orion Alpha A28X(config)#show ip ssh
SSH Enable - version 1.99
Authentication timeout: 120 secs
Authentication retries: 3
SSH SCP Server: enabled
```

Related Commands

Command	Description
ip ssh version {**1** | **2**}	Configures the version for the SSH server.
ip ssh time-out time	Sets the authentication timeout for the SSH server.
ip ssh authentication-retries	Sets the authentication retry times for the SSH server.

Platform Description N/A

23.13 show ssh

Use this command to display the information about the established SSH connection.
show ssh

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

Command Mode Privileged EXEC mode/Global configuration mode

Usage Guide This command is used to display the information about the established SSH connection, including VTY number of connection, SSH version, encryption algorithm, message authentication algorithm, connection status, and user name.

Configuratio The following example displays the information about the established SSH connection:

n Examples

```
Orion Alpha A28X#show ssh
Connection Version Encryption       Hmac         Compress   State
Username
         0     1.5 blowfish                      zlib       Session
started test
         1     2.0 aes256-cbc       hmac-sha1    zlib       Session
started test
```

Field Description

Field	Description
Connection	VTY number
Version	SSH version
Encryption	Encryption algorithm
Hmac	Message authentication algorithm
Compress	Compress algorithm
State	Connection state
Username	Username

Related Commands

Command	Description
N/A	N/A

Platform Description

N/A

24 CPU Protection Commands

24.1 clear cpu-protect counters

Use this command to clear the CPP statistics.

clear cpu-protect counters [**device** *device_num*] [**slot** *slot_num*]

Parameter Description

Parameter	Description
device_num	As a single physical device, there is no device parameter; As a VSU, the device parameter indicates the chassis or the box-type device. If no device parameter is specified, that indicates this command takes effect to the master chassis or the master box-type device.
slot_num	To the box-type device, there is no slot parameter. To the chassis device, the slot parameter indicates the line card of the master chassis. If no slot parameter is specified, that means the command will clear all node statistics in the system. If you want to clear the statistics of a specific node, both the device parameter and the slot parameter will be required.

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide N/A

Configuration Examples The following example clears the CPP statistics.

```
Orion Alpha A28X(config)#show cpu-protect type bpdu
Packet Type         Traffic-class  Bandwidth(pps)  Rate(pps)  Drop(pps)
Total     Total Drop
------------------  -------------  --------------  ---------  ---------
--------  ----------
bpdu                6              200             0          0
600       50
Orion Alpha A28X#clear cpu-protect counters
Orion Alpha A28X(config)#show cpu-protect type bpdu
Packet Type         Traffic-class  Bandwidth(pps)  Rate(pps)  Drop(pps)
Total     Total Drop
------------------  -------------  --------------  ---------  ---------
--------  ----------
bpdu                6              200             0          0          0
0
```

Related

Command	Description

Commands

N/A	N/A

Platform Description N/A

24.2 cpu-protect type bandwidth

Use this command to configure the bandwidth of a specific packet.

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

cpu-protect type *packet-type* **bandwidth** *bandwidth_value*

no cpu-protect type *packet-type* **bandwidth**

Parameter Description

Parameter	Description
packet-type	Packet type, which varies with products
bandwidth_value	An integer number ranges from 0 to 32000 (pps). Indicates the bandwidth value of the CPU port.

Defaults The default CPU port bandwidth varies with products.

Command Mode Global configuration mode

Usage Guide N/A

Configuration Examples The following example sets the BPDU bandwidth to 200 pps.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# cpu-protect type bpdu bandwitdth 200
Orion Alpha A28X(config)#show cpu-protect type bpdu
Packet Type         Traffic-class  Bandwidth(pps)  Rate(pps)  Drop(pps)
Total     Total Drop
------------------  -------------  --------------  ---------  ---------
--------  ----------
bpdu                6              200             0          0          0
0
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

24.3 show cpu-protect

Use this command to display all CPP configuration and statistics.

show cpu-protect [**device** *device_num*] [**slot** *slot_num*]

Parameter Description

Parameter	Description
device_num	As a single physical device, there is no device parameter; As a VSU, the device parameter indicates the chassis or the box-type device. If no device parameter is specified, that indicates this command takes effect to the master chassis or the master box-type device.
slot_num	To the box-type device, there is no slot parameter. To the chassis device, the slot parameter indicates the line card of the master chassis. If no slot parameter is specified, that means the command will clear all node statistics in the system. If you want to clear the statistics of a specific node, both the device parameter and the slot parameter will be required.

Defaults N/A

Command Mode All configuraiton mode

Usage Guide N/A

Configuration Examples N/A

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

25 DHCP Snooping Commands

25.1 clear ip dhcp snooping binding

Use this command to delete the dynamic user information from the DHCP Snooping binding database.

clear ip dhcp snooping binding [*ip*] [*mac*] [**vlan** *vlan-id*] [**interface** *interface-id*]

Parameter Description

Parameter	Description
mac	Specifies the user MAC address to be cleared.
vlan-id	Specifies the ID of the VLAN to be cleared.
ip	Specifies the IP address to be cleared.
interface-id	Specifies the ID of the interface to be cleared.

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide Use this command to clear the current dynamic user information from the DHCP Snooping binding database.

- After this command is used, all the DHCP clients connecting interfaces with IP Source Guard function enabled should request IP addresses again, or they cannot access network.

Configuration Examples The following example clears the dynamic database information from the DHCP Snooping binding database.

```
Orion Alpha A28X# clear ip dhcp snooping binding
Orion Alpha A28X# show ip dhcp snooping binding
Total number of bindings: 0
MacAddress IpAddress Lease(sec) Type VLAN Interface
---------- ---------- ---------- -------- ---- ---------
```

Related Commands

Command	Description
show ip dhcp snooping binding	Displays the information of the DHCP Snooping binding database.

Platform Description N/A

25.2 ip dhcp snooping

Use this command to enable the DHCP Snooping function globally.
Use the **no** form of this command to restore the default setting.
ip dhcp snooping
no ip dhcp snooping

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is disabled by default.

Command Mode Global configuration mode

Usage Guide The **show ip dhcp snooping** command is used to display whether the DHCP Snooping function is enabled.

Configuration Examples The following example enables the DHCP Snooping function.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# ip dhcp snooping
```

```
Orion Alpha A28X(config)# end
```

Related Commands

Command	Description
show ip dhcp snooping	Displays the configuration information of DHCP Snooping.
ip dhcp snooping vlan	Configures DHCP Snooping enabled VLAN.

Platform Description N/A

25.3 ip dhcp snooping bootp-bind

Use this command to enable DHCP Snooping BOOTP-bind function.
Use the **no** form of this command to restore the default setting.
ip dhcp snooping bootp-bind
no ip dhcp snooping bootp-bind

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is disabled by default.

Command Mode Global configuration mode

Usage Guide By default, the DHCP Snooping only forwards BOOTP packets. With this function enabled, it can Snoop BOOTP packets. After the BOOTP client requests an address successfully, the DHCP Snooping adds the BOOTP user to the static binding database.

Configuration Examples The following example enables the DHCP Snooping BOOTP-bind function.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# ip dhcp snooping bootp-bind
Orion Alpha A28X(config)# end
```

Related Commands

Command	Description
show ip dhcp snooping	Displays the DHCP Snooping configuration.

Platform Description N/A

25.4 ip dhcp snooping check-giaddr

Use this command to enable DHCP Snooping to support the function of processing Relay requests.
Use the **no** form of this command to restore the default setting.

ip dhcp snooping check-giaddr
no ip dhcp snooping check-giaddr

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is disabled by default.

Command Mode Global configuration mode

Usage Guide After the feature is enabled, services using DHCP Snooping binding entries generated based on Relay requests, such as IP Source Guard/802.1x authentication, cannot be deployed. Otherwise, users fail to access the Internet.
After the feature is enabled, the **ip dhcp snooping verify mac-address** command cannot be used. Otherwise, DHCP Relay requests will be discarded and as a result, users fail to obtain addresses.

Configuration Examples The following example enables DHCP Snooping to support the function of processing Relay requests.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# ip dhcp snooping check-giaddr
Orion Alpha A28X(config)# end
```

Related Commands

Command	Description
show ip dhcp snooping	Displays the configuration information of the DHCP Snooping.

Platform Description N/A

25.5 ip dhcp snooping database write-delay

Use this command to configure the switch to write the dynamic user information of the DHCP Snooping binding database into the flash periodically.
Use the **no** form of this command to restore the default setting.
ip dhcp snooping database write-delay *time*
no ip dhcp snooping database write-delay

Parameter Description

Parameter	Description
time	The interval at which the system writes the dynamic user information of the DHCP Snooping database into the flash, in the range from 600 to 86,400 in the unit of seconds

Defaults This function is disabled by default.

Command Mode Global configuration mode

Usage Guide This function writes user information into flash in case of loss after restart. In that case, users need to obtain IP addresses again for normal communication.

- Too fast writing will reduce flash durability.

Configuration Examples The following example sets the interval at which the switch writes the user information into the flash to 3,600 seconds.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# ip dhcp snooping database write-delay 3600
Orion Alpha A28X(config)# end
```

Related Commands

Command	Description
show ip dhcp snooping	Displays the configuration information of the DHCP Snooping.

Platform Description N/A

25.6 ip dhcp snooping database write-to-flash

Use this command to write the dynamic user information of the DHCP binding database into flash in real time.

ip dhcp snooping database write-to-flash

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

Command Mode Global configuration mode

Usage Guide This command is used to write the dynamic user information of the DHCP binding database into flash in real time.

Configuration Examples The following example writes the dynamic user information of the DHCP binding database into flash.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# ip dhcp snooping database write-to-flash
Orion Alpha A28X(config)# end
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

25.7 ip dhcp snooping information option

Use this command to add option82 to the DHCP request message.
Use the **no** form of this command to restore the default setting.
ip dhcp snooping information option [**standard-format**]
no ip dhcp snooping information option [**standard-format**]

Parameter Description

Parameter	Description
standard-format	The option82 uses the standard format.

Defaults This function is disabled by default,

Command Mode Global configuration mode

Usage Guide This command adds option82 to the DHCP request messages based on which the DHCP server assigns IP addresses.
By default, this function is in extended mode.

- DHCP Relay function adds option82 by default. Therefore, it is unnecessary to enable functions of DHCP Snooping option82 and DHCP Relay at the same time.

Configuration Examples The following example adds option82 to the DHCP request message.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# ip dhcp snooping information option
Orion Alpha A28X(config)# end
```

Related Commands

Command	Description
show ip dhcp snooping	Displays the DHCP Snooping configuration.

Platform Description N/A

25.8 ip dhcp snooping information option format remote-id

Use this command to set the option82 sub-option remote-id as the customized character string.
Use the **no** form of this command to restore the default setting.
ip dhcp snooping information option format remote-id { **string** *ascii-string* **| hostname** }
no ip dhcp snooping information option format remote-id { **string** *ascii-string* **| hostname** }

Parameter Description

Parameter	Description

string *ascii-string*	The content of the option82 remote-id extension format is customized character string.
hostname	The content of the option82 remote-id extension format hostname

Defaults This function is disabled by default.

Command Mode Global configuration mode

Usage Guide This command sets the remote-id in the option82 to be added to the DHCP request message as the customized character string. The DHCP server will assign the IP address according to the option82 information.

Configuration Examples The following example adds the option82 into the DHCP request packets with the content of remote-id as hostname.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# ip dhcp snooping information option format remote-id hostname
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

25.9 ip dhcp snooping information option strategy

Use this command to configure Option82 strategy.
Use the **no** form of this command to restore the default setting.
ip dhcp snooping information option strategy {keep | drop | replace}
no ip dhcp snooping information option strategy

Parameter Description

Parameter	Description
keep	Indicates reception of request packets with Option82. Option82 is kept and the packets are forwarded.
drop	Indicates reception of request packets with Option82. The packets are dropped.
replace	Indicates reception of request packets with Option82. Option82 of the packets are replaced with Option82 configured latest. The packets are forwarded.

Defaults This function is disabled by default.

Command Mode Global configuration mode

Usage Guide This command only works for request packets with Option82.
If strategy is “keep” or “drop”, trailing padding is not needed for request packets with Option82.
If strategy is “replace”, trailing padding is needed for request packets with Option82.
Request packets without Option82 are padded with trailing.

Configuration Examples The following example sets “keep” as strategy.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# ip dhcp snooping information option strategy
keep
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

25.10 ip dhcp snooping loose-forward

Use this command to enable DHCP Snooping loose forwarding.
Use the **no** form of this command to restore the default setting.
ip dhcp snooping loose-forward
no ip dhcp snooping loose-forward

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is disabled by default.

Command Mode Global configuration mode

Usage Guide After this feature is enabled, when the capacity of DHCP Snooping binding entries is reached, DHCP packets of new users are forwarded and obtain addresses, but DHCP Snooping does not record binding entries of new users.

Configuration Examples The following example enables DHCP Snooping loose forwarding.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# ip dhcp snooping loose-forward
Orion Alpha A28X(config)# end
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

25.11 ip dhcp snooping suppression

Use this command to set the port to be the suppression status.
Use the **no** form of this command to restore the default setting.
ip dhcp snooping suppression
no ip dhcp snooping suppression

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is disabled by default.

Command Mode Interface configuration mode

Usage Guide This command denies all DHCP request messages under the port, that is, all the users under the port are prohibited to request IP addresses through DHCP.
This command is only supported on Layer 2 switch interfaces and aggregate ports (APs).

Configuration Examples The following example sets **fastethernet** 0/2 to be in the suppression status.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# interface fastEthernet 0/2
Orion Alpha A28X(config-if)# ip dhcp snooping suppression
Orion Alpha A28X(config-if)# end
```

Related Commands

Command	Description
show ip dhcp snooping	Displays the DHCP Snooping configuration.

Platform Description N/A

25.12 ip dhcp snooping trust

Use this command to set the trusted ports for DHCP Snooping.
Use the **no** form of this command to restore the default setting.
ip dhcp snooping trust
no ip dhcp snooping trust

Parameter Description

Parameter	Description
N/A	N/A

Defaults All ports are untrusted by default.

Command Interface configuration mode

Mode

Usage Guide Use this command to set a port as a trusted port. The DHCP response messages received under the trust port are forwarded normally, but the response messages received under the untrusted port will be discarded. This command is only supported on Layer 2 switch interfaces and aggregate ports (APs).

Configuration Examples The following example sets fastEthernet 0/1 as a trusted port:

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# interface fastEthernet 0/1
Orion Alpha A28X(config-if)# ip dhcp snooping trust
Orion Alpha A28X(config-if)# end
```

Related Commands

Command	Description
show ip dhcp snooping	Displays the DHCP Snooping configuration.

Platform Description N/A

25.13 ip dhcp snooping verify mac-address

Use this command to check whether the source MAC address of the DHCP request message matches against the **client addr** field of the DHCP message.
Use the **no** form of this command to restore the default setting.
ip dhcp snooping verify mac-address
no ip dhcp snooping verify mac-address

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is disabled by default.

Command Mode Global configuration mode

Usage Guide Use this command to check the source MAC address of the DHCP request message. If the MAC address in the link-layer header is different from the CHADDR (Client MAC Address), the check fails, and the packets will be discarded.

Configuration Examples The following example enables the check of the source MAC address of the DHCP request message.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# ip dhcp snooping verify mac-address
Orion Alpha A28X(config)# end
```

Related

Command	Description

Commands		
	show ip dhcp snooping	Displays the DHCP Snooping configuration.

Platform Description N/A

25.14 ip dhcp snooping vlan

Use this command to enable DHCP Snooping for the specific VLAN.

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

ip dhcp snooping vlan {*vlan-rng* | { *vlan-min* [*vlan-max*] } }

no ip dhcp snooping vlan {*vlan-rng* | { *vlan-min* [*vlan-max*] } }

Parameter Description

Parameter	Description
vlan-rng	VLAN range of effective DHCP Snooping
vlan-min	Minimum VLAN of effective DHCP Snooping
vlan-max	Maximum VLAN of effective DHCP Snooping

Defaults By default, once the DHCP Snooping is enabled globally, it takes effect for all VLANs.

Command Mode Global configuration mode

Usage Guide Use this command to enable DHCP Snooping for specified VLANs globally.

Configuration Examples The following example enables the DHCP Snooping function in VLAN 1000.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# ip dhcp snooping vlan 1000
Orion Alpha A28X(config)# end
```

Related Commands

Command	Description
ip dhcp snooping	Enables DHCP Snooping globally.

Platform Description N/A

25.15 ip dhcp snooping vlan max-user

Use this command to set the maximum number of users bound with the VLAN.

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

ip dhcp snooping vlan *vlan-word* **max-user** *user-number*

no ip dhcp snooping vlan *vlan-word* **max-user** *user-number*

Parameter Description

Parameter	Description

vlan-word	The VLAN range
user-number	The maximum number of users bound with the VLAN

Defaults This function is disabled by default.

Command Mode Interface configuration mode

Usage Guide Use this command to set the maximum number of users bound with the VLAN. This function combined with the corresponding topology can prevent illegal DHCP packet attacks.

Configuration Examples The following example sets the maximum number of users bound with VLAN 1 to 10 and VLAN 20 to 30 respectively.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# interface GigabitEthernet 0/1
Orion Alpha A28X(config-if-GigabitEthernet 0/1)# ip dhcp snooping vlan 1-10,20 max-user 30
Orion Alpha A28X(config-if-GigabitEthernet 0/1)# end
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

25.16 ip dhcp snooping vlan information option change-vlan-to vlan

Use this command to enable the option82 sub-option circuit-id and change the VLAN in the circuit-id into the specified VLAN.
Use the **no** form of this command to restore the default setting.
ip dhcp snooping vlan *vlan-id* **information option change-vlan-to vlan** *vlan-id*
no ip dhcp snooping vlan *vlan-id* **information option change-vlan-to vlan** *vlan-id*

Parameter Description

Parameter	Description
vlan-id	The ID of the VLAN to be replaced

Defaults This function is disabled by default.

Command Mode Interface configuration mode

Usage Guide With this command configured, the option82 is added to the DHCP request packets, the circuit-id in the option82 information is the specified VLAN and the DHCP server will assign the addresses according to the option82 information.

Configuration Examples The following adds the option82 to the DHCP request packets and changes the VLAN 4094 in the option82 sub-option circuit-id to VLAN93:

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# interface fastEthernet 0/1
Orion Alpha A28X(config-if)# ip dhcp snooping vlan 4094 information option
change-vlan-to vlan 4093
Orion Alpha A28X(config-if)# end
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

25.17 ip dhcp snooping vlan information option format-type circuit-id string

Use this command to configure the option82 sub-option circuit-id as user-defined (the storage format is ASCII) and to perform the packet forwarding.
Use the **no** form of this command to restore the default setting.
ip dhcp snooping vlan *vlan-id* **information option format-type circuit-id string** *ascii-string*
no ip dhcp snooping vlan *vlan-id* **information option format-type circuit-id string** *ascii-string*

Parameter Description

Parameter	Description
vlan-id	The VLAN where the DHCP request packets are
ascii-string	The user-defined content to fill to the Circuit ID

Defaults This function is disabled by default.

Command Mode Interface configuration mode

Usage Guide This command is used to add the option82 to the DHCP request packets. The content of the sub-option circuit-id is customized with 3 to 63 bytes, and the DHCP server will assign the addresses according the option82 information.

Configuration Examples The following example adds the option82 to the DHCP request packets with the content of the sub-option circuit-id as *port-name*.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# interface fastEthernet 0/1
Orion Alpha A28X(config-if)# ip dhcp snooping vlan 4094 information option
format-type circuit-id string port-name
Orion Alpha A28X(config-if)# end
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

25.18 renew ip dhcp snooping database

Use this command to import the information in current flash to the DHCP Snooping binding database manually as needed.

renew ip dhcp snooping database

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide This command is used to import the flash file information to the DHCP Snooping database in real time.

- Records out of lease time and repeated will be neglected.

Configuration Examples The following example imports the flash file information to the DHCP Snooping database.

```
Orion Alpha A28X# renew ip dhcp snooping database
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

25.19 show ip dhcp snooping

Use this command to display the DHCP Snooping configuration.

show ip dhcp snooping

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide N/A

Configuration Examples

```
The following example displays the DHCP Snooping configuration.
Orion Alpha A28X# show ip dhcp snooping
Switch DHCP snooping status :ENABLE
Verification of hwaddr field status :DISABLE
DHCP snooping database write-delay time: 0 seconds
DHCP snooping option 82 status: ENABLE
DHCP snooping Support Bootp bind status: ENABLE
Interface                                        Trusted
Rate limit(pps)
------------------------                         ----------------
----------------
GigabitEthernet 0/4                              YES
unlimited
Default                                          No
```

Related Commands

Command	Description
ip dhcp snooping	Enables the DHCP Snooping globally.
ip dhcp snooping verify mac-address	Enables the check of source MAC address of DHCP Snooping packets.
ip dhcp snooping write-delay	Sets the interval of writing user information to FLASH periodically.
ip dhcp snooping information option	Adds option82 to the DHCP request message.
ip dhcp snooping bootp-bind	Enables the DHCP Snooping bootp bind function.
ip dhcp snooping trust	Sets the port as a trust port.

Platform Description N/A

25.20 show ip dhcp snooping binding

Use this command to display the information of the DHCP Snooping binding database.

show ip dhcp snooping binding

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide This command is used to display all the information of the DHCP Snooping binding database.

Configuration Examples

1: The following example displays the information of the DHCP Snooping binding database.

```
Orion Alpha A28X# show ip dhcp snooping binding
Total number of bindings: 1
NO.   MACADDRESS         IPADDRESS       LEASE(SEC)   TYPE          VLAN
INTERFACE
----- ------------------ --------------- ------------ ------------- -----
--------------------
1     0000.0000.0001     1.1.1.1         78128        DHCP-Snooping 1
GigabitEthernet 0/1
```

Parameter	Description
Total number of bindings	The total number of bindings in the DHCP Snooping database.
NO.	The record order.
MacAddress	The MAC address of the user.
IpAddress	The IP address of the user.
Lease(sec)	The lease time of the record.
Type	The record type.
VLAN	The VLAN where the user belongs.
Interface	The user's connection interface. It can be a either a wired access interface or wireless access WLAN.

Related Commands

Command	Description
ip dhcp snooping binding	Adds the static user information to the DHCP Snooping database.
clear ip dhcp snooping binding	Clears the dynamic user information from the DHCP Snooping binding database.

Platform Description

N/A

26 DHCPv6 Snooping Commands

26.1 clear ipv6 dhcp snooping binding

Use this command to clear all the user information in the DHCPv6 Snooping binding database.

clear ipv6 dhcp snooping binding [*mac* **|** **vlan** *vlan-id* **|** *ipv6-address* **|** **interface** *interface-id*]

Parameter Description

Parameter	Description
mac	Specifies the MAC address to be deleted.
vlan-id	Specifies the ID of the VLAN to be cleared.
ipv6-address	Specifies the IPv6 address to be cleared.
interface-id	Specifies the interface to be cleared.

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide This command is used to clear the generated user information in the DHCPv6 Snooping binding database.

Configuration Examples The following example clears all the user information in the DHCPv6 Snooping binding database.

```
Orion Alpha A28X# clear ipv6 dhcp snooping binding
Orion Alpha A28X# show ipv6 dhcp snooping binding
NO.  MacAddress      IPv6 Address  Lease(sec)  VLAN  Interface
FilterType  FilterStatus
---  -------------   ------------  ---------   ----  --------------------
----------  ---------------------
Total number of bindings: 0
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

26.2 clear ipv6 dhcp snooping prefix

Use this command to clear all the user information in the DHCPv6 Snooping prefix list.

clear ipv6 dhcp snooping prefix [*mac* **|** **vlan** *vlan-id* **|** *ipv6-prefix* **|** **interface** *interface-id*

Parameter Description

Parameter	Description

mac	Specifies the MAC address to be deleted.
vlan-id	Specifies the ID of the VLAN to be cleared.
ipv6-address	Specifies the IPv6 address to be cleared.
interface-id	Specifies the interface to be cleared.

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide This command is used to clear the generated user information in the DHCPv6 Snooping prefix list.

Configuration Examples The following example clears all the user information in the DHCPv6 Snooping binding database

```
Orion Alpha A28X# clear ipv6 dhcp snooping prefix
Orion Alpha A28X# show ipv6 dhcp snooping prefix
NO.  MacAddress      IPv6 Prefix  Lease(sec)  VLAN  Interface
FilterType  FilterStatus
---  -------------   ------------  ---------   ----  --------------------
----------  ----------------------
Total number of prefixes: 0
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

26.3 clear ipv6 dhcp snooping statistics

Use this command to clear the statistical information of the DHCPv6 packets.

clear ipv6 dhcp snooping statistics

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide This command is used to clear the statistical information of the DHCPv6 packets.

Configuration Examples The following example clears the statistical information of the DHCPv6 packets.

```
Orion Alpha A28X# clear ipv6 dhcp snooping statistics
Orion Alpha A28X# show ipv6 dhcp snooping statistics
Packets Processed by DHCPv6 Snooping = 0
Packets Dropped Because
```

```
Received on untrusted ports      = 0
Relay forward                    = 0
No binding entry                 = 0
Binding fail                     = 0
Unknown packet                   = 0
Unknown output interface         = 0
No enough memory                 = 0
Admin filter-dhcpv6-pkt          = 0
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

26.4 ipv6 dhcp snooping

Use this command to enable the DHCPv6 Snooping function globally.
Use the **no** form of this command to restore the default setting.
ipv6 dhcp snooping
no ipv6 dhcp snooping

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is disabled by default.

Command Mode Global configuration mode

Usage Guide The **show ip dhcpv6 snooping** command is used to display whether the DHCPv6 Snooping function is enabled.

Configuration Examples The following example enables the DHCPv6 Snooping function globally.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# ipv6 dhcp snooping
Orion Alpha A28X(config)# end
```

Related Commands

Command	Description
show ipv6 dhcp snooping	Displays the DHCPv6 Snooping .

Platform Description N/A

26.5 ipv6 dhcp snooping binding-delay

Use this command to add the dynamic binding entry to the hardware filtering list after the delay.
Use the **no** form of this command to restore the default setting.
ipv6 dhcp snooping binding-delay *seconds*
no ipv6 dhcp snooping binding-delay

Parameter Description

Parameter	Description
seconds	Sets the binding delay time.

Defaults This function is disabled by default.

Command Mode Global configuration mode

Usage Guide By default, the dynamic binding entries are added to the hardware filtering list in real time. With this command configured, if no IPv6 address conflict is detected within the specified time, the dynamic binding entries are added to the hardware filtering list.

Configuration Examples The following example sets the delay to 10 seconds.

```
Orion Alpha A28X(config)# ipv6 dhcp snooping binding-delay 10
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

26.6 ipv6 dhcp snooping database write-delay

Use this command to write the dynamic user information of the DHCPv6 Snooping binding database into the flash periodically.
Use the **no** form of this command to restore the default setting.
ipv6 dhcp snooping database write-delay *time*
no ipv6 dhcp snooping database write-delay

Parameter Description

Parameter	Description
time	The interval ranging from 600 to 86,400 in the unit of seconds, at which the system writes the dynamic user information of the DHCP Snooping database into the flash.

Defaults This function is disabled by default.

Command Mode Global configuration mode

Usage Guide This function writes user information into flash and can avoid loss after restart. In that case, users need to obtain IP addresses again for normal communication.

- Too fast writing will reduce flash durability.

Configuration Examples The following example sets the interval at which the switch writes the user information into the flash to 3,600 seconds.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# ip dhcp snooping database write-delay 3600
Orion Alpha A28X(config)# end
```

Related Commands

Command	Description
show ipv6 dhcp snooping	Displays the DHCPv6 Snooping configuration.

Platform Description N/A

26.7 ipv6 dhcp snooping database write-to-flash

Use this command to write the dynamic user information of the DHCPv6 binding database into flash in real time.

ipv6 dhcp snooping database write-to-flash

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

Command Mode Global configuration mode

Usage Guide Use this command to write the dynamic user information of the DHCPv6 binding database into flash in real time.

Configuration Examples The following example writes the dynamic user information of the DHCPv6 binding database into flash.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# ipv6 dhcp snooping database write-to-flash
Orion Alpha A28X(config)# end
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

26.8 ipv6 dhcp snooping filter-dhcp-pkt

Use this command to filter all received DHCPv6 request packets.
Use the **no** form of this command to restore the default setting.
ipv6 dhcp snooping filter-dhcp-pkt
no ipv6 dhcp snooping filter-dhcp-pkt

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 filter all received DHCPv6 request packets, that is, to avoid all the DHCPv6 users on this interface to apply for the addresses.
This command is valid only on 2-layer wired switch ports, aggregate ports and sub interfaces as well as in air interfaces.

Configuration Examples The following example filters all DHCPv6 request packets on interface FastEthernet 0/1 and WLAN 1.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# interface GigabitEthernet 0/2
Orion Alpha A28X(config-if-GigabitEthernet 0/2)# ipv6 dhcp snooping
filter-dhcp-pkt
Orion Alpha A28X(config-if-GigabitEthernet 0/2)# end
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

26.9 ipv6 dhcp snooping information option

Use this command to add option18/37 to the DHCPv6 request packets.
Use the **no** form of this command to restore the default setting.
ipv6 dhcp snooping information option [**standard-format**]
no ipv6 dhcp snooping information option [**standard-format**]

Parameter Description

Parameter	Description
standard-format	The Option18/37 uses the standard format.

Defaults This function is disabled by default.

Command Mode Global configuration mode

Usage Guide With this command configured, the option18/37 will be added to the DHCPv6 request packets and the DHCPv6 server will assign the addresses according to the option18/37 information. Use this command without parameter **standard-format** to enable the standard format.

- DHCPv6 Relay function adds option18/37 by default. Therefore, it is unnecessary to enable functions of DHCP Snooping option18/37 and DHCPv6 Relay at the same time.

Configuration Examples The following example adds the option18/37 into the DHCPv6 packets.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# ipv6 dhcp snooping information option
Orion Alpha A28X(config)# end
Orion Alpha A28X# show ipv6 dhcp snooping
Switch DHCPv6 snooping status :ENABLE
DHCPv6 snooping vlan: 1-4094
DHCPv6 snooping database write-delay time: 0 seconds
DHCPv6 snooping option 18/37 status: ENABLE
DHCPv6 snooping link detection :DISABLE
Interface                Trusted    Filter DHCP
-----------------------  -------    ---------
FastEthernet0/10           yes       DISABLE
```

Related Commands

Command	Description
show ipv6 dhcp snooping	Displays the configuration information of the DHCPv6 Snooping.

Platform Description N/A

26.10 ipv6 dhcp snooping information option format remote-id

Use this command to add option37 remote-id customized character string into the DHCPv6 request packets.

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

ipv6 dhcp snooping information option format remote-id [**string** *ascii-string* | **hostname**]

no ipv6 dhcp snooping information option format remote-id [**string** *ascii-string* | **hostname**]

Parameter Description

Parameter	Description
string *ascii-string*	The content of Option37 remote-id extension format is customized character string.
hostname	The content of Option37 remote-id extension format is hostname.

Defaults This function is disabled by default.

Command Mode Global configuration mode

Usage Guide With this command configured, the option37 remote-id will be added to the DHCPv6 request packets with the content as the customized and the DHCPv6 server will assign the addresses according to the option37 information.

Configuration Examples The following example adds the option37 remote-id to the DHCPv6 request packets with the content being hostname.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# ipv6 dhcp snooping information option format
remote-id hostname
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

26.11 ipv6 dhcp snooping link-detection

Use this command to clear the dynamic binding entry on an interface when the interface links down. Use the **no** form of this command to restore the default setting.

ipv6 dhcp snooping link-detection

no ipv6 dhcp snooping link-detection

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is disabled by default.

Command Mode Global configuration mode

Usage Guide By default, the dynamic binding entries are not cleared on a wired interface when the interface links down. With this function enabled, the dynamic binding entries are auto-cleared on an interface when the interface is in the LINK DOWN status.

Configuration Examples The following example clears the dynamic binding entry on a wired interface when the interface is in the LINK DOWN status.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# ipv6 dhcp snooping link-detection
```

Related

Command	Description

Commands		
	show ipv6 dhcp snooping	Displays the configuration information of the DHCPv6 Snooping.

Platform Description N/A

26.12 ipv6 dhcp snooping trust

Use this command to set the specified DHCPv6 Snooping ports as the trusted ports.
Use the **no** form of this command to restore the default setting.
ipv6 dhcp snooping trust
no ipv6 dhcp snooping trust

Parameter Description	Parameter	Description
	N/A	N/A

Defaults All ports are untrusted ports by default.

Command Mode Interface configuration mode

Usage Guide 1. Use this command to set a port as a trusted port. The DHCPv6 Server response messages received under the trust port are forwarded normally, but the response messages received under the untrusted port will be discarded.
2. This command is valid only on Layer 2 wired switch ports and aggregate ports.

Configuration Examples The following example sets **FastEthernet** *0/1* as a trust port:

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# interface GigabitEthernet 0/1
Orion Alpha A28X(config-if)# ipv6 dhcp snooping trust
Orion Alpha A28X(config-if)# end
```

Related Commands	Command	Description
	show ipv6 dhcp snooping	Displays the DHCPv6 Snooping configuration.

Platform Description N/A

26.13 ipv6 dhcp snooping vlan

Use this command to enable DHCPv6 Snooping for the specific VLAN.
Use the **no** form of this command to disable this function.
ipv6 dhcp snooping vlan { *vlan-rng* **|** { *vlan-min* [*vlan-max*] } }
no ipv6 dhcp snooping vlan { *vlan-rn* **|** { *vlan-min* [*vlan-max*] } }

Parameter Description

Parameter	Description
vlan-rng	Sets the valid VLAN range.
vlan-min	Minimum VLAN ID
vlan-max	Maximum VLAN ID

Defaults By default, once the DHCPv6 Snooping is enabled globally, it takes effect for all VLANs.

Command Mode Global configuration mode

Usage Guide With the global DHCPv6 snooping enabled, this function is enabled in all VLANs by default.

Configuration Examples The following example enables the DHCPv6 Snooping function in VLAN 1000.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# ipv6 dhcp snooping vlan 1000
Orion Alpha A28X(config)# end
```

The following example enables the DHCPv6 Snooping function in VLAN 1 to VLAN 10.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# ipv6 dhcp snooping vlan 1-10
Orion Alpha A28X(config)# end
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

26.14 ipv6 dhcp snooping vlan information option change-vlan-to vlan

Use this command to enable the function of adding the option18 interface-is into the DHCP request packets and change the VLAN to the specified VLAN for the forwarding.
Use the **no** form of this command to restore the default setting.
ipv6 dhcp snooping vlan *vlan-id* **information option change-vlan-to vlan** *vlan-id*
no ipv6 dhcp snooping vlan *vlan-id* **information option change-vlan-to vlan** *vlan-id*

Parameter Description

Parameter	Description
vlan-id	Specifies the ID of the VLAN to be replaced.

Defaults This function is disabled by default.

Command Mode Interface configuration mode

Usage Guide With this command enabled, the option18 interface-id will be added into the DHCPv6 request

packets and the VLAN will be changed to the specified one and the DHCP server will assign the addresses according to the optionq8 information.

Configuration Examples The following example adds the option18 interface-id into the DHCPv6 request packets and changes the VLAN4094 in the option to VLAN 4093.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# interface fastEthernet 0/1
Orion Alpha A28X(config-if)# ipv6 dhcp snooping vlan 4094 information
option change-vlan-to vlan 4093
Orion Alpha A28X(config-if)# end
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

26.15 ipv6 dhcp snooping vlan information option format-type interface-id string

Use this command to enable the function of adding the option18 into the DHCP request packets and filling the option18 interface-id with the content being the user-defined (the storage format is ASCII) and performing the packet forwarding.
Use the **no** form of this command to restore the default setting.
ipv6 dhcp snooping vlan *vlan-id* **information option format-type interface-id string** *ascii-string*
no ipv6 dhcp snooping vlan *vlan-id* **information option format-type interface-id string** *ascii-string*

Parameter Description

Parameter	Description
vlan-id	The VLAN where the DHCPv6 request packets are
ascii-string	User-defined content for filling the interface-id

Defaults This function is disabled by default.

Command Mode Interface configuration mode

Usage Guide With this command configured, the option18 interface-id will be added into the DHCPv6 request packets with the content being user-defined and the DHCPv6 server will assign the addresses according to the option18 information.

Configuration Examples The following example adds the option18 interface-id to the DHCPv6 request packets with the content being *port-name*.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# interface fastEthernet 0/1
```

```
Orion Alpha A28X(config-if)# ipv6 dhcp snooping vlan 4094 information
option format-type interface-id string port-name
Orion Alpha A28X(config-if)# end
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

26.16 renew ipv6 dhcp snooping database

Use this command to import the information in current flash to the DHCPv6 Snooping binding database manually as needed.

renew ipv6 dhcp snooping database

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide This command is used to import the flash file information to the DHCPv6 Snooping database in real time.

- Records out of lease time and repeated will be neglected.

Configuration Examples The following example imports the flash file information to the DHCPv6 Snooping database.

```
Orion Alpha A28X# renew ipv6 dhcp snooping database
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

26.17 show ipv6 dhcp snooping

Use this command to display the setting of the DHCPv6 Snooping.

show ipv6 dhcp snooping

Parameter Description

Parameter	Description

N/A	N/A

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide N/A

Configuration Examples The following example displays the setting of the DHCPv6 Snooping.

```
Orion Alpha A28X# show ipv6 dhcp snooping
Switch DHCPv6 snooping status :ENABLE
DHCPv6 snooping vlan: 1-4094
DHCPv6 snooping database write-delay time: 0 seconds
DHCPv6 snooping option 18/37 status: DISABLE
DHCPv6 snooping link detection :DISABLE
Interface                Trusted    Filter DHCP
-----------------------  -------    ---------
FastEthernet0/10           yes       DISABLE
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

26.18 show ipv6 dhcp snooping binding

Use this command to display the information of the DHCPv6 Snooping binding database.

show ipv6 dhcp snooping binding [*mac*] [**vlan** *vlan-id*] [*ipv6-address*] [**interface** *interface-id*]

Parameter Description

Parameter	Description
ipv6-address	Displays the IPv6 address binding entry.
mac-address	Displays the MAC address binding entry.
vlan vlan_id	Displays the VLAN binding entry.
interface *interface_name*	Displays the interface binding entry.

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide N/A

Configuration Examples The following example displays the information of the DHCP Snooping binding database.

```
Orion Alpha A28X# show ipv6 dhcp snooping binding
Total number of bindings: 1
```

```
NO.   MacAddress         IPv6 Address
Lease(sec)   VLAN  Interface
----- -----------------  ----------------------------------------
------------ ----- --------------------
1     00d0.f801.0101     2001::10                                  42368
2     GigabitEthernet 0/1
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

26.19 show ipv6 dhcp snooping prefix

Use this command to display all user information in the DHCPv6 Snooping prefix list.

show ipv6 dhcp snooping prefix [*mac* | **vlan** *vlan-id* | *ipv6-prefix* | **interface** *interface-id*]

Parameter Description

Parameter	Description
ipv6-prefix	Displays the IPv6 address prefix entry.
mac-address	Displays the MAC address prefix entry.
vlan *vlan_id*	Displays the VLAN prefix entry.
interface *interface_name*	Displays the interface prefix entry.

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide N/A

Configuration Examples The following example displays all user information in the DHCPv6 Snooping prefix list.

```
Orion Alpha A28X# show ipv6 dhcp snooping prefix
Total number of prefix: 1

NO.   MacAddress         IPv6 Prefix
Lease(sec)   VLAN  Interface
----- -----------------  ----------------------------------------
------------ ----- --------------------
1     00d0.f801.0101     2001:2002::/64                            42368
2     GigabitEthernet 0/1
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

26.20 show ipv6 dhcp snooping statistics

Use this command to display the statistical information of the DHCPv6 packets.

show ipv6 dhcp snooping statistics

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide N/A

Configuration Examples The following example displays the statistical information of the DHCPv6 packets.

```
Orion Alpha A28X# show ipv6 dhcp snooping statistics
Packets Processed by DHCPv6 Snooping = 0
Packets Dropped Because
Received on untrusted ports      = 0
Relay forward                    = 0
No binding entry                 = 0
Binding fail                      = 0
Unknown packet                   = 0
Unknown output interface       = 0
No enough memory                 = 0
Admin filter-dhcpv6-pkt            = 0
```

Field	Description
Received on untrusted ports	The discarded server response packets on the untrust port.
Relay forward	The packets that have been relayed once are discarded.
No binding entry	The binding entries of the release/decline packets are in-existent or error and the packets are discarded.
Binding fail	The entry binding fails and the packets are discarded due to a lack of the hardware resources.
Unknown packet	The unknown DHCP packets.
Unknown output interface	The packets on the unknown output interface. The MAC address for the interface is not found

	or the trust port is not configured.
No enough memory	There is no enough memory.
Admin filter-dhcpv6-pkt	The filtered DHCPv6 packets configured by the administrator. Use the **ipv6 dhcp snooping filter-dhcp-pkt** command to filter the packets.

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

26.21 show ipv6 dhcp snooping vlan

Use this command to display the VLAN with DHCPv6 Snooping function disabled.

show ipv6 dhcp snooping vlan

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide This command is used to display the VLAN with DHCPv6 Snooping function disabled.

Configuration Examples The following example displays the VLAN with DHCPv6 Snooping function disabled.

```
Orion Alpha A28X#show ipv6 dhcp snooping vlan
VLAN Name        Closed
---- ----------- -------
2    VLAN 2      YES
```

Field	Description
VLAN	VLAN ID
NAME	VLAN name
Close	Indicates whether DHCPv6 Snooping is disabled.

Related Commands

Command	Description
N/A	N/A

Platform N/A

Description

27 ARP-Check Commands

27.1 arp-check

Use this command to enable the ARP check function on the Layer 2 interface.
Use the **no** form of this command to restore the default setting.
arp-check
no arp-check

Parameter Description

Parameter	Description
N/A	N/A

Defaults This function is disabled by default.

Command mode Interface configuration mode

Usage Guide The ARP check function generates the ARP filtering information according to legal user information, implementing the illegal ARP packet filtering on the network.

Configuration Examples This following example enables the APR check function on interface GigabitEthernet 0/1.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# interface GigabitEthernet 0/1
Orion Alpha A28X(config-if-GigabitEthernet 0/1)# arp-check
Orion Alpha A28X(config-if-GigabitEthernet 0/1)# end
```

Related Commands

Command	Description
show interfaces arp-check list	Displays the ARP check entries.

Platform Description N/A

27.2 show interface arp-check list

Use this command to display the ARP check entries on the Layer 2 interface.
show { **interface** [*interface-type interface-number*] } **arp-check list**

Parameter Description

Parameter	Description
interface-type	Wired interface type
interface-number	Wired interface number

Defaults N/A

Command mode Privileged EXEC mode

Usage Guide Use this command to display the ARP check entries.

Configuration Examples The following example displays the ARP check entries.

```
Orion Alpha A28X(config)#show interface arp-check list
INTERFACE
SENDER MAC      SENDER IP            POLICY SOURCE
----------------------- ---------------- ----------------
--------------------
GigabitEthernet 0/1        00D0.F800.0003   192.168.1.3      address-bind
GigabitEthernet 0/1        00D0.F800.0001   192.168.1.1      port-security
GigabitEthernet 0/4                         192.168.1.3      port-security
GigabitEthernet 0/5        00D0.F800.0003   192.168.1.3      address-bind
GigabitEthernet 0/7        00D0.F800.0006   192.168.1.6      AAA ip-auth-
mode
GigabitEthernet 0/8        00D0.F800.0007   192.168.1.7      GSN
```

Field	Description
INTERFACE	Interface name
SENDER MAC	Source MAC address
SENDER IP	Source IP address
POLICY SOURCE	Source of the entry

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

28 DAI Commands

28.1 ip arp inspection trust

Use this command to configure the L2 port to a trusted port.
Use the **no** form of this command to restore the L2 port to an untrusted port.
ip arp inspection trust
no ip arp inspection trust

Parameter Description

Parameter	Description
N/A	N/A

Defaults The L2 port is untrusted.

Command Mode Interface configuration mode

Usage Guide If it is necessary to make the ARP message received by some interface pass the DAI inspection unconditionally, you can set the interface to a trusted port, indicating that you do not need to check whether the ARP message received by this interface is legal.

Configuration Examples The following example sets the gigabitEthernet 0/19 interface as the trusted port.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# interface gigabitEthernet 0/19
Orion Alpha A28X(config-if-GigabitEthernet 0/19)# ip arp inspection trust
Orion Alpha A28X(config-if-GigabitEthernet 0/19)# end
```

Related Commands

Command	Description
show ip arp inspection interface	Displays related DAI information on the interface, including the trust state and rate limit of the interface.

Platform Description N/A

28.2 ip arp inspection vlan

Use this command to configure the DAI function on the VLAN.
Use the **no** form of this command to disable this function.
ip arp inspection vlan { *vlan-id* | *word* }
no ip arp inspection vlan { *vlan-id* | *word* }

Parameter Description

Parameter	Description
vlan-id	VLAN ID, ranging from 1 to 4094
word	String of the VLAN range, such as 1,3-5,7,9-11

Defaults The DAI function on all VLANs is disabled by default.

Command Mode Global configuration mode

Usage Guide To make this command take effect, you need to enable the ARP Check function first,

- Not all ports of the VLAN support the ARP packet detection function. For example, the DHCP Snooping Trust port does not support any security detection, including this function.

Configuration Examples The following example detects the received ARP packets on the VLAN1 interfaces:

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# ip arp inspection
Orion Alpha A28X(config)# ip arp inspection vlan 1
Orion Alpha A28X(config)# end
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

28.3 show ip arp inspection interface

Use this command to verify whether the interface is a DAI trust interface.

show ip arp inspection interface

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide Use this command to verify whether the interface is a DAI trust interface.

Configuration Examples The following example verifies the DAI trust state of all :

```
Orion Alpha A28X#show ip arp inspection interface
```

```
Interface         Trust State
--------------------    -----------
GigabitEthernet 0/1      Untrusted
Default                       Untrusted
```

Parameter Description:

Parameter	Description
Interface	Interface name.
Trust State	DAI trust state.

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

28.4 show ip arp inspection vlan

Use this command to verify whether the DAI function on the VLAN is enabled.

show ip arp inspection vlan [*vlan-id* | *word*]

Parameter Description

Parameter	Description
vlan-id	VLAN ID, ranging from 1 to 4094
word	String of the VLAN range, such as 1,3-5,7,9-11

Defaults N/A

Command Mode Privileged EXEC mode

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

Configuration Examples The following example verifies whether the DAI function on the VLAN is enabled:

```
Orion Alpha A28X# show ip arp inspection vlan
Vlan     Configuration
----     -------------
1                                                Active
```

Parameter Description:

Parameter	Description
Vlan	VLAN number.
Configuration	DAI status (active / inactive)

Related Commands

Command	Description
N/A	N/A

Platform Description

N/A

29 IP Source Guard Commands

29.1 ip source binding

Use this command to add static user information to IP source address binding database.
Use the **no** form of this command to delete static user information from IP source address binding database.
ip source binding *mac-address* **{ vlan** *vlan-id* **}** *ip-address* { **interface** *interface-id* **| ip-mac | ip-only** }
no ip source binding *mac-address* **{ vlan** *vlan-id* **}** *ip-address* { **interface** *interface-id* **| ip-mac | ip-only** }

Parameter Description

Parameter	Description
mac-address	Adds user MAC address statically.
vlan-id	Adds user VLAN ID statically.
ip-address	Adds user IP address statically.
interface-id	Adds user interface ID statically.
ip-mac	The global binding type is IP+MAC
ip-only	The global binding type is IP only.

Defaults No static address is added by default.

Command Mode Global configuration mode

Usage Guide This command allows specific clients to go through IP source guard detection instead of DHCP.
This command is supported on the wired L2 switching port, AP port and sub interface.
This command enables global binding for IP source guard so that specific clients will get detected on all interfaces.

- A static IPv6 source binding is valid either on wired and WLAN interfaces or in global configuration mode.
- A new binding will overwrite the old one sharing the same configuration.

Configuration Examples The following example adds the interface Id of static users.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# ip source binding 0000.0000.0001 vlan 1 1.1.1.1
interface GigabitEthernet 0/1
Orion Alpha A28X(config)# end
```

The following example adds static user information based on IP-MAC binding.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# ip source binding 0000.0000.0001 vlan 1 1.1.1.1
ip-mac
Orion Alpha A28X(config)# end
```

The following example adds static user information based on IP binding.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# ip source binding 0000.0000.0001 vlan 1 1.1.1.1
ip-only
Orion Alpha A28X(config)# end
```

Related Commands

Command	Description
show ip source binding	Displays the binding information of IP source address and database.

Platform Description N/A

29.2 ip verify source

Use this command to enable IP Source Guard function on the interface.
Use the **no** form of this command to restore the default setting.
ip verify source [**port-security**]
no ip verify source

Parameter Description

Parameter	Description
port-security	Configures IP Source Guard to do IP+MAC-based detection.

Defaults This function is disabled by default.

Command Mode Interface configuration mode

Usage Guide This command enables IP Source Guard function on the interface to do IP-based or IP+MAC-based detection.
This command is supported on the wired L2 switching port, AP port and sub interface.
IP Source Guard takes effect only on DHCP Snooping untrusted port. In other words, IP Source Guard does not take effect when configuring it on Trust port or the port which is not controlled by DHCP Snooping.

Configuration Examples The following example enables IP-based IP Source Guard function.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# interface GigabitEthernet 0/1
```

```
Orion Alpha A28X(config-if-GigabitEthernet 0/1)# ip verify source
Orion Alpha A28X(config-if)# end
```

The following example enables IP+MAC-based IP Source Guard function.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# interface GigabitEthernet 0/2
Orion Alpha A28X(config-if-GigabitEthernet 0/2)# ip verify source port-
security
Orion Alpha A28X(config-if)# end
```

Related Commands

Command	Description
show ip verify source	Displays user filtering entry of IP Source Guard.

Platform Description N/A

29.3 ip verify source exclude-vlan

Use this command to exclude a VLAN from the IP source guard configuration on the port.
Use the **no** form of this command to restore the function.
ip verify source exclude-vlan *vlan-id*
no ip verify source exclude-vlan *vlan-id*

Parameter Description

Parameter	Description
vlan-id	The ID of VLAN excluded from the IP source guard configuration.

Defaults This function is disabled by default.

Command Mode Interface configuration mode

Usage Guide

- This command is used to exclude a VLAN from the IP source guard configuration. IP packets in this VLAN are forwarded without being checked and filtered.
- Once the IP source guard function is disabled, the excluded VLAN is cleared automatically.
- This command is supported on the wired L2 switching port, AP port and sub interface.

- Only when the IP source guard configuration is enabled on the port can a VLAN be excluded.

Configuration Examples The following example configuration configures the IP source guard configuration for the port and excludes a VLAN.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# interface GigabitEthernet 0/1
Orion Alpha A28X(config-if-GigabitEthernet 0/1)# ip verify source
```

```
Orion Alpha A28X(config-if-GigabitEthernet 0/1)# ip verify exclude-vlan 1
Orion Alpha A28X(config-if)# end
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

29.4 show ip source binding

Use this command to display the binding information of IP source addresses and database.

show ip source binding [*ip-address*] [*mac-address*] [**dhcp-snooping**] [**static**] [**vlan** *vlan-id*] [**interface** *interface-id*]

Parameter Description

Parameter	Description
ip-address	Displays user binding information of corresponding IP.
mac-address	Displays user binding information of corresponding MAC.
dhcp-snooping	Displays binding information of dynamic user.
static	Displays binding information of static user.
vlan-id	Displays user binding information of corresponding VLAN.
interface-id	Displays user binding information of corresponding interface.

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide N/A

Configuration Examples The following example displays the binding information of IP source guard addresses and database.

```
Orion Alpha A28X# show ip source binding static
Orion Alpha A28X#show ip source binding static
Total number of bindings: 5
NO.   MACADDRESS        IPADDRESS       LEASE(SEC)   TYPE         VLAN  INTERFACE
----- ------------------ --------------- ------------ ------------- ----- --------------------
1     0001.0002.0001     1.2.3.2         Infinite     Static       1     Global
2     0001.0002.0002     1.2.3.3         Infinite     Static       1     GigabitEthernet 0/5
3     0001.0002.0003     1.2.3.4         Infinite     Static       1     Global
4     0001.0002.0004     1.2.3.5         Infinite     Static       1     Global
```

Related Commands

Command	Description

ip source binding	Sets the binding static user.

Platform Description N/A

29.5 show ip verify source

Use this command to display user filtering entry of IP Source Guard.

show ip verify source [**interface** *interface-id*]

Parameter Description

Parameter	Description
interface-id	Displays user filtering entry of corresponding interface.

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide If IP Source Guard is not enabled on the corresponding interface, the printing information will be shown on the terminal as: “IP source guard is not configured on the interface FastEthernet 0/10”
Now, IP Source Guard supports the following filtering modes:
inactive-restrict-off: the IP Source Guard is disabled on bound interfaces.
inactive--not-apply: the IP Source Guard cannot adds bound entries into filtering entries for system errors.
active: the IP Source Guard is active.

Configuration Examples The following example displays user filtering entry of IP Source Guard.

```
Orion Alpha A28X # show ip verify source
Total number of bindings: 7
NO.   INTERFACE            FILTERTYPE  FILTERSTATUS           IPADDRESS
MACADDRESS      VLAN TYPE
----- -------------------- ----------- ---------------------
--------------- --------------- -------- -------------
1     Global               IP+MAC      Inactive-not-apply
192.168.0.127   0001.0002.0003  1 Static
2     GigabitEthernet 0/5  IP-ONLY     Active                 1.2.3.4
0001.0002.0004  1 DHCP-Snooping
3     Global               IP-ONLY     Active                 1.2.3.7
0001.0002.0007  1 Static
4     Global               IP+MAC      Active                 1.2.3.6
0001.0002.0006  1 Static
5     GigabitEthernet 0/1  UNSET       Inactive-restrict-off  1.2.3.9
0001.0002.0009  1 DHCP-Snooping
6     GigabitEthernet 0/5  IP-ONLY     Active                 Deny-All
```

Related Commands

Command	Description
ip verify source	Sets IP Source Guard on the interface.

Platform Description

N/A

30 DoS Protection Commands

30.1 ip deny invalid-l4port

Use this command to enable the anti-attack of the self-consumption.
Use the **no** form of this command to restore the default setting.
ip deny invalid-l4port
no ip deny invalid-l4port

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 anti-attack of the self-consumption.

```
Orion Alpha A28X(config)# ip deny invalid-l4port
```

The following example disables the anti-attack of the self-consumption.

```
Orion Alpha A28X(config)# no ip deny invalid-l4port
```

Related Commands

Command	Description
show ip deny invalid-l4port	Displays the state of anti-attack of the self-consumption.

Platform Description N/A

30.2 ip deny invalid-tcp

Use this command to enable the anti-attack of the invalid TCP packets.
Use the **no** form of this command to restore the default setting.
ip deny invalid-tcp
no ip deny invalid-tcp

Parameter Description

Parameter	Description
N/A	N/A

Defaults The function is disabled by default.

Command Mode Global configuration mode

Usage Guide N/A

Configuration Examples The following example enables the anti-attack of the invalid TCP packets:

```
Orion Alpha A28X(config)# ip deny invalid-tcp
```

The following example disables the anti-attack of the invalid TCP packets:

```
Orion Alpha A28X(config)# no ip deny invalid-tcp
```

Related Commands

Command	Description
show ip deny invalid-tcp	Displays the state of anti-attack of the invalid TCP packets.

Platform Description N/A

30.3 ip deny land

Use this command to enable the anti-land-attack.

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

ip deny land

no ip deny land

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 anti-land-attack:

```
Orion Alpha A28X(config)# ip deny land
```

The following example disables the anti-land-attack:

```
Orion Alpha A28X(config)# no ip deny land
```

Related Commands

Command	Description
show ip deny land	Displays the anti-land-attack state.

Platform N/A

Description

30.4 show ip deny

Use this command to display the state of the anti-DOS-attack.

show ip deny

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide N/A

Configuration Examples The following example displays the state of the anti-DOS-attack.

```
Orion Alpha A28X#show ip deny
  Protect against Land attack               On
  Protect against invalid L4port attack     Off
  Protect against invalid TCP attack        Off
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

30.5 show ip deny invalid-l4port

Use this command to display the state of the anti-consumption-attack.

show ip deny invalid-l4port

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide N/A

Configuratio The following example displays the state of the anti-consumption-attack.

n Examples

```
Orion Alpha A28X# show ip deny invalid-l4port
 DoS Protection Mode                        State
------------------------------        -----
 protect against invalid l4port attack  Off
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

30.6 show ip deny invalid-tcp

Use this command to display the state of the anti-attack of the invalid TCP packets.

show ip deny invalid-tcp

Parameter Description

Parameter	Description
N/A	N/A

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide N/A

Configuration Examples The following example displays the state of the anti-attack of the invalid TCP packets.

```
Orion Alpha A28X# show ip deny invalid-tcp
DoS Protection Mode                             State
-----------------------------------      -----
protect against invalid tcp attack          On
```

Related Commands

Command	Description
ip deny invalid-tcp	Enables the anti-attack of the invalid TCP packets.

Platform Description N/A

30.7 show ip deny land

Use this command to display the anti-land-attack state.

show ip deny land

Parameter

Parameter	Description

Description

N/A	N/A

Defaults N/A

Command Mode Privileged EXEC mode

Usage Guide N/A

Configuration Examples The following example displays the anti-land-attack state.

```
Orion Alpha A28X# show ip deny land
DoS Protection Mode                State
-----------------------------  -----
protect against land attack       On
```

Related Commands

Command	Description
no ip deny land	Enables the anti-land-attack function.

Platform Description N/A

31 PPPoE Intermediate Agent Commands

31.1 pppoe intermediate-agent

Use this command to enable PPPoE IA globally.

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

pppoe intermediate-agent

no pppoe intermediate-agent

Parameter Description

Parameter	Description
N/A	N/A

Defaults By default, this function is disabled.

Command Mode Global configuration mode and port configuration mode

Usage Guide If you want to run pppoe intermediate-agent on the ports of a switch, you must enable it globally first, otherwise it is invalid to enable this function on ports.

Configuration Examples

```
The following example enables PPPoE IA.
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# pppoe intermediate-agent
```

```
Orion Alpha A28X(config)# end
```

Related Commands

Command	Description

Platform Description N/A

31.2 pppoe intermediate-agent trust

Use this command to configure the trusted ports for PPPoE IA.

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

pppoe intermediate-agent trust

no pppoe intermediate-agent trust

Parameter Description

Parameter	Description
N/A	N/A

Defaults By default, all ports are untrusted ports.

Command Mode Port configuration mode

Usage Guide At least one port should be configured as a trusted port that can be connected to a server to copy and forward the PPPoE packets of clients.

Configuration Examples The following example configures a Gigabit Ethernet 0/1 as a trusted port.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)#interface gigabitEthernet 0/1
Orion Alpha A28X(config-if-GigabitEthernet 0/1)#pppoe intermediate-agent
trust
Orion Alpha A28X(config-if)# end
```

Related Commands

Command	Description

Platform Description N/A

31.3 pppoe intermediate-agent type tr-101 circuit-id access-node-id

Use this command to add the value of the access node id of circuit ID in vendor tag.

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

pppoe intermediate-agent type tr-101 circuit-id access-node-id <string>

no pppoe intermediate-agent type tr-101 circuit-id access-node-id

Parameter

Parameter	Description

Description		

Defaults By default, it function is disabled.

Command Mode Global configuration mode

Usage Guide Add the value of the access node id of circuit ID in vendor tag.

Configuration Examples The following example adds the access node id to PPPoE packets.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# pppoe intermediate-agent typ tr-101 circuit-id
access-node-id
Orion Alpha A28X(config)# end
```

Related Commands	Command	Description

Platform Description N/A

31.4 pppoe intermediate-agent type tr-101 circuit-id identifier-string

Use this command to add the circuit-id of a vendor tag.

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

pppoe intermediate-agent type tr-101 circuit-id identifier-string <string>

no pppoe intermediate-agent type tr-101 circuit-id identifier-string option option

Parameter Description

Parameter	Description
string	Custom identifier
delimiter	Separators between fields

Defaults By default, this function is disabled.

Command Mode Global configuration mode

Usage Guide Add the circuit-id of the vendor tag.

Configuration Examples The following example adds the circuit-id to PPPoE packets.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# pppoe intermediate-agent type tr-101 circuit-id
identifier-string aaa
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

31.5 pppoe intermediate-agent type self-defined circuit-id

Use this command to configure a customized circuit-id.

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

pppoe intermediate-agent type self-defined circuit-id {vlan| port|id (switch-id| remote-mac)| string WORD}

no pppoe intermediate-agent type self-defined circuit-id

Parameter Description

Parameter	Description
VALN	The VLAN where PPPoE request packets exist.
port	The port used to receive PPPoE packets.
id	The MAC address and name of an access device.

Defaults By default, this function is disabled.

Command Mode Global configuration mode

Usage Guide Configure custom circuit-id.

Configuration Examples The following example adds the circuit-id to the PPPoE request packets.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# pppoe intermediate-agent type self-defined
circuit-id string   abcd
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

31.6 pppoe intermediate-agent type self-defined remoteid

Use this command to configure customized remote-id.

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

pppoe intermediate-agent type self-defined remoteid {mac| vlan-mac| hostname| string WORD}

no pppoe intermediate-agent type self-defined remote-id

Parameter Description

Parameter	Description
N/A	N/A

Defaults By default, this function is disabled.

Command Mode Global configuration mode

Usage Guide Configure a customized remote-id.

Configuration Examples The following example adds the customized circuit-id to PPPoE request packets.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# pppoe intermediate-agent type self-defined
remoteid string  aaaa
Orion Alpha A28X(config)# end
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

31.7 pppoe intermediate-agent delimiter

Use this command to configure the separators between the fields of a circuit-id and a remote-id.
Use the no form of this command to restore the default settings.
pppoe intermediate-agent delimiter <WORD>
no pppoe intermediate-agent delimiter

Parameter Description

Parameter	Description
N/A	N/A

Defaults By default, this function is disabled.

Command Mode Global configuration mode

Usage Guide Configure the separators between the fields of a circuit-id and a remote-id.

Configuration Examples Configure the separators between the fields of a circuit-id and a remote-id as '#'.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)# pppoe intermediate-agent delimiter #
Orion Alpha A28X(config)# end
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

31.8 pppoe intermediate-agent vendor-tag strip

Use this command to configure vendor-tag strip function.
Use the no form of this command to restore the default settings.
pppoe intermediate-agent vendor-tag strip
no pppoe intermediate-agent vendor-tag strip

Parameter Description

Parameter	Description
N/A	N/A

Defaults By default, this function is disabled.

Command Mode Global configuration mode

Usage Guide Strip function must be configured on trusted ports. If the function is configured on untrusted ports, it would fail to take effect.

Configuration Examples The following example enables vendor-tag strip function on port 1.

```
Orion Alpha A28X# configure terminal
Orion Alpha A28X(config)#interface gigabitEthernet 0/1
Orion Alpha A28X(config-if-GigabitEthernet 0/1)#pppoe intermediate-agent
vendor-tag strip
Orion Alpha A28X(config-if)# end
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

31.9 pppoe intermediate-agent circuit-id

Use this command to configure the custom circuit-id of a port.
Use the **no** form of this command to restore the default settings.
pppoe intermediate-agent circuit-id <string>
no pppoe intermediate-agent circuit-id

Parameter Description

Parameter	Description
N/A	N/A

Defaults By default, this function is disabled.

Command Mode Port configuration mode

Usage Guide Configure the circuit-id of a port.

Configuration Examples The following example configures the custom circuit-id on a port. 在端口上自定义 circuit-id.

```
Orion Alpha A28X(config)#interface gigabitEthernet 0/1
Orion Alpha A28X(config-if-GigabitEthernet 0/1)#pppoe intermediate-agent
circuit-id aaa
Orion Alpha A28X(config-if-GigabitEthernet 0/1)#end
```

Related Commands

Command	Description
N/A	N/A

Platform Description N/A

31.10 pppoe intermediate-agent remote-id

Use this command to configure the custom remote-id of a port.
Use the **no** form of this command to restore the default settings.
pppoe intermediate-agent remote-id <string>
no pppoe intermediate-agent remote-id

Parameter Description

Parameter	Description
N/A	N/A

Defaults By default, this function is disabled.

Command Mode Port configuration mode

Usage Guide Configure the remote-id of a port.

Configuration Examples The following example configures the customized remote-id of a port.

```
Orion Alpha A28X(config)#interface gigabitEthernet 0/1
Orion Alpha A28X(config-if-GigabitEthernet 0/1)#pppoe intermediate-agent
remote-id bbb
Orion Alpha A28X(config-if-GigabitEthernet 0/1)#end
```

Related Commands

Command	Description
N/A	N/A

Platform N/A

Description