D-Link
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xSTACK®

CLI Reference Guide

Product Model: xStack® DES-3810 Series
Layer 3 Managed Ethernet Switch
Release 2.10

IPv6 READY

Table of Contents

Chapter 1 Using Command Line Interface

The Switch can be managed through the Switch's serial port, Telnet, SNMP or the Web-based management agent. The Command Line Interface (CLI) can be used to configure and manage the Switch via the serial port or Telnet interfaces.

This manual provides a reference for all of the commands contained in the CLI. Every command will be introduced in terms of purpose, format, description, parameters, and examples. Configuration and management of the Switch via the Web-based management agent are discussed in the User Manual. For detailed information on installing hardware please also refer to the User Manual.

1-1 Accessing the Switch via the Serial Port

The Switch's serial port's default settings are as follows:

- 115200 baud
- no parity
- 8 data bits
- 1 stop bit

A computer running a terminal emulation program capable of emulating a VT-100 terminal and a serial port configured as above is then connected to the Switch's serial port via an RS-232 DB-9 cable.

With the serial port properly connected to a management computer, a screen with the message "Press any key to login... " will appear. After pressing any key on the keyboard, the following screen should be visible.

```
                        DES-3810-28 Fast Ethernet Switch
                             Command Line Interface

                                Firmware: Build 2.10.024
          Copyright(C) 2011 D-Link Corporation. All rights reserved.

UserName:
```

There is no initial username or password. Just press the **Enter** key twice to display the CLI input cursor – **DES-3810-28:admin#**. This is the command line where all commands are input.

1-2 Setting the Switch's IP Address

Each Switch must be assigned its own IP Address, which is used for communication with an SNMP network manager or other TCP/IP application (for example BOOTP, TFTP). The Switch's default IP address is 10.90.90.90. You can change the default Switch IP address to meet the specification of your networking address scheme.

The Switch is also assigned a unique MAC address by the factory. This MAC address cannot be changed, and can be found on the initial boot console screen – shown below.

```
  Boot Procedure                                          V2.00.004
-------------------------------------------------------------------------------

  Power On Self Test ....................................  100%

  MAC Address   : 00-03-38-10-28-01
  H/W Version   : A1

  Please Wait, Loading V2.10.024 Runtime Image ..............  100 %
  UART init .................................................  100 %
  Device Discovery ..........................................  100 %
  Configuration init ........................................  100 %
```

The Switch's MAC address can also be found in the Web management program on the Switch Information (Basic Settings) window on the Configuration menu.

The IP address for the Switch must be set before it can be managed with the Web-based manager. The Switch IP address can be automatically set using BOOTP or DHCP protocols, in which case the actual address assigned to the Switch must be known.

Starting at the command line prompt, enter the commands **config ipif System ipaddress xxx.xxx.xxx.xxx/yyy.yyy.yyy.yyy**. Where the **x**'s represent the IP address to be assigned to the IP interface named **System** and the **y**'s represent the corresponding subnet mask.

Alternatively, you can enter **config ipif System ipaddress xxx.xxx.xxx.xxx/z**. Where the **x**'s represent the IP address to be assigned to the IP interface named **System** and the **z** represents the corresponding number of subnets in CIDR notation.

The IP interface named **System** on the Switch can be assigned an IP address and subnet mask which can then be used to connect a management station to the Switch's Telnet or Web-based management agent

```
DES-3810-28:admin#config ipif System ipaddress 10.24.22.100/255.0.0.0
Command: config ipif System ipaddress 10.24.22.100/8

Success.

DES-3810-28:admin#
```

In the above example, the Switch was assigned an IP address of 10.24.22.100 with a subnet mask of 255.0.0.0. The system message **Success** indicates that the command was executed successfully. The Switch can now be configured and managed via Telnet, SNMP MIB browser and the CLI or via the Web-based management agent using the above IP address to connect to the Switch.

There are a number of helpful features included in the CLI. Entering the **?** command will display a list of all of the commands.

```
DES-3810-28:admin#?
Command: ?

..
?
cable_diag ports
cd
cfm linktrace
cfm lock md
cfm loopback
clear
clear address_binding dhcp_snoop binding_entry ports
clear address_binding nd_snoop binding_entry ports
clear arptable
clear attack_log
clear cfm pkt_cnt
clear counters
clear dhcp binding
clear dhcp conflict_ip
clear ethernet_oam ports
clear fdb
clear historical_counters ports
clear igmp_snooping statistics counter
clear jwac auth_state
clear ldp statistic
CTRL+C ESC q Quit SPACE n Next Page ENTER Next Entry a All
```

When entering a command without its required parameters, the CLI will prompt you with a **Next possible completions:** message.

```
DES-3810-28:admin#config account
Command: config account
Next possible completions:
<username>

DES-3810-28:admin#
```

In this case, the command **config account** was entered with the parameter **<username>**. The CLI will then prompt to enter the **<username>** with the message, **Next possible completions:**. Every command in the CLI has this feature, and complex commands have several layers of parameter prompting.

In addition, after typing any given command plus one space, users can see all of the next possible sub-commands, in sequential order, by repeatedly pressing the **Tab** key.

To re-enter the previous command at the command prompt, press the up arrow cursor key. The previous command will appear at the command prompt.

```
DES-3810-28:admin#config account
Command: config account
Next possible completions:
<username>

DES-3810-28:admin#config account
```

In the above example, the command **config account** was entered without the required parameter **<username>**, the CLI returned the **Next possible completions: <username>** prompt. The up arrow cursor control key was pressed to re-enter the previous command (**config account**) at the command prompt. Now the appropriate username can be entered and the **config account** command re-executed.

All commands in the CLI function in this way. In addition, the syntax of the help prompts are the same as presented in this manual – angle brackets < > indicate a numerical value or character string, braces { } indicate optional parameters or a choice of parameters, and brackets [ ] indicate required parameters.

If a command is entered that is unrecognized by the CLI, the available commands will be displayed under the **Available commands:** prompt.

```
DES-3810-28:admin#the
Available commands:
..                  ?                   cable_diag          cd
cfm                 clear               config              copy
create              debug               del                 delete
dir                 disable             download            enable
erase               ldp                 login               logout
md                  move                no                  ping
ping6               rd                  reboot              reconfig
rename              reset               save                show
smtp                telnet              traceroute          traceroute6
upload

DES-3810-28:admin#
```

The main commands consist of commands such as **show** or **config**. Most of these commands require one or more parameters to elaborate the main command. This is equivalent to **show** what? or **config** what? Where the what? is the next parameter.

For example, entering the **show** command with no additional parameters, the CLI will then display all of the possible next parameters.

```
DES-3810-28:admin#show
```

```
Command: show
Next possible completions:
802.1p              802.1x              access_profile      account
accounting          acct_client         address_binding
arp_spoofing_prevention                 arpentry            attack_log
auth_client         auth_diagnostics    auth_session_statistics
auth_statistics     authen              authen_enable       authen_login
authen_policy       authentication      authorization       autoconfig
bandwidth_control   boot_file           bpdu_protection     cfm
command_history     config              cpu                 cpu_filter
current_config      ddm                 dhcp                dhcp_local_relay
dhcp_relay          dhcp_server         dhcpv6_relay        dnsr
dot1v_protocol_group                    double_vlan_translation
dscp                duld                dvmrp               ecmp
egress_access_profile                   egress_flow_meter   environment
erps                error               ethernet_oam        fdb
filter              flow_meter          gratuitous_arp      greeting_message
gvrp                historical_counter
historical_utilization                  hol_prevention      igmp
igmp_proxy          igmp_snooping       ip_tunnel           ipfdb
ipif                ipif_ipv6_link_local_auto               ipmc
ipmc_vlan_replication                   ipmc_vlan_replication_entry
iproute             ipv6                ipv6route           jumbo_frame
jwac                l2protocol_tunnel   lacp_port           ldp
led                 limited_multicast_addr                  link_aggregation
lldp                lldp_med            local_loopback      log
log_save_timing     log_software_module                     loopback
loopdetect          mac_based_access_control
mac_based_access_control_local          mac_based_vlan      mac_notification
max_mcast_group     mcast_filter_profile                    md5
mef_l2_protocols    mef_vlan_preservation                   mirror
mld_proxy           mld_snooping        mpls                multicast
multicast_fdb       nlb                 ospf                out_band_ipif
packet              per_queue           pim                 pim-ssm
policy_route        port                port_security
port_security_entry                     port_vlan           ports
power_saving        pppoe               private_vlan        pvid
qinq                radius              rcp                 rip
rmon                route               router_ports        rspan
safeguard_engine    schedule_profile    scheduling_group    serial_port
session             sflow               sim                 smtp
snmp                sntp                srm                 ssh
ssl                 storage_media_info                      stp
subnet_vlan         switch              syslog              system_severity
tech_support        terminal            time                time_range
traffic             traffic_segmentation                    trap
trusted_host        utilization         vlan                vlan_counter
vlan_translation    vlan_translation_profile                vlan_trunk
voice_vlan          vpws                vrrp                wac

DES-3810-28:admin#
```

In the above example, all of the possible next parameters for the **show** command are displayed. At the next command prompt, the up arrow was used to re-enter the **show** command, followed by the **account** parameter. The CLI then displays the user accounts configured on the Switch.

1-3 Command Syntax Symbols

Syntax	Description
angle brackets < >	Encloses a variable or value. Users must specify the variable or value. For example, in the syntax **create vlan <vlan_name 32> tag <vlanid 2-4094> {type [1q_vlan | private_vlan]} {advertisement}** users must supply a VLAN name for **<vlan_name 32>**, and a VLAN ID for **<vlanid 2-4094>** when entering the command. DO NOT TYPE THE ANGLE BRACKETS.
square brackets [ ]	Encloses a required value or list of required arguments. Only one value or argument must be specified. For example, in the syntax **create account [admin | operator | user] <username 15>** users must specify either an admin, operator, or user account when entering the command. DO NOT TYPE THE SQUARE BRACKETS.
vertical bar |	Separates mutually exclusive items in a list, one of which must be entered. For example, in the syntax **create account [admin | operator | user] <username 15>** users must specify either to create an admin, operator, or user account in the command. DO NOT TYPE THE VERTICAL BAR.
braces { }	Encloses an optional value or a list of optional arguments. One or more values or arguments can be specified. For example, in the syntax **reset {[config | system]} {force_agree}** users may choose configure or system in the command. DO NOT TYPE THE BRACES.
parentheses ( )	Indicates at least one or more of the values or arguments in the preceding syntax enclosed by braces must be specified. For example, in the syntax **config dhcp_relay {hops <value 1-16> | time <sec 0-65535>}(1)** users have the option to specify hops or time or both of them. The "(1)" following the set of braces indicates at least one argument or value within the braces must be specified. DO NOT TYPE THE PARENTHESES.
ipif <ipif_name 12> metric <value 1-31>	**12** means the maximum length of the IP interface name. **1-31** means the legal range of the metric value.

1-4 Line Editing Keys

Keys	Description

Delete	Delete character under cursor and shift remainder of line to left.
Backspace	Delete character to left of cursor and shift remainder of line to left.
CTRL+R	Toggle on and off. When toggled on, inserts text and shifts previous text to right.
Left Arrow	Move cursor to left.
Right Arrow	Move cursor to right
Tab	Help user to select appropriate token.
p	Display the previous page.
n or SPACE	Display the next page.
CTRL+C	Escape from displayed pages.
ESC	Escape from displayed pages.
q	Escape from displayed pages.
r	refresh the displayed pages
a	Display the remaining pages. (The screen display will not pause again.)
Enter	Display the next line.

The screen display pauses when the show command output reaches the end of the page.

In the above example, all of the possible next parameters for the **show** command are displayed. At the next command prompt, the up arrow was used to re-enter the **show** command, followed by the **account** parameter. The CLI then displays the user accounts configured on the Switch.

Chapter 2 Basic Management Commands

create account [admin | operator | user] <username 15>
enable password encryption
disable password encryption
config account <username> {encrypt [plain_text | sha_1] <password>}
show account
delete account <username>
show session
show switch
show environment
config temperature [trap | log] state [enable | disable]
config temperature threshold {high <temperature> | low <temperature>}(1)
show serial_port
config serial_port { baud_rate [9600 | 19200 | 38400 | 115200] | auto_logout [never | 2_minutes | 5_minutes | 10_minutes |15_minutes]}(1)
enable clipaging
disable clipaging
enable telnet {<tcp_port_number 1-65535>}
disable telnet
enable web {<tcp_port_number 1-65535>}
disable web
save {[config <pathname 64> | log | all]}
reboot {force_agree}
reset {[config | system]} {force_agree}
login
logout
clear
config terminal width [default | <value 80-200>]
show terminal width

2-1 create account

Description

This command creates user accounts. The username is between 1 and 15 characters, the password is between 0 and 15 characters. The number of accounts (including admin, operator, and user) is up to eight.

Format

create account [admin | operator |user] <username 15>

Parameters

admin - Specifies the name of the admin account.
operator - Specifies the name of the operator account.
user - Specifies the name of the user account.
<username 15> - Specifies a username of up to 15 characters.

Restrictions

Only Administrators can issue this command.

Example

To create an Administrator account called “dlink”:

```
DES-3810-28:admin#create account admin dlink
Command: create account admin dlink

Enter a case-sensitive new password:****
Enter the new password again for confirmation:****
Success.

DES-3810-28:admin#
```

To create an Operator account called “Sales”:

```
DES-3810-28:admin##create account operator Sales
Command: create account operator Sales

Enter a case-sensitive new password:****
Enter the new password again for confirmation:****
Success.

DES-3810-28:admin#
```

To create a User account called “System”:

```
DES-3810-28:admin##create account user System
Command: create account user System

Enter a case-sensitive new password:****
Enter the new password again for confirmation:****
Success.

DES-3810-28:admin#
```

2-2 enable password encryption

Description

The user account configuration information will be stored in the configuration file, and can be applied to the system later. If the password encryption is enabled, the password will be in encrypted form when it is stored in the configuration file. When password encryption is disabled, the password will be in plain text form when it is stored in the configuration file. However, if the created user account directly uses the encrypted password, the password will still be in the encrypted form.

Format

enable password encryption

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To enable password encryption:

```
DES-3810-28:admin#enable password encryption
Command: enable password encryption

Success.

DES-3810-28:admin#
```

2-3 disable password encryption

Description

The user account configuration information will be stored in the configuration file, and can be applied to the system later. If the password encryption is enabled, the password will be in encrypted form when it is stored in the configuration file. When password encryption is disabled, the password will be in plain text form when it is stored in the configuration file. However, if the created user account directly uses the encrypted password, the password will still be in the encrypted form.

Format

disable password encryption

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To disable password encryption:

```
DES-3810-28:admin#disable password encryption
Command: disable password encryption

Success.

DES-3810-28:admin#
```

2-4 config account

Description

When the password information is not specified in the command, the system will prompt the user to input the password interactively. For this case, the user can only input the plain text password.

If the password is present in the command, the user can select to input the password in the plain text form or in the encrypted form. The encryption algorithm is based on SHA-1.

Format

config account <username> {encrypt [plain_text | sha_1] <password>}

Parameters

<username> - Specifies the name of the account. The account must already be defined.
encrypt - (Optional) Specifies the encryption type, plain_text or sha_1. **plain_text** - Specifies the password in plain text form. For the plain text form, passwords must have a minimum of 0 and a maximum of 15 characters. The password is case-sensitive **sha_1** - Specifies the password in the SHA-1 encrypted form. For the encrypted form password, the length is fixed to 35 bytes long. The password is case-sensitive.
<password> - Specifies the password.

Restrictions

Only Administrators can issue this command.

Example

To configure the user password of the “dlink” account:

```
DES-3810-28:admin#config account dlink
Command: config account dlink

Enter a old password:****
Enter a case-sensitive new password:****
Enter the new password again for confirmation:****
Success.

DES-3810-28:admin#
```

To configure the user password of the “administrator” account:

```
DES-3810-28:admin#config account administrator encrypt sha_1
*@&NWoZK3kTsExUV00Ywo1G5jlUKKv+toYg
Command: config account administrator encrypt sha_1
*@&NWoZK3kTsExUV00Ywo1G5jlUKKv+toYg
Success.


DES-3810-28:admin#
```

2-5 show account

Description

This command is used to display user accounts that have been created.

Format

show account

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To display accounts that have been created:

```
DES-3810-28:admin#show account
Command: show account

Current Accounts:
Username         Access Level
---------------  ------------
System           User
Sales            Operator
dlink            Admin

DES-3810-28:admin#
```

2-6 delete account

Description

This command is used to delete an existing account.

Format

delete account <username>

Parameters

<username> - Specifies the name of the user who will be deleted.

Restrictions

Only Administrators can issue this command. One active admin user must exist.

Example

To delete the user account “System”:

```
DES-3810-28:admin#delete account System
Command: delete account System

Success.

DES-3810-28:admin#
```

2-7 show session

Description

This command is used to display a list of current users which are logged in to CLI sessions.

Format

show session

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To display accounts a list of currently logged-in users:

```
DES-3810-28:admin#show session
Command: show session

ID  Live Time     From          Level   User
--  ------------  ------------  -----   --------------------
8   23:37:42.270  Serial Port   admin   Anonymous

Total Entries: 1

CTRL+C ESC q Quit SPACE n Next Page p Previous Page r Refresh
```

2-8 show switch

Description

This command is used to display the switch information.

Format

show switch

Parameters

None.

Restrictions

None.

Example

To display the switch information:

```
DES-3810-28:admin#show switch
Command: show switch

Device Type       : DES-3810-28 Fast Ethernet Switch
MAC Address       : 00-22-B0-32-EB-00
IP Address        : 10.90.90.90 (Manual)
VLAN Name         : default
Subnet Mask       : 255.0.0.0
Default Gateway   : 0.0.0.0
Boot PROM Version : Build 2.00.004
Firmware Version  : Build 2.10.024
Hardware Version  : A1
Firmware Type     : EI
Serial Number     : PVMB1A9000016
System Name       :
System Location   :
System Uptime     : 0 days, 0 hours, 18 minutes, 42 seconds
System Contact    :
Spanning Tree     : Disabled
GVRP              : Disabled
IGMP Snooping     : Disabled
MLD Snooping      : Disabled
RIP               : Disabled
DVMRP             : Disabled
PIM               : Disabled
CTRL+C ESC q Quit SPACE n Next Page ENTER Next Entry a All
```

2-9 show environment

Description

This command is used to display the device internal and external power and internal temperature status.

Format

show environment

Parameters

None.

Restrictions

None.

Example

To display the switch hardware status:

```
DES-3810-28:admin#show environment
Command: show environment

Internal Power      : Active
External Power      : Fail
Current Temperature(Celsius) :   56
High Warning Temperature Threshold(Celsius) :    79
Low Warning Temperature Threshold(Celsius)  :    11

CTRL+C ESC q Quit SPACE n Next Page p Previous Page r Refresh
```

2-10 config temperature

Description

This command is used to configure the warning trap or log state of the system internal temperature.

Format

config temperature [trap | log] state [enable | disable]

Parameters

trap - Specifies to configure the warning temperature trap.
log - Specifies to configure the warning temperature log.
state - Enable or disable either the trap or log state for a warning temperature event. The default is enable. **enable** - Enable either the trap or log state for a warning temperature event. **disable** - Disable either the trap or log state for a warning temperature event.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable the warning temperature trap state:

```
DES-3810-28:admin#config temperature trap state enable
Command: config temperature trap state enable

Success.

DES-3810-28:admin#
```

To enable the warning temperature log state:

```
DES-3810-28:admin#config temperature log state enable
Command: config temperature log state enable

Success.

DES-3810-28:admin#
```

2-11 config temperature threshold

Description

This command is used to configure the warning temperature high threshold or low threshold. When temperature is above the high threshold or below the low threshold, SW will send alarm traps or keep the logs.

Format

config temperature threshold {high <temperature> | low <temperature>}(1)

Parameters

high - Specifies the high threshold value. The high threshold must bigger than the low threshold. **<temperature>** - Specifies the high threshold value.
low - Specifies the low threshold value. **<temperature>** - Specifies the low threshold value.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure a warming temperature threshold high of 80:

```
DES-3810-28:admin#config temperature threshold high 80
Command: config temperature threshold high 80
```

```
Success.

DES-3810-28:admin#
```

2-12 show serial_port

Description

This command is used to display the current console port setting.

Format

show serial_port

Parameters

None.

Restrictions

None.

Example

To display the console port setting:

```
DES-3810-28:admin#show serial_port
Command: show serial_port

Baud Rate     : 115200
Data Bits     : 8
Parity Bits   : None
Stop Bits     : 1
Auto-Logout   : 10 mins

DES-3810-28:admin#
```

2-13 config serial_port

Description

This command is used to configure the serial bit rate that will be used to communicate with the management host and the auto logout time for idle connections.

Format

config serial_port {baud_rate [9600 | 19200 | 38400 | 115200] | auto_logout [never | 2_minutes | 5_minutes | 10_minutes | 15_minutes]}(1)

Parameters

baud_rate - Specifies the baud rate value. The default baud rate is 115200. **9600** - Specifies a baud rate of 9600. **19200** - Specifies a baud rate of 19200. **38400** - Specifies a baud rate of 38400. **115200** - Specifies a baud rate of 115200.
auto_logout - Specifies the timeout value. The default timeout is 10_minutes. **never** - Specifies to never timeout. **2_minutes** - Specifies when the idle value is over 2 minutes, the device will auto logout. **5_minutes** - Specifies when the idle value over 5 minutes, the device will auto logout. **10_minutes** - Specifies when the idle value is over 10 minutes, the device will auto logout. **15_minutes** - Specifies when the idle value is over 15 minutes, the device will auto logout.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the baud rate:

```
DES-3810-28:admin# config serial_port baud_rate 9600
Command: config serial_port baud_rate 9600

Success.

DES-3810-28:admin#
```

2-14 enable clipaging

Description

This command is used to enable pausing of the screen display when show command output reaches the end of the page. The default setting is enabled.

Format

enable clipaging

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable pausing of the screen display when show command output reaches the end of the page:

```
DES-3810-28:admin#enable clipaging
Command: enable clipaging
```

```
Success.

DES-3810-28:admin#
```

2-15 disable clipaging

Description

This command is used to disable pausing of the screen display when show command output reaches the end of the page. The default setting is enabled.

Format

disable clipaging

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable pausing of the screen display when show command output reaches the end of the page:

```
DES-3810-28:admin#disable clipaging
Command: disable clipaging

Success.

DES-3810-28:admin#
```

2-16 enable telnet

Description

This command is used to enable Telnet and configure a port number. The default setting is enabled and the port number is 23.

Format

enable telnet {<tcp_port_number 1-65535>}

Parameters

<tcp_port_number 1-65535> - (Optional) Specifies the TCP port number. TCP ports are numbered between 1 and 65535. The “well-known” TCP port for the Telnet protocol is 23.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable Telnet and configure a port number:

```
DES-3810-28:admin#enable telnet 23
Command: enable telnet 23

Success.

DES-3810-28:admin#
```

2-17 disable telnet

Description

This command is used to disable Telnet.

Format

disable telnet

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable Telnet:

```
DES-3810-28:admin#disable telnet
Command: disable telnet

Success.

DES-3810-28:admin#
```

2-18 enable web

Description

This command is used to enable Web UI and configure the port number. The default setting is enabled and the port number is 80.

Format

enable web {<tcp_port_number 1-65535>}

Parameters

<tcp_port_number 1-65535> - (Optional) Specifies the TCP port number. TCP ports are numbered between 1 and 65535. The “well-know” TCP port for the Web protocol is 80.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable HTTP and configure port number:

```
DES-3810-28:admin#enable web 80
Command: enable web 80

Note: SSL will be disabled if web is enabled.
Success.

DES-3810-28:admin#
```

2-19 disable web

Description

This command is used to disable Web UI.

Format

disable web

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable HTTP:

```
DES-3810-28:admin#disable web
Command: disable web

Success.
```

```
DES-3810-28:admin#
```

2-20 save

Description

This command is used to save the current configuration or log in non-volatile RAM.

Format

save {[config <pathname 64> | log | all]}

Parameters

config - (Optional) Specifies to save configuration. **<pathname 64>** - Specifies the path name of the indicated configuration
log - (Optional) Specifies to save log.
all - (Optional) Specifies to save changes to currently active configuration and save logs.

Note: If no keyword is specified, all changes will be saved to bootup configuration file.

Restrictions

Only Administrators and Operators can issue this command.

Example

To save the current configuration to the bootup configuration file:

```
DES-3810-28:admin#save
Command: save

Saving all configurations to NV-RAM..... Done.

DES-3810-28:admin#
```

To save the current configuration to destination file, named 1:

```
DES-3810-28:admin#save config 1
Command: save config 1

Saving all configurations to NV-RAM..... Done.

DES-3810-28:admin#
```

To save a log to NV-RAM:

```
DES-3810-28:admin#save log
Command: save log

Saving all system logs to NV-RAM..... Done.
```

```
DES-3810-28:admin#
```

To save all the configurations and logs to NV-RAM:

```
DES-3810-28:admin#save all
Command: save all

Saving  configuration and logs to NV-RAM..... Done.

DES-3810-28:admin#
```

2-21 reboot

Description

This command is used to restart the switch.

Format

reboot {force_agree}

Parameters

force_agree – (Optional) Specifies to immediately execute the reboot command without further confirmation.

Restrictions

Only Administrators can issue this command.

Example

To restart the switch:

```
DES-3810-28:admin#reboot
Command: reboot

Are you sure you want to proceed with the system reboot?(y/n)y
Please wait, the switch is rebooting…
```

2-22 reset

Description

This command is used to reset all switch parameters to the factory defaults.

Format

reset {[config | system]} {force_agree}

Parameters

config - (Optional) Specifies this keyword and all parameters are reset to default settings. However, the device will neither save nor reboot.
system - (Optional) Specifies this keyword and all parameters are reset to default settings. Then the switch will do factory reset, save, and reboot.
force_agree - (Optional) Specifies and the reset command will be executed immediately without further confirmation.

Note: If no keyword is specified, all parameters will be reset to default settings except IP address, user account, and history log, but the device will neither save nor reboot.

Restrictions

Only Administrator users can issue this command.

Example

To reset all the switch parameters except the IP address:

```
DES-3810-28:admin#reset
Command: reset

Are you sure you want to proceed with system reset
except IP address, log, user account and banner?(y/n)y
Success.

DES-3810-28:admin#
```

To reset the system configuration settings:

```
DES-3810-28:admin#reset config
Command: reset config

Are you sure you want to proceed with system reset?(y/n)y
Success.

DES-3810-28:admin#
```

To reset all system parameters, save, and restart the switch:

```
Are you sure you want to proceed with system reset?(y/n)
 y-(reset all include configuration, save, reboot )
 n-(cancel command)y

Reboot & Load Factory Default Configuration...

 Saving configurations and logs to NV-RAM..... Done.
Please wait, the switch is rebooting...
```

2-23 login

Description

This command is used to log in to the switch.

Format

login

Parameters

None.

Restrictions

None.

Example

To login to the switch:

```
DES-3810-28:admin#login
Command: login

UserName:
```

2-24 logout

Description

This command is used to log out of the switch.

Format

logout

Parameters

None.

Restrictions

None.

Example

To logout of the switch:

```
DES-3810-28:admin#logout
Command: logout
```

```
**********
* Logout *
**********

Press any key to login...

                        DES-3810-28 Fast Ethernet Switch
                             Command Line Interface

                            Firmware: Build 2.10.024
          Copyright(C) 2011 D-Link Corporation. All rights reserved.

UserName:
```

2-25 clear

Description

This command is used to clear the terminal screen.

Format

clear

Parameters

None.

Restrictions

None.

Example

To clear the terminal screan:

```
DES-3810-28:admin#clear
Command: clear
```

2-26 config terminal width

Description

The command is used to configure the current terminal width.

Users can login and configure the terminal width to 120. This configuration takes effect on this login session only. If users enters the “save” command, the configuration will be saved. After the users logs out and logs in again, the terminal width will be 120.

If the user did not save the configuration, the terminal width will return to the default value when a new users logs in.

If two CLI sessions are running at the same time, the other section will not be effected, unless this users logs out and logs in again.

Format

config terminal width [default | <value 80-200>]

Parameters

default - Specifies the default terminal width value.
<value 80-200> - Specifies a terminal width value between 80 and 200 characters. The default value is 80.

Restrictions

None.

Example

To configure the terminal width:

```
DES-3810-28:admin#config terminal width 90
Command: config terminal width 90

Success.

DES-3810-28:admin#
```

2-27 show terminal width

Description

This command is used to display the configuration of the current terminal width. Note that the current terminal width is per CLI session.

Format

show terminal width

Parameters

None.

Restrictions

None.

Example

To display the configuration of the current terminal width:

```
DES-3810-28:admin#show terminal width
Command: show terminal width
```

```
Global terminal width     : 80
Current terminal width    : 80

DES-3810-28:admin#
```

Chapter 3 802.1X Commands

enable 802.1x
disable 802.1x
create 802.1x user <username 15>
delete 802.1x user <username 15>
show 802.1x user
config 802.1x auth_protocol [local | radius_eap]
show 802.1x {[auth_state | auth_configuration] ports {<portlist>}}
config 802.1x capability ports [<portlist> | all] [authenticator | none]
config 802.1x fwd_pdu ports [<portlist> | all] [enable | disable]
config 802.1x fwd_pdu system [enable | disable]
config 802.1x auth_parameter ports [<portlist> | all] [default | {direction [both | in] | port_control [force_unauth | auto | force_auth] | quiet_period <sec 0-65535> | tx_period <sec 1-65535> | supp_timeout <sec 1-65535> | server_timeout <sec 1-65535> | max_req <value 1-10> | reauth_period <sec 1-65535> | max_users [<value 1-1792> | no_limit] | enable_reauth [enable | disable]}(1)]
config 802.1x auth_mode [port_based | mac_based]
config 802.1x authorization attributes radius [enable | disable]
config 802.1x init [port_based ports [<portlist> | all] | mac_based ports [<portlist> | all] {mac_address <macaddr>}]
config 802.1x max_users [<value 1-1792> | no_limit]
config 802.1x reauth [port_based ports [<portlist> | all] |mac_based ports [<portlist> | all] {mac_address <macaddr>}]
create 802.1x guest_vlan <vlan_name 32>
delete 802.1x guest_vlan <vlan_name 32>
config 802.1x guest_vlan ports [<portlist> | all] state [enable | disable]
show 802.1x guest_vlan
config radius add <server_index 1-3> [<server_ip> | <ipv6addr>] key <password 32> [default | {auth_port <udp_port_number 1-65535> | acct_port <udp_port_number 1-65535> | timeout <sec 1-255> | retransmit <int 1-20>}(1)]
config radius delete <server_index 1-3>
config radius <server_index 1-3> {ipaddress [<server_ip> | <ipv6addr>] | key <password 32> | auth_port [<udp_port_number 1-65535> | default] | acct_port [<udp_port_number1-65535> | default] | timeout [<sec 1-255> | default] | retransmit [<int 1-20> | default]}(1)
show radius
show auth_statistics {ports <portlist>}
show auth_diagnostics {ports <portlist>}
show auth_session_statistics {ports <portlist>}
show auth_client
show acct_client
config accounting service [network | shell | system] state [enable | disable]
show accounting service

3-1 enable 802.1x

Description

This command is used to enable the 802.1X function.

Format

enable 802.1x

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable the 802.1X function:

```
DES-3810-28:admin#enable 802.1x
Command: enable 802.1x

Success.

DES-3810-28:admin#
```

3-2 disable 802.1x

Description

This command is used to disable the 802.1X function.

Format

disable 802.1x

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable the 802.1Xfunction:

```
DES-3810-28:admin#disable 802.1x
Command: disable 802.1x

Success.

DES-3810-28:admin#
```

3-3 create 802.1x user

Description

This command is used to create an 802.1X user.

Format

create 802.1x user <username 15>

Parameters

<username 15> - Specifies to add a user name.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create a user named “ctsnow”:

```
DES-3810-28:admin#create 802.1x user ctsnow
Command: create 802.1x user ctsnow

Enter a case-sensitive new password:
Enter the new password again for confirmation:

Success.

DES-3810-28:admin#
```

3-4 delete 802.1x user

Description

This command is used to delete a specified user.

Format

delete 802.1x user <username 15>

Parameters

<username 15> - Specifies to delete a user name.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete the user named “Tiberius”:

```
DES-3810-28:admin#delete 802.1x user Tiberius
Command: delete 802.1x user Tiberius

Success.

DES-3810-28:admin#
```

3-5 show 802.1x user

Description

This command is used to display 802.1X local user account information.

Format

show 802.1x user

Parameters

None.

Restrictions

None.

Example

To display 802.1X user information:

```
DES-3810-28:admin#show 802.1x user
Command: show 802.1x user

 Current Accounts:
 Username         Password
 ---------------  ---------------
 user1            password1

 Total Entries:1


DES-3810-28:admin#
```

3-6 config 802.1x auth_protocol

Description

This command is used to configure the 802.1X authentication protocol.

Format

config 802.1x auth_protocol [local | radius_eap]

Parameters

local - Specifiy the authentication protocol as local.
radius_eap - Specifies the authentication protocol as RADIUS EAP.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the 802.1X RADIUS EAP:

```
DES-3810-28:admin#config 802.1x auth_protocol radius_eap
Command: config 802.1x auth_protocol radius_eap

Success.

DES-3810-28:admin#
```

3-7 show 802.1x

Description

This command is used to display the 802.1X state or configurations.

Format

show 802.1x {[auth_state | auth_configuration] ports {<portlist>}}

Parameters

auth_state - (Optional) Specifies to display the 802.1X authentication state of some or all ports.
auth_configuration - (Optional) Specifies to display 802.1X configuration of some or all ports.
ports - (Optional) Specifies a range of ports to be displayed. **<portlist>** - Specifies a range of ports to be displayed.

Restrictions

None.

Example

To display 802.1X information:

```
DES-3810-28:admin#show 802.1x
Command: show 802.1x

802.1X                   : Disabled
```

```
Authentication Mode     : Port_based
Authentication Protocol : RADIUS_EAP
Forward EAPOL PDU       : Disabled
Max User                : 1792
RADIUS Authorization    : Enabled

DES-3810-28:admin#
```

To display the 802.1x state for ports 1 to 5:

```
DES-3810-28:admin# show 802.1x auth_state ports 1-5
Command: show 802.1x auth_state ports 1-5

Status:  A - Authorized; U - Unauthorized; (P): Port-Based 802.1X;Pri:Priority
Port  MAC Address           Auth  PAE State      Backend State Status VID  Pri
                            VID
----- -------------------- ------ -------------- ------------- ------ ---- ---
1     -                (p) -      Authenticated  Idle          A      -   7
2     -                (p) -      Connecting     Idle          U      -    -
3     -                (p) -      Disconnected   Idle          U      -    -
4     -                (p) -      Disconnected   Idle          U      -    -
5     -                (p) -      Disconnected   Idle          U      -    -




 Total Authenticating Hosts :1
 Total Authenticated Hosts  :1

DES-3810-28:admin#
```

To display the 802.1x configuration for port 1:

```
DES-3810-28:admin#show 802.1x auth_configuration ports 1
Command: show 802.1x auth_configuration ports 1

Port Number    : 1
Capability     : None
AdminCrlDir    : Both
OpenCrlDir     : Both
Port Control   : Auto
QuietPeriod    : 60    sec
TxPeriod       : 30    sec
SuppTimeout    : 30    sec
ServerTimeout  : 30    sec
MaxReq         : 2     times
ReAuthPeriod   : 3600  sec
ReAuthenticate : Disabled
Forward EAPOL PDU On Port : Disabled
Max User On Port : 16

CTRL+C ESC q Quit SPACE n Next Page p Previous Page r Refresh
```

3-8 config 802.1x capability ports

Description

This command is used to configure port capability.

Format

config 802.1x capability ports [<portlist> | all] [authenticator | none]

Parameters

<portlist> - Specifies a range of ports to be configured.
all - Specifies to configure all ports.
authenticator - The port that wishes to enforce authentication before allowing access to services that are accessible via that port adopts the authenticator role.
none – Disable authentication on specified port.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure port capability for ports 1 to 10:

```
DES-3810-28:admin#config 802.1x capability ports 1-10 authenticator
Command: config 802.1x capability ports 1-10 authenticator

Success.

DES-3810-28:admin#
```

3-9 config 802.1x fwd_pdu ports

Description

This command is used to configure the 802.1X PDU forwarding state on specific ports on the switch.

Format

config 802.1x fwd_pdu ports [<portlist> | all] [enable | disable]

Parameters

<portlist> - Specifies a range of ports to be configured.
all - Specifies all ports.
enable - Enable the 802.1X PDU forwarding state.
disable - Disable the 802.1X PDU forwarding state.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the 802.1X PDU forwarding state on ports 1 to 2:

```
DES-3810-28:admin#config 802.1x fwd_pdu ports 1-2 enable
Command: config 802.1x fwd_pdu ports 1-2 enable

Success.

DES-3810-28:admin#
```

3-10 config 802.1x fwd_pdu system

Description

This command is used to configure the 802.1X PDU forwarding state.

Format

config 802.1x fwd_pdu system [enable | disable]

Parameters

enable - Enable the 802.1X PDU forwarding state.
disable - Disable the 802.1X PDU forwarding state.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the 802.1X PDU forwarding state:

```
DES-3810-28:admin#config 802.1x fwd_pdu system enable
Command: config 802.1x fwd_pdu system enable

Success.

DES-3810-28:admin#
```

3-11 config 802.1x auth_parameter ports

Description

This command is used to configure the parameters that control the operation of the authenticator associated with a port.

Format

config 802.1x auth_parameter ports [<portlist> | all] [default | {direction [both | in] | port_control [force_unauth | auto | force_auth] | quiet_period <sec 0-65535> | tx_period <sec 1-65535> | supp_timeout <sec 1-65535> | server_timeout <sec 1-65535> | max_req <value 1-10> | reauth_period <sec 1-65535> | max_users [<value 1-1792> | no_limit] | enable_reauth [enable | disable]}(1)]

Parameters

<portlist> - Specifies a range of ports to be configured.
all - Specifies to configure all ports.
default - Set all parameters to the default value.
direction - (Optional) Set the direction of access control. **both** - For bidirectional access control. **in** - For ingress access control.
port_control - (Optional) Force a specific port to be unconditionally authorized or unauthorized by setting the parameter of port_control to be force_authorized or force_unauthorized. Besides, the controlled port will reflect the outcome of authentication if port_control is auto. **force_authorized** - The port transmits and receives normal traffic without 802.1X-based authentication of the client. **auto** - The port begins in the unauthorized state, and relays authentication messages between the client and the authentication server. **force_unauthorized** - The port will remain in the unauthorized state, ignoring all attempts by the client to authenticate.
quiet_period - (Optional) The initialization value of the quietWhile timer. The default value is 60 s and can be any value from 0 to 65535. **<sec 0-65535>** - The quiet period value must be between 0 an 65535 seconds.
tx_period - (Optional) The initialization value of the txWhen timer. The default value is 30 s and can be any value from 1 to 65535. **<sec 1-65535>** - The transmit period value must be between 1 an 65535 seconds.
supp_timeout - (Optional) The initialization value of the aWhile timer when timing out the supplicant. Its default value is 30 s and can be any value from 1 to 65535. **<sec 1-65535>** - The timeout value must be between 1 an 65535 seconds.
server_timeout - (Optional) The initialization value of the aWhile timer when timing out the authentication server. Its default value is 30 and can be any value from 1 to 65535. **<sec 1-65535>** - The server timeout value must be between 1 an 65535 seconds.
max_req - (Optional) The maximum number of times that the authenitcation PAE state machine

will retransmit an EAP Request packet to the supplicant. Its default value is 2 and can be any number from 1 to 10. **<value 1-10>** - The maximum require number must be between 1 and 10.
reauth_period - (Optional) It's a non-zero number of seconds, which is used to be the re-authentication timer. The default value is 3600. **<sec 1-65535>** - The reauthentication period value must be between 1 an 65535 seconds.
max_users - (Optional) Set the maximum number of users between 1 and 1792. **<value 1-1792>** - The maximum users value must be between 1 and 1792. **no_limit** - Set an unlimited number of users.
enable_reauth - (Optional) Enable or disable the re-authentication mechanism for a specific port. **enable** - Enable the re-authentication mechanism for a specific port. **disable** - Disable the re-authentication mechanism for a specific port.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the parameters that control the operation of the authenticator associated with a port:

```
DES-3810-28:admin# config 802.1x auth_parameter ports 1-20 direction both
Command: config 802.1x auth_parameter ports 1-20 direction both

Success.

DES-3810-28:admin#
```

3-12 config 802.1x auth_mode

Description

This command is used to configure the authentication mode.

Format

config 802.1x auth_mode [port_based | mac_based]

Parameters

port_based - Used to configure authentication in port-based mode.
mac_based - Used to configure authentication in MAC-based (host-based) mode.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the authentication mode:

```
DES-3810-28:admin#config 802.1x auth_mode port_based
Command: config 802.1x auth_mode port_based
```

```
Success.

DES-3810-28:admin#
```

3-13 config 802.1x authorization attributes radius

Description

This command is used to enable or disable the acceptation of an authorized configuration.

Format

config 802.1x authorization attributes radius [enable | disable]

Parameters

enable - The authorization attributes such as VLAN, 802.1p default priority, and ACL assigned by the RADUIS server will be accepted if the global authorization status is enabled. The default state is enabled.
disable - The authorization attributes assigned by the RADUIS server will not be accepted.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the 802.1X state of acceptation of an authorized configuration:

```
DES-3810-28:admin#config 802.1x authorization attributes radius enable
Command: config 802.1x authorization attributes radius enable

Success.

DES-3810-28:admin#
```

3-14 config 802.1x init

Description

This command is used to initialize the authentication state machine of some or all.

Format

config 802.1x init [port_based ports [<portlist> | all] | mac_based ports [<portlist> | all] {mac_address <macaddr>}]

Parameters

port_based ports - Used to configure authentication in port-based mode. **<portlist>** - Specifies a range of ports to be configured. **all** - Specifies to configure all ports.

mac_based ports - To configure authentication in host-based 802.1X mode. **<portlist>** - Specifies a range of ports to be configured. **all** - Specifies to configure all ports.	
mac_address - (Optional) Specifies the MAC address of the host. **<macaddr>** - Enter the MAC address here.	

Restrictions

Only Administrators and Operators can issue this command.

Example

To initialize the authentication state machine of some or all:

```
DES-3810-28:admin# config 802.1x init port_based ports all
Command: config 802.1x init port_based ports all

Success.

DES-3810-28:admin#
```

3-15 config 802.1x max_users

Description

This command is used to configure the 802.1X maximum number of users of the system.

Format

config 802.1x max_users [<value 1-1792> | no_limit]

Parameters

<value 1-1792> - Specifies the maximum number of users.	
no_limit - Specifies an unlimited number of users.	

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the 820.1X maximum numbers of the system:

```
DES-3810-28:admin# config 802.1x max_users 2
Command: config 802.1x max_users 2

Success.

DES-3810-28:admin#
```

3-16 config 802.1x reauth

Description

This command is used to reauthenticate the device connected with the port. During the reauthentication period, the port status remains authorized until failed reauthentication.

Format

config 802.1x reauth [port_based ports [<portlist> | all] |mac_based ports [<portlist> | all] {mac_address <macaddr>}]

Parameters

port_based ports - The switch passes data based on its authenticated port. **<portlist>** - Specifies a range of ports to be configured. **all** - Specifies to configure all ports.
mac_based ports - The switch passes data based on the MAC address of authenticated RADIUS client. **<portlist>** - Specifies a range of ports to be configured. **all** - Specifies to configure all ports.
mac_address - (Optional) Specifies the MAC address of the authenticated RADIUS client. **<macaddr>** - Enter the MAC address here.

Restrictions

Only Administrators and Operators can issue this command.

Example

To reauthenticate the device connected with the port:

```
DES-3810-28:admin# config 802.1x reauth port_based ports all
Command: config 802.1x reauth port_based ports all

Success.

DES-3810-28:admin#
```

3-17 create 802.1x guest_vlan

Description

This command is used to assign a static VLAN to be a guest VLAN. The specific VLAN which is assigned to a guest VLAN must already exist. The specific VLAN which is assigned to the guest VLAN can’t be deleted.

Format

create 802.1x guest_vlan <vlan_name 32>

Parameters

<vlan_name 32> - Specifies the static VLAN to be a guest VLAN.

Restrictions

Only Administrators and Operators can issue this command.

Example

To assign a static VLAN to be a guest VLAN:

```
DES-3810-28:admin# create 802.1x guest_vlan guestVLAN
Command: create 802.1x guest_vlan guestVLAN

Success.

DES-3810-28:admin#
```

3-18 delete 802.1x guest_vlan

Description

This command is used to delete a guest VLAN setting, but not to delete the static VLAN itself.

Format

delete 802.1x guest_vlan <vlan_name 32>

Parameters

<vlan_name 32> - Specifies the guest VLAN name.

Restrictions

Only Administrators and Operators can issue this command. All ports which are enabled as guest VLAN will return to the original VLAN after the guest VLAN is deleted.

Example

To delete a guest VLAN configuration:

```
DES-3810-28:admin# delete 802.1x guest_vlan guestVLAN
Command: delete 802.1x guest_vlan guestVLAN

Success.

DES-3810-28:admin#
```

3-19 config 802.1x guest_vlan ports

Description

This command is used to configure a guest VLAN setting.

Format

config 802.1x guest_vlan ports [<portlist> | all] state [enable | disable]

Parameters

<portlist> - Specifies a range of ports to be configured.
all - Specifies to configure all ports.
state - Specifies the guest VLAN port state of the configured ports. **enable** - Join the guest VLAN. **disable** - Remove from guest VLAN.

Restrictions

Only Administrators and Operators can issue this command. If the specific port state is changed from the enabled state to the disabled state, this port will move to its original VLAN.

Example

To configure a guest VLAN setting for ports 1 to 8:

```
DES-3810-28:admin# config 802.1x guest_vlan ports 1-8 state enable
Command: config 802.1x guest_vlan ports 1-8 state enable

Warning, The ports are moved to Guest VLAN.

Success.

DES-3810-28:admin#
```

3-20 show 802.1x guest_vlan

Description

This command is used to display guest VLAN information.

Format

show 802.1x guest_vlan

Parameters

None.

Restrictions

None.

Example

To display guest VLAN information:

```
DES-3810-28:admin#show 802.1x guest_vlan
Command: show 802.1x guest_vlan

Guest VLAN Setting
-------------------------------------------------------
Guest VLAN : guest
Enabled Guest VLAN Ports : 1-10

DES-3810-28:admin#
```

3-21 config radius add

Description

This command is used to add a new RADIUS server. The server with a lower index has higher authenticative priority.

Format

config radius add <server_index 1-3> [<server_ip> | <ipv6addr>] key <password 32> [default | {auth_port <udp_port_number 1-65535> | acct_port <udp_port_number 1-65535> | timeout <sec 1-255> | retransmit <int 1-20>}(1)]

Parameters

<server_index 1-3> - Specifies the RADIUS server index.
<server_ip> - Specifies the IP address of the RADIUS server. **<server_ipv6>** - Specifies the IPv6 address of the RADIUS server.
key - Specifies the key pre-negotiated between switch and the RADIUS server. It is used to encrypt user's authentication data before being transmitted over the Internet. The maximum length of the key is 32. **<passwd 32>** - The maximum length of the password is 32 characters long.
default - Sets the auth_port to be 1812 and acct_port to be 1813.
auth_port - Specifies the UDP port number which is used to transmit RADIUS authentication data between the switch and the RADIUS server.The range is 1 to 65535. **<udp_port_number 1-65535>** - The authentication port value must be between 1 and 65535.
acct_port - Specifies the UDP port number which is used to transmit RADIUS accounting statistics between the switch and the RADIUS server. The range is 1 to 65535. **<udp_port_number 1-65535>** - The accounting statistics value must be between 1 and 65535.
timeout - Specifies the time, in seconds ,for waiting server reply. The default value is 5 seconds. **<int 1-255>** - The timeout value must be between 1 and 255.
retransmit - Specifies the count for re-transmit. The default value is 2. **<int 1-20>** - The re-transmit value must be between 1 and 20.

Restrictions

Only Administrators and Operators can issue this command.

Example

To add a new RADIUS server:

```
DES-3810-28:admin#config radius add 1 10.48.74.121 key dlink default
Command: config radius add 1 10.48.74.121 key dlink default

Success.

DES-3810-28:admin#
```

3-22 config radius delete

Description

This command is used to delete a RADIUS server.

Format

config radius delete <server_index 1-3>

Parameters

<server_index 1-3> - Specifies the RADIUS server index. The range is from 1 to 3.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete a RADIUS server:

```
DES-3810-28:admin#config radius delete 1
Command: config radius delete 1

Success.

DES-3810-28:admin#
```

3-23 config radius

Description

This command is used to configure a RADIUS server.

Format

config radius <server_index 1-3> {ipaddress [<server_ip> | <ipv6addr>] | key <password 32> | auth_port [<udp_port_number 1-65535> | default] | acct_port [<udp_port_number1-65535> | default] | timeout [<sec 1-255> | default] | retransmit [<int 1-20> | default]}(1)

Parameters

<server_index 1-3> - Specifies the RADIUS server index.
ipaddress - Specifies the IP address of the RADIUS server. **<server_ip>** - Enter the RADIUS server IP address here. **<server_ipv6>** - Enter the RADIUS server IPv6 address here.
key - Specifies the key pre-negotiated between the switch and the RADIUS server. It is used to encrypt user's authentication data before being transmitted over the Internet. The maximum length of the key is 32. **<passwd 32>** - Specifies the key pre-negotiated between the switch and the RADIUS server. It is used to encrypt user's authentication data before being transmitted over the Internet. The maximum length of the key is 32.
auth_port - Specifies the UDP port number which is used to transmit RADIUS authentication data between the switch and the RADIUS server. The default is 1812. **<udp_port_number 1-65535>** - The authentication port value must be between 1 and 65535. **default** - Specifies to use the default value.
acct_port - Specifies the UDP port number which is used to transmit RADIUS accounting statistics between the switch and the RADIUS server. The default is 1813. **<udp_port_number 1-65535>** - The accounting statistics value must be between 1 and 65535. **default** - Specifies to use the default value.
timeout - Specifies the time in seconds for waiting for a server reply. The default value is 5 seconds. **<int 1-255>** - Specifies the time in seconds for waiting for a server reply. The timeout value must be between 1 and 255. The default value is 5 seconds. **default** - Specifies to use the default value.
retransmit - Specifies the count for re-transmission. The default value is 2. **<int 1-20>** - The re-transmit value must be between 1 and 20. **default** - Specifies to use the default value.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure a RADIUS server:

```
DES-3810-28:admin#config radius 1 ipaddress 10.48.74.121 key dlink
Command: config radius 1 ipaddress 10.48.74.121 key dlink

Success.

DES-3810-28:admin#
```

3-24 show radius

Description

This command is used to display RADIUS server configurations.

Format

show radius

Parameters

None.

Restrictions

None.

Example

To display RADIUS server configurations:

```
DES-3810-28:admin# show radius
Command: show radius

Server 1
IP Address          : fe80:fec0:56ab:34b0:20b2:6aff:fecf:7ec6
Auth-Port           : 1812
Acct-Port           : Unspecified
Timeout             : Unspecified
Retransmit          : Unspecified
Key                 : adfdslkfjefiefdkgjdassdwtgjk6y1w

Server 2
IP Address          : 172.18.211.71
Auth-Port           : 1812
Acct-Port           : 1813
Timeout             : 5 sec
Retransmit          : 2
Key                 : 1234567

Server 3
IP Address          : 172.18.211.108
Auth-Port           : 1812
Acct-Port           : 1813
Timeout             : 5 sec
Retransmit          : 2
Key                 : adfdslkfjefiefdkgjdassdwtgjk6y1w

Total Entries  : 3

DES-3810-28:admin#
```

3-25 show auth_statistics

Description

This command is used to display authenticator statistics information

Format

show auth_statistics {ports <portlist>}

Parameters

ports - (Optional) Specifies a range of ports to be displayed. **<portlist>** - Specifies a range of ports to be displayed.

Restrictions

None.

Example

To display authenticator statistics information for port 1:

```
DES-3810-28:admin#show auth_statistics ports 1
Command: show auth_statistics ports 1

Port number : 1

EapolFramesRx                      0
EapolFramesTx                      6
EapolStartFramesRx                 0
EapolReqIdFramesTx                 6
EapolLogoffFramesRx                0
EapolReqFramesTx                   0
EapolRespIdFramesRx                0
EapolRespFramesRx                  0
InvalidEapolFramesRx               0
EapLengthErrorFramesRx             0
LastEapolFrameVersion              0
LastEapolFrameSource               00-00-00-00-00-00

DES-3810-28:admin#
```

3-26 show auth_diagnostics

Description

This command is used to display authenticator diagnostics information.

Format

show auth_diagnostics {ports <portlist>}

Parameters

ports - (Optional) Specifies a range of ports to be displayed. **<portlist>** - Specifies a range of ports to be displayed.

Restrictions

None.

Example

To display authenticator diagnostics information for port 1:

```
DES-3810-28:admin# show auth_diagnostics ports 1
Command: show auth_diagnostics ports 1

Port number : 1

EntersConnecting                      20
EapLogoffsWhileConnecting             0
EntersAuthenticating                  0
SuccessWhileAuthenticating            0
TimeoutsWhileAuthenticating           0
FailWhileAuthenticating               0
ReauthsWhileAuthenticating            0
EapStartsWhileAuthenticating          0
EapLogoffWhileAuthenticating          0
ReauthsWhileAuthenticated             0
EapStartsWhileAuthenticated           0
EapLogoffWhileAuthenticated           0
BackendResponses                      0
BackendAccessChallenges               0
BackendOtherRequestsToSupplicant      0
BackendNonNakResponsesFromSupplicant  0
BackendAuthSuccesses                  0
BackendAuthFails                      0

DES-3810-28:admin#
```

3-27 show auth_session_statistics

Description

This command is used to display authenticator session statistics information.

Format

show auth_session_statistics {ports <portlist>}

Parameters

ports - (Optional) Specifies a range of ports to be displayed. **<portlist>** - Specifies a range of ports to be displayed.

Restrictions

None.

Example

To display authenticator session statistics information for port 1:

```
DES-3810-28:admin#show auth_session_statistics ports 1
Command: show auth_session_statistics ports 1

Port number : 1

SessionOctetsRx                 0
SessionOctetsTx                 0
SessionFramesRx                 0
SessionFramesTx                 0
SessionId
SessionAuthenticMethod          Remote Authentication Server
SessionTime                     0
SessionTerminateCause           SupplicantLogoff
SessionUserName

DES-3810-28:admin#
```

3-28 show auth_client

Description

This command is used to display authentication client information.

Format

show auth_client

Parameters

None.

Restrictions

None.

Example

To display authentication client information:

```
DES-3810-28:admin# show auth_client
Command: show auth_client

radiusAuthClient ==>
radiusAuthClientInvalidServerAddresses   0
radiusAuthClientIdentifier               D-Link


radiusAuthServerEntry ==>
radiusAuthServerIndex :1

radiusAuthServerAddress                  0.0.0.0
radiusAuthClientServerPortNumber         0
radiusAuthClientRoundTripTime            0
radiusAuthClientAccessRequests           0
radiusAuthClientAccessRetransmissions    0
radiusAuthClientAccessAccepts            0
radiusAuthClientAccessRejects            0
radiusAuthClientAccessChallenges         0
radiusAuthClientMalformedAccessResponses 0
radiusAuthClientBadAuthenticators        0
radiusAuthClientPendingRequests          0
radiusAuthClientTimeouts                 0
radiusAuthClientUnknownTypes             0
radiusAuthClientPacketsDropped           0

radiusAuthClient ==>
radiusAuthClientInvalidServerAddresses   0
radiusAuthClientIdentifier               D-Link


radiusAuthServerEntry ==>
radiusAuthServerIndex :2

radiusAuthServerAddress                  0.0.0.0
radiusAuthClientServerPortNumber         0
radiusAuthClientRoundTripTime            0
radiusAuthClientAccessRequests           0
radiusAuthClientAccessRetransmissions    0
radiusAuthClientAccessAccepts            0
radiusAuthClientAccessRejects            0
radiusAuthClientAccessChallenges         0
radiusAuthClientMalformedAccessResponses 0
radiusAuthClientBadAuthenticators        0
radiusAuthClientPendingRequests          0
radiusAuthClientTimeouts                 0
radiusAuthClientUnknownTypes             0
radiusAuthClientPacketsDropped           0

radiusAuthClient ==>
radiusAuthClientInvalidServerAddresses   0
radiusAuthClientIdentifier               D-Link
```

```
radiusAuthServerEntry ==>
radiusAuthServerIndex :3

radiusAuthServerAddress                  0.0.0.0
radiusAuthClientServerPortNumber         0
radiusAuthClientRoundTripTime            0
radiusAuthClientAccessRequests           0
radiusAuthClientAccessRetransmissions    0
radiusAuthClientAccessAccepts            0
radiusAuthClientAccessRejects            0
radiusAuthClientAccessChallenges         0
radiusAuthClientMalformedAccessResponses 0
radiusAuthClientBadAuthenticators        0
radiusAuthClientPendingRequests          0
radiusAuthClientTimeouts                 0
radiusAuthClientUnknownTypes             0
radiusAuthClientPacketsDropped           0

DES-3810-28:admin#
```

3-29 show acct_client

Description

This command is used to display account client information

Format

show acct_client

Parameters

None.

Restrictions

None.

Example

To display account client information:

```
DES-3810-28:admin# show acct_client
Command: show acct_client

radiusAcctClient ==>
radiusAcctClientInvalidServerAddresses   0
radiusAcctClientIdentifier               D-Link
```

```
radiusAuthServerEntry ==>
radiusAccServerIndex : 1

radiusAccServerAddress                  0.0.0.0
radiusAccClientServerPortNumber         0
radiusAccClientRoundTripTime            0
radiusAccClientRequests                 0
radiusAccClientRetransmissions          0
radiusAccClientResponses                0
radiusAccClientMalformedResponses       0
radiusAccClientBadAuthenticators        0
radiusAccClientPendingRequests          0
radiusAccClientTimeouts                 0
radiusAccClientUnknownTypes             0
radiusAccClientPacketsDropped           0

radiusAcctClient ==>
radiusAcctClientInvalidServerAddresses  0
radiusAcctClientIdentifier              D-Link


radiusAuthServerEntry ==>
radiusAccServerIndex : 2

radiusAccServerAddress                  0.0.0.0
radiusAccClientServerPortNumber         0
radiusAccClientRoundTripTime            0
radiusAccClientRequests                 0
radiusAccClientRetransmissions          0
radiusAccClientResponses                0
radiusAccClientMalformedResponses       0
radiusAccClientBadAuthenticators        0
radiusAccClientPendingRequests          0
radiusAccClientTimeouts                 0
radiusAccClientUnknownTypes             0
radiusAccClientPacketsDropped           0

radiusAcctClient ==>
radiusAcctClientInvalidServerAddresses  0
radiusAcctClientIdentifier              D-Link


radiusAuthServerEntry ==>
radiusAccServerIndex : 3

radiusAccServerAddress                  0.0.0.0
radiusAccClientServerPortNumber         0
radiusAccClientRoundTripTime            0
radiusAccClientRequests                 0
radiusAccClientRetransmissions          0
radiusAccClientResponses                0
radiusAccClientMalformedResponses       0
```

```
radiusAccClientBadAuthenticators         0
radiusAccClientPendingRequests           0
radiusAccClientTimeouts                  0
radiusAccClientUnknownTypes              0
radiusAccClientPacketsDropped            0

DES-3810-28:admin#
```

3-30 config accounting service

Description

This command is used to configure the state of the specified RADIUS accounting service.

Format

config accounting service [network | shell | system] state [enable | disable]

Parameters

network - Specifies the accounting service for 802.1X port access control. By default, the service is disabled.
shell - Specifies the accounting service for shell events. When a user logins or logouts of the switch (via the console, Telnet, or SSH) and when timeout occurs, accounting information will be collected and sent to the RADIUS server. By default, the service is disabled.
system - Specifies the accounting service for system events: reset and reboot. By default, the service is disabled.
state - Specifies the state of the accounting service. **enable** - Enable the specified accounting service. **disable** - Disable the specified accounting service.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the state of the RADIUS accounting service shell to enable:

```
DES-3810-28:config accounting service shell state enable
Command: config accounting service shell state enable

Success

DES-3810-28:admin#
```

3-31 show accounting service

Description

This command is used to display RADIUS accounting service information.

Format

show accounting service

Parameters

None.

Restrictions

None.

Example

To display accounting service information:

```
DES-3810-28:admin#show accounting service
Command: show accounting service

Accounting State
-------------------
Network : Disabled
Shell   : Disabled
System  : Disabled

DES-3810-28:admin#
```

Chapter 4 Access Authentication Control (AAC) Commands

enable authen_policy
disable authen_policy
show authen_policy
create authen_login method_list_name <string 15>
config authen_login [default | method_list_name <string 15>] method {tacacs | xtacacs | tacacs+ | radius | server_group <string 15> | local | none}(1)
delete authen_login method_list_name <string 15>
show authen_login [default | method_list_name <string 15> | all]
create authen_enable method_list_name <string 15>
config authen_enable [default | method_list_name <string 15>] method {tacacs | xtacacs | tacacs+ | radius | server_group <string 15> | local_enable | none}(1)
delete authen_enable method_list_name <string 15>
show authen_enable [default | method_list_name <string 15> | all]
config authen application [console | telnet | ssh | http | all] [login | enable] [default | method_list_name <string 15>]
show authen application
create authen server_group <string 15>
config authen server_group [tacacs | xtacacs | tacacs+ | radius | <string 15>] [add | delete] server_host <ipaddr> protocol [tacacs | xtacacs | tacacs+ | radius]
delete authen server_group <string 15>
show authen server_group {<string 15>}
create authen server_host <ipaddr> protocol [tacacs | xtacacs | tacacs+ | radius] {port <int 1-65535> | key [<key_string 254> | none] | timeout <int 1-255> | retransmit <int 1-20>}
config authen server_host <ipaddr> protocol [tacacs | xtacacs | tacacs+ | radius] {port <int 1-65535> | key [<key_string 254> | none] | timeout <int 1-255> | retransmit <int 1-20>}(1)
delete authen server_host <ipaddr> protocol [tacacs | xtacacs | tacacs+ | radius]
show authen server_host
config authen parameter response_timeout <int 0-255>
config authen parameter attempt <int 1-255>
show authen parameter
enable admin
config admin local_enable

4-1 enable authen_policy

Description

This command is used to enable system access authentication policy. When enabled, the device will adopt the login authentication method list to authenticate the user for login, and adopt the enable authentication method list to authenticate the enable password for promoting the user‘s privilege to Administrator.

Format

enable authen_policy

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To enable system access authentication policy:

```
DES-3810-28:admin#enable authen_policy
Command: enable authen_policy

Success.

DES-3810-28:admin#
```

4-2 disable authen_policy

Description

This command is used to disable system access authentication policy. When authentication is disabled, the device will adopt the local user account database to authenticate the user for login, and adopt the local enable password to authenticate the enable password for promoting the user's privilege to Administrator.

Format

disable authen_policy

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To disable system access authentication policy:

```
DES-3810-28:admin#disable authen_policy
Command: disable authen_policy

Success.

DES-3810-28:admin#
```

4-3 show authen_policy

Description

This command is used to display whether system access authentication policy is enabled or disabled.

Format

show authen_policy

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To display system access authentication policy:

```
DES-3810-28:admin#show authen_policy
Command: show authen_policy

Authentication Policy : Enabled

DES-3810-28:admin#
```

4-4 create authen_login method_list_name

Description

This command is used to create a user-defined method list of authentication methods for user login. The maximum supported number of the login method lists is eight.

Format

create authen_login method_list_name <string 15>

Parameters

<string 15> - Specifies the user-defined method list name.

Restrictions

Only Administrators can issue this command.

Example

To create a user-defined method list for user login:

```
DES-3810-28:admin#create authen_login method_list_name login_list_1
Command: create authen_login method_list_name login_list_1

Success.

DES-3810-28:admin#
```

4-5 config authen_login

Description

This command is used to configure a user-defined or default method list of authentication methods for user login. The sequence of methods will affect the authentication result. For example, if the sequence is TACACS+ first, then TACACS and local, when a user trys to login, the authentication request will be sent to the first server host in the TACACS+ built-in server group. If the first server host in the TACACS+ group is missing, the authentication request will be sent to the second server host in the TACACS+ group, and so on. If all server hosts in the TACACS+ group are missing, the authentication request will be sent to the first server host in the TACACS group. If all server hosts in a TACACS group are missing, the local account database in the device is used to authenticate this user. When a user logs in to the device successfully while using methods like TACACS/XTACACS/TACACS+/RADIUS built-in or user-defined server groups or none, the “user” privilege level is assigned only. If a user wants to get Administrator privileges, the user must use the “enable admin” command to promote his privilege level. But when the local method is used, the privilege level will depend on this account privilege level stored in the local device.

Format

config authen_login [default | method_list_name <string 15>] method {tacacs | xtacacs | tacacs+ | radius | server_group <string 15> | local | none}(1)

Parameters

default – Specifies the default method list of authentication methods.
method_list_name - Specifies the user-defined method list of authentication methods. **<string 15>** - Specifies the user-defined method list of authentication methods. The method list name can be up to 15 characters long.
method - Choose the desired authentication method: **tacacs** - Specifies authentication by the built-in server group TACACS. **xtacacs** - Specifies authentication by the built-in server group XTACACS. **tacacs+** - Specifies authentication by the built-in server group TACACS+. **radius** - Specifies authentication by the built-in server group RADIUS. **server_group** - Specifies authentication by the user-defined server group. **<string 15>** - Specifies authentication by the user-defined server group. The server group value can be up to 15 characters long. **local** - Specifies authentication by local user account database in the device. **none** - Specifies no authentication.

Restrictions

Only Administrators can issue this command.

Example

To configure a user-defined method list for user login:

```
DES-3810-28:admin#config authen_login method_list_name login_list_1 method
tacacs+ tacacs local
Command: config authen_login method_list_name login_list_1 method tacacs+
tacacs local

Success.

DES-3810-28:admin#
```

4-6 delete authen_login method_list_name

Description

This command is used to delete a user-defined method list of authentication methods for user login.

Format

delete authen_login method_list_name <string 15>

Parameters

<string 15> - Specifies the user-defined method list name.

Restrictions

Only Administrators can issue this command.

Example

To delete a user-defined method list for user login:

```
DES-3810-28:admin#delete authen_login method_list_name login_list_1
Command: delete authen_login method_list_name login_list_1

Success.

DES-3810-28:admin#
```

4-7 show authen_login

Description

This command is used to display the method list of authentication methods for user login.

Format

show authen_login [default | method_list_name <string 15> | all]

Parameters

default – Specifies to display the default method list for user login.
method_list_name - Specifies the user-defined method list for user login. **<string 15>** - Specifies the user-defined method list for user login. The method list name can be up to 15 characters long.
all – Specifies to display all method lists for user login.

Restrictions

Only Administrators can issue this command.

Example

To display a user-defined method list for user login:

```
DES-3810-28:admin#show authen_login method_list_name login_list_1
Command: show authen_login method_list_name login_list_1

Method List Name  Priority  Method Name      Comment
----------------  --------  ---------------  ------------------
login_list_1      1         tacacs+          Built-in Group
                  2         tacacs           Built-in Group
                  3         mix_1            User-defined Group
                  4         local            Keyword

DES-3810-28:admin#
```

4-8 create authen_enable method_list_name

Description

This command is used to create a user-defined method list of authentication methods for promoting a user's privilege to Administrator. The maximum supported number of the enable method lists is eight.

Format

create authen_enable method_list_name <string 15>

Parameters

<string 15> - Specifies the user-defined method list name.

Restrictions

Only Administrators can issue this command.

Example

To create a user-defined method list to promote a user's privilege to Administrator:

```
DES-3810-28:admin#create authen_enable method_list_name enable_list_1
Command: create authen_enable method_list_name enable_list_1

Success.

DES-3810-28:admin#
```

4-9 config authen_enable

Description

This command is used to configure a user-defined or default method list of authentication methods for promoting a user's privilege to Administrator. The sequence of methods will effect the authencation result. For example, if the sequence is TACACS+ first, then TACACS and local_enable, when a user tries to promote a user's privilege to Administrator, the authentication request will be sent to the first server host in the TACACS+ built-in server group. If the first server host in the TACACS+ group is missing, the authentication request will be sent to the second server host in the TACACS+ group, and so on. If all server hosts in the TACACS+ group are missing, the authentication request will be sent to the first server host in the TACACS group. If all server hosts in the TACACS group are missing, the local enable password in the device is used to authenticate this user's password. The local enable password in the device can be configured by the CLI command **config admin local_enable**.

Format

config authen_enable [default | method_list_name <string 15>] method {tacacs | xtacacs | tacacs+ | radius | server_group <string 15> | local_enable | none}(1)

Parameters

default - Specifies the default method list of authentication methods.
method_list_name - Specifies the user-defined method list of authentication methods. **<string 15>** - Specifies the user-defined method list of authentication methods. The method list name can be up to 15 characters long.
method - Choose the desired authentication method: **tacacs** - Specifies authentication by the built-in server group TACACS. **xtacacs** - Specifies authentication by the built-in server group XTACACS. **tacacs+** - Specifies authentication by the built-in server group TACACS+. **radius** - Specifies authentication by the built-in server group RADIUS. **server_group** - Specifies authentication by the user-defined server group. **<string 15>** - Specifies authentication by the user-defined server group. The server group value can be up to 15 characters long. **local_enable** - Specifies authentication by local enable password in the device. **none** - Specifies no authentication.

Restrictions

Only Administrators can issue this command.

Example

To configure a user-defined method list to promote a user's privilege to Administrator:

```
DES-3810-28:admin#config authen_enable method_list_name enable_list_1 method
tacacs+ tacacs local_enable
Command: config authen_ enable method_list_name enable_list_1 method tacacs+
tacacs local_enable

Success.

DES-3810-28:admin#
```

4-10 delete authen_enable method_list_name

Description

This command is used to delete a user-defined method list of authentication methods to promote a user's privilege to Administrator.

Format

delete authen_enable method_list_name <string 15>

Parameters

<string 15> - Specifies the user-defined method list name.

Restrictions

Only Administrators can issue this command.

Example

To delete a user-defined method list to promote a user's privilege to Administrator:

```
DES-3810-28:admin#delete authen_enable method_list_name enable_list_1
Command: delete authen_enable method_list_name enable_list_1

Success.

DES-3810-28:admin#
```

4-11 show authen_enable

Description

This command is used to display the method list of authentication methods to promote a user's privilege to Administrator.

Format

show authen_enable [default | method_list_name <string 15> | all]

Parameters

default - Specifies to display the default method list for promoting a user's privilege to Administrator.
method_list_name - Specifies the user-defined method list for promoting a user's privilege to Administrator. **<string 15>** - Specifies the user-defined method list for a promoting a user's privilege to Administrator . The method list name value can be up to 15 characters long.
all - Specifies to display all method lists for promoting a user's privilege to Administrator.

Restrictions

Only Administrators can issue this command.

Example

To display all method lists to promote a user's privilege to Administrator:

```
DES-3810-28:admin#show authen_enable all
Command: show authen_enable all

Method List Name  Priority  Method Name      Comment
----------------  --------  ---------------  ------------------
default           1         local_enable     Keyword
enable_list_1     1         tacacs+          Built-in Group
                  2         tacacs           Built-in Group
                  3         mix_1            User-defined Group
                  4         loca_enable      Keyword

enable_list_2     1         tacacs+          Built-in Group
                  2         radius           Built-in Group

Total Entries : 3

DES-3810-28:admin#
```

4-12 config authen application

Description

This command is used to configure login or enable method list for all or the specified application.

Format

config authen application [console | telnet | ssh | http | all] [login | enable] [default | method_list_name <string 15>]

Parameters

console - Specifies an application: console. **telnet** - Specifies an application: Telnet. **ssh** - Specifies an application: SSH. **http** - Specifies an application: Web. **all** - Specifies all applications: console, Telnet, SSH, and Web.

login - Specifies the method list of authentication methods for user login. **enable** - Specifies the method list of authentication methods for promoting user privilege to Administrator.
default - Specifies the default method list. **method_list_name** - Specifies the user-defined method list name. **<string 15>** - Specifies the user-defined method list name. The method list name value can be up to 15 characters long.

Restrictions

Only Administrators can issue this command.

Example

To configure the login method list for Telnet:

```
DES-3810-28:admin#config authen application telnet login method_list_name
login_list_1
Command: config authen application telnet login method_list_name login_list_1

Success.

DES-3810-28:admin#
```

4-13 show authen application

Description

This command is used to display the login/enable method list for all applications.

Format

show authen application

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To display the login and enable method list for all applications:

```
DES-3810-28:admin#show authen application
Command: show authen application

Application   Login Method List   Enable Method List
-----------   -----------------   ------------------
Console       default             default
Telnet        login_list_1        default
SSH           default             default
HTTP          default             default

DES-3810-28:admin#
```

4-14 create authen server_group

Description

This command is used to create a user-defined authentication server group. The maximum supported number of server groups including built-in server groups is eight. Each group consists of eight server hosts as maximum.

Format

create authen server_group <string 15>

Parameters

<string 15> - Specifies the user-defined server group name.

Restrictions

Only Administrators can issue this command.

Example

To create a user-defined authentication server group:

```
DES-3810-28:admin#create authen server_group mix_1
Command: create authen server_group mix_1

Success.

DES-3810-28:admin#
```

4-15 config authen server_group

Description

This command is used to add or remove an authentication server host to or from the specified server group. Built-in server group tacacs, xtacacs, tacacs+, and RADIUS accept the server host with the same protocol only, but user-defined server group can accept server hosts with different protocols. The server host must be created first by using the CLI command **create authen server_host**.

Format

config authen server_group [tacacs | xtacacs | tacacs+ | radius | <string 15>] [add | delete] server_host <ipaddr> protocol [tacacs | xtacacs | tacacs+ | radius]

Parameters

tacacs - Specifies the built-in server group TACACS. **xtacacs** - Specifies the built-in server group XTACACS. **tacacs+** - Specifies the built-in server group TACACS+. **radius** – Specifies the built-in server group RADIUS. **<string 15>** - Specifies a user-defined server group.
add - Specifies to add a server host to a server group. **delete** - Specifies to remove a server host from a server group.
server_host - Specifies the server host's IP address. **<ipaddr>** - Specifies the server host's IP address.
protocol - Specifies the server host's type of authentication protocol. **tacacs** - Specifies the server host's authentication protocol TACACS. **xtacacs** - Specifies the server host's authentication protocol XTACACS. **tacacs+** - Specifies the server host's authentication protocol TACACS+. **radius** - Specifies the server host's authentication protocol RADIUS.

Restrictions

Only Administrators can issue this command.

Example

To add an authentication server host to a server group:

```
DES-3810-28:admin#config authen server_group mix_1 add server_host 10.1.1.222
protocol tacacs+
Command: config authen server_group mix_1 add server_host 10.1.1.222 protocol
tacacs+


Success.


DES-3810-28:admin#
```

4-16 delete authen server_group

Description

This command is used to delete a user-defined authentication server group.

Format

delete authen server_group <string 15>

Parameters

<string 15> - Specifies the user-defined server group name.

Restrictions

Only Administrators can issue this command.

Example

To delete a user-defined authentication server group:

```
DES-3810-28:admin#delete authen server_group mix_1
Command: delete authen server_group mix_1

Success.

DES-3810-28:admin#
```

4-17 show authen server_group

Description

This command is used to display the authentication server groups.

Format

show authen server_group {<string 15>}

Parameters

<string 15> - (Optional) Specifies the built-in or user-defined server group name.

Restrictions

Only Administrators can issue this command.

Example

To display all authentication server groups:

```
DES-3810-28:admin#show authen server_group
Command: show authen server_group

Group Name       IP Address       Protocol
---------------  ---------------  --------
mix_1            10.1.1.222       TACACS+
radius           10.1.1.224       RADIUS
tacacs           10.1.1.225       TACACS
tacacs+          10.1.1.226       TACACS+
xtacacs          10.1.1.227       XTACACS

Total Entries : 5

DES-3810-28:admin#
```

4-18 create authen server_host

Description

This command is used to create an authentication server host. When an authentication server host is created, the IP address and protocol are the index. That means more than one authentication protocol service can be run on the same physical host. The maximum supported number of server hosts is 16.

Format

create authen server_host <ipaddr> protocol [tacacs | xtacacs | tacacs+ | radius] {port <int 1-65535> | key [<key_string 254> | none] | timeout <int 1-255> | retransmit <int 1-20>}

Parameters

<ipaddr> - Specifies the server host's IP address.
protocol - Specifies the server host's type of authentication protocol. **tacacs** - Specifies the server host's authentication protocol TACACS. **xtacacs** - Specifies the server host's authentication protocol XTACACS. **tacacs+** - Specifies the server host's authentication protocol TACACS+. **radius** - Specifies the server host's authentication protocol RADIUS.
port - (Optional) Specifies the port number of the authentication protocol for the server host. The default value for TACACS/XTACACS/TACACS+ is 49. The default value for RADIUS is 1812. **<int 1-65535>** - Specifies the port number of the authentication protocol for the server host. The default value for TACACS/XTACACS/TACACS+ is 49. The default value for RADIUS is 1812. The port number must be between 1 and 65535.
key - (Optional) Specifies the key for TACACS+ and RADIUS authentication. **<key_string 254>** - Specifies the key for TACACS+ and RADIUS authenticaiton. If the value is null, no encryption will apply. This value is meaningless for TACACS and XTACACS. **none** - No encryption for TACACS+ and RADIUS authenticaiton. This value is meaningless for TACACS and XTACACS.
timeout - (Optional) Specifies the time in seconds for waiting for a server reply. The default value is 5 seconds. **<int 1-255>** - Specifies the time in seconds for waiting for a server reply. The default value is 5 seconds. The timeout value must be between 1 and 255 seconds.
retransmit - (Optional) Specifies the count for re-transmit. This value is meaningless for TACACS+. The default value is 2. **<int 1-20>** - Specifies the count for re-transmit. This value is meaningless for TACACS+. The default value is 2. The re-transmit value must be between 1 and 20.

Restrictions

Only Administrators can issue this command.

Example

To create a TACACS+ authentication server host with a listening port number of 15555 and a timeout value of 10 seconds:

```
DES-3810-28:admin#create authen server_host 10.1.1.222 protocol tacacs+ port
15555 timeout 10

Command: create authen server_host 10.1.1.222 protocol tacacs+ port 15555
```

```
timeout 10

Key is empty for TACACS+ or RADIUS.

Success.

DES-3810-28:admin#
```

4-19 config authen server_host

Description

This command is used to configure an authentication server host.

Format

config authen server_host <ipaddr> protocol [tacacs | xtacacs | tacacs+ | radius] {port <int 1-65535> | key [<key_string 254> | none] | timeout <int 1-255> | retransmit <int 1-20>}(1)

Parameters

<ipaddr> - Specifies the server host's IP address.
protocol - Specifies the server host's type of authentication protocol. **tacacs** - Specifies the server host's authentication protocol TACACS. **xtacacs** - Specifies the server host's authentication protocol XTACACS. **tacacs+** - Specifies the server host's authentication protocol TACACS+. **radius** - Specifies the server host's authentication protocol RADIUS.
port - Specifies the port number of the authentication protocol for the server host. The default value for TACACS/XTACACS/TACACS+ is 49. The default value for RADIUS is 1812. **<int 1-65535>** - Specifies the port number of the authentication protocol for the server host. The default value for TACACS/XTACACS/TACACS+ is 49. The default value for RADIUS is 1812. The port number must be between 1 and 65535.
key - Specifies the key for TACACS+ and RADIUS authentication. **<key_string 254>** - Specifies the key for TACACS+ and RADIUS authentication. If the value is null, no encryption will apply. This value is meaningless for TACACS and XTACACS. **none** - Specifies no encryption for TACACS+ and RADIUS authentication. This value is meaningless for TACACS and XTACACS.
timeout - Specifies the time in seconds for waiting for a server reply. The default value is 5 seconds. **<int 1-255>** - Specifies the time in seconds for waiting for a server reply. The default value is 5 seconds. The timeout value must be between 1 and 255 seconds.
retransmit - Specifies the count for re-transmit. This value is meaningless for TACACS+. The default value is 2. **<int 1-20>** - Specifies the count for re-transmit. This value is meaningless for TACACS+. The default value is 2. The re-transmit value must be between 1 and 20.

Restrictions

Only Administrators can issue this command.

Example

To configure a TACACS+ authentication server host's key value:

```
DES-3810-28:admin#config authen server_host 10.1.1.222 protocol tacacs+ key
```

```
"This is a secret"
Command: config authen server_host 10.1.1.222 protocol tacacs+ key "This is a
secret"

Success.

DES-3810-28:admin#
```

4-20 delete authen server_host

Description

This command is used to delete an authentication server host.

Format

delete authen server_host <ipaddr> protocol [tacacs | xtacacs | tacacs+ | radius]

Parameters

<ipaddr> - Specifies the server host's IP address.
protocol - Specifies the server host's type of authentication protocol. **tacacs** - Specifies the server host's authentication protocol TACACS. **xtacacs** - Specifies the server host's authentication protocol XTACACS. **tacacs+** - Specifies the server host's authentication protocol TACACS+. **radius** - Specifies the server host's authentication protocol RADIUS.

Restrictions

Only Administrators can issue this command.

Example

To delete an authentication server host:

```
DES-3810-28:admin#delete authen server_host 10.1.1.222 protocol tacacs+
Command: delete authen server_host 10.1.1.222 protocol tacacs+

Success.

DES-3810-28:admin#
```

4-21 show authen server_host

Description

This command is used to display authentication server hosts.

Format

show authen server_host

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To display all authentication server hosts:

```
DES-3810-28:admin#show authen server_host
Command: show authen server_host

IP Address       Protocol  Port   Timeout  Retransmit  Key
---------------  --------  -----  -------  ----------  --------------------
10.1.1.222       TACACS+   15555  10       ---------   This is a secret

Total Entries : 1

DES-3810-28:admin#
```

4-22 config authen parameter response_timeout

Description

This command is used to configure the amount of time waiting for user to input on console, Telnet, and SSH applications.

Format

config authen parameter response_timeout <int 0-255>

Parameters

<int 0-255> - Specifies the amount of time for user input on console or Telnet or SSH. 0 means there is no time out. The default value is 30 seconds.

Restrictions

Only Administrators can issue this command.

Example

To configure 60 seconds for user to input:

```
DES-3810-28:admin#config authen parameter response_timeout 60
Command: config authen parameter response_timeout 60

Success.

DES-3810-28:admin#
```

4-23 config authen parameter attempt

Description

This command is used to configure the maximum attempts for users trying to login or promote the privilege on console, Telnet, or SSH applications. If the failure value is exceeded, connection or access will be locked.

Format

config authen parameter attempt <int 1-255>

Parameters

<int 1-255> - Specifies the amount of attempts for users trying to login or promote the privilege on console, Telnet, or SSH. The default value is 3.

Restrictions

Only Administrators can issue this command.

Example

To configure the maximum attempts for users trying to login or promote the privilege to be 9:

```
DES-3810-28:admin#config authen parameter attempt 9
Command: config authen parameter attempt 9

Success.

DES-3810-28:admin#
```

4-24 show authen parameter

Description

This command is used to display the authentication parameters.

Format

show authen parameter

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To display the authentication parameters:

```
DES-3810-28:admin# show authen parameter
Command: show authen parameter

Response Timeout : 60 seconds
User Attempts    : 9

DES-3810-28:admin#
```

4-25 enable admin

Description

This command is used to promote the "user" privilege level to Administrator. When the user enters this command, the authentication method TACACS, XTACAS, TACACS+, user-defined server groups, local enable, or none will be used to authenticate the user. Because TACACS, XTACACS and RADIUS don't support the enable function by themselves, if a user wants to use either one of these three protocols to enable authentication, the user must create a special account on the server host first, which has a username enable and then configure its password as the enable password to support the "enable" function. This command cannot be used when authentication policy is disabled.

Format

enable admin

Parameters

None.

Restrictions

None.

Example

To enable administrator lever privilege:

```
DES-3810-28:user#enable admin
Password:********

DES-3810-28:admin#
```

4-26 config admin local_enable

Description

This command is used to configure the local enable password for the enable command. When the user chooses the local_enable method to promote the privilege level, the enable password of the local device is needed.

Format

config admin local_enable

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To configure the administrator password:

```
DES-3810-28:admin#config admin local_enable
Command: config admin local_ebable

Enter the old password:
Enter the case-sensitive new password:******
Enter the new password again for confirmation:******
Success.

DES-3810-28:admin#
```

Chapter 5 Access Control List (ACL) Commands

create access_profile profile_id <value 1-1024> profile_name <name 1-32> [ethernet {vlan {<hex 0x0-0x0fff>} | source_mac <macmask 000000000000-ffffffffffff> | destination_mac <macmask 000000000000-ffffffffffff> | 802.1p | ethernet_type}(1) | ip {vlan {<hex 0x0-0x0fff>} | source_ip_mask <netmask> | destination_ip_mask <netmask> | dscp | [icmp {type | code} | igmp {type} | tcp {src_port_mask <hex 0x0-0xffff> | dst_port_mask <hex 0x0-0xffff> | flag_mask [all | {urg | ack | psh | rst | syn | fin}(1)]} | udp {src_port_mask <hex 0x0-0xffff> | dst_port_mask <hex 0x0-0xffff>} | protocol_id_mask <hex 0x0-0xff> {user_define_mask <hex 0x0-0xffffffff>}]}(1) | packet_content_mask {destination_mac <macmask> | source_mac <macmask> | outer_tag <hex 0x0-0x0fff> | offset1 [l2 | l3 | l4] <value 0-127> <hex 0x0-0xff> | offset2 [l2 | l3 | l4] <value 0-127> <hex 0x0-0xff> | offset3 [l2 | l3 | l4] <value 0-127> <hex 0x0-0xff> | offset4 [l2 | l3 | l4] <value 0-127> <hex 0x0-0xff> | offset5 [l2 | l3 | l4] <value 0-127> <hex 0x0-0xff> | offset6 [l2 | l3 | l4] <value 0-127> <hex 0x0-0xff>}(1) | ipv6 {class | flowlabel | source_ipv6_mask <ipv6mask> | destination_ipv6_mask <ipv6mask> | [tcp {src_port_mask <hex 0x0-0xffff> | dst_port_mask <hex 0x0-0xffff>} | udp {src_port_mask <hex 0x0-0xffff> | dst_port_mask <hex 0x0-0xffff>}]}(1)]
delete access_profile [profile_id <value 1-1024> | profile_name <name 1-32> | all]
config access_profile [profile_id <value 1-1024> | profile_name <name 1-32>] [add access_id [auto_assign | <value 1-1024>] [ethernet {[vlan <vlan_name 32> | vlanid <vlanid 1-4094>] {mask <hex 0x0-0x0fff>} | source_mac <macaddr> {mask <macmask>} | destination_mac <macaddr> {mask <macmask>} | 802.1p <value 0-7> | ethernet_type <hex 0x0-0xffff>}(1) | ip {[vlan <vlan_name 32> | vlanid <vlanid 1-4094>] {mask <hex 0x0-0x0fff>} | source_ip <ipaddr> {mask <netmask>} | destination_ip <ipaddr> {mask <netmask>} | dscp <value 0-63> | [icmp {type <value 0-255> | code <value 0-255>} | igmp {type <value 0-255>} | tcp {src_port <value 0-65535> {mask <hex 0x0-0xffff>} | dst_port <value 0-65535> {mask <hex 0x0-0xffff>} | flag [all | {urg | ack | psh | rst | syn | fin}(1)]} | udp {src_port <value 0-65535> {mask <hex 0x0-0xffff>} | dst_port <value 0-65535> {mask <hex 0x0-0xffff>}} | protocol_id <value 0-255> {user_define <hex 0x0-0xffffffff> {mask <hex 0x0-0xffffffff>}}]}(1) | packet_content {destination_mac <macaddr> {mask <macmask>} | source_mac <macaddr> {mask <macmask>} | outer_tag <hex 0x0-0x0fff> {mask <hex 0x0-0x0fff>} | offset1 <hex 0x0-0xff> {mask <hex 0x0-0xff>} | offset2 <hex 0x0-0xff> {mask <hex 0x0-0xff>} | offset3 <hex 0x0-0xff> {mask <hex 0x0-0xff>} | offset4 <hex 0x0-0xff> {mask <hex 0x0-0xff>} | offset5 <hex 0x0-0xff> {mask <hex 0x0-0xff>} | offset6 <hex 0x0-0xff> {mask <hex 0x0-0xff>}}(1) | ipv6 {class <value 0-255> | flowlabel <hex 0x0-0xfffff> | source_ipv6 <ipv6addr> {mask <ipv6mask>} | destination_ipv6 <ipv6addr> {mask <ipv6mask>} | [tcp {src_port <value 0-65535> {mask <hex 0x0-0xffff>} | dst_port <value 0-65535> {mask <hex 0x0-0xffff>}} | udp {src_port <value 0-65535> {mask <hex 0x0-0xffff>} | dst_port <value 0-65535> {mask <hex 0x0-0xffff>}}]}(1)] [port [<portlist> | all] | vlan_based [vlan_name <vlan_name 32> | vlan_id <vlanid 1-4094>]] [permit {priority <value 0-7> {replace_priority} | [replace_dscp_with <value 0-63> | replace_tos_precedence_with <value 0-7>] | counter [enable | disable]} | mirror | deny] {time_range <range_name 32>} | delete access_id <value 1-1024>]
show access_profile {[profile_id <value 1-1024> | profile_name <name 1-32>]}
config time_range <range_name 32> [hours start_time <time hh:mm:ss> end_time <time hh:mm:ss> weekdays <daylist> |delete]
show time_range
show current_config access_profile
delete cpu access_profile [profile_id <value 1-6> | all]
create cpu access_profile profile_id <value 1-6> [ethernet {vlan {<hex 0x0-0x0fff>} | source_mac <macmask 000000000000-ffffffffffff> | destination_mac <macmask 000000000000-ffffffffffff> | 802.1p | ethernet_type}(1) | ip {vlan {<hex 0x0-0x0fff>} | source_ip_mask <netmask> | destination_ip_mask <netmask> | dscp | [icmp {type | code} |

igmp {type} | tcp {src_port_mask <hex 0x0-0xffff> | dst_port_mask <hex 0x0-0xffff> | flag_mask [all | {urg | ack | psh | rst | syn | fin}(1)]} | udp {src_port_mask <hex 0x0-0xffff> | dst_port_mask <hex 0x0-0xffff>} | protocol_id_mask <hex 0x0-0xff> {user_define_mask <hex 0x0-0xffffffff>}]}(1) | packet_content_mask {offset_0-15 <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> | offset_16-31 <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> | offset_32-47 <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> | offset_48-63 <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> | offset_64-79 <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff>}(1) | ipv6 {class | flowlabel | source_ipv6_mask <ipv6mask> | destination_ipv6_mask <ipv6mask> | [tcp {src_port_mask <hex 0x0-0xffff> | dst_port_mask <hex 0x0-0xffff>} | udp {src_port_mask <hex 0x0-0xffff> | dst_port_mask <hex 0x0-0xffff>}]}(1)]
config cpu access_profile profile_id <value 1-6> [add access_id [auto_assign | <value 1-100>] [ethernet {[vlan <vlan_name 32> | vlanid <vlanid 1-4094>] {mask <hex 0x0-0x0fff>} | source_mac <macaddr> {mask <macmask>} | destination_mac <macaddr> {mask <macmask>} | 802.1p <value 0-7> | ethernet_type <hex 0x0-0xffff>}(1) | ip {[vlan <vlan_name 32> | vlanid <vlanid 1-4094>] {mask <hex 0x0-0x0fff>} | source_ip <ipaddr> {mask <netmask>} | destination_ip <ipaddr> {mask <netmask>} | dscp <value 0-63> | [icmp {type <value 0-255> | code <value 0-255>} | igmp {type <value 0-255>} | tcp {src_port <value 0-65535> {mask <hex 0x0-0xffff>} | dst_port <value 0-65535> {mask <hex 0x0-0xffff>} | flag [all | {urg | ack | psh | rst | syn | fin}(1)]} | udp {src_port <value 0-65535> {mask <hex 0x0-0xffff>} | dst_port <value 0-65535> {mask <hex 0x0-0xffff>}} | protocol_id <value 0-255> {user_define <hex 0x0-0xffffffff> {mask <hex 0x0-0xffffffff>}}]}(1) | packet_content {offset_0-15 <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> | offset_16-31 <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> | offset_32-47 <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> | offset_48-63 <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> | offset_64-79 <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff>}(1) | ipv6 {class <value 0-255> | flowlabel <hex 0x0-0xfffff> | source_ipv6 <ipv6addr> {mask <ipv6mask>} | destination_ipv6 <ipv6addr> {mask <ipv6mask>} | [tcp {src_port <value 0-65535> {mask <hex 0x0-0xffff>} | dst_port <value 0-65535> {mask <hex 0x0-0xffff>}} | udp {src_port <value 0-65535> {mask <hex 0x0-0xffff>} | dst_port <value 0-65535> {mask <hex 0x0-0xffff>}}]}(1)] port [<portlist> | all] [permit | deny] {time_range <range_name 32>} | delete access_id <value 1-100>]
show cpu access_profile {profile_id <value 1-6>}
enable cpu_interface_filtering
disable cpu_interface_filtering
config flow_meter [profile_id <value 1-1024> | profile_name <name 1-32>] access_id <value 1-1024> [rate [<value 0-1000000>] {burst_size [<value 0-16384>]} rate_exceed [drop_packet | remark_dscp <value 0-63>] | tr_tcm cir <value 0-1000000> {cbs <value 0-16384>} pir <value 0-1000000> {pbs <value 0-16384>} {conform [permit | replace_dscp <value 0-63>] {counter [enable | disable]}} {unconform replace_dscp <value 0-63>} exceed [permit | drop] {counter [enable | disable]} violate [permit | drop] {counter [enable | disable]} | sr_tcm cir <value 0-1000000> cbs <value 0-16384> ebs <value 0-16384> {conform [permit | replace_dscp <value 0-63>] {counter [enable | disable]}} {unconform replace_dscp <value 0-63>} exceed [permit | drop] {counter [enable | disable]} violate [permit | drop] {counter [enable | disable]} | delete]
show flow_meter {[profile_id <value 1-1024> | profile_name <name 1-32>] {access_id <value 1-1024>}}

5-1 create access_profile profile_id

Description

This command is used to create access list profiles.

Note: Please see the “Appendix A Mitigating ARP Spoofing Attacks Using Packet Content ACL” section for a configuration example and further information.

Format

create access_profile profile_id <value 1-1024> profile_name <name 1-32> [ethernet {vlan {<hex 0x0-0x0fff>} | source_mac <macmask 000000000000-ffffffffffff> | destination_mac <macmask 000000000000-ffffffffffff> | 802.1p | ethernet_type}(1) | ip {vlan {<hex 0x0-0x0fff>} | source_ip_mask <netmask> | destination_ip_mask <netmask> | dscp | [icmp {type | code} | igmp {type} | tcp {src_port_mask <hex 0x0-0xffff> | dst_port_mask <hex 0x0-0xffff> | flag_mask [all | {urg | ack | psh | rst | syn | fin}(1)]} | udp {src_port_mask <hex 0x0-0xffff> | dst_port_mask <hex 0x0-0xffff>} | protocol_id_mask <hex 0x0-0xff> {user_define_mask <hex 0x0-0xffffffff>}]}(1) | packet_content_mask {destination_mac <macmask> | source_mac <macmask> | outer_tag <hex 0x0-0x0fff> | offset1 [l2 | l3 | l4] <value 0-127> <hex 0x0-0xff> | offset2 [l2 | l3 | l4] <value 0-127> <hex 0x0-0xff> | offset3 [l2 | l3 | l4] <value 0-127> <hex 0x0-0xff> | offset4 [l2 | l3 | l4] <value 0-127> <hex 0x0-0xff> | offset5 [l2 | l3 | l4] <value 0-127> <hex 0x0-0xff> | offset6 [l2 | l3 | l4] <value 0-127> <hex 0x0-0xff>}(1) | ipv6 {class | flowlabel | source_ipv6_mask <ipv6mask> | destination_ipv6_mask <ipv6mask> | [tcp {src_port_mask <hex 0x0-0xffff> | dst_port_mask <hex 0x0-0xffff>} | udp {src_port_mask <hex 0x0-0xffff> | dst_port_mask <hex 0x0-0xffff>}]}(1)]

Parameters

<value 1-1024> - Specifies the profile ID between 1 and 1024.

profile_name - Specifies a profile name.
- **<name 1-32>** - The maximum length is 32 characters.

ethernet - Specifies an Ethernet access control list rule.
- **vlan** - Specifies a VLAN mask. Only the last 12 bits of the mask will be considered.
  - **<hex 0x0-0x0fff>** - (Optional) Specifies a VLAN mask.
- **source_mac** - Specifies the source MAC mask.
  - **<macmask 000000000000-ffffffffffff>** - Specifies the source MAC mask.
- **destination_mac** - Specifies the destination MAC mask.
  - **<macmask 000000000000-ffffffffffff>** - Specifies the destination MAC mask.
- **802.1p** - Speciy the 802.1p priority tag mask.
- **ethernet_type** - Specifies the Ethernet type.

ip - Specifies an IP access control list rule.
- **vlan** - Specifies a VLAN mask. Only the last 12 bits of the mask will be considered.
  - **<hex 0x0-0x0fff>** - (Optional) Specifies a VLAN mask.
- **source_ip_mask** - Specifies an IP source submask.
  - **<netmask>** - Specifies an IP source submask.
- **destination_ip_mask** - Specifies an IP destination submask.
  - **<netmask>** - Specifies an IP destination submask.
- **dscp** - Specifies the DSCP mask.
- **icmp** - Specifies that the rule applies to ICMP traffic.
  - **type** - (Optional) Specifies the ICMP packet type.
  - **code** - (Optional) Specifies the ICMP code.
- **igmp** - Specifies that the rule applies to IGMP traffic.
  - **type** - (Optional) Specifies the IGMP packet type.
- **tcp** - Specifies that the rule applies to TCP traffic.
  - **src_port_mask** - (Optional) Specifies the TCP source port mask.
    - **<hex 0x0-0xffff>** - Specifies the TCP source port mask.
  - **dst_port_mask** - (Optional) Specifies the TCP destination port mask.
    - **<hex 0x0-0xffff>** - Specifies the TCP destination port mask.
  - **flag_mask** - (Optional) Specifies the TCP flag field mask.
    - **all** – Specifies to check all paramenters below.
    - **urg** - (Optional) Specifies Urgent Pointer field significant.
    - **ack** - (Optional) Specifies Acknowledgment field significant.
    - **psh** - (Optional) Specifies Push Function.

rst - (Optional) Specifies to reset the connection.
syn - (Optional) Specifies to synchronize sequence numbers.
fin - (Optional) No more data from sender.
udp - Specifies that the rule applies to UDP traffic.
src_port_mask - (Optional) Specifies the TCP source port mask.
<hex 0x0-0xffff> - Specifies the TCP source port mask.
dst_port_mask - (Optional) Specifies the TCP destination port mask.
<hex 0x0-0xffff> - Specifies the TCP destination port mask.
protocol_id_mask - Specifies that the rule applies to the IP protocol ID traffic.
<hex 0x0-0xff> - Specifies that the rule applies to the IP protocol ID traffic.
user_define_mask - (Optional) Specifies the L4 part mask.
<hex 0x0-0xffffffff> - Specifies the L4 part mask.

packet_content_mask - A maximum of six offsets can be specified. Each offset defines one byte of data which is identified as a single UDF field. The offset reference is also configurable. It can be defined to start at the end of the tag, the end of the Ethernet type, or the end of the IP header.
destination_mac - Specifies the destination MAC mask.
<macmask> - Specifies the destination MAC mask.
source_mac - Specifies the source MAC mask.
<macmask> - Specifies the source MAC mask.
outer_tag - Specifies the outer VLAN tag of the packet to mask. This constitutes only the 12-bit VID fields.
<hex 0x0-0x0fff> - Specifies the outer VLAN tag of the packet to mask. This constitutes only the 12-bit VID fields.
offset1 - Specifies the mask pattern offset of frame.
l2 - The offset starts counting from the byte after the end of the VLAN tags (start of ether type).
l3 - The offset starts counting right after the ether type field. The packet must have a valid L2 header and a recognizable ether type in order to be recognized.
l4 - The offset starts counting right after the end of the IP header. The packet must have a valid IP header in order to be recognized.
<value 0-127> - Specifies the value between 0 and 127.
<hex 0x0-0xff> - Specifies the mask pattern offset of frame.
offset2 - Specifies the mask pattern offset of frame.
l2 - The offset starts counting from the byte after the end of the VLAN tags (start of ether type).
l3 - The offset starts counting right after the ether type field. The packet must have a valid L2 header and a recognizable ether type in order to be recognized.
l4 - The offset starts counting right after the end of the IP header. The packet must have a valid IP header in order to be recognized.
<value 0-127> - Specifies the value between 0 and 127.
<hex 0x0-0xff> - Specifies the mask pattern offset of frame.
offset3 - Specifies the mask pattern offset of frame.
l2 - The offset starts counting from the byte after the end of the VLAN tags (start of ether type).
l3 - The offset starts counting right after the ether type field. The packet must have a valid L2 header and a recognizable ether type in order to be recognized.
l4 - The offset starts counting right after the end of the IP header. The packet must have a valid IP header in order to be recognized.
<value 0-127> - Specifies the value between 0 and 127.
<hex 0x0-0xff> - Specifies the mask pattern offset of frame.
offset4 - Specifies the mask pattern offset of frame.
l2 - The offset starts counting from the byte after the end of the VLAN tags (start of ether type).
l3 - The offset starts counting right after the ether type field. The packet must have a valid L2 header and a recognizable ether type in order to be recognized.
l4 - The offset starts counting right after the end of the IP header. The packet must have a valid IP header in order to be recognized.
<value 0-127> - Specifies the value between 0 and 127.
<hex 0x0-0xff> - Specifies the mask pattern offset of frame.

offset5 - Specifies the mask pattern offset of frame.
l2 - The offset starts counting from the byte after the end of the VLAN tags (start of ether type).
l3 - The offset starts counting right after the ether type field. The packet must have a valid L2 header and a recognizable ether type in order to be recognized.
l4 - The offset starts counting right after the end of the IP header. The packet must have a valid IP header in order to be recognized.
<value 0-127> - Specifies the value between 0 and 127.
<hex 0x0-0xff> - Specifies the mask pattern offset of frame.
offset6 - Specifies the mask pattern offset of frame.
l2 - The offset starts counting from the byte after the end of the VLAN tags (start of ether type).
l3 - The offset starts counting right after the ether type field. The packet must have a valid L2 header and a recognizable ether type in order to be recognized.
l4 - The offset starts counting right after the end of the IP header. The packet must have a valid IP header in order to be recognized.
<value 0-127> - Specifies the value between 0 and 127.
<hex 0x0-0xff> - Specifies the mask pattern offset of frame.

ipv6 - Specifies the IPv6 filtering mask.
class - Specifies the IPv6 class mask.
flowlabel - Specifies the IPv6 flow label mask.
source_ipv6_mask - Specifies the IPv6 source IP mask.
<ipv6mask> - Specifies the IPv6 source IP mask.
destination_ipv6_mask - Specifies the IPv6 destination IP mask.
<ipv6mask> - Specifies the IPv6 destination IP mask.
tcp - Specifies that the rule applies to TCP traffic.
src_port_mask - (Optional) Specifies the TCP source port mask.
<hex 0x0-0xffff> - Specifies the TCP source port mask.
dst_port_mask - (Optional) Specifies the TCP destination port mask.
<hex 0x0-0xffff> - Specifies the TCP destination port mask.
udp - Specifies that the rule applies to UDP traffic.
src_port_mask - (Optional) Specifies the TCP source port mask.
<hex 0x0-0xffff> - Specifies the TCP source port mask.
dst_port_mask - (Optional) Specifies the TCP destination port mask.
<hex 0x0-0xffff> - Specifies the TCP destination port mask.

Restrictions

Only Administrators and Operators can issue this command. The Switch supports a maximum of 1024 profiles.

Example

To create access list profiles:

```
DES-3810-28:admin#create access_profile profile_id 100 profile_name 100
ethernet vlan source_mac FF-FF-FF-FF-FF-FF destination_mac 00-00-00-FF-FF-FF
802.1p ethernet_type
Command: create access_profile profile_id 100 profile_name 100 ethernet vlan
source_mac FF-FF-FF-FF-FF-FF destination_mac 00-00-00-FF-FF-FF 802.1p
ethernet_type

Success.

DES-3810-28:admin#

DES-3810-28:admin#create access_profile profile_id 101 profile_name 101 ip vlan
source_ip_mask 255.255.255.255 destination_ip_mask 255.255.255.0 dscp icmp
```

```
Command: create access_profile profile_id 101 profile_name 101 ip vlan
source_ip_mask 255.255.255.255 destination_ip_mask 255.255.255.0 dscp icmp

Success.

DES-3810-28:admin#
```

5-2 delete access_profile

Description

This command is used to delete access list profiles.

Format

delete access_profile [profile_id <value 1-1024> | profile_name <name 1-32> | all]

Parameters

profile_id - Specifies the index of the access list profile. **<value 1-1024>** - Specifies the index of the access list profile. Enter a value between 1 and 1024.
profile_name - Specifies the profile name. **<name 1-32>** - Specifies the profile name. The maximum length is 32 characters.
all - Specifies the whole access list profile to delete.

Restrictions

Only Administrators and Operators can issue this command. The switch supports a maximum of 1024 access entries. This command can only delete the profile which is created by the ACL module.

Example

To delete access list profiles:

```
DES-3810-28:admin#delete access_profile profile_id 10
Command: delete access_profile profile_id 10

Success.

DES-3810-28:admin#
```

5-3 config access_profile

Description

This command is used to configure access list entries.

Note: Please see the “Appendix A Mitigating ARP Spoofing Attacks Using Packet Content ACL” section for a configuration example and further information.

Format

config access_profile [profile_id <value 1-1024> | profile_name <name 1-32>] [add access_id [auto_assign | <value 1-1024>] [ethernet {[vlan <vlan_name 32> | vlanid <vlanid 1-4094>] {mask <hex 0x0-0x0fff>} | source_mac <macaddr> {mask <macmask>} | destination_mac <macaddr> {mask <macmask>} | 802.1p <value 0-7> | ethernet_type <hex 0x0-0xffff>}(1) | ip {[vlan <vlan_name 32> | vlanid <vlanid 1-4094>] {mask <hex 0x0-0x0fff>} | source_ip <ipaddr> {mask <netmask>} | destination_ip <ipaddr> {mask <netmask>} | dscp <value 0-63> | [icmp {type <value 0-255> | code <value 0-255>} | igmp {type <value 0-255>} | tcp {src_port <value 0-65535> {mask <hex 0x0-0xffff>} | dst_port <value 0-65535> {mask <hex 0x0-0xffff>} | flag [all | {urg | ack | psh | rst | syn | fin}(1)]} | udp {src_port <value 0-65535> {mask <hex 0x0-0xffff>} | dst_port <value 0-65535> {mask <hex 0x0-0xffff>}} | protocol_id <value 0-255> {user_define <hex 0x0-0xffffffff> {mask <hex 0x0-0xffffffff>}}]}(1) | packet_content {destination_mac <macaddr> {mask <macmask>} | source_mac <macaddr> {mask <macmask>} | outer_tag <hex 0x0-0x0fff> {mask <hex 0x0-0x0fff>} | offset1 <hex 0x0-0xff> {mask <hex 0x0-0xff>} | offset2 <hex 0x0-0xff> {mask <hex 0x0-0xff>} | offset3 <hex 0x0-0xff> {mask <hex 0x0-0xff>} | offset4 <hex 0x0-0xff> {mask <hex 0x0-0xff>} | offset5 <hex 0x0-0xff> {mask <hex 0x0-0xff>} | offset6 <hex 0x0-0xff> {mask <hex 0x0-0xff>}}(1) | ipv6 {class <value 0-255> | flowlabel <hex 0x0-0xfffff> | source_ipv6 <ipv6addr> {mask <ipv6mask>} | destination_ipv6 <ipv6addr> {mask <ipv6mask>} | [tcp {src_port <value 0-65535> {mask <hex 0x0-0xffff>} | dst_port <value 0-65535> {mask <hex 0x0-0xffff>}} | udp {src_port <value 0-65535> {mask <hex 0x0-0xffff>} | dst_port <value 0-65535> {mask <hex 0x0-0xffff>}}]}(1)] [port [<portlist> | all] | vlan_based [vlan_name <vlan_name 32> | vlan_id <vlanid 1-4094>]] [permit {priority <value 0-7> {replace_priority} | [replace_dscp_with <value 0-63> | replace_tos_precedence_with <value 0-7>] | counter [enable | disable]} | mirror | deny] {time_range <range_name 32>} | delete access_id <value 1-1024>]

Parameters

profile_id - Specifies the index of the access list profile.
- **<value 1-1024>** - Specifies the value between 1 and 1024.

profile_name - Specifies the profile name.
- **<name 1-32>** - Specifies the profile name. The maximum length is 32 characters.

add access_id - Specifies the index of the access list entry. The range of this value is 1 to 1024.
- **auto_assign** - Specifies to automatically assign the access ID.
- **<value 1-1024>** - Specifies a value between 1 and 1024.

ethernet - Specifies an Ethernet access control list rule.
- **vlan** - Specifies the VLAN name.
  - **<vlan_name 32>** -Specifies the VLAN name. The maximum length is 32 characters.
- **vlanid** - Specifies the VLAN ID.
  - **<vlanid 1-4094>** - Specifies the VLAN ID between 1 and 4094.
  - **mask** - (Optional) Specifies the mask.
    - **<hex 0x0-0x0fff>** - Specifies the mask.
- **source_mac** - Specifies the source MAC address.
  - **<macaddr>** - Specifies the source MAC address.
  - **mask** - (Optional) Specifies the mask.
    - **<macmask>** - Specifies the mask.
- **destination_mac** - Specifies the destination MAC address.
  - **<macaddr>** - Specifies the destination MAC address.
  - **mask** - (Optional) Specifies the mask.
    - **<macmask>** - Specifies the mask.
- **802.1p** - Specifies the value of the 802.1p priority tag.
  - **<value 0-7>** - Specifies the value of the 802.1p priority tag. The priority tag ranges from 1 to 7.
- **ethernet_type** - Specifies the Ethernet type.
  - **<hex 0x0-0xffff>** - Specifies the Ethernet type.

ip - Specifies an IP access control list rule.
vlan - Specifies the VLAN name.
<vlan_name 32> -Specifies the VLAN name. The maximum length is 32 characters.
vlanid - Specifies the VLAN ID.
<vlanid 1-4094> - Specifies the VLAN ID between 1 and 4094.
mask - (Optional)Specifies the mask.
<hex 0x0-0x0fff> - Specifies the mask.
source_ip - Specifies an IP source address.
<ipaddr> - Specifies an IP source address.
mask - (Optional) Specifies the mask.
<netmask> - Specifies the mask.
destination_ip - Specifies an IP destination address.
<ipaddr> - Specifies an IP destination address.
mask - (Optional) Specifies the mask.
<netmask> - Specifies the mask.
dscp - Specifies the value of DSCP.
<value 0-63> - Specifies the value of DSCP. The DSCP value ranges from 0 to 63.
icmp - Specifies the ICMP.
type - (Optional) Specifies that the rule will apply to the ICMP Type traffic value.
<value 0-255> - Specifies the value between 0 and 255.
code - (Optional) Specifies that the rule will apply to the ICMP Code traffic value.
<value 0-255> - Specifies the value between 0 and 255.
igmp - Specifies the IGMP.
type - (Optional) Specifies that the rule will apply to the IGMP Type traffic value.
<value 0-255> - Specifies the value between 0 and 255.
tcp - Specifies TCP.
src_port - (Optional) Specifies that the rule will apply to a range of TCP source ports.
<value 0-65535> - Specifies the value between 0 and 65535.
mask - (Optional) Specifies the mask.
<hex 0x0-0xffff> - Specifies the mask.
dst_port - (Optional) Specifies that the rule will apply to a range of TCP destination ports.
<value 0-65535> - Specifies the value between 0 and 65535.
mask - (Optional) Specifies the mask.
<hex 0x0-0xffff> - Specifies the mask.
flag - Specifies the TCP flag field value.
all – Specifies to check all paramenters below.
urg - (Optional) Specifies Urgent Pointer field significant.
ack - (Optional) Specifies Acknowledgment field significant.
psh - (Optional) Specifies Push Function.
rst - (Optional) Specifies to reset the connection.
syn - (Optional) Specifies to synchronize sequence numbers.
fin - (Optional) No more data from sender.
udp - Specifies UDP.
src_port - (Optional) Specifies the UDP source port range.
<value 0-65535> - Specifies the value between 0 and 65535.
mask - (Optional) Specifies the mask.
<hex 0x0-0xffff> - Specifies the mask.
dst_port - (Optional) Specifies the UDP destination port range.
<value 0-65535> - Specifies the value between 0 and 65535.
mask - (Optional) Specifies the mask.
<hex 0x0-0xffff> - Specifies the mask.
protocol_id - Specifies that the rule will apply to the value of IP protocol ID traffic.
<value 0-255> - Specifies the value between 0 and 255.
user_define - (Optional) Specifies that the rule will apply to the IP protocol ID and that the mask options behind the IP header, which has a length of 4 bytes.
<hex 0x0-0xffffffff> - Specifies that the rule will apply to the IP protocol ID and that the mask options behind the IP header, which has a length of 4 bytes.
mask - (Optional) Specifies the mask.
<hex 0x0-0xffffffff> - Specifies the mask.

packet_content - Specifies the packet content for the user defined mask.

destination_mac - Specifies the destination MAC address.
<macaddr> - Specifies the source MAC address.
mask - (Optional) Specifies the mask.
<macmask> - Specifies the mask.
source_mac - Specifies the source MAC address.
<macaddr> - Specifies the source MAC address.
mask - (Optional) Specifies the mask.
<macmask> - Specifies the mask.
outer_tag - Specifies the outer VLAN tag of the packet to match. This constitutes only the 12-bit VID fields.
<hex 0x0-0x0fff> - Specifies the outer VLAN tag of the packet to match. This constitutes only the 12-bit VID fields.
mask - (Optional) Specifies the mask.
<hex 0x0-0x0fff> - Specifies the mask.
offset1 - Specifies the data to match for each UDF data field defined in the profile.
<hex 0x0-0xff> - If offset1 is defined as “offset1 0 L2 0xFF”, which is defined in the profile, and in this command the data is specified as “offset1 0xAA”, then the switch looks at the first byte of the ether type. If the byte matches 0xAA, then the device processes the packet according to the configured action.
mask - (Optional) Specifies the mask.
<hex 0x0-0xff> - Specifies the mask.
offset2 - Specifies the data to match for each UDF data field defined in the profile.
<hex 0x0-0xff> - If offset1 is defined as “offset1 0 L2 0xFF”, which is defined in the profile, and in this command the data is specified as “offset1 0xAA”, then the switch looks at the first byte of the ether type. If the byte matches 0xAA, then the device processes the packet according to the configured action.
mask - (Optional) Specifies the mask.
<hex 0x0-0xff> - Specifies the mask.
offset3 - Specifies the data to match for each UDF data field defined in the profile.
<hex 0x0-0xff> - If offset1 is defined as “offset1 0 L2 0xFF”, which is defined in the profile, and in this command the data is specified as “offset1 0xAA”, then the switch looks at the first byte of the ether type. If the byte matches 0xAA, then the device processes the packet according to the configured action.
mask - (Optional) Specifies the mask.
<hex 0x0-0xff> - Specifies the mask.
offset4 - Specifies the data to match for each UDF data field defined in the profile.
<hex 0x0-0xff> - If offset1 is defined as “offset1 0 L2 0xFF”, which is defined in the profile, and in this command the data is specified as “offset1 0xAA”, then the switch looks at the first byte of the ether type. If the byte matches 0xAA, then the device processes the packet according to the configured action.
mask - (Optional) Specifies the mask.
<hex 0x0-0xff> - Specifies the mask.
offset5 - Specifies the data to match for each UDF data field defined in the profile.
<hex 0x0-0xff> - If offset1 is defined as “offset1 0 L2 0xFF”, which is defined in the profile, and in this command the data is specified as “offset1 0xAA”, then the switch looks at the first byte of the ether type. If the byte matches 0xAA, then the device processes the packet according to the configured action.
mask - (Optional) Specifies the mask.
<hex 0x0-0xff> - Specifies the mask.
offset6 - Specifies the data to match for each UDF data field defined in the profile.
<hex 0x0-0xff> - If offset1 is defined as “offset1 0 L2 0xFF”, which is defined in the profile, and in this command the data is specified as “offset1 0xAA”, then the switch looks at the first byte of the ether type. If the byte matches 0xAA, then the device processes the packet according to the configured action.
mask - (Optional) Specifies the mask.
<hex 0x0-0xff> - Specifies the mask.

ipv6 - Specifies that the rule applies to IPv6 fields.
class - Specifies the value of the IPv6 class.
<value 0-255> - Specifies the value between 0 and 255.
flowlabel - Specifies the value of the IPv6 flow label.

<hex 0x0-0xfffff> - Specifies the value of the IPv6 flow label.
source_ipv6 - Specifies the value of the IPv6 source address.
<ipv6addr> - Specifies the value of the IPv6 source address.
mask - (Optional) Specifies the mask.
<ipv6mask> - Specifies the mask.
destination_ipv6 - Specifies the value of the IPv6 destination address.
<ipv6addr> - Specifies the value of the IPv6 destination address.
mask - (Optional) Specifies the mask.
<ipv6mask> - Specifies the mask.
tcp - Specifies TCP.
src_port - (Optional) Specifies the TCP source port range.
<value 0-65535> - Specifies the value between 0 and 65535.
mask - (Optional) Specifies the mask.
<hex 0x0-0xffff> - Specifies the mask.
dst_port - (Optional) Specifies the TCP destination port range.
<value 0-65535> - Specifies the value between 0 and 65535.
mask - (Optional) Specifies the mask.
<hex 0x0-0xffff> - Specifies the mask.
udp - Specifies UDP.
src_port - (Optional) Specifies the UDP source port range.
<value 0-65535> - Specifies the value between 0 and 65535.
mask - (Optional) Specifies the mask.
<hex 0x0-0xffff> - Specifies the mask.
dst_port - (Optional) Specifies the UDP destination port range.
<value 0-65535> - Specifies the value between 0 and 65535.
mask - Specifies the mask.
<hex 0x0-0xffff> - Specifies the mask.

port - The access profile rule may be defined for each port on the switch. The port list is specified by listing the lowest switch number and the beginning port number on that switch, separated by a colon.
<portlist> - Specifies a list of ports.
all - Specifies that the access rule will apply to all ports.
vlan_based - Specifies the VLAN-based ACL rule. There are two conditions: this rule will apply to all ports and packets must belong to the configured VLAN. It can be specified by VLAN name or VLAN ID.
vlan_name - Specifies the VLAN name.
<vlan_name 32> - Specifies the VLAN name. The maximum length is 32 characters.
vlan_id - Specifies the VLAN ID.
<vlanid 1-4094> - Specifies the VLAN ID between 1 and 4094.
permit - Specifies the packets that match the access profile are permit by the switch.
priority - (Optional) Specifies the packets that match the access profile are remap the 802.1p priority tag field by the switch.
<value 0-7>- Specifies the value between 0 and 7.
replace_priority - (Optional) Specifies the packets that match the access profile remarking the 802.1p priority tag field by the switch.
replace_dscp_with - (Optional) Specifies the DSCP of the packets that match the access profile are modified according to the value.
<value 0-63> - Specifies the value between 0 and 63.
replace_tos_precedence_with - (Optional) Specifies that the IP precedence of the outgoing packet is changed with the new value. If used without an action priority, the packet is sent to the default TC.
<value 0-7> - Specifies the value between 0 and 7.
counter - (Optional)
enable - Specifies whether the ACL counter feature is enabled. If the rule is not bound with the flow meter, all matching packets are counted. If the rule is bound with the flow meter, then the “counter” is overridden.
disable - Specifies whether the ACL counter feature is disabled. The default option is disabled.
mirror - Specifies that packets matching the access profile are copied to the mirror port.
deny - Specifies the packets that match the access profile are filtered by the switch.

time_range - (Optional) Specifies the name of this time range entry. **<range_name 32>** - Specifies the name of this time range entry. The maximum length is 32 characters. **delete access_id** - Specifies to delete the access ID. **<value 1-1024>** - Specifies the value between 1 and 1024.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure an access list entry:

```
DES-3810-28:admin#config access_profile profile_id 101 add access_id 1 ip vlan
default source_ip 20.2.2.3 destination_ip 10.1.1.252 dscp 3 icmp port 1 permit
Command: config access_profile profile_id 101 add access_id 1 ip vlan default
source_ip 20.2.2.3 destination_ip 10.1.1.252 dscp 3 icmp port 1 permit

Success.

DES-3810-28:admin#
```

5-4 show access_profile

Description

This command is used to display the current access list table.

Format

show access_profile {[profile_id <value 1-1024> | profile_name <name 1-32>]}

Parameters

profile_id - (Optional) Specifies the index of the access list profile. **<value 1-1024>** - Specifies the profile ID between 1 and 1024.
profile_name - (Optional) Specifies the name of the access list profile. **<name 1-32>** - Specifies the profile name between 1 and 32.

Restrictions

None.

Example

To display the current access list table:

```
DES-3810-28:admin#show access_profile
Command: show access_profile

Access Profile Table

Total User Set Rule Entries : 3
```

```
Total Used HW Entries       : 19
Total Available HW Entries  : 1005
================================================================================
=
Profile ID: 1      Profile Name: 1                     Type: Ethernet
Mask on
    VLAN ID   : 0xFF
    Source MAC: FF-FF-FF-FF-FF-00
    802.1p
Available HW Entries: 1005
--------------------------------------------------------------------------------
--
Rule ID : 1       Ports: 1-10
Match on:
   VLAN ID    : 2    Mask : 0xFFF
   Source MAC : 00-01-02-03-04-00
Action:
   Permit
   Replaced Priority to 2
   Replace DSCP to 33

Matched Count: 0 packets
--------------------------------------------------------------------------------
--
Rule ID : 1024 (auto assign) Ports: -
Match on:
   VLAN ID    : 8
   Source MAC : 00-01-02-03-04-00
   802.1p
Action:
   Deny
================================================================================
====
Profile ID: 3      Profile Name: 3                     Type: IPv4
Mask on
    Source IP : 255.255.255.0
    TCP
    Source Port : 0x00FF
Available HW Entries: 1005
--------------------------------------------------------------------------------
--
Rule ID : 888      Ports: 1-28
Match on:
   Source IP : 192.168.1.0
   TCP
Source Port: 210   Mask : 0x0FFF
Action:
   Mirror
================================================================================
====
Profile ID: 1025  Profile Name: IMPBv4

Mask
   Source MAC : FF-FF-FF-FF-FF-FF
```

```
   Source IP : 255.255.255.255
Consumed HW Entries: 2
------------------------------------------------------------------------------
---
Rule ID : 1      Ports: 1
 Match on
    Source MAC : 00-05-04-03-02-01    Mask : FF-FF-FF-FF-FF-FF
    Source Ip : 10.10.10.1            Mask : 255.255.255.255
 Action:
    Permit
------------------------------------------------------------------------------
----
Rule ID : 512    Ports: 1
Match on
   Any
Action:
   Deny

==============================================================================
===
Profile ID: 1026    Profile Name: VLAN Counter
Consumed HW Entries: 9

Profile ID: 1037    Profile Name: System
Consumed HW Entries: 4
DES-3810-28:admin#
```

Note: "Total User Set Entries" indicates the total number of ACL rules created by the user. "Total Used HW Entries" indicates the total number of hardware entries used in the device. "Available HW Entries" indicates the total number of available hardware entries in the device.

To display an access profile that supports an entry mask for each rule:

```
DES-3810-28:admin#show access_profile profile_id 2
Command: show access_profile profile_id 2

Access Profile Table

Profile ID: 2     Profile Name: 2         Type: Ethernet
Mask on
    VLAN            : 0xF
    Source MAC      : FF-FF-FF-00-00-00
    Destination MAC : 00-00-00-FF-FF-FF
Available HW Entries: 1003
------------------------------------------------------------------------------
--
Rule ID : 22      Ports: 1-7
Match on:
   VLAN ID          : 8                 Mask : 0xFFF
   Source MAC       : 00-01-02-03-04-05  Mask : FF-FF-FF-FF-FF-FF
   Destination MAC  : 00-05-04-03-02-00  Mask : FF-FF-FF-FF-FF-00
Action:
```

```
   Deny

DES-3810-28:admin#
```

To display the packet content mask profile for the profile with an ID of 5:

```
DES-3810-28:admin#show access_profile profile_id 5
Command: show access_profile profile_id 5

Access Profile Table

Profile ID: 5     Profile Name: 5         Type: User Defined
Mask on
    Destination MAC : FF-FF-FF-FF-FF-FF
    Outer tag       : 0xFFF
    Offset1         : Byte 7  of L3   Mask: 0xFF
    Offset3         : Byte 3  of L2   Mask: 0x0F
    Offset4         : Byte 66 of L4   Mask: 0x07
Available HW Entries: 1021
-------------------------------------------------------------------------------
--
Rule ID : 33      Ports: 2
Match on:
   Destination MAC : 00-05-04-03-02-01  Mask : 00-FF-FF-FF-FF-FF
   Outer tag       : 0x123
   Offset1         : 0x12
   Offset3         : 0x34
   Offset4         : 0x5
Action:
   Deny

DES-3810-28:admin#
```

5-5 config time_range

Description

This command is used to define a specific range of time to activate a function on the Switch by specifying which time range in a day and which days in a week are covered in the time range. Note that the specified time range is based on SNTP time or configured time. If this time is not available, then the time range will not be met.

Format

config time_range <range_name 32> [hours start_time < hh:mm:ss> end_time< hh:mm:ss> weekdays <daylist> | delete]

Parameters

<range_name 32> - Specifies the name of the time range settings.
hours start_time - Specifies the starting time in a day. (24-hr time). For example, 19:00 means 7PM. 19 is also acceptable. The start_time must be smaller than the end_time.

< hh:mm:ss> - Specifies the time.
end_time - Specifies the ending time in a day. (24-hr time) **< hh:mm:ss>** - Specifies the time.
weekdays - Specifies the list of days contained in the time range. Use a dash to define a period of days. Use a comma to separate specific days. For example, mon-fri (Monday to Friday) sun, mon, fri (Sunday, Monday, and Friday) **<daylist>** - Specifies a list of days.
delete - Delete a time range profile. When a time range profile has been associated with ACL entries, the deletion of this time range profile will fail.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the range of time to activate a function on the switch:

```
DES-3810-28:admin#config time_range testdaily hours start_time 12:0:0 end_time
13:0:0 weekdays mon,fri
Command: config time_range testdaily hours start_time 12:0:0 end_time 13:0:0
wee
kdays mon,fri

Success.

DES-3810-28:admin#
```

5-6 show time_range

Description

This command is used to display current time range settings.

Format

show time_range

Parameters

None.

Restrictions

None.

Example

To display current time range setting:

```
DES-3810-28:admin#show time_range
Command: show time_range

```

```
Time Range Information
------------------------
Range Name   :  testdaily
Weekdays     :  Mon,Fri
Start Time   :  12:00:00
End Time     :  13:00:00

Total Entries :1

DES-3810-28:admin#
```

5-7 show current_config access_profile

Description

This command is used to display the ACL part of the current configuration, when logged in with user level privileges. The overall current configuration can be displayed by using the show config command, which is accessible with administrator level privileges.

Format

show current_config access_profile

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To display the ACL part of the current configuration:

```
DES-3810-28:admin#show current_config access_profile
Command: show current_config access_profile

#-----------------------------------------------------------------------
# ACL
create access_profile Ethernet vlan profile_id 1
config access_profile profile_id 1 add access_id 1 ethernet vlan default port 1
permit

create access_profile ip source_ip_mask 255.255.255 profile_id 2
config access_profile profile_id 2 add access_id 1 ip source_ip 10.10.10.10
port 2 deny

#-----------------------------------------------------------------------

DES-3810-28:admin#
```

5-8 delete cpu access_profile

Description

This command is used to delete CPU access list profiles.

Format

delete cpu access_profile [profile_id <value 1-6> | all]

Parameters

profile_id - Specifies the index of the access list profile. **<value 1-6>** - Specifies the value between 1 and 6.
all - Specifies to delete all the access list profiles.

Restrictions

Only Administrators and Operators can issue this command. The Switch supports a maximum of 100 access entries. This command can only delete the profile which is created by the CPU ACL module.

Example

To delete access list rules:

```
DES-3810-28:admin#delete cpu access_profile profile_id 3
Command: delete cpu access_profile profile_id 3

Success.

DES-3810-28:admin#
```

5-9 create cpu access_profile profile_id

Description

This command is used to create CPU access list profiles.

Format

create cpu access_profile profile_id <value 1-6> [ethernet {vlan {<hex 0x0-0x0fff>} | source_mac <macmask 000000000000-ffffffffffff> | destination_mac <macmask 000000000000-ffffffffffff> | 802.1p | ethernet_type}(1) | ip {vlan {<hex 0x0-0x0fff>} | source_ip_mask <netmask> | destination_ip_mask <netmask> | dscp | [icmp {type | code} | igmp {type} | tcp {src_port_mask <hex 0x0-0xffff> | dst_port_mask <hex 0x0-0xffff> | flag_mask [all | {urg | ack | psh | rst | syn | fin}(1)]} | udp {src_port_mask <hex 0x0-0xffff> | dst_port_mask <hex 0x0-0xffff>} | protocol_id_mask <hex 0x0-0xff> {user_define_mask <hex 0x0-0xffffffff>}]}(1) | packet_content_mask {offset_0-15 <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> | offset_16-31 <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> | offset_32-47 <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> | offset_48-63 <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> | offset_64-79 <hex 0x0-0xffffffff> <hex 0x0-

0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff>}(1) | ipv6 {class | flowlabel | source_ipv6_mask <ipv6mask> | destination_ipv6_mask <ipv6mask> | [tcp {src_port_mask <hex 0x0-0xffff> | dst_port_mask <hex 0x0-0xffff>} | udp {src_port_mask <hex 0x0-0xffff> | dst_port_mask <hex 0x0-0xffff>}]}(1)]

Parameters

<value 1-6> - Specifies a value between 1 and 6.
ethernet - Specifies an Ethernet CPU access control list rule. **vlan** - Specifies a VLAN mask. **<hex 0x0-0x0fff>** - (Optional) Specifies a VLAN mask. **source_mac** - Specifies the source MAC mask. **<macmask000000000000-ffffffffffff>** - Specifies the source MAC mask. **destination_mac** - Specifies the destination MAC mask. **<macmask 000000000000-ffffffffffff>** - Specifies the destination MAC mask. **802.1p** - Specifies the 802.1p priority tag mask. **ethernet_type** - Specifies the Ethernet type mask.
ip - Specifies an IP CPU access control list rule. **vlan** - Specifies a VLAN mask. **<hex 0x0-0x0fff>** - (Optional) Specifies a VLAN mask. **source_ip_mask** - Specifies an IP source submask. **<netmask>** - Specifies an IP source submask. **destination_ip_mask** - Specifies an IP destination submask. **<netmask>** - Specifies an IP destination submask. **dscp** - Specifies the DSCP mask. **icmp** - Specifies that the rule applies to ICMP traffic. **type** - (Optional) Specifies the ICMP packet type. **code** - (Optional) Specifies the ICMP code. **igmp** - Specifies that the rule applies to IGMP traffic. **type** - (Optional) Specifies the IGMP packet type. **tcp** - Specifies that the rule applies to TCP traffic. **src_port_mask** - (Optional) Specifies the TCP source port mask. **<hex 0x0-0xffff>** - Specifies the TCP source port mask. **dst_port_mask** - (Optional) Specifies the TCP destination port mask. **<hex 0x0-0xffff>** - Specifies the TCP destination port mask. **flag_mask** - (Optional) Specifies the TCP flag field mask. **all** – Specifies to check all paramenters below. **urg** - (Optional) Specifies Urgent Pointer field significant. **ack** - (Optional) Specifies Acknowledgment field significant. **psh** - (Optional) Specifies Push Function. **rst** - (Optional) Specifies to reset the connection. **syn** - (Optional) Specifies to synchronize sequence numbers. **fin** - (Optional) No more data from sender. **udp** - Specifies that the rule applies to UDP traffic. **src_port_mask** - (Optional) Specifies the UDP source port mask. **<hex 0x0-0xffff>** - Specifies the UDP source port mask. **dst_port_mask** - (Optional) Specifies the UDP destination port mask. **<hex 0x0-0xffff>** - Specifies the UDP destination port mask. **protocol_id_mask** - Specifies that the rule applies to the IP protocol ID traffic. **<hex 0x0-0xff>** - Specifies that the rule applies to the IP protocol ID traffic. **user_define_mask** - (Optional) Specifies the L4 part mask **<hex 0x0-0xffffffff>** - Specifies the L4 part mask
packet _content_mask - Specifies the packet content mask. **offset_0-15** - Specifies the mask for packet bytes 0-15. **<hex 0x0-0xffffffff>** - Specifies the mask for packet bytes 0-3. **<hex 0x0-0xffffffff>** - Specifies the mask for packet bytes 4-7. **<hex 0x0-0xffffffff>** - Specifies the mask for packet bytes 8-11. **<hex 0x0-0xffffffff>** - Specifies the mask for packet bytes 12-15.

offset_16-31 - Specifies the mask for packet bytes 16-31. **<hex 0x0-0xffffffff>** - Specifies the mask for packet bytes 16-19. **<hex 0x0-0xffffffff>** - Specifies the mask for packet bytes 20-23. **<hex 0x0-0xffffffff>** - Specifies the mask for packet bytes 24-27. **<hex 0x0-0xffffffff>** - Specifies the mask for packet bytes 28-31. **offset_32-47** - Specifies the mask for packet bytes 32-47 **<hex 0x0-0xffffffff>** - Specifies the mask for packet bytes 32-35. **<hex 0x0-0xffffffff>** - Specifies the mask for packet bytes 36-39. **<hex 0x0-0xffffffff>** - Specifies the mask for packet bytes 40-43. **<hex 0x0-0xffffffff>** - Specifies the mask for packet bytes 44-47. **offset_48-63** - Specifies the mask for packet bytes 48-63. **<hex 0x0-0xffffffff>** - Specifies the mask for packet bytes 48-51. **<hex 0x0-0xffffffff>** - Specifies the mask for packet bytes 52-55. **<hex 0x0-0xffffffff>** - Specifies the mask for packet bytes 56-59. **<hex 0x0-0xffffffff>** - Specifies the mask for packet bytes 60-63. **offset_64-79** - Specifies the mask for packet bytes 64-79. **<hex 0x0-0xffffffff>** - Specifies the mask for packet bytes 64-67. **<hex 0x0-0xffffffff>** - Specifies the mask for packet bytes 68-71. **<hex 0x0-0xffffffff>** - Specifies the mask for packet bytes 72-75. **<hex 0x0-0xffffffff>** - Specifies the mask for packet bytes 76-79.
ipv6 - Specifies the IPv6 mask. **class** - Specifies the IPv6 class mask. **flowlabel** - Specifies the IPv6 flow label mask. **source_ipv6_mask** - Specifies the IPv6 source IP mask. **<ipv6mask>** - Specifies the IPv6 source IP mask. **destination_ipv6_mask** - Specifies the IPv6 destination IP mask. **<ipv6mask>** - Specifies the IPv6 destination IP mask. **tcp** - Specifies that the rule applies to TCP traffic. **src_port_mask** - (Optional) Specifies the TCP source port mask. **<hex 0x0-0xffff>** - Specifies the TCP source port mask. **dst_port_mask** - (Optional) Specifies the TCP destination port mask. **<hex 0x0-0xffff>** - Specifies the TCPdestination port mask. **udp** - Specifies that the rule applies to UDP traffic. **src_port_mask** - (Optional) Specifies the UDP source port mask. **<hex 0x0-0xffff>** - Specifies the UDP source port mask. **dst_port_mask** - (Optional) Specifies the UDP destination port mask. **<hex 0x0-0xffff>** - Specifies the UDP destination port mask.

Restrictions

Only Administrators and Operators can issue this command. The Switch supports a maximum of six CPU profiles to be configured.

Example

To create CPU access list profiles:

```
DES-3810-28:admin#create cpu access_profile profile_id 1 ethernet vlan
Command: create cpu access_profile profile_id 1 ethernet vlan


Success.


DES-3810-28:admin#create cpu access_profile profile_id 2 ip source_ip_mask
255.255.255.255
Command: create cpu access_profile profile_id 2 ip source_ip_mask
255.255.255.25
5
```

```
Success.

DES-3810-28:admin#
```

5-10 config cpu access_profile profile_id

Description

This command is used to configure CPU access list entries.

Format

config cpu access_profile profile_id <value 1-6> [add access_id [auto_assign | <value 1-100>] [ethernet {[vlan <vlan_name 32> | vlanid <vlanid 1-4094>] {mask <hex 0x0-0x0fff>} | source_mac <macaddr> {mask <macmask>} | destination_mac <macaddr> {mask <macmask>} | 802.1p <value 0-7> | ethernet_type <hex 0x0-0xffff>}(1) | ip {[vlan <vlan_name 32> | vlanid <vlanid 1-4094>] {mask <hex 0x0-0x0fff>} | source_ip <ipaddr> {mask <netmask>} | destination_ip <ipaddr> {mask <netmask>} | dscp <value 0-63> | [icmp {type <value 0-255> | code <value 0-255>} | igmp {type <value 0-255>} | tcp {src_port <value 0-65535> {mask <hex 0x0-0xffff>} | dst_port <value 0-65535> {mask <hex 0x0-0xffff>} | flag [all | {urg | ack | psh | rst | syn | fin}(1)]} | udp {src_port <value 0-65535> {mask <hex 0x0-0xffff>} | dst_port <value 0-65535> {mask <hex 0x0-0xffff>}} | protocol_id <value 0-255> {user_define <hex 0x0-0xffffffff> {mask <hex 0x0-0xffffffff>}}]}(1) | packet_content {offset_0-15 <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> | offset_16-31 <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> | offset_32-47 <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> | offset_48-63 <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> | offset_64-79 <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff> <hex 0x0-0xffffffff>}(1) | ipv6 {class <value 0-255> | flowlabel <hex 0x0-0xfffff> | source_ipv6 <ipv6addr> {mask <ipv6mask>} | destination_ipv6 <ipv6addr> {mask <ipv6mask>} | [tcp {src_port <value 0-65535> {mask <hex 0x0-0xffff>} | dst_port <value 0-65535> {mask <hex 0x0-0xffff>}} | udp {src_port <value 0-65535> {mask <hex 0x0-0xffff>} | dst_port <value 0-65535> {mask <hex 0x0-0xffff>}}]}(1)] port [<portlist> | all] [permit | deny] {time_range <range_name 32>} | delete access_id <value 1-100>]

Parameters

<value 1-6> - Specifies the index of the CPU access list profile.
add access_id - Specifies the index of an access list entry to add. The range of this value is 1 to 100.
auto_assign - Specifies to automatically assign the access ID.
<value 1-100> - Specifies an access ID between 1 and 100.
ethernet - Specifies an Ethernet CPU access control list rule. **vlan** - Specifies the VLAN name. **<vlan_name 32>** -Specifies the VLAN name. The maximum length is 32 characters. **vlanid** - Specifies the VLAN ID. **<vlanid 1-4094>** - Specifies the VLAN ID between 1 and 4094. **mask** - (Optional)Specifies the mask. **<hex 0x0-0x0fff>** - Specifies the mask. **source_mac** - Specifies the source MAC address. **<macaddr>** - Specifies the source MAC address. **mask** - (Optional) Specifies the mask. **<macmask>** - Specifies the mask.

destination_mac - Specifies the destination MAC address.
<macaddr> - Specifies the destination MAC address.
mask - (Optional) Specifies the mask.
<macmask> - Specifies the mask.
802.1p - Specifies the value of the 802.1p priority tag.
<value 0-7> - Specifies the value of the 802.1p priority tag. The priority tag ranges from 1 to 7.
ethernet_type - Specifies the Ethernet type.
<hex 0x0-0xffff> - Specifies the Ethernet type.

ip - Specifies an IP access control list rule.
vlan - Specifies the VLAN name.
<vlan_name 32> -Specifies the VLAN name. The maximum length is 32 characters.
vlanid - Specifies the VLAN ID.
<vlanid 1-4094> - Specifies the VLAN ID between 1 and 4094.
mask - (Optional)Specifies the mask.
<hex 0x0-0x0fff> - Specifies the mask.
source_ip - Specifies an IP source address.
<ipaddr> - Specifies an IP source address.
mask - (Optional) Specifies the mask.
<netmask> - Specifies the mask.
destination_ip - Specifies an IP destination address.
<ipaddr> - Specifies an IP destination address.
mask - (Optional) Specifies the mask.
<netmask> - Specifies the mask.
dscp - Specifies the value of DSCP.
<value 0-63> - Specifies the value of DSCP. The DSCP value ranges from 0 to 63.
icmp - Specifies the ICMP.
type - (Optional) Specifies that the rule will apply to the ICMP Type traffic value.
<value 0-255> - Specifies the value between 0 and 255.
code - (Optional) Specifies that the rule will apply to the ICMP Code traffic value.
<value 0-255> - Specifies the value between 0 and 255.
igmp - Specifies the IGMP.
type - (Optional) Specifies that the rule will apply to the IGMP Type traffic value.
<value 0-255> - Specifies the value between 0 and 255.
tcp - Specifies TCP.
src_port - (Optional) Specifies that the rule will apply to a range of TCP source ports.
<value 0-65535> - Specifies the value between 0 and 65535.
mask - (Optional) Specifies the mask.
<hex 0x0-0xffff> - Specifies the mask.
dst_port - (Optional) Specifies that the rule will apply to a range of TCP destination ports.
<value 0-65535> - Specifies the value between 0 and 65535.
mask - (Optional) Specifies the mask.
<hex 0x0-0xffff> - Specifies the mask.
flag - Specifies the TCP flag field value.
all – Specifies to check all paramenters below.
urg - (Optional) Specifies Urgent Pointer field significant.
ack - (Optional) Specifies Acknowledgment field significant.
psh - (Optional) Specifies Push Function.
rst - (Optional) Specifies to reset the connection.
syn - (Optional) Specifies to synchronize sequence numbers.
fin - (Optional) No more data from sender.
udp - Specifies UDP.
src_port - (Optional) Specifies the UDP source port range.
<value 0-65535> - Specifies the value between 0 and 65535.
mask - (Optional) Specifies the mask.
<hex 0x0-0xffff> - Specifies the mask.
dst_port - (Optional) Specifies the UDP destination port range.
<value 0-65535> - Specifies the value between 0 and 65535.
mask - (Optional) Specifies the mask.
<hex 0x0-0xffff> - Specifies the mask.

protocol_id - Specifies that the rule will apply to the value of IP protocol ID traffic.
<value 0-255> - Specifies the value between 0 and 255.
user_define - (Optional) Specifies that the rule will apply to the IP protocol ID and that the mask options behind the IP header, which has a length of 4 bytes.
<hex 0x0-0xffffffff> - Specifies that the rule will apply to the IP protocol ID and that the mask options behind the IP header , which has a length of 4 bytes.
mask - (Optional) Specifies the mask.
<hex 0x0-0xffffffff> - Specifies the mask.

packet _content_mask - Specifies the packet content mask.
offset_0-15 - Specifies the mask for packet bytes 0-15.
<hex 0x0-0xffffffff> - Specifies the mask for packet bytes 0-3.
<hex 0x0-0xffffffff> - Specifies the mask for packet bytes 4-7.
<hex 0x0-0xffffffff> - Specifies the mask for packet bytes 8-11.
<hex 0x0-0xffffffff> - Specifies the mask for packet bytes 12-15.
offset_16-31 - Specifies the mask for packet bytes 16-31.
<hex 0x0-0xffffffff> - Specifies the mask for packet bytes 16-19.
<hex 0x0-0xffffffff> - Specifies the mask for packet bytes 20-23.
<hex 0x0-0xffffffff> - Specifies the mask for packet bytes 24-27.
<hex 0x0-0xffffffff> - Specifies the mask for packet bytes 28-31.
offset_32-47 - Specifies the mask for packet bytes 32-47
<hex 0x0-0xffffffff> - Specifies the mask for packet bytes 32-35.
<hex 0x0-0xffffffff> - Specifies the mask for packet bytes 36-39.
<hex 0x0-0xffffffff> - Specifies the mask for packet bytes 40-43.
<hex 0x0-0xffffffff> - Specifies the mask for packet bytes 44-47.
offset_48-63 - Specifies the mask for packet bytes 48-63.
<hex 0x0-0xffffffff> - Specifies the mask for packet bytes 48-51.
<hex 0x0-0xffffffff> - Specifies the mask for packet bytes 52-55.
<hex 0x0-0xffffffff> - Specifies the mask for packet bytes 56-59.
<hex 0x0-0xffffffff> - Specifies the mask for packet bytes 60-63.
offset_64-79 - Specifies the mask for packet bytes 64-79.
<hex 0x0-0xffffffff> - Specifies the mask for packet bytes 64-67.
<hex 0x0-0xffffffff> - Specifies the mask for packet bytes 68-71.
<hex 0x0-0xffffffff> - Specifies the mask for packet bytes 72-75.
<hex 0x0-0xffffffff> - Specifies the mask for packet bytes 76-79.

ipv6 - Specifies that the rule applies to IPv6 fields.
class - Specifies the value of the IPv6 class.
<value 0-255> - Specifies the value between 0 and 255.
flowlabel - Specifies the value of the IPv6 flow label.
<hex 0x0-0xfffff> - Specifies the value of the IPv6 flow label.
source_ipv6 - Specifies the value of the IPv6 source address.
<ipv6addr> - Specifies the value of the IPv6 source address.
mask - (Optional) Specifies the mask.
<ipv6mask> - Specifies the mask.
destination_ipv6 - Specifies the value of the IPv6 destination address.
<ipv6addr> - Specifies the value of the IPv6 destination address.
mask - (Optional) Specifies the mask.
<ipv6mask> - Specifies the mask.
tcp - Specifies TCP.
src_port - (Optional) Specifies the TCP source port range.
<value 0-65535> - Specifies the value between 0 and 65535.
mask - (Optional) Specifies the mask.
<hex 0x0-0xffff> - Specifies the mask.
dst_port - (Optional) Specifies the TCP destination port range.
<value 0-65535> - Specifies the value between 0 and 65535.
mask - (Optional) Specifies the mask.
<hex 0x0-0xffff> - Specifies the mask.
udp - Specifies UDP.
src_port - (Optional) Specifies the UDP source port range.
<value 0-65535> - Specifies the value between 0 and 65535.
mask - (Optional) Specifies the mask.

<hex 0x0-0xffff> - Specifies the mask. **dst_port** - (Optional) Specifies the UDP destination port range. **<value 0-65535>** - Specifies the value between 0 and 65535. **mask** - Specifies the mask. **<hex 0x0-0xffff>** - Specifies the mask.
port - Specifies the port number to configure. **<portlist>** - Specifies a list of ports. **all** - Specifies to configure all ports. **permit** - Specifies the packets that match the access profile are permitted by the switch. **deny** - Specifies the packets that match the access profile are filtered by the switch. **time_range** - (Optional) Specifies the name of this time range entry. **<range_name 32>** - Specifies the name of this time range entry. The maximum length is 32 characters.
delete access_id - Specifies to delete the access ID. **<value 1-100>** - Specifies the value between 1 and 100.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure access list entry:

```
DES-3810-28:admin#config cpu access_profile profile_id 1 add access_id 1
ethernet vl
an default port 1-3 deny
Command: config cpu access_profile profile_id 1 add access_id 1 ethernet vlan
de
fault port 1-3 deny

Success.

DES-3810-28:admin#
```

5-11 show cpu access_profile

Description

This command is used to display the current CPU access list table.

Format

show cpu access_profile {profile_id <value 1-6>}

Parameters

profile_id - (Optional) Specifies the index of an access list profile. **<value 1-6>** - Specifies value between 1 and 6.

Restrictions

None.

Example

To display the current CPU access list table:

```
DES-3810-28:admin#show cpu access_profile
Command: show cpu access_profile

CPU Interface Filtering State: Disabled

CPU Interface Access Profile Table

Total Unused Rule Entries : 93
Total Used Rule Entries   : 7

================================================================================
=
Profile ID: 1     Type: IPv4

MASK on
    Dest IP     : 255.255.255.255
    IGMP

Unused Rule Entries: 93
--------------------------------------------------------------------------------
-
Rule ID : 1       Ports: 2

Match on
    IGMP

Action:
    Deny
================================================================================
=

================================================================================
=
Profile ID: 2     Type: IPv4

MASK on
    Dest IP     : 255.255.0.0

Unused Rule Entries: 93
--------------------------------------------------------------------------------
-
Rule ID : 1       Ports: 1-28
Time Range: ben

Match on
    Dest IP     : 10.90.90.12      Mask : 255.255.255.255

Action:
    Deny
================================================================================
=
```

```
================================================================================
=
Profile ID: 4     Type: IPv6

MASK on
    UDP
    Source Port      : 0xFFFF

Unused Rule Entries: 93
--------------------------------------------------------------------------------
-
Rule ID : 99   (auto assign)    Ports: 1

Match on
    UDP
    Source Port : 1234

Action:
    Permit
--------------------------------------------------------------------------------
-
Rule ID : 100  (auto assign)    Ports: 1

Match on
    UDP
    Source Port : 0      Mask : 0x0

Action:
    Permit
================================================================================
=

================================================================================
=
Profile ID: 5     Type: IPv6

MASK on
    Class
    Flow Label
    Source IPv6 Addr : FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF
    Dest IPv6 Addr   : FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF
    TCP
    Source Port      : 0xFFFF
    Dest Port        : 0xFFFF

Unused Rule Entries: 93
--------------------------------------------------------------------------------
-
Rule ID : 1       Ports: 1

Match on
    Class       : 123
    Flow Label  : 0x12345
```

```
    Source IPv6 : 2001::
           Mask : FFFF::
    Dest IPv6   : 2002::
         Mask   : FFFF::
    TCP
    Source Port : 1024
    Dest Port   : 0      Mask : 0x0

Action:
    Permit
------------------------------------------------------------------------------
-
Rule ID : 100  (auto assign)    Ports: 1

Match on
    Class       : 127
    Flow Label  : 0x67890

Action:
    Deny
==============================================================================
=

==============================================================================
=
Profile ID: 6     Type: User Defined

MASK on
    Offset  0-15 : 0xFFFFFFFF 0xFFFFFFFF 0xFFFFFFFF 0xFFFFFFFF

Unused Rule Entries: 93
------------------------------------------------------------------------------
-
Rule ID : 1       Ports: 1

Match on
    Offset  0-15 : 0x12345678 0x12345678 0x12345678 0x12345678

Action:
    Permit
==============================================================================
=

DES-3810-28:admin#
```

5-12 enable cpu_interface_filtering

Description

This command is used to enable CPU interface filtering.

Format

enable cpu_interface_filtering

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable CPU interface filtering:

```
DES-3810-28:admin#enable cpu_interface_filtering
Command: enable cpu_interface_filtering

Success.

DES-3810-28:admin#
```

5-13 disable cpu_interface_filtering

Description

This command is used to disable CPU interface filtering.

Format

disable cpu_interface_filtering

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable CPU interface filtering:

```
DES-3810-28:admin#disable cpu_interface_filtering
Command: disable cpu_interface_filtering

Success.

DES-3810-28:admin#
```

5-14 config flow_meter

Description

This command is used to configure the flow-based metering function. The metering function supports three modes: single rate two color, single rate three color, and two rate three color. The access rule must be created before the parameters of this function can be applied. For the single rate two color mode, users may set the preferred bandwidth for this rule, in Kbps, and once the bandwidth has been exceeded, overflowing packets will either be dropped or remarked DSCP, depending on the user configuration. For single rate three color mode, users need to specify the committed rate, in Kbps, the committed burst size, and the excess burst size. For the two rate three color mode, users need to specify the committed rate in Kbps, the committed burst size, the peak rate and the peak burst size. The green color packet will be treated as the conforming action, the yellow color packet will be treated as the exceeding action, and the red color packet will be treated as the violating action.

The replace DSCP action can be performed on packets that conform (GREEN) and packets that do not conform (YELLOW and RED). If drop YELLOW/RED is selected, the action to replace the DSCP will not take effect. The color mapping for both “single rate three color” and “two rate three color” mode follow RFC 2697 and RFC 2698 in the color-blind situation.

Format

config flow_meter [profile_id <value 1-1024> | profile_name <name 1-32>] access_id <value 1-1024> [rate [<value 0-1000000>] {burst_size [<value 0-16384>]} rate_exceed [drop_packet | remark_dscp <value 0-63>] | tr_tcm cir <value 0-1000000> {cbs <value 0-16384>} pir <value 0-1000000> {pbs <value 0-16384>} {conform [permit | replace_dscp <value 0-63>] {counter [enable | disable]}} {unconform replace_dscp <value 0-63>} exceed [permit | drop] {counter [enable | disable]} violate [permit | drop] {counter [enable | disable]} | sr_tcm cir <value 0-1000000> cbs <value 0-16384> ebs <value 0-16384> {conform [permit | replace_dscp <value 0-63>] {counter [enable | disable]}} {unconform replace_dscp <value 0-63>} exceed [permit | drop] {counter [enable | disable]} violate [permit | drop] {counter [enable | disable]} | delete]

Parameters

profile_id - Specifies the index of the access list profile. **<value 1-1024>** - Specifies the value between 1 and 1024.
profile_name - Specifies the name of the profile. **<name 1-32>** - Specifies the name of the profile. The maximum length is 32 characters.
access_id - Specifies the index of the access list entry. **<value 1-1024>** - Specifies the value between 1 and 1024.
rate - Specifies the rate for single rate two color mode. Specifies the committed bandwidth in Kbps for the flow. **<value 0-1000000>**- Specifies the value between 0 and 1000000. **burst_size** - (Optional) Specifies the burst size for the single rate two color mode. The unit is Kbyte. **<value 0-16384>** - Specifies the value between 0 and 16384. **rate_exceed** - Specifies the action for packets that exceed the committed rate in single rate two color mode. The action can be specified as one of the following: **drop_packet** - Drop the packet immediately. **remark_dscp** - Mark the packet with a specified DSCP. The packet is set to drop for packets with a high precedence. **<value 0-63>** - Specifies the value between 0 and 63.
tr_tcm - Specifies the “two-rate three-color mode.” **cir** -Specifies the Committed Information Rate. The unit is Kbps. CIR should always be equal

or less than PIR.
<value 0-1000000> - Specifies the value between 0 and 1000000.
cbs - (Optional) Specifies the Committed Burst Size. The unit is Kbyte.
<value 0-16384> - Specifies the value between 0 and 16384.
pir - Specifies the Peak information Rate. The unit is Kbps. PIR should always be equal to or greater than CIR.
<value 0-1000000> - Specifies the value between 0 and 1000000.
pbs - (Optional) Specifies the Peak Burst Size. The unit is Kbyte.
<value 0-16384> - Specifies the value between 0 and 16384.
conform - (Optional) This field denotes the green packet flow. Green packet flows may have their DSCP field rewritten to a value stated in this field. Users may also choose to count green packets by using counter parameter.
permit - Enter this parameter to allow packet flows that are in the green flow.
replace_dscp - Packets that are in the green flow may have their DSCP field rewritten using this parameter and entering the DSCP value to replace.
<value 0-63> - Specifies the value between 0 and 63.
counter - (Optional) Use this parameter to enable or disable the packet counter for the specified ACL entry in the green flow.
enable - Enable the packet counter for the specified ACL entry in the green flow.
disable - Disable the packet counter for the specified ACL entry in the green flow.
unconform replace_dscp - (Optional) This changes the DSCP of an un-conforming (yellow or red) packet.
<value 0-63> - Specifies the value between 0 and 63.
exceed - This field denotes the yellow packet flow. Yellow packet flows may have excess packets permitted through or dropped. Users may replace the DSCP field of these packets by checking its radio button and entering a new DSCP value in the allotted field.
permit - Enter this parameter to allow packet flows that are in the yellow flow.
drop - Enter this parameter to drop packets that are in the yellow flow.
counter - (Optional) Use this parameter to enable or disable the packet counter for the specified ACL entry in the green flow.
enable - Enable the packet counter for the specified ACL entry in the green flow.
disable - Disable the packet counter for the specified ACL entry in the green flow.
violate - This field denotes the red packet flow. Red packet flows may have excess packets permitted through or dropped. Users may replace the DSCP field of these packets by checking its radio button and entering a new DSCP value in the allotted field.
permit - Enter this parameter to allow packet flows that are in the red flow.
drop - Enter this parameter to drop packets that are in the red flow.
counter - (Optional) Use this parameter to enable or disable the packet counter for the specified ACL entry in the green flow.
enable - Enable the packet counter for the specified ACL entry in the green flow.
disable - Disable the packet counter for the specified ACL entry in the green flow.

sr_tcm - Specifies the “single-rate three-color mode”.
cir -Specifies the Committed Information Rate. The unit is in Kbps.
<value 0-1000000> - Specifies the value between 0 and 1000000.
cbs - Specifies the Committed Burst Size. The unit is in Kbyte.
<value 0-16384> - Specifies the value between 0 and 16384.
ebs - Specifies the Excess Burst Size. The unit is Kbyte.
<value 0-16384> - Specifies the value between 0 and 16384.
conform - (Optional) This field denotes the green packet flow. Green packet flows may have their DSCP field rewritten to a value stated in this field. Users may also choose to count green packets by using counter parameter.
permit - Enter this parameter to allow packet flows that are in the green flow.
replace_dscp - Packets that are in the green flow may have their DSCP field rewritten using this parameter and entering the DSCP value to replace.
<value 0-63> - Specifies the value between 0 and 63.
counter - (Optional) Use this parameter to enable or disable the packet counter for the specified ACL entry in the green flow.
enable - Enable the packet counter for the specified ACL entry in the green flow.
disable - Disable the packet counter for the specified ACL entry in the green flow.
unconform replace_dscp - (Optional) This changes the DSCP of an un-conforming (yellow

	or red) packet. **<value 0-63>** - Specifies the value between 0 and 63. **exceed** - This field denotes the yellow packet flow. Yellow packet flows may have excess packets permitted through or dropped. Users may replace the DSCP field of these packets by checking its radio button and entering a new DSCP value in the allotted field. **permit** - Enter this parameter to allow packet flows that are in the yellow flow. **drop** - Enter this parameter to drop packets that are in the yellow flow. **counter** - (Optional) Use this parameter to enable or disable the packet counter for the specified ACL entry in the green flow. **enable** - Enable the packet counter for the specified ACL entry in the green flow. **disable** - Disable the packet counter for the specified ACL entry in the green flow. **violate** - This field denotes the red packet flow. Red packet flows may have excess packets permitted through or dropped. Users may replace the DSCP field of these packets by checking its radio button and entering a new DSCP value in the allotted field. **permit** - Enter this parameter to allow packet flows that are in the red flow. **drop** - Enter this parameter to drop packets that are in the red flow. **counter** - (Optional) Use this parameter to enable or disable the packet counter for the specified ACL entry in the green flow. **enable** - Enable the packet counter for the specified ACL entry in the green flow. **disable** - Disable the packet counter for the specified ACL entry in the green flow.
delete - Use this parameter to delete the specified flow meter.	

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure a two rate, three color flow meter:

```
DES-3810-28:admin#config flow_meter profile_id 1 access_id 1 tr_tcm cir 1000
cbs 200 pir 2000 pbs 200 conform replace_dscp 21 exceed drop violate permit
Command: config flow_meter profile_id 1 access_id 1 tr_tcm cir 1000 cbs 200 pir
2000 pbs 200 conform replace_dscp 21 exceed drop violate permit

Success.

DES-3810-28:admin#
```

To replace DSCP action changed to perform on conform (green) and unconform (yellow and red) packets:

```
DES-3810-28:admin#config flow_meter profile_id 1 access_id 1 tr_tcm cir 1000
cbs 200 pir 2000 pbs 200 unconform replace_dscp 21 exceed permit violate drop
Command: config flow_meter profile_id 1 access_id 1 tr_tcm cir 1000 cbs 200 pir
2000 pbs 200 unconform replace_dscp 21 exceed permit violate drop

Success.

DES-3810-28:admin#
```

5-15 show flow_meter

Description

This command is used to display the flow meter table.

Format

show flow_meter {[profile_id <value 1-1024> | profile_name <name 1-32>] {access_id <value 1-1024>}}

Parameters

profile_id - (Optional) Specifies the profile ID. **<value 1-1024>** - Specifies the profile ID. Enter a value between 1 and 1024.
profile_name - (Optional) Specifies the name of the profile. **<name 1-32>** - Specifies the name of the profile. The maximum length is 32 characters.
access_id - (Optional) Specifies the access ID. **<value 1-1024>** - Specifies the access ID. Enter a value between 1 and 1024.

Restrictions

None.

Example

To display the flow meter configuration:

```
DES-3810-28:admin#show flow_meter
Command: show flow_meter

Flow Meter Information:
-----------------------
Profile ID : 1    Access ID : 1    Mode : trTcm
CIR(Kbps):1000     CBS(Kbyte):2000     PIR(Kbps):2000     PBS(Kbyte):200
Actions:
Conform: Permit   Replace DSCP: 35   Counter: Enabled  Unconform:
Replace DSCP:33   Exceed: Permit   Counter: Enabled
Violate: Permit   Counter: Enabled

Profile ID : 1    Access ID : 1    Mode : srTcm
CIR(Kbps):1000     CBS(Kbyte):2000     PIR(Kbps):2000     PBS(Kbyte):200
Actions:
Conform: Permit      Counter: Enabled     Unconform:
Replace DSCP:33      Exceed: Permit       Counter: Enabled
Violate: Permit      Counter: Enabled

Total Flow Meter Entries: 2

DES-3810-28:admin#
```

Chapter 6 Access Control List (ACL) Egress Commands

create egress_access_profile profile_id <value 1-500> profile_name <name 1-32> [ethernet {vlan {<hex 0x0-0x0fff>} | source_mac <macmask 000000000000-ffffffffffff> | destination_mac <macmask 000000000000-ffffffffffff> | 802.1p | ethernet_type} | ip {vlan {<hex 0x0-0x0fff>} | source_ip_mask <netmask> | destination_ip_mask <netmask> | dscp | [icmp {type | code} | igmp {type} | tcp {src_port_mask <hex 0x0-0xffff> | dst_port_mask <hex 0x0-0xffff> | flag_mask [all | {urg | ack | psh | rst | syn | fin}(1)]} | udp {src_port_mask <hex 0x0-0xffff> | dst_port_mask <hex 0x0-0xffff>} | protocol_id_mask <hex 0x0-0xff> {user_define_mask <hex 0x0-0xffffffff>}]} | ipv6 {source_ipv6_mask <ipv6mask> | destination_ipv6_mask <ipv6mask> | [tcp {src_port_mask <hex 0x0-0xffff> | dst_port_mask <hex 0x0-0xffff>} | udp {src_port_mask <hex 0x0-0xffff> | dst_port_mask <hex 0x0-0xffff>}]}]
delete egress_access_profile [profile_id <value 1-500> | profile_name <name 1-32> | all]
config egress_access_profile [profile_id <value 1-500> | profile_name <name 1-32>] [add access_id [auto_assign | <value 1-500>] [ethernet {[vlan <vlan_name 32> | vlanid <vlanid 1-4094>] {mask <hex 0x0-0x0fff>} | source_mac <macaddr> {mask <macmask>} | destination_mac <macaddr> {mask <macmask>} | 802.1p <value 0-7> | ethernet_type <hex 0x0-0xffff>} | ip {[vlan <vlan_name 32> | vlanid <vlanid 1-4094>] {mask <hex 0x0-0x0fff>} | source_ip <ipaddr> {mask <netmask>} | destination_ip <ipaddr> {mask <netmask>} | dscp <value 0-63> | [icmp {type <value 0-255> | code <value 0-255>} | igmp {type <value 0-255>} | tcp {src_port <value 0-65535> {mask <hex 0x0-0xffff>} | dst_port <value 0-65535> {mask <hex 0x0-0xffff>} | flag [all | {urg | ack | psh | rst | syn | fin}(1)]} | udp {src_port <value 0-65535> {mask <hex 0x0-0xffff>} | dst_port <value 0-65535> {mask <hex 0x0-0xffff>}} | protocol_id <value 0-255> {user_define <hex 0x0-0xffffffff> {mask <hex 0x0-0xffffffff>}}]} | ipv6 {source_ipv6 <ipv6addr> {mask <ipv6mask>} | destination_ipv6 <ipv6addr> {mask <ipv6mask>} | [tcp {src_port <value 0-65535> {mask <hex 0x0-0xffff>} | dst_port <value 0-65535> {mask <hex 0x0-0xffff>}} | udp {src_port <value 0-65535> {mask <hex 0x0-0xffff>} | dst_port <value 0-65535> {mask <hex 0x0-0xffff>}}]}] [vlan_based [vlan_name <vlan_name 32> | vlan_id <vlanid 1-4094>] | port <port>] [permit {replace_priority_with <value 0-7> | replace_dscp_with <value 0-63> | counter [enable | disable]} | deny] {time_range <range_name 32>} | delete access_id <value 1-500>]
show egress_access_profile {[profile_id <value 1-500> | profile_name <name 1-32>]}
show current_config egress_access_profile
config egress_flow_meter [profile_id <value 1-500> | profile_name <name 1-32>] access_id <value 1-500> [rate [<value 0-1000000>] {burst_size [<value 0-16384>]} rate_exceed [drop_packet] | delete]
show egress_flow_meter {[profile_id <value 1-500> | profile_name <name 1-32>] {access_id <value 1-500>}}

6-1 create egress_access_profile

Description

This command is used to create an egress access list profile.

Format

create egress_access_profile profile_id <value 1-500> profile_name <name 1-32> [ethernet {vlan {<hex 0x0-0x0fff>} | source_mac <macmask 000000000000-ffffffffffff> | destination_mac <macmask 000000000000-ffffffffffff> | 802.1p | ethernet_type} | ip {vlan {<hex 0x0-0x0fff>} | source_ip_mask <netmask> | destination_ip_mask <netmask> | dscp | [icmp {type | code} | igmp {type} | tcp {src_port_mask <hex 0x0-0xffff> | dst_port_mask <hex 0x0-0xffff> | flag_mask [all | {urg | ack | psh | rst | syn | fin}(1)]} | udp {src_port_mask <hex 0x0-0xffff> | dst_port_mask <hex 0x0-0xffff>} | protocol_id_mask <hex 0x0-0xff> {user_define_mask <hex 0x0-0xffffffff>}]} | ipv6 {source_ipv6_mask <ipv6mask> | destination_ipv6_mask <ipv6mask> | [tcp {src_port_mask <hex 0x0-0xffff> | dst_port_mask <hex 0x0-0xffff>} | udp {src_port_mask <hex 0x0-0xffff> | dst_port_mask <hex 0x0-0xffff>}]}]

Parameters

profile_id - Specifies the index of the egress access list profile. The lower the profile ID, the higher the priority.
- **<value 1-500>** - Enter the profile ID used here. This value must be between 1 and 500.

profile_name - The name of the profile must be specified. The maximum length is 32 characters.
- **<name 1-32>** - Enter the profile name used here. This name can be up to 32 characters long.

ethernet - Specifies this is an Ethernet mask.
- **vlan** - (Optional) Specifies a VLAN mask.
  - **<hex 0x0-0x0fff>** - Enter the VLAN mask used here.
- **source_mac** - (Optional) Specifies the source MAC mask.
  - **<macmask 000000000000-ffffffffffff>** - Enter the source MAC mask used here.
- **destination_mac** - (Optional) Specifies the destination MAC mask.
  - **<macmask 000000000000-ffffffffffff>** - Enter the destination MAC mask used here.
- **802.1p** - (Optional) Specifies 802.1p priority tag mask.
- **ethernet_type** - (Optional) Specifies the Ethernet type mask.

ip - Specifies this is an IPv4 mask.
- **vlan** - (Optional) Specifies a VLAN mask.
  - **<hex 0x0-0x0fff>** - Enter the VLAN mask used here.
- **source_ip_mask** - (Optional) Specifies a source IP address mask.
  - **<netmask>** - Enter the source network mask used here.
- **destination_ip_mask** - (Optional) Specifies a destination IP address mask.
  - **<netmask>** - Enter the destination network mask used here.
- **dscp** - (Optional) Specifies the DSCP mask.
- **icmp** - (Optional) Specifies that the rule applies to ICMP traffic.
  - **type** - Specifies the type of ICMP traffic.
  - **code** - Specifies the code of ICMP traffic.
- **igmp** - (Optional) Specifies that the rule applies to IGMP traffic.
  - **type** - Specifies the type of IGMP traffic.
- **tcp** - (Optional) Specifies that the rule applies to TCP traffic.
  - **src_port_mask** - Specifies the TCP source port mask.
    - **<hex 0x0-0xffff>** - Enter the TCP source port mask value here.
  - **dst_port_mask** - Specifies the TCP destination port mask.
    - **<hex 0x0-0xffff>** - Enter the TCP destination port mask value here.
- **flag_mask** - (Optional) Specifies the TCP flag field mask.
  - **all** - Specifies that the TCP flag field mask will be set to 'all'.
  - **urg** - Specifies that the TCP flag field mask will be set to 'urg'.
  - **ack** - Specifies that the TCP flag field mask will be set to 'ack'.
  - **psh** - Specifies that the TCP flag field mask will be set to 'psh'.
  - **rst** - Specifies that the TCP flag field mask will be set to 'rst'.
  - **syn** - Specifies that the TCP flag field mask will be set to 'syn'.
  - **fin** - Specifies that the TCP flag field mask will be set to 'fin'.
- **udp** - (Optional) Specifies that the rule applies to UDP traffic.
  - **src_port_mask** - Specifies the UDP source port mask.
    - **<hex 0x0-0xffff>** - Enter the UDP source port mask value here.

dst_port_mask - Specifies the UDP destination port mask. **<hex 0x0-0xffff>** - Enter the UDP destination port mask value here. **protocod_id_mask** - (Optional) Specifies that the rule applies to IP protocol ID traffic. **<hex 0x0-0xff>** - Enter the protocol ID mask value here. **user_define_mask** - (Optional) Specifies that the rule applies to the IP protocol ID, and that the mask option behind the IP header length is 20 bytes. **<hex 0x0-0xffffffff>** - Enter the user-defined mask value here.
ipv6 - (Optional) Specifies this is an IPv6 mask. **source_ipv6_mask** - (Optional) Specifies an IPv6 source sub-mask. **<ipv6mask>** - Enter the IPv6 source sub-mask value here. **destination_ipv6_mask** - Specifies an IPv6 destination sub-mask. **<ipv6mask>** - Enter the IPv6 destination sub-mask value here. **tcp** - (Optional) Specifies that the following parameter are application to the TCP configuration. **src_port_mask** - Specifies an IPv6 Layer 4 TCP source port mask. **<hex 0x0-0xffff>** - Enter the Ipv6 TCP source port mask value here. **dst_port_mask** - Specifies an IPv6 Layer 4 TCP destination port mask. **<hex 0x0-0xffff>** - Enter the Ipv6 TCP destination port mask value here. **udp** - (Optional) Specifies that the following parameter are application to the UDP configuration. **src_port_mask** - Specifies an IPv6 Layer 4 UDP source port mask. **<hex 0x0-0xffff>** - Enter the Ipv6 UDP source port mask value here. **dst_port_mask** - Specifies an IPv6 Layer 4 UDP destination port mask. **<hex 0x0-0xffff>** - Enter the Ipv6 UDP destination port mask value here.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create an egress access list profile with the name “eap-eth-bc” and assign the profile ID to be 1:

```
DES-3810-28:admin#  create egress_access_profile profile_id 1 profile_name eap-
eth-bc ethernet source_mac FF-FF-FF-FF-FF-FF
Command: create egress_access_profile profile_id 1 profile_name eap-eth-bc
ethernet source_mac FF-FF-FF-FF-FF-FF


DES-3810-28:admin#
```

6-2 delete egress_access_profile

Description

Delete egress access profile command can only delete the profile which is created by egress ACL module.

Format

delete egress_access_profile [profile_id <value 1-500> | profile_name <name 1-32> | all]

Parameters

profile_id - Specifies the index of the egress access list profile. **<value 1-500>** - Enter the profile ID used here. This value must be between 1 and 500.
profile_name - Specifies the name of the profile. The maximum length is 32 characters.

<name 1-32> - Enter the profile name used here. This name can be up to 32 characters long. **all** - Specifies that the whole egress access list profile will be deleted.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete egress access list profile ID 1:

```
DES-3810-28:admin#  delete egress_access_profile profile_id 1
Command: delete egress_access_profile profile_id 1

Success.

DES-3810-28:admin#
```

6-3 config egress_access_profile

Description

This command is used to configure egress access list entries.

Format

config egress_access_profile [profile_id <value 1-500> | profile_name <name 1-32>] [add access_id [auto_assign | <value 1-500>] [ethernet {[vlan <vlan_name 32> | vlanid <vlanid 1-4094>] {mask <hex 0x0-0x0fff>} | source_mac <macaddr> {mask <macmask>} | destination_mac <macaddr> {mask <macmask>} | 802.1p <value 0-7> | ethernet_type <hex 0x0-0xffff>} | ip {[vlan <vlan_name 32> | vlanid <vlanid 1-4094>] {mask <hex 0x0-0x0fff>} | source_ip <ipaddr> {mask <netmask>} | destination_ip <ipaddr> {mask <netmask>} | dscp <value 0-63> | [icmp {type <value 0-255> | code <value 0-255>} | igmp {type <value 0-255>} | tcp {src_port <value 0-65535> {mask <hex 0x0-0xffff>} | dst_port <value 0-65535> {mask <hex 0x0-0xffff>} | flag [all | {urg | ack | psh | rst | syn | fin}(1)]} | udp {src_port <value 0-65535> {mask <hex 0x0-0xffff>} | dst_port <value 0-65535> {mask <hex 0x0-0xffff>}} | protocol_id <value 0-255> {user_define <hex 0x0-0xffffffff> {mask <hex 0x0-0xffffffff>}}]} | ipv6 {source_ipv6 <ipv6addr> {mask <ipv6mask>} | destination_ipv6 <ipv6addr> {mask <ipv6mask>} | [tcp {src_port <value 0-65535> {mask <hex 0x0-0xffff>} | dst_port <value 0-65535> {mask <hex 0x0-0xffff>}} | udp {src_port <value 0-65535> {mask <hex 0x0-0xffff>} | dst_port <value 0-65535> {mask <hex 0x0-0xffff>}}]}] [vlan_based [vlan_name <vlan_name 32> | vlan_id <vlanid 1-4094>] | port <port>] [permit {replace_priority_with <value 0-7> | replace_dscp_with <value 0-63> | counter [enable | disable]} | deny] {time_range <range_name 32>} | delete access_id <value 1-500>]

Parameters

profile_id - Specifies the index of the egress access list profile. **<value 1-500>** - Enter the profile ID used here. This value must be between 1 and 500.
profile_name - Specifies the name of the profile. **<name 1-32>** - Enter the profile name here. This name can be up to 32 characters long.
add - Specifies to add a profile or rule.
access_id - Specifies the index of the access list entry. If the auto_assign option is selected, the

access ID is automatically assigned. The lower the access ID, the higher the priority.
auto assign - Specifies that the access ID will be configured automatically.
<value 1-500> - Enter the access ID used here. This value must be between 1 and 500.

ethernet - Specifies an Ethernet egress ACL rule.
vlan - (Optional) Specifies the VLAN name.
<vlan_name 32> - Enter the VLAN name used for this configuration here. This name can be up to 32 characters long.
vlanid - Specifies a VLAN ID.
<vlanid 1-4094> - Enter the VLAN ID used for this congfiguration here. This value must be between 1 and 4094.
mask - (Optional) Specifies the mask used.
<hex 0x0-x0fff> - Enter the mask value used here.
source_mac - (Optional) Specifies the source MAC address.
<macaddr> - Enter the source MAC address used here.
mask - Specifies that source MAC mask used.
<macmask> - Enter the source MAC mask value here.
destination_mac - Specifies the destination MAC address.
<macaddr> - Enter the destination MAC address used here.
mask - Specifies that destination MAC mask used.
<macmask> - Enter the destination MAC mask value here.
802.1p - (Optional) Specifies the value of the 802.1p priority tag. The priority tag ranges from 1 to 7.
<value 0-7> - Enter the 802.1p priority tag used here.
ethernet_type - (Optional) Specifies the Ethernet type.
<hex 0x0-0xffff> - Enter the Ethernet type mask used here.

ip - Specifies an IPv4 egress ACL rule.
vlan - (Optional) Specifies the VLAN name.
<vlan_name 32> - Enter the VLAN name used for this configuration here. This name can be up to 32 characters long.
vlanid - Specifies a VLAN ID.
<vlanid 1-4094> - Enter the VLAN ID used for this congfiguration here. This value must be between 1 and 4094.
mask - (Optional) Specifies the mask used.
<hex 0x0-x0fff> - Enter the mask value used here.
source_ip - (Optional) Specifies an IP source address.
<ipaddr> - Enter the source IP address used here.
mask - Specifies the source IP address used here.
<netmask> - Enter the source network mask here.
destination_ip - (Optional) Specifies an IP destination address.
<ipaddr> - Enter the destination IP address used here.
mask - Specifies the destination IP address used here.
<netmask> - Enter the destination network mask here.
dscp - (Optional) Specifies the value of DSCP. The DSCP value ranges from 0 to 63.
<value 0-63> - Enter the DSCP value used here. This value must be between 0 and 63.
icmp - (Optional) Specifies that the following parameters configured will apply to the ICMP configuration.
type - Specifies that the rule will apply to the ICMP type traffic value.
<value 0-255> - Enter the ICMP traffic type value here. This value must be between 0 and 255.
code - Specifies that the rule will apply to the ICMP code traffic value.
<value 0-255> - Enter the ICMP code traffic value here. This value must be between 0 and 255.
igmp - (Optional) Specifies that the following parameters configured will apply to the IGMP configuration.
type - Specifies that the rule will apply to the IGMP type traffic value.
<value 0-255> - Enter the IGMP type traffic value here. This value must be between 0 and 255.
tcp - (Optional) Specifies that the following parameters configured will apply to the TCP configuration.
src_port - Specifies that the rule will apply to a range of TCP source ports.

<value 0-65535> - Enter the source port value here. This value must be between 0 and 65535.
mask - Specifies the TCP source port mask here.
<hex 0x0-0xffff> - Enter the TCP source port mask value here.
dst_port - Specifies that the rule will apply to a range of TCP destination ports.
<value 0-65535> - Enter the destination port value here. This value must be between 0 and 65535.
mask - Specifies the TCP destination port mask here.
<hex 0x0-0xffff> - Enter the TCP destination port mask value here.
flag - (Optional) Specifies the TCP flag fields.
all - Specifies that the TCP flag field will be set to 'all'.
urg - Specifies that the TCP flag field will be set to 'urg'.
ack - Specifies that the TCP flag field will be set to 'ack'.
psh - Specifies that the TCP flag field will be set to 'psh'.
rst - Specifies that the TCP flag field will be set to 'rst'.
syn - Specifies that the TCP flag field will be set to 'syn'.
fin - Specifies that the TCP flag field will be set to 'fin'.
udp - (Optional) Specifies that the following parameters configured will apply to the UDP configuration.
src_port - Specifies the UDP source port range.
<value 0-65535> - Enter the UDP source port range value here.
mask - Specifies the UDP source port mask here.
<hex 0x0-0xffff> - Enter the UDP source port mask value here.
dst_port - Specifies the UDP destination port range.
<value 0-65535> - Enter the UDP destination port range value here.
mask - Specifies the UDP destination port mask here.
<hex 0x0-0xffff> - Enter the UDP destination port mask value here.
protocol_id - (Optional) Specifies that the rule will apply to the value of IP protocol ID traffic.
<value 0-255> - Enter the protocol ID used here. This value must be between 0 and 255.
user_define - (Optional) Specifies that the rule will apply to the IP protocol ID and that the mask options behind the IP header, which has a length of 20 bytes.
<hex 0x0-0xffffffff> - Enter the user-defined mask value here.
mask - Specifies the user-defined mask here.
<hex 0x0-0xffffffff> - Enter the user-defined mask value here.

ipv6 - Specifies the rule applies to IPv6 fields.
source_ipv6 - (Optional) Specifies the value of IPv6 source address.
<ipv6addr> - Enter the source IPv6 source address here.
mask - Specifies the IPv6 source address mask here.
<ipv6mask> - Enter the IPv6 source address mask value here.
destination_ipv6 - (Optional) Specifies the value of IPv6 destination address.
<ipv6addr> - Enter the source IPv6 destination address here.
mask - Specifies the IPv6 destination address mask here.
<ipv6mask> - Enter the IPv6 destination address mask value here.
tcp - (Optional) Specifies the TCP protocol
src_port - Specifies the value of the IPv6 layer 4 TCP source port.
<value 0-65535> - Enter the IPv6 TCP source port value here. This value must be between 0 and 65535.
mask - Specifies the IPv6 TCP source port mask here.
<hex 0x0-0xffff> - Enter the IPv6 TCP source port mask value here.
dst_port - Specifies the value of the IPv6 layer 4 TCP destination port.
<value 0-65535> - Enter the IPv6 TCP destination port value here. This value must be between 0 and 65535.
mask - Specifies the IPv6 TCP destination port mask here.
<hex 0x0-0xffff> - Enter the IPv6 TCP destination port mask value here.
udp - (Optional) Specifies the UDP protocol.
src_port - Specifies the value of the IPv6 layer 4 UDP source port.
<value 0-65535> - Enter the IPv6 UDP source port value here. This value must be between 0 and 65535.
mask - Specifies the IPv6 UDP source port mask here.
<hex 0x0-0xffff> - Enter the IPv6 UDP source port mask value here.

dst_port - Specifies the value of the IPv6 layer 4 UDP destination port. **<value 0-65535>** - Enter the IPv6 UDP destination port value here. This value must be between 0 and 65535. **mask** - Specifies the IPv6 UDP destination port mask here. **<hex 0x0-0xffff>** - Enter the IPv6 UDP destination port mask value here. **vlan_based** - The rule applies on the specified VLAN. **vlan_name** - Specifies the VLAN name. **<vlan_name 32>** - Enter the VLAN name used for this configuration here. This name can be up to 32 characters long. **vlan_id** - Specifies a VLAN ID. **<vlanid 1-4094>** - Enter the VLAN ID used for this congfiguration here. This value must be between 1 and 4094.
port - Specifies the port used here. **<port>** - Enter the port number used here.
permit - Specifies that packets matching the egress access rule are permitted by the switch.
replace_priority_with - (Optional) Specifies the packets that match the egress access rule are changed the 802.1p priority tag field by the switch. **<value 0-7>** - Enter the replace priority with value here. This value must be between 0 and 7.
replace_dscp_with - (Optional) Specifies the packets that match the egress access rule are changed the DSCP value by the switch. **<value 0-63>** - Enter the replace DSCP with value here. This value must be between 0 and 63.
counter - (Optional) Specifies whether the ACL counter feature is enabled or disabled. This parameter is optional. The default option is disabled. If the rule is not bound with the flow_meter, all matching packets are counted. If the rule is bound with the flow_meter, then the “counter” is overridden. **enable** - Specifies that the ACL counter feature will be enabled. **disable** - Specifies that the ACL counter feature will be disabled.
deny - Specifies the packets that match the egress access rule are filtered by the switch.
time_range - (Optional) Specifies the name of the time range entry. **<range_name 32>** - Enter the time range value here. This name can be up to 32 characters long.
delete - Specifies to delete a profile or rule.
access_id - Specifies the index of the access list entry. If the auto_assign option is selected, the access ID is automatically assigned. **<value 1-500>** - Enter the access ID used here. This value must be between 1 and 500.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure a port-base egress access rule that when the packet go out switch which match the specified source IP, DSCP and destination IP field, it will not be dropped:

```
DES-3810-28:admin# config egress_access_profile profile_id 2 add access_id
auto_assign ip source_ip 10.0.0.1 dscp 25 destination_ip 10.90.90.90 port 1
permit
Command: config egress_access_profile profile_id 2 add access_id auto_assign ip
source_ip 10.0.0.1 dscp 25 destination_ip 10.90.90.90 port 1 permit


Success.


DES-3810-28:admin#
```

To configure a vlan-base egress access rule that when the packet go out switch which match the specified source MAC field, it will be dropped:

```
DES-3810-28:admin#  config egress_access_profile profile_id 2 add access_id 1
ethernet source_mac 11-22-33-44-55-66 vlan_based vlan_id 1 deny
Command: config egress_access_profile profile_id 2 add access_id 1 ethernet
source_mac 11-22-33-44-55-66 vlan_based vlan_id 1 deny

Success.

DES-3810-28:admin#
```

6-4 show egress_access_profile

Description

This command is used to display current egress access list table.

Format

show egress_access_profile {[profile_id <value 1-500> | profile_name <name 1-32>]}

Parameters

profile_id - (Optional) Specifies the index of the egress access list profile. **<value 1-500>** - Enter the profile ID here. This value must be between 1 and 500.
profile_name - (Optional) Specifies the name of the profile. The maximum length is 32 characters. **<name 1-32>** - Enter the profile name here. This name can be up to 32 characters long.
If no parameter is specified, will show the all egress access profile.

Restrictions

None.

Example

To display current egress access list table:

```
DES-3810-28:admin#show egress_access_profile
Command: show egress_access_profile

Egress Access Profile Table

Total User Set Rule Entries : 3
Total Used HW Entries       : 3
Total Available HW Entries  : 497

================================================================================
Profile ID: 1     Profile name: EtherEACL  Type: Ethernet

MASK on
    VLAN            : 0xFFF
    Source MAC      : 00-11-22-33-44-55
```

```
    Destination MAC : 00-11-22-33-44-55
    802.1p
    Ethernet Type

Available HW Entries : 497
-------------------------------------------------------------------------------
Rule ID : 1       Ports: 10

Match on
    VLAN ID         : 1                  Mask : 0xFFF
    Source MAC      : 00-00-00-00-44-55
    Destination MAC : 00-00-00-00-00-55
    802.1p          : 1
    Ethernet Type   : 0xFFFF

Action:
    Permit
    Replaced Priority     : 1
    Replace DSCP           : 1

===============================================================================

===============================================================================
Profile ID: 2     Profile name: IPv4EACL  Type: IPv4

MASK on
    VLAN        : 0xFFF
    Source IP   : 192.168.69.0
    Dest IP     : 192.168.69.0
    ICMP
    Type
    Code

Available HW Entries : 497
-------------------------------------------------------------------------------
Rule ID : 1       Ports: 10

Match on
    VLAN ID     : 1
    Source IP   : 192.168.1.0
    Dest IP     : 192.168.1.0
    ICMP
    Type        : 23
    Code        : 23

Action:
    Permit
    Replaced Priority     : 1
    Replace DSCP           : 1

===============================================================================
```

```
================================================================================
Profile ID: 3     Profile name: IPv6EACL  Type: IPv6

MASK on
    TCP
    Source Port      : 0xFFFF
    Dest Port        : 0xFFFF

Available HW Entries : 497
--------------------------------------------------------------------------------
Rule ID : 1       Ports: 10

Match on
    TCP
    Source Port : 23     Mask : 0xFFFF
    Dest Port   : 23     Mask : 0xFFFF

Action:
    Permit
    Replaced Priority     : 1
    Replace DSCP           : 1

================================================================================

DES-3810-28:admin#
```

The following example displays an egress access profile that supports an entry mask for each rule:

```
DES-3810-28:admin#show egress_access_profile profile_id 1
Command: show egress_access_profile profile_id 1

Egress Access Profile Table

================================================================================
Profile ID: 1     Profile name: EtherEACL  Type: Ethernet

MASK on
    VLAN            : 0xFFF
    Source MAC      : 00-11-22-33-44-55
    Destination MAC : 00-11-22-33-44-55
    802.1p
    Ethernet Type

Available HW Entries : 497
--------------------------------------------------------------------------------
Rule ID : 1       Ports: 10

Match on
    VLAN ID         : 1                  Mask : 0xFFF
    Source MAC      : 00-00-00-00-44-55
    Destination MAC : 00-00-00-00-00-55
    802.1p          : 1
    Ethernet Type   : 0xFFFF

Action:
    Permit
    Replaced Priority     : 1
    Replace DSCP           : 1

================================================================================

DES-3810-28:admin#
```

6-5 show current_config egress_access_profile

Description

This command is used to display the egress ACL part of current configuration in user level of privilege.

The overall current configuration can be displayed by “show config” command which is accessible in administrator level of privilege.

Format

show current_config egress_access_profile

Parameters

None.

Restrictions

None.

Example

To display current configuration of egress access list table:

```
DES-3810-28:admin#show current_config egress_access_profile
Command: show current_config egress_access_profile

#------------------------------------------------------------------------

# Egress ACL

create egress_access_profile profile_id 1 profile_name EtherEACL ethernet vlan
0xFFF source_mac 00-11-22-33-44-55 destination_mac 00-11-22-33-44-55 802.1p
ethernet_type
config egress_access_profile profile_id 1 add access_id 1 ethernet vlanid 1
mask 0xFFF source_mac 00-00-00-00-FF-FF destination_mac 00-00-00-00-11-FF
802.1p 1 ethernet_type 0xFFFF port 10 permit replace_priority_with 1
replace_dscp 1
create egress_access_profile profile_id 2 profile_name IPv4EACL ip vlan 0xFFF
source_ip_mask 192.168.69.0 destination_ip_mask 192.168.69.0 icmp type code
config egress_access_profile profile_id 2 add access_id 1 ip vlanid 1 source_ip
192.168.1.10 destination_ip 192.168.1.10 icmp type 23 code 23 port 10 permit
replace_priority_with 1 replace_dscp 1
create egress_access_profile profile_id 3 profile_name IPv6EACL ipv6 tcp
src_port_mask 0xFFFF dst_port_mask 0xFFFF
config egress_access_profile profile_id 3 add access_id 1 ipv6 tcp src_port 23
mask 0xFFFF dst_port 23 mask 0xFFFF port 10 permit replace_priority_with 1
replace_dscp 1

#------------------------------------------------------------------------

DES-3810-28:admin#
```

6-6 config egress_flow_meter

Description

This command is used to configure the packet flow-based metering based on an egress access profile and rule.

Format

config egress_flow_meter [profile_id <value 1-500> | profile_name <name 1-32>] access_id <value 1-500> [rate [<value 0-1000000>] {burst_size [<value 0-16384>]} rate_exceed [drop_packet] | delete]

Parameters

profile_id - Specifies the profile ID. **<value 1-500>** - Enter the profile ID used here. This value must be between 1 and 500.

profile_name - Specifies the name of the profile. **<name 1-32>** - Enter the profile name used here. This name can be up to 32 characters long.
access_id - Specifies the access ID. **<value 1-500>** - Enter the access ID used here. This value must be between 1 and 500.
rate - This specifies the rate for single rate two-color mode. Specifies the committed bandwidth in Kbps for the flow. The value m and n are determined by the project. **<value 0-1000000>** - Enter the rate for single rate two-color mode here. This value must be between 0 and 1000000.
burst_size - (Optional) This specifies the burst size for the single rate “two color” mode. The unit is Kbytes. **<value 0-16384>** - Enter the burst size value here. This value must be between 0 and 16384.
rate_exceed - This specifies the action for packets that exceed the committed rate in single rate “two color” mode. The action can be specified as one of the following: **drop_packet** - Drop the packet immediately.
delete - Delete the specified “flow_meter”.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the egress flow meter for profile 1:

```
DES-3810-28:admin# config egress_flow_meter profile_id 1 access_id 1 delete
command: config egress_flow_meter profile_id 1 access_id 1 delete

Success.

DES-3810-28:admin#
```

6-7 show egress_flow_meter

Description

This command is used to display the egress flow-based metering configuration.

Format

show egress_flow_meter {[profile_id <value 1-500> | profile_name <name 1-32>] {access_id <value 1-500>}}

Parameters

profile_id - (Optional) Specifies the index of access list profile. **<value 1-500>** - Enter the profile ID used here. This value must be between 1 and 500.
profile_name - (Optional) Specifies the name of the profile. **<name 1-32>** - Enter the profile name used here. This name can be up to 32 characters long.
access_id - (Optional) Specifies the access ID. **<value 1-500>** - Enter the access ID used here. This value must be between 1 and 500.

Restrictions

None.

Example

To display current egress flow meter table:

```
DES-3810-28:admin#show egress_flow_meter
Command: show egress_flow_meter

Flow Meter Information
------------------------------------------------------------------------------
Profile ID:1     Access ID:1     Mode : Meter
Rate(Kbps):100      Burst size(Kbyte):100
Action:
  Rate exceed : Drop
------------------------------------------------------------------------------

Profile ID:2     Access ID:1     Mode : Meter
Rate(Kbps):100      Burst size(Kbyte):100
Action:
  Rate exceed : Drop
------------------------------------------------------------------------------

Profile ID:3     Access ID:1     Mode : Meter
Rate(Kbps):100      Burst size(Kbyte):100
Action:
  Rate exceed : Drop
------------------------------------------------------------------------------

Total Entries: 3

DES-3810-28:admin#
```

Chapter 7 ARP Commands

create arpentry <ipaddr> <macaddr>
delete arpentry [<ipaddr> | all]
config arpentry <ipaddr> <macaddr>
config arp_aging time <value 0-65535>
show arpentry {ipif <ipif_name 12> | ipaddress <ipaddr> | static | mac_address <macaddr>}
clear arptable

7-1 create arpentry

Description

This command is used to enter an IP address and the corresponding MAC address into the switch's ARP table.

Format

create arpentry <ipaddr> <macaddr>

Parameters

<ipaddr> - The IP address of the end node or station.
<macaddr> - The MAC address corresponding to the IP address above.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create a static ARP entry for the IP address 10.48.74.121 and MAC address 00:50:BA:00:07:36:

```
DES-3810-28:admin#create arpentry 10.48.74.121 00-50-BA-00-07-36
Command: create arpentry 10.48.74.121 00-50-BA-00-07-36

Success.

DES-3810-28:admin#
```

7-2 delete arpentry

Description

This command is used to delete a static ARP entry, made using the **create arpentry** command above, by specifying either the IP address of the entry or all. Specifiesing **all** deletes the switch's ARP table.

Format

delete arpentry [<ipaddr> | all]

Parameters

<ipaddr> - The IP address of the end node or station.
all - Delete all ARP entries

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete an entry of IP address 10.48.74.121 from the ARP table:

```
DES-3810-28:admin#delete arpentry 10.48.74.121
Command: delete arpentry 10.48.74.121

Success.

DES-3810-28:admin#
```

7-3 config arpentry

Description

This command is used to configure a static entry in the ARP table. Specifies the IP address and MAC address of the entry.

Format

config arpentry <ipaddr> <macaddr>

Parameters

<ipaddr> - The IP address of the end node or station.
<macaddr> - The MAC address corresponding to the IP address above.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure a static ARP entry for the IP address 10.48.74.121 and MAC address 00:50:BA:00:07:36:

```
DES-3810-28:admin#config arpentry 10.48.74.121 00-50-BA-00-07-36
Command: config arpentry 10.48.74.121 00-50-BA-00-07-36

Success.

DES-3810-28:admin#
```

7-4 config arp_aging time

Description

This command is used to set the maximum amount of time, in minutes, that an ARP entry can remain in the switch's ARP table, without being accessed, before it is dropped from the table.

Format

config arp_aging time <value 0-65535>

Parameters

<value 0-65535> - The ARP age-out time, in minutes. The default is 20 minutes. The range is 0 to 65535 minutes.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the ARP aging time:

```
DES-3810-28:admin#config arp_aging time 30
Command: config arp_aging time 30

Success.

DES-3810-28:admin#
```

7-5 show arpentry

Description

This command is used to display the Address Resolution Protocol (ARP) table. Filter the display by IP address, interface name, static entries, or MAC address.

Format

show arpentry {ipif <ipif_name 12> | ipaddress <ipaddr> | static | mac_address <macaddr>}

Parameters

ipif - The name of the IP interface the end node or station for which the ARP table entry was

	made, resides on. **<ipif_name 12>** - Specifies the IP interface name. The maximum length is 12 characters.
ipaddress - The IP address of the end node or station.	
	<ipaddr> - Specifies the IP address.
static - Displays the static entries to the ARP table.	
mac_address - Displays the ARP entry by MAC address.	
	<macaddr> - Specifies the MAC address.

Note: If no parameter is specified, all ARP entries will be displayed.

Restrictions

None.

Example

To display the ARP table:

```
DES-3810-28:admin# show arpentry
Command: show arpentry

ARP Aging Time : 20

Interface       IP Address        MAC Address         Type
--------------  ----------------  ------------------  ---------------
System          10.0.0.0          FF-FF-FF-FF-FF-FF   Local/Broadcast
System          10.90.90.90       00-01-02-03-04-00   Local
System          10.255.255.255    FF-FF-FF-FF-FF-FF   Local/Broadcast

Total Entries: 3

DES-3810-28:admin#
```

7-6 clear arptable

Description

This command is used to remove dynamic entries from the ARP table. Static ARP entries are not affected.

Format

clear arptable

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To remove the dynamic entries from the ARP table:

```
DES-3810-28:admin#clear arptable
Command: clear arptable

Success.

DES-3810-28:admin#
```

Chapter 8 ARP Spoofing Prevention Commands

config arp_spoofing_prevention [add gateway_ip <ipaddr> gateway_mac <macaddr> ports [<portlist> | all] | delete gateway_ip <ipaddr>]
show arp_spoofing_prevention

8-1 config arp_spoofing_prevention

Description

The user can configure the spoofing prevention entry to prevent spoofing of MAC for the protected gateway. When an entry is created, those ARP packets whose sender IP matches the gateway IP of an entry, but either its sender MAC field or source MAC field does not match the gateway MAC of the entry will be dropped by the system.

Format

config arp_spoofing_prevention [add gateway_ip <ipaddr> gateway_mac <macaddr> ports [<portlist> | all] | delete gateway_ip <ipaddr>]

Parameters

add gateway_ip - Specifies a gateway IP to be added. **<ipaddr>** - Specifies the IP address. **gateway_mac** - Specifies a gateway MAC to be configured. **<macaddr>** - Specifies the MAC address. **ports** – Specifies the ports. **<portlist>** - Specifies a range of ports to be configured. **all** - Specifies all ports to be configured.
delete gateway_ip - Specifies a gateway IP to be deleted. **<ipaddr>** - Specifies the IP address.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the prevent IP spoofing attack:

```
DES-3810-28:admin#config arp_spoofing_prevention add gateway_ip 10.254.254.251
gateway_mac 00-00-00-11-11-11 ports 1-2
Command: config arp_spoofing_prevention add gateway_ip 10.254.254.251
gateway_mac 00-00-00-11-11-11 ports 1-2


Success.


DES-3810-28:admin#
```

8-2 show arp_spoofing_prevention

Description

This command is used to display the ARP spoofing prevention status.

Format

show arp_spoofing_prevention

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To display the ARP spoofing prevention status:

```
DES-3810-28:admin#show arp_spoofing_prevention
Command: show arp_spoofing_prevention

ARP Spoofing Prevention Table
Gateway IP Address Gateway MAC Address  Port
------------------ -------------------  --------------------
192.168.0.1        00-00-00-00-00-01    1-28

 Total Entries: 1

DES-3810-28:admin#
```

Chapter 9 Auto Config Commands

9-1 show autoconfig

Description

This command is used to display the status of automatically getting configuration from a TFTP server.

Format

show autoconfig

Parameters

None.

Restrictions

None.

Example

To display the DHCP auto configuration status:

```
DES-3810-28:admin#show autoconfig
Command: show autoconfig

Autoconfig State: Disabled

DES-3810-28:admin#
```

9-2 enable autoconfig

Description

This command is used to enable automatically to get configuration from a TFTP server according to the options in the DHCP reply packet. To employ this method, the DHCP server must be set up to deliver the TFTP server IP address and configuration file name information first.

Format

enable autoconfig

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable DHCP auto configuration status:

```
DES-3810-28:admin#enable autoconfig
Command: enable autoconfig

Success.

DES-3810-28:admin#
```

9-3 disable autoconfig

Description

This command is used to disable automatically to get configuration from a TFTP server.

Format

disable autoconfig

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable the DHCP auto configuration status:

```
DES-3810-28:admin#disable autoconfig
Command: disable autoconfig

Success.

DES-3810-28:admin#
```

Chapter 10 Basic IP Commands

config ipif <ipif_name 12> [{ipaddress <network_address> | vlan <vlan_name 32> | proxy_arp [enable | disable] {local [enable | disable]} | state [enable | disable]} | bootp | dhcp | ipv6 [ipv6address <ipv6networkaddr> | state [enable | disable]] | ipv4 state [enable | disable]]
create ipif <ipif_name 12> {<network_address>} <vlan_name 32> {secondary | state [enable | disable] | proxy_arp [enable | disable] {local [enable | disable]}}
delete ipif [<ipif_name 12> {ipv6address <ipv6networkaddr>} | all]
enable ipif [<ipif_name 12> | all]
disable ipif [<ipif_name 12> | all]
show ipif {<ipif_name 12>}
config out_band_ipif {ipaddress <network_address> | state [enable | disable] | gateway <ipaddr>}
show out_band_ipif
enable ipif_ipv6_link_local_auto [<ipif_name 12> | all]
disable ipif_ipv6_link_local_auto [<ipif_name 12> | all]
show ipif_ipv6_link_local_auto {<ipif_name 12>}

10-1 config ipif

Description

Configure the parameters for an L3 interface. For IPv4, only the system interface can be specified for the way to get the IP address. If the mode is set to BOOTP or DHCP, then the IPv4 address will be obtained through the operation of protocols. The manual configuration of the IP address will be of no use. If the mode is configured to BOOTP or DHCP first, and then the user configures IP address later, the mode will be changed to manual configured mode. For IPv6, multiple addresses can be defined on the same L3 interface. For IPv4, multi-netting must be done by creation of a secondary interface. Note that an IPv6 address is not allowed to be configured on a secondary interface.

Format

config ipif <ipif_name 12> [{ipaddress <network_address> | vlan <vlan_name 32> | proxy_arp [enable | disable] {local [enable | disable]} | state [enable | disable]} | bootp | dhcp | ipv6 [ipv6address <ipv6networkaddr> | state [enable | disable]] | ipv4 state [enable | disable]]

Parameters

<ipif_name 12> - The name of the IP interface.
ipaddress - (Optional) The IP address and netmask of the IP interface to be created. **<network_address>** - Specifies the address and mask information using the traditional format (for example, 10.1.2.3/255.0.0.0 or in CIDR format, 10.1.2.3/8).
vlan - (Optional) The name of the VLAN corresponding to the IP interface. **<vlan_name 32>** - Specifies the VLAN name. The maximum length is 32 characters.
proxy_arp - (Optional) Enable or disable the proxy ARP. This is for the IPv4 function. The default is disabled. **enable** - Enable the proxy ARP. **disable** - Disable the proxy ARP. **local** - (Optional) This setting controls whether the system provides the proxy reply for the

ARP packets destined for IP addresses located in the same interface as the received interface. When proxy ARP is enabled for an interface, the system will do the proxy reply for the ARP packets destined for IP addresses located on a different interface. For ARP packets destined for IP address located on the same interface, the system will check this setting to determine whether to reply. The default is disabled. **enable** - Enable the local proxy ARP function. **disable** - Disable the local proxy ARP function.
state - Enable or disable the IP interface. **enable** - Enable the IP interface. **disable** - Disable the IP interface.
bootp - Allows the selection of the BOOTP protocol for the assignment of an IP address to the switch's System IP interface.
dhcp - Allows the selection of the DHCP protocol for the assignment of an IP address to the switch's System.
ipv6 - The following are IPv6-related parameters. **ipv6address** - The IPv6 address and subnet prefix of the IPv6 address to be created. **<ipv6networkaddr>** - The IPv6 address and subnet prefix of the IPv6 address to be created. **state** - Enable or disable the IPv6 state of the IP interface. **enable** - Enable the IPv6 state of the IP interface. **disable** - Disable the IPv6 state of the IP interface.
ipv4 state - The state of the IPv4 interface. **enable** - Enable the IPv4 state of the IP interface. **disable** - Disable the IPv4 state of the IP interface.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the System IP interface:

```
DES-3810-28:admin#config ipif System vlan v1
Command: config ipif System vlan v1

Success.

DES-3810-28:admin#
```

10-2 create ipif

Description

This command is used to create an L3 interface. This interface can be configured with IPv4 or IPv6 addresses. Currently, it has a restriction: an interface can have only one IPv4 address defined. But it can have multiple IPv6 addresses defined. Thus, the multinetting configuration of IPv4 must be done through creation of a secondary interface on the same VLAN, instead of directly configuring multiple IPv4 addresses on the same interface. Configuration of IPv6 addresses must be done through the command **config ipif**.

Format

create ipif <ipif_name 12> {<network_address>} <vlan_name 32> {secondary | state [enable | disable] | proxy_arp [enable | disable] {local [enable | disable]}}

Parameters

<ipif_name 12> - Specifies the name of the interface.
<network_address> - (Optional) Specifies a host address and length of network mask.
<vlan_name 32> - Specifies the name of the VLAN corresponding to the IP interface. The maximum length is 32 characters.
secondary - The IPv4 secondary interface to be created.
state - The state of the IP interface. **enable** - Enable the state setting. **disable** - Disable the state setting.
proxy_arp - Enable or disable the proxy ARP function. It is for IPv4 function. The default is disabled. **enable** - Enable the proxy ARP function. **disable** - Disable the proxy ARP function.
local - (Optional) This setting controls whether the system provides the proxy reply for the ARP packets destined for IP address located on the same interface as the received interface. When proxy ARP is enabled for an interface, the system will do the proxy reply for the ARP packets destined for an IP address located on a different interface. For ARP packets destined for an IP address located on the same interface, the system will check this setting to determine whether to reply. The default is disabled. **enable** - Enable the local setting. **disable** - Disable the local setting.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create an IP interface petrovic1:

```
DES-3810-28:admin#create ipif petrovic1 100.1.1.2/16 VLAN598
Command: create ipif petrovic1 100.1.1.2/16 VLAN598

Success.

DES-3810-28:admin#
```

10-3 delete ipif

Description

This command is used to delete an interface or an IPv6 address.

Format

delete ipif [<ipif_name 12> {ipv6address <ipv6networkaddr>} | all]

Parameters

<ipif_name 12> - The name of the interface. **ipv6address** - (Optional) The IPv6 network address to be deleted. **<ipv6networkaddr>** - The IPv6 network address to be deleted.
all - All IP interfaces except the System IP interface will be deleted.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete interface petrovic1:

```
DES-3810-28:admin#delete ipif petrovic1
Command: delete ipif petrovic1

Success.

DES-3810-28:admin#
```

10-4 enable ipif

Description

This command is used to enable the state for an IPIF. When the state is enabled, the IPv4 processing will be started when an IPv4 address is configured on the IPIF. The IPv6 processing will be started when an IPv6 address is explicitly configured on the IPIF.

Format

enable ipif [<ipif_name 12> | all]

Parameters

<ipif_name 12> - The name of the interface.
all - All of the IP interfaces.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable the state for interface petrovic1:

```
DES-3810-28:admin#enable ipif petrovic1
Command: enable ipif petrovic1

Success.

DES-3810-28:admin#
```

10-5 disable ipif

Description

This command is used to disable the state of an interface.

Format

disable ipif [<ipif_name 12> | all]

Parameters

<ipif_name 12> - The name of the interface.
all - All of the IP interfaces.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable the state for an interface:

```
DES-3810-28:admin#disable ipif petrovic1
Command: disable ipif petrovic1

Success.

DES-3810-28:admin#
```

10-6 show ipif

Description

This command is used to display IP interface settings.

Format

show ipif {<ipif_name 12>}

Parameters

<ipif_name 12> - (Optional) The name of the interface.

Restrictions

None.

Example

To display IP interface settings:

```
DES-3810-28:admin# show ipif
Command: show ipif

IP Interface              : System
VLAN Name                 : default
Interface Admin. State    : Enabled
IPv4 Address              : 10.90.90.90/8 (Manual)  Primary
Proxy ARP                 : Disabled   (Local : Disabled)
IPv4 State                : Enabled
IPv6 State                : Enabled

IP Interface              : mgmt_ipif
Status                    : Enabled
IP Address                : 192.168.0.1
Subnet Mask               : 255.255.255.0
Gateway                   : 0.0.0.0
Link Status               : LinkDown

Total Entries : 2

DES-3810-28:admin#
```

10-7 config out_band_ipif

Description

This command is used to configure the out of band management port settings.

Format

config out_band_ipif {ipaddress <network_address> | state [enable | disable] | gateway <ipaddr>} (1)

Parameters

ipaddress - Specifies the IP address of the interface. The parameter must include the mask. **<network_address>** - Specifies the IP address of the interface. The parameter must include the mask.
state – Specifies the interface status. **enable** - Specifies to enable the interface. **disable** - Specifies to disable the interface.
gateway - Specifies the gateway IP address of the out-of-band management network. **<ipaddr>** - Specifies the gateway IP address.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable the out-of-band management state:

```
DES-3810-28:admin#config out_band_ipif state disable
Command: config out_band_ipif state disable

Success.

DES-3810-28:admin#
```

10-8 show out_band_ipif

Description

This command is used to display the current configurations of special out-of-band management interfaces.

Format

show out_band_ipif

Parameters

None.

Restrictions

None.

Example

To display the configuration of out-of-band management interfaces:

```
DES-3810-28:admin#show out_band_ipif
Command: show out_band_ipif

Status            : Enabled
IP Address        : 192.168.0.1
Subnet Mask       : 255.255.255.0
Gateway           : 0.0.0.0
Link Status       : LinkDown

DES-3810-28:admin#
```

10-9 enable ipif_ipv6_link_local_auto

Description

This command is used to enable the auto configuration of link local address when there are no IPv6 addresses explicitly configured. When an IPv6 address is explicitly configured, the link local address will be automatically configured, and the IPv6 processing will be started. When there is no IPv6 address explicitly configured, by default, link local address is not configured and the IPv6 processing will be disabled. By enabling this automatic configuration, the link local address will be automatically configured and IPv6 processing will be started.

Format

enable ipif_ipv6_link_local_auto [<ipif_name 12> | all]

Parameters

<ipif_name 12> - The name of the interface.
all - All of the IP interfaces.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable the automatic configuration of link local address for an interface:

```
DES-3810-28:admin#enable ipif_ipv6_link_local_auto interface1
Command: enable ipif_ipv6_link_local_auto interface1

Success.

DES-3810-28:admin#
```

10-10 disable ipif_ipv6_link_local_auto

Description

This command is used to disable the auto configuration of link local address when no IPv6 address is explicitly configured.

Format

disable ipif_ipv6_link_local_auto [<ipif_name 12> | all]

Parameters

<ipif_name 12> - The name of the interface.
all - All of the IP interfaces.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable the automatic configuration of link local address for an interface:

```
DES-3810-28:admin#disable ipif_ipv6_link_local_auto interface1
Command: disable ipif_ipv6_link_local_auto interface1

Success.

DES-3810-28:admin#
```

10-11 show ipif_ipv6_link_local_auto

Description

This command is used to display the link local address automatic configuration state.

Format

show ipif_ipv6_link_local_auto {<ipif_name 12>}

Parameters

<ipif_name 12> - (Optional) The name of the interface.

Restrictions

None.

Example

To display the link local address automatic configuration state:

```
DES-3810-28:admin#show ipif_ipv6_link_local_auto
Command: show ipif_ipv6_link_local_auto

 IPIF: System          Automatic Link Local Address: Disabled

DES-3810-28:admin#
```

Chapter 11 BPDU Attack Protection Commands

config bpdu_protection ports [<portlist> | all] {state [enable | disable] | mode [drop | block | shutdown]} (1)
config bpdu_protection recovery_timer [<sec 60-1000000> | infinite]
config bpdu_protection [trap | log] [none | attack_detected | attack_cleared | both]
enable bpdu_protection
disable bpdu_protection
show bpdu_protection {ports {<portlist>}}

11-1 config bpdu_protection ports

Description

This command is used to configure port state and mode for BPDU protection.

Format

config bpdu_protection ports [<portlist> | all] {state [enable | disable] | mode [drop | block | shutdown]} (1)

Parameters

<portlist> - Specifies a range of ports to be configured.
all - Specifies to set all ports in the system.
state - Specifies the BPDU protection state. The default state is disabled. **enable** - Enable the BPDU protection state. **disable** - Disable the BPDU protection state.
mode - Specifies the BPDU protection mode. The default mode is shutdown. **drop** - Specifies to drop all received BPDU packets when the port enters the under attack state. **block** - Specifies to drop all packets (include BPDU and normal packets) when the port enters the under attack state. **shutdown**- Specifies to shut down the port when the port enters the under attack state.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure port state to enable and drop mode:

```
DES-3810-28:admin#config bpdu_protection ports 1 state enable mode drop
Command: config bpdu_protection ports 1 state enable mode drop

Success.

DES-3810-28:admin#
```

11-2 config bpdu_protection recovery_timer

Description

When a port enters the under attack state, it can be disabled or blocked based on the configuration. The state can be recovered manually or by the auto recovery mechanism. This command is used to configure the auto-recovery timer. To manually recover the port, the user needs to disable and re-enable the port.

Format

config bpdu_protection recovery_timer [<sec 60-1000000> | infinite]

Parameters

<sec 60-1000000> - Specifies the timer (in seconds) used by the Auto-recovery mechanism to recover the port. The valid range is 60 to 1000000. Auto-recovery time is 60 seconds by default.
infinite - Specifies the port will not be auto recovered.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the BPDU protection recovery timer to 120 seconds for the entire switch:

```
DES-3810-28:admin#config bpdu_protection recovery_timer 120
Command: config bpdu_protection recovery_timer 120

Success.

DES-3810-28:admin#
```

11-3 config bpdu_protection

Description

This command is used to configure the BPDU protection trap state or log state.

Format

config bpdu_protection [trap | log] [none | attack_detected | attack_cleared | both]

Parameters

trap - Specifies the trap state.
log - Specifies the log state.
none - Specifies neither attack_detected nor attack_cleared is trapped or logged.
attack_detected - Specifies events will be logged or trapped when the BPDU attacks is detected.
attack_cleared - Specifies events will be logged or trapped when the BPDU attacks is cleared.
both - Specifies the events of attack_detected and attack_cleared shall be trapped or logged.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the BPDU protection trap state as both for the entire switch:

```
DES-3810-28:admin#config bpdu_protection trap both
Command: config bpdu_protection trap both

Success.

DES-3810-28:admin#
```

11-4 enable bpdu_protection

Description

This command is used to enable BPDU protection globally for the entire switch.

Format

enable bpdu_protection

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable BPDU protection for the entire switch:

```
DES-3810-28:admin#enable bpdu_protection
Command: enable bpdu_protection

Success.

DES-3810-28:admin#
```

11-5 disable bpdu_protection

Description

This command is used to disable BPDU protection globally for the entire switch.

Format

disable bpdu_protection

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable BPDU protection:

```
DES-3810-28:admin#disable bpdu_protection
Command: disable bpdu_protection

Success.

DES-3810-28:admin#
```

11-6 show bpdu_protection

Description

This command is used to display BPDU protection global configuration or per port configuration and current status.

Format

show bpdu_protection {ports {<portlist>}}

Parameters

ports - (Optional) Specifies all ports to be displayed. **<portlist>** - (Optional) Specifies a range of ports to be displayed.

Restrictions

None.

Example

To display BPDU protection information for the entire switch:

```
DES-3810-28:admin#show bpdu_protection
Command: show bpdu_protection

BPDU Protection Global Settings
---------------------------------------
BPDU Protection Status        : Disabled
BPDU Protection Recover Time  : 60 seconds
BPDU Protection Trap State    : None
BPDU Protection Log State     : Both

DES-3810-28:admin#
```

To display BPDU protection status for ports 1 to 3:

```
DES-3810-28:admin#show bpdu_protection ports 1-3
Command: show bpdu_protection ports 1-3

Port  State        Mode       Status
----- -----------  ---------- -----------
1    Disabled     Shutdown   Normal
2    Disabled     Shutdown   Normal
3    Disabled     Shutdown   Normal

DES-3810-28:admin#
```

Chapter 12 Cable Diagnostics Commands

cable_diag ports [<portlist> | all]

12-1 cable_diag ports

Description

This command is used to test copper cabling. For 10/100Based-TX link speed RJ45 cable, two pairs of cable will be diagnosed. For 1000Base-T link speed RJ45 cable, four pairs of cable will be diagnosed. The type of cable errors can be open, short, or crosstalk. Open means that the cable in the error pair does not have a connection at the specified position, short means that the cables in the error pair has a short problem at the specified position, and crosstalk means that the cable in the error pair has a crosstalk problem at the specified position.

When a port is in link-up status, the test will obtain the distance of the cable. Since the status is link-up, the cable will not have the short or open problem. The test may still detect the crosstalk problem, however.

When a port is in link-down status, the link-down may be caused by many factors.

When the port has a normal cable connection, but the remote partner is powered off, the cable diagnosis can still diagnose the health of the cable as if the remote partner is powered on. When the port does not have any cable connection, the result of the test will indicate no cable. The test will detect the type of error and the position where the error occurs.

Note: This test will consume a low number of packets. Since this test is for copper cable, the port with fiber cable will be skipped from the test.

Format

cable_diag ports [<portlist> | all]

Parameters

<portlist> - Specifies a range of ports to be tested.
all – Specifies that all the ports will be tested.

Restrictions

Only Administrators can issue this command.

Example

To test the cable on ports 1 to 4, and 8:

```
DES-3810-28:admin#cable_diag ports 1-4, 8
Command: cable_diag ports 1-4, 8
Perform Cable Diagnostics ...

 Port     Type         Link Status         Test Result      Cable Length(M)
 ---- ------------ ----------------  ---------------------- -------------
  1     FE           Link Up             OK                       -
  2     FE           Link Down           No Cable                 -
  3     FE           Link Down           No Cable                 -
  4     FE           Link Down           No Cable                 -
  8     FE           Link Down           No Cable                 -


DES-3810-28:admin#
```

Chapter 13 CFM Commands

create cfm md <string 22> level <int 0-7>
config cfm md <string 22> {mip [none | auto | explicit] | sender_id [none | chassis | manage | chassis_manage]}(1)
create cfm ma <string 22> md <string 22>
config cfm ma <string 22> md <string 22> {vlanid <vlanid 1-4094> | mip [none | auto | explicit | defer] | sender_id [none | chassis | manage | chassis_manage | defer] | ccm_interval [10ms | 100ms | 1sec | 10sec | 1min | 10min] | mepid_list [add | delete] <mepid_list> } (1)
create cfm mep <string 32> mepid <int 1-8191> md <string 22> ma <string 22> direction [inward | outward] port <port>
config cfm mep [mepname <string 32> | mepid <int 1-8191> md <string 22> ma <string 22>] {state [enable | disable] | ccm [enable | disable] | pdu_priority <int 0-7> | fault_alarm [all | mac_status | remote_ccm | error_ccm | xcon_ccm | none] | alarm_time <centisecond 250-1000> | alarm_reset_time <centisecond 250-1000>} (1)
delete cfm mep [mepname <string 32> | mepid <int 1-8191> md <string 22> ma <string 22>]
delete cfm ma <string 22> md <string 22>
delete cfm md <string 22>
enable cfm
disable cfm
config cfm ports <portlist> state [enable | disable]
show cfm ports <portlist>
show cfm {[md <string 22> {ma <string 22> {mepid <int 1-8191>}} | mepname <string 32>]}
show cfm fault {md <string 22> {ma <string 22>}}
show cfm port <port> {level <int 0-7> | direction [inward | outward] | vlanid <vlanid 1-4094>}
cfm lock md <string 22> ma <string 22> mepid <int 1-8191> remote_mepid <int 1-8191> action [start | stop]
cfm loopback <macaddr> [mepname <string 32> | mepid <int 1-8191> md <string 22> ma <string 22>] {num <int 1-65535> | [length <int 0-1500> | pattern <string 1500>] | pdu_priority <int 0-7>}
cfm linktrace <macaddr> [mepname <string 32> | mepid <int 1-8191> md <string 22> ma <string 22>] {ttl <int 2-255> | pdu_priority <int 0-7>}
show cfm linktrace [mepname <string 32> | mepid <int 1-8191> md <string 22> ma <string 22>] {trans_id <uint>}
delete cfm linktrace {[md <string 22> {ma <string 22> {mepid <int 1-8191>}} | mepname <string 32>]}
config cfm mp_ltr_all [enable | disable]
show cfm mipccm
show cfm mp_ltr_all
show cfm pkt_cnt {[ports <portlist> {[rx | tx]} | [rx | tx] | ccm]}
clear cfm pkt_cnt {[ports <portlist> {[rx | tx]} | [rx | tx] | ccm]}
show cfm remote_mep [mepname <string 32> | md <string 22> ma <string 22> mepid <int 1-8191>] remote_mepid <int 1-8191>
config cfm ccm_fwd [software | hardware]
show cfm ccm_fwd
config cfm ais md <string 22> ma <string 22> mepid <int 1-8191> {period [1sec | 1min] | level <int 0-7> | state [enable | disable]}
config cfm lock md <string 22> ma <string 22> mepid <int 1-8191> {period [1sec | 1min] | level <int 0-7> | state [enable | disable]}

13-1 create cfm md

Description

This command is used to create a CFM maintenance domain.

Format

create cfm md <string 22> level <int 0-7>

Parameters

<string 22> - Specifies the maintenance domain name.
level - Specifies the maintenance domain level. **<int 0-7>** - Specifies the maintenance domain level from 0 to 7.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create a CFM maintenance domain called “op_domain” and assign a maintenance domain level of “2”:

```
DES-3810-28:admin#create cfm md op_domain level 2
Command: create cfm md op_domain level 2

Success.

DES-3810-28:admin#
```

13-2 config cfm md

Description

This command is used to configure the parameters of a maintenance domain. The creation of MIPs on an MA is useful to trace the link, MIP by MIP. It also allows the user to perform a loopback from an MEP to an MIP.

Format

config cfm md <string 22> {mip [none | auto | explicit] | sender_id [none | chassis | manage | chassis_manage]}(1)

Parameters

<string 22> - Specifies the maintenance domain name.
mip - This is the control creations of MIPs. **none** - Do not create MIPs. This is the default value. **auto** - MIPs can always be created on any port in this MD if the port is not configured with an MEP of this MD. **explicit** - MIPs can only be created on any port in this MD if the next existing lower level has

an MEP configured on that port, and that port is not configured with an MEP of this MD.
sender_id – Specifies the control transmission of the sender ID TLV. **none** - Do not transmit the sender ID TLV. This is the default value. **chassis** - Transmit the sender ID TLV with the chassis ID information. **manage** - Transmit the sender ID TLV with the managed address information. **chassis_manage** - Transmit the sender ID TLV with chassis ID information and manage address information.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the maintenance domain called “op_domain” and specify the explicit option for creating MIPs:

```
DES-3810-28:admin#config cfm md op_domain mip explicit
Command: config cfm md op_domain mip explicit

Success.

DES-3810-28:admin#
```

13-3 create cfm ma

Description

This command is used to create a maintenance association. Different MAs in a MD must have different MA Names. Different MAs in different MDs may have the same MA Name.

Format

create cfm ma <string 22> md <string 22>

Parameters

<string 22> - Specifies the maintenance association name.
md - Specifies the maintenance domain name. **<string 22>** - Specifies the maintenance domain name. The maximum length is 22 characters.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create a maintenance association called “op1” and assign it to the maintenance domain “op_domain”:

```
DES-3810-28:admin#create cfm ma op1 md op_domain
Command: create cfm ma op1 md op_domain

Success.

DES-3810-28:admin#
```

13-4 config cfm ma

Description

This command is used to configure the parameters of a maintenance association. The MEP list specified for an MA can be located in different devices. MEPs must be created on the ports of these devices explicitly. An MEP will transmit a CCM packet periodically across the MA. The receiving MEP will verify these received CCM packets from the other MEPs against this MEP list for the configuration integrity check.

Format

config cfm ma <string 22> md <string 22> {vlanid <vlanid 1-4094> | mip [none | auto | explicit | defer] | sender_id [none | chassis | manage | chassis_manage | defer] | ccm_interval [10ms | 100ms | 1sec | 10sec | 1min | 10min] | mepid_list [add | delete] <mepid_list>} (1)

Parameters

<string 22> - Specifies the maintenance association name. The maximum length is 22 characters.
md - Specifies the maintenance domain name. **<string 22>** - Specifies the maintenance domain name. The maximum length is 22 characters.
vlanid - Specifies the VLAN Identifier. Different MAs must be associated with different VLANs. **<vlanid 1-4094>** - Specifies the VLAN ID between 1 and 4094.
mip - This is the control creation of MIPs. **none** - Do not create MIPs. **auto** - MIPs can always be created on any port in this MA if that port is not configured with an MEP of that MA. **explicit** - MIPs can be created on any ports in this MA only if the next existing lower level has an MEP configured on that port, and that port is not configured with an MEP of this MA. **defer** - Inherit the setting configured for the maintenance domain that this MA is associated with. This is the default value.
sender_id - This is the control transmission of the sender ID TLV. **none** - Do not transmit the sender ID TLV. This is the default value. **chassis** - Transmit the sender ID TLV with the chassis ID information. **manage** - Transmit the sender ID TLV with the manage address information. **chassis_manage** - Transmit the sender ID TLV with the chassis ID information and the manage address information. **defer** - Inherit the setting configured for the maintenance domain that this MA is associated with. This is the default value.
ccm_interval - Specifies the CCM interval. The default value is ten seconds. **10ms** - 10 milliseconds. Not recommended. For test purposes. **100ms** - 100 milliseconds. Not recommended. For test purposes. **1sec** - One second. **10sec** - Ten seconds. **1min** - One minute.

10min - Ten minutes.
mepid_list - Specifies the MEPIDs contained in the maintenance association. **add** - Add MEPID(s). **delete** - Delete MEPID(s). **<mepid_list>** - Specifies the MEPIDs contained in the maintenance association. The range of the MEPID is 1 to 8191.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the parameters of a maintenance association:

```
DES-3810-28:admin#config cfm ma op1 md op_domain vlan 1 ccm_interval 1sec
Command: config cfm ma op1 md op_domain vlan 1 ccm_interval 1sec

Success.

DES-3810-28:admin#
```

13-5 create cfm mep

Description

This command is used to create an MEP entry. Different MEPs in the same MA must have a different MEPID. To put MD name, MA name, and MEPID together identifies an MEP. Different MEPs on the same device must have a different MEP name. Before creating an MEP, its MEPID should be configured in the MA's MEPID list.

Format

create cfm mep <string 32> mepid <int 1-8191> md <string 22> ma <string 22> direction [inward | outward] port <port>

Parameters

<string 32> - Specifies the MEP name. It is unique among all MEPs configured on the device.
mepid - Specifies the MEP MEPID. It should be configured in the MA's MEPID list. **<int 1-8191>** - Specifies the MEP MEPID between 1 and 8191.
md - Specifies the maintenance domain name. **<string 22>** - Specifies the maintenance domain name. The maximum length is 22 characters.
ma - Specifies the maintenance association name. **<string 22>** - Specifies the maintenance association name. The maximum length is 22 characters.
direction - Specifies the MEP direction. **inward** - Inward facing (up) MEP. **outward** - Outward facing (down) MEP.
port - Specifies the port number. This port should be a member of the MA's associated VLAN. **<port>** - Specifies a port.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create an MEP:

```
DES-3810-28:admin#create cfm mep mep1 mepid 1 md op_domain ma op1 direction
inward port 2
Command: create cfm mep mep1 mepid 1 md op_domain ma op1 direction inward port
2


Success.


DES-3810-28:admin#
```

13-6 config cfm mep

Description

This command is used to configure the parameters of an MEP. An MEP may generate five types of Fault Alarms, as shown below by their priorities from high to low:

1. Cross-connect CCM Received: priority 5
2. Error CCM Received: priority 4
3. Some Remote MEPs Down: priority 3
4. Some Remote MEP MAC Status Errors: priority 2
5. Some Remote MEP Defect Indications: priority 1

If multiple types of the fault occur on an MEP, only the fault with the highest priority will be alarmed.

Format

config cfm mep [mepname <string 32> | mepid <int 1-8191> md <string 22> ma <string 22>] {state [enable | disable] | ccm [enable | disable] | pdu_priority <int 0-7> | fault_alarm [all | mac_status | remote_ccm | error_ccm | xcon_ccm | none] | alarm_time <centisecond 250-1000> | alarm_reset_time <centisecond 250-1000>} (1)

Parameters

mepname - Specifies the MEP name. **<string 32>** - Specifies the MEP name. The maximum length is 32 characters.
mepid - Specifies the MEP MEPID. **<int 1-8191>** - Specifies the MEP MEPID between 1 and 8191. **md** - Specifies the maintenance domain name. **<string 22>** - Specifies the maintenance domain name. The maximum length is 22 characters. **ma** - Specifies the maintenance association name. **<string 22>** - Specifies the maintenance association name. The maximum length is 22 characters.
state - Specifies the MEP administrative state. The default is disable. **enable** - Enable MEP. **disable** - Disable MEP.
ccm - Specifies the CCM transmission state. The default is disable. **enable** - Enable the CCM transmission.

disable - Disable the CCM transmission.
pdu_priority - The 802.1p priority is set in the CCM and the LTM messages transmitted by the MEP. The default value is 7. **<int 0-7>** - Specifies the value between 0 and 7.
fault_alarm - This is the control types of the fault alarms sent by the MEP. The default value is none. **all** - All types of fault alarms will be sent. **mac_status** - Only the fault alarms whose priority is equal to or higher than “Some Remote MEP MAC Status Errors” are sent. **remote_ccm** - Only the fault alarms whose priority is equal to or higher than “Some Remote MEPs Down” are sent. **error_ccm** - Only the fault alarms whose priority is equal to or higher than “Error CCM Received” are sent. **xcon_ccm** - Only the fault alarms whose priority is equal to or higher than “Cross-connect CCM Received” are sent. **none** - No fault alarm is sent.
alarm_time - Specifies the time that a defect must exceed before the fault alarm can be sent. The unit is centiseconds. The default value is 250. **<centisecond 250-1000>** - Specifies the time that a defect must exceed before the fault alarm can be sent. The unit is centiseconds. The range is 250 to 1000.
alarm_reset_time - Specifies the dormant duration time before a defect is triggered before the fault can be re-alarmed. The unit is centiseconds. The default value is 1000. **<centisecond 250-1000>** - Specifies the dormant duration time before a defect is triggered before the fault can be re-alarmed. The unit is centiseconds. The range is 250 to 1000.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the parameters of an MEP:

```
DES-3810-28:admin#config cfm mep mepname mep1 state enable ccm enable
Command: config cfm mep mepname mep1 state enable ccm enable

Success.

DES-3810-28:admin#
```

13-7 delete cfm mep

Description

This command is used to delete a previously created MEP.

Format

delete cfm mep [mepname <string 32> | mepid <int 1-8191> md <string 22> ma <string 22>]

Parameters

mepname - Specifies the MEP name. **<string 32>** - Specifies the MEP name. The maximum length is 32 characters.
mepid - Specifies the MEP MEPID.

<int 1-8191> - Specifies the MEP MEPID between 1 and 8191. **md** - Specifies the maintenance domain name. **<string 22>** - Specifies the maintenance domain name. The maximum length is 22 characters. **ma** - Specifies the maintenance association name. **<string 22>** - Specifies the maintenance association name. The maximum length is 22 characters.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete a previously created MEP:

```
DES-3810-28:admin#delete cfm mep mepname mep1
Command: delete cfm mep mepname mep1

Success.

DES-3810-28:admin#
```

13-8 delete cfm ma

Description

This command is used to delete a created maintenance association.

Format

delete cfm ma <string 22> md <string 22>

Parameters

<string 22> - Specifies the maintenance association name. The maximum length is 22 characters.
md - Specifies the maintenance domain name. **<string 22>** - Specifies the maintenance domain name. The maximum length is 22 characters.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete a created maintenance association:

```
DES-3810-28:admin#delete cfm ma op1 md op_domain
Command: delete cfm ma op1 md op_domain

Success.
```

```
DES-3810-28:admin#
```

13-9 delete cfm md

Description

This command is used to delete a previously created maintenance domain. All the MEPs and maintenance associations created in the maintenance domain will be deleted automatically.

Format

delete cfm md <string 22>

Parameters

<string 22> - Specifies the maintenance domain name. The maximum length is 22 characters.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete a previously created maintenance domain:

```
DES-3810-28:admin#delete cfm md op_domain
Command: delete cfm md op_domain

Success.

DES-3810-28:admin#
```

13-10 enable cfm

Description

This command is used to enable the CFM globally.

Format

enable cfm

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable the CFM globally:

```
DES-3810-28:admin#enable cfm
Command: enable cfm

Success.

DES-3810-28:admin#
```

13-11 disable cfm

Description

This command is used to disable the CFM globally.

Format

disable cfm

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable the CFM globally:

```
DES-3810-28:admin#disable cfm
Command: disable cfm

Success.

DES-3810-28:admin#
```

13-12 config cfm ports

Description

This command is used to enable or disable the CFM function on a per-port basis. By default, the CFM function is disabled on all ports. If the CFM is disabled on a port:

1. MIPs are never created on that port.
2. MEPs can still be created on that port, and the configuration can be saved.
3. MEPs created on that port can never generate or process CFM PDUs. If the user issues a Loopback or Link trace test on those MEPs, it will prompt the user to inform them that the CFM function is disabled on that port

Format

config cfm ports <portlist> state [enable | disable]

Parameters

<portlist> - Specifies the logical port list.
state - Specifies the CFM function status. **enable** - Specifies to enable the CFM function. **disable** - Specifies to disable the CFM function.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable the CFM function on ports 2 to 5:

```
DES-3810-28:admin#config cfm ports 2-5 state enable
Command: config cfm ports 2-5 state enable

Success.

DES-3810-28:admin#
```

13-13 show cfm ports

Description

This command is used to display the CFM state of specified ports.

Format

show cfm ports <portlist>

Parameters

<portlist> - Specifies the logical port list.

Restrictions

None.

Example

To display the CFM state for ports 3 to 6:

```
DES-3810-28:admin#show cfm ports 3-6
Command: show cfm ports 3-6

Port    State
-----   -------
3       Enabled
4       Enabled
5       Enabled
6       Enabled

DES-3810-28:admin#
```

13-14 show cfm

Description

This command is used to display the CFM configuration.

Format

show cfm {[md <string 22> {ma <string 22> {mepid <int 1-8191>}} | mepname <string 32>]}

Parameters

md - (Optional) Specifies the maintenance domain name. **<string 22>** - Specifies the maintenance domain name. The maximum length is 22 characters. **ma** - (Optional) Specifies the maintenance association name. **<string 22>** - Specifies the maintenance association name. The maximum length is 22 characters. **mepid** - (Optional) Specifies the MEPID. **<int 1-8191>** - Specifies the MEP MEPID between 1 and 8191.
mepname - (Optional) Specifies the MEP name. **<string 32>** - Specifies the MEP name. The maximum length is 32 characters.

Restrictions

None.

Example

To display the CFM configuration:

```
DES-3810-28:admin#show cfm
Command: show cfm

CFM State: Enabled

Level MD Name
----- ------------------
2     op_domain

DES-3810-28:admin#
```

13-15 show cfm fault

Description

This command is used to display all the fault conditions detected by the MEPs contained in the specified MA or MD. The display provides the overview of the fault status by MEPs.

Format

show cfm fault {md <string 22> {ma <string 22>}}

Parameters

md - (Optional) Specifies the maintenance domain name.
<string 22> - Specifies the maintenance domain name. The maximum length is 22 characters.
ma - (Optional) Specifies the maintenance association name.
<string 22> - Specifies the maintenance association name. The maximum length is 22 characters.

Restrictions

None.

Example

To display the MEPs that have faults:

```
DES-3810-28:admin#show cfm fault
Command: show cfm fault

MD Name     MA Name    MEPID     Status
----------- ---------- --------- ----------------------
op_domain   op1        1         Cross-connect CCM Received

DES-3810-28:admin#
```

13-16 show cfm port

Description

This command is used to display MEPs and MIPs created on a port.

Format

show cfm port <port> {level <int 0-7> | direction [inward | outward] | vlanid <vlanid 1-4094>}

Parameters

<port> - Specifies the port number.
level - (Optional) Specifies the maintenance domain level. If not specified, all levels are shown.
<int 0-7> - Specifies the value between 0 and 7.

direction - (Optional) Specifies the MEP direction. **inward** - Specifies inward facing MEP. **outward** - Specifies outward facing MEP.
vlanid - (Optional) Specifies the VLAN identifier. If not specified, all VLANs are displayed. **<vlanid 1-4094>** - Specifies the VLAN ID between 1 and 4094.

Restrictions

None.

Example

To display a CFM port:

```
DES-3810-28:admin#show cfm port 1
Command: show cfm port 1

MAC Address: 00-05-78-82-32-01

MD Name     MA Name    MEPID  Level    Direction  VID
----------- ---------- ------- ------- --------- ---
op_domain    op1        1      2       inward    2
cust_domain  cust1      8      4       inward    2
serv_domain  serv2      MIP    3                 2

DES-3810-28:admin#
```

13-17 cfm lock md

Description

This command is used to start/stop cfm management lock. This command will result in the MEP sends a LCK PDU to client level MEP.

Format

cfm lock md <string 22> ma <string 22> mepid <int 1-8191> remote_mepid <int 1-8191> action [start | stop]

Parameters

md - Specifies the maintenance domain name. **<string 22>** - Enter the maintenance domain name here. This name can be up to 22 characters long.
ma - Specifies the maintenance association name. **<string 22>** - Enter the maintenance association name here. This name can be up to 22 characters long.
mepid - The MEP ID in the MD which sends LCK frame. **<int 1-8191>** - Enter the MEP ID value here. This value must be between 1 and 8191.
remote_mepid - The peer MEP is the target of management action. **<int 1-8191>** - Enter the remote MEP ID used here. This value must be between 1 and 8191.
action - Specifies to start or to stop the management lock function. **start** - Specifies to start the management lock function. **stop** - Specifies to stop the management lock function.

Restrictions

Only Administrators and Operators can issue this command.

Example

To start management lock:

```
DES-3810-28:admin# cfm lock md op-domain ma op-ma mepid 1 remote_mepid 2 action
start
Command: cfm lock md op-domain ma op-ma mepid 1 remote_mepid 2 action start

Success.

DES-3810-28:admin#
```

13-18 cfm loopback

Description

This command is used to start a CFM loopback test. Press Ctrl+C to exit the loopback test. The MAC address represents the destination MEP or MIP that can be reached by this MAC address. The MEP represents the source MEP to initiate the loopback message.

Format

cfm loopback <macaddr> [mepname <string 32> | mepid <int 1-8191> md <string 22> ma <string 22>] {num <int 1-65535> | [length <int 0-1500> | pattern <string 1500>] | pdu_priority <int 0-7>}

Parameters

<macaddr> - Specifies the destination MAC address.
mepname - Specifies the MEP name. **<string 32>** - Specifies the MEP name. The maximum length is 32 characters.
mepid - (Optional) Specifies the MEPID. **<int 1-8191>** - Specifies the MEP MEPID between 1 and 8191. **md** - (Optional) Specifies the maintenance domain name. **<string 22>** - Specifies the maintenance domain name. The maximum length is 22 characters. **ma** - (Optional) Specifies the maintenance association name. **<string 22>** - Specifies the maintenance association name. The maximum length is 22 characters.
num - (Optional) Specifies the number of LBMs to be sent. The default value is 4. **<int 1-65535>** - Specifies the value between 1 and 65535.
length - (Optional) Specifies the payload length of the LBM to be sent. The default is 0. **<int 0-1500>** - Specifies the value between 0 and 1500.
pattern - (Optional) Specifies an amount of data to be included in a Data TLV, along with an indication whether the Data TLV is to be included. **<string 1500>** - Specifies the value between 0 and 1500.
pdu_priority - (Optional) Specifies the 802.1p priority to be set in the transmitted LBMs. If not specified, it uses the same priority as CCMs and LTMs sent by the MA **<int 0-7>** - Specifies the value between 0 and 7.

Restrictions

None.

Example

To start a CFM loopback test:

```
DES-3810-28:admin#cfm loopback 00-01-02-03-04-05 mepname mep1
Command: cfm loopback 00-01-02-03-04-05 mepname mep1

Request timed out.
Request timed out.
Reply from MPID 52: bytes=xxx time=xxxms
Request timed out.

CFM loopback statistics for 00-01-02-03-04-05:
   Packets: Sent=4, Received=1, Lost=3(75% loss)

DES-3810-28:admin#
```

13-19 cfm linktrace

Description

This command is used to issue a CFM linktrace message.

Format

cfm linktrace <macaddr> [mepname <string 32> | mepid <int 1-8191> md <string 22> ma <string 22>] {ttl <int 2-255> | pdu_priority <int 0-7>}

Parameters

<macaddr> - Specifies the destination MAC address.
mepname - Specifies the MEP name. **<string 32>** - Specifies the MEP name. The maximum length is 32 characters.
mepid - (Optional) Specifies the MEPID. **<int 1-8191>** - Specifies the MEP MEPID between 1 and 8191. **md** - (Optional) Specifies the maintenance domain name. **<string 22>** - Specifies the maintenance domain name. The maximum length is 22 characters. **ma** - (Optional) Specifies the maintenance association name. **<string 22>** - Specifies the maintenance association name. The maximum length is 22 characters.
ttl - (Optional) Specifies the link trace message TTL value. The default value is 64. **<int 2-255>** - Specifies the link trace message TTL value. Enter a value between 2 and 255.
pdu_priority - (Optional) Specifies the 802.1p priority to be set in the transmitted LBMs. If not specified, it uses the same priority as CCMs and LTMs sent by the MA. **<int 0-7>** - Specifies the 802.1p priority to be set in the transmitted LBMs. If not specified, it uses the same priority as CCMs and LTMs sent by the MA. Enter a value between 0 and 7.

Restrictions

None.

Example

To transmit a LTM:

```
DES-3810-28:admin#cfm linktrace 00-01-02-03-04-05 mepname mep1
Command: cfm linktrace 00-01-02-03-04-05 mepname mep1

Transaction ID: 26
Success.

DES-3810-28:admin#
```

13-20 show cfm linktrace

Description

This command is used to display the link trace responses. The maximum linktrace responses a device can hold is 128.

Format

show cfm linktrace [mepname <string 32> | mepid <int 1-8191> md <string 22> ma <string 22>] {trans_id <uint>}

Parameters

mepname - Specifies the MEP name. **<string 32>** - Specifies the MEP name. The maximum length is 32 characters.
mepid - (Optional) Specifies the MEPID. **<int 1-8191>** - Specifies the MEP MEPID between 1 and 8191. **md** - (Optional) Specifies the maintenance domain name. **<string 22>** - Specifies the maintenance domain name. The maximum length is 22 characters. **ma** - (Optional) Specifies the maintenance association name. **<string 22>** - Specifies the maintenance association name. The maximum length is 22 characters.
trans_id - (Optional) The identifier of the transaction to be displayed. **<uint>** - The identifier of the transaction to be displayed.

Restrictions

None.

Example

To display a CFM linktrace reply:

```
DES-3810-28:admin#show cfm linktrace mepname mep1
Command: show cfm linktrace mepname mep1

Trans ID  Source MEP    Destination
--------- ------------- ------------------
26        mep1          XX-XX-XX-XX-XX-XX
```

```
DES-3810-28:admin#
```

To display a CFM linktrace reply:

```
DES-3810-28:admin#show cfm linktrace mepname mep2 trans_id 0
Command: show cfm linktrace mepname mep2 trans_id 0

Transaction ID: 0
From MEP mep2 to 00-01-02-03-04-EC
Start Time    : 2011-06-27 16:13:53

Hop  MEPID  MAC Address        Forwarded  Relay Action
---  -----  -----------------  ---------  ------------
1    1      00-01-02-03-04-EC  No         Hit

DES-3810-28:admin#
```

13-21 delete cfm linktrace

Description

This command is used to delete the stored link trace response data that have been initiated by the specified MEP.

Format

delete cfm linktrace {[md <string 22> {ma <string 22> {mepid <int 1-8191>}} | mepname <string 32>]}

Parameters

md - (Optional) Specifies the maintenance domain name.
- **<string 22>** - Specifies the maintenance domain name. The maximum length is 22 characters.
- **ma** - (Optional) Specifies the maintenance association name.
  - **<string 22>** - Specifies the maintenance association name. The maximum length is 22 characters.
- **mepid** - (Optional) Specifies the MEPID.
  - **<int 1-8191>** - Specifies the MEP MEPID between 1 and 8191.

mepname - (Optional) Specifies the MEP name.
- **<string 32>** - Specifies the MEP name. The maximum length is 32 characters.

Restrictions

None.

Example

To delete the CFM link trace reply:

```
DES-3810-28:admin#delete cfm linktrace mepname mep1
Command: delete cfm linktrace mepname mep1

Success.

DES-3810-28:admin#
```

13-22 config cfm mp_ltr_all

Description

This command is to enable or disable the "all MPs reply LTRs" function. This function is for test purposes. According to IEEE 802.1ag, a Bridge replies with one LTR to an LTM. This command can make all MPs on the LTM's forwarding path reply with LTRs, no matter whether they are on a Bridge or not.

Format

config cfm mp_ltr_all [enable | disable]

Parameters

enable - Enable this feature.
disable - Disable this feature.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable the all-MPs-reply-to-LTR function:

```
DES-3810-28:admin#config cfm mp_ltr_all enable
Command: config cfm mp_ltr_all enable

Success.

DES-3810-28:admin#
```

13-23 show cfm mipccm

Description

This command is used to display the MIP CCM database entries. All entries in the MIP CCM database will be displayed. An MIP CCM entry is similar to an FDB which keeps the forwarding port information of a MAC entry.

Format

show cfm mipccm

Parameters

None.

Restrictions

None.

Example

To display the MIP CCM database entries:

```
DES-3810-28:admin#show cfm mipccm
Command: show cfm mipccm

MA                       VID   MAC Address          Port
------------------------ ----  -------------------- -------
opma                      1    XX-XX-XX-XX-XX-XX  2
opma                      1    XX-XX-XX-XX-XX-XX  3

Total:  2

DES-3810-28:admin#
```

13-24 show cfm mp_ltr_all

Description

This command is used to display the current configuration of the "all MPs reply LTRs" function. This command is for test purposes.

Format

show cfm mp_ltr_all

Parameters

None.

Restrictions

None.

Example

To display the configuration of the all-MPs-reply-to-LTR function:

```
DES-3810-28:admin#show cfm mp_ltr_all
Command: show cfm mp_ltr_all

All MPs reply LTRs: Disabled
```

```
DES-3810-28:admin#
```

13-25 show cfm pkt_cnt

Description

This command is used to display the CFM packet's RX/TX counters.

Format

show cfm pkt_cnt {[ports <portlist> {[rx | tx]} | [rx | tx] | ccm]}

Parameters

ports - (Optional) Specifies the port counters to display. If not specified, all ports will be displayed. **<portlist>** - Specifies a list of ports. **rx** - (Optional) Display the RX counter. If not specified, both the RX and TX counters will be displayed. **tx** - (Optional) Display the TX counter. If not specified, both the RX and TX counters will be displayed.
rx - (Optional) Display the RX counter. If not specified, both the RX and TX counters will be displayed.
tx - (Optional) Display the TX counter. If not specified, both the RX and TX counters will be displayed.
ccm - (Optional) Display the CCM RX counters.

Restrictions

None.

Example

To display CFM packet RX/TX counters for ports 1 to 2:

```
DES-3810-28:admin#show cfm pkt_cnt ports 1-2
Command: show cfm pkt_cnt ports 1-2

CFM RX Statistics
--------------------------------------------------------------------------------
Port  AllPkt   CCM      LBR      LBM      LTR    LTM     VidDrop  OpcoDrop
----- -------- -------- -------- -------- ------ ------- -------- --------
all   0        0        0        0        0      0       0        0
1     0        0        0        0        0      0       0        0
2     0        0        0        0        0      0       0        0

CFM TX Statistics
------------------------------------------------------------
Port  AllPkt   CCM      LBR      LBM      LTR    LTM
----- -------- -------- -------- -------- ------ -------
all   0        0        0        0        0      0
1     0        0        0        0        0      0
2     0        0        0        0        0      0
```

```
DES-3810-28:admin#
```

13-26 clear cfm pkt_cnt

Description

This command is used to clear the CFM packet's RX/TX counters.

Format

clear cfm pkt_cnt {[ports <portlist> {[rx | tx]} | [rx | tx] | ccm]}

Parameters

ports - (Optional) Specifies the port counters to clear. If not specified, all ports will be cleared. **<portlist>** - Specifies a list of ports. **rx** - (Optional) Clear the RX counter. If not specified, both the RX and TX counters will be cleared. **tx** - (Optional) Clear the TX counter. If not specified, both the RX and TX counters will be cleared.
rx - (Optional) Clear the RX counter. If not specified, both the RX and TX counters will be cleared.
tx - (Optional) Clear the TX counter. If not specified, both the RX and TX counters will be cleared.
ccm - (Optional) Clear The CCM RX counters.

Restrictions

Only Administrators and Operators can issue this command.

Example

To clear all the CFM packet RX/TX counters:

```
DES-3810-28:admin#clear cfm pkt_cnt
Command: clear cfm pkt_cnt

Success.

DES-3810-28:admin#
```

To clear the CFM packet CCM counters:

```
DES-3810-28:admin#clear cfm pkt_cnt ccm
Command: clear cfm pkt_cnt ccm

Success.

DES-3810-28:admin#
```

13-27 show cfm remote_mep

Description

This command is used to display CFM remote MEP information.

Format

show cfm remote_mep [mepname <string 32> | md <string 22> ma <string 22> mepid <int 1-8191>] remote_mepid <int 1-8191>

Parameters

mepname - Specifies the MEP name. **<string 32>** - Specifies the MEP name. The maximum length is 32 characters.
md - Specifies the maintenance domain name. **<string 22>** - Specifies the maintenance domain name. The maximum length is 22 characters. **ma** - Specifies the maintenance association name. **<string 22>** - Specifies the maintenance association name. The maximum length is 22 characters. **mepid** - Specifies the MEPID. **<int 1-8191>** - Specifies the MEP MEPID between 1 and 8191.
remote_mepid - Specifies the remote MEPID. **<int 1-8191>** - Specifies the remote MEPID between 1 and 8191.

Restrictions

None.

Example

To display CFM remote MEP information:

```
DES-3810-28:admin#show cfm remote_mep mepname mep1 remote_mepid 2
Command: show cfm remote_mep mepname mep1 remote_mepid 2

Remote MEPID            : 2
MAC Address             : 00-11-22-33-44-02
Status                  : OK
RDI                     : Yes
Port State              : Blocked
Interface Name          : Down
Last CCM Serial Number  : 1000
Send Chassis ID         : 00-11-22-33-44-00
Sender Management Address: SNMP-UDP-IPv4 10.90.90.90:161
Detect Time             : 2008-01-01

DES-3810-28:admin#
```

13-28 config cfm ccm_fwd

Description

This command is used to configure the CCM PDUs forwarding mode.

Format

config cfm ccm_fwd [software | hardware]

Parameters

software - Specifies to forward by using the software. This is the default option.
hardware - Specifies to forward by using the hardware.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the CCM PDUs forwarding mode to hardware:

```
DES-3810-28:admin#config cfm ccm_fwd hardware
Command: config cfm ccm_fwd hardware

Success.

DES-3810-28:admin#
```

13-29 show cfm ccm_fwd

Description

This command is used to display the CCM PDUs forwarding mode.

Format

show cfm ccm_fwd

Parameters

None.

Restrictions

None.

Example

To display the CCM PDUs forwarding mode:

```
DES-3810-28:admin#show cfm ccm_fwd
Command: show cfm ccm_fwd

CFM CCM PDUs forwarding mode: Hardware
```

```
DES-3810-28:admin#
```

13-30 config cfm ais md

Description

This command is used to configure the parameters of the AIS function on a MEP.

Format

config cfm ais md <string 22> ma <string 22> mepid <int 1-8191> {period [1sec | 1min] | level <int 0-7> | state [enable | disable]}

Parameters

md - Specifies the maintenance domain name. **<string 22>** - Specifies the maintenance domain name. The maximum length is 22 characters.
ma - Specifies the maintenance association name. **<string 22>** - Specifies the maintenance association name. The maximum length is 22 characters.
mepid - Specifies the MEPID. **<int 1-8191>** - Specifies the MEP MEPID between 1 and 8191.
period - (Optional) Specifies the transmitting interval of the AIS PDU. **1sec** - Specifies that the transmitting interval period will be set to 1 second. **1min** - Specifies that the transmitting interval period will be set to 1 minute.
level - (Optional) Specifies the client level ID to which the MEP sends AIS PDU. The default client MD level is the MD level that the most immediate client layer MIPs and MEPs exist on. **<int 0-7>** - Enter the client level ID used here. This value must be between 0 and 7.
state - (Optional) Specifies the AIS function state used. **enable** - Specifies that AIS function state will be enabled. **disable** - Specifies that AIS function state will be disabled.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the AIS function so that it is enabled and has a client level of 5:

```
DES-3810-28:admin# config cfm ais md op-domain ma op-ma mepid 1 state enable
level 5
Command: config cfm ais md op-domain ma op-ma mepid 1 state enable level 5


Success.


DES-3810-28:admin#
```

13-31 config cfm lock md

Description

This command is used to configure the parameters of the LCK function on a MEP.

Format

config cfm lock md <string 22> ma <string 22> mepid <int 1-8191> {period [1sec | 1min] | level <int 0-7> | state [enable | disable]}

Parameters

md - Specifies the maintenance domain name. **<string 22>** - Specifies the maintenance domain name. The maximum length is 22 characters.
ma - Specifies the maintenance association name. **<string 22>** - Specifies the maintenance association name. The maximum length is 22 characters.
mepid - Specifies the MEPID. **<int 1-8191>** - Specifies the MEP MEPID between 1 and 8191.
period - (Optional) Specifies the transmitting interval of the LCK PDU. **1sec** - Specifies that the transmitting interval period will be set to 1 second. **1min** - Specifies that the transmitting interval period will be set to 1 minute.
level - (Optional) Specifies the client level ID to which the MEP sends LCK PDU. The default client MD level is the MD level that the most immediate client layer MIPs and MEPs exist on. **<int 0-7>** - Enter the client level ID used here. This value must be between 0 and 7.
state - (Optional) Specifies the LCK function state used. **enable** - Specifies that LCK function state will be enabled. **disable** - Specifies that LCK function state will be disabled.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the LCK function state as enabled and specify a client level of 5:

```
DES-3810-28:admin# config cfm lock md op-domain ma op-ma mepid 1 state enable
level 5
Command: config cfm lock md op-domain ma op-ma mepid 1 state enable level 5


Success.


DES-3810-28:admin#
```

Chapter 14 Command List History Commands

? {<Command>}
show command_history
config command_history <value 1-40>

14-1 ?

Description

This command is used to display all of the commands available on the current login account level, through the Command Line Interface (CLI).

Format

? {<Command>}

Parameters

<Command> – (Optional) Specifies a command.

Note: If no command is specified, the system will display all commands of the corresponding user level.

Restrictions

None.

Example

To display all commands:

```
DES-3810-28:admin#?
Command: ?

..
?
cable_diag ports
cd
cfm linktrace
cfm lock md
cfm loopback
clear
clear address_binding dhcp_snoop binding_entry ports
clear address_binding nd_snoop binding_entry ports
clear arptable
```

```
clear attack_log
clear cfm pkt_cnt
clear counters
clear dhcp binding
clear dhcp conflict_ip
clear ethernet_oam ports
clear fdb
clear historical_counters ports
clear igmp_snooping statistics counter
clear jwac auth_state
clear ldp statistic
CTRL+C ESC q Quit SPACE n Next Page ENTER Next Entry a All
```

To display the syntax for “config account”:

```
DES-3810-28:admin#? config account
Command: ? config account

Command: config account
Usage:  <username> {encrypt [plain_text| sha_1] <password>}
Description: Used to configure user accounts.

DES-3810-28:admin#
```

14-2 show command_history

Description

This command is used to display the command history.

Format

show command_history

Parameters

None.

Restrictions

None.

Example

To display the command history:

```
DES-3810-28:admin# show command_history
Command: show command_history

?
show traffic_segmentation 1-6
config traffic_segmentation 1-6 forward_list 7-8
```

```
config radius delete 1
config radius add 1 10.48.74.121 key dlink default
config 802.1x reauth port_based ports all
config 802.1x init port_based ports all
config 802.1x auth_mode port_based
config 802.1x auth_parameter ports 1-50 direction both
config 802.1x capability ports 1-5 authenticator
show 802.1x auth_configuration ports 1
show 802.1x auth_state ports 1-5
enable 802.1x
show 802.1x auth_state ports 1-5
show igmp_snooping
enable igmp_snooping

DES-3810-28:admin#
```

14-3 config command_history

Description

This command is used to configure the number of commands that the switch can record. The switch can keep records for the last 40 (maximum) commands you entered.

Format

config command_history <value 1-40>

Parameters

<value 1-40> – Specifies the number of commands (1 to 40) that the switch can record. The default value is 25.

Restrictions

None.

Example

To configure the number of commands the switch can record to the last 20 commands:

```
DES-3810-28:admin#config command_history 20
Command: config command_history 20

Success.

DES-3810-28:admin#
```

Chapter 15 Common Unicast Routing Commands

config route preference [static | default | rip | ospfIntra | ospfInter | ospfExt1 | ospfExt2] <value 1-999>
show route preference {[local | static | default | rip | ospf | ospfIntra | ospfInter | ospfExt1 | ospfExt2]}
create route redistribute dst ospf src [static | rip | local] {mettype [1 | 2] | metric <value 0-16777214>}
config route redistribute dst ospf src [static | rip | local] {mettype [1 | 2] | metric <value 0-16777214>}(1)
create route redistribute dst rip src [local | static | ospf [all | internal | external | type_1 | type_2 | inter+e1 | inter+e2]] {metric <value 0-16>}
config route redistribute dst rip src [local | static | ospf [all | internal | external | type_1 | type_2 | inter+e1 | inter+e2]] {metric <value 0-16>}
delete route redistribute [dst [rip | ospf] src [rip | static | local | ospf]]
show route redistribute {dst [rip | ospf] | src [rip | static | local | ospf]}

15-1 config route preference

Description

This command is used to configure the route type preference. The route with smaller preference has higher priority. The preference for local routes is fixed to 0.

Format

config route preference [static | default | rip | ospfIntra | ospfInter | ospfExt1 | ospfExt2] <value 1-999>

Parameters

static - Specifies the preference of static route.
default - Specifies the preference of default route.
rip - Specifies the preference of RIP route.
ospfIntra - Specifies the preference of OSPF intra-area route.
ospfInter - Specifies the preference of OSPF inter-area route.
ospfExt1 - Specifies the preference of OSPF external type-1 route.
ospfExt2 - Specifies the preference of OSPF external type-2 route.
<value 1-999> - Enter the route preference value here. This value must be between 1 and 999.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the route preference for static routes to 70:

```
DES-3810-28:admin# config route preference static 70
Command: config route preference static 70

Success.

DES-3810-28:admin#
```

15-2 show route preference

Description

This command is used to display the route preference of each route type.

Format

show route preference {[local | static | default | rip | ospf | ospfIntra | ospfInter | ospfExt1 | ospfExt2]}

Parameters

local - (Optional) Specifies to display the preference of local route.
static - (Optional) Specifies to display the preference of static route.
default - (Optional) Specifies to display the preference of default route.
rip - (Optional) Specifies to display the preference of RIP route.
ospf - (Optional) Specifies to display the preference of all types of OSPF route.
ospfIntra - (Optional) Specifies to display the preference of OSPF intra-area route.
ospfInter - (Optional) Specifies to display the preference of OSPF inter-area route.
ospfExt1 - (Optional) Specifies to display the preference of OSPF external type-1 route.
ospfExt2 - (Optional) Specifies to display the preference of OSPF external type-2 route.

Restrictions

None.

Example

To display the route preference for all route types:

```
DES-3810-28:admin# show route preference
Command: show route preference

Route Preference Settings

Route Type  Preference
----------  ----------
RIP         100
Static      70
Local       0
Default     1
OSPF Intra  80
OSPF Inter  90
OSPF ExtT1  110
OSPF ExtT2  115

DES-3810-28:admin#
```

15-3 create route redistribute dst ospf

Description

This command is used to redistribute the routing information from other routing protocols to OSPF.

Format

create route redistribute dst ospf src [static | rip | local] {mettype [1 | 2] | metric <value 0-16777214>}

Parameters

static - Specifies to redistribute static routes to OSPF. **rip** - Specifies to redistribute RIP routes to OSPF. **local** - Specifies to redistribute local routes to OSPF.
mettype - (Optional) Allows the selection of one of two methods for calculating the metric value. 1 calculates the metric (for other routing protocols to OSPF) by adding the destination's interface cost to the metric entered in the Metric field. 2 uses the metric entered in the Metric field without change. This field applies only when the destination field is OSPF. If the metric type is not specified, it will be type 2. **1** - Specifies that the method type value will be set to 1. **2** - Specifies that the method type value will be set to 2.
metric - (Optional) Specifies the metric for the redistributed routes. If it is not specified or specified as 0, the redistributed routes will be associated with the default metric 20. **<value 0-16777214>** - Enter the metric value used here. This value can be between 0 and 16777214.

Restrictions

Only Administrators and Operators can issue this command.

Example

To add route redistribution to OSPF:

```
DES-3810-28:admin# create route redistribute dst ospf src rip
Command: create route redistribute dst ospf src rip

Success.

DES-3810-28:admin#
```

15-4 config route redistribute dst ospf

Description

This command is used to update the metric to be associated with the redistributed routes from a specific protocol to OSPF protocol.

Format

config route redistribute dst ospf src [static | rip | local] {mettype [1 | 2] | metric <value 0-16777214>}(1)

Parameters

static - Specifies to redistribute static routes to OSPF. **rip** - Specifies to redistribute RIP routes to OSPF **local** - Specifies to redistribute local routes to OSPF
mettype - (Optional) Allows the selection of one of two methods for calculating the metric value. 1 calculates the metric (for other routing protocols to OSPF) by adding the destination's interface cost to the metric entered in the Metric field. 2 uses the metric entered in the Metric field without change. This field applies only when the destination field is OSPF. If the metric type is not specified, it will be type 2. **1** - Specifies that the method type value will be set to 1. **2** - Specifies that the method type value will be set to 2.
metric - (Optional) Specifies the metric for the redistributed routes. If it is not specified or specified as 0, the redistributed routes will be associated with the default metric 20. **<value 0-16777214>** - Enter the metric value used here. This value can be between 0 and 16777214.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure route redistributions:

```
DES-3810-28:admin# config route redistribute dst ospf src rip mettype 1 metric
2
Command: config route redistribute dst ospf src rip mettype 1 metric 2

Succuss.

DES-3810-28:admin#
```

15-5 create route redistribute dst rip

Description

This command is used to redistribute routing information from other routing protocols to RIP. When the metric is specified as 0, the metric in the original route will become the metric of the redistributing RIP routes transparently. If the metric of the original route is greater than 16, the route will be not redistributed.

Format

create route redistribute dst rip src [local | static | ospf [all | internal | external | type_1 | type_2 | inter+e1 | inter+e2]] {metric <value 0-16>}

Parameters

local - Specifies to redistribute local routes to RIP.
static - Specifies to redistribute static routes to RIP.
ospf - Specifies to redistribute OSPF routes to RIP. **all** - Specifies to redistribute both OSPF AS-internal and OSPF AS-external routes to RIP. **internal** - Specifies to redistribute only the OSPF AS-internal routes. **external** - Specifies to redistribute only the OSPF AS-external routes, including type-1 and type-2 routes. **type_1** - Specifies to redistribute only the OSPF AS-external type-1 routes. **type_2** - Specifies to redistribute only the OSPF AS-external type-2 routes. **inter+e1** - Specifies to redistribute only the OSPF AS-external type-1 and OSPF AS-internal routes. **inter+e2** - Specifies to redistribute only the OSPF AS-external type-2 and OSPF AS-internal routes.
metric - (Optional) Specifies the RIP route metric value for the redistributed routes. **<value 0-16>** - Enter the metric value used here. This value must be between 0 and 16.

Restrictions

Only Administrators and Operators can issue this command.

Example

To add route redistribution settings:

```
DES-3810-28:admin# create route redistribute dst rip src ospf all metric 2
Command: create route redistribute dst rip src ospf all metric 2

Success.

DES-3810-28:admin#
```

15-6 config route redistribute dst rip

Description

This command is used to update the metric, or the route type of OSPF routes redistributed, to be associated with the redistributed routes from a specific protocol to RIP protocol.

Format

config route redistribute dst rip src [local | static | ospf [all | internal | external | type_1 | type_2 | inter+e1 | inter+e2]] {metric <value 0-16>}

Parameters

static - Specifies to redistribute static routes to RIP.
local - Specifies to redistribute local routes to RIP.
ospf - Specifies to redistribute OSPF routes to RIP. **all** - Specifies to redistribute both OSPF AS-internal and OSPF AS-external routes to RIP. **internal** - Specifies to redistribute only the OSPF AS-internal routes. **external** - Specifies to redistribute only the OSPF AS-external routes, including type-1 and type-2 routes. **type_1** - Specifies to redistribute only the OSPF AS-external type-1 routes. **type_2** - Specifies to redistribute only the OSPF AS-external type-2 routes. **inter+e1** - Specifies to redistribute only the OSPF AS-external type-1 and OSPF AS-internal routes. **inter+e2** - Specifies to redistribute only the OSPF AS-external type-2 and OSPF AS-internal routes.
metric - (Optional) Specifies the RIP metric value for the redistributed routes. **<value 0-16>** - Enter the metric value used here. This value must be between 0 and 16.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure route redistributions:

```
DES-3810-28:admin# config route redistribute dst rip src ospf internal
Command: config route redistribute dst rip src ospf internal

Success.

DES-3810-28:admin#
```

15-7 delete route redistribute

Description

This command is used to delete the route redistribute configuration on the Switch.

Format

delete route redistribute [dst [rip | ospf] src [rip | static | local | ospf]]

Parameters

dst - Specifies the target protocol. **rip** - Specifies to not redistribute other routing protocols to RIP. **ospf** - Specifies to not redistribute other routing protocols to OSPF.
src - Specifies the source protocol. **rip** - Specifies to not redistribute RIP routes.

static - Specifies to not redistribute static routes. **local** - Specifies to not redistribute local routes. **ospf** - Specifies to not redistribute OSPF routes.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete route redistribution settings:

```
DES-3810-28:admin# delete route redistribute dst rip src ospf
Command: delete route redistribute dst rip src ospf

Success.

DES-3810-28:admin#
```

15-8 show route redistribute

Description

This command is used to display the route redistribution settings on the Switch.

Format

show route redistribute {dst [rip | ospf] | src [rip | static | local | ospf]}

Parameters

dst - (Optional) Specifies the target protocol. **rip** - Specifies to display the redistribution with the target protocol RIP. **ospf** - Specifies to display the redistribution with the target protocol OSPF.
src - (Optional) Specifies the source protocol. **rip** - Specifies to display the redistribution with the source protocol RIP. **static** - Specifies to display the redistribution with the source static. **local** - Specifies to display the redistribution with the source local. **ospf** - Specifies to display the redistribution with the source protocol OSPF.
If no parameter is specified, the system will display all route redistributions.

Restrictions

None.

Example

To display route redistributions:

```
DES-3810-28:admin# show route redistribute
Command: show route redistribute

Route Redistribution Settings

Source    Destination   Type      Metric
Protocol  Protocol
--------  ------------  --------  ------------
RIP       OSPF          Type-1    2

Total Entries : 1

DES-3810-28:admin#
```

Chapter 16 Compound Authentication Commands

create authentication guest_vlan [vlan <vlan_name 32> | vlanid <vlanid 1-4094>]
delete authentication guest_vlan [vlan <vlan_name 32> | vlanid <vlanid 1-4094>]
config authentication guest_vlan [vlan <vlan_name 32> | vlanid <vlanid 1-4094>] [add | delete] ports [<portlist> | all]
config authentication ports [<portlist> | all] {auth_mode [port_based | host_based] | multi_authen_methods [none | any | dot1x_impb | impb_jwac | impb_wac | mac_impb]}(1)
show authentication
show authentication guest_vlan
show authentication ports {<portlist>}
enable authorization attributes
disable authorization attributes
show authorization
config authentication server failover [local | permit | block]

16-1 create authentication guest_vlan

Description

This command is used to assign a static VLAN to be a guest VLAN. The specific VLAN which is assigned to be a guest VLAN must already exist. The specific VLAN which is assigned to be a guest VLAN can't be deleted.

For further description of this command, please see the description for **config authentication guest_vlan ports**.

Format

create authentication guest_vlan [vlan <vlan_name 32> | vlanid <vlanid 1-4094>]

Parameters

vlan - Specifies the guest VLAN by VLAN name. **<vlan_name 32>** - Specifies the guest VLAN by VLAN name. The VLAN name can be up to 32 characters long.
vlanid - Specifies the guest VLAN by VLAN ID. **<vlanid 1-4094>** - Specifies the guest VLAN by VLAN ID. The VLAN ID value must be between 1 and 4094.

Restrictions

Only Administrators and Operators can issue this command.

Example

To assign a static VLAN to be a guest VLAN:

```
DES-3810-28:admin#create authentication guest_vlan vlan guestVLAN
Command: create authentication guest_vlan vlan guestVLAN

Success.

DES-3810-28:admin#
```

16-2 delete authentication guest_vlan

Description

This command is used to delete a guest VLAN setting, but not a static VLAN. All ports which are enabled as guest VLANs will move to the original VLAN after deleting the guest VLAN. For further description of this command, please see the description for **config authentication guest_vlan ports**.

Format

delete authentication guest_vlan [vlan <vlan_name 32> | vlanid <vlanid 1-4094>]

Parameters

vlan - Specifies the guest VLAN by VLAN name. **<vlan_name 32>** - Specifies the guest VLAN by VLAN name. The VLAN name can be up to 32 characters long.
vlanid - Specifies the guest VLAN by VLAN ID. **<vlanid 1-4094>** - Specifies the guest VLAN by VLAN ID. The VLAN ID value must be between 1 and 4094.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete a guest VLAN setting:

```
DES-3810-28:admin#delete authentication guest_vlan vlan guestVLAN
Command: delete authentication guest_vlan vlan guestVLAN

Success.

DES-3810-28:admin#
```

16-3 config authentication guest_vlan

Description

This command is used to assign or remove ports to or from a guest VLAN.

Format

config authentication guest_vlan [vlan <vlan_name 32> | vlanid <vlanid 1-4094>] [add | delete] ports [<portlist> | all]

Parameters

vlan - Specifies the guest VLAN name. **<vlan_name 32>** - Specifies the guest VLAN name. The VLAN name can be up to 32 characters long.
vlanid - Specifies the guest VLAN VID. **<vlanid 1-4094>** - Specifies the guest VLAN VID. The VLAN ID value must be between 1 and 4094.
add - Specifies to add a port list to the guest VLAN. **delete** - Specifies to delete a port list from the guest VLAN.
ports - Specifies a port or range of ports to configure. **<portlist>** - Specifies a range of ports to configure. **all** - Specifies to configure all ports.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure authentication for all ports for a guest VLAN called “gv”:

```
DES-3810-28:admin#config authentication guest_vlan vlan gv add ports all
Command: config authentication guest_vlan vlan gv add ports all

Success.

DES-3810-28:admin#
```

16-4 config authentication ports

Description

This command is used to configure authorization mode and authentication method on ports.

Format

config authentication ports [<portlist> | all] {auth_mode [port_based | host_based] | multi_authen_methods [none | any | dot1x_impb | impb_jwac | impb_wac | mac_impb]}(1)

Parameters

<portlist> - Specifies a port or range of ports to configure. **all** - Specifies to configure all ports.
auth_mode - The authorization mode is port-based or host-based. **port-based** - If one of the attached hosts pass the authentication, all hosts on the same port will be granted access to the network. If the user fails the authorization, this port will keep trying the next authentication. **host-based** - Specifies to allow every user to be authenticated individually.

multi_authen_methods - Specifies the method for compound authentication.
- **none** - Specifies that compound authentication is not enabled.
- **any** - Specifies if any of the authentication methods (802.1X, MAC-based Access Control, and JWAC/WAC) pass, then pass.
- **dot1x_impb** - Dot1x will be verified first, and then IMPB will be verified. Both authentications need to be passed.
- **impb_jwac** - JWAC will be verified first, and then IMPB will be verified. Both authentications need to be passed.
- **impb_wac** - WAC will be verified first, and then IMPB will be verified. Both authentications need to be passed.
- **mac_impb** - MAC-based Access Control will be verified first, and then IMPB will be verified. Both authentications need to be passed.

Restrictions

Only Administrators and Operators can issue this command.

Example

The following example sets the authentication mode of all ports to host-based:

```
DES-3810-28:admin#config authentication ports all auth_mode host_based
Command: config authentication ports all auth_mode host_based

Success.

DES-3810-28:admin#
```

The following example sets the compound authentication method of all ports to “any”:

```
DES-3810-28:admin#config authentication ports all multi_authen_methods any
Command: config authentication ports all multi_authen_methods any

Success.

DES-3810-28:admin#
```

16-5 show authentication

Description

This command is used to display the global authentication configuration.

Format

show authentication

Parameters

None.

Restrictions

None.

Example

To display the global authentication configuration:

```
DES-3810-28:admin#show authentication
Command: show authentication

Authentication Server Failover: Block.

DES-3810-28:admin#
```

16-6 show authentication guest_vlan

Description

This command is used to display guest VLAN information.

Format

show authentication guest_vlan

Parameters

None.

Restrictions

None.

Example

To display the guest VLAN setting:

```
DES-3810-28:admin#show authentication guest_vlan
Command: show authentication guest_vlan

Guest VLAN VID         :
Guest VLAN Member Ports:

 Total Entries: 0

DES-3810-28:admin#
```

16-7 show authentication ports

Description

This command is used to display the authentication method and authorization mode on ports.

Format

show authentication ports {<portlist>}

Parameters

<portlist> - (Optional) Specifies to display compound authentication on specific port(s).

Restrictions

None.

Example

To display the authentication settings for ports 1 to 3:

```
DES-3810-28:admin#show authentication ports 1-3
Command: show authentication ports 1-3

Port  Methods        Auth Mode
 ---- -------------- -----------
 1    None           Host-based
 2    None           Host-based
 3    None           Host-based

DES-3810-28:admin#
```

16-8 enable authorization attributes

Description

This command is used to enable the authorization global state.

Format

enable authorization attributes

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable the authorization global state:

```
DES-3810-28:admin#enable authorization attributes
Command: enable authorization attributes

Success.

DES-3810-28:admin#
```

16-9 disable authorization attributes

Description

This command is used to disable the authorization global state.

Format

disable authorization attributes

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable the authorization global state:

```
DES-3810-28:admin#disable authorization attributes
Command: disable authorization attributes

Success.

DES-3810-28:admin#
```

16-10 show authorization

Description

This command is used to display the authorization status.

Format

show authorization

Parameters

None.

Restrictions

None.

Example

To display the authorization status:

```
DES-3810-28:admin#show authorization
Command: show authorization
Authorization for Atributes: Enabled

DES-3810-28:admin#
```

16-11 config authentication server failover

Description

This command is used to configure the authentication server failover function. When authentication server fails, administrator can configure to:

* Use the local database to authenticate the client. The switch will resort to using the local database to authenticate the client. If the client fails on local authentication, the client is regarded as un-authenticated, otherwise, it authenticated.

* Pass authentication. The client is always regarded as authenticated. If guest VLAN is enabled, clients will stay on the guest VLAN, otherwise, they will stay on the original VLAN.

* Block the client (default setting). The client is always regarded as un-authenticated.

Format

config authentication server failover [local | permit | block]

Parameters

local - Specifies to use the local database to authenticate the client.
permit - Specifies that the client is always regarded as authenticated.
block - Specifies to block the client. This is the default setting.

Restrictions

Only Administrators and Operators can issue this command.

Example

To set the authentication server failover state:

```
DES-3810-28:admin#config authentication server failover local
Command: config authentication server failover local

Success.

DES-3810-28:admin#
```

Chapter 17 CPU Filtering Commands

config cpu_filter l3_control_pkt <portlist> [{dvmrp | pim | igmp_query | ospf | rip | vrrp}(1) | all] state [enable | disable]
show cpu_filter l3_control_pkt ports {<portlist>}

17-1 config cpu_filter l3_control_pkt

Description

This command is used to configure the port state for the Layer 3 control packet filter.

Format

config cpu_filter l3_control_pkt <portlist> [{dvmrp | pim | igmp_query | ospf | rip | vrrp}(1) | all] state [enable | disable]

Parameters

<portlist> - Specifies the port list to filter control packets. **dvmrp** - Specifies to filter the DVMRP control packets. **pim** - Specifies to filter the PIM control packets. **igmp_query** - Specifies to filter the IGMP query control packets. **ospf** - Specifies to filter the OSPF control packets. **rip** - Specifies to filter the RIP control packets. **vrrp** - Specifies to filter the VRRP control packets. **all** - Specifies to filter all the L3 protocol control packets.
state - Specifies the filter function status. The default is disabled. **enable** - Enable the filtering function. **disable** - Disable the filtering function.

Restrictions

Only Administrators and Operators can issue this command.

Example

To filter DVMRP and OSPF on ports 1 to 26:

```
DES-3810-28:admin#config cpu_filter l3_control_pkt 1-26 dvmrp ospf state enable
Command: config cpu_filter l3_control_pkt 1-26 dvmrp ospf state enable

Success.

DES-3810-28:admin#
```

17-2 show cpu_filter l3_control_pkt ports

Description

This command is used to display the L3 control packet CPU filtering state.

Format

show cpu_filter l3_control_pkt ports {<portlist>}

Parameters

<portlist> - (Optional) Specifies the port list to display the L3 control packet CPU filtering state.

Restrictions

None.

Example

To display the L3 control packet filters for ports 1 to 3:

```
DES-3810-28:admin#show cpu_filter l3_control_pkt ports 1-3
Command: show cpu_filter l3_control_pkt ports 1-3

Port  IGMP Query     DVMRP        PIM         OSPF        RIP       VRRP
----  ---------     --------    -------      --------   --------   --------
1     Disabled      Disabled    Disabled     Disabled   Disabled   Disabled
2     Disabled      Disabled    Disabled     Disabled   Disabled   Disabled
3     Disabled      Disabled    Disabled     Disabled   Disabled   Disabled

DES-3810-28:admin#
```

Chapter 18 Debug Software Commands

debug address_binding [event | dhcp | all] state [enable | disable]
no debug address_binding
debug error_log [dump | clear | upload_toTFTP <ipaddr> <path_filename 64>]
debug buffer [utilization | dump | clear | upload_toTFTP <ipaddr> <path_filename 64>]
debug output [module <module_list> | all] [buffer | console]
debug config error_reboot [enable | disable]
debug config state [enable | disable]
debug show error_reboot state
debug stp clear counter {ports [<portlist> | all]}
debug stp config ports [<portlist> | all] [event | bpdu | state_machine | all] state [disable | brief | detail]
debug stp show counter {ports [<portlist> | all]}
debug stp show flag {ports <portlist>}
debug stp show information
debug stp state [disable | enable]
debug ospf [neighbor_state_change | interface_state_change {dr_bdr_selection} | lsa {all | originating | installing | receiving | flooding}(1) | packet {all | receiving | sending}(1) | retransmission | spf {all | intra | inter | extern}(1) | timer | virtual_link | route | redistribution] state [enable | disable]
debug ospf clear counter {packet | neighbor | spf}
debug ospf log state [enable | disable]
debug ospf show counter {packet | neighbor | spf}
debug ospf show detail external_link
debug ospf show detail net_link
debug ospf show detail rt_link
debug ospf show detail summary_link
debug ospf show detail type7_link
debug ospf show flag
debug ospf show log state
debug ospf show redistribution
debug ospf show request_list
debug ospf show summary_list
debug ospf state [enable | disable]
debug vrrp [vr_state_change | packet [all | {receiving | sending}(1)] | mac_addr_update | interface_change | timers] state [enable | disable]
debug vrrp clear counter
debug vrrp log state [enable | disable]
debug vrrp show counter
debug vrrp show flag
debug vrrp show log state
debug vrrp state [enable | disable]
debug dhcpv6_relay hop_count state [enable | disable]
debug dhcpv6_relay output [buffer | console]
debug dhcpv6_relay packet [all | receiving | sending] state [enable | disable]
debug dhcpv6_relay state disable
debug dhcpv6_relay state enable
debug pim ssm
no debug pim ssm
debug ldp [all | {hello | message | pdu | event | fsm | usm | dsm}(1)] [disable | brief | detail]

debug ldp show [interface | entity | peer | session | usm | dsm | fec]
debug ldp state [enable | disable]
debug mpls show hw_table
debug mpls show lib
debug mpls state [enable | disable]
debug vpws show [ac | pw | tunnel]
debug vpws state [enable | disable]
debug show address_binding binding_state_table [nd_snooping | dhcpv6_snooping]
debug show status {module <module_list>}

18-1 debug address_binding

Description

This command is used to start the IMPB debug when the IMPB module receives an ARP/IP packet or a DHCP packet.

Format

debug address_binding [event | dhcp | all] state [enable | disable]

Parameters

event - To print out the debug messages when IMPB module receives ARP/IP packets. **dhcp** - To print out the debug messages when the IMPB module receives the DHCP packets. **all** - Print out all debug messages.
state - Specifies the IMPB address binding debug feature's state. **enable** - Specifies that the IMPB address binding debug feature will be enabled. **disable** - Specifies that the IMPB address binding debug feature will be disabled.

Restrictions

Only Administrators can issue this command.

Example

To print out all debug IMPB messages:

```
DES-3810-28:admin# debug address_binding all state enable
Command: debug address_binding all state enable

Success.

DES-3810-28:admin#
```

18-2 no debug address_binding

Description

This command is used to stop the IMPB debug starting when the IMPB module receives an ARP/IP packet or a DHCP packet.

Format

no debug address_binding

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To stop IMPB debug: starting when the IMPB module receives an ARP/IP or DHCP packet:

```
DES-3810-28:admin# no debug address_binding
Command: no debug address_binding

Success.

DES-3810-28:admin#
```

18-3 debug error_log

Description

Use this command to dump, clear or upload the software error log to a TFTP server.

Format

debug error_log [dump | clear | upload_toTFTP <ipaddr> <path_filename 64>]

Parameters

dump - Display the debug message of the debug log.
clear - Clear the debug log.
upload_toTFTP - Upload the debug log to a TFTP server specified by IP address. **<ipaddr>** - Specifies the IPv4 address of the TFTP server. **<path_filename 64>** - The pathname specifies the DOS pathname on the TFTP server. It can be a relative pathname or an absolute pathname. This value can be up to 64 characters long.

Restrictions

Only Administrators can issue this command.

Example

To dump the error log:

```
DES-3810-28:admin# debug error_log dump
Command: debug error_log dump

********************************************************************************
# debug log: 1
# level: fatal
# clock: 10000ms
# time : 2009/03/11 13:00:00

====================== SOFTWARE FATAL ERROR ======================
Invalid mutex handle : 806D6480

Current TASK : bcmARL.0

------------------------ TASK STACKTRACE -----------------------
->802ACE98
->8018C814
->8028FF44
->8028352C
->801D703C
->8013B8A4
->802AE754
->802A5E0C
```

To clear the error log:

```
DES-3810-28:admin# debug error_log clear
Command: debug error_log clear

Success.

DES-3810-28:admin#
```

To upload the error log to TFTP server:

```
DES-3810-28:admin# debug error_log upload_toTFTP 10.0.0.90 debug-log.txt
Command: debug error_log upload_toTFTP 10.0.0.90 debug-log.txt

Connecting to server.................. Done.
Upload configuration.................. Done.

DES-3810-28:admin#
```

18-4 debug buffer

Description

Use this command to show the debug buffer's state, or dump, clear, or upload the debug buffer to a TFTP server.

Note: When selecting output to debug buffer and there are debug messages in the output process, the system memory pool will be used as the debug buffer. The functions using the system memory pool resources may then fail to execute. Resources like download firmware, upload firmware, or save configuration. To execute these commands successfully, use the “debug buffer clear” command to first release the system memory pool resources manually.

Format

debug buffer [utilization | dump | clear | upload_toTFTP <ipaddr> <path_filename 64>]

Parameters

utilization - Display the debug buffer’s state.
dump - Display the debug message in the debug buffer.
clear - Clear the debug buffer.
upload_toTFTP - Upload the debug buffer to a TFTP server specified by IP address. **<ipaddr>** - Specifies the IPv4 address of the TFTP server. **<path_filename 64>** - The pathname specifies the DOS pathname on the TFTP server. It can be a relative pathname or an absolute pathname. This value can be up to 64 characters long.

Restrictions

Only Administrators can issue this command.

Example

To show the debug buffer’s state:

```
DES-3810-28:admin# debug buffer utilization
Command: debug buffer utilization

Allocate from       :      System memory
Total size          :      2 MB
Utilization rate    :      30%

DES-3810-28:admin#
```

To clear the debug buffer:

```
DES-3810-28:admin# debug buffer clear
Command: debug buffer clear

Success.

DES-3810-28:admin#
```

To upload the messages stored in debug buffer to TFTP server:

```
DES-3810-28:admin# debug buffer upload_toTFTP 10.0.0.90 debugcontent.txt
Command: debug buffer upload_toTFTP 10.0.0.90 debugcontent.txt

Connecting to server.................. Done.
Upload configuration.................. Done.

DES-3810-28:admin#
```

18-5 debug output

Description

Use the command to set a specified module's debug message output to debug buffer or local console. If the user uses the command in a Telnet session, the error message also is output to the local console.

Note: When selecting output to debug buffer and there are debug messages in the output process, the system memory pool will be used as the debug buffer. The functions using the system memory pool resources may then fail to execute. Resources like download firmware, upload firmware, or save configuration. To execute these commands successfully, use the "debug buffer clear" command to first release the system memory pool resources manually.

Format

debug output [module <module_list> | all] [buffer | console]

Parameters

module - Specifies the module list. **<module_list>** - Enter the module list here. **all** - Control output method of all modules.
buffer - Direct the debug message of the module output to debug buffer(default).
console - Direct the debug message of the module output to local console.

Restrictions

Only Administrators can issue this command.

Example

To set all module debug message outputs to local console:

```
DES-3810-28:admin# debug output all console
Command: debug output all console

Success.

DES-3810-28:admin#
```

18-6 debug config error_reboot

Description

This command is used to set if the switch needs to be rebooted when a fatal error occurs. When the error occurs, the watchdog timer will be disabled by the system first, and then all debug information will be saved in NVRAM. If the error_reboot is enabled, the watchdog shall be enabled after all information is stored into NVRAM.

Format

debug config error_reboot [enable | disable]

Parameters

enable - Need reboot switch when fatal error happens.(if the project do not define the default setting, enable for default).
disable - Do not need reboot switch when fatal error happens, system will hang-up for debug and enter the debug shell mode for debug.

Restrictions

Only Administrators can issue this command.

Example

To set the switch to not need a reboot when a fatal error occurs:

```
DES-3810-28:admin# debug config error_reboot disable
Command: debug config error_reboot disable

Success.

DES-3810-28:admin#
```

18-7 debug config state

Description

Use the command to set the state of the debug.

Format

debug config state [enable | disable]

Parameters

enable - Enable the debug state.
disable - Disable the debug state.

Restrictions

Only Administrators can issue this command.

Example

To set the debug state to disabled:

```
DES-3810-28:admin# debug config state disable
Command: debug config state disable

Success.

DES-3810-28:admin#
```

18-8 debug show error_reboot state

Description

Use the command to show the error reboot status.

Format

debug show error_reboot state

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To show the error reboot status:

```
DES-3810-28:admin#debug show error_reboot state
Command: debug show error_reboot state

Error Reboot: Enabled

DES-3810-28:admin#
```

18-9 debug stp clear counter

Description

This command used to clear the STP counters.

Format

debug stp clear counter {ports [<portlist> | all]}

Parameters

ports - Specifies the port range. **<portlist>** - Enter the list of port used for this configuration here. **all** - Clears all port counters.

Restrictions

Only Administrators can issue this command.

Example

To clear all STP counters on the switch:

```
DES-3810-28:admin# debug stp clear counter all
Command : debug stp clear counter all


Success.

DES-3810-28:admin#
```

18-10 debug stp config ports

Description

This command used to configure per-port STP debug level on the specified ports.

Format

debug stp config ports [<portlist> | all] [event | bpdu | state_machine | all] state [disable | brief | detail]

Parameters

ports - Specifies the STP port range to debug. **<portlist>** - Enter the list of port used for this configuration here. **all** - Specifies to debug all ports on the switch.
event - Debug the external operation and event processing. **bpdu** - Debug the BPDU's that have been received and transmitted. **state_machine** - Debug the state change of the STP state machine. **all** - Debug all of the above.
state - Specifies the state of the debug mechanism. **disable** - Disables the debug mechanism. **brief** - Sets the debug level to brief. **detail** - Sets the debug level to detail.

Restrictions

Only Administrators can issue this command.

Example

To configure all STP debug flags to brief level on all ports:

```
DES-3810-28:admin# debug stp config ports all all state brief
Command: debug stp config ports all all state brief

Success.

DES-3810-28:admin#
```

18-11 debug stp show counter

Description

This command used to display the STP counters.

Format

debug stp show counter {ports [<portlist> | all]}

Parameters

ports - (Optional) Specifies the STP ports for display. **<portlist>** - Enter the list of port used for this configuration here. **all** - Display all port's counters.
If no parameter is specified, display the global counters.

Restrictions

Only Administrators can issue this command.

Example

To show the STP counters for port 9:

```
DES-3810-28:admin# debug stp show counter ports 9
Command: debug stp show counter ports 9

STP Counters
-------------------------------------
 Port 9 :
  Receive:                                    Transmit:
  Total STP Packets            :32            Total STP Packets   :32
  Configuration BPDU           :0             Configuration BPDU  :0
  TCN BPDU                     :0             TCN BPDU            :0
  RSTP TC-Flag                 :15            RSTP TC-Flag        :7
  RST BPDU                     :32            RST BPDU            :32

  Discard:
  Total Discarded BPDU      :0
  Global STP Disabled          :0
  Port STP Disabled            :0
  Invalid Packet Format        :0
  Invalid Protocol             :0
  Configuration BPDU Length :0
  TCN BPDU Length              :0
  RST BPDU Length              :0
Invalid Type                   :0
Invalid Timers                 :0

DES-3810-28:admin#
```

18-12 debug stp show flag

Description

This command used to display the STP debug level on specified ports.

Format

debug stp show flag {ports <portlist>}

Parameters

ports - (Optional) Specifies the STP ports to display. **<portlist>** - (Optional) Enter the list of port used for this configuration here.
If no parameter is specified, all ports on the switch will be displayed.

Restrictions

Only Administrators can issue this command.

Example

To display the debug STP levels on all ports:

```
DES-3810-28:admin# debug stp show flag
Command: debug stp show flag

Global State: Enabled

Port Index    Event flag    BPDU Flag     State Machine Flag
----------    ----------    ---------     ------------------
  1             Detail        Brief         Disable
  2             Detail        Brief         Disable
  3             Detail        Brief         Disable
  4             Detail        Brief         Disable
  5             Detail        Brief         Disable
  6             Detail        Brief         Disable
  7             Detail        Brief         Disable
  8             Detail        Brief         Disable
  9             Detail        Brief         Disable
  10            Detail        Brief         Disable
  11            Detail        Brief         Disable
  12            Detail        Brief         Disable

DES-3810-28:admin#
```

18-13 debug stp show information

Description

This command used to display STP detailed information, such as the hardware tables, the STP state machine, etc.

Format

debug stp show information

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To show STP debug information:

```
DES-3810-28:admin# debug stp show information
Command: debug stp show information

Spanning Tree Debug Information:
---------------------------------------
Port Status In Hardware Table:
Instance 0:
```

```
Port 1 :BLK  Port 2 :BLK  Port 3 :BLK  Port 4 :BLK  Port 5 :BLK  Port 6 :BLK
Port 7 :FOR  Port 8 :BLK  Port 9 :BLK  Port 10:BLK  Port 11:BLK  Port 12:BLK
Instance 1:
Port 1 :BLK  Port 2 :BLK  Port 3 :BLK  Port 4 :BLK  Port 5 :BLK  Port 6 :BLK
Port 7 :FOR  Port 8 :BLK  Port 9 :BLK  Port 10:BLK  Port 11:BLK  Port 12:BLK
-------------------------------------
Root Priority And Times :
Instance 0:
 Designated Root Bridge    : 32768/00-01-02-03-04-00
 External Root Cost      : 0
 Regional Root Bridge      : 32768/00-01-02-03-04-00
 Internal Root Cost        : 0
 Designated Bridge       : 32768/00-01-02-03-04-00
 Designated Port           : 0
 Message Age               : 0
 Max Age                       : 20
 Forward Delay             : 15
 Hello Time                : 2
Instance 1:
 Regional Root Bridge      : 32769/00-01-02-03-04-00
 Internal Root Cost        : 0
 Designated Bridge         : 32769/00-01-02-03-04-00
 Designated Port           : 0
 Remaining Hops            : 20
-------------------------------------
Designated  Priority And Times:
 Instance 0:
 Port 1 :
 Designated Root Bridge    : 0    /00-00-00-00-00-00
 External Root Cost        : 0
 Regional Root Bridge      : 0    /00-00-00-00-00-00
 Internal Root Cost        : 0
 Designated Bridge         : 0    /00-00-00-00-00-00
 Designated Port           : 0
 Message Age               : 0
 Max Age                   : 20
 Forward Delay             : 15
 Hello Time                : 2

 Instance 1:
 Port 1 :
 Regional Root Bridge      : 0    /00-00-00-00-00-00
 Internal Root Cost        : 0
 Designated Bridge         : 0    /00-00-00-00-00-00
 Designated Port           : 0
 Remaining Hops            : 20


DES-3810-28:admin#
```

18-14 debug stp state

Description

This command is used to enable or disable the STP debug state.

Format

debug stp state [enable | disable]

Parameters

state - Specifies the STP debug state. **enable** - Enable the STP debug state. **disable** - Disable the STP debug state.

Restrictions

Only Administrators can issue this command.

Example

To configure the STP debug state to enable, and then disable the STP debug state:

```
DES-3810-28:admin# debug stp state enable
Command: debug stp state enable

Success.

DES-3810-28:admin# debug stp state disable
Command: debug stp state disable

Success.

DES-3810-28:admin#
```

18-15 debug ospf

Description

This command is used to enable or disable OSPF debug flags.

Format

debug ospf [neighbor_state_change | interface_state_change {dr_bdr_selection} | lsa {all | originating | installing | receiving | flooding} (1) | packet {all | receiving | sending} (1) | retransmission | spf {all | intra | inter | extern} (1) | timer | virtual_link | route | redistribution] state [enable | disable]

Parameters

neighbor_state_change - The state of the OSPF neighbor state change debug.
interface_state_change - The state of the OSPF interface state change debug.

dr_bdr_selection - (Optional) Specifies to include or exclude debug information for DR/BDR selection.
lsa - Specifies the state of the designated debug flag. **all** - (Optional) Specifies to set all LSA debug flags. **originating** - (Optional) Specifies to set LSA originating debug flag. **installing** - (Optional) Specifies to set LSA installing debug flag. **receiving** - (Optional) Specifies to set LSA receiving debug flag. **flooding** - (Optional) Specifies to set LSA flooding debug flag.
packet - Specifies the state of the designated debug flag. **all** - (Optional) Specifies to set all packet debug flags. **receiving** - (Optional) Specifies to set packet receiving debug flag. **sending** - (Optional) Specifies to set packet sending debug flag.
retransmission - Specifies the state of the OSPF retransmission debug flag.
spf - Specifies the state of the designated debug flag. **all** - (Optional) Specifies to set all SPF debug flags. **intra** - (Optional) Specifies to set intra-area SPF debug flag. **inter** - (Optional) Specifies to set inter-area SPF debug flag. **extern** - (Optional) Specifies to set AS external SPF debug flag.
timer - Specifies the state of the OSPF timer debug flag.
virtual_link - Specifies the state of the OSPF virtual link debug flag.
route - Specifies the state of OSPF route debug flag.
redistribution - Specifies the state of the OSPF redistribution debug flag.
state - Specifies to set the configured OSPF debug flag's state. **enable** - Specifies that the configured OSPF debug flag's state will be enabled. **disable** - Specifies that the configured OSPF debug flag's state will be disabled.

Restrictions

Only Administrators can issue this command.

Example

To enable OSPF neighbor state change debug:

```
DES-3810-28:admin# debug ospf neighbor_state_change state enable
Command: debug ospf neighbor_state_change state enable

Success.

DES-3810-28:admin#
```

To enable OSPF interface state change debug:

```
DES-3810-28:admin# debug ospf interface_state_change state enable
Command: debug ospf interface_state_change state enable

Success.

DES-3810-28:admin#
```

To enable all OSPF LSA debug flags:

```
DES-3810-28:admin# debug ospf lsa all state enable
Command: debug ospf lsa all state enable

Success.

DES-3810-28:admin#
```

To enable all OSPF packet debug flags:

```
DES-3810-28:admin# debug ospf packet all state enable
Command: debug ospf packet all state enable

Success.

DES-3810-28:admin#
```

To enable the OSPF retransmission debug flag:

```
DES-3810-28:admin# debug ospf retransmission state enable
Command: debug ospf retransmission state enable

Success.

DES-3810-28:admin#
```

To enable all OSPF SPF debug flags:

```
DES-3810-28:admin# debug ospf spf all state enable
Command: debug ospf spf all state enable

Success.

DES-3810-28:admin#
```

18-16 debug ospf clear counter

Description

This command is used to reset the OSPF statistic counters.

Format

debug ospf clear counter {packet | neighbor | spf}

Parameters

packet - (Optional) Specifies to reset the OSPF packet counter.
neighbor - (Optional) Specifies to reset the OSPF neighbor event counter.
spf - (Optional) Specifies to reset the OSPF SPF event counter.
If the parameter is not specified, all OSPF counters will be cleared.

Restrictions

Only Administrators can issue this command.

Example

To clear all OSPF statistic counters:

```
DES-3810-28:admin# debug ospf clear counter
Command: debug ospf clear counter

Success.

DES-3810-28:admin#
```

18-17 debug ospf log state

Description

This command is used to enable or disable the OSPF debug log.

Format

debug ospf log state [enable | disable]

Parameters

state - Specifies the state of the OSPF debug log. **enable** - Specifies that the OSPF debug log state will be enabled. **disable** - Specifies that the OSPF debug log state will be disabled.

Restrictions

Only Administrators can issue this command.

Example

To enable the OSPF debug log:

```
DES-3810-28:admin# debug ospf log state enable
Command: debug ospf log state enable

Success.

DES-3810-28:admin#
```

18-18 debug ospf show counter

Description

This command is used to display OSPF statistic counters.

Format

debug ospf show counter {packet | neighbor | spf}

Parameters

packet - (Optional) Specifies to display the OSPF packet counter.
neighbor - (Optional) Specifies to display the OSPF neighbor event counter.
spf - (Optional) Specifies to display the OSPF SPF event counter.
If the parameter is not specified, all OSPF counters will be displayed.

Restrictions

Only Administrators can issue this command.

Example

To show all OSPF statistic counters:

```
DES-3810-28:admin# debug ospf show counter
Command: debug ospf show counter

OSPF Debug Statistic Counters
Packet Receiving:
  Total  : 30
  Hello  : 30
  DD     : 0
  LSR    : 0
  LSU    : 0
  LSAck  : 0
  Drop   : 0
  Auth Fail : 0

Packet Sending:
  Total  : 59
  Hello  : 59
  DD     : 0
  LSR    : 0
  LSU    : 0
  LSAck  : 0

Neighbor State:
  Change : 0
  SeqMismatch : 0

SPF Calculation:
  Intra  : 0
  Inter  : 0
  Extern : 0

DES-3810-28:admin#
```

18-19 debug ospf show detail external_link

Description

This command is used to display all AS external LSAs with detail information.

Format

debug ospf show detail external_link

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To display all AS external LSAs with detail information:

```
DES-3810-28:admin#debug ospf show detail external_link
Command: debug ospf show detail external_link

OSPF Phase2 External Link:

===========
AREA 0.0.0.0:

 AS-External LSA:
 Link-State ID: 192.168.205.0
 Advertising Router: 1.1.1.1
 LS Age: 10 Seconds
 Options: 0x2
 .... ...0 = 0 Bit Isn't Set
 .... ..1. = E: ExternalRoutingCapability
 .... .0.. = MC: NOT Multicast Capable
 .... 0... = N/P: NSSA Bit
 ...0 .... = EA: Not Support Rcv And Fwd EA_LSA
 ..0. .... = DC: Not Support Handling Of Demand Circuits
 .0.. .... = O: O Bit Isn't Set
 0... .... = 7 Bit Isn't Set
 LS Sequence Number: 0x80000001
 Length: 36
 Netmask: 255.255.255.0
 Metric: 20
 Forwarding Address: 10.90.90.101
 External Route Tag: 0
 Internal Field:
 Del_flag: 0x0  I_ref_count: 0  Seq: 0x80000001  Csum: 0xd08e
 Rxtime: 384  Txtime: 0  Orgage: 0
 Current Time: 394

DES-3810-28:admin#
```

18-20 debug ospf show detail net_link

Description

This command is used to display all Network LSAs with detail information.

Format

debug ospf show detail net_link

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To display all Network LSAs with detail information:

```
DES-3810-28:admin#debug ospf show detail net_link
Command: debug ospf show detail net_link

OSPF Phase2 NET Link:

===========
AREA 0.0.0.0:
 Network LSA:
 Link-State ID: 10.90.90.123
 Netmask: 255.0.0.0
 Advertising Router: 10.90.90.91
 LS Age: 109 Seconds
 Options: 0x2
 .... ...0 = 0 Bit Isn't Set
 .... ..1. = E: ExternalRoutingCapability
 .... .0.. = MC: NOT Multicast Capable
 .... 0... = N/P: NSSA Bit
 ...0 .... = EA: Not Support Rcv And Fwd EA_LSA
 ..0. .... = DC: Not Support Handling Of Demand Circuits
 .0.. .... = O: O Bit Isn't Set
 0... .... = 7 Bit Isn't Set
 LS Sequence Number: 0x80000001
 Length: 32
 Attached Router: 10.90.90.91
 Attached Router: 1.1.1.1
 Internal Field:
 Del_flag: 0x0  I_ref_count: 0  Seq: 0x80000001  Csum: 0x4e99
 Rxtime: 4  Txtime: 4  Orgage: 1
 Current Time: 112

DES-3810-28:admin#
```

18-21 debug ospf show detail rt_link

Description

This command is used to display all Router LSAs with detail information.

Format

debug ospf show detail rt_link

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To display all Router LSAs with detail information:

```
DES-3810-28:admin#debug ospf show detail rt_link
Command: debug ospf show detail rt_link

OSPF Phase2 RT Link:

===========
AREA 0.0.0.0:
 Router LSA:
 Link-State ID: 1.1.1.1
 Advertising Router: 1.1.1.1
 LS Age: 10 Seconds
 Options: 0x2
 .... ...0 = 0 Bit Isn't Set
 .... ..1. = E: ExternalRoutingCapability
 .... .0.. = MC: NOT Multicast Capable
 .... 0... = N/P: NSSA Bit
 ...0 .... = EA: Not Support Rcv And Fwd EA_LSA
 ..0. .... = DC: Not Support Handling Of Demand Circuits
 .0.. .... = O: O Bit Isn't Set
 0... .... = 7 Bit Isn't Set
 LS Sequence Number: 0x80000002
 Length: 36
 Flags: 0x0
 .... ...0 = B: Not Area Border Router
 .... ..0. = E: Not AS Boundary Router
 .... .0.. = V: Not Virtual Link Endpoint
 Number Of Links: 1
 Type: Transit    ID: 10.90.90.123     Data: 10.90.90.91      Metric: 1
 Internal Field:
 Del_flag: 0x0  I_ref_count: 0  Seq: 0x80000002  Csum: 0xd81d
 Rxtime: 5  Txtime: 0  Orgage: 0
 Current Time: 15

DES-3810-28:admin#
```

18-22 debug ospf show detail summary_link

Description

This command is used to display all Summary LSAs with detail information.

Format

debug ospf show detail summary_link

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To display all Summary LSAs with detail information:

```
DES-3810-28:admin#debug ospf show detail summary_link
Command: debug ospf show detail summary_link

OSPF Phase2 Summary Link:

===========
AREA 0.0.0.0:
 Summary LSA:
 Link-State ID: 20.1.1.0
 Advertising Router: 10.90.90.91
 LS Age: 10 Seconds
 Options: 0x2
 .... ...0 = 0 Bit Isn't Set
 .... ..1. = E: ExternalRoutingCapability
 .... .0.. = MC: NOT Multicast Capable
 .... 0... = N/P: NSSA Bit
 ...0 .... = EA: Not Support Rcv And Fwd EA_LSA
 ..0. .... = DC: Not Support Handling Of Demand Circuits
 .0.. .... = O: O Bit Isn't Set
 0... .... = 7 Bit Isn't Set
 LS Sequence Number: 0x80000001
 Length: 28
 Netmask: 255.255.255.0
 Metric: 1
 Internal Field:
 Del_flag: 0x0  I_ref_count: 0  Seq: 0x80000001  Csum: 0x8f9c
 Rxtime: 246  Txtime: 246  Orgage: 1
 Current Time: 255

DES-3810-28:admin#
```

18-23 debug ospf show detail type7_link

Description

This command is used to display all type-7 LSAs with detail information.

Format

debug ospf show detail type7_link

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To display all type-7 LSAs with detail information:

```
DES-3810-28:admin#debug ospf show detail type7_link
Command: debug ospf show detail type7_link

OSPF Phase2 NSSA-External Link:

===========
AREA 0.0.0.1:

 NSSA-External LSA:
 Link-State ID: 0.0.0.0
 Advertising Router: 10.90.90.91
 LS Age: 855 Seconds
 Options: 0x2
 .... ...0 = 0 Bit Isn't Set
 .... ..1. = E: ExternalRoutingCapability
 .... .0.. = MC: NOT Multicast Capable
 .... 0... = N/P: NSSA Bit
 ...0 .... = EA: Not Support Rcv And Fwd EA_LSA
 ..0. .... = DC: Not Support Handling Of Demand Circuits
 .0.. .... = O: O Bit Isn't Set
 0... .... = 7 Bit Isn't Set
 LS Sequence Number: 0x80000002
 Length: 36
 Netmask: 0.0.0.0
 Metric: 0
 Forwarding Address: 0.0.0.0
 External Route Tag: 0
 Internal Field:
 Del_flag: 0x0  I_ref_count: 0  Seq: 0x80000002  Csum: 0x77be
 Rxtime: 2301  Txtime: 0  Orgage: 0
 Current Time: 3156

DES-3810-28:admin#
```

18-24 debug ospf show flag

Description

This command is used to display the OSPF debug flag's settings.

Format

debug ospf show flag

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To display the current OSPF debug flag's settings:

```
DES-3810-28:admin# debug ospf show flag
Command: debug ospf show flag

Global State: Enabled

Current OSPF Flags Setting:

 Neighbor State Change
 Interface State Change
 LSA Originating
 LSA Operating
 LSA Receiving
 LSA Flooding
 Packet Receiving
 Packet Sending
 Retransmission
 Timer
 DR Selection
 Route
 Redistribution
 Virtual Link
 SPF Intra
 SPF Inter
 SPF Extern

DES-3810-28:admin#
```

18-25 debug ospf show log state

Description

This command is used to display the OSPF debug log state.

Format

debug ospf show log state

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To display the OSPF debug log state:

```
DES-3810-28:admin# debug ospf show log state
Command: debug ospf show log state

 OSPF Log State : Enabled

DES-3810-28:admin#
```

18-26 debug ospf show redistribution

Description

This command is used to display the current internal OSPF redistribute list.

Format

debug ospf show redistribution

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To display the current OSPF redistribution list:

```
DES-3810-28:admin# debug ospf show redistribution
Command: debug ospf show redistribution

OSPF Redistribution List:

IP                  Nexthop          State Type Tag
------------------  ---------------  ----- ---- ---------------
1.1.1.0/24          0.0.0.0          ON    2    0.0.0.0

OSPF ASE Table:

IP                  Nexthop          State Type Tag
------------------  ---------------  ----- ---- ---------------
1.1.1.0/24          0.0.0.0          ON    2    0.0.0.0

DES-3810-28:admin#
```

18-27 debug ospf show request_list

Description

This command is used to display the current internal OSPF request list.

Format

debug ospf show request_list

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To display the current OSPF request list:

```
DES-3810-28:admin# debug ospf show request_list
Command: debug ospf show request_list

OSPF Request List:

Area 0.0.0.0:
Circuit: 1.1.1.1
Neighbor: 90.2.0.1  IP: 1.1.1.2
 LSID: 192.194.134.0  RTID: 90.2.0.1
 LSID: 192.194.135.0  RTID: 90.2.0.1
 LSID: 192.194.136.0  RTID: 90.2.0.1
 LSID: 192.194.137.0  RTID: 90.2.0.1
 LSID: 192.194.138.0  RTID: 90.2.0.1

DES-3810-28:admin#
```

18-28 debug ospf show summary_list

Description

This command is used to display the current internal OSPF summary list.

Format

debug ospf show summary_list

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To display the current OSPF summary list:

```
DES-3810-28:admin# debug ospf show summary_list
Command: debug ospf show summary_list

OSPF Summary List:

Area 0.0.0.0:
Circuit: 1.1.1.1
Neighbor: 90.2.0.1  IP: 1.1.1.2
LSID: 1.1.1.1 RTID: 1.1.1.1

Circuit: 2.2.2.1

Circuit: 10.1.1.6

DES-3810-28:admin#
```

18-29 debug ospf state

Description

This command is used to set the OSPF debug global state.

Format

debug ospf state [enable | disable]

Parameters

state - Specifies the OSPF debug global state. **enable** - Specifies that the OSPF debug global state will be enabled. **disable** - Specifies that the OSPF debug global state will be disabled.

Restrictions

Only Administrators can issue this command.

Example

To enable the OSPF debug global state:

```
DES-3810-28:admin# debug ospf state enable
Command: debug ospf state enable

Success.

DES-3810-28:admin#
```

18-30 debug vrrp

Description

This command is used to set VRRP debug flags.

Format

debug vrrp [vr_state_change | packet [all | {receiving | sending}(1)] | mac_addr_update | interface_change | timers] state [enable | disable]

Parameters

vr_state_change - Specifies the VRRP virtual router state change debug flag.
packet - Specifies to set the VRRP packet flags. **all** - Sets VRRP all packet debug flags. **receiving** - (Optional) Set the VRRP packet receiving flag. **sending** - (Optional) Set the VRRP packet sending flag.
mac_addr_update - Specifies the VRRP MAC address update debug flag.
interface_change - Specifies the VRRP interface state change debug flag.
timers - Specifies the state of the VRRP timers debug flag.
state - Specifies the state of the configured VRRP debug flag. **enable** - Specifies that the configured VRRP debug flag will be enabled. **disable** - Specifies that the configured VRRP debug flag will be disabled.

Restrictions

Only Administrators can issue this command.

Example

To enable the VRRP virtual router state change debug flag:

```
DES-3810-28:admin# debug vrrp vr_state_change state enable
Command: debug vrrp vr_state_change state enable

Success.

DES-3810-28:admin#
```

To enable all VRRP packet debug flags:

```
DES-3810-28:admin# debug vrrp packet all state enable
Command: debug vrrp packet all state enable

Success.

DES-3810-28:admin#
```

To enable the VRRP virtual MAC address update debug flag:

```
DES-3810-28:admin# debug vrrp mac_addr_update state enable
Command: debug vrrp mac_addr_update state enable

Success.

DES-3810-28:admin#
```

To enable the VRRP interface state change debug flag:

```
DES-3810-28:admin# debug vrrp interface_change state enable
Command: debug vrrp interface_change state enable

Success.

DES-3810-28:admin#
```

To enable the VRRP timers debug flag:

```
DES-3810-28:admin# debug vrrp timers state enable
Command: debug vrrp timers state enable

Success.

DES-3810-28:admin#
```

18-31 debug vrrp clear counter

Description

This command is used to reset the VRRP debug statistic counters.

Format

debug vrrp clear counter

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To clear VRRP statistic counters:

```
DES-3810-28:admin# debug vrrp clear counter
Command: debug vrrp clear counter

Success

DES-3810-28:admin#
```

18-32 debug vrrp log state

Description

This command is used to enable or disable the VRRP debug log state.

Format

debug vrrp log state [enable | disable]

Parameters

state - Specifies the state of the VRRP debug log. The default setting is disabled. **enable** - Specifies that the VRRP debug log state will be enabled. **disable** - Specifies that the VRRP debug log state will be disabled.

Restrictions

Only Administrators can issue this command.

Example

To enable the VRRP debug log state:

```
DES-3810-28:admin# debug vrrp log state enable
Command: debug vrrp log state enable

Success.

DES-3810-28:admin#
```

18-33 debug vrrp show counter

Description

This command is used to display the VRRP debug statistic counters.

Format

debug vrrp show counter

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To display VRRP statistic counters:

```
DES-3810-28:admin# debug vrrp show counter
Command: debug vrrp show counter

VRRP debug statistic counters
  Received ADV : 9
  Drop         : 52
  Auth fail    : 0
  Sent ADV     : 0

DES-3810-28:admin#
```

18-34 debug vrrp show flag

Description

This command is used to display VRRP debug flag settings.

Format

debug vrrp show flag

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To display VRRP debug flag settings:

```
DES-3810-28:admin#debug vrrp show flag
Command: debug vrrp show flag

Global State: Disabled

Current VRRP debug level setting:

DES-3810-28:admin#
```

18-35 debug vrrp show log state

Description

The command is used to display the VRRP debug log state.

Format

debug vrrp show log state

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To display the VRRP debug log state:

```
DES-3810-28:admin# debug vrrp show log state
Command: debug vrrp show log state

VRRP Debug Log State: Disabled

DES-3810-28:admin#
```

18-36 debug vrrp state

Description

The command is used to enable or disable the VRRP debug state.

Format

debug vrrp state [enable | disable]

Parameters

state - Specifies the state of the VRRP debug state. The default setting is disabled. **enable** - Specifies that the VRRP debug state will be enabled. **disable** - Specifies that the VRRP debug state will be disabled.

Restrictions

Only Administrators can issue this command.

Example

To enable the VRRP debug state:

```
DES-3810-28:admin# debug vrrp state enable
Command: debug vrrp state enable

Success.

DES-3810-28:admin#
```

18-37 debug dhcpv6_relay hop_count state

Description

This command is used to enable or disable debug information flag about the hop count.

Format

debug dhcpv6_relay hop_count state [enable | disable]

Parameters

state - Specifies the hop count debugging state. **enable** - Specifies that the hop count state will be enabled. **disable** - Specifies that the hop count state will be disabled.

Restrictions

Only Administrators can issue this command.

Example

To enable debug information flag about the hop count:

```
DES-3810-28:admin# debug dhcpv6_relay hop_count state enable
Command: debug dhcpv6_relay hop_count state enable

Success.

DES-3810-28:admin#
```

18-38 debug dhcpv6_relay output

Description

Used to set debug message to output to buffer or console.

Format

debug dhcpv6_relay output [buffer | console]

Parameters

output - Specifies the location of the debug message output. **buffer** - Let the debug message output to buffer. **console** - Let the debug message output to console.

Restrictions

Only Administrators can issue this command.

Example

To set debug information to output to console:

```
DES-3810-28:admin#  debug dhcpv6_relay output console
Command: debug dhcpv6_relay output console

Success.

DES-3810-28:admin#
```

18-39 debug dhcpv6_relay packet

Description

Used to enable or disable debug information flag for DHCPv6 relay packet, including packet receiving and sending.

Format

debug dhcpv6_relay packet [all | receiving | sending] state [enable | disable]

Parameters

all - Set packet receiving and sending debug flags. **receiving** - Set packet receiving debug flag. **sending** - Set packet sending debug flag.
state - Specifies if the designated flags function will be enabled or disabled. **enable** - Enable the designated flags. **disable** - Disable the designated flags.

Restrictions

Only Administrators can issue this command.

Example

To enabled DHCPv6 relay packet sending debug:

```
DES-3810-28:admin#  debug dhcpv6_relay packet sending state enable
Command: debug dhcpv6_relay packet sending state enable

Success.

DES-3810-28:admin#
```

18-40 debug dhcpv6_relay state disable

Description

This command is used to disable the DHCPv6 relay Debug function.

Format

debug dhcpv6_relay state disable

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To disabled DHCPv6 relay debug function:

```
DES-3810-28:admin#  debug dhcpv6_relay state disable
Command:   debug dhcpv6_relay state disable

Success.

DES-3810-28:admin#
```

18-41 debug dhcpv6_relay state enable

Description

This command is used to enable the DHCPv6 relay Debug function.

Format

debug dhcpv6_relay state enable

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To enabled DHCPv6 relay debug function:

```
DES-3810-28:admin#  debug dhcpv6_relay state enable
Command:   debug dhcpv6_relay state enable

Success.

DES-3810-28:admin#
```

18-42 debug pim ssm

Description

This command is used to enable the PIM-SSM debug function.

Format

debug pim ssm

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To enable the PIM-SSM debug function:

```
DES-3810-28:admin# debug pim ssm
Command: debug pim ssm

Success.

DES-3810-28:admin#
```

Once the PIM-SSM debug enabled, the debug information maybe outputted.

```
DES-3810-28:admin# Group Record mode 2 for SSM group 232.1.1.1 from
192.168.2.14, ignored

Output truncated...
```

18-43 no debug pim ssm

Description

This command is used to disable the PIM-SSM debug function.

Format

no debug pim ssm

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To disable the PIM-SSM debug function:

```
DES-3810-28:admin# no debug pim ssm
Command: no debug pim ssm

Success.

DES-3810-28:admin#
```

18-44 debug ldp

Description

This command is used to set the LDP debug level to monitor LDP at a specific level.

Format

debug ldp [all | {hello | message | pdu | event | fsm | usm | dsm}(1)] [disable | brief | detail]

Parameters

all - Specifies that the LDP debug parameter will be set to all. **hello** - Specifies that the LDP debug parameter will be set to monitor LDP hello messages. **message** - Specifies that the LDP debug parameter will be set to monitor LDP TCP messages. **pdu** - Specifies that the LDP debug parameter will be set to monitor LDP PDUs. **event** - Specifies that the LDP debug parameter will be set to monitor all other functions. **fsm** - Specifies that the LDP debug parameter will be set to monitor the LDP finite state machine session. **usm** - Specifies that the LDP debug parameter will be set to monitor the LDP finite state machine upstream. **dsm** - Specifies that the LDP debug parameter will be set to monitor the LDP finite state machine downstream.
disable - Specifies that a specific level will be cleared. **brief** - Specifies that a specific level will be set to brief mode. **detail** - Specifies that a specific level will be set to detailed mode.

Restrictions

Only Administrators can issue this command. **(EI Mode Command Only)**

Example

To set the LDP message debug level to brief:

```
DES-3810-28:admin#debug ldp message brief
Command: debug ldp message brief

Success.

DES-3810-28:admin#
```

Output:

```
LDP send Init message to 210.0.0.4
LDP received Init message from peer 210.0.0.4
LDP send KeepAlive message to 210.0.0.4
LDP received KeepAlive message from peer 210.0.0.4
LDP send Address message to 210.0.0.4
```

To set the LDP message debug level to detail:

```
DES-3810-28:admin#debug ldp message detail
Command: debug ldp message detail

Success.

DES-3810-28:admin#
```

Output:

```
LDP received Address message from 210.0.0.4
Message content:
 Address Message,  Length : 14, Message ID : 5
 Address TLV, Length=6, U=0, F=0
 Family: IPv4
 Address: 210.0.0.1
```

18-45 debug ldp show

Description

This command is used to display the LDP internal status.

Format

debug ldp show [interface | entity | peer | session | usm | dsm | fec]

Parameters

interface - Specifies to display the LDP interface internal status.
entity - Specifies to display the LDP entities internal status.
peer - Specifies to display the LDP peer internal status.
session - Specifies to display the LDP session internal status.
usm - Specifies to display the LDP upstream state machine internal status.
dsm - Specifies to display the LDP downstream state machine internal status.
fec - Specifies to display the LDP FEC internal status.

Restrictions

Only Administrators can issue this command. **(EI Mode Command Only)**

Example

To display LDP USM internal status:

```
DES-3810-28:admin#debug ldp show usm
Command: debug ldp show usm

UCB 1, state:Established,  prefix FEC: 90.90.95.0/24, peer: peer:210.0.0.4
  received label request id:11, advertised label: 16, associated InSeg index: 1

UCB 2, state:Established,  prefix FEC: 90.90.96.0/24, peer:210.0.0.4
  received label request id:12, advertised label: 17, associated InSeg index: 2

UCB 3, state:Established,  prefix FEC: 10.90.90.0/24, peer:220.0.0.4
  received label request id:13, advertised label: 18, associated InSeg index: 3

UCB 4, state:Established,  prefix FEC: 20.90.90.0/24, peer:220.0.0.4
  received label request id:14, advertised label: 19, associated InSeg index: 4

DES-3810-28:admin#
```

18-46 debug ldp state

Description

This command is used to enable or disable the LDP debug function.

Format

debug ldp state [enable | disable]

Parameters

enable - Specifies to enable the LDP debug function. disable - Specifies to disable the LDP debug function.

Restrictions

Only Administrators can issue this command. **(EI Mode Command Only)**

Example

To enable the LDP debug function:

```
DES-3810-28:admin#debug ldp state enable
Command: debug ldp state enable

Success.

DES-3810-28:admin#
```

18-47 debug mpls show hw_table

Description

This command is used to display the MPLS tunnel start and tunnel termination hardware tables.

Format

debug mpls show hw_table

Parameters

None.

Restrictions

Only Administrators can issue this command. **(EI Mode Command Only)**

Example

To display ILM and NHLFE in hardware table:

```
DES-3810-28:admin#debug mpls show hw_table
Command: debug mpls show hw_table

 TTI TABLE
 ---------------------------
TTI Index 1  Top label:100, Trust EXP
   Tunnel Start Index:512, egress port:10

 TUNNEL START TABLE
 ---------------------------
Tunnel Start Index:512
   Label:200, EXP mark mode:1, EXP:8, Set S bit: true
   TTL mode: 2, DA:18-A9-05-9E-B4-8D, VID:1, Untagged

DES-3810-28:admin#
```

18-48 debug mpls show lib

Description

This command is used to display MPLS label information base.

Format

debug mpls show lib

Parameters

None.

Restrictions

Only Administrators can issue this command. **(EI Mode Command Only)**

Example

To display MPLS label information base:

```
DES-3810-28:admin#debug mpls show lib
Command: debug mpls show lib

 Incoming Segment Table
 ----------------------------------------
 Total number:0

 IPv4 explicit NULL label refer num:0
 IPv6 explicit NULL label refer num:0
 Implicit NULL label refer num:0

 Outgoing Segment Table
 ----------------------------------------
 OutSeg index:1, owner:other, out-label:20,
   XC index:1, out-ipif:1 down, nexthop:10.1.1.2
   label num:1, push:true

 Total number:1

 Cross-Connection Table
 ----------------------------------------
  prefix FEC: 172.18.1.0/24
 XC index:1, InSeg:0, OutSeg:1, ingress LSP:2
   owner:other, oper State:down

 Total number:1


 FTN table
 ----------------------------------------
 prefix FEC: 172.18.1.0/24
   FTN index:1, status:inactive, redirect to LSP:2

 Total number:1

 FTN Mapping Table
```

```
 Interface  Prev FTN  Current FTN
 ---------  --------  -----------
 0          0          1

 MPLS LABEL table
 ----------------------------------------
 Assigned label:


DES-3810-28:admin#
```

18-49 debug mpls state

Description

This command is used to enable or disable the MPLS Debug function.

Format

debug mpls state [enable | disable]

Parameters

enable - Specifies that the MPLS debug function will be enabled. **disable** - Specifies that the MPLS debug function will be disabled.

Restrictions

Only Administrators can issue this command. **(EI Mode Command Only)**

Example

To enable the MPLS debug function:

```
DES-3810-28:admin#debug mpls state enable
Command: debug mpls state enable

Success.

DES-3810-28:admin#
```

18-50 debug vpws show

Description

This command is used to display the VPWS internal status.

Format

debug vpws show [ac | pw | tunnel]

Parameters

ac - Display all Attachment Circuits internal status.
pw - Display all Pseudo-Wire internal status.
tunnel - Display all MPLS tunnel internal status.

Restrictions

Only Administrators can issue this command. **(EI Mode Command Only)**

Example

To display PW internal status.

```
DES-3810-28:admin#debug vpws show pw
Command: debug vpws show pw

 Admin state:  Enabled
 Operation state:  DOWN
 Local state:
                Not forwarding: 1
                AC Rx fault: 0
                AC Tx fault: 0
                PSN Rx fault: 0
                PSN Tx fault: 1
 Remote state:
                Not forwarding: 0
                AC Rx fault: 0
                AC Tx fault: 0
                PSN Rx fault: 0
                PSN Tx fault: 0
 Owner:  PW Id Fec Signaling
 Inbound PW label:  1048576
 Outbound PW label:  1048576
 Configured EXP:  8
 FCS retention state:  disabled
 Local maintenance capablity:
                PW status indication: enabled
                PW VCCV: disabled
 Remote maintenance capablity:
                PW status indication: disabled
                PW VCCV: disabled
 Maintenance capablity:
                PW status indication: disabled
                PW VCCV: disabled
 Local group id:  0
 Remote group id:  0
 Create time:  1373980
 Link up time:  0
 Last change time:  0
 Bound AC list:
                AC node 0xa18e9b8 AC index 1
```

```
DES-3810-28:admin#
```

18-51 debug vpws state

Description

This command is used to enable or disable the VPWS debug function.

Format

debug vpws state [enable | disable]

Parameters

enable - Specifies that the VPWS debug function will be enabled. **disable** - Specifies that the VPWS debug function will be disabled.

Restrictions

Only Administrators can issue this command. **(EI Mode Command Only)**

Example

To disable the VPWS debug function:

```
DES-3810-28:admin#debug vpws state disable
Command: debug vpws state disable

Success.

DES-3810-28:admin#
```

18-52 debug show address_binding binding_state_table

Description

The command is used to display the ND snooping and DHCPv6 binding state table.

Format

debug show address_binding binding_state_table [nd_snooping | dhcpv6_snooping]

Parameters

nd_snooping - Specifies to debug ND snooping.
dhcpv6_snooping - Specifies to debug DHCPv6 snooping.

Restrictions

Only Administrators can issue this command.

Example

To display the ND Snooping binding state of entries:

```
DES-3810-28:admin#debug show address_binding binding_state_table nd_snooping
Command: debug show address_binding binding_state_table nd_snooping

 S (State) - S: Start, Q: Query, B: Bound
 Time - Expiry Time (sec)

 IP Address                                MAC Address       S  Time       Port
 ----------------------------------------- ----------------- -- ---------- -----
 2001:2222:1111:7777:5555:6666:7777:8888 00-00-00-00-00-02 S  50         5
 2001::1                                   00-00-00-00-03-02 B  100        6

Total entries : 2

DES-3810-28:admin#
```

To display the DHCPv6 snooping binding state of entries:

```
DES-3810-28:admin#debug show address_binding binding_state_table
dhcpv6_snooping
Command: debug show address_binding binding_state_table dhcpv6_snooping

 S (State) - S: Start, L: Live, D :Detection, R: Renew, B: Bound
 Time - Expiry Time (sec)

 IP Address                                MAC Address       S  Time       Port
 ----------------------------------------- ----------------- -- ---------- -----
 2001:2222:1111:7777:5555:6666:7777:8888 00-00-00-00-00-02 S  50         5
 2001::1                                   00-00-00-00-03-02 B  100        6

Total entries : 2

DES-3810-28:admin#
```

18-53 debug show status

Description

This command is used to display the debug handler's state and to specify the module's debug status. If the input module list is empty, the states of all the registered modules, that support the debug module, will be displayed.

Format

debug show status {module <module_list>}

Parameters

module – (Optional) Specifies the module list. **<module_list>** - Enter the module list here.

Restrictions

Only Administrators can issue this command.

Example

To display the specified module's debug state:

```
DES-3810-28:admin# debug show status module MSTP
Command: debug show status module MSTP

Debug Global State  : Enable

MSTP                : Enable

DES-3810-28:admin#
```

To display the debug state:

```
DES-3810-28:admin# debug show status
Command: debug show status

Debug Global State: Enable

SYS    : Enable
OS     : Enable
MSTP   : Enable
ACL    : Disable
CLI    : Enable
SNMP   : Disable
IGMP   : Enable

DES-3810-28:admin#
```

Chapter 19 DHCP Local Relay Commands

config dhcp_local_relay vlan <vlan_name 32> state [enable | disable]
enable dhcp _local_relay
disable dhcp_local_relay
show dhcp _local_relay

19-1 config dhcp_local_relay vlan

Description

This command is used to enable or disable the DHCP local relay function for a specified VLAN. When DHCP local relay is enabled for the VLAN, the DHCP packet will be relayed as a broadcast without changing the source MAC address and gateway address. DHCP option 82 will be automatically added.

Format

config dhcp_local_relay vlan <vlan_name 32> state [enable | disable]

Parameters

<vlan_name 32> - Specifies the name of the VLAN to be enabled for DHCP local relay.
state - Enable or disable DHCP local relay for a specified VLAN. **enable** - Enable DHCP local relay for a specified VLAN. **disable** - Disable DHCP local relay for a specified VLAN.

Restrictions

Only Administrators can issue this command.

Example

To enable DHCP local relay for a default VLAN:

```
DES-3810-28:admin#config dhcp_local_relay vlan default state enable
Command: config dhcp_local_relay vlan default state enable

Success.

DES-3810-28:admin#
```

19-2 enable dhcp_local_relay

Description

This command is used to enable the DHCP local relay function on the switch.

Format

enable dhcp_local_relay

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To enable the DHCP local relay function:

```
DES-3810-28:admin#enable dhcp_local_relay
Command: enable dhcp_local_relay

Success.

DES-3810-28:admin#
```

19-3 disable dhcp_local_relay

Description

This command is used to globally disable the DHCP local relay function on the switch.

Format

disable dhcp_local_relay

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To disable the DHCP local relay function:

```
DES-3810-28:admin#disable dhcp_local_relay
Command: disable dhcp_local_relay

Success.

DES-3810-28:admin#
```

19-4 show dhcp_local_relay

Description

This command is used to display the current DHCP local relay configuration on the switch.

Format

show dhcp_local_relay

Parameters

None.

Restrictions

None.

Example

To display the local DHCP relay status:

```
DES-3810-28:admin#show dhcp_local_relay
Command: show dhcp_local_relay

DHCP/BOOTP Local Relay Status         : Disabled
DHCP/BOOTP Local Relay VID List       :

DES-3810-28:admin#
```

Chapter 20 DHCP Relay Commands

config dhcp_relay {hops <value 1-16> | time <sec 0-65535>}(1)
config dhcp _relay add ipif <ipif_name 12> <ipaddr>
config dhcp _relay delete ipif <ipif_name 12> <ipaddr>
config dhcp_relay option_60 add string <multiword 255> relay <ipaddr> [exact-match | partial-match]
config dhcp_relay option_60 default [relay <ipaddr> | mode [relay | drop]]
config dhcp_relay option_60 delete [string <multiword 255> {relay <ipaddr>} | ipaddress <ipaddr> | all | default {<ipaddr>}]
config dhcp_relay option_60 state [enable | disable]
config dhcp_relay option_61 add [mac_address <macaddr> | string <desc_long 255>] [relay <ipaddr> | drop]
config dhcp_relay option_61 default [relay <ipaddr> | drop]
config dhcp_relay option_61 delete [mac_address <macaddr> | string <desc_long 255> | all]
config dhcp_relay option_61 state [enable | disable]
config dhcp_relay option_82 check [enable | disable]
config dhcp_relay option_82 policy [replace | drop | keep]
config dhcp_relay option_82 remote_id [default | user_define <desc 32>]
config dhcp_relay option_82 state [enable | disable]
enable dhcp _relay
disable dhcp _relay
show dhcp _relay {ipif <ipif_name 12>}
show dhcp _relay option_60 {[string <multiword 255> | ipaddress <ipaddr> | default]}
show dhcp_relay option 61

Note: The DHCP relay commands include all the commands defined in the BOOTP relay command section. If this DHCP relay command set is supported in your system, the BOOTP relay commands can be ignored.

Note: The system supporting DHCP relay will accept BOOTP relay commands in the **config file** but not allow input from the console screen, and these BOOTP relay commands setting from the config file will be saved as DHCP relay commands while the **save** command is performed.

20-1 config dhcp_relay

Description

This command is used to configure the DHCP relay feature of the switch.

Format

config dhcp_relay {hops <value 1-16> | time <sec 0-65535>}(1)

Parameters

hops - Specifies the maximum number of router hops that the DHCP/BOOTP packets can cross. The range is 1 to 16. The default value is 4. **<value 1-16>** - Specifies the maximum number of router hops that the DHCP/BOOTP packets can cross. The maximum number of hops value must be between 1 and 16.
time - Specifies the minimum time in seconds within which the switch must relay the DHCP/BOOTP request. If this time is larger than the DHCP packet's time, the switch will drop the DHCP/BOOTP packet. The range is 0 to 65535. The default value is 0. **<sec 0-65535>** - Specifies the minimum time in seconds within which the switch must relay the DHCP/BOOTP request. The minimum time value must be between 0 and 65535 seconds.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the DHCP relay:

```
DES-3810-28:admin#config dhcp_relay hops 4 time 2
Command: config dhcp_relay hops 4 time 2

Success.

DES-3810-28:admin#
```

20-2 config dhcp _relay add ipif

Description

This command is used to add an IP destination address to the switch's DHCP relay table.

Format

config dhcp _relay add ipif <ipif_name 12> <ipaddr>

Parameters

<ipif_name 12> - Specifies the name of the IP interface which contains the IP address below.
<ipaddr> - Specifies the DHCP/BOOTP server IP address.

Restrictions

Only Administrators and Operators can issue this command.

Example

To add an IP destination address to the switch's DHCP relay table:

```
DES-3810-28:admin#config dhcp_relay add ipif System 10.43.21.12
Command: config dhcp_relay add ipif System 10.43.21.12

Success.

DES-3810-28:admin#
```

20-3 config dhcp _relay delete ipif

Description

This command is used to delete an IP destination address from the switch's DHCP relay table.

Format

config dhcp _relay delete ipif <ipif_name 12> <ipaddr>

Parameters

<ipif_name 12> - Specifies the name of the IP interface which contains the IP address below.
<ipaddr> - Specifies the DHCP/BOOTP server IP address.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete an IP destination address from the switch's DHCP relay table:

```
DES-3810-28:admin#config dhcp_relay delete ipif System 10.43.21.12
Command: config dhcp_relay delete ipif System 10.43.21.12

Success.

DES-3810-28:admin#
```

20-4 config dhcp_relay option_60 add string

Description

This command is used to configure the option 60 relay rules. Note that different strings can be specified with the same relay server, and the same string can be specified with multiple relay servers. The system will relay the packet to all the matching servers.

Format

config dhcp_relay option_60 add string <multiword 255> relay <ipaddr> [exact-match | partial-match]

Parameters

<multiword 255> - Specifies a string.
relay - Specifies a relay server IP address. **<ipaddr>** - Enter the IP address here.
exact-match - The option 60 string in the packet must fully match the specified string. **partial-match** - The option 60 string in the packet only need partially match the specified string.

Restrictions

Only Administrators can issue this command.

Example

To configure DHCP option 60 to decide to relay which DHCP server:

```
DES-3810-28:admin#config dhcp_relay option_60 add string “abc” relay 10.90.90.1 exact-match
Command: config dhcp_relay option_60 add string “abc” relay 10.90.90.1 exact-match

Success.

DES-3810-28:admin#
```

20-5 config dhcp_relay option_60 default

Description

This command is used to configure DHCP relay option 60 default relay servers. When there are no match servers found for the packet based on option 60, the relay servers will be determined by the default relay server setting. When there is no matching found for the packet, the relay servers will be determined based on the default relay servers. When drop is specified, the packet with no matching rules found will be dropped without further processing. If the setting is no- drop, then the packet will be processed further based on option 61. The final relay servers will be the union of option 60 default relay servers and the relay servers determined by option 61.

Format

config dhcp_relay option_60 default [relay <ipaddr> | mode [relay | drop]]

Parameters

relay - Specifies a relay server IP for the packet that has matching option 60 rules. **<ipaddr>** - Enter the server IP address here.
mode - Specifies the mode to relay or drop packets. **relay** - The packet will be relayed based on the relay rules. **drop** - Specifies to drop the packet that has no matching option 60 rules.

Restrictions

Only Administrators can issue this command.

Example

To configure a DHCP option 60 default drop action:

```
DES-3810-28:admin#config dhcp_relay option_60 default mode drop
Command: config dhcp_relay option_60 default mode drop

Success.

DES-3810-28:admin#
```

20-6 config dhcp_relay option_60 delete

Description

This command is used to delete a DHCP option 60 entry. When all is specified, all rules excluding the default rules are deleted.

Format

config dhcp_relay option_60 delete [string <multiword 255> {relay <ipaddr>} | ipaddress <ipaddr> | all | default {<ipaddr>}]

Parameters

string - Delete all the entries whose string is equal to the string specified if the IP address is not specified. **<multiword 255>** - The string value can be up to 255 characters long.
relay - (Optional) Delete one entry, whose string and IP address are equal to the string and IP address specified by the user. **<ipaddr>** - Enter the IP address here.
ipaddress - Delete all the entries whose IP address are equal to the specified IP address. **<ipaddr>** - Enter the IP address here.
all - Specifies to have all rules, excluding the default rules, deleted.
default - Delete the default relay IP address that is specified by the user. **<ipaddr>** - (Optional) Enter the IP address here.

Restrictions

Only Administrators can issue this command.

Example

To delete a DHCP option 60 entry:

```
DES-3810-28:admin#config dhcp_relay option_60 delete string abc relay
10.90.90.1
Command: config dhcp_relay option_60 delete string abc relay 10.90.90.1

Success.

DES-3810-28:admin#
```

20-7 config dhcp_relay option_60 state

Description

This command is used to decide whether DHCP relay will process the DHCP option 60 or not. When option 60 is enabled, if the packet does not have option 60, then the relay servers cannot be determined based on option 60. The relay servers will be determined based on either option 61 or per IPIF configured servers.

Format

config dhcp_relay option_60 state [enable | disable]

Parameters

enable - Specifies to enable the DHCP relay function to use option 60 rules to relay DHCP packets.
disable - Specifies to disable the DHCP relay function from using option 60 rules to relay DHCP packets.

Restrictions

Only Administrators can issue this command.

Example

To configure the DHCP option 60 state:

```
DES-3810-28:admin#config dhcp_relay option_60 state enable
Command: config dhcp_relay option_60 state enable

Success.

DES-3810-28:admin#
```

20-8 config dhcp_relay option_61 add

Description

This command adds a rule to determine the relay server based on option 61. The match rule can be based on either MAC address or a user-specified string. Only one relay server can be specified for a MAC address or a string. If relay servers are determined based on option 60, and one relay server is determined based on option 61, the final relay servers will be the union of these two sets of the servers.

Format

config dhcp_relay option_61 add [mac_address <macaddr> | string <desc_long 255>] [relay <ipaddr> | drop]

Parameters

mac_address - Specifies the client's client-ID, which is the hardware address of the client.

<macaddr> - Specifies the client's client-ID, which is the MAC address of the client.
string - Specifies the client's client-ID, which is specified by administrator. **<desc_long 255>** - Specifies the client's client-ID, which is specified by administrator The client-ID string can be up to 255 characters long.
relay - Specifies to relay the packet to an IP address. **<ipaddr>** - Specifies to relay the packet to an IP address by entering the IP address here.
drop - Specifies to drop the packet.

Restrictions

Only Administrators can issue this command.

Example

To configure DHCP option 61 to decide how to process DHCP packets:

```
DES-3810-28:admin#config dhcp_relay option_61 add mac_address 00-11-22-33-44-55
drop
Command: config dhcp_relay option_61 add mac_address 00-11-22-33-44-55 drop

Success.

DES-3810-28:admin#
```

20-9 config dhcp_relay option_61 default

Description

This command is used to determine the rule to process those packets that have no option 61 matching rules. The default default-rule is drop.

Format

config dhcp_relay option_61 default [relay <ipaddr> | drop]

Parameters

relay - Specifies to relay the packet that has no option matching 61 matching rules to an IP address. **<ipaddr>** - Enter the IP address here.
drop - Specifies to drop the packet that have no option 61 matching rules.

Restrictions

Only Administrators can issue this command.

Example

To configure the DHCP option 61 default action to drop:

```
DES-3810-28:admin#config dhcp_relay option_61 default drop
Command: config dhcp_relay option_61 default drop

Success.
```

```
DES-3810-28:admin#
```

20-10 config dhcp_relay option_61 delete

Description

This command is used to delete option 61 rules.

Format

config dhcp_relay option_61 delete [mac_address <macaddr> | string <desc_long 255> | all]

Parameters

mac_address - The entry with the specified MAC address will be deleted **<macaddr>** - Enter the MAC address here.
string - The entry with the specified string will be deleted. **<desc_long 255>** - The string value can be up to 255 characters long.
all - All rules excluding the default rule will be deleted.

Restrictions

Only Administrators can issue this command.

Example

To delete a DHCP option 61 entry:

```
DES-3810-28:admin#config dhcp_relay option_61 delete mac_address 00-11-22-33-
44-55
Command: config dhcp_relay option_61 delete mac_address 00-11-22-33-44-55

Success.

DES-3810-28:admin#
```

20-11 config dhcp_relay option_61 state

Description

This command is used to decide whether DHCP relay will process the DHCP option 61 or not. When option 61 is enabled, if the packet does not have option 61, then the relay servers cannot be determined based on option 61. If the relay servers are determined based on option 60 or option 61, then per IPIF configured servers will be ignored. If the relay servers are not determined either by option 60 or option 61, then per IPIF configured servers will be used to determine the relay servers.

Format

config dhcp_relay option_61 state [enable | disable]

Parameters

enable - Specifies to enable the DHCP relay function to use option 61 rules to relay DHCP packets.
disable - Specifies to disable the DHCP relay function to use option 61 rules to relay DHCP packets.

Restrictions

Only Administrators can issue this command.

Example

To configure the state of DHCP relay option 61:

```
DES-3810-28:admin#config dhcp_relay option_61 state enable
Command: config dhcp_relay option_61 state enable

Success.

DES-3810-28:admin#
```

20-12 config dhcp_relay option_82 check

Description

This command is used to configure the checking mechanism of the DHCP relay agent information option 82 of the switch.

Format

config dhcp_relay option_82 check [enable | disable]

Parameters

enable - When the state is enabled, for a packet coming from the client side, the packet should not have the option 82 field. If the packet has this option field, it will be dropped. For a packet comes from the server side, the packet should have the option 82 field. If the packet does not have an option field or does not have correct option fields, the packet will be dropped.
disable - The default setting is disabled.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the checking mechanism of the DHCP relay agent information option 82:

```
DES-3810-28:admin#config dhcp_relay option_82 check disable
Command: config dhcp_relay option_82 check disable

Success.
```

```
DES-3810-28:admin#
```

20-13 config dhcp_relay option_82 policy

Description

This command is used to specify the way to process the packets coming from the client side which have the 82 option field, and are not dropped since the check function is disabled.

Format

config dhcp_relay option_82 policy [replace | drop | keep]

Parameters

replace - Replace the existing option 82 field in the packet. The default setting is replace.
drop - Discard if the packet has the option 82 field.
keep - Retain the existing option 82 field in the packet.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the policy of DHCP relay agent information option 82:

```
DES-3810-28:admin#config dhcp_relay option_82 policy replace
Command: config dhcp_relay option_82 policy replace

Success

DES-3810-28:admin#
```

20-14 config dhcp_relay option_82 remote_id

Description

This command is used to configure the remote ID string of the DHCP relay agent information option 82 of the switch.

Format

config dhcp_relay option_82 remote_id [default | user_define <desc 32>]

Parameters

default - Use the switch's system MAC address as remote ID.
user_define - Use the user-defined string as remote ID. Space characters are allowed in the string. **<desc 32>** - The user-defined string can be up to 32 characters long.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the remote ID string of the DHCP relay agent information option 82:

```
DES-3810-28:admin#config dhcp_relay option_82 remote_id user_define “D-Link
Switch”
Command: config dhcp_relay option_82 remote_id user_define “D-Link Switch”

Success.

DES-3810-28:admin#
```

20-15 config dhcp_relay option_82 state

Description

This command is used to configure the state of the DHCP relay agent information option 82 of the switch.

Format

config dhcp_relay option_82 state [enable | disable]

Parameters

enable - When the state is enabled, the DHCP packet will be inserted with the option 82 field before being relayed to server. The DHCP packet will be processed based on the behavior defined in the check and policy setting.
disable - When the state is disabled, the DHCP packet will be relayed directly to the server without further check and processing of the packet. The default setting is disabled.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the state of the DHCP relay agent information option 82:

```
DES-3810-28:admin#config dhcp_relay option_82 state enable
Command: config dhcp_relay option_82 state enable

Success.

DES-3810-28:admin#
```

20-16 enable dhcp _relay

Description

This command is used to enable the DHCP relay function on the switch.

Format

enable dhcp _relay

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable the DHCP relay function:

```
DES-3810-28:admin#enable dhcp_relay
Command: enable dhcp_relay

Success.

DES-3810-28:admin#
```

20-17 disable dhcp _relay

Description

This command is used to disable the DHCP relay function on the switch.

Format

disable dhcp _relay

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable the DHCP relay function:

```
DES-3810-28:admin#disable dhcp_relay
```

```
Command: disable dhcp_relay

Success.

DES-3810-28:admin#
```

20-18 show dhcp _relay

Description

This command is used to display the current DHCP relay configuration.

Format

show dhcp _relay {ipif <ipif_name 12>}

Parameters

ipif – (Optional) Specifies the IP interface name.
<ipif_name 12> - Specifies the IP interface name. The IP interface name can be up to 12 characters long.

Note: If no parameter is specified, the system will display all DHCP relay configurations.

Restrictions

None.

Example

To display the DHCP relay status:

```
DES-3810-28:admin#show dhcp_relay
Command: show dhcp_relay ipif

DHCP/Bootp Relay Status         : Disabled
DHCP/Bootp Hops Count Limit     : 4
DHCP/Bootp Relay Time Threshold : 0
DHCP Vendor Class Identifier Option 60 State: Disabled
DHCP Client Identifier Option 61 State: Disabled
DHCP Relay Agent Information Option 82 State  : Disabled
DHCP Relay Agent Information Option 82 Check  : Disabled
DHCP Relay Agent Information Option 82 Policy : Replace
DHCP Relay Agent Information Option 82 Remote ID : 00-01-02-03-04-00

Interface     Server 1        Server 2         Server 3       Server 4
------------- --------------- ---------------- -------------- --------------
System        10.1.1.1        192.168.0.1

DES-3810-28:admin#
```

20-19 show dhcp _relay option_60

Description

This command is used to display the DHCP relay option 60 entries.

Format

show dhcp _relay option_60 {[string <multiword 255> | ipaddress <ipaddr> | default]}

Parameters

string - (Optional) Display the entry whose string equals the string specified. **<multiword 255>** - The string can be up to 255 characters long.
ipaddress - (Optional) Display the entry whose IP ipaddress equals the specified IP address. **<ipaddr>** - Enter the IP address here.
default - (Optional) Display the default behaviour of DHCP relay option 60.

Note: If no parameter is specified, all DHCP option 60 entries will be displayed.

Restrictions

Only Administrators can issue this command.

Example

To display the DHCP option 60 entries:

```
DES-3810-28:admin#show dhcp_relay option_60
Command: show dhcp_relay option_60

Default Processing Mode: Drop

Default Servers:
   10.90.90.100
   10.90.90.101
   10.90.90.102

Matching Rules:

String                          Match Type              IP Address
-------                         ---------               ---------
abc                             exact match             10.90.90.1
abcde                           partial match           10.90.90.2
abcdefg                         exact match             10.90.90.3

Total Entries: 3

DES-3810-28:admin#
```

20-20 show dhcp_relay option 61

Description

This command is used to display all the DHCP relay option 61 rules.

Format

show dhcp_relay option 61

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To display the DHCP option 61 entries:

```
DES-3810-28:admin#show dhcp_relay option_61
Command: show dhcp_relay option_61

Default Relay Rule:Drop

Matching Rules:

Client-ID                       Type              Relay Rule
-----------                     ----              ---------
abc                                               Drop
abcde                                             10.90.90.1
00-11-22-33-44-55                                 Drop

Total Entries: 3

DES-3810-28:admin#
```

Chapter 21 DHCP Server Commands

create dhcp excluded_address begin_address <ipaddr> end_address <ipaddr>
delete dhcp excluded_address [begin_address <ipaddr> end_address <ipaddr> | all]
show dhcp excluded_address
create dhcp pool <pool_name 12>
delete dhcp pool [<pool_name 12> | all]
config dhcp pool network_addr <pool_name 12> <network_address>
config dhcp pool domain_name <pool_name 12> {<domain_name 64>}
config dhcp pool dns_server <pool_name 12> {<ipaddr>} {<ipaddr>} {<ipaddr>}
config dhcp pool netbios_name_server <pool_name 12> {<ipaddr>} {<ipaddr>} {<ipaddr>}
config dhcp pool netbios_node_type <pool_name 12> [broadcast | peer_to_peer | mixed | hybrid]
config dhcp pool default_router <pool_name 12> {<ipaddr>} {<ipaddr>} {<ipaddr>}
config dhcp pool lease <pool_name 12> [<day 0-365> <hour 0-23> <minute 0-59> | infinite]
config dhcp pool boot_file <pool_name 12> {<file_name 64>}
config dhcp pool next_server <pool_name 12> {<ipaddr>}
config dhcp ping_packets <number 0-10>
config dhcp ping_timeout <millisecond 10-2000>
create dhcp pool manual_binding <pool_name 12> <ipaddr> hardware_address <macaddr> {type [Ethernet | IEEE802]}
delete dhcp pool manual_binding <pool_name 12> [<ipaddr> | all]
clear dhcp binding [<pool_name 12> [<ipaddr> | all] | all]
show dhcp binding {<pool_name 12>}
show dhcp pool {<pool_name 12>}
show dhcp pool manual_binding {<pool_name 12>}
enable dhcp_server
disable dhcp_server
show dhcp_server
clear dhcp conflict_ip [<ipaddr> | all]
show dhcp conflict_ip {<ipaddr>}

21-1 create dhcp excluded_address

Description

This command is used to create a DHCP server exclude address. The DHCP server assumes that all IP addresses in a DHCP pool subnet are available for assigning to DHCP clients. Use this command to specify the IP address that the DHCP server should not assign to clients. This command can be used multiple times in order to define multiple groups of excluded addresses.

Format

create dhcp excluded_address begin_address <ipaddr> end_address <ipaddr>

Parameters

begin_address - Specifies the starting address of the IP address range. **<ipaddr>** - Specifies the starting address of the IP address range.

end_address - Specifies the ending address of the IP address range. **<ipaddr>** - Specifies the ending address of the IP address range.

Restrictions

Only Administrators can issue this command.

Example

To specify the IP address that DHCP server should not assign to clients:

```
DES-3810-28:admin#create dhcp excluded_address begin_address 10.10.10.1
end_address 10.10.10.10
Command: create dhcp excluded_address begin_address 10.10.10.1 end_address
10.10.10.10


Success.


DES-3810-28:admin#
```

21-2 delete dhcp excluded_address

Description

This command is used to delete a DHCP server exclude address.

Format

delete dhcp excluded_address [begin_address <ipaddr> end_address <ipaddr> | all]

Parameters

begin_address - Specifies the starting address of the IP address range. **<ipaddr>** - Specifies the starting address of the IP address range.
end_address - Specifies the ending address of the IP address range. **<ipaddr>** - Specifies the ending address of the IP address range.
all - Specifies to delete all IP addresses.

Restrictions

Only Administrators can issue this command.

Example

To delete a DHCP server exclude address:

```
DES-3810-28:admin#delete dhcp excluded_address begin_address 10.10.10.1
end_address 10.10.10.10
Command: delete dhcp excluded_address begin_address 10.10.10.1 end_address
10.10.10.10


Success.


DES-3810-28:admin#
```

21-3 show dhcp excluded_address

Description

This command is used to display the groups of IP addresses which are excluded from being a legal assigned IP address.

Format

show dhcp excluded_address

Parameters

None.

Restrictions

None.

Example

To display the DHCP server excluded addresses:

```
DES-3810-28:admin#show dhcp excluded_address
Command: show dhcp excluded_address

Index  Begin Address  End Address
-----  -------------  --------------
1      192.168.0.1    192.168.0.100
2      10.10.10.10    10.10.10.11

Total Entries : 2

DES-3810-28:admin#
```

21-4 create dhcp pool

Description

This command is used to create a DHCP pool by specifying a name. After creating a DHCP pool, use other DHCP pool configuration commands to configure parameters for the pool.

Format

create dhcp pool <pool_name 12>

Parameters

<pool_name 12> - Specifies the name of the DHCP pool.

Restrictions

Only Administrators can issue this command.

Example

To create a DHCP pool:

```
DES-3810-28:admin#create dhcp pool nyknicks
Command: create dhcp pool nyknicks

Success.

DES-3810-28:admin#
```

21-5 delete dhcp pool

Description

This command is used to delete a DHCP pool.

Format

delete dhcp pool [<pool_name 12> | all]

Parameters

<pool_name 12> - Specifies the name of the DHCP pool.
all - Specifies to delete all the DHCP pools.

Restrictions

Only Administrators can issue this command.

Example

To delete a DHCP pool:

```
DES-3810-28:admin#delete dhcp pool nyknicks
Command: delete dhcp pool nyknicks

Success.

DES-3810-28:admin#
```

21-6 config dhcp pool network_addr

Description

This command is used to specify the network for the DHCP pool. The addresses in the network are free to be assigned to the DHCP client. The prefix length specifies the number of bits that comprise the address prefix. The prefix is an alternative way of specifying the network mask of the client. The prefix length must be preceded by a forward slash (/). When the DHCP server receives a request from the client, the server will automatically find a pool to allocate the address. If the

request is relayed to the server by the intermediate device, the server will match the gateway IP address carried in the packet against the network of each DHCP pool. The pool which has the longest match will be selected. If the request packet is not through relay, then the server will match the IP address of the IPIF that received the request packet against the network of each DHCP pool.

Format

config dhcp pool network_addr <pool_name 12> <network_address>

Parameters

<pool_name 12> - Specifies the DHCP pool name.
<network_address> - Specifies the IP address that the DHCP server may assign to clients.

Restrictions

Only Administrators can issue this command.

Example

To configure the address range of the DHCP address pool:

```
DES-3810-28:admin#config dhcp pool network_addr nyknicks 10.10.10.0/24
Command: config dhcp pool network_addr nyknicks 10.10.10.0/24

Success.

DES-3810-28:admin#
```

21-7 config dhcp pool domain_name

Description

This command is used to specify the domain name for the client if the server allocates the address for the client from this pool. The domain name configured here will be used as the default domain name by the client. By default, the domain name is empty. If the domain name is empty, the domain name information will not be provided to the client.

Format

config dhcp pool domain_name <pool_name 12> {<domain_name 64>}

Parameters

<pool_name 12> - Specifies the DHCP pool name.
<domain_name 64> - (Optional) Specifies the domain name of the client.

Restrictions

Only Administrators can issue this command.

Example

To configure the domain name option of the DHCP pool:

```
DES-3810-28:admin#config dhcp pool domain_name nyknicks nba.com
Command: config dhcp pool domain_name nyknicks nba.com

Success.

DES-3810-28:admin#
```

21-8 config dhcp pool dns_server

Description

This command is used to specify the IP address of a DNS server that is available to a DHCP client. Up to three IP addresses can be specified on one command line. If DNS server is not specified, the DNS server information will not be provided to the client. If this command is input twice for the same pool, the second command will overwrite the first command.

Format

config dhcp pool dns_server <pool_name 12> {<ipaddr>} {<ipaddr>} {<ipaddr>}

Parameters

<pool_name 12> - Specifies the DHCP pooll name.
<ipaddr> - (Optional) Specifies the IP address of the DNS server. Up to three IP addresses can be specified on one command line.

Restrictions

Only Administrators can issue this command.

Example

To configure the DNS server's IP address:

```
DES-3810-28:admin#config dhcp pool dns_server nyknicks 10.10.10.1
Command: config dhcp pool dns_server nyknicks 10.10.10.1

Success.

DES-3810-28:admin#
```

21-9 config dhcp pool netbios_name_server

Description

This command is used to specify the NetBIOS WINS server that is available to a Microsoft DHCP client. Up to three IP addresses can be specified on one command line.

Windows Internet Naming Service (WINS) is a name resolution service that Microsoft DHCP clients use to correlate host names to IP addresses within a general grouping of networks. If a NetBIOS name server is not specified, the NetBIOS name server information will not be provided

to the client. If this command is input twice for the same pool, the second command will overwrite the first command.

Format

config dhcp pool netbios_name_server <pool_name 12> {<ipaddr>} {<ipaddr>} {<ipaddr>}

Parameters

<pool_name 12> - Specifies the DHCP pool name.
<ipaddr> - (Optional) Specifies the IP address of the WINS server. Up to three IP addresses can be specified on one command line.

Restrictions

Only Administrators can issue this command.

Example

To configure a WINS server IP address:

```
DES-3810-28:admin#config dhcp pool netbios_name_server knicks 10.10.10.1
Command: config dhcp pool netbios_name_server knicks 10.10.10.1

Success.

DES-3810-28:admin#
```

21-10 config dhcp pool netbios_node_type

Description

This command is used to specify the NetBIOS node type for a Microsoft DHCP client.

The NetBIOS node type for Microsoft DHCP clients can be one of four settings: broadcast, peer-to-peer, mixed, or hybrid. Use this command to configure a NetBIOS over TCP/IP device that is described in RFC 1001/1002. By default, the NetBIOS node type is broadcast.

Format

config dhcp pool netbios_node_type <pool_name 12> [broadcast | peer_to_peer | mixed | hybrid]

Parameters

<pool_name 12> - Specifies the DHCP pool name.
broadcast - Specifies the NetBIOS node type for Microsoft DHCP clients as broadcast.
peer_to_peer - Specifies the NetBIOS node type for Microsoft DHCP clients as peer_to_peer.
mixed - Specifies the NetBIOS node type for Microsoft DHCP clients as mixed.
hybrid - Specifies the NetBIOS node type for Microsoft DHCP clients as hybrid.

Restrictions

Only Administrators can issue this command.

Example

To configure the NetBIOS node type:

```
DES-3810-28:admin#config dhcp pool netbios_node_type knicks hybrid
Command: config dhcp pool netbios_node_type knicks hybrid

Success.

DES-3810-28:admin#
```

21-11 config dhcp pool default_router

Description

This command is used to specify the IP address of the default router for a DHCP client. Up to three IP addresses can be specified on one command line.

After a DHCP client has booted, the client begins sending packets to its default router. The IP address of the default router should be on the same subnet as the client. If the default router is not specified, the default router information will not be provided to the client. If this command is input twice for the same pool, the second command will overwrite the first command. The default router must be within the range the network defined for the DHCP pool.

Format

config dhcp pool default_router <pool_name 12> {<ipaddr>} {<ipaddr>} {<ipaddr>}

Parameters

<pool_name 12> - Specifies the DHCP pool name.
<ipaddr> - (Optional) Specifies the IP address of the default router. Up to three IP addresses can be specified on one command line.

Restrictions

Only Administrators can issue this command.

Example

To configure the default router:

```
DES-3810-28:admin#config dhcp pool default_router nyknicks 10.10.10.1
Command: config dhcp pool default_router nyknicks 10.10.10.1

Success.

DES-3810-28:admin#
```

21-12 config dhcp pool lease

Description

This command is used to specify the duration of the DHCP pool lease.

By default, each IP address assigned by a DHCP server comes with a one-day lease, which is the amount of time that the address is valid.

Format

config dhcp pool lease <pool_name 12> [<day 0-365> <hour 0-23> <minute 0-59> | infinite]

Parameters

<pool_name 12> - Specifies the DHCP pool's name.
<day 0-365> - Specifies the number of days of the lease.
<hour 0-23> - Specifies the number of hours of the lease.
<minute 0-59> - Specifies the number of minutes of the lease.
infinite - Specifies a lease of unlimited duration.

Restrictions

Only Administrators can issue this command.

Example

To configure the lease of a pool:

```
DES-3810-28:admin#config dhcp pool lease nyknicks infinite
Command: config dhcp pool lease nyknicks infinite

Success.

DES-3810-28:admin#
```

21-13 config dhcp pool boot_file

Description

This command is used to specify the name of the file that is used as a boot image.

The boot file is used to store the boot image for the client. The boot image is generally the operating system the client uses to load. If this command is input twice for the same pool, the second command will overwrite the first command. If the bootfile is not specified, the boot file information will not be provided to the client.

Format

config dhcp pool boot_file <pool_name 12> {<file_name 64>}

Parameters

<pool_name 12> - Specifies the DHCP pool name.

<file_name 64> - (Optional) Specifies the file name of the boot image.

Restrictions

Only Administrators can issue this command.

Example

To configure the boot file:

```
DES-3810-28:admin#config dhcp pool boot_file engineering boot.had
Command: config dhcp pool boot_file engineering boot.had

Success.

DES-3810-28:admin#
```

21-14 config dhcp pool next_server

Description

This command is used by the DHCP client boot process, typically a TFTP server. If next server information is not specified, it will not be provided to the client. If this command is input twice for the same pool, the second command will overwrite the first command.

Format

config dhcp pool next_server <pool_name 12> {<ipaddr>}

Parameters

<pool_name 12> - Specifies the DHCP pool name.
<ipaddr> - (Optional) Specifies the IP address of the next server.

Restrictions

Only Administrators can issue this command.

Example

To configure the next server:

```
DES-3810-28:admin#config dhcp pool next_server engineering 192.168.0.1
Command: config dhcp pool next_server engineering 192.168.0.1

Success.

DES-3810-28:admin#
```

21-15 config dhcp ping_packets

Description

This command is used to specify the number of ping packets the DHCP server sends to an IP address before assigning this address to a requesting client.

By default, the DHCP server pings a pool address twice before assigning the address to a DHCP client. If the ping is unanswered, the DHCP server assumes (with a high probability) that the address is not in use and assigns the address to the requesting client. If the ping is answered, the server will discard the current IP address and try another IP address.

Format

config dhcp ping_packets <number 0-10>

Parameters

<number 0-10> - Specifies the number of ping packets. 0 means there is no ping test. The default value is 2.

Restrictions

Only Administrators can issue this command.

Example

To configure ping packets:

```
DES-3810-28:admin#config dhcp ping_packets 4
Command: config dhcp ping_packets 4

Success.

DES-3810-28:admin#
```

21-16 config dhcp ping_timeout

Description

This command is used to specify the amount of time the DHCP server must wait before timing out a ping packet.

By default, the DHCP server waits 100 milliseconds before timing out a ping packet.

Format

config dhcp ping_timeout <millisecond 10-2000>

Parameters

<millisecond 10-2000> - Specifies the amount of time the DHCP server must wait before timing out a ping packet. The default value is 100.

Restrictions

Only Administrators can issue this command.

Example

To configure the time out value for ping packets:

```
DES-3810-28:admin#config dhcp ping_timeout 500
Command: config dhcp ping_timeout 500

Success.

DES-3810-28:admin#
```

21-17 create dhcp pool manual_binding

Description

This command is used to specify the distinct identification of the client in dotted-hexadecimal notation or hardware address.

An address binding is a mapping between the IP address and MAC address of a client. The IP address of a client can be assigned manually by an administrator or assigned automatically from a pool by a DHCP server.

The IP address specified in the manual binding entry must be in a range within that the network uses for the DHCP pool. If the user specifies a conflict IP address, an error message will be returned. If a number of manual binding entries are created, and the network address for the pool is changed such that conflicts are generated, those manual binding entries which conflict with the new network address will be automatically deleted.

Format

create dhcp pool manual_binding <pool_name 12> <ipaddr> hardware_address <macaddr> {type [Ethernet | IEEE802]}

Parameters

<pool_name 12> - Specifies the DHCP pool name.
<ipaddr> - Specifies the IP address which will be assigned to a specified client.
hardware_address - Specifies the hardware MAC address. **<macaddr>** - Enter the MAC address here.
type - (Optional) Specifies the DHCP pool manual binding type. **Ethernet** - Specifies Ethernet type. **IEEE802** -Specifies IEEE802 type.

Restrictions

Only Administrators can issue this command.

Example

To configure manual bindings:

```
DES-3810-28:admin#create dhcp pool manual_binding engineering 10.10.10.1
hardware_address 00-80-C8-02-02-02 type Ethernet
Command: create dhcp pool manual_binding engineering 10.10.10.1
hardware_address 00-80-C8-02-02-02 type Ethernet


Success.


DES-3810-28:admin#
```

21-18 delete dhcp pool manual_binding

Description

This command is used to delete DHCP server manual binding.

Format

delete dhcp pool manual_binding <pool_name 12> [<ipaddr> | all]

Parameters

<pool_name 12> - Specifies the DHCP pool name.
<ipaddr> - Specifies the IP address which will be assigned to a specified client. **all** - Specifies to delete all IP addresses.

Restrictions

Only Administrators can issue this command.

Example

To delete DHCP server manual binding:

```
DES-3810-28:admin#delete dhcp pool manual_binding engineering 10.10.10.1
Command: delete dhcp pool manual_binding engineering 10.10.10.1

Success.

DES-3810-28:admin#
```

21-19 clear dhcp binding

Description

This command is used to clear a binding entry or all binding entries in a pool or clears all binding entries in all pools. Note that this command will not clear the dynamic binding entry which matches a manual binding entry.

Format

clear dhcp binding [<pool_name 12> [<ipaddr> | all] | all]

Parameters

<pool_name 12> - Specifies the DHCP pool name to clear. **<ipaddr>** - Specifies the IP address to clear. **all** - Specifies to clear all IP addresses.
all - Specifies to clear all DHCP pool names and IP addresses.

Restrictions

Only Administrators can issue this command.

Example

To clear dynamic binding entries in the pool named “engineering”:

```
DES-3810-28:admin#clear dhcp binding engineering 10.20.3.4
Command: clear dhcp binding engineering 10.20.3.4

Success.

DES-3810-28:admin#
```

21-20 show dhcp binding

Description

This command is used to display dynamic binding entries.

Format

show dhcp binding {<pool_name 12>}

Parameters

<pool_name 12> - (Optional) Specifies a DHCP pool name.

Restrictions

None.

Example

To display dynamic binding entries for “engineering”:

```
DES-3810-28:admin#show dhcp binding engineering
Command: show dhcp binding engineering

Pool Name     IP Addresss    Hardware Address   Type      Status   Lifetime
------------  -------------- ------------------ --------  -------  ---------
engineering   192.168.0.1    00-80-C8-08-13-88  Ethernet  Manual    86400
engineering   192.168.0.2    00-80-C8-08-13-99  Ethernet  Automatic  38600
engineering   192.168.0.3    00-80-C8-08-13-A0  Ethernet  Offering      -
engineering   192.168.0.4    00-80-C8-08-13-B0  Ethernet  BOOTP     Infinite
```

```
Total Entries: 4

DES-3810-28:admin#
```

21-21 show dhcp pool

Description

This command is used to display the information for DHCP pool. If pool name is not specified, information for all pools will be displayed.

Format

show dhcp pool {<pool_name 12>}

Parameters

<pool_name 12> - (Optional) Specifies the DHCP pool name.

Restrictions

None.

Example

To display the current DHCP pool information for “engineering”:

```
DES-3810-28:admin#show dhcp pool engineering
Command: show dhcp pool engineering

Pool Name         : engineering
Network Address   : 10.10.10.0/24
Domain Name       : dlink.com
DNA Server        : 10.10.10.1
NetBIOS Name Server : 10.10.10.1
NetBIOS Node Type : broadcast
Default Router    : 10.10.10.1
Pool Lease        : 10 days, 0 hours, 0 minutes
Boot File         : boot.bin
Next Server       : 10.10.10.2

DES-3810-28:admin#
```

21-22 show dhcp pool manual_binding

Description

This command is used to display the configured manual binding entries.

Format

show dhcp pool manual_binding {<pool_name 12>}

Parameters

<pool_name 12> - (Optional) Specifies the DHCP pool name.

Restrictions

None.

Example

To display the configured manual binding entries:

```
DES-3810-28:admin#show dhcp pool manual_binding
Command: show dhcp pool manual_binding

Pool Name    IP Address    Hardware Address   Type
------------ ------------- ------------------ --------
p1           192.168.0.1   00-80-C8-08-13-88  Ethernet
p1           192.168.0.2   00-80-C8-08-13-99  Ethernet

Total Entries : 2

DES-3810-28:admin#
```

21-23 enable dhcp_server

Description

This command is used to enable the DHCP server function.

If DHCP relay is enabled, DHCP server cannot be enabled. The opposite is also true. For Layer 2 switches, if DHCP client is enabled on the only interface, then DHCP server cannot be enabled. For layer 3 switches, when the System interface is the only interface then can DHCP client be enabled. If the DHCP client is enabled, then the DHCP server cannot be enabled.

Format

enable dhcp_server

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To enable DHCP server:

```
DES-3810-28:admin#enable dhcp_server
Command: enable dhcp_server

Success.

DES-3810-28:admin#
```

21-24 disable dhcp_server

Description

This command is used to disable the DHCP server function on the switch.

Format

disable dhcp_server

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To disable the Switch's DHCP server:

```
DES-3810-28:admin#disable dhcp_server
Command: disable dhcp_server

Success.

DES-3810-28:admin#
```

21-25 show dhcp_server

Description

This command is used to display the current DHCP server configuration.

Format

show dhcp_server

Parameters

None.

Restrictions

None.

Example

To display the DHCP server status:

```
DES-3810-28:admin#show dhcp_server
Command: show dhcp_server

  DHCP Server Global State: Disabled
  Ping Packet Number      : 2
  Ping Timeout            : 100 ms

DES-3810-28:admin#
```

21-26 clear dhcp conflict_ip

Description

This command is used to clear an entry or all entries from the conflict IP database.

Format

clear dhcp conflict_ip [<ipaddr> | all]

Parameters

<ipaddr> - Specifies the IP address to be cleared.
all - Specifies that all IP addresses will be cleared.

Restrictions

Only Administrators can issue this command.

Example

To clear an IP address 10.20.3.4 from the conflict database:

```
DES-3810-28:admin#clear dhcp conflict_ip 10.20.3.4
Command: clear dhcp conflict_ip 10.20.3.4

Success.

DES-3810-28:admin#
```

21-27 show dhcp conflict_ip

Description

This command is used to display the IP address that has been identified as being in conflict.

The DHCP server will use ping packet to determine whether an IP address is conflicting with other hosts before binding this IP. The IP address which has been identified in conflict will be moved to the conflict IP database. The system will not attempt to bind the IP address in the conflict IP database unless the user clears it from the conflict IP database.

Format

show dhcp conflict_ip {<ipaddr>}

Parameters

<ipaddr> - (Optional) Specifies the IP address to be displayed.

Restrictions

None.

Example

To display the entries in the DHCP conflict IP database:

```
DES-3810-28:admin#show dhcp conflict_ip
Command: show dhcp conflict_ip

 IP Address    Detection Method   Detection Time
-----------   ----------------   --------------------
172.16.1.32   Ping               2007/08/30 17:06:59
172.16.1.32   Gratuitous ARP     2007/09/10 19:38:01

DES-3810-28:admin#
```

Chapter 22 DHCPv6 Relay Commands

enable dhcpv6_relay
disable dhcpv6_relay
config dhcpv6_relay [add | delete] ipif <ipif_name 12> <ipv6addr>
config dhcpv6_relay hop_count <value 1-32>
config dhcpv6_relay ipif [<ipif_name 12> | all] state [enable | disable]
show dhcpv6_relay {ipif <ipif_name 12>}

22-1 enable dhcpv6_relay

Description

This command is used to enable the DHCPv6 relay function on the Switch.

Format

enable dhcpv6_relay

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the DHCPv6 relay global state to enable:

```
DES-3810-28:admin# enable dhcpv6_relay
Command: enable dhcpv6_relay

Success.

DES-3810-28:admin#
```

22-2 disable dhcpv6_relay

Description

This command is used to disable the DHCPv6 relay function on the Switch.

Format

disable dhcpv6_relay

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the DHCPv6 relay global state to disable:

```
DES-3810-28:admin# disable dhcpv6_relay
Command: disable dhcpv6_relay

Success.

DES-3810-28:admin#
```

22-3 config dhcpv6_relay

Description

The command could add/delete an IPv6 address which is a destination to forward (relay) DHCPv6 packets.

Format

config dhcpv6_relay [add | delete] ipif <ipif_name 12> <ipv6addr>

Parameters

add - Add an IPv6 destination to the DHCPv6 relay table. **delete** - Delete an IPv6 destination from the DHCPv6 relay table
ipif - The name of the IP interface in which DHCPv6 relay is to be enabled. **<ipif_name 12>** - Enter the IP interface name here. This name can be up to 12 characters long.
<ipv6addr> - The DHCPv6 server IP address.

Restrictions

Only Administrators and Operators can issue this command.

Example

To add a DHCPv6 server to the relay table:

```
DES-3810-28:admin# config dhcpv6_relay add ipif System
2001:DB8:1234:0:218:FEFF:FEFB:CC0E
Command: config dhcpv6_relay add ipif System 2001:DB8:1234:0:218:FEFF:FEFB:CC0E

Success.

DES-3810-28:admin#
```

22-4 config dhcpv6_relay hop_count

Description

Configure the DHCPv6 relay hop_count of the switch.

Format

config dhcpv6_relay hop_count <value 1-32>

Parameters

hop_count - Specifies the number of relay agents that have relayed this message. The default value is 4. **<value 1-32>** - Enter the hop count number here. This value must be between 1 and 32.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the maximum hops of a DHCPv6 relay packet could be transferred to 4:

```
DES-3810-28:admin# config dhcpv6_relay hop_count 4
Command: config dhcpv6_relay hop_count 4

Success.

DES-3810-28:admin#
```

22-5 config dhcpv6_relay ipif

Description

The command is used to configure the DHCPv6 relay state of one specific interface or all interfaces.

Format

config dhcpv6_relay ipif [<ipif_name 12> | all] state [enable | disable]

Parameters

ipif - Specifies the name of the IP interface. **<ipif_name 12>** - Enter the IP interface name used here. This name can be up to 12 characters long. **all** - Specifies that all the configured IP interfaces wil be used..
state - Specifies if the DHCPv6 relay state will be enabled or disabled. **enable** - Choose this parameter to enable the DHCPv6 relay state of the interface. **disable** - Choose this parameter to disable the DHCPv6 relay state of the interface.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the DHCPv6 relay state of the System interface to enable:

```
DES-3810-28:admin#  config dhcpv6_relay ipif System state enable
Command: config dhcpv6_relay ipif System state enable

Success.

DES-3810-28:admin#
```

22-6 show dhcpv6_relay

Description

This command will display the current DHCPv6 relay configuration of all interfaces, or if an IP interface name is specified, display the DHCPv6 relay configuration for that IP interface.

Format

show dhcpv6_relay {ipif <ipif_name 12>}

Parameters

ipif - (Optional) The name of the IP interface for which to display the current DHCPv6 relay configuration. **<ipif_name 12>** - Enter the IP interface name used here. This name can be up to 12 characters long.
If no IP interface is specified, all configured DHCPv6 relay interfaces are displayed.

Restrictions

None.

Example

To show the DHCPv6 relay configuration of all interfaces:

```
DES-3810-28:admin# show dhcpv6_relay
Command: show dhcpv6_relay

DHCPv6 Relay Global State : Disabled
DHCPv6 Hops Count Limit   : 4
------------------------------------------------------------
IP Interface              : n81
DHCPv6 Relay Status       : Enabled
Server Address            :

IP Interface              : n90
DHCPv6 Relay Status       : Enabled
Server Address            :

IP Interface              : n1000
DHCPv6 Relay Status       : Enabled
Server Address            :

Total Entries : 3

DES-3810-28:admin#
```

To show the DHCPv6 relay configuration of System interface:

```
DES-3810-28:admin# show dhcpv6_relay ipif System
Command: show dhcpv6_relay ipif System

DHCPv6 Relay Global State : Disabled
DHCPv6 Hops Count Limit   : 4
------------------------------------------------------------
IP Interface              : System
DHCPv6 Relay Status       : Enabled
Server Address            : 2001:DB8:1234::218:FEFF:FEFB:CC0E
Server Address            : 3000:90:1::6

DES-3810-28:admin#
```

Chapter 23 Distance Vector Multicast Routing Protocol (DVMRP) Commands

config dvmrp [ipif <ipif_name 12> | all] {metric <value 1-31> | probe <sec 1-65535> | neighbor_timeout <sec 1-65535> | state [enable | disable]}
enable dvmrp
disable dvmrp
show dvmrp {ipif <ipif_name 12>}
show dvmrp neighbor {ipif <ipif_name 12> | ipaddress <network_address>}
show dvmrp nexthop {ipaddress <network_address> | ipif <ipif_name 12>}
show dvmrp routing_table {ipaddress <network_address>}

23-1 config dvmrp

Description

This command is used to configure DVMRP configurations.

Format

config dvmrp [ipif <ipif_name 12> | all] {metric <value 1-31> | probe <sec 1-65535> | neighbor_timeout <sec 1-65535> | state [enable | disable]}

Parameters

ipif - Specifies the IP interface name used. **<ipif_name 12>** - Enter the IP interface name used here. This name can be up to 12 characters long. **all** - Specifies that all the IP interfaces will be used.
metric - (Optional) Allows the assignment of a DVMRP route cost to the above IP interface. A DVMRP route cost is a relative number that represents the real cost of using this route in the construction of a multicast delivery tree. It is similar to, but not defined as, the hop count in RIP. **<value 1-31>** - Enter the metric value used here. This value must be between 1 and 31. The default value is 1.
probe - (Optional) Specifies the time in seconds between the DVMRP Probe message transmissions. **<sec 1-65535>** - Enter the probe value used here. This value must be between 1 and 65535 seconds. The default value is 10 seconds.
neighbor_timeout - (Optional) Specifies the time period that DVMRP will hold a DVMRP neighbor before the neighbor's Expire Timer expired. **<sec 1-65535>** - Enter the neighbor timeout value used here. This value must be between 1 and 65535 seconds. The default value is 35 seconds.
state - (Optional) Specifies the DVMRP state of the IP interface. **enable** - Specifies that DVMRP of the specified IP interface will be enabled.

disable - Specifies that DVMRP of the specified IP interface will be disabled.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure DVMRP configurations of IP interface called 'System':

```
DES-3810-28:admin# config dvmrp ipif System neighbor_timeout 30 metric 1 probe
5
Command: config dvmrp ipif System neighbor_timeout 30 metric 1 probe 5

Success

DES-3810-28:admin#
```

23-2 enable dvmrp

Description

This command is used to enable the DVMRP global state on the Switch.

Format

enable dvmrp

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable DVMRP:

```
DES-3810-28:admin# enable dvmrp
Command: enable dvmrp

Success.

DES-3810-28:admin#
```

23-3 disable dvmrp

Description

This command is used to disable the DVMRP global state on the Switch.

Format

disable dvmrp

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable DVMRP:

```
DES-3810-28:admin# disable dvmrp
Command: disable dvmrp

Success.

DES-3810-28:admin#
```

23-4 show dvmrp

Description

This command is used to display DVMRP configurations.

Format

show dvmrp {ipif <ipif_name 12>}

Parameters

ipif - (Optional) Specifies the IP interface name used for the display. **<ipif_name 12>** - Enter the IP interface name used for the display here. This name can be up to 12 characters long.
If no parameter is specified, then all the IP interfaces will be displayed.

Restrictions

None.

Example

To display DVMRP configurations:

```
DES-3810-28:admin#show dvmrp
Command: show dvmrp

DVMRP Global State : Disabled

Interface     IP Address         Neighbor Timeout   Probe  Metric  State
------------  -----------------  ----------------   -----  ------  --------
System        192.168.69.123     35                 10     1       Disabled

Total Entries: 1

DES-3810-28:admin#
```

23-5 show dvmrp neighbor

Description

This command is used to display the DVMRP neighbor table.

Format

show dvmrp neighbor {ipif <ipif_name 12> | ipaddress <network_address>}

Parameters

ipif - (Optional) Specifies the IP interface name used for the display. **<ipif_name 12>** - Enter the IP interface name used for the display here. This name can be up to 12 characters long.
ipaddress - (Optional) Specifies the IP address and netmask of the destination used. **<network_address>** - Enter the IP address and netmask of the destination used here.
If no parameter is specified, the system will display the whole DVMRP neighbor table.

Restrictions

None.

Example

To display DVMRP neighbor table:

```
DES-3810-28:admin# show dvmrp neighbor
Command: show dvmrp neighbor

DVMRP Neighbor Address Table
Interface        Neighbor Address  Generation ID  Expire Time
---------------  ----------------  -------------  -----------
System           10.48.74.123      86             32

Total Entries : 1

DES-3810-28:admin#
```

23-6 show dvmrp nexthop

Description

This command is used to display the DVMRP routing next hop table.

Format

show dvmrp nexthop {ipaddress <network_address> | ipif <ipif_name 12>}

Parameters

ipaddress - (Optional) Specifies the IP address and netmask of the destination used. **<network_address>** - Enter the IP address and netmask of the destination used here.
ipif - (Optional) Specifies the IP interface name used for the display. **<ipif_name 12>** - Enter the IP interface name used for the display here. This name can be up to 12 characters long.
If no parameter is specified, the system will display all the DVMRP routing next hop tables.

Restrictions

None.

Example

To display DVMRP routing next hop table:

```
DES-3810-28:admin# show dvmrp nexthop
Command: show dvmrp nexthop

Source Address/NetMask  Interface Name   Type
----------------------  ---------------  ------
10.0.0.0/8              ip2              Leaf
10.0.0.0/8              ip3              Leaf
20.0.0.0/8              System           Leaf
20.0.0.0/8              ip3              Leaf
30.0.0.0/8              System           Leaf
30.0.0.0/8              ip2              Leaf

Total Entries : 6

DES-3810-28:admin#
```

23-7 show dvmrp routing_table

Description

This command is used to display the DVMRP routing table.

Format

show dvmrp routing_table {ipaddress <network_address>}

Parameters

ipaddress - (Optional) Specifies the IP address and netmask of the destination used. **<network_address>** - Enter the IP address and netmask of the destination used here.
If no parameter is specified, the system will display the whole DVMRP routing table.

Restrictions

None.

Example

To display DVMRP routing table:

```
DES-3810-28:admin# show dvmrp routing_table
Command: show dvmrp routing_table

DVMRP Routing Table
Source Address/Netmask  Upstream Neighbor  Metric  Learned  Interface   Expire
----------------------  -----------------  ------  -------  ----------  ------
10.0.0.0/8              10.90.90.90        2       Local    System      -
20.0.0.0/16             20.1.1.1           2       Local    ip2         -
30.0.0.0/24             30.1.1.1           2       Local    ip3         -

Total Entries : 3

DES-3810-28:admin#
```

Chapter 24 DNS Relay Commands

config dnsr [[primary | secondary] nameserver <ipaddr> | [add | delete] static <domain_name 32> <ipaddr>]
enable dnsr {[cache | static]}
disable dnsr {[cache | static]}
show dnsr {static}

24-1 config dnsr

Description

This command is used to add or delete a static entry into the Switch's DNS resolution table, or set up the relay server.

Format

config dnsr [[primary | secondary] nameserver <ipaddr> | [add | delete] static <domain_name 32> <ipaddr>]

Parameters

primary - Specifies to indicate that the IP address below is the address of the primary DNS server.
secondary - Specifies to indicate that the IP address below is the address of the secondary DNS server.
nameserver - Specifies the IP address of the DNS nameserver. **<ipaddr>** - Specifies the IP address of the DNS nameserver.
add - Specifies to add the DNS relay function.
delete - Specifies to delete the DNS relay function.
static - Specifies the domain name of the entry. **<domain_name32>** - Specifies the domain name. **<ipaddr>** - Specifies the IP address of the entry.

Restrictions

Only Administrators and Operators can issue this command.

Example

To set IP address 10.24.22.5 as the primary DNS server:

```
DES-3810-28:admin# config dnsr primary nameserver 10.24.22.5
Command: config dnsr primary nameserver 10.24.22.5

Success.

DES-3810-28:admin#
```

To add the entry “dns1” with IP address 10.24.22.5 to the DNS static table:

```
DES-3810-28:admin#config dnsr add static dns1 10.24.22.5
Command: config dnsr add static dns1 10.24.22.5

Success.

DES-3810-28:admin#
```

To delete the entry “dns1” with IP address 10.24.22.5 from the DNS static table:

```
DES-3810-28:admin#config dnsr delete static dns1 10.24.22.5
Command: config dnsr delete static dns1 10.24.22.5

Success.

DES-3810-28:admin#
```

24-2 enable dnsr

Description

This command is used to enable DNS relay.

Format

enable dnsr {[cache | static]}

Parameters

cache - Specifies to enable the cache lookup for the DNS relay on the switch.
static - Specifies to enable the static table lookup for the DNS relay on the switch.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable DNS relay:

```
DES-3810-28:admin#enable dnsr
Command: enable dnsr

Success.

DES-3810-28:admin#
```

To enable cache lookup for DNS relay:

```
DES-3810-28:admin#enable dnsr cache
Command: enable dnsr cache

Success.

DES-3810-28:admin#
```

To enable static table lookup for DNS relay:

```
DES-3810-28:admin#enable dnsr static
Command: enable dnsr static

Success.

DES-3810-28:admin#
```

24-3 disable dnsr

Description

This command is used to disable DNS relay on the switch.

Format

disable dnsr {[cache | static]}

Parameters

cache - (Optional) Specifies to disable the cache lookup for the DNS relay on the switch.
static - (Optional) Specifies to disable the static table lookup for the DNS relay on the switch.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable the status of DNS relay:

```
DES-3810-28:admin#disable dnsr
Command: disable dnsr

Success.

DES-3810-28:admin#
```

To disable cache lookup for DNS relay:

```
DES-3810-28:admin#disable dnsr cache
Command: disable dnsr cache

Success.

DES-3810-28:admin#
```

To disable static table lookup for DNS relay:

```
DES-3810-28:admin#disable dnsr static
Command: disable dnsr static

Success.

DES-3810-28:admin#
```

24-4 show dnsr

Description

This command is used to display the current DNS relay configuration and static entries.

Format

show dnsr {static}

Parameters

static - (Optional) Specifies to display the static entries in the DNS relay table. If this parameter is omitted, the entire DNS relay table will be displayed.

Restrictions

None.

Example

To display the DNS relay status:

```
DES-3810-28:admin#show dnsr
Command: show dnsr

DNSR Status             : Disabled
Primary Name Server     : 0.0.0.0
Secondary Name Server   : 0.0.0.0
DNSR Cache Status       : Disabled
DNSR Static Table Status : Disabled

DNS Relay Static Table

Domain Name                              IP Address
---------------------------------------- ---------------
```

```
www.123.com.tw                          10.12.12.123

Total Entries: 1

DES-3810-28:admin#
```

Chapter 25 D-Link Unidirectional Link Detection (DULD) Commands

config duld ports [<portlist> | all] {state [enable | disable] | mode [shutdown | normal] | discovery_time <sec 5-65535>}(1)
show duld ports {<portlist>}

25-1 config duld ports

Description

The command is used to configure unidirectional link detection on ports.

Unidirectional link detection provides discovery mechanism based on 802.3ah to discovery its neighbor. If the OAM discovery can complete in configured discovery time, it concludes the link is bidirectional. Otherwise, it starts detecting task to detect the link status.

Format

config duld ports [<portlist> | all] {state [enable | disable] | mode [shutdown | normal] | discovery_time <sec 5-65535>}

Parameters

ports - Specifies a range of ports to be used. **<portlist>** - Enter the list of ports used for this configuration here. **all** – Specifies that all the ports will be used for this configuration.
state - (Optional) Specifies these ports unidirectional link detection status. The default state is disabled. **enable** - Specifies that the unidirectional link detection status will be enabled. **disable** - Specifies that the unidirectional link detection status will be disabled.
mode - (Optional) Specifies the mode the unidirectional link detection will be set to. **shutdown** - If any unidirectional link is detected, disable the port and log an event. **normal** - Only log an event when a unidirectional link is detected.
discovery_time - (Optional) Specifies these ports neighbor discovery time. If the discovery is timeout, the unidirectional link detection will start. The default discovery time is 5 seconds. **<sec 5-65535>** - Enter the discovery time value here. This value must be between 5 and 65535.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable unidirectional link detection on port 1:

```
DES-3810-28:admin# config duld ports 1 state enable
Commands: config duld ports 1 state enable

Success

DES-3810-28:admin#
```

25-2 show duld ports

Description

This command is used to show unidirectional link detection information.

Format

show duld ports {<portlist>}

Parameters

ports - (Optional) Specifies a range of ports to be display. **<portlist>** - Enter the list of ports to be displayed here.
If no ports are specified, all the ports will be displayed.

Restrictions

None.

Example

To show ports 1-4 unidirectional link detection information:

```
DES-3810-28:admin#config duld ports 1,2,4 state enable
Commands: config duld ports 1,2,4 state enable

Success

DES-3810-28:admin#show duld ports 1-4
Commands: show duld ports 1-4

port   Admin State  Oper Status  Mode            Link Status        Discovery
Time(Sec)
----   -----------  -----------  ----------     --------------     -----------
1       Enabled       Enabled       Shutdown       Bidirectional      5
2       Enabled       Enabled       Normal         RX Fault            5
3       Enabled       Enabled       Normal         TX Fault            5
4       Disabled      Disabled      Normal         Unknown             5

DES-3810-28:admin#
```

Chapter 26 Ethernet Ring Protection Switching (ERPS) Commands

enable erps
disable erps
create erps raps_vlan <vlanid>
delete erps raps_vlan <vlanid>
config erps raps_vlan <vlanid> [state [enable | disable] | ring_mel <value 0-7> | ring_port [west [<port> | virtual_channel] | east [<port> | virtual_channel]] | rpl_port [west | east | none] | rpl_owner [enable | disable] | protected_vlan [add | delete] vlanid <vidlist> | sub_ring raps_vlan <vlanid> tc_propagation state [enable | disable] | [add | delete] sub_ring raps_vlan <vlanid> | revertive [enable | disable] | timer {holdoff_time <millisecond 0-10000> | guard_time <millisecond 10-2000> | wtr_time <min 5-12>}(1)]
config erps log [enable | disable]
config erps trap [enable | disable]
show erps {raps_vlan <vlanid> {sub_ring}}

26-1 enable erps

Description

This command is used to enable the ERPS function on a switch. STP and LBD should be disabled on the ring ports before enabling ERPS. ERPS cannot be enabled before the R-APS VLAN is created, and ring ports, an RPL port, an RPL owner, are configured. Note that these parameters cannot be changed when ERPS is enabled. In order to guarantee correct operation, the following integrity will be checked when ERPS is enabled:

1. The R-APS VLAN is created.
2. The Ring port is a tagged member port of the R-APS VLAN.
3. The RPL port is specified if the RPL owner is enabled.
4. The RPL port is not a virtual channel.
5. The Ring port is the master port if it belongs to a link aggregation group.

Format

enable erps

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable ERPS:

```
DES-3810-28:admin#enable erps
Command: enable erps

Success.

DES-3810-28:admin#
```

26-2 disable erps

Description

This command is used to disable the ERPS function on the switch.

Format

disable erps

Parameters

None. The ERPS is disabled by default.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable ERPS:

```
DES-3810-28:admin#disable erps
Command: disable erps

Success.

DES-3810-28:admin#
```

26-3 create erps raps_vlan

Description

This command is used to create an R-APS VLAN on the switch. There should be only one R-APS VLAN used to transfer R-APS messages. Note that the R-APS VLAN must already have been created by the create vlan command. This command can only be issued when ERPS is disabled or enabled.

Format

create erps raps_vlan <vlanid>

Parameters

<vlanid> - Specifies the VLAN which will be the R-APS VLAN.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create an ERPS RAPS VLAN:

```
DES-3810-28:admin#create erps raps_vlan 4094
Command: create erps raps_vlan 4094

Success.

DES-3810-28:admin#
```

26-4 delete erps raps_vlan

Description

This command is used to delete an R-APS VLAN on the switch. When an R-APS VLAN is deleted, all parameters related to this R-APS VLAN will also be deleted. This command can only be issued when this ring is disabled or when ERPS is globally disabled.

Format

delete erps raps_vlan <vlanid>

Parameters

<vlanid> - Specifies the VLAN ID of the R-APS VLAN.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete an R-APS VLAN:

```
DES-3810-28:admin#delete erps raps_vlan 4094
Command: delete erps raps_vlan 4094

Success.

DES-3810-28:admin#
```

26-5 config erps raps_vlan

Description

This command is used to set the R-APS VLAN parameters. The **ring_mel** command is used to configure the ring MEL for an R-APS VLAN. The ring MEL is one field in the R-APS PDU. Note that if CFM (Connectivity Fault Management) and ERPS are used at the same time, R-APS PDU is one of a suite of Ethernet OAM PDU. The behavior for forwarding of R-APS PDU should follow the Ethernet OAM. If the ring MEL is not higher than the highest MEL of the MEPs on the ring ports, the R-APS PDU cannot be forwarded on the ring.

The **ring_port** command is used to configure the port that participates in the ERPS ring. Restrictions apply for ports that are included in a link aggregation group. A link aggregation group can be configured as a ring port by specifying the master port of the link aggregation port. Only the master port can be specified as a ring port. If the specified link aggregation group is eliminated, the master port retains its ring port status.

Ring ports can be modified when ERPS is enabled.

Note that modifying the ring port number may not take effect immediately when the ERPS function is enabled. The ring will still run the old configuration protocols if the follow conditions are not satisfied:

- The Ring port is a tagged member port of the R-APS VLAN.
- The RPL port is not in the virtual channel.
- The Ring port is the master port if it belongs to a link aggregation group.

The **rpl** command is used to configure the RPL port and the RPL owner.

RPL port - Specifies one of the R-APS VLAN ring ports as the RPL port. To remove an RPL port from an R-APS VLAN, use the **none** designation for **rpl_port**.

RPL owner - Specifies the node as the RPL owner. Note that modifying the RPL port and RPL owner may not take effect immediately when the ERPS function is enabled. The ring will still run on the old configuration protocols if the follow conditions are not satisfied:

- The RPL port is specified if the RPL owner is enabled.
- The RPL port is not virtual channel.

The **protected_vlan** command is used to configure the VLANs that are protected by the ERPS function.

The R-APS VLAN cannot be the protected VLAN. The protected VLAN can be one that has already been created, or it can be used for a VLAN that has not yet been created.

The **timer** commands are used to configure the protocol timers:

Holdoff timer - Hold-off timer is used to filter out intermittent link faults when link failure occurs. This timer is used during the protection switching process when link failure occurs. When a ring node detects a link's failure, it will start the hold off timer. It will report the link failure event (R-APS BPDU with SF flag) after the link failure is confirmed within this period of time.

Guard timer - Guard timer is used to prevent ring nodes from receiving outdated R-APS messages. This timer is used during the protection switching process when link failure recovers. When the link node detects that the link failure is recovered, it will report the link failure recovery event (R-APS PDU with NR flag) and start the guard timer before the guard timer expires, all received R-APS messages are ignored by this ring node. Therefore, the blocking state of the recovered link will not be recovered within this period of time. This time should be greater than the maximum expected forwarding delay for which one R-APS message circles around the ring.

WTR timer - WTR timer is used to prevent frequent operation of the protection switch due to an intermittent defect. This timer is used during the protection switching process when a link failure recovers. This timer is only used by the RPL owner. When the RPL owner in protection state receives R-APS PDU with an NR flag, it will start the WTR timer. The RPL owner will block the original unblocked RPL port and start to send R-APS PDU with an RB flag after the link recovery is confirmed within this period of time.

Format

config erps raps_vlan <vlanid> [state [enable | disable] | ring_mel <value 0-7> | ring_port [west [<port> | virtual_channel] | east [<port> | virtual_channel]] | rpl_port [west | east | none] | rpl_owner [enable | disable] | protected_vlan [add | delete] vlanid <vidlist> | sub_ring raps_vlan <vlanid> tc_propagation state [enable | disable] | [add | delete] sub_ring raps_vlan <vlanid> | revertive [enable | disable] | timer {holdoff_time <millisecond 0-10000> | guard_time <millisecond 10-2000> | wtr_time <min 5-12>}(1)]

Parameters

<vlanid> - The VLAN ID associated with the R-APS VLAN.
state - Specifies the ERPS R-APS VLAN state. **enable** - Specifies that the ERPS R-APS VLAN state will be enabled. **disable** - Specifies that the ERPS R-APS VLAN state will be disabled.
ring_mel - Specifies the ring MEL of the R-APS function. The default ring MEL is 1. **<value 0-7>** - Specifies a value between 0 and 7.
ring_port - Specifies a port participating in the ERPS ring. **west** - Specifies the port as the west ring port. **<port>** - Specifies a port. **virtual_channel** - Specifies the port as a west port on the virtual channel. **east** - Specifies the port as the east ring port. **<port>** - Specifies a port. **virtual_channel** - Specifies the port as an east port on the virtual channel.
rpl_port - By default, the node has no RPL port. **west** - Specifies the west ring port as the RPL port. **east** - Specifies the east ring port as the RPL port. **none** - No RPL port on this node.
rpl_owner - By default, the RPS owner is disabled. **enable** - Specifies the device as an RPL owner node. **disable** - This node is not an RPL owner.
protected_vlan - Specifies VLANs that are protected by the ERPS function. The R-APS VLAN cannot be the protected VLAN. The protected VLAN can be one that has already been created, or it can be used for a VLAN that has not yet been created. **add** - Add VLANs to the protected VLAN group **delete** - Delete VLANs from the protected VLAN group. **vlanid** - Specifies a VLAN ID list. **<vidlist>** - Specifies a range of VLAN IDs.
sub_ring - Specifies to configure a sub-ring connected to another ring. **raps_vlan** - Specifies the R-APS VLAN that will be configured. **<vlanid>** - Enter the the R-APS VLAN ID, that will be configured, here.

tc_propagation - Specifies to configure the state of the topology change propagation for the sub-ring. **state** - Specifies the propagation state of the topology change for the sub-ring. **enable** - Specifies to enable the propagation state of the topology change for the sub-ring. **disable** - Specifies to disable the propagation state of the topology change for the sub-ring.
add - Connect the sub-ring to another ring. **delete** - Disconnect the sub-ring from the connected ring. **sub_ring** - Specifies to configure a sub-ring connected to another ring. **raps_vlan** - Specifies the R-APS VLAN that will be configured. **<vlanid>** - Enter the the R-APS VLAN ID, that will be configured, here.
revertive - Specifies to configure the revertive mode. **enable** - Specifies that the revertive mode will be enabled. **disable** - Specifies that the revertive mode will be disabled.
timer - Configure the ERPS timers for a specific R-APS VLAN. **holdoff_time** - (Optional) Specifies the holdoff time of the R-APS function. **<value 0-10000>** - Specifies the time between 0 and 10000. The default hold off time is 0 milliseconds. **guard_time** - (Optional) Specifies the guard time of the R-APS function. **<value 10-2000>** - Specifies the time between 10 and 2000. The default guard time is 500 milliseconds. **wtr_time** - (Optional) Specifies the WTR time of the R-APS function. **<value 5-12>** - Specifies the time between 5 and 12. The default WTR time is 5 minutes.

Restrictions

Only Administrators and Operators can issue this command.

Example

To set the R-APS west ring port parameter to 5:

```
DES-3810-28:admin#config erps raps_vlan 4094 ring_port west 5
Command: config erps raps_vlan 4094 ring_port west 5

Success.

DES-3810-28:admin#
```

To set the R-APS east ring port parameter to 7:

```
DES-3810-28:admin#config erps raps_vlan 4094 ring_port east 7
Command: config erps raps_vlan 4094 ring_port east 7

Success.

DES-3810-28:admin#
```

To set the R-APS RPL parameter:

```
DES-3810-28:admin#config erps raps_vlan 4094 rpl_port west
Command: config erps raps_vlan 4094 rpl_port west

Success.
```

```
DES-3810-28:admin#config erps raps_vlan 4094 rpl_owner enable
Command: config erps raps_vlan 4094 rpl_owner enable

Success.

DES-3810-28:admin#
```

To set the R-APS protected VLAN parameter:

```
DES-3810-28:admin#config erps raps_vlan 4094 protected_vlan add vlanid 10-20
Command: config erps raps_vlan 4094 protected_vlan add vlanid 10-20

Success.

DES-3810-28:admin#
```

To set the R-APS timer parameter:

```
DES-3810-28:admin#config erps raps_vlan 4094 timer holdoff_time 100 guard_time
1000 wtr_time 10
Command: config erps raps_vlan 4094 timer holdoff_time 100 guard_time 1000
wtr_time 10

Success.

DES-3810-28:admin#
```

26-6 config erps log

Description

This command is used to configure the ERPS log state.

Format

config erps log [enable | disable]

Parameters

enable - Enable the log state. The default value is disabled.
disable - Ddisable the log state.

Restrictions

Only Administrators and Operators can issue this command.

Example

To set the trap state:

```
DES-3810-28:admin#config erps log enable
Command: config erps log enable
```

```
Success.

DES-3810-28:admin#
```

26-7 config erps trap

Description

This command is used to configure trap state of ERPS events.

Format

config erps trap [enable | disable]

Parameters

trap - Specifies to enable or disable the ERPS trap state. **enable** - Enter enable to enable the trap state. **disable** - Enter disable to disable the trap state. The default value is disabled.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the trap state of the ERPS:

```
DES-3810-28:admin# config erps trap enable
Command: config erps trap enable

Success.

DES-3810-28:admin#
```

26-8 show erps

Description

This command is used to display ERPS configuration and operation information. The port state of the ring port may be as Forwarding, Blocking, or Signal Fail. Forwarding indicates that traffic is able to be forwarded. Blocking indicates that traffic is blocked by ERPS and a signal failure is not detected on the port. Signal Fail indicates that a signal failure is detected on the port and traffic is blocked by ERPS.

This command is also used to display both admin values and operational values of the ring port. The admin value is the latest user configuration. The operational value is the actual running configuration. Sometimes, modifying a ring needs more than one command. Before the user's configuration can be complete, the current configuration may invalid. In this case, to avoid a temporary loop, user configurations will not apply to the state machine immediately. ERPS will run

the previously configured protocol first which is valid. If the admin value is different from the operational value, it means that the new configuration is not applied.

Both the RPL port and the RPL owner have admin values and operational values, the reason is same as ring port.

If the ERPS function is disabled on a ring, the admin value of this ring shall be applied to the operational value immediately.If the ERPS function is enabled on a ring, the admin value of this ring can be applied to operational value only when all of follow conditions are satisfied:

- The Ring port is a tagged member port of the R-APS VLAN.
- The RPL port is specified if the RPL owner is enabled.
- The RPL port is not virtual channel.
- The Ring port is the master port if it belongs to a link aggregation group.

The save function will record the operational values, if the operational values are different form the admin values.

Format

show erps {raps_vlan <vlanid> {sub_ring}}

Parameters

raps_vlan - (Optional) Specifies to display the R-APS VLAN.	
<vlanid> - Enter the R-APS VLAN, to be displayed, here.	
sub_ring - (Optional) Specifies to display the sub-ring configuration information.	

Restrictions

None.

Example

To display ERPS information:

```
DES-3810-28:admin#show erps
Command: show erps

 Global Status  : Enabled
 Log Status     : Disabled
 Trap Status    : Disabled
 ----------------------------------
 R-APS VLAN               : 1
 ERPS Status              : Disabled
 Admin West Port          : 1
 Operational West Port    : 1   (Forwarding)
 Admin East Port          : 2
 Operational East Port    : 2   (Forwarding)
 Admin RPL Port           : East port
 Operational RPL Port     : East port
```

```
 Admin Owner              : Enabled
 Operational Owner        : Enabled
 Protected VLANs          :
 Ring MEL                 : 1
 Holdoff Time             : 0 milliseconds
 Guard Time               : 500 milliseconds
 WTR Time                 : 5 minutes
 Revertive mode           : Enabled
 Current Ring State       : -

 ------------------------------------
 R-APS VLAN               : 2
 ERPS Status              : Disabled
 Admin West Port          :
 Operational West Port    :
 Admin East Port          :
 Operational East Port    :
 Admin RPL Port           : None
 Operational RPL Port     : None
 Admin Owner              : Disabled
 Operational Owner        : Disabled
 Protected VLANs          :
 Ring MEL                 : 1
 Holdoff Time             : 0 milliseconds
 Guard Time               : 500 milliseconds
 WTR Time                 : 5 minutes
 Revertive mode           : Enabled
 Current Ring State       : -

 ------------------------------------
 Total Rings: 2

DES-3810-28:admin#
```

To display the ERPS R-APS VLAN 2 sub-ring:

```
DES-3810-28:admin#show erps raps_vlan 1 sub_ring
Command: show erps raps_vlan 1 sub_ring

 R-APS VLAN: 1
 Sub-Ring R-APS VLAN     TC Propagation State
 -------------------     --------------------
 2                       Enabled

DES-3810-28:admin#
```

Chapter 27 FDB Commands

create fdb <vlan_name 32> <macaddr> [port <port> | drop]
create multicast_fdb <vlan_name 32> <macaddr>
config multicast_fdb <vlan_name 32> <macaddr> [add | delete] <portlist>
config fdb aging_time <sec 10-1260>
config multicast vlan_filtering_mode [vlanid <vidlist> | vlan <vlan_name 32> | all] [forward_unregistered_groups | filter_unregistered_groups]
delete fdb <vlan_name 32> <macaddr>
clear fdb [vlan <vlan_name 32> | port <port> | all]
show multicast_fdb { vlan <vlan_name 32> | mac_address <macaddr>}
show fdb {port <port> | vlan <vlan_name 32> | mac_address <macaddr> | static | aging_time}
show ipfdb {<ipaddr>}
show multicast vlan_filtering_mode {[vlanid <vidlist> | vlan <vlan_name 32>]}

27-1 create fdb

Description

This command is used to make an entry into the switch's unicast MAC address forwarding database.

Format

create fdb <vlan_name 32> <macaddr> [port <port> | drop]

Parameters

<vlan_name 32> - Specifies a VLAN name associated with a MAC address. The maximum length is 32 characters.
<macaddr> - Specifies the MAC address to be added to the static forwarding table.
port - The switch will always forward traffic to the specified device through this port. **<port>** - Specifies the port number corresponding to the MAC destination address. **drop** - Specifies to have the switch drop traffic.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create an unicast MAC forwarding:

```
DES-3810-28:admin#create fdb default 00-00-00-00-01-02 port 5
Command: create fdb default 00-00-00-00-01-02 port 5

Success.
DES-3810-28:admin#
```

27-2 create multicast_fdb

Description

This command is used to make an entry into the switch's multicast MAC address forwarding database.

Format

create multicast_fdb <vlan_name 32> <macaddr>

Parameters

<vlan_name 32> - Specifies the name of the VLAN on which the MAC address resides. The maximum length is 32 characters.
<macaddr> - Specifies the multicast MAC address to be added to the static forwarding table.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create multicast MAC forwarding:

```
DES-3810-28:admin# create multicast_fdb default 01-00-5E-00-00-00
Command: create multicast_fdb default 01-00-5E-00-00-00

Success.

DES-3810-28:admin#
```

27-3 config multicast_fdb

Description

This command is used to configure the multicast MAC address forwarding table.

Format

config multicast_fdb <vlan_name 32> <macaddr> [add | delete] <portlist>

Parameters

<vlan_name 32> - Specifies the name of the VLAN on which the MAC address resides. The maximum name length is 32 characters.
<macaddr> - Specifies the MAC address that will be added or deleted to the forwarding table.
add - Specifies to add ports. **delete** - Specifies to delete ports.
<portlist> - Specifies a range of ports to be configured.

Restrictions

Only Administrators and Operators can issue this command.

Example

To add multicast MAC forwarding:

```
DES-3810-28:admin# config multicast_fdb default 01-00-5E-00-00-00 add 1-5
Command: config multicast_fdb default 01-00-5E-00-00-00 add 1-5

Success.

DES-3810-28:admin#
```

27-4 Config fdb aging_time

Description

This command is used to set the age-out timer for the switch's dynamic unicast MAC address forwarding tables.

Format

config fdb aging_time <sec 10-1260>

Parameters

<sec 10-1260> - Specifies the time in seconds that a dynamically learned MAC address will remain in the switch's MAC address forwarding table without being accessed, before being dropped from the database. The range of the value is 10 to 1260. The default value is 300.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure MAC address aging time:

```
DES-3810-28:admin#config fdb aging_time 300
Command: config fdb aging_time 300

Success.

DES-3810-28:admin#
```

27-5 config multicast vlan_filtering_mode

Description

This command is used to configure the multicast packet filtering mode for VLANs.

Format

config multicast vlan_filtering_mode [vlanid <vidlist> | vlan <vlan_name 32> | all] [forward_unregistered_groups | filter_unregistered_groups]

Parameters

vlanid - Specifies the VLAN ID list to set. **<vidlist>** - Specifies the VLAN ID list to set.
vlan - Specifies the VLAN to set. **<vlan_name 32>** - The maximum length is 32 characters.
all - Specifies to set all VLANs.
forward_unregistered_groups - Specifies the filtering mode as forward_unregistered_groups. This is the default.
filter_unregistered_groups - Specifies the filtering mode as filter_unregistered_groups.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the the multicast packet filtering mode for all VLANs:

```
DES-3810-28:admin#config multicast vlan_filtering_mode all
forward_unregistered_groups
Command: config multicast port filtering_mode all forward_unregistered_groups

Success.

DES-3810-28:admin#
```

27-6 delete fdb

Description

This command is used to delete a permanent FDB entry.

Format

delete fdb <vlan_name 32> <macaddr>

Parameters

<vlan_name 32> - Specifies the name of the VLAN on which the MAC address resides. The maximum length is 32 characters.
<macaddr> - Specifies the MAC address to be deleted from the static forwarding table.

Restrictions

None.

Example

To delete a permanent FDB entry:

```
DES-3810-28:admin#delete fdb default 00-00-00-00-01-02
Command: delete fdb default 00-00-00-00-01-02

Success.

DES-3810-28:admin#
```

27-7 clear fdb

Description

This command is used to clear the switch's forwarding database of all dynamically learned MAC addresses.

Format

clear fdb [vlan <vlan_name 32> | port <port> | all]

Parameters

vlan - Specifies the name of the VLAN on which the MAC address resides. **<vlan_name 32>** - The maximum length is 32 characters.
port - Specifies the port number corresponding to the dynamically learned MAC address. **<port>** - Specifies the port number corresponding to the dynamically learned MAC address.
all - Specifies to clear all VLANs and ports.

Restrictions

Only Administrators and Operators can issue this command.

Example

To clear all FDB dynamic entries:

```
DES-3810-28:admin#clear fdb all
Command: clear fdb all

Success.

DES-3810-28:admin#
```

27-8 show multicast_fdb

Description

This command is used to display the contents of the switch's multicast forwarding database.

Format

show multicast_fdb {vlan <vlan_name 32> | mac_address <macaddr>}

Parameters

vlan - (Optional) Specifies the name of the VLAN on which the MAC address resides. **<vlan_name 32>** - The maximum length is 32 characters.
mac_address - (Optional) Specifies a MAC address, for which FDB entries will be displayed. **<macaddr>** - Specifies a MAC address, for which FDB entries will be displayed.

Note: If no parameter is specified, all multicast FDB entries will be displayed.

Restrictions

None.

Example

To display multicast MAC address table:

```
DES-3810-28:admin#show multicast_fdb
Command: show multicast_fdb

VLAN Name     : default
MAC Address   : 01-00-5E-00-00-00
Egress Ports  : 1-5,26
Mode          : Static

Total Entries : 1

DES-3810-28:admin#
```

27-9 show fdb

Description

This command is used to display the current unicast MAC address forwarding database.

Format

show fdb {port <port> | vlan <vlan_name 32> | mac_address <macaddr> | static | aging_time}

Parameters

port - (Optional) Specifies the entries for one port. <**port**> - Specifies the entries for one port.
vlan - (Optional) Specifies to display the entries for a specific VLAN. **<vlan_name 32>** - The maximum length is 32 characters.
mac_address - (Optional) Specifies the MAC address. **<macaddr>** - Specifies the MAC address.
static - (Optional) Specifies to display all permanent entries.
aging_time - Specifies to display the unicast MAC address aging time.

Note: If no parameter is specified, all unicast FDB entries will be displayed.

Restrictions

None.

Example

To display unicast MAC address table:

```
DES-3810-28:admin#show fdb
Command: show fdb

Unicast MAC Address Ageing Time = 300

VID   VLAN Name                       MAC Address        Port   Type
----  ------------------------------- ------------------ ------ --------------
1     default                         00-00-00-00-01-02  5      Permanent
1     default                         00-01-02-03-04-00  CPU    Self

Total Entries : 2

DES-3810-28:admin#
```

27-10 show ipfdb

Description

This command is used to display the IP address forwarding table on the switch.

Format

show ipfdb {<ipaddr>}

Parameters

<ipaddr> - (Optional) Specifies the IP address of the forwarding table.

Restrictions

None.

Example

To display the IP address forwarding table on the switch:

```
DES-3810-28:admin#show ipfdb
Command: show ipfdb

Interface     IP Address       Port    Learned
------------  ---------------  ------  ---------
System        192.168.69.66    1       Dynamic

Total Entries: 1

DES-3810-28:admin#
```

27-11 show multicast vlan_filtering_mode

Description

This command is used to display the multicast packet filtering mode for VLANs.

Format

show multicast vlan_filtering_mode {[vlanid <vidlist> | vlan <vlan_name 32>]}

Parameters

vlanid - (Optional) Specifies to display the entries by VLAN ID list. **<vidlist>** - Specifies to display the entries by VLAN ID list.
vlan - (Optional) Specifies to display the entries for a specific VLAN. **<vlan_name 32>** - The maximum length is 32 characters.

Restrictions

None.

Example

To show multicast filtering mode for ports:

```
DES-3810-28:admin#show multicast vlan_filtering_mode
Command: show multicast vlan_filtering_mode

VLAN ID/VLAN Name                          Multicast Filter Mode
-----------------------------------------  ----------------------------
1   /default                               forward_unregistered_groups
2   /v2                                    forward_unregistered_groups

DES-3810-28:admin#
```

Chapter 28 File System Management Commands

show storage_media_info
md <pathname>
rd <pathname>
cd {<pathname>}
dir {<pathname>}
rename <pathname> <filename>
erase <pathname>
del <pathname> {recursive}
move <pathname> <pathname>
copy <pathname> <pathname>

28-1 show storage_media_info

Description

This command is used to display storage media information.

Format

show storage_media_info

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To display storage media information:

```
DES-3810-28:admin#show storage_media_info
Command: show storage_media_info

 Root  Media_Type   Size   Label   FS_Type
 ----  ----------   -----  -----   -------
  c:/      FLASH      29M          FFS

DES-3810-28:admin#
```

28-2 md

Description

This command is used to create a directory.

Format

md <pathname>

Parameters

<pathname> - Specifies the directory to be created. The path name can be specified either as a full path name or partial name. For a partial path name, it indicates the directory is in the current directory.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create a directory:

```
DES-3810-28:admin#md c:/abc
Command: md c:/abc

Success.

DES-3810-28:admin#
```

28-3 rd

Description

This command is used to remove a directory. If there are files and directories still existing in the directory, this command will fail and return an error message.

Format

rd <pathname>

Parameters

<pathname> - Specifies the directory to be removed. The path name can be specified either as a full path name or partial name. For a partial path name, it indicates the file is in the current directory.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete an empty directory:

```
DES-3810-28:admin#rd c:/abc
Command: rd c:/abc

Success.

DES-3810-28:admin#
```

28-4 cd

Description

This command is used to change the current directory. The current directory is changed under the current drive. If a user wants to change the working directory to the directory in another drive, they need to change the current drive to the desired drive, and then change the current directory. The current drive and current directory will be displayed if the **<pathname>** is not specified.

Format

cd {<pathname>}

Parameters

<pathname> - (Optional) Specifies the directory to be changed. The path name can be specified either as a full path name or partial name. For a partial path name, it indicates the file is in the current directory.

Restrictions

Only Administrators and Operators can issue this command.

Example

To change a work directory:

```
DES-3810-28:admin#cd d1
Command: cd d1

Current work directory: “c:/d1”

DES-3810-28:admin#
```

28-5 dir

Description

This command is used to list all of the files located in a directory of a drive. If a path name is not specified, then all of the files in the specified drive will be displayed. If none of the parameters are specified, the files in the current drive will be displayed. If a user lists the system directory, the used space will be shown.

Format

dir {<pathname>}

Parameters

<pathname> - (Optional) Specifies the directory to be listed. The path name can be specified either as a full path name or partial name. For a partial path name, it indicates the file is in the current directory. The drive ID also included in this parameter, for example: d:/config/bootup.cfg.

Restrictions

Only Administrators and Operators can issue this command.

Example

To list a directory:

```
DES-3810-28:admin#dir
Command: dir

Directory of c:/
Idx Info    Attr Size     Update Time         Name
--- ------- ---- -------- ------------------- ----
  1 RUN(*)  -rw- 4796564  2000/01/22 03:52:03  runtime.had
  2 CFG(*)  -rw- 24120    2000/01/22 23:22:58  config.cfg
  3 CFG(b)  -rw- 24120    2000/01/23 06:59:39  1
  4         d---          2000/01/23 22:52:50  system
30608 KB total (25700 KB free)

 (*) –with boot up info         (b) –with backup info

DES-3810-28:admin#
```

To list a system directory:

```
DES-3810-28:admin#dir c:/system
Command: dir c:/system

System reserved directory. Used space 89KB.

DES-3810-28:admin#
```

28-6 rename

Description

This command is used to rename a file in the file system. The pathname specifies the file (in path form) to be renamed and the file name specifies the new file name. If the path name is not a full path, then it refers to a path under the current directory for the drive. The renamed file will stay in the same directory.

Format

rename <pathname> <filename>

Parameters

<pathname> - Specifies the file (in path form) to be renamed.
<filename> - Specifies the new name of the file.

Restrictions

Only Administrators and Operators can issue this command.

Example

To rename a file or directory:

```
DES-3810-28:admin#rename run.had run1.had
Command: rename run.had run1.had

Success.

DES-3810-28:admin#
```

28-7 erase

Description

This command is used to delete a file stored in the file system. The system will prompt if the target file is a bootup image/configuration or the last image.

Format

erase <pathname>

Parameters

<pathname> - Specifies the file to be deleted. If it is specified in the associated form, then it is related to the current directory.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete a file:

```
DES-3810-28:admin#erase cfg
Command: erase cfg

Are you sure you want to delete the bootup config? (y/n) y

Success.

DES-3810-28:admin#
```

28-8 del

Description

This command is used to delete a file. It is also used to delete a directory and its contents. The system will prompt if the target file is a bootup image/configuration or the last image.

Format

del <pathname> {recursive}

Parameters

<pathname> - Specifies the file or directory to be deleted. If it is specified in the associated form, then it is related to the current directory.
recursive - (Optional) Used on the directory, to delete a directory and its contents even if it is not empty.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete a file:

```
DES-3810-28:admin#del cfg
Command: del cfg

Are you sure you want to delete the bootup config? (y/n) y

Success.

DES-3810-28:admin#
```

To delete a a directory with the parameter “recursive”:

```
DES-3810-28:admin#del d1 recursive
Command: del d1 recursive

Success.

DES-3810-28:admin
```

28-9 move

Description

This command is used to move a file around the file system. Note that when a file is moved, it can be specified whether to be renamed at the same time.

Format

move <pathname> <pathname>

Parameters

<pathname> - Specifies the file to be moved. The path name can be specified either as a full path name or partial name. For a partial path name, it indicates the file is in the current directory.
<pathname> - Specifies the new path where the file will be moved. The path name can be specified either as a full path name or partial name. For a partial path name, it indicates the file is in the current directory.

Restrictions

Only Administrators and Operators can issue this command.

Example

To move a file or directory:

```
DES-3810-28:admin#move c:/log.txt c:/abc/log1.txt
Command: move c:/log.txt c:/abc/log1.txt

Success.

DES-3810-28:admin#
```

28-10 copy

Description

This command is used to copy a file to another file in the file system.

Format

copy <pathname> <pathname>

Parameters

<pathname> - Specifies the file to be copied. If it is specified in the associated form, then it is related to the current directory.
<pathname> - Specifies the file to copy to. If it is specified in the associated form, then it is related to the current directory

Restrictions

Only Administrators and Operators can issue this command.

Example

To copy a file:

```
DES-3810-28:admin#copy c:/log.txt c:/log1.txt
Command: copy c:/log.txt c:/log1.txt

Success.

DES-3810-28:admin#
```

Chapter 29 Filter Commands

config filter dhcp_server [add permit server_ip <ipaddr> {client_mac <macaddr>} ports [<portlist> | all] | delete permit server_ip <ipaddr> {client_mac <macaddr>} ports [<portlist> | all] | ports [<portlist> | all] state [enable | disable] | illegal_server_log_suppress_duration [1min | 5min | 30min] | trap_log [enable | disable]]
show filter dhcp_server
config filter extensive_netbios [<portlist> | all] state [enable | disable]
show filter extensive_netbios
config filter netbios [<portlist> | all] state [enable | disable]
show filter netbios

29-1 config filter dhcp_server

Description

This command has two purposes: to specify to filter all DHCP server packets on the specific port and to specify to allow some DHCP server packets with pre-defined server IP addresses and client MAC addresses. With this function, we can restrict the DHCP server to service specific DHCP clients. This is useful when two DHCP servers are present on the network; one of them can provide the private IP address and the other can provide the public IP address.

Enabling filter DHCP server port state will create one access profile and create one access rule per port (UDP port = 67). Filter commands in this file will share the same access profile. Addition of a permit DHCP entry will create one access profile and create one access rule. Filter commands in this file will share the same access profile.

Format

config filter dhcp_server [add permit server_ip <ipaddr> {client_mac <macaddr>} ports [<portlist> | all] | delete permit server_ip <ipaddr> {client_mac <macaddr>} ports [<portlist> | all] | ports [<portlist> | all] state [enable | disable] | illegal_server_log_suppress_duration [1min | 5min | 30min] | trap_log [enable | disable]]

Parameters

add permit server_ip - Specifies the IP address of the DHCP server to be permitted. **<ipaddr>** - Specifies the IP address. **client_mac** - (Optional) Specifies the MAC address of the DHCP client. **<macaddr>** - Specifies the MAC address. **ports** - Specifies the ports. **<portlist>** - Specifies the range of ports to be configured. **all** - Specifies to configure all ports.
delete permit server_ip - Specifies the delete permit server IP address. **<ipaddr>** - Specifies the IP address. **client_mac** - (Optional) Specifies the MAC address of the DHCP client. **<macaddr>** - Specifies the MAC address. **ports** - Specifies the ports. **<portlist>** - Specifies the range of ports to be configured. **all** - Specifies to configure all ports.
ports - Specifies the ports. **<portlist>** - Specifies the range of ports to be configured.

all - Specifies to configure all ports. **state** - Specifies the port status. **enable** - Enable the state. **disable** - Disable the state.
illegal_server_log_suppress_duration - Specifies the illegal server log suppression duration. **1min** - Specifies an illegal server log suppression duration of 1 minute. **5min** - Specifies an illegal server log suppression duration of 5 minutes. **30min** - Specifies an illegal server log suppression duration of 30 minutes.
trap_log - Specifies the trap log status. **enable** - Enable the trap log feature. **disable** - Disable the trap log feature.

Restrictions

Only Administrators can issue this command.

Example

To add an entry from the DHCP server/client filter list in the switch's database:

```
DES-3810-28:admin#config filter dhcp_server add permit server_ip 10.1.1.1
client_mac 00-00-00-00-00-01 port 1-26
Command: config filter dhcp_server add permit server_ip 10.1.1.1 client_mac 00-
00-00-00-00-01 port 1-26

Success.

DES-3810-28:admin#
```

To configure the filter DHCP server state:

```
DES-3810-28:admin#config filter dhcp_server ports 1-10 state enable
Command: config filter dhcp_server ports 1-10 state enable

Success.

DES-3810-28:admin#
```

29-2 show filter dhcp_server

Description

This command is used to display the DHCP server/client filter list created on the switch.

Format

show filter dhcp_server

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To display the DHCP server/client filter list created on the switch:

```
DES-3810-28:admin#show filter dhcp_server
Command: show filter dhcp_server

Enabled Ports: 1,28
Trap & Log State: Enabled
Illegal Server Log Suppress Duration: 1 minutes

Permit DHCP Server/Client Table
Server IP Address Client MAC Address  Port
----------------- ------------------- ---------------
 Total Entries: 0

DES-3810-28:admin#
```

29-3 config filter extensive_netbios

Description

This command is used to configure the switch to deny NetBIOS packets over 802.3 frames on the network. Enabling the filterNetBIOS packets over 802.3 frames will create one access profile and one access rule per port automatically. Filter commands in this file will share the same access profile.

Format

config filter extensive_netbios [<portlist> | all] state [enable | disable]

Parameters

<portlist> - Specifies the port or range of ports to configure.
all - Specifies to configure all ports.
state - Specifies the status of the filter to block the NetBIOS packets over 802.3 frames. **enable** - Enable the filter to block the NetBIOS packets over 802.3 frames. **disable** - Disable the filter to block the NetBIOS packets over 802.3 frames.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the extensive NetBIOS filter state on ports 1 to 10:

```
DES-3810-28:admin#config filter extensive_netbios 1-10 state enable
Command: config filter extensive_netbios 1-10 state enable

Success.

DES-3810-28:admin#
```

29-4 show filter extensive_netbios

Description

This command is used to display the extensive NetBIOS filter state on the switch.

Format

show filter extensive_netbios

Parameters

None.

Restrictions

None.

Example

To display the extensive NetBIOS filter state on the switch:

```
DES-3810-28:admin#show filter extensive_netbios
Command: show filter extensive_netbios

Enabled Ports: 1-3

DES-3810-28:admin#
```

29-5 config filter netbios

Description

This command is used to configure the Switch to deny NetBIOS packets on the network. Enabling of the filter NetBIOS state will create one access profile and three access rules per port automatically (UDP ports 137 and138 and TCP port 139). Filter commands in this file will share the same access profile.

Format

config filter netbios [<portlist> | all] state [enable | disable]

Parameters

<portlist> - Specifies the port or range of ports to configure.
all - Specifies to configure all ports.
state - Specifies the status of the filter to block NetBIOS packets. **enable** - Enable the filter to block NetBIOS packets. **disable** - Disable the filter to block NetBIOS packets.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the NetBIOS filter state:

```
DES-3810-28:admin#config filter netbios 1-10 state enable
Command: config filter netbios 1-10 state enable

Success.

DES-3810-28:admin#
```

29-6 show filter netbios

Description

This command is used to display the NetBIOS filter state on the switch.

Format

show filter netbios

Parameters

None.

Restrictions

None.

Example

To display the NetBIOS filter state:

```
DES-3810-28:admin#show filter netbios
Command: show filter netbios

Enabled Ports: 1-3

DES-3810-28:admin#
```

Chapter 30 Gratuitous ARP Commands

enable gratuitous_arp {ipif <ipif_name 12>} {trap | log}(1)
disable gratuitous_arp {ipif <ipif_name 12>} {trap | log}(1)
config gratuitous_arp learning [enable | disable]
config gratuitous_arp send dup_ip_detected [enable | disable]
config gratuitous_arp send ipif_status_up [enable | disable]
config gratuitous_arp send periodically ipif <ipif_name 12> interval <value 0-65535>
show gratuitous_arp {ipif <ipif_name 12>}

30-1 enable gratuitous_arp

Description

This command is used to enable the gratuitous ARP trap and log state. The switch can trap and log the IP conflict event to inform the administrator.

Format

enable gratuitous_arp {ipif <ipif_name 12>} {trap | log}(1)

Parameters

ipif - (Optional) The interface name of the L3 interface. **<ipif_name 12>** - Specifies the interface name. The maximum length is 12 characters.
trap - Specifies trap. The trap is disabled by default.
log - Specifies log. The even log is enabled by default.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable gratuitous ARP:

```
DES-3810-28:admin#enable gratuitous_arp ipif System trap log
Command: enable gratuitous_arp ipif System trap log

Success.

DES-3810-28:admin#
```

30-2 disable gratuitous_arp

Description

This command is used to disable the gratuitous ARP trap and log state.

Format

disable gratuitous_arp {ipif <ipif_name 12>} {trap | log}(1)

Parameters

ipif - (Optional) The interface name of the L3 interface. **<ipif_name 12>** - Specifies the interface name. The maximum length is 12 characters.
trap - Specifies trap. The trap is disabled by default.
log - Specifies log. The even log is enabled by default.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable gratuitous ARP, the trap, and the log state:

```
DES-3810-28:admin#disable gratuitous_arp ipif System trap log
Command: disable gratuitous_arp ipif System trap log

Success.

DES-3810-28:admin#
```

30-3 config gratuitous_arp learning

Description

This command is used to enable or disable learning of ARP entries in the ARP cache based on the received gratuitous ARP packets.

Format

config gratuitous_arp learning [enable | disable]

Parameters

enable - Enable learning of ARP entries based on the received gratuitous ARP packets.
disable - Disable learning of ARP entries based on the received gratuitous ARP packets.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable learning of ARP entries in the ARP cache based on the received gratuitous ARP packets:

```
DES-3810-28:admin# config gratuitous_arp learning enable
Command: config gratuitous_arp learning enable

Success.

DES-3810-28:admin#
```

30-4 config gratuitous_arp send dup_ip_detected

Description

This command is used to enable or disable the sending of gratuitous ARP requests when a duplicate IP address is detected. By default, the state is disabled. For this command, duplicate IP detected means that the system received an ARP request packet that is sent by an IP address that matches the system's own IP address. In this case, the system knows that somebody out there is using an IP address that conflicts with that of the system. In order to reclaim the correct host of this IP address, the system can send out the gratuitous ARP request packet for this duplicate IP address.

Format

config gratuitous_arp send dup_ip_detected [enable | disable]

Parameters

enable - Enable the sending of gratuitous ARP requests when a duplicate IP is detected.
disable - Disable the sending of gratuitous ARP requests when a duplicate IP is detected.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable the sending of gratuitous ARP requests when a duplicate IP address is detected:

```
DES-3810-28:admin#config gratuitous_arp send dup_ip_detected enable
Command: config gratuitous_arp send dup_ip_detected enable

Success.

DES-3810-28:admin#
```

30-5 config gratuitous_arp send ipif_status_up

Description

This command is used to enable or disable the sending of gratuitous ARP requests when the IP interface status becomes up. This is used to automatically announce the interface's IP address to other nodes. By default, the state is disabled. When the state is enabled and IP interface is linked up, one gratuitous ARP packet will be broadcast.

Format

config gratuitous_arp send ipif_status_up [enable | disable]

Parameters

enable - Enable the sending of gratuitous ARP requests when the IPIF status becomes up.
disable - Disable the sending of gratuitous ARP requests when the IPIF status becomes up.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable the sending of gratuitous ARP requests when the IP interface status becomes up:

```
DES-3810-28:admin#config gratuitous_arp send ipif_status_up enable
Command: config gratuitous_arp send ipif_status_up enable

Success.

DES-3810-28:admin#
```

30-6 config gratuitous_arp send periodically ipif

Description

This command is used to configure the interval for the periodical sending of gratuitous ARP request packets.

Format

config gratuitous_arp send periodically ipif <ipif_name 12> interval <value 0-65535>

Parameters

<ipif_name 12> - Specifies the interface name of the L3 interface. The maximum length is 12 characters.
interval - The periodically send gratuitous ARP interval time, in seconds. **<value 0-65535>** - Specifies the value between 0 and 65535. 0 (zero) means not to send gratuitous ARP request packets periodically. By default, the interval is 0 (zero).

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the gratuitous ARP interval to 5 for the IPIF System:

```
DES-3810-28:admin#config gratuitous_arp send periodically ipif System interval
5
Command: config gratuitous_arp send periodically ipif System interval 5

Success.

DES-3810-28:admin#
```

30-7 show gratuitous_arp

Description

This command is used to display gratuitous ARP configuration.

Format

show gratuitous_arp {ipif <ipif_name 12>}

Parameters

ipif - (Optional) The interface name of the L3 interface. **<ipif_name 12>** - Specifies the interface name. The maximum length is 12 characters.

Restrictions

None.

Example

To display the gratuitous ARP log and trap state:

```
DES-3810-28:admin#show gratuitous_arp
Command: show gratuitous_arp

Send on IPIF status up        : Disabled
Send on Duplicate_IP_Detected : Disabled
Gratuitous ARP Learning       : Disabled

IP Interface Name : System
        Gratuitous ARP Trap                   : Disabled
        Gratuitous ARP Log                    : Disabled
        Gratuitous ARP Periodical Send Interval : 0

Total Entries: 1
DES-3810-28:admin#
```

Chapter 31 IGMP Proxy Commands

enable igmp_proxy
disable igmp_proxy
config igmp_proxy downstream_if [add | delete] vlan [<vlan_name 32> | vlanid <vidlist>]
config igmp_proxy upstream_if {vlan [<vlan_name 32> | vlanid <vlanid1-4094>] | router_ports [add | delete] <portlist> | source_ip <ipaddr> | unsolicited_report_interval <sec 0-25>} (1)
show igmp_proxy {group}

31-1 enable igmp_proxy

Description

This command is used to enable the IGMP proxy on the switch.

Format

enable igmp_proxy

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable the IGMP proxy:

```
DES-3810-28:admin#enable igmp_proxy
Command: enable igmp_proxy

Success.

DES-3810-28:admin#
```

31-2 disable igmp_proxy

Description

This command is used to disable the IGMP proxy on the switch.

Format

disable igmp_proxy

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable the IGMP proxy:

```
DES-3810-28:admin#disable igmp_proxy
Command: disable igmp_proxy

Success.

DES-3810-28:admin#
```

31-3 config igmp_proxy downstream_if

Description

This command is used to configure the IGMP proxy downstream interfaces. The IGMP proxy plays the server role on the downstream interfaces. The downstream interface must be an IGMP-snooping enabled VLAN.

Format

config igmp_proxy downstream_if [add | delete] vlan [<vlan_name 32> | vlanid <vidlist>]

Parameters

add - Specifies to add a downstream interface.
delete - Specifies to delete a downstream interface .
vlan – Specifies the VLAN by name or ID. **<vlan_name 32>** - Specifies a name of VLAN which will be added to or deleted from the IGMP proxy downstream interface. The maximum length is 32 characters. **vlanid** - Specifies a list of VLAN IDs to be added to or deleted from the IGMP proxy downstream interface. **<vidlist>** - Specifies a list of VLAN IDs which will be added to or deleted from the IGMP proxy downstream interface.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the IGMP proxy's downstream interface:

```
DES-3810-28:admin#config igmp_proxy downstream_if add vlan vlanid 2-7
Command: config igmp_proxy downstream_if add vlan vlanid 2-7

Success.

DES-3810-28:admin#
```

31-4 config igmp_proxy upstream_if

Description

This command is used to configure the setting for the IGMP proxy's upstream interface. The IGMP proxy plays the host role on the upstream interface. It will send IGMP report packets to the router port.

The source IP address determines the source IP address to be encoded in the IGMP protocol packet.

If the router port is empty, the upstream will send the IGMP protocol packet to all member ports on the upstream interface.

Format

config igmp_proxy upstream_if {vlan [<vlan_name 32> | vlanid <vlanid 1-4094>] | router_ports [add | delete] <portlist> | source_ip <ipaddr> | unsolicited_report_interval <sec 0-25>} (1)

Parameters

vlan - Specifies the VLAN for the upstream interface. **<vlan_name 32>** - Specifies a VLAN name between 1 and 32 characters. **vlanid** - Specifies the VLAN ID for the upstream interface. **<1-4094>** - Specifies the VLAN ID between 1 and 4094.
router_ports - Specifies a list of ports that are connected to multicast-enabled routers. **add** - Specifies to add the router ports. **delete** - Specifies to delete the router ports. **<portlist>** - Specifies a range of ports to be configured.
source_ip - Specifies the source IP address of the upstream protocol packet. If it is not specified, zero IP address will be used as the protocol source IP address. **<ipaddr>** - Specifies the IP address.
unsolicited_report_interval - Specifies the time between repetitions of the host's initial report of membership in a group. The default is 10 seconds. If set to 0, only one report packet is sent. **<sec 0-25>** - Specifies the time between 0 and 25 seconds.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the router port of IGMP proxy's upstream interface:

```
DES-3810-28:admin#config igmp_proxy upstream_if vlan default router_ports add 3
Command: config igmp_proxy upstream_if vlan default router_ports add 3

Success.

DES-3810-28:admin#
```

31-5 show igmp_proxy

Description

This command displays IGMP proxy configuration information or group information on the switch. The display status item means group entry is determined by whether or not the chip is inserted.

Format

show igmp_proxy {group}

Parameters

group - (Optional) Specifies the group information.

Note: If the group is not specified, the IGMP proxy configuration will be displayed.

Restrictions

None.

Example

To display IGMP proxy information:

```
DES-3810-28:admin#show igmp_proxy
Command: show igmp_proxy

IGMP Proxy Global State         : Enabled

Upstream Interface
 VLAN ID                        : 1
 Dynamic Router Ports           : 1-4
 Static Router Ports            : 5-6
 Unsolicited Report Interval    : 10
 Source IP Address              : 0.0.0.0

Downstream Interface
 VLAN List                      : 2-4

DES-3810-28:admin#
```

To display the IGMP proxy's group information:

```
DES-3810-28:admin#show igmp_proxy group
Command: show igmp_proxy group

Dest-V : The destination VLAN.
A      : Active
I      : Inactive

Dest IP         Source IP    Dest-V     Member Ports     Status
----------- -------------    ------     ---------------- ---------
224.2.2.2       NULL            4            3,6            A
                                2            2-4            I
227.3.1.5       NULL            2            2,5,8          I
                                3            5,7,9          A
Total Entries: 2

DES-3810-28:admin#
```

Chapter 32 IGMP Snooping Commands

config igmp_snooping [vlan_name <vlan_name 32> | vlanid <vlanid_list> | all] {state [enable | disable] | fast_leave [enable |disable] | report_suppression [enable | disable]} (1)
config igmp_snooping querier [vlan_name <vlan_name 32> | vlanid <vlanid_list> | all] {query_interval <sec 1-65535> | max_response_time <sec 1-25> | robustness_variable <value 1-7> | last_member_query_interval <sec 1-25> | state [enable | disable] | version <value 1-3> } (1)
config router_ports [<vlan_name 32> | vlanid <vlanid_list>] [add |delete] <portlist>
config router_ports_forbidden [<vlan_name 32> | vlanid <vlanid_list>] [add | delete] <portlist>
enable igmp_snooping
disable igmp_snooping
show igmp_snooping {[vlan <vlan_name 32> | vlanid <vlanid_list>]}
show igmp_snooping group {[vlan <vlan_name 32> | vlanid <vlanid_list> | ports <portlist>] {<ipaddr>}}
config igmp_snooping rate_limit [ports <portlist> | vlanid <vlanid_list>] [<value 1-1000> | no_limit]
show igmp_snooping rate_limit [ports <portlist> | vlanid <vlanid_list>]
create igmp_snooping static_group [vlan <vlan_name 32> | vlanid <vlanid_list>] <ipaddr>
config igmp_snooping static_group [vlan <vlan_name 32> | vlanid <vlanid_list>] <ipaddr> [add | delete] <portlist>
delete igmp_snooping static_group [vlan <vlan_name 32> | vlanid <vlanid_list>] <ipaddr>
show igmp_snooping static_group {[vlan <vlan_name 32> | vlanid <vlanid_list>] <ipaddr>}
show igmp_snooping statistic counter [vlan <vlan_name 32> | vlanid <vlanid_list> | ports <portlist>]
clear igmp_snooping statistics counter
config igmp_snooping data_driven_learning [all | vlan_name <vlan_name 32> | vlanid <vlanid_list>] {state [enable | disable] | aged_out [enable | disable] | expiry_time <sec 1-65535>}(1)
config igmp_snooping data_driven_learning max_learned_entry <value 1-1024>
show igmp_snooping forwarding {[vlan <vlan_name 32> | vlanid <vlanid_list>]}
show igmp_snooping host {[vlan <vlan_name 32> | vlanid <vlanid_list> | ports <portlist> | group <ipaddr>]}
show router_ports [vlan <vlan_name 32> | vlanid <vlanid_list> | all] {[static | dynamic | forbidden]}

32-1 config igmp_snooping

Description

This command is used to configure IGMP snooping on the switch.

Format

config igmp_snooping [vlan_name <vlan_name 32> | vlanid <vlanid_list> | all] {state [enable | disable] | fast_leave [enable |disable] | report_suppression [enable | disable]} (1)

Parameters

vlan_name - Specifies the name of the VLAN for which IGMP snooping is to be configured.

<vlan_name 32> - Specifies the VLAN name. The maximum length is 32 characters.
vlanid - Specifies the VLAN ID list. **<vlanid_list>** - Specifies the VLAN ID list.
all - Specifies to configure all VLANs.
state - Enable or disable IGMP snooping for the chosen VLAN. **enable** - Enable IGMP snooping for the chosen VLAN. **disable** - Disable IGMP snooping for the chosen VLAN.
fast_leave - Enable or disable the IGMP snooping fast leave function. If enabled, the membership is immediately removed when the system receive the IGMP leave message. **enable** - Enable the IGMP snooping fast leave function. **disable** - Disable the IGMP snooping fast leave function.
report_suppression - When enabled, multiple IGMP reports or leave for a specific (S, G) will be integrated into one report only before sending to the router port. **enable** - Enable report suppression. **disable** - Disable report suppression.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure IGMP snooping:

```
DES-3810-28:admin#config igmp_snooping vlan_name default state enable
fast_leave enable
Command: config igmp_snooping vlan_name default state enable fast_leave enable

Success.

DES-3810-28:admin#
```

32-2 config igmp_snooping querier

Description

This command is used to configure the IGMP snooping querier.

Format

config igmp_snooping querier [vlan_name <vlan_name 32> | vlanid <vlanid_list> | all] {query_interval <sec 1-65535> | max_response_time <sec 1-25> | robustness_variable <value 1-7> | last_member_query_interval <sec 1-25> | state [enable | disable] | version <value 1-3>} (1)

Parameters

vlan_name - Specifies the name of the VLAN for which IGMP snooping querier is to be configured. **<vlan_name 32>** - Specifies the VLAN name. The maximum length is 32 characters.
vlanid - Specifies the VLAN ID list. **<vlanid_list>** - Specifies the VLAN ID list.
all - Specifies to configure all VLANs and VLAN IDs.
query_interval - Specifies the amount of time in seconds between general query transmissions. **<sec 1-65535>** - Specifies the amount of time in seconds between general query

transmissions. The default setting is 125 seconds.
max_response_time - Specifies the maximum time in seconds to wait for reports from members. **<sec 1-25>** - Specifies the maximum time in seconds to wait for reports from members. The default setting is 10 seconds.
robustness_variable - Provides fine-tuning to allow for expected packet loss on a subnet. The value of the robustness variable is used in calculating the following IGMP message intervals: 4. Group member interval—Amount of time that must pass before a multicast router decides there are no more members of a group on a network. This interval is calculated as follows: (robustness variable x query interval) + (1 x query response interval). 5. Other querier present interval—Amount of time that must pass before a multicast router decides that there is no longer another multicast router that is the querier. This interval is calculated as follows: (robustness variable x query interval) + (0.5 x query response interval). 6. Last member query count—Number of group-specific queries sent before the router assumes there are no local members of a group. The default number is the value of the robustness variable. **<value 1-7>** - Specifies the value between 1 and 7. Increase the value if you expect a subnet to be lossy. The robustness variable is set to 2 by default.
last_member_query_interval - Specifies the maximum amount of time between group-specific query messages, including those sent in response to leave-group messages. You might lower this interval to reduce the amount of time it takes a router to detect the loss of the last member of a group. **<sec 1-25>** - Specifies the time between 1 and 25 seconds.
state - If the state is enable, it allows the switch to be selected as a IGMP Querier (sends IGMP query packets). It the state is disabled, then the switch can not play the role as a querier. Note that if the Layer 3 router connected to the switch provides only the IGMP proxy function but does not provide the multicast routing function, then this state must be configured as disabled. Otherwise, if the Layer 3 router is not selected as the querier, it will not send the IGMP query packet. Since it will not also send the multicast-routing protocol packet, the port will be timed out as a router port. **enable** - Allows the switch to be selected as an IGMP Querier (sends IGMP query packets). **disable** - When disabled, the switch can not play the role as a querier.
version - Specifies the version of IGMP packet that will be sent by this port. If a IGMP packet received by the interface has a version higher than the specified version, this packet will be forwarded from the router's ports or VLAN flooding. **<value 1-3>** - Specifies the values between 1 and 3.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the IGMP snooping querier:

```
DES-3810-28:admin#config igmp_snooping querier vlan_name default query_interval
125 state enable
Command: config igmp_snooping querier vlan_name default query_interval 125
state enable


Success.


DES-3810-28:admin#
```

32-3 config router_ports

Description

This command is used to designate a range of ports as being connected to multicast-enabled routers. This will ensure that all packets with such a router as its destination will reach the multicast-enabled router, regardless of protocol.

Format

config router_ports [<vlan_name 32> | vlanid <vlanid_list>] [add | delete] <portlist>

Parameters

<vlan_name 32> - Specifies the name of the VLAN on which the router port resides.
vlanid - Specifies the VLAN ID list. **<vlanid_list>** - Specifies the VLAN ID list.
add - Specifies to add the router ports.
delete - Specifies to delete the router ports.
<portlist> - Specifies a range of ports to be configured.

Restrictions

Only Administrators and Operators can issue this command.

Example

To set up static router ports:

```
DES-3810-28:admin#config router_ports default add 1-10
Command: config router_ports default add 1-10

Success.

DES-3810-28:admin#
```

32-4 config router_ports_forbidden

Description

This command is used to designate a range of ports as being not connected to multicast-enabled routers. This ensures that the forbidden router port will not propagate routing packets out.

Format

config router_ports_forbidden [<vlan_name 32> | vlanid <vlanid_list>] [add | delete] <portlist>

Parameters

<vlan_name 32> - Specifies the name of the VLAN on which the forbidden router port resides.
vlanid - Specifies the VLAN ID list. **<vlanid_list>** - Specifies the VLAN ID list.

add - Specifies to add the forbidden router port resides.
delete - Specifies to delete the forbidden router port resides.
<portlist> - Specifies a range of ports to be configured.

Restrictions

Only Administrators and Operators can issue this command.

Example

To set up port range 1 to 7 to be forbidden router ports of the default VLAN:

```
DES-3810-28:admin#config router_ports_forbidden default add 1-7
Command: config router_ports_forbidden default add 1-7

Success.

DES-3810-28:admin#
```

32-5 enable igmp_snooping

Description

This command allows you to enable IGMP snooping on the switch.

Format

enable igmp_snooping

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable IGMP snooping on the switch:

```
DES-3810-28:admin#enable igmp_snooping
Command: enable igmp_snooping

Success.

DES-3810-28:admin#
```

32-6 disable igmp_snooping

Description

This command is used to disable IGMP snooping on the Switch.

Format

disable igmp_snooping

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable IGMP snooping:

```
DES-3810-28:admin#disable igmp_snooping
Command: disable igmp_snooping

Success.

DES-3810-28:admin#
```

32-7 show igmp_snooping

Description

This command is used to display the current IGMP snooping configuration on the switch.

Format

show igmp_snooping {[vlan <vlan_name 32> | vlanid <vlanid_list>]}

Parameters

vlan - (Optional) Specifies the name of the VLAN to display the IGMP snooping configuration. **<vlan_name 32>** - Specifies the name of the VLAN. The maximum length is 32 characters.
vlanid - (Optional) Specifies the VLAN ID to display the IGMP snooping configuration. **<vlanid_list>** - Specifies a range of VLAN IDs.

Note: If no parameter is specified, the system will display all current IGMP snooping configuration.

Restrictions

None.

Example

To show IGMP snooping:

```
DES-3810-28:admin#show igmp_snooping
Command: show igmp_snooping

 IGMP Snooping Global State              : Disabled

 VLAN Name                      : default
 Query Interval                 : 125
 Max Response Time              : 10
 Robustness Value               : 2
 Last Member Query Interval     : 1
 Querier State                  : Disabled
 Querier Role                   : Non-Querier
 Querier IP                     : 0.0.0.0
 Querier Expiry Time            : 0 secs
 State                          : Disabled
 Fast Leave                     : Disabled
 Rate Limit                     : No Limitation
 Report Suppression             : Enabled
 Version                        : 3

 VLAN Name                      : v2
 Query Interval                 : 125
 Max Response Time              : 10
 Robustness Value               : 2
 Last Member Query Interval     : 1
 Querier State                  : Disabled
 Querier Role                   : Non-Querier
 Querier IP                     : 0.0.0.0
 Querier Expiry Time            : 0 secs
 State                          : Disabled
 Fast Leave                     : Disabled
 Rate Limit                     : No Limitation
 Report Suppression             : Enabled
 Version                        : 3

Total Entries: 2

DES-3810-28:admin#
```

32-8 show igmp_snooping group

Description

This command is used to display the current IGMP snooping group configuration on the switch.

Format

show igmp_snooping group {[vlan <vlan_name 32> | vlanid <vlanid_list> | ports <portlist>] {<ipaddr>}}

Parameters

vlan - (Optional) Specifies the name of the VLAN for which you want to view IGMP snooping group configuration information. **<vlan_name 32>** - Specifies the VLAN name. The maximum length is 32 characters.
vlanid - (Optional) Specifies the ID of the VLAN for which to view IGMP snooping group information. **<vlanid_list>** - Specifies the VLAN ID list.
ports - (Optional) Specifies the list of ports for which to view IGMP snooping group information. **<portlist>** - Specifies a range of ports to be configured.
<ipaddr> - (Optional) Specifies the group IP address for which to view IGMP snooping group information.

Note: If no parameter is specified, the system will display all of the current IGMP snooping group configuration of the switch.

Restrictions

None.

Example

To display IGMP snooping groups:

```
DES-3810-28:admin#show igmp_snooping group
Command: show igmp_snooping group

 Source/Group   : NULL  / 224.106.0.211
 VLAN Name/VID  : default/1
 Member Ports   : 1
 UP Time        : 223
 Expiry Time    : 37
 Filter Mode    : EXCLUDE


 Source/Group   : NULL  / 234.54.163.75
 VLAN Name/VID  : default/1
 Member Ports   : 1
 UP Time        : 223
 Expiry Time    : 37
 Filter Mode    : EXCLUDE


 Source/Group   : 110.56.32.100 / 235.10.160.5
 VLAN Name/VID  : default/1
 Member Ports   : 2
 UP Time        : 221
 Expiry Time    : 0
 Filter Mode    : EXCLUDE

  Total Entries : 3

DES-3810-28:admin#
```

32-9 config igmp_snooping rate_limit

Description

This command is used to configure the upper limit per second for ingress IGMP control packets.

Format

config igmp_snooping rate_limit [ports <portlist> | vlanid <vlanid_list>] [<value 1-1000> | no_limit]

Parameters

ports - Specifies a range of ports to be configured. **<portlist>** - Specifies a range of ports to be configured.
vlanid - Specifies a range of VLANs to be configured. **<vlanid_list>** - Specifies the VLAN ID list.
<value 1-1000> - Specifies the rate of IGMP control packets that the switch can process on a specific port/VLAN. The rate is specified in packet per second. The packets that exceed the limited rate will be dropped.
no_limit - The default setting is no limit.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the IGMP snooping rate limit for ports 1-2 to have no limit:

```
DES-3810-28:admin#config igmp_snooping rate_limit ports 1-2 no_limit
Command: config igmp_snooping rate_limit ports 1-2 no_limit

Success.

DES-3810-28:admin#
```

32-10 show igmp_snooping rate_limit

Description

This command is used to display the IGMP snooping rate limit setting.

Format

show igmp_snooping rate_limit [ports <portlist> | vlanid <vlanid_list>]

Parameters

ports - Specifies a range of ports to be displayed. **<portlist>** - Specifies a range of ports to be displayed.
vlanid - Specifies a range of VLANs to be displayed. **<vlanid_list>** - Specifies the VLAN ID list.

Restrictions

None.

Example

To display the IGMP snooping rate limit for ports 1-2:

```
DES-3810-28:admin#show igmp_snooping rate_limit ports 1-2
Command: show igmp_snooping rate_limit ports 1-2

Port      Rate Limit
--------  ------------
1              No Limit
2              No Limit

Total Entries: 2
DES-3810-28:admin#
```

32-11 create igmp_snooping static_group

Description

This command allows users to create an IGMP snooping static group. Member ports can be added to the static group. The static member and the dynamic member port form the member ports of a group. The static group will only take effect when IGMP snooping is enabled on the VLAN. For those static member ports, the device needs to emulate the IGMP protocol operation to the querier, and forward the traffic destined to the multicast group to the member ports. For a layer 3 device, the device is also responsible to route the packet destined for this specific group to static member ports. The static member port will only affect V2 IGMP operation. The Reserved IP multicast address 224.0.0.X must be excluded from the configured group.The VLAN must be created first before a static group can be created.

Format

create igmp_snooping static_group [vlan <vlan_name 32> | vlanid <vlanid_list>] <ipaddr>

Parameters

vlan - Specifies the name of the VLAN on which the static group resides. **<vlan_name 32>** - Specifies the VLAN name. The maximum length is 32 characters.
vlanid - Specifies the VLAN ID list. **<vlanid_list>** - Specifies the VLAN ID list.
<ipaddr> - Specifies the multicast group IP address (for Layer 3 switch).

Restrictions

Only Administrators and Operators can issue this command.

Example

To create an IGMP snooping static group on default VLAN, group 239.1.1.1:

```
DES-3810-28:admin#create igmp_snooping static_group vlan default 239.1.1.1
Command: create igmp_snooping static_group vlan default 239.1.1.1

Success.

DES-3810-28:admin#
```

32-12 config igmp_snooping static_group

Description

This command is used to configure an IGMP snooping static group on the switch. When a port is configured as a static member port, the IGMP protocol will not operate on this port. Therefore, suppose that a port is a dynamic member port learned by IGMP. If this port is configured as a static member later, then the IGMP protocol will stop operating on this port. The IGMP protocol will resume once this port is removed from static member ports. The static member port will only affect V2 IGMP operation.

Format

config igmp_snooping static_group [vlan <vlan_name 32> | vlanid <vlanid_list>] <ipaddr> [add | delete] <portlist>

Parameters

vlan - Specifies the name of the VLAN on which the static group resides. **<vlan_name 32>** - Specifies the VLAN name. The maximum length is 32 characters.
vlanid - Specifies the ID of the VLAN on which the static group resides. **<vlanid_list>** - Specifies the VLAN ID list.
<ipaddr> - Specifies the multicast group IP address (for Layer 3 switch).
add - Specifies to add the member ports.
delete - Specifies to delete the member ports.
<portlist> - Specifies a range of ports to be configured.

Restrictions

Only Administrators and Operators can issue this command.

Example

To add port 9 to 10 to be IGMP snooping static member ports for group 239.1.1.1 on default VLAN:

```
DES-3810-28:admin#config igmp_snooping static_group vlan default 239.1.1.1 add
9-10
Command: config igmp_snooping static_group vlan default 239.1.1.1 add 9-10

Success.

DES-3810-28:admin#
```

32-13 delete igmp_snooping static_group

Description

This command is used to delete an IGMP snooping static group on the switch. The deletion of an IGMP snooping static group will not affect the IGMP snooping dynamic member ports for a group.

Format

delete igmp_snooping static_group [vlan <vlan_name 32> | vlanid <vlanid_list>] <ipaddr>

Parameters

vlan - Specifies the name of the VLAN on which the static group resides. **<vlan_name 32>** - Specifies the VLAN name. The maximum length is 32 characters.
vlanid - Specifies the VLAN ID list on which the static group resides. **<vlanid_list>** - Specifies the VLAN ID list.
<ipaddr> - Specifies the multicast group IP address (for Layer 3 switch).

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete an IGMP snooping static group from the default VLAN, group 239.1.1.1:

```
DES-3810-28:admin#delete igmp_snooping static_group vlan default 239.1.1.1
Command: delete igmp_snooping static_group vlan default 239.1.1.1

Success.

DES-3810-28:admin#
```

32-14 show igmp_snooping static_group

Description

This command is used to display the IGMP snooping static multicast group.

Format

show igmp_snooping static_group {[vlan <vlan_name 32> | vlanid <vlanid_list>] <ipaddr>}

Parameters

vlan - Specifies the name of the VLAN on which the static group resides. **<vlan_name 32>** - Specifies the VLAN name. The maximum length is 32 characters.
vlanid - Specifies the VLAN ID list on which the static group resides. **<vlanid_list>** - Specifies the VLAN ID list.
<ipaddr> - Specifies the multicast group IP address (for Layer 3 switch).

Restrictions

None.

Example

To display all the IGMP snooping static groups:

```
DES-3810-28:admin#show igmp_snooping static_group
Command: show igmp_snooping static_group

VLAN ID/Name                              IP Address      Static Member Ports
----------------------------------------  --------------  --------------------
1/Default                                 239.1.1.1       9-10

Total Entries : 1

DES-3810-28:admin#
```

32-15 show igmp_snooping statistic counter

Description

This command is used to display the IGMP snooping statistics counter for IGMP protocol packets that are transmitted or received by the switch since IGMP snooping was enabled.

Format

show igmp_snooping statistic counter [vlan <vlan_name 32> | vlanid <vlanid_list> | ports <portlist>]

Parameters

vlan - Specifies a VLAN to be displayed. **<vlan_name 32>** - Specifies the VLAN name. The maximum length is 32 characters.
vlanid - Specifies a list of VLANs to be displayed. **<vlanid_list>** - Specifies the VLAN ID list.
ports – Specifies a list of ports to be displayed. **<portlist>** - Specifies a list of ports.

Restrictions

None.

Example

To display the IGMP snooping statistics counter for port 1:

```
DES-3810-28:admin#show igmp_snooping statistic counter ports 1
Command: show igmp_snooping statistic counter ports 1

Port #           : 1
-------------------------------------------------
```

```
Group Number      : 0

Receive Statistics
    Query
      IGMP v1 Query                     : 0
      IGMP v2 Query                     : 0
      IGMP v3 Query                     : 0
      Total                             : 0
      Dropped By Rate Limitation        : 0
      Dropped By Multicast VLAN         : 0

    Report & Leave
      IGMP v1 Report                    : 0
      IGMP v2 Report                    : 0
      IGMP v3 Report                    : 0
      IGMP v2 Leave                     : 0
      Total                             : 0
      Dropped By Rate Limitation        : 0
      Dropped By Max Group Limitation   : 0
      Dropped By Group Filter           : 0
      Dropped By Multicast VLAN         : 0

Transmit Statistics
    Query
      IGMP v1 Query                     : 0
      IGMP v2 Query                     : 0
      IGMP v3 Query                     : 0
      Total                             : 0

    Report & Leave
      IGMP v1 Report                    : 0
      IGMP v2 Report                    : 0
      IGMP v3 Report                    : 0
      IGMP v2 Leave                     : 0
      Total                             : 0

 Total Entries : 1

DES-3810-28:admin#
```

32-16 clear igmp_snooping statistics counter

Description

This command is used to clear the IGMP snooping statistics counter on the switch.

Format

clear igmp_snooping statistics counter

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To clear the IGMP snooping statistic counter:

```
DES-3810-28:admin#clear igmp_snooping statistics counter
Command: clear igmp_snooping statistics counter

Success.

DES-3810-28:admin#
```

32-17 config igmp_snooping data_driven_learning

Description

This command is used to enable or disable data driven learning of an IGMP snooping group. When data-driven learning is enabled for the VLAN, the switch receives the IP multicast traffic on this VLAN, and an IGMP snooping group is created. That is, the learning of an entry is not activated by IGMP membership registration, but activated by the traffic. For an ordinary IGMP snooping entry, the IGMP protocol will take care of the aging out of the entry. For a data-driven entry, the entry can be specified not to ageout or to ageout by the aging timer.

When data driven learning is enabled, the multicast filtering mode for all ports is ignored. This means multicast packets will be flooded. If a data-driven group is created and IGMP member ports are learned later, the entry will become an ordinary IGMP snooping entry. Thus, the aging out mechanism will follow the rules of an ordinary IGMP snooping entry.

Format

config igmp_snooping data_driven_learning [all | vlan_name <vlan_name 32> | vlanid <vlanid_list>] {state [enable | disable] | aged_out [enable | disable] | expiry_time <sec 1-65535>}(1)

Parameters

all - Specifies to configure all VLANs and VLAN IDs.
vlan_name - Specifies the VLAN name to be configured. **<vlan_name 32>** - Specifies the VLAN name. This name can be up to 32 characters long.
vlanid - Specifies the VLAN ID to be configured. **<vlanid_list>** - Specifies a list of VLAN IDs.
state - Specifies whether to enable or disable the data driven learning of an IGMP snooping group. This is enabled by default. **enable** - Enable data driven learning of an IGMP snooping group. **disable** - Disable data driven learning of an IGMP snooping group.
aged_out - Enable or disable the aging of the entry. This is disabled by default. **enable** - Enable the aging of the entry.

disable - Disable the aging of the entry.
expiry_time - Specifies the data driven group lifetime in seconds. This parameter is valid only when **aged_out** is enabled. **<sec 1-65535>** - Specifies the time between 1 and 65535 seconds.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable data driven learning of an IGMP snooping group on a default VLAN:

```
DES-3810-28:admin# config igmp_snooping data_driven_learning vlan_name default
state enable
Command: config igmp_snooping data_driven_learning vlan_name default state
enable

Success.

DES-3810-28:admin#
```

32-18 config igmp_snooping data_driven_learning max_learned_entry

Description

This command is used to configure the maximum number of groups that can be learned by the data driven mechanism. When the table is full, the system will stop learning new data-driven groups. Traffic for the new groups will be dropped.

Format

config igmp_snooping data_driven_learning max_learned_entry <value 1-1024>

Parameters

<value 1-1024> - Specifies the maximum number of groups that can be learned by the data driven mechanism. The default is 128.

Restrictions

Only Administrators and Operators can issue this command.

Example

To set the maximum number of groups that can be learned by data driven:

```
DES-3810-28:admin#config igmp_snooping data_driven_learning max_learned_entry
50
Command: config igmp_snooping data_driven_learning max_learned_entry 50

Success.
```

```
DES-3810-28:admin#
```

32-19 show igmp_snooping forwarding

Description

This command is used to display the switch's current IGMP snooping forwarding table. It provides an easy way for users to check the list of ports that the multicast group comes from in terms of specific sources. The packets come from the source VLAN. They will be forwarded to the forwarding VLAN. The IGMP snooping further restricts the forwarding ports.

Format

show igmp_snooping forwarding {[vlan <vlan_name 32> | vlanid <vlanid_list>]}

Parameters

vlan - (Optional) Specifies a VLAN to be displayed. **<vlan_name 32>** - Specifies the VLAN name. The maximum length is 32 characters.
vlanid - (Optional) Specifies a list of VLANs to be displayed. **<vlanid_list>** - Specifies the VLAN ID list.

Note: If no parameter is specified, the system will display all current IGMP snooping forwarding table entries of the switch.

Restrictions

None.

Example

To display all IGMP snooping forwarding entries located on the switch:

```
DES-3810-28:admin#show igmp_snooping forwarding
Command: show igmp_snooping forwarding

VLAN Name     : default
Source IP     : 10.90.90.114
Multicast Group: 225.0.0.0
Port Member   : 2,7

VLAN Name     : default
Source IP     : 10.90.90.10
Multicast Group: 225.0.0.1
Port Member   : 2,5

Total Entries : 2

DES-3810-28:admin#
```

32-20 show igmp_snooping host

Description

This command is used to display the IGMP hosts that have joined groups on a specific port or specific VLAN.

Format

show igmp_snooping host {[vlan <vlan_name 32> | vlanid <vlanid_list> | ports <portlist> | group <ipaddr>]}

Parameters

vlan - (Optional) Specifies the VLAN name to display the host information. **<vlan_name 32>** - Specifies the VLAN name. The maximum length is 32 characters.
vlanid - (Optional) Specifies the VLAN ID to display the host information. **<vlanid_list>** - Specifies the VLAN ID list.
ports - (Optional) Specifies the list of ports to display the host information. **<portlist>** - Specifies a range of ports to be displayed.
group - (Optional) Specifies the group to display the host information. **<ipaddr>** - Specifies the IP address.

Note: If VLAN or port are not specified, all joining hosts will be displayed.

Note: This feature takes effect when the fast leave function for IGMP Snooping is enabled.

Restrictions

None.

Example

To display the host IP information on the default VLAN:

```
DES-3810-28:admin#show igmp_snooping host vlan default
Command: show igmp_snooping host vlan default

VLANID   Group           Port        Host
 -------  -------------- --------    -----------
1        225.0.1.0       2           198.19.1.2
1        225.0.1.0       2           198.19.1.3
1        225.0.1.0       3           198.19.1.4
1        225.0.1.2       2           198.19.1.3
1        225.0.1.3       3           198.19.1.4

Total Entries : 5

DES-3810-28:admin#
```

To display the host IP information for the group 225.0.1.0:

```
DES-3810-28:admin#show igmp_snooping host group 225.0.1.0
Command: show igmp_snooping host group 225.0.1.0

VLANID   Group           Port         Host
-------  --------------- --------     -----------
1        225.0.1.0       2            198.19.1.2
1        225.0.1.0       2            198.19.1.3
1        225.0.1.0       3            198.19.1.4

Total Entries : 3

DES-3810-28:admin#
```

32-21 show router_ports

Description

This command is used to display the current router ports on the switch.

Format

show router_ports [vlan <vlan_name 32> | vlanid <vlanid_list> | all] {[static | dynamic | forbidden]}

Parameters

vlan - Specifies the name of the VLAN on which the router port resides. **<vlan_name 32>** - Specifies the VLAN name. The maximum length is 32 characters.
vlanid - Specifies the ID of the VLAN on which the router port resides. **<vlanid_list>** - Specifies the VLAN ID list. **all** – Specifies that all the VLANs will be used for this configuration.
static - (Optional) Display router ports that have been statically configured.
dynamic - (Optional) Display router ports that have been dynamically registered.
forbidden - (Optional) Display forbidden router ports that have been statically configured.

Note: If no parameter is specified, the system will display all the current router ports on the Switch.

Restrictions

None.

Example

To display the router ports on the default VLAN:

```
DES-3810-28:admin#show router_ports vlan default
Command: show router_ports vlan default

VLAN Name                : default
Static Router Port       :
Dynamic Router Port      :
Router IP                :
Forbidden Router Port    :

Total Entries: 1

DES-3810-28:admin#
```

Chapter 33 IGMP Snooping Multicast (ISM) VLAN Commands

create igmp_snooping multicast_vlan <vlan_name 32> <vlanid 2-4094> {remap_priority [<value 0-7> | none] {replace_priority}}
config igmp_snooping multicast_vlan <vlan_name 32> {[add | delete] [member_port <portlist> | [source_port <portlist> | untag_source_port <portlist>] | tag_member_port <portlist>] | state [enable | disable] | replace_source_ip <ipaddr> | remap_priority [<value 0-7> | none] {replace_priority}} (1)
create igmp_snooping multicast_vlan_group_profile <profile_name 1-32>
config igmp_snooping multicast_vlan_group_profile <profile_name 1-32> [add | delete] <mcast_address_list>
delete igmp_snooping multicast_vlan_group_profile [profile_name <profile_name 1-32> | all]
show igmp_snooping multicast_vlan_group_profile {<profile_name 1-32>}
config igmp_snooping multicast_vlan_group <vlan_name 32> [add | delete] profile_name <profile_name 1-32>
show igmp_snooping multicast_vlan_group {<vlan_name 32>}
delete igmp_snooping multicast_vlan <vlan_name 32>
enable igmp_snooping multicast_vlan
disable igmp_snooping multicast_vlan
show igmp_snooping multicast_vlan {<vlan_name 32>}
config igmp_snooping multicast_vlan forward_unmatched [disable | enable]

33-1 create igmp_snooping multicast_vlan

Description

This command is used to create an IGMP snooping multicast VLAN and implements relevant parameters as specified. More than one multicast VLAN can be configured. Newly created IGMP snooping multicast VLANs must use a unique VLAN ID and name, i.e. they cannot use the VLAN ID or name of any existing 802.1Q VLAN. Also keep in mind the following conditions: multicast VLANs cannot be configured or displayed using 802.1Q VLAN commands and the multicast VLAN snooping function co-exists with the 802.1Q VLAN snooping function.

Format

create igmp_snooping multicast_vlan <vlan_name 32> <vlanid 2-4094> {remap_priority [<value 0-7> | none] {replace_priority}}

Parameters

<vlan_name 32> - Specifies the name of the multicast VLAN to be created. Each multicast VLAN is given a name that can be up to 32 characters.
<vlanid 2-4094> - Specifies the VLAN ID of the multicast VLAN to be created. The range is from 2 to 4094.
remap_priority - (Optional) Specifies the remap priority that will be used. **<value 0-7>** - Specifies the remap priority (0 to 7) to be associated with the data traffic to be

forwarded on the multicast VLAN. **none** - If none is specified, the packet's original priority will be used. The default setting is none.
replace_priority - (Optional) Specifies that the packet's priority will be changed by the switch, based on the remap priority. This flag will only take effect when the remap priority is set.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create an IGMP snooping multicast VLAN with the VLAN name mv1 and the VID 2:

```
DES-3810-28:admin#create igmp_snooping multicast_vlan mv1 2
Command: create igmp_snooping multicast_vlan mv1 2

Success.

DES-3810-28:admin#
```

33-2 config igmp_snooping multicast_vlan

Description

This command is used to configure IGMP snooping multicast VLAN parameters. The member port list and source port list cannot overlap. However, the member port of one multicast VLAN can overlap with another multicast VLAN. The multicast VLAN must be created first using the **create igmp_snooping multicast_vlan** command before the multicast VLAN can be configured.

Format

config igmp_snooping multicast_vlan <vlan_name 32> {[add | delete] [member_port <portlist> | [source_port <portlist> | untag_source_port <portlist>] | tag_member_port <portlist>] | state [enable | disable] | replace_source_ip <ipaddr> | remap_priority [<value 0-7> | none] {replace_priority}} (1)

Parameters

<vlan_name 32> - Specifies the name of the multicast VLAN to be configured. Each multicast VLAN is given a name that can be up to 32 characters.
add - Specifies to add a port.
delete - Specifies to delete a port.
member_port - Specifies member port of the multicast VLAN. The specified range of ports will become untagged members of the multicast VLAN. **<portlist>** - Specifies a range of ports to be configured.
source_port - Specifies source port where the multicast traffic is entering the Switch. **<portlist>** - Specifies a range of ports to be configured.
untag_source_port - Specifies the untagged source port where the multicast traffic is entering the Switch. The PVID of the untagged source port is automatically changed to the multicast VLAN. Source ports must be either tagged or untagged for any single multicast VLAN, i.e. both types cannot be members of the same multicast VLAN **<portlist>** - Specifies a range of ports to be configured.
tag_member_port - Specifies the tagged member port of the multicast VLAN.

<portlist> - Specifies a range of ports to be configured.
state - (Optional) Specifies if the multicast VLAN for a chosen VLAN should be enabled or disabled. **enable** - Enable multicast VLAN for the chosen VLAN. **disable** - Disable multicast VLAN for the chosen VLAN.
replace_source_ip - With the IGMP snooping function, the IGMP report packet sent by the host will be forwarded to the source port. Before forwarding of the packet, the source IP address in the join packet needs to be replaced by this IP address. If none is specified, the source IP address will use “0” IP address. **<ipaddr>** - Enter the IP address here.
remap_priority - Specifies the remap priority here. **<value 0-7>** - The remap priority value (0 to 7) to be associated with the data traffic to be forwarded on the multicast VLAN. **none** - If none is specified, the packet’s original priority is used. The default setting is none.
replace_priority - (Optional) Specifies that the packet priority will be changed to the remap priority, but only if remap priority is set.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure an IGMP snooping multicast VLAN with the name “v1”, make ports 1 and 3 members of the VLAN, and set the state to enable:

```
DES-3810-28:admin#config igmp_snooping multicast_vlan v1 add member_port 1,3
state enable
Command: config igmp_snooping multicast_vlan v1 add member_port 1,3 state
enable

Success.

DES-3810-28:admin#
```

33-3 create igmp_snooping multicast_vlan_group_profile

Description

This command is used to create a multicast group profile. The profile name for IGMP snooping must be unique.

Format

create igmp_snooping multicast_vlan_group_profile <profile_name 1-32>

Parameters

<profile_name 1-32> - Specifies the multicast VLAN profile name. The maximum length is 32 characters.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create an IGMP snooping multicast group profile with the name “Knicks”:

```
DES-3810-28:admin#create igmp_snooping multicast_vlan_group_profile Knicks
Command: create igmp_snooping multicast_vlan_group_profile Knicks

Success.

DES-3810-28:admin#
```

33-4 config igmp_snooping multicast_vlan_group_profile

Description

This command is used to configure an IGMP snooping multicast group profile on the switch and to add or delete multicast addresses for a profile.

Format

config igmp_snooping multicast_vlan_group_profile <profile_name 1-32> [add | delete] <mcast_address_list>

Parameters

<profile_name 32> - Specifies the multicast VLAN profile name. The maximum length is 32 characters. **add** - Specifies to add a multicast address list to this multicast VLAN profile. **delete** - Specifies to delete a multicast address list from this multicast VLAN profile.
<mcast_address_list> - Specifies a multicast address list. This can be a continuous single multicast address, such as 225.1.1.1, 225.1.1.3, 225.1.1.8, a multicast address range, such as 225.1.1.1-225.2.2.2, or both types, such as 225.1.1.1, 225.1.1.18-225.1.1.20.

Restrictions

Only Administrators and Operators can issue this command.

Example

To add the single multicast address 225.1.1.1 and multicast range 225.1.1.10-225.1.1.20 to the IGMP snooping multicast VLAN profile named “Knicks”:

```
DES-3810-28:admin#config igmp_snooping multicast_vlan_group_profile Knicks add
225.1.1.1, 225.1.1.10-225.1.1.20
Command: config igmp_snooping multicast_vlan_group_profile Knicks add
225.1.1.1, 225.1.1.10-225.1.1.20

Success.

DES-3810-28:admin#
```

33-5 delete igmp_snooping multicast_vlan_group_profile

Description

This command is used to delete an existing IGMP snooping multicast group profile on the switch. Specifies a profile name to delete it.

Format

delete igmp_snooping multicast_vlan_group_profile [profile_name <profile_name 1-32> | all]

Parameters

profile_name - Specifies the multicast VLAN group profile name. The maximum length is 32 characters.
<profile_name 1-32> - The profile file can be up to 32 characters long.
all - Specifies to delete all the profiles.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete an IGMP snooping multicast group profile named “Knicks”:

```
DES-3810-28:admin#delete igmp_snooping multicast_vlan_group_profile
profile_name Knicks
Command: delete igmp_snooping multicast_vlan_group_profile profile_name Knicks

Success.

DES-3810-28:admin#
```

33-6 show igmp_snooping multicast_vlan_group_profile

Description

This command is used to display an IGMP snooping multicast group profile.

Format

show igmp_snooping multicast_vlan_group_profile {<profile_name 1-32>}

Parameters

<profile_name 1-32> - (Optional) Specifies the multicast VLAN profile name. The maximum length is 32 characters.

Restrictions

None.

Example

To display all IGMP snooping multicast VLAN profiles:

```
DES-3810-28:admin#show igmp_snooping multicast_vlan_group_profile
Command: show igmp_snooping multicast_vlan_group_profile

Profile Name              Multicast Addresses
------------------------  --------------------------------
Knicks                    234.1.1.1 - 238.244.244.244
                          239.1.1.1 - 239.2.2.2
customer                  224.19.62.34 - 224.19.162.200

Total Entries : 2

DES-3810-28:admin#
```

33-7 config igmp_snooping multicast_vlan_group

Description

This command is used to configure the multicast group which will be learned with the specific multicast VLAN. There are two cases that need to be considered. For the first case, suppose that a multicast group is not configured and multicast VLANs do not have overlapped member ports. That means the join packets received by the member port will only be learned with the multicast VLAN that this port belongs to. If not, which is the second case, the join packet will be learned with the multicast VLAN that contains the destination multicast group. If the destination multicast group of the join packet can not be classified into any multicast VLAN that this port belongs to, then the join packet will be learned with the natural VLAN of the packet. Please note that the same profile can not overlap different multicast VLANs. Multiple profiles can be added to a multicast VLAN, however.

Format

config igmp_snooping multicast_vlan_group <vlan_name 32> [add | delete] profile_name <profile_name 1-32>

Parameters

<vlan_name 32> - Specifies the name of the multicast VLAN to be configured. Each multicast VLAN is given a name that can be up to 32 characters. **add** - Specifies to associate a profile to a multicast VLAN. **delete** - Specifies to de-associate a profile from a multicast VLAN.
profile_name - Specifies the multicast VLAN profile name. The maximum length is 32 characters. **<profile_name>** - The profile name can be up to 32 characters long.

Restrictions

Only Administrators and Operators can issue this command.

Example

To add an IGMP snooping profile to a multicast VLAN group with the name “v1”:

```
DES-3810-28:admin#config igmp_snooping multicast_vlan_group v1 add profile_name
channel_1
Command: config igmp_snooping multicast_vlan_group v1 add profile_name
channel_1
Success.


DES-3810-28:admin#
```

33-8 show igmp_snooping multicast_vlan_group

Description

This command allows group profile information for a specific multicast VLAN to be displayed.

Format

show igmp_snooping multicast_vlan_group {<vlan_name 32>}

Parameters

<vlan_name 32> - (Optional) Specifies the name of the group profile's multicast VLAN to be displayed.

Restrictions

None.

Example

To display all IGMP snooping multicast VLANs'group profile information:

```
DES-3810-28:admin#show igmp_snooping multicast_vlan_group
Command: show igmp_snooping multicast_vlan_group


VLAN Name                       VLAN ID        Multicast Group Profiles
------------------------------  -------  ---------------------------------
test2                           20

test1                           100


DES-3810-28:admin#
```

33-9 delete igmp_snooping multicast_vlan

Description

This command is used to delete an IGMP snooping multicast VLAN.

Format

delete igmp_snooping multicast_vlan <vlan_name 32>

Parameters

<vlan_name 32> - Specifies the name of the multicast VLAN to be deleted.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete an IGMP snooping multicast VLAN called “v1”:

```
DES-3810-28:admin#delete igmp_snooping multicast_vlan v1
Command: delete igmp_snooping multicast_vlan v1

Success.

DES-3810-28:admin#
```

33-10 enable igmp_snooping multicast_vlan

Description

This command is used to enable the IGMP snooping multicast VLAN function. By default, the multicast VLAN is disabled.

Format

enable igmp_snooping multicast_vlan

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable IGMP snooping multicast VLAN:

```
DES-3810-28:admin#enable igmp_snooping multicast_vlan
Command: enable igmp_snooping multicast_vlan

Success.

DES-3810-28:admin#
```

33-11 disable igmp_snooping multicast_vlan

Description

This command is used to disable the IGMP snooping multicast VLAN function. By default, the multicast VLAN is disabled.

Format

disable igmp_snooping multicast_vlan

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable IGMP snooping multicast VLAN:

```
DES-3810-28:admin#disable igmp_snooping multicast_vlan
Command: disable igmp_snooping multicast_vlan

Success.

DES-3810-28:admin#
```

33-12 show igmp_snooping multicast_vlan

Description

This command allows information for a specific multicast VLAN to be displayed.

Format

show igmp_snooping multicast_vlan {<vlan_name 32>}

Parameters

<vlan_name 32> - (Optional) Specifies the name of the multicast VLAN to be displayed.

Restrictions

None.

Example

To display all IGMP snooping multicast VLANs:

```
DES-3810-28:admin#show igmp_snooping multicast_vlan
Command: show igmp_snooping multicast_vlan

IGMP Multicast VLAN Global State        : Disabled
IGMP Multicast VLAN Forward Unmatched   : Disabled

VLAN Name               :test
VID                     :100

Member(Untagged) Ports    :1
Tagged Member Ports       :
Source Ports              :3
Untagged Source Ports     :
Status                    :Disabled
Replace Source IP         :0.0.0.0
Remap Priority            :None

Total Entries: 1

DES-3810-28:admin#
```

33-13 config igmp_snooping multicast_vlan forward_unmatched

Description

This command is used to configure the forwarding mode for IGMP snooping multicast VLAN unmatched packets. When the switch receives an IGMP snooping packet, it will match the packet against the multicast profile to determine which multicast VLAN to associate with. If the packet does not match all profiles, the packet will be forwarded or dropped based on this setting. By default, the packet will be dropped.

Format

config igmp_snooping multicast_vlan forward_unmatched [disable | enable]

Parameters

enable - The packet will be flooded on the VLAN.
disable - The packet will be dropped.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the forwarding mode for IGMP snooping multicast VLAN unmatched packets:

```
DES-3810-28:admin#config igmp_snooping multicast_vlan forward_unmatched enable
Command: config igmp_snooping multicast_vlan forward_unmatched enable

Success.

DES-3810-28:admin#
```

Chapter 34 Internet Group Management Protocol (IGMP) Commands

config igmp [ipif <ipif_name 12> | all] {version <value 1-3> | query_interval <sec 1-31744> | max_response_time <sec 1-25> | robustness_variable <value 1-7> | last_member_query_interval <value 1-25> | state [enable | disable]}
show igmp {ipif <ipif_name 12>}
show igmp group {group <group> | ipif <ipif_name 12>}
config igmp check_subscriber_source_network [ipif <ipif_name 12> | all] [enable | disable]
show igmp check_subscriber_source_network {ipif <ipif_name 12>}
create igmp static_group ipif <ipif_name 12> group <ipaddr>
delete igmp static_group ipif <ipif_name 12> [group <ipaddr> | all]
show igmp static_group {ipif <ipif_name 12>}

34-1 config igmp

Description

This command is used to configure IGMP on the Switch.

Format

config igmp [ipif <ipif_name 12> | all] {version <value 1-3> | query_interval <sec 1-31744> | max_response_time <sec 1-25> | robustness_variable <value 1-7> | last_member_query_interval <value 1-25> | state [enable | disable]}

Parameters

ipif - Specifies the IP interface name used for this configuration. **<ipif_name 12>** - Enter the IP interface name used for this configuration here. This name can be up to 12 characters long. **all** - Specifies that all the IP interfaces will be used.
version - (Optional) Specifies the IGMP version used. **<value 1-3>** - Enter the IGMP version number used here. This value must be between 1 and 3. The default value is 3.
query_interval - (Optional) Specifies the time in seconds between general query transmissions. **<sec 1-31744>** - Enter the query interval time here. This value must be between 1 and 31744 seconds. The default value is 125.
max_response_time - (Optional) Specifies the maximum time in seconds to wait for reports from members. **<sec 1-25>** - Enter the maximum response time here. This value must be between 1 and 25 seconds. The default value is 10.
robustness_variable - (Optional) Specifies the permitted packet loss that guarantees IGMP. **<value 1-7>** - Enter the robustness variable here. This value must be between 1 and 7. The default value is 2.
last_member_query_interval - (Optional) Specifies the maximum Response Time inserted into the Group-Specific Queries that are sent in response to Leave Group messages, which is also the amount of time between Group-Specific Query messages.

<value 1-25> - Enter the last member query interval value here. This value must be between 1 and 25. The default value is 1.
state - (Optional) Specifies the IGMP state on a router interface. **enable** - Specifies that the IGMP state will be enabled. **disable** - Specifies that the IGMP state will be disabled.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable IGMP version 1 for the IP interface “System”:

```
DES-3810-28:admin# config igmp ipif System version 1 state enable
Command: config igmp ipif System version 1 state enable

Success.

DES-3810-28:admin#
```

To configure IGMPv2 for all IP interfaces:

```
DES-3810-28:admin# config igmp all version 2
Command: config igmp all version 2

Success.

DES-3810-28:admin#
```

34-2 show igmp

Description

This command is used to display the IGMP configuration.

Format

show igmp {ipif <ipif_name 12>}

Parameters

ipif - (Optional) Specifies the IP interface name to be displayed. **<ipif_name 12>** - Enter the IP interface name, to be displayed, here. This name can be up to 12 characters long.
If no parameter is specified, the system will display all IGMP configurations.

Restrictions

None.

Example

To display the IGMP configuration for all interfaces:

```
DES-3810-28:admin#show igmp
Command: show igmp

IGMP Interface Configurations

Interface    IP Address/Netmask  Ver- Query  Maximum  Robust- Last     State
                                 sion        Response ness    Member
                                             Time     Value   Query
                                                              Interval
------------ ------------------  ---- ------ -------- ------- -------- --------
System       10.90.90.90/8       3    125    10       2       1        Disabled

Total Entries: 1

DES-3810-28:admin#
```

34-3 show igmp group

Description

This command is used to display the switch's IGMP group table.

Format

show igmp group {group <group> | ipif <ipif_name 12>}

Parameters

group - (Optional) Specifies the multicast group ID. **<group>** - Enter the multicast group ID value here.
ipif - (Optional) Specifies the IP interface name to be displayed **<ipif_name 12>** - Enter the IP interface name, to be displayed, here. This name can be up to 12 characters long.
If no parameter is specified, the system will display all IGMP group tables.

Restrictions

None.

Example

To display the IGMP group table:

```
DES-3810-28:admin# show igmp group
Command: show igmp group

Interface      Multicast Group  Last Reporter   IP Querier          IP Expire
-----------  --------------  --------------- ------------------  ---------
System         224.0.0.2        10.42.73.111    10.48.74.122        260
System         224.0.0.9        10.20.53.1      10.48.74.122        260
System         224.0.1.24       10.18.1.3       10.48.74.122        259
System         224.0.1.41       10.1.43.252     10.48.74.122        259
System         224.0.1.149      10.20.63.11     10.48.74.122        259

Total Entries : 5

DES-3810-28:admin#
```

34-4 config igmp check_subscriber_source_network

Description

This command is used to configure the flag that determines whether or not to check the subscriber source IP when an IGMP report or leave message is received. When this command is enabled on an interface, any IGMP report or leave messages received by the interface will be checked to determine whether its source IP is in the same network as the interface. If the check failed for a received report or leave message, the message won't be processed by IGMP protocol. If the check is disabled, the IGMP report or leave message with any source IP will be processed by the IGMP protocol.

Format

config igmp check_subscriber_source_network [ipif <ipif_name 12> | all] [enable | disable]

Parameters

ipif - Specifies the IP interface name used for this configuration. **<ipif_name 12>** - Enter the IP interface name used for this configuration here. This name can be up to 12 characters long. **all** - Specifies that all the IP interfaces will be used.
enable - Specifies that the check state will be enabled. **disable** - Specifies that the check state will be disabled.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable the checking of subscriber source IP addresses when an IGMP report or leave message is received on the interface called 'System':

```
DES-3810-28:admin# config igmp check_subscriber_source_network ipif System
enable
Command: config igmp check_subscriber_source_network ipif System enable
```

```
Success.

DES-3810-28:admin#
```

34-5 show igmp check_subscriber_source_network

Description

This command is used to display the status of the IGMP report/leave message source IP check.

Format

show igmp check_subscriber_source_network {ipif <ipif_name 12>}

Parameters

ipif – (Optional) Specifies the IP interface name to be displayed. **<ipif_name 12>** - Enter the IP interface name, to be displayed, here. This name can be up to 12 characters long.
If no parameter is specified, the system will display all interfaces.

Restrictions

None.

Example

To show the status of the check subscriber for the received IGMP report/leave messages on interface “n20”:

```
DES-3810-28:admin# show igmp check_subscriber_source_network ipif n20
Command: show igmp check_subscriber_source_network ipif n20

Interface    IP Address/Netmask  Check Subscriber Source Network
------------ ------------------  -------------------------------
n20          20.1.1.1/8          Disabled

Total Entries: 1

DES-3810-28:admin#
```

To show the status of the check subscriber for the received IGMP report/leave messages on all interfaces:

```
DES-3810-28:admin# show igmp check_subscriber_source_network
Command: show igmp check_subscriber_source_network

Interface    IP Address/Netmask  Check Subscriber Source Network
------------ ------------------  -------------------------------
System       10.90.90.90/8       Enabled
n1           1.1.1.1/8           Disabled
n11          11.1.1.1/8          Disabled
n20          20.1.1.1/8          Disabled
n100         100.3.2.2/8         Disabled

Total Entries: 5

DES-3810-28:admin#
```

34-6 create igmp static_group ipif

Description

This command is used to create an IGMP static group on the Switch.

Format

create igmp static_group ipif <ipif_name 12> group <ipaddr>

Parameters

ipif – Specifies the IP interface name used for this configuration. **<ipif_name 12>** - Enter the IP interface name used for this configuration here. This name can be up to 12 characters long.
group - Specifies the multicast IP address used. **<ipaddr>** - Enter the multicast IP address used here.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create an IGMP static group, with the multicast IP address 225.0.0.2 on the IP interface “System”:

```
DES-3810-28:admin# create igmp static_group ipif System group 225.0.0.2
Command: create igmp static_group ipif System group 225.0.0.2

Success.

DES-3810-28:admin#
```

34-7 delete igmp static_group ipif

Description

This command is used to delete an IGMP static group on the Switch.

Format

delete igmp static_group ipif <ipif_name 12> [group <ipaddr> | all]

Parameters

ipif – Specifies the IP interface name used for this configuration. **<ipif_name 12>** - Enter the IP interface name used for this configuration here. This name can be up to 12 characters long.
group - Specifies the multicast IP address used. **<ipaddr>** - Enter the multicast IP address used here. **all** – Specifies that all the multicast IP addresses will be deleted.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete the IGMP static group, with the multicast IP address 225.0.0.2 on the IP interface “System”.

```
DES-3810-28:admin# delete igmp static_group ipif System group 225.0.0.2
Command: delete igmp static_group ipif System group 225.0.0.2

Success.

DES-3810-28:admin#
```

To delete all IGMP static groups on the IP interface “n2”.

```
DES-3810-28:admin# delete igmp static_group ipif n2 all
Command: delete igmp static_group ipif n2 all

Success.

DES-3810-28:admin#
```

34-8 show igmp static_group

Description

This command is used to display IGMP static groups on the Switch.

Format

show igmp static_group {ipif <ipif_name 12>}

Parameters

ipif – (Optional) Specifies the IP interface name to be displayed. **<ipif_name 12>** - Enter the IP interface name, to be displayed, here. This name can be up to 12 characters long.
If no parameter is specified, the system will display all IGMP static groups.

Restrictions

None.

Example

To display all IGMP static groups on the interface “n20”:

```
DES-3810-28:admin# show igmp static_group ipif n20
Command: show igmp static_group ipif n20

Interface       Multicast Group
------------    ---------------
n20             239.0.0.3

Total Entries: 1

DES-3810-28:admin#
```

To display all IGMP static groups on all interfaces:

```
DES-3810-28:admin# show igmp static_group
Command: show igmp static_group

Interface        Multicast Group
------------     ---------------
System           225.0.0.1
System           225.0.0.2
n20              239.0.0.3

Total Entries: 3

DES-3810-28:admin#
```

Chapter 35 IP-MAC-Port Binding (IMPB) Commands

create address_binding ip_mac ipaddress <ipaddr> mac_address <macaddr> {ports[<portlist>| all]}
create address_binding ip_mac ipv6address <ipv6addr> mac_address <macaddr> {ports [<portlist> | all]}
config address_binding ip_mac ports [<portlist> | all] {state [enable {[strict | loose] | [ipv6 | all]} | disable {[ipv6 | all]}] | mode [arp | acl] | allow_zeroip [enable | disable] | forward_dhcppkt [enable | disable] | stop_learning_threshold <int 0-500>}(1)
config address_binding ip_mac ipaddress <ipaddr> mac_address <macaddr> {ports [<portlist>| all]}
config address_binding ip_mac ipv6address <ipv6addr> mac_address <macaddr> {ports [<portlist> | all]}
delete address_binding blocked [all | vlan_name <vlan_name> mac_address <macaddr>]
delete address_binding ip_mac [all | ipaddress <ipaddr> mac_address <macaddr>] | ipv6address <ipv6addr> mac_address <macaddr>
show address_binding {ports {<portlist>}}
show address_binding blocked [all | vlan_name <vlan_name> mac_address <macaddr>]
show address_binding ip_mac [all | [[ipaddress <ipaddr> | ipv6address <ipv6addr>] {mac_address <macaddr>} | mac_address <macaddr>]]
enable address_binding trap_log
disable address_binding trap_log
enable address_binding dhcp_snoop {[ipv6 | all]}
disable address_binding dhcp_snoop {[ipv6 | all]}
clear address_binding dhcp_snoop binding_entry ports [<portlist> | all] {[ipv6 | all]}
show address_binding dhcp_snoop {max_entry {ports <portlist>}}
show address_binding dhcp_snoop binding_entry {port <port>}
config address_binding dhcp_snoop max_entry ports [<portlist> | all] limit [<value 1-50> | no_limit] {ipv6}
config address_binding recover_learning ports [<portlist> | all]
enable address_binding nd_snoop
disable address_binding nd_snoop
config address_binding nd_snoop ports [<portlist> | all] max_entry [<value 1-50> | no_limit]
show address_binding nd_snoop {ports <portlist>}
show address_binding nd_snoop binding_entry {port <port>}
clear address_binding nd_snoop binding_entry ports [<portlist> | all]

35-1 create address_binding ip_mac ipaddress

Description

This command is used to create an IP-MAC-Port binding entry.

Format

create address_binding ip_mac ipaddress <ipaddr> mac_address <macaddr> {ports[<portlist>| all]}

Parameters

<ipaddr> - Specifies the IP address.
mac_address - Specifies the MAC address. **<macaddr>** - Enter the MAC address here.
ports - (Optional) Configure the portlist or all ports. **<portlist>** - Specifies a range of ports to be configured. **all** - Specifies to apply to all the ports.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create address binding on the switch:

```
DES-3810-28:admin#create address_binding ip_mac ipaddress 10.1.1.1 mac_address
00-00-00-00-00-11
Command: create address_binding ip_mac ipaddress 10.1.1.1 mac_address 00-00-00-
00-00-11

Success.

DES-3810-28:admin#
```

35-2 create address_binding ip_mac ipv6address

Description

This command is used to create an IP-MAC-Port binding entry using IPv6.

Format

create address_binding ip_mac ipv6address <ipv6addr> mac_address <macaddr> {ports [<portlist> | all]}

Parameters

<ipv6addr> - Specifies the IPv6 address.
mac_address - Specifies the MAC address. **<macaddr>** - Enter the MAC address here.
ports - (Optional) Configure the portlist or all ports. **<portlist>** - Specifies a range of ports to be configured. **all** - Specifies to apply to all the ports.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create a static IPv6 IMPB entry that binds the IPv6 address fe80::240:5ff:fe00:28 to the MAC address 00-00-00-00-00-11:

```
DES-3810-28:admin# create address_binding ip_mac ipv6address
fe80::240:5ff:fe00:28 mac_address 00-00-00-00-00-11
Command: create address_binding ip_mac ipv6address fe80::240:5ff:fe00:28
mac_address 00-00-00-00-00-11

Success.

DES-3810-28:admin#
```

35-3 config address_binding ip_mac ports

Description

This command is used to configure the per port state of IP-MAC-Port binding in the switch. If a port has been configured as group member of an aggregated link, then it can not enable its IP-MAC-Port binding function. When the binding check state is enabled, for IP packet and ARP packet received by this port, the switch will check whether the the IP address and MAC address match the binding entries. The packets will be dropped if they do not match. For this function, the switch can operate in ACL mode or ARP mode. In ARP mode, only ARP packets are checked for binding. In ACL mode, both ARP packets and IP packets are checked for the binding. Therefore, ACL mode provides more strict checks for packets. When configuring the port mode to ACL, the switch will create ACL access entries corresponding to the entries of this port. If the port changes to ARP, all the ACL access entries, created by IP-MAC-Port binding, will be deleted automatically.

Format

config address_binding ip_mac ports [<portlist> | all] {state [enable {[strict | loose] | [ipv6 | all]} | disable {[ipv6 | all]}] | mode [arp | acl] | allow_zeroip [enable | disable] | forward_dhcppkt [enable | disable] | stop_learning_threshold <int 0-500>}(1)

Parameters

ports - Specifies that list of ports used for the configuration here. **<portlist>** - Enter the list of ports, used for the configuration, here. **all** - Specifies that all the ports will be used for this configuration.
state - (Optional) Specifies that when this is enabled, the port will perform the binding check. **enable** – Specifies to enable the address binding port state. **strict** - This mode provides a stricter method of control. If a user chooses it, all packets will be sent to the CPU, which means all packets will not be forwarded by the hardware until the software learns entries for the port. The port will check ARP packets and IP packets by IP-MAC-port binding entries. If the packet is found by the entry, the MAC will be set to dynamic. If the packet isn't found by the entry, the MAC will be set to block. Other packets will be dropped. The default mode is strict if not specified. **loose** - This mode provides a more loose method of control. If user chooses it, ARP packets and IP Broadcast packets will go to the CPU. The packets will still be forwarded by the hardware until a specific source MAC is blocked by the software. The port will check ARP packets and IP Broadcast packets by IP-MAC-port binding entries. If the packet is found by the entry, the MAC will be set to dynamic. If the packet isn't found by the entry, the MAC will be set to block. Other packets will be bypassed. **ipv6** - Specifies that only IPv6 packets will be checked. **all** - Specifies that all packets will be checked. **disable** - Specifies to disable the address binding port state. **ipv6** - Specifies that only IPv6 packets will be checked. **all** - Specifies that all packets will be checked.
mode - (Optional) Specifies the ARP or ACL mode here.

arp - If the port changes to ARP, all IMPB ACL access entries will be deleted automatically. The default mode of port is ARP mode. **acl** - When configuring the port to ACL mode, the switch will create ACL access entries corresponding to the entries of this port.
allow_zeroip - (Optional) Specifies whether to allow ARP packets with SIP address 0.0.0.0. **enable** - If 0.0.0.0 is not configured in the binding list, when it is set to enabled, the ARP packet with this source IP address 0.0.0.0 will be allowed. **disable** - When set to disable, this option does not affect the IP-MAC-port binding ACL Mode.
forward_dhcppkt - (Optional) By default, the DHCP packets with broadcast DA will be flooded. **enable** - This setting is effective when DHCP snooping is enabled because the DHCP packet which has been trapped to CPU needs to be forwarded by the software. This setting controls the forwarding behaviour under this situation. **disable** - When set to disable, the broadcast DHCP packets received by the specified port will not be forwarded.
stop_learning_threshold - (Optional) Enter the stop learning threshold value here. **<int 0-500>** - The stop learning threshold value must be between 0 and 500.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure port 1 to be enabled for address binding:

```
DES-3810-28:admin# config address_binding ip_mac ports 1 state enable
Command: config address_binding ip_mac ports 1 state enable

Success.

DES-3810-28:admin#
```

35-4 config address_binding ip_mac ipaddress

Description

This command is used to update an address binding entry.

Format

config address_binding ip_mac ipaddress <ipaddr> mac_address <macaddr> {ports [<portlist>| all]}

Parameters

<ipaddr> - Specifies the IP address.
mac_address - Specifies the MAC address. **<macaddr>** - Enter the MAC address here.
ports - (Optional) Configure the portlist to apply, if ports are not configured, then it will apply to all ports. **<portlist>** - Specifies the list of ports to apply. **all** - Specifies to apply to all the ports.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure an address binding entry:

```
DES-3810-28:admin#config address_binding ip_mac ipaddress 10.1.1.1 mac_address
00-00-00-00-00-11
Command: config address_binding ip_mac ipaddress 10.1.1.1 mac_address 00-00-00-
00-00-11


Success.


DES-3810-28:admin#
```

35-5 config address_binding ip_mac ipv6address

Description

This command is used to update an address binding entry using IPv6.

Format

config address_binding ip_mac ipv6address <ipv6addr> mac_address <macaddr> {ports [<portlist> | all]}

Parameters

ipv6address - Specifies the IPv6 address used. **<ipv6addr>** - Enter the IPv6 address used here.
mac_address - Specifies the MAC address. **<macaddr>** - Enter the MAC address here.
ports - (Optional) Configure the portlist to apply, if ports are not configured, then it will apply to all ports. **<portlist>** - Specifies the list of ports to apply. **all** - Specifies to apply to all the ports.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure a static IPv6 IMPB entry so that that IPv6 address fe80::240:5ff:fe00:28 is bound to the MAC address 00-00-00-00-00-11:

```
DES-3810-28:admin# config address_binding ip_mac ipv6address
fe80::240:5ff:fe00:28 mac_address 00-00-00-00-00-11
Command: config address_binding ip_mac ipv6address fe80::240:5ff:fe00:28
mac_address 00-00-00-00-00-11

Success.

DES-3810-28:admin#
```

35-6 delete address_binding blocked

Description

This command is used to delete a blocked entry. It specifies the address database that the system has automatically learned and blocked.

Format

delete address_binding blocked [all | vlan_name <vlan_name> mac_address <macaddr>]

Parameters

all - Specifies that all the blocked MAC addresses will be used.
vlan_name - Specifies the name of the VLAN that the blocked MAC address belongs to. **<vlan_name>** - Enter the VLAN name used here.
mac_address - Specifies the MAC address of the blocked MAC address. **<macaddr>** - Enter the MAC address used here.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete the blocked MAC address 00-00-00-00-00-11, which belongs to the VLAN named “v31”:

```
DES-3810-28:admin# delete address_binding blocked vlan_name v31 mac_address 00-
00-00-00-00-11
Command: delete address_binding blocked vlan_name v31 mac_address 00-00-00-00-
00-11

Success.

DES-3810-28:admin#
```

35-7 delete address_binding ip_mac

Description

This command is used to delete an IMPB entry.

Format

delete address_binding ip_mac [all | ipaddress <ipaddr> mac_address <macaddr>] | ipv6address <ipv6addr> mac_address <macaddr>

Parameters

all - Specifies that all the MAC addresses will be used.
vlan_name - Specifies the name of the VLAN that the MAC address belongs to. **<vlan_name>** - Enter the VLAN name used here.
mac_address - Specifies the MAC address of the IMPB entry. **<macaddr>** - Enter the MAC address of the IMPB entry here.
ipv6address - Specifies the IPv6 address of the IMPB entry. **<ipv6addr>** - Enter the IPv6 address of the IMPB entry here.
mac_address - Specifies the MAC address of the IMPB entry. **<macaddr>** - Enter the MAC address of the IMPB entry here.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete an IMPB entry that binds the IP address 10.1.1.1.1 to the MAC address 00-00-00-00-00-11:

```
DES-3810-28:admin# delete address_binding ip_mac ipaddress 10.1.1.1 mac_address
00-00-00-00-00-11
Command: delete address_binding ip_mac ipaddress 10.1.1.1 mac_address 00-00-00-
00-00-11

Success.

DES-3810-28:admin#
```

To delete a static ipv6 IMPB entry that binds the IPv6 address fe80::240:5ff:fe00:28 to the MAC address 00-00-00-00-00-11:

```
DES-3810-28:admin# delete address_binding ip_mac ipv6address
fe80::240:5ff:fe00:28 mac_address 00-00-00-00-00-11
Command: delete address_binding ip_mac ipv6address fe80::240:5ff:fe00:28
mac_address 00-00-00-00-00-11

Success.

DES-3810-28:admin#
```

35-8 show address_binding

Description

This command is used to display address binding information.

Format

show address_binding {ports {<portlist>}}

Parameters

ports – (Optional) Specifies to display the state of IP MAC port binding for all ports. **<portlist>** - Enter the list of ports for the display here.

Restrictions

None.

Example

To display address binding information:

```
DES-3810-28:admin#show address_binding
Command: show address_binding

Trap/Log          : Disabled
DHCP Snoop(IPv4)  : Disabled
DHCP Snoop(IPv6)  : Disabled
ND Snoop          : Disabled
Function Version  : 3.82

DES-3810-28:admin#
```

To display address binding information for all ports:

```
DES-3810-28:admin#show address_binding ports
Command: show address_binding ports

 Port   IPv4      IPv6      Mode  Zero IP    DHCP Packet  Stop Learning
        State     State                                   Threshold/Mode
 -----  --------  --------  ----  ---------  -----------  --------------
 1      Disabled  Disabled  ARP   Not Allow  Forward      500/Normal
 2      Disabled  Disabled  ARP   Not Allow  Forward      500/Normal
 3      Disabled  Disabled  ARP   Not Allow  Forward      500/Normal
 4      Disabled  Disabled  ARP   Not Allow  Forward      500/Normal
 5      Disabled  Disabled  ARP   Not Allow  Forward      500/Normal
 6      Disabled  Disabled  ARP   Not Allow  Forward      500/Normal
 7      Disabled  Disabled  ARP   Not Allow  Forward      500/Normal
 8      Disabled  Disabled  ARP   Not Allow  Forward      500/Normal
 9      Disabled  Disabled  ARP   Not Allow  Forward      500/Normal
 10     Disabled  Disabled  ARP   Not Allow  Forward      500/Normal
 11     Disabled  Disabled  ARP   Not Allow  Forward      500/Normal
 12     Disabled  Disabled  ARP   Not Allow  Forward      500/Normal
 13     Disabled  Disabled  ARP   Not Allow  Forward      500/Normal
 14     Disabled  Disabled  ARP   Not Allow  Forward      500/Normal
 15     Disabled  Disabled  ARP   Not Allow  Forward      500/Normal
 16     Disabled  Disabled  ARP   Not Allow  Forward      500/Normal
 17     Disabled  Disabled  ARP   Not Allow  Forward      500/Normal
```

```
 18     Disabled  Disabled  ARP   Not Allow  Forward      500/Normal
 19     Disabled  Disabled  ARP   Not Allow  Forward      500/Normal
CTRL+C ESC q Quit SPACE n Next Page ENTER Next Entry a All
```

35-9 show address_binding blocked

Description

This command is used to display address binding information for blocked entries.

Format

show address_binding blocked [all | vlan_name <vlan_name> mac_address <macaddr>]

Parameters

blocked - (Optional) Specifies the address database that system auto learned and blocked.
all - Specifies to display all.
vlan_name - Specifies the VLAN name (the blocked MAC belongs to).
<vlan_name> - Enter the VLAN name here.
mac_address - Specifies the MAC address.
<macaddr> - Enter the MAC address here.

Restrictions

None.

Example

To show the IMPB entries that are currently blocked:

```
DES-3810-28:admin#show address_binding blocked all
Command: show address_binding blocked all

 VID  VLAN Name                        MAC Address       Port
 ---- -------------------------------- ----------------- ----
 1     default                         00-01-02-03-29-38  7
 1     default                         00-0C-6E-5C-67-F4  7
 1     default                         00-0C-F8-20-90-01  7
 1     default                         00-0E-35-C7-FA-3F  7
 1     default                         00-0E-A6-8F-72-EA  7
 1     default                         00-0E-A6-C3-34-BE  7
 1     default                         00-11-2F-6D-F3-AC  7
 1     default                         00-50-8D-36-89-48  7
 1     default                         00-50-BA-00-05-9E  7
 1     default                         00-50-BA-10-D8-F6  7
 1     default                         00-50-BA-38-7D-E0  7
 1     default                         00-50-BA-51-31-62  7
 1     default                         00-50-BA-DA-01-58  7
 1     default                         00-A0-C9-01-01-23  7
 1     default                         00-E0-18-D4-63-1C  7

Total Entries : 15
```

```
DES-3810-28:admin#
```

35-10 show address_binding ip_mac

Description

This command is used to display the user created database of address binding information.

Format

show address_binding ip_mac [all | [[ipaddress <ipaddr> | ipv6address <ipv6addr>] {mac_address <macaddr>} | mac_address <macaddr>]]

Parameters

all - Specifies to display all.
ipaddress - Specifies the IP address. **<ipaddr>** - Enter the IP address here.
ipv6address - Specifies the IPv6 address. **<ipv6addr>** - Enter the IPv6 address here.
mac_address – (Optional) Specifies the MAC address. **<macaddr>** - Enter the MAC address here.
mac_address - Specifies the MAC address. **<macaddr>** - Enter the MAC address here.

Restrictions

None.

Example

To display all the IP-MAC address binding information:

```
DES-3810-28:admin#show address_binding ip_mac all
Command: show address_binding ip_mac all

 M(Mode) - D:DHCP, N:ND S:Static ACL - A:Active I:Inactive

 IP Address                              MAC Address       M  ACL Ports
 --------------------------------------- ----------------- -- -- --------------
-
 10.1.1.1                                00-11-22-33-44-55 S  I  1
 10.1.1.2                                00-22-33-44-55-66 S  A  2
 2001::1                                 00-33-44-55-66-77 S  I  3
 2011::1                                 00-44-55-66-77-88 S  I  4

Total Entries : 4

DES-3810-28:admin#
```

To display the IMPB entry by IP address and MAC address:

```
DES-3810-28:admin# show address_binding ip_mac ipaddress 10.1.1.1 mac_address
00-00-00-00-00-11
Command: show address_binding ip_mac ipaddress 10.1.1.1 mac_address 00-00-00-
00-00-11

M(Mode) – D:DHCP,N:ND,S:Static   ACL - A:Active I:Inactive

IP Address                       MAC Address          M  ACL Ports
-------------------------------- -----------------  -- -- -------------
10.1.1.1                         00-00-00-00-00-11  S   I 1,3,5,7,8

Total Entries : 1

DES-3810-28:admin#
```

35-11 enable address_binding trap_log

Description

This command is used to send trap and log messages when an address binding module detects illegal IP and MAC addresses.

Format

enable address_binding trap_log

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable the address binding trap and log:

```
DES-3810-28:admin#enable address_binding trap_log
Command: enable address_binding trap_log

Success.

DES-3810-28:admin#
```

35-12 disable address_binding trap_log

Description

This command is used to disable address binding trap logs.

Format

disable address_binding trap_log

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable the address binding trap and log:

```
DES-3810-28:admin#disable address_binding trap_log
Command: disable address_binding trap_log

Success.

DES-3810-28:admin#
```

35-13 enable address_binding dhcp_snoop

Description

This command is used to enable the address binding DHCP snooping mode. By default, DHCP snooping is disabled. If a user enables DHCP snooping, all address binding disabled ports will function as server ports (the switch will learn IP addresses through server ports (by DHCP OFFER and DHCP ACK packets)). Note that the DHCP discover packet can not be passed through the user ports if the “forward dhcp packet" function is disabled on this port.

The auto-learned IP-MAC-Port binding entry will be mapped to a specific source port based on the MAC address learning function. This entry will be created as an ACL-mode binding entry for this specific port. Each entry is associated with a lease time. When the lease time expires, the expired entry will be removed from this port. The auto-learned binding entry can be moved from one port to another port if the DHCP snooping function has learned that the MAC address has moved to a different port.

Consider the case in which a binding entry learned by DHCP snooping conflicts with the statically configured entry. This means that the binding relation is in conflict. For example, if IP A is binded with MAC X by static configuration, suppose that the binding entry learned by DHCP snooping is IP A binded by MAC Y, then there is a conflict. When the DHCP snooping learned entry is binded with the static configured entry, then the DHCP snooping learned entry will not be created.

Consider the other conflict case, when the DHCP snooping learned a binding entry, and the same IP-MAC-Port binding pair has been statically configured. If the learned information is consistent with the statically configured entry, then the auto-learned entry will not be created. If the entry is statically configured in ARP mode, then the auto learned entry will not be created. If the entry is statically configured on one port and the entry is auto-learned on another port, then the auto-learned entry will not be created either.

Format

enable address_binding dhcp_snoop

Parameters

ipv6 - (Optional) Specifies that IPv6 entries will be enabled. **all** - (Optional) Specifies that all entries will be enabled.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable the address binding DHCP snooping mode:

```
DES-3810-28:admin#enable address_binding dhcp_snoop
Command: enable address_binding dhcp_snoop

Success.

DES-3810-28:admin#
```

35-14 disable address_binding dhcp_snoop

Description

This command is used to disable address binding DHCP snooping. When DHCP snooping is disabled, all of the auto-learned binding entries will be removed.

Format

disable address_binding dhcp_snoop {[ipv6 | all]}

Parameters

ipv6 - (Optional) Specifies that IPv6 entries will be disabled. **all** - (Optional) Specifies that all entries will be disabled.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable the address binding DHCP snooping mode:

```
DES-3810-28:admin#disable address_binding dhcp_snoop
Command: disable address_binding dhcp_snoop

Success.
```

```
DES-3810-28:admin#
```

35-15 clear address_binding dhcp_snoop binding_entry ports

Description

This command is used to clear the address binding entries learned for the specified ports.

Format

clear address_binding dhcp_snoop binding_entry ports [<portlist> | all] {[ipv6 | all]}

Parameters

<portlist> - Specifies the list of ports to clear the DHCP-snoop learned entry. **all** - Specifies to clear the address binding entries learned for all ports.
ipv6 - (Optional) Specifies that IPv6 entries will be cleared. **all** - (Optional) Specifies that all entries will be cleared.

Restrictions

Only Administrators and Operators can issue this command.

Example

To clear the address binding entries for ports 1 to 3:

```
DES-3810-28:admin# clear address_binding dhcp_snoop binding_entry ports 1-3
Command: clear address_binding dhcp_snoop binding_entry ports 1-3

Success.

DES-3810-28:admin#
```

35-16 show address_binding dhcp_snoop

Description

This command is used to display DHCP snooping information.

Format

show address_binding dhcp_snoop {max_entry {ports <portlist>}}

Parameters

max_entry - (Optional) Specifies to display the maximum number of entries. **ports** - (Optional) Specifies a range of ports. **<portlist>** - Specifies a range of ports to be displayed.

Restrictions

None.

Example

To display address binding DHCP snooping:

```
DES-3810-28:admin#show address_binding dhcp_snoop
Command: show address_binding dhcp_snoop

DHCP Snoop(IPv4) : Disabled
DHCP Snoop(IPv6) : Disabled

DES-3810-28:admin#
```

To display the address binding DHCP snooping maximum entries on port 1 to 10:

```
DES-3810-28:admin#show address_binding dhcp_snoop max_entry ports 1-10
Command: show address_binding dhcp_snoop max_entry ports 1-10

Port  Max Entry  Max IPv6 Entry
----  ---------  --------------
1     No Limit   No Limit
2     No Limit   No Limit
3     No Limit   No Limit
4     No Limit   No Limit
5     No Limit   No Limit
6     No Limit   No Limit
7     No Limit   No Limit
8     No Limit   No Limit
9     No Limit   No Limit
10    No Limit   No Limit

DES-3810-28:admin#
```

35-17 show address_binding dhcp_snoop binding_entry

Description

This command is used to display DHCP snooping information of a specific binding entry.

Format

show address_binding dhcp_snoop binding_entry {port <port>}

Parameters

port - (Optional) Specifies a port on which to display the binding entry. **<port>** - Enter the port number here.

Restrictions

None.

Example

To display the DHCP snooping binding entries:

```
DES-3810-28:admin#show address_binding dhcp_snoop binding_entry
Command: show address_binding dhcp_snoop binding_entry

 S (Status) - A: Active, I: Inactive
 Time - Left Time (sec)

 IP Address                                MAC Address       S  LT(sec)    Port
 ----------------------------------------- ----------------- -- ---------- -----
 10.62.58.35                               00-0B-5D-05-34-0B A  35964      1
 10.33.53.82                               00-20-c3-56-b2-ef I  2590       2
 2001:2222:1111:7777:5555:6666:7777:8888 00-00-00-00-00-02 I  50         5
 2001::1                                   00-00-00-00-03-02 A  100        6

Total entries : 4

DES-3810-28:admin#
```

Note: “Inactive” indicates that the entry is currently inactive due to port link down.

35-18 config address_binding dhcp_snoop max_entry ports

Description

This command is used to specifiy the maximum number of entries which can be learned by the specified ports. By default, the per port maximum entry is no limit.

Format

config address_binding dhcp_snoop max_entry ports [<portlist> | all] limit [<value 1-50> | no_limit] {ipv6}

Parameters

<portlist> - Specifies the list of ports to configure maximum number of entries. **all** - Specifies all the ports to configure maximum number of entries.
limit - Specifies the maximum number of entries which can be learned by the specified ports. **<value 1-50>** - Specifies a maximum limit between 1 and 50. **no_limit** - Specifies an unlimited number of entries.
ipv6 - (Optional) Specifies the IPv6 address used for this configuration.

Restrictions

Only Administrators and Operators can issue this command.

Example

To set the maximum number of entries that ports 1 to 3 can learn to 10:

```
DES-3810-28:admin#config address_binding dhcp_snoop max_entry ports 1-3 limit
10
Command: config address_binding dhcp_snoop max_entry ports 1-3 limit 10

Success.

DES-3810-28:admin#
```

35-19 config address_binding recover_learning ports

Description

This command is used to recover port learning.

Format

config address_binding recover_learning ports [<portlist> | all]

Parameters

<portlist> - Specifies the list of ports to recover learning. **all** - Specifies to recover learning for all ports.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure ports 1 to 3 to recover learning:

```
DES-3810-28:admin#config address_binding recover_learning ports 1-3
Command: config address_binding recover_learning ports 1-3

Success.

DES-3810-28:admin#
```

35-20 enable address_binding nd_snoop

Description

This command is used to enable ND snooping on the Switch.

Format

enable address_binding nd_snoop

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable the ND snooping function on the Switch:

```
DES-3810-28:admin# enable address_binding nd_snoop
Command: enable address_binding nd_snoop

Success.

DES-3810-28:admin#
```

35-21 disable address_binding nd_snoop

Description

This command is used to disable ND snooping on the Switch.

Format

disable address_binding nd_snoop

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable the DHCPv6 snooping function on the Switch:

```
DES-3810-28:admin# disable address_binding nd_snoop
Command: disable address_binding nd_snoop

Success.

DES-3810-28:admin#
```

35-22 config address_binding nd_snoop ports

Description

This command is used to specify the maximum number of entries that can be learned with ND snooping.

Format

config address_binding nd_snoop ports [<portlist> | all] max_entry [<value 1-50> | no_limit]

Parameters

ports - Specifies the list of ports used for this configuration. **<portlist>** - Enter the list of ports used for this configuration here. **all** - Specifies that all the ports will be usd for this configuration.
max_entry - Specifies the maximum number of entries. **<value 1-50>** - Enter the maximum number of entries used here. This value must be between 1 and 50. **no_limit** - Specifies that the maximum number of learned entries is unlimited.

Restrictions

Only Administrators and Operators can issue this command.

Example

To specify that a maximum of 10 entries can be learned by ND snooping on ports 1–3:

```
DES-3810-28:admin# config address_binding nd_snoop ports 1-3 max_entry 10
Command: config address_binding nd_snoop ports 1-3 max_entry 10

Success.

DES-3810-28:admin#
```

35-23 show address_binding nd_snoop

Description

This command is used to display the status of ND snooping on the Switch.

Format

show address_binding nd_snoop {ports <portlist>}

Parameters

ports – (Optional) Specifies the list of ports used for this display. **<portlist>** - Enter the list of ports used for this display here.

Restrictions

None.

Example

To show the ND snooping state:

```
DES-3810-28:admin# show address_binding nd_snoop
Command: show address_binding nd_snoop

ND Snoop     : Enabled

DES-3810-28:admin#
```

To show the ND snooping maximum entry information for ports 1-5:

```
DES-3810-28:admin#show address_binding nd_snoop ports 1-5
Command: show address_binding nd_snoop ports 1-5

Port  Max Entry
----  ---------
1     No Limit
2     No Limit
3     No Limit
4     No Limit
5     No Limit

DES-3810-28:admin#
```

35-24 show address_binding nd_snoop binding_entry

Description

This command is used to show the ND snooping binding entries on the Switch.

Format

show address_binding nd_snoop binding_entry {port <port>}

Parameters

port - (Optional) Specifies a port used for this display. **<port>** - Enter the port number used for this display here.

Restrictions

None.

Example

To display the ND snooping binding entry:

```
DES-3810-28:admin# show address_binding nd_snoop binding_entry
Command: show address_binding nd_snoop binding_entry

S (Status) - A: Active, I: Inactive
Time - Left Time (sec)
IP Address                                MAC Address        S  LT(sec)  Port
----------------------------------------- ------------------ -- -------- ----
2001:2222:1111:7777:5555:6666:7777:8888   00-00-00-00-00-02  I  50       5
2001::1                                   00-00-00-00-03-02  A  100      6

Total Entries : 2

DES-3810-28:admin#
```

35-25 clear address_binding nd_snoop binding_entry ports

Description

This command is used to clear the ND snooping entries on specified ports.

Format

clear address_binding nd_snoop binding_entry ports [<portlist> | all]

Parameters

ports - Specifies the list of ports that you would like to clear the ND snoop learned entry.
<portlist> - Enter the list of port used here.
all - Clear all ND snooping learned entries.

Restrictions

Only Administrators and Operators can issue this command.

Example

To clear ND snooping entry on ports 1-3:

```
DES-3810-28:admin# clear address_binding nd_snoop binding_entry ports 1-3
Command: clear address_binding nd_snoop binding_entry ports 1-3

Success.

DES-3810-28:admin#
```

Chapter 36 IP Routing Commands

create iproute [default | <network_address>] [null0 | <ipaddr> {<metric 1-65535>} {[primary | backup | weight <value 1-8>]}]
delete iproute [default | <network_address>] [null0 | <ipaddr>]
show iproute {[<network_address> | <ipaddr>]} {[static | rip | ospf | hardware]}
create ipv6route [default | <ipv6networkaddr>] [[<ipif_name 12> <ipv6addr> | <ipv6addr>] {<metric 1-65535>} {[primary | backup]} | ip_tunnel <tunnel_name 12>]
delete ipv6route [[default | <ipv6networkaddr>] [<ipif_name 12> <ipv6addr> | <ipv6addr> | ip_tunnel <tunnel_name 12>] | all]
show ipv6route {<ipv6networkaddr>}
enable ecmp ospf
disable ecmp ospf
show ecmp

36-1 create iproute

Description

This command is used to create an IP route entry in the Switch's IP routing table. Primary and Backup are mutually exclusive. Users can select only one when creating one new route. If a user sets neither of these, the system will try to set the new route first by primary and second by backup and not set this route to be a multipath route.

Format

create iproute [default | <network_address>] [null0 | <ipaddr> {<metric 1-65535>} {[primary | backup | weight <value 1-8>]}]

Parameters

default - Specifies to create a default IP route entry.
<network_address> - The IP address and netmask of the IP interface that is the destination of the route. Specifies the address and mask information using the traditional format (for example, 10.1.2.3/255.0.0.0 or in CIDR format, 10.1.2.3/16).
null0 - Specifies the null interface as the next hop.
<ipaddr> - Specifies the IP address for the next hop router. **<metric 1-65535>** - (Optional) The default setting is 1.That is, the default hop cost is 1. **primary** - (Optional) Specifies the route as the primary route to the destination. **backup** - (Optional) Specifies the route as the backup route to the destination. If the route is not specified as the primary route or the backup route, then it will be auto-assigned by the system. The first created is the primary, the second created is the backup. **weight** - (Optional) Specifies the weight value of the IP route. **<value 1-8>** - Enter the weight value used here. This value must be between 1 and 8.

Restrictions

Only Administrators and Operators can issue this command.

Example

To add a default route with a next hop address 10.48.74.121:

```
DES-3810-28:admin#create iproute default 10.48.74.121
Command: create iproute default 10.48.74.121

Success.

DES-3810-28:admin#
```

36-2 delete iproute

Description

This command is used to delete an IP route entry from the Switch's IP routing table.

Format

delete iproute [default | <network_address>] [null0 | <ipaddr>]

Parameters

default - Specifies to delete a default IP route entry.
<network_address> - The IP address and netmask of the IP interface that is the destination of the route. Specifies the address and mask information using the traditional format (for example, 10.1.2.3/255.0.0.0 or in CIDR format, 10.1.2.3/8).
null0 - Specifies the null interface as the next hop.
<ipaddr> - Specifies the IP address for the next hop router.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete a default route from the routing table:

```
DES-3810-28:admin#delete iproute default 10.48.74.121
Command: delete iproute default 10.48.74.121

Success.

DES-3810-28:admin#
```

36-3 show iproute

Description

This command is used to display the Switch's current IP routing table.

Format

show iproute {[<network_address> | <ipaddr>]} {[static | rip | ospf | hardware]}

Parameters

<network_address> - (Optional) Specifies the destination network address of the route want to be displayed..
<ipaddr> - (Optional) Specifies the destination IP address of the route want to be displayed. The longest prefix matched route will be displayed.
static - (Optional) Specifies to display only static routes. One static route may be active or inactive.
rip - (Optional) Specifies to display only RIP routes.
ospf - (Optional) Specifies to display only OSPF routes.
hardware - (Optional) Specifies to display only the routes that have been written into the chip.

Restrictions

None.

Example

To display the contents of the IP routing table:

```
DES-3810-28:admin#show iproute
Command: show iproute

Routing Table

IP Address/Netmask  Gateway          Interface     Cost      Protocol
------------------  ---------------  ------------  --------  --------
10.0.0.0/8          0.0.0.0          System        1         Local

Total Entries : 1

DES-3810-28:admin#
```

36-4 create ipv6route

Description

This command is used to create an IPv6 static route in the Switch's IP routing table. If the next hop is a global address, it is not necessary to indicate the interface name. If the next hop is a link local address, then the interface name must be specified.

Format

create ipv6route [default | <ipv6networkaddr>] [[<ipif_name 12> <ipv6addr> | <ipv6addr>] {<metric 1-65535>} {[primary | backup]} | ip_tunnel <tunnel_name 12>]

Parameters

default - Specifies the default route.

<ipv6networkaddr> - Specifies the destination network for the route.
<ipif_name 12> <ipv6addr> - Specifies the interface for the route.
<ipv6addr> - Specifies the next hop address for this route.
<metric 1-65535> - (Optional) Enter the metric value used here. The default setting is 1.
primary - (Optional) Specifies the route as the primary route to the destination.
backup - (Optional) Specifies the route as the backup route to the destination. If the route is not specified as the primary route or the backup route, then it will be auto-assigned by the system. The first created is the primary, the second created is the backup.
ip_tunnel - Specifies the IP tunnel interface name of the route. When this option is specified, it is indicated that this new created route is an IP tunnel route. **<tunnel_name 12>** - Enter the IP tunnel interface name used here. This name can be up to 12 characters long.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create an IPv6 default route:

```
DES-3810-28:admin#create ipv6route default System FEC0::5
Command: create ipv6route default System FEC0::5

Success.

DES-3810-28:admin#
```

36-5 delete ipv6route

Description

This command is used to delete an IPv6 static route from the Switch's IP routing table. If the next hop is a global address, it is not necessary to indicate the interface name. If the next hop is a link local address, then the interface name must be specified.

Format

delete ipv6route [[default | <ipv6networkaddr>] [<ipif_name 12> <ipv6addr> | <ipv6addr> | ip_tunnel <tunnel_name 12>] | all]

Parameters

default - Specifies the default route.
<ipv6networkaddr> - Specifies the IPv6 network address.
<ipif_name 12> <ipv6addr> - Specifies the IP interface name.
<ipv6addr> - Specifies the next hop address for the IPv6 route
ip_tunnel - Specifies the IP tunnel interface name of the route. When this option is specified, it is indicated that this new created route is an IP tunnel route. **<tunnel_name 12>** - Enter the IP tunnel interface name used here. This name can be up to 12 characters long.
all - Specifies that all created static routes will be deleted.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete an IPv6 static route:

```
DES-3810-28:admin#delete ipv6route default System FEC0::5
Command: delete ipv6route default System FEC0::5

Success.

DES-3810-28:admin#
```

36-6 show ipv6route

Description

This command is used to display the Switch's current IPv6 routing table.

Format

show ipv6route {<ipv6networkaddr>}

Parameters

<ipv6networkaddr> - (Optional) Specifies the IPv6 network address.

Restrictions

None.

Example

To display IPv6 routes:

```
DES-3810-28:admin#show ipv6route
Command: show ipv6route

IPv6 Prefix: ::/0                           Protocol: Static  Metric: 1
Next Hop   : FEC0::5                        IPIF    :System
Backup     : Primary                        Status  : Inactive

Total Entries: 1

DES-3810-28:admin#
```

36-7 enable ecmp ospf

Description

This command is used to activate the OSPF ECMP function.

Format

enable ecmp ospf

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable the OSPF ECMP function:

```
DES-3810-28:admin# enable ecmp ospf
Command: enable ecmp ospf

Success.

DES-3810-28:admin#
```

36-8 disable ecmp ospf

Description

This command is used to disable the OSPF ECMP function.

Format

disable ecmp ospf

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable the OSPF ECMP function:

```
DES-3810-28:admin# disable ecmp ospf
Command: disable ecmp ospf

Success.

DES-3810-28:admin#
```

36-9 show ecmp

Description

This command is used to display the ECMP related settings.

Format

show ecmp

Parameters

None.

Restrictions

None.

Example

To show current ECMP related settings:

```
DES-3810-28:admin#show ecmp
Command: show ecmp

ECMP for OSPF : Enabled

DES-3810-28:admin#
```

Chapter 37 IP Tunnel Commands

create ip_tunnel <tunnel_name 12>
delete ip_tunnel <tunnel_name 12>
config ip_tunnel manual <tunnel_name 12> {ipv6address <ipv6networkaddr> | source <ipaddr> | destination <ipaddr>}(1)
config ip_tunnel 6to4 <tunnel_name 12> {ipv6address <ipv6networkaddr> | source <ipaddr>}(1)
config ip_tunnel isatap <tunnel_name 12> {ipv6address <ipv6networkaddr> | source <ipaddr>}(1)
config ip_tunnel gre <tunnel_name 12> {ipaddress <network_address> | ipv6address <ipv6networkaddr> | source <ipaddr> | destination <ipaddr>}
show ip_tunnel {<tunnel_name 12>}
enable ip_tunnel {<tunnel_name 12>}
disable ip_tunnel {<tunnel_name 12>}

37-1 create ip_tunnel

Description

This command is used to create an IP tunnel interface.

Format

create ip_tunnel <tunnel_name 12>

Parameters

<tunnel_name 12> - Enter the IP tunnel interface name used here. This name can be up to 12 characters long.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create an IP tunnel interface (with the tunnel name “tn2”):

```
DES-3810-28:admin# create ip_tunnel tn2
Command: create ip_tunnel tn2

Success.

DES-3810-28:admin#
```

37-2 delete ip_tunnel

Description

This command is used to delete an IP tunnel interface.

Format

delete ip_tunnel <tunnel_name 12>

Parameters

<tunnel_name 12> - Enter the IP tunnel interface name used here. This name can be up to 12 characters long.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete an IP tunnel interface (with the tunnel name “tn2”):

```
DES-3810-28:admin# delete ip_tunnel tn2
Command: delete ip_tunnel tunnel tn2

Success.

DES-3810-28:admin#
```

37-3 config ip_tunnel manual

Description

This command is used to configure an IPv6 manual tunnel. If this tunnel has previously been configured in another mode, the tunnel’s information will still exist in the database. However, whether the tunnel’s former information is invalid or not, will depend on the current mode.

IPv6 Manual tunnels are simple point-to-point tunnels that can be used within a site or between sites.

Format

config ip_tunnel manual <tunnel_name 12> {ipv6address <ipv6networkaddr> | source <ipaddr> | destination <ipaddr>}(1)

Parameters

<tunnel_name 12> - Enter the IP tunnel interface name used here. This name can be up to 12 characters long.
ipv6address - (Optional) Specifies the IPv6 address assigned to the IPv6 tunnel interface. IPv6 processing becomes enabled on the IPv6 tunnel interface when an IPv6 address is configured. The IPv6 address is not connected with the tunnel source or the destination IPv4 address.

<ipv6networkaddr> - Enter the IPv6 address used here.
source - (Optional) Specifies the source IPv4 address of the IPv6 tunnel interface. It is used as the source address for packets in the IPv6 tunnel. **<ipaddr>** - Enter the IPv4 source address used here.
destination - (Optional) Specifies the destination IPv4 address of the IPv6 tunnel interface. It is used as the destination address for packets in the IPv6 tunnel. It is not required for 6to4 and ISATAP tunnels. **<ipaddr>** - Enter the IPv4 destination address used here.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure an IPv6 manual tunnel (Tunnel name is “tn2”, Tunnel source IPv4 address is 1.0.0.1, Tunnel destination IPv4 address is 1.0.0.2, Tunnel IPv6 address is 2001::1/64):

```
DES-3810-28:admin# config ip_tunnel manual tn2 source 1.0.0.1 destination
1.0.0.2
Command: config ip_tunnel manual tn2 source 1.0.0.1 destination 1.0.0.2

Success.

DES-3810-28:admin# config ip_tunnel manual tn2 ipv6address 2001::1/64
Command: config ip_tunnel manual tn2 ipv6address 2001::1/64

Success.

DES-3810-28:admin#
```

37-4 config ip_tunnel 6to4

Description

This command is used to configure an existing IPv6 tunnel as an IPv6 6to4 tunnel on the switch. If this tunnel has previously been configured in another mode, the tunnel’s information will still exist in the database. However, whether the tunnel’s former information is invalid or not will depend on the current mode. A maximum of one IPv6 6to4 tunnel can exist on the system.

IPv6 6to4 tunnels are point-to-multipoint tunnels that can be used to connect isolated IPv6 sites. Each IPv6 site has at least one connection to a shared IPv4 network and this IPv4 network could be the global Internet or a corporate backbone. The key requirement is that each site has a globally unique IPv4 address, which is used to construct a 48-bit globally unique 6to4 IPv6 prefix (starting with the prefix 2002::/16).

Format

config ip_tunnel 6to4 <tunnel_name 12> {ipv6address <ipv6networkaddr> | source <ipaddr>}(1)

Parameters

<tunnel_name 12> - Enter the IP tunnel interface name used here. This name can be up to 12

characters long.
ipv6address - (Optional) Specifies the IPv6 address assigned to this IPv6 tunnel interface. IPv6 processing will be enabled on this IPv6 tunnel interface as soon as its IPv6 address is configured. The 32 bits following the initial 2002::/16 prefix correspond to an IPv4 address assigned to the tunnel source. **<ipv6networkaddr>** - Enter the IPv6 address used here.
source - (Optional) Specifies the IPv4 source address for a packet sent to the remote end of the 6to4 tunnel. The IPv4 destination address for the packet is derived from the IPv6 destination address of the remote destination, which is in the format of a 6to4 address. The address is derived by extracting the 4-octets immediately following the IPv6 destination address's 2002::/16 prefix. For example, a 6to4 address, 2002:c0a8:0001::/48 will be extracted to 192.168.0.1. Any IPv6 address that begins with the 2002::/16 prefix is known as a 6to4 address **<ipaddr>** - Enter the IPv4 source address used here.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure an IPv6 6to4 tunnel (Tunnel name is “tn2”, Tunnel source IPv4 address is 10.0.0.1, Tunnel IPv6 address is 2002:a00:1::1/64):

```
DES-3810-28:admin#config ip_tunnel 6to4 tn2 ipv6address 2002:A00:1::1/64 source
10.0.0.1
Command: config ip_tunnel 6to4 tn2 ipv6address 2002:A00:1::1/64 source 10.0.0.1

Success.

DES-3810-28:admin#
```

37-5 config ip_tunnel isatap

Description

This command is used to configure an existing IPv6 tunnel as an IPv6 ISATAP tunnel on the switch. If this tunnel has previously been configured in another mode, the tunnel’s information will still exist in the database. However, whether the tunnel’s former information is valid or not will depend on the current mode. IPv6 ISATAP tunnels are point-to-multipoint tunnels that can be used to connect systems within a site. An IPv6 ISATAP address is a well-defined unicast address that includes a 64-bit unicast IPv6 prefix (it can be either link-local or global prefixes), a 32-bit value 0000:5EFE and a 32-bit tunnel source IPv4 address.

Format

config ip_tunnel isatap <tunnel_name 12> {ipv6address <ipv6networkaddr> | source <ipaddr>}(1)

Parameters

<tunnel_name 12> - Enter the IP tunnel interface name used here. This name can be up to 12 characters long.
ipv6address - (Optional) Specifies the IPv6 address assigned to this IPv6 tunnel interface. IPv6

processing will be enabled on the IPv6 tunnel interface when an IPv6 address is configured. The last 32 bits of the IPv6 ISATAP address correspond to an IPv4 address assigned to the tunnel source. **<ipv6networkaddr>** - Enter the IPv6 address used here.
source - (Optional) Specifies the source IPv4 address of this IPv6 tunnel interface. It is used as the source address for packets in the IPv6 tunnel. The tunnel destination IPv4 address is extracted from the last 32 bits of the remote tunnel endpoint's IPv6 ISATAP address. **<ipaddr>** - Enter the source IPv4 address used here.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure an IPv6 ISATAP tunnel (Tunnel name is "tn2", Tunnel source IPv4 address is 10.0.0.1, Tunnel IPv6 address is 2001::5efe:a00:1/64):

```
DES-3810-28:admin#config ip_tunnel isatap tn2 ipv6address 2001::5EFE:A00:1/64
source 10.0.0.1
Command: config ip_tunnel isatap tn2 ipv6address 2001::5EFE:A00:1/64 source
10.0.0.1

Success.

DES-3810-28:admin#
```

37-6 config ip_tunnel gre

Description

This command is used to configure an existing tunnel as a GRE tunnel (IPv6-in-IPv4) on the Switch. If this tunnel has been configured in another mode before, the tunnel's information will still exist in the database. However, whether the tunnel's former information is valid or not, depends on the current mode.

GRE tunnels are simple point-to-point tunnels that can be used within a site or between sites.

Format

config ip_tunnel gre <tunnel_name 12> {ipaddress <network_address> | ipv6address <ipv6networkaddr> | source <ipaddr> | destination <ipaddr>}(1)

Parameters

<tunnel_name 12> - Enter the IP tunnel interface name used here. This name can be up to 12 characters long.
ipaddress - (Optional) Specifies the IPv4 address assigned to the GRE tunnel interface. IPv4 processing will be enabled on the IPv4 tunnel interface when an IPv4 address is configured. This IPv4 address is not connected with the tunnel source or destination IPv4 address. **<network_address>** - Enter the IPv4 network address used here.
ipv6address - (Optional) Specifies the IPv6 address assigned to the GRE tunnel interface. IPv6 processing will be enabled on the IPv6 tunnel interface when an IPv6 address is configured. This IPv6 address is not connected with the tunnel source or destination IPv4 address. **<ipv6networkaddr>** - Enter the IPv6 network address used here.

source - (Optional) Specifies the source IPv4 of the GRE tunnel interface. It is used as the source address for packets in the tunnel. **<ipaddr>** - Enter the IPv4 source address used here.
destination - (Optional) Specifies the destination IPv4 address of the GRE tunnel interface. It is used as the destination address for packets in the tunnel. **<ipaddr>** - Enter the IPv4 destination address used here.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure a GRE tunnel (tunnel with: the name “tn1”, the delivery protocol as IPv4, the tunnel source IPv4 address 1.0.0.1, the tunnel destination IPv4 address 1.0.0.2, the GRE tunnel interface’s IPv6 address 2001::1/64, and the GRE tunnel interface’s IPv4 address 2.0.0.1/8):

```
DES-3810-28:admin# config ip_tunnel gre tn1 source 1.0.0.1 destination 1.0.0.2
Command: config ip_tunnel gre tn1 source 1.0.0.1 destination 1.0.0.2

Success.

DES-3810-28:admin# config ip_tunnel gre tn1 ipaddress 2.0.0.1/8 ipv6address
2001::1/64
Command: config ip_tunnel gre tn1 ipaddress 2.0.0.1/8 ipv6address 2001::1/64

Success.

DES-3810-28:admin#
```

To display the configuration of a GRE tunnel interface named “tn1”:

```
DES-3810-28:admin# show ip_tunnel tn1
Command: show ip_tunnel tn1

Tunnel Interface            : tn1
Interface Admin State       : Enabled
Tunnel Mode                 : GRE
Ipv4 Address                : 2.0.0.1/8
IPv6 Global Unicast Address : 2001::1/64
Tunnel Source               : 1.0.0.1
Tunnel Destination          : 1.0.0.2

DES-3810-28:admin#
```

37-7 show ip_tunnel

Description

This command is used to show one or all IP tunnel interfaces’ information.

Format

show ip_tunnel {<tunnel_name 12>}

Parameters

<tunnel_name 12> - (Optional) Enter the IP tunnel interface name used here. This name can be up to 12 characters long.

Restrictions

None.

Example

To show an IP tunnel interface's information (Tunnel name is "tn2"):

```
DES-3810-28:admin# show ip_tunnel tn2
Command: show ip_tunnel tn2

Tunnel Interface            : tn2
Interface Admin State       : Enabled
Tunnel Mode                 : Manual
IPv6 Global Unicast Address : 2000::1/64
Tunnel Source               : 1.0.0.1
Tunnel Destination          : 1.0.0.2

DES-3810-28:admin#
```

37-8 enable ip_tunnel

Description

This command is used to enable a single specified IP tunnel or all IP tunnels on the Switch.

Format

enable ip_tunnel {<tunnel_name 12>}

Parameters

<tunnel_name 12> - (Optional) Enter the IP tunnel interface name used here. This name can be up to 12 characters long.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable an IP tunnel interface (Tunnel name is "tn2"):

```
DES-3810-28:admin# enable ip_tunnel tn2
Command: enable ip_tunnel tn2

Success.

DES-3810-28:admin#
```

37-9 disable ip_tunnel

Description

This command is used to disable a single specified IP tunnel or all IP tunnels on the Switch.

Format

disable ip_tunnel {<tunnel_name 12>}

Parameters

<tunnel_name 12> - (Optional) Enter the IP tunnel interface name used here. This name can be up to 12 characters long.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable an IP tunnel interface (Tunnel name is “tn2”):

```
DES-3810-28:admin# disable ip_tunnel tn2
Command: disable ip_tunnel tn2

Success.

DES-3810-28:admin#
```

Chapter 38 IPv6 NDP Commands

create ipv6 neighbor_cache ipif <ipif_name 12> <ipv6addr> <macaddr>
delete ipv6 neighbor_cache ipif [<ipif_name 12> | all] [<ipv6addr> | static | dynamic | all]
show ipv6 neighbor_cache ipif [<ipif_name 12> | all] [ipv6address <ipv6addr> | static | dynamic | all] {hardware}
config ipv6 nd ns ipif <ipif_name 12> retrans_time <millisecond 0-4294967295>
config ipv6 nd ra ipif <ipif_name 12> {state [enable | disable] | life_time <sec 0-9000> | reachable_time <millisecond 0-3600000> | retrans_time <millisecond 0-4294967295> | hop_limit <value 0-255> | managed_flag [enable | disable] | other_config_flag [enable | disable] | min_rtr_adv_interval <sec 3-1350> | max_rtr_adv_interval <sec 4-1800>}(1)
config ipv6 nd ra prefix_option ipif <ipif_name 12> <ipv6networkaddr> {preferred_life_time <millisecond 0-4294967295> | valid_life_time <millisecond 0-4294967295> | on_link_flag [enable | disable] | autonomous_flag [enable | disable]}(1)
show ipv6 nd {ipif <ipif_name 12>}

38-1 create ipv6 neighbor_cache ipif

Description

This command is used to add a static neighbor on an IPv6 interface.

Format

create ipv6 neighbor_cache ipif <ipif_name 12> <ipv6addr> <macaddr>

Parameters

<ipif_name 12> - Specifies the interface's name.
<ipv6addr> - Specifies the IPv6 address of the neighbor.
<macaddr> - Specifies the MAC address of the neighbor.

Restrictions

Only Administrators and Operators can issue this command.

Example

To add a static entry into the NDP table:

```
DES-3810-28:admin#create ipv6 neighbor_cache ipif System 3ffc::1
00:01:02:03:04:05
Command: create ipv6 neighbor_cache ipif System 3FFC::1 00-01-02-03-04-05

Success.

DES-3810-28:admin#
```

38-2 delete ipv6 neighbor_cache ipif

Description

This command is used to delete a neighbor cache entry or static neighbor cache entries from the address cache or all address cache entries on this IP interface. Both static and dynamic entries can be deleted.

Format

delete ipv6 neighbor_cache ipif [<ipif_name 12> | all] [<ipv6addr> | static | dynamic | all]

Parameters

<ipif_name 12> - Specifies the IPv6 interface name.
all - Specifies all IPv6 interfaces.
<ipv6addr> - Specifies the IPv6 address of the neighbor.
static - Specifies to delete the IPv6 static entries.
dynamic - Specifies to delete the IPv6 dynamic entries.
all - Specifies all IPv6 entries, including static and dynamic, to be deleted.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete the neighbor cache.entry for IPv6 address 3ffc::1 on the IP interface “System”:

```
DES-3810-28:admin#delete ipv6 neighbor_cache ipif System 3ffc::1
Command: delete ipv6 neighbor_cache ipif System 3FFC::1

Success.

DES-3810-28:admin#
```

38-3 show ipv6 neighbor_cache ipif

Description

This command is used to display the neighbor cache entry for the specified interface. Users can display a specific entry, all static entries, all dynamic entries, or all entries.

Format

show ipv6 neighbor_cache ipif [<ipif_name 12> | all] [ipv6address <ipv6addr> | static | dynamic | all] {hardware}

Parameters

<ipif_name 12> - Specifies the IPv6 interface name.
all - Specifies all the IPv6 interface names.
Ipv6address - Specifies the IPv6 address of the neighbor.

<ipv6addr> - Specifies the IPv6 address
static - Specifies to display the IPv6 static neighbor cache entries.
dynamic - Specifies to display the IPv6 dynamic entries.
all - Specifies to display all IPv6 addresses, static and dynamic.
hardware - (Optional) Specifies to display all the neighbor cache entries which were written into the hardware table.

Restrictions

None.

Example

To display all neighbor cache entries for the IP interface “System”:

```
DES-3810-28:admin#show ipv6 neighbor_cache ipif System all
Command: show ipv6 neighbor_cache ipif System all

Neighbor                    Link Layer Address  Interface    State
--------------------------  ------------------  ------------  -----
FE80::20B:6AFF:FECF:7EC6    00-0B-6A-CF-7E-C6   System        T

Total Entries: 1

State:
(I) means Incomplete state. (R) means Reachable state.
(S) means Stale state.      (D) means Delay state.
(P) means Probe state.      (T) means Static state.


DES-3810-28:admin#
```

38-4 config ipv6 nd ns ipif

Description

This command is used to configure the NS retransmit time of a specified interface.

Format

config ipv6 nd ns ipif <ipif_name 12> retrans_time <millisecond 0-4294967295>

Parameters

<ipif_name 12> - Specifies the name of the interface. The maximum length is 12 characters.
retrans_time - Specifies the neighbor solicitation’s retransmit timer in milliseconds. It has the same value as ra retrans_time in the config ipv6 nd ra command. If one is configured, the other will change too. **<millisecond 0-4294967295>** - Specifies the neighbor solicitation’s retransmit timer in milliseconds. It has the same value as ra retrans_time in the config ipv6 nd ra command. If one is configured, the other will change too. Specifies a time between 0 and 4294967295 milliseconds.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the NS retransmit time of a specified interface:

```
DES-3810-28:admin#config ipv6 nd ns ipif System retrans_time 400
Command: config ipv6 nd ns ipif System retrans_time 400

Success.

DES-3810-28:admin#
```

38-5 config ipv6 nd ra ipif

Description

This command is used to configure the RA parameters of a specified interface.

Format

config ipv6 nd ra ipif <ipif_name 12> {state [enable | disable] | life_time <sec 0-9000> | reachable_time <millisecond 0-3600000> | retrans_time <millisecond 0-4294967295> | hop_limit <value 0-255> | managed_flag [enable | disable] | other_config_flag [enable | disable] | min_rtr_adv_interval <sec 3-1350> | max_rtr_adv_interval <sec 4-1800>}(1)

Parameters

<ipif_name 12> - Specifies the name of the interface.
state - Specifies the router advertisement status. **enable** - Enable the router advertisement state. **disable** - Disable the router advertisement state.
life_time - Specifies the lifetime of the router as the default router, in seconds. **<sec 0-9000>** - Specifies the time between 0 and 9000 seconds.
reachable_time - Specifies the amount of time that a node can consider a neighboring node reachable after receiving a reachability confirmation, in milliseconds. **<millisecond 0-3600000>** - Specifies the time between 0 and 3600000 milliseconds.
retrans_time - Specifies the amount of time that a node can consider a neighboring node reachable after receiving a reachability confirmation, in milliseconds. **<millisecond 0-4294967295>** - Specifies the time between 0 and 4294967295 milliseconds.
hop_limit - Specifies the default value of the hop limit field in the IPv6 header for packets sent by hosts that receive this RA message. **<value 0-255>** - Specifies the value between 0 and 255.
managed_flag - Specifies to enable or disable the function. **enable** - When set to enable, it indicates that hosts receiving this RA must use a stateful address configuration protocol to obtain an address, in addition to the addresses derived from the stateless address configuration. **disable** - Set to disable to stop hosts receiving the RA from using a stateful address configuration to obtain an address.
other_config_flag - Specifies to enable or disable the function. **enable** - When set to enable, it indicates that hosts receiving this RA must use a stateful address configuration protocol to obtain on-address configuration information. **disable** - Set to disable to stop hosts receiving this RA from using a stateful address configuration protocol to obtain on-address configuration information.

min_rtr_adv_interval - Specifies the minimum time allowed between sending unsolicited multicast Router Advertisements from the interface, in seconds. It must be no less than 3 seconds and no greater than .75 * MaxRtrAdvInterval. The default is 0.33 * MaxRtrAdvInterval. **<sec 3-1350>** - Specifies the time between 3 and 1350 seconds.
max_rtr_adv_interval - Specifies the maximum time allowed between sending unsolicited multicast Router Advertisements from the interface, in seconds. It must be no less than 4 seconds and no greater than 1800 seconds. The default is 600 seconds. **<sec 4-1800>** - Specifies the time between 4 and 1800 seconds.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the RA state as enabled and the life_time of the “tiberius” interface to be 1000 seconds:

```
DES-3810-28:admin#config ipv6 nd ra ipif tiberius state enable life_time 1000
Command: config ipv6 nd ra ipif tiberius state enable life_time 1000

Success.

DES-3810-28:admin#
```

38-6 config ipv6 nd ra prefix_option ipif

Description

This command is used to configure the prefix option for the router advertisement function.

Format

config ipv6 nd ra prefix_option ipif <ipif_name 12> <ipv6networkaddr> {preferred_life_time <millisecond 0-4294967295> | valid_life_time <millisecond 0-4294967295> | on_link_flag [enable | disable] | autonomous_flag [enable | disable]}(1)

Parameters

<ipif_name 12> - Specifies the name of the interface. The maximum length is 12 characters.
<ipv6networkaddr> - Specifies the IPv6 network address.
preferred_life_time - Specifies the number in milliseconds that an address, based on the specified prefix using the stateless address configuration, remains in preferred state. **<millisecond 0-4294967295>** - Specifies the time between 0 and 4294967295 milliseconds. For an infinite valid lifetime the value can be set to 4294967295.
valid_life_time - Specifies the number of seconds that an address, based on the specified prefix, using the stateless address configuration, remains valid. **<millisecond 0-4294967295>** - Specifies the time between 0 and 4294967295 milliseconds. For an infinite valid lifetime the value can be set to 4294967295.
on_link_flag - Specifies to enable or disable the function. **enable** - Setting this field to enable will denote, within the IPv6 packet, that the IPv6 prefix configured here is assigned to this link-local network. Once traffic has been successfully sent to these nodes with this specific IPv6 prefix, the nodes will be considered reachable on the link-local network.

disable - When set to disable, the addresses implied by the specified prefix are not available on the link where the RA message is received.
autonomous_flag - Specifies to enable or disable the function. **enable** - Setting this field to enable will denote that this prefix may be used to autoconfigure IPv6 addresses on the link-local network. **disable** - When set to disable, the specified prefix will not be used to create an autonomous address configuration.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the value of the preferred_life_time of prefix option to be 1000 seconds for the prefix 3ffe:501:ffff:100::/64, which is the prefix of the ip1 interface:

```
DES-3810-28:admin#config ipv6 nd ra prefix_option ipif ip1
3ffe:501:ffff:100::/64 preferred_life_time 1000
Command: config ipv6 nd ra prefix_option ipif ip1 3ffe:501:ffff:100::/64
preferred_life_time 1000

Success.

DES-3810-28:admin#
```

38-7 show ipv6 nd

Description

This command is used to display IPv6 Neighbor Discover related configuration.

Format

show ipv6 nd {ipif <ipif_name 12>}

Parameters

ipif - (Optional) Specifies the interface name. **<ipif_name 12>** - Specifies the interface name. The maximum length is 12 characters.

Note: If no IP interface is specified, the IPv6 ND related configuration of all interfaces will be displayed.

Restrictions

None.

Example

To display IPv6 Neighbor Discover related configuration:

```
DES-3810-28:admin#show ipv6 nd ipif System
Command: show ipv6 nd ipif System

Interface Name            : System
Hop Limit                 : 64
NS Retransmit Time        : 400 (ms)
Router Advertisement      : Disabled
RA Max Router AdvInterval : 600 (sec)
RA Min Router AdvInterval : 198 (sec)
RA Router Life Time       : 1800 (sec)
RA Reachable Time         : 1200000 (ms)
RA Retransmit Time        : 400 (ms)
RA Managed Flag           : Disabled
RA Other Configure Flag   : Disabled
Prefix                              Preferred  Valid      OnLink   Autonomous
1000:A111:B111:C111::/64            604800     2592000    Enabled  Enabled

DES-3810-28:admin#
```

Chapter 39 Japanese Web-based Access Control (JWAC) Commands

enable jwac
disable jwac
enable jwac redirect
disable jwac redirect
enable jwac forcible_logout
disable jwac forcible_logout
enable jwac udp_filtering
disable jwac udp_filtering
enable jwac quarantine_server_monitor
disable jwac quarantine_server_monitor
config jwac quarantine_server_error_timeout <sec 5-300>
config jwac [quarantine_server_url <string 128> | clear_quarantine_server_url]
config jwac redirect {destination [quarantine_server | jwac_login_page] | delay_time <sec 0-10>}(1)
config jwac virtual_ip <ipaddr> {url [<string 128> | clear]}
config jwac update_server [add | delete] ipaddress <network_address> {[tcp_port <port_number 1-65535> | udp_port <port_number 1-65535>]}
config jwac switch_http_port <tcp_port_number 1-65535> {[http | https]}
config jwac ports [<portlist> | all] {state [enable | disable] | max_authenticating_host <value 0-50> | aging_time [infinite | <min 1-1440>] | idle_time [infinite | <min 1-1440>] | block_time [<sec 0-300>] | auth_mode [host_based | port_based]}(1)
config jwac radius_protocol [local | eap_md5 | pap | chap | ms_chap | ms_chapv2]
create jwac user <username 15> {vlan <vlanid 1-4094>}
config jwac user <username 15> {vlan <vlanid 1-4094>}
delete jwac [user <username 15> | all_users]
show jwac user
show jwac
show jwac auth_state ports {<portlist>}
show jwac update_server
show jwac ports {<portlist>}
clear jwac auth_state [ports [all | <portlist>] {authenticated | authenticating | blocked} | mac_addr <macaddr>]
config jwac authenticate_page [japanese | english]
show jwac authenticate_page
config jwac authentication_page element [japanese | english] [default | page_title <desc 128> | login_window_title <desc 32> | user_name_title <desc 16> | password_title <desc 16> | logout_window_title <desc 32> | notification_line <value 1-5> <desc 128>]
config jwac authorization attributes {radius [enable | disable] | local [enable | disable]}(1)

39-1 enable jwac

Description

This command is used to enable the Japanese Web-based access control (JWAC) function. JWAC and WAC are mutually exclusive functions. That is, they can not be enabled at the same time.

Using the JWAC function, PC users need to pass two stages of authentication. The first stage is to do the authentication with the quarantine server and the second stage is the authentication with the switch. For the second stage, the authentication is similar to WAC, except that there is no port VLAN membership change by JWAC after a host passes authentication. The RADIUS server will share the server configuration defined by the 802.1X command set.

Format

enable jwac

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable JWAC:

```
DES-3810-28:admin#enable jwac
Command: enable jwac

Success.

DES-3810-28:admin#
```

39-2 disable jwac

Description

This command is used to disable JWAC.

Format

disable jwac

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable JWAC:

```
DES-3810-28:admin#disable jwac
Command: disable jwac

Success.

DES-3810-28:admin#
```

39-3 enable jwac redirect

Description

This command is used to enable JWAC redirect. When **redirect quarantine_server** is enabled, the unauthenticated host will be redirected to a quarantine server when it tries to access a random URL. When **redirect jwac_login_page** is enabled, the unauthenticated host will be redirected to the **jwac_login_page** on the Switch to finish authentication.

Format

enable jwac redirect

Parameters

None.

Restrictions

When enable redirect to quarantine server is in effect, a quarantine server must be configured first. Only Administrators and Operators can issue this command.

Example

To enable JWAC redirect:

```
DES-3810-28:admin#enable jwac redirect
Command: enable jwac redirect

Success.

DES-3810-28:admin#
```

39-4 disable jwac redirect

Description

This command is used to disable JWAC redirect. When redirect is disabled, only access to **quarantine_server** and the **jwac_login_page** from an unauthenticated host is allowed, all other Web access will be denied.

Format

disable jwac redirect

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable JWAC redirect:

```
DES-3810-28:admin#disable jwac redirect
Command: disable jwac redirect

Success.

DES-3810-28:admin#
```

39-5 enable jwac forcible_logout

Description

This command is used to enable JWAC forcible logout. When enabled, a Ping packet from an authenticated host to the JWAC Switch with TTL=1 will be regarded as a logout request, and the host will be moved back to unauthenticated state.

Format

enable jwac forcible_logout

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable JWAC forcible logout:

```
DES-3810-28:admin#enable jwac forcible_logout
Command: enable jwac forcible_logout

Success.

DES-3810-28:admin#
```

39-6 disable jwac forcible_logout

Description

This command is used to disable JWAC forcible logout.

Format

disable jwac forcible_logout

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable JWAC forcible logout:

```
DES-3810-28:admin#disable jwac forcible_logout
Command: disable jwac forcible_logout

Success.

DES-3810-28:admin#
```

39-7 enable jwac udp_filtering

Description

This command is used to enable the JWAC UDP filtering function. When UDP filtering is enabled, all UDP and ICMP packets except DHCP and DNS packets from unauthenticated hosts will be dropped.

Format

enable jwac udp_filtering

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable JWAC UDP filtering:

```
DES-3810-28:admin#enable jwac udp_filtering
Command: enable jwac udp_filtering

Success.

DES-3810-28:admin#
```

39-8 disable jwac udp_filtering

Description

This command is used to disable JWAC UDP filtering.

Format

disable jwac udp_filtering

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable JWAC UDP filtering:

```
DES-3810-28:admin#disable jwac udp_filtering
Command: disable jwac udp_filtering

Success.

DES-3810-28:admin#
```

39-9 enable jwac quarantine_server_monitor

Description

This command is used to enable the JWAC quarantine server monitor. When enabled, the JWAC switch will monitor the quarantine server to ensure the server is okay. If the switch detects no quarantine server, it will redirect all unauthenticated HTTP accesses to the JWAC Login Page forcibly if the redirect is enabled and the redirect destination is configured to be quarantine server.

Format

enable jwac quarantine_server_monitor

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable JWAC quarantine server monitoring:

```
DES-3810-28:admin#enable jwac quarantine_server_monitor
Command: enable jwac quarantine_server_monitor

Success.

DES-3810-28:admin#
```

39-10 disable jwac quarantine_server_monitor

Description

This command is used to disable JWAC quarantine server monitoring.

Format

disable jwac quarantine_server_monitor

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable JWAC quarantine server monitoring:

```
DES-3810-28:admin#disable jwac quarantine_server_monitor
Command: disable jwac quarantine_server_monitor

Success.

DES-3810-28:admin#
```

39-11 config jwac quarantine_server_error_timeout

Description

This command is used to set the quarantine server error timeout. When the quarantine server monitor is enabled, the JWAC switch will periodically check if the quarantine works okay. If the switch does not receive any response from quarantine server during the configured error timeout, the switch then regards it as not working properly.

Format

config jwac quarantine_server_error_timeout <sec 5-300>

Parameters

<sec 5-300> - Specifies the error timeout interval.

Restrictions

Only Administrators and Operators can issue this command.

Example

To set the quarantine server error timeout:

```
DES-3810-28:admin#config jwac quarantine_server_error_timeout 60
Command: config jwac quarantine_server_error_timeout 60

Success.

DES-3810-28:admin#
```

39-12 config jwac

Description

This command is used to configure the quarantine server URL. If the redirection is enabled and the redirection destination is a quarantine server, when a HTTP request from an unauthenticated host which is not headed to a quarantine server reaches the Switch, the Switch will handle this HTTP packet and send back a message to the host to make it access the quarantine server with the configured URL. When the PC connected to the specified URL, the quarantine server will request the PC user to input the user name and password to authenticate.

Note: If the quarantine server is linked to the JWAC enabled port on the switch, it must be added to the static FDB correctly before it can work properly.

Format

config jwac [quarantine_server_url <string 128> | clear_quarantine_server_url]

Parameters

quarantine_server_url - Specifies the entire URL of the authentication page on the quarantine server. **<string 128>** - Specifies the entire URL of the authentication page on the quarantine server. The quarantine server URL can be up to 128 characters long.
clear_quarantine_server_url - Specifies to clear the current quarantine server URL.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the quarantine server URL:

```
DES-3810-28:admin# config jwac quarantine_server_url
http://10.90.90.88/authpage.html
Command: config jwac quarantine_server_url http://10.90.90.88/authpage.html


Success.


DES-3810-28:admin#
```

39-13 config jwac redirect

Description

This command is used to configure redirect destination and delay time before an unauthenticated host is redirected to the quarantine server or the JWAC login web page. The unit of delay time is seconds. 0 means no delaying the redirect.

Format

config jwac redirect {destination [quarantine_server | jwac_login_page] | delay_time <sec 0-10>}(1)

Parameters

destination - Specifies the destination which the unauthenticated host will be redirected to. **quarantine_server** - Specifies the unauthenticated host will be redirected to the quarantine_server. **jwac_login_page** - Specifies the unauthenticated host will be redirected to the jwac_login_page.
delay_time - Specifies the time interval after which the unauthenticated host will be redirected. **<sec 0-10>** - Specifies the time interval after which the unauthenticated host will be redirected. The delay time must be between 0 and 10 seconds.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure JWAC redirect destination to JWAC login web page and a delay time of 5 seconds:

```
DES-3810-28:admin#config jwac redirect destination jwac_login_page delay_time 5
Command: config jwac redirect_ destination jwac_login_page delay_time 5

Success.

DES-3810-28:admin#
```

39-14 config jwac virtual_ip

Description

This command is used to configure JWAC virtual IP addresses used to accept authentication requests from an unauthenticated host. The virtual IP of JWAC is used to accept authentication request from unauthenticated host. Only requests sent to this IP will get correct responses. This IP does not respond to ARP requests or ICMP packets.

Format

config jwac virtual_ip <ipaddr> {url [<string 128> | clear]}

Parameters

<ipaddr> - Specifies the IP address of the virtual IP.
url - (Optional) Specifies the URL of the virtual IP. **<string 128>** - Specifies the URL of the virtual IP. **clear** - Clear the URL of the virtual IP.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure a JWAC virtual IP address of 1.1.1.1 to accept authentication requests from an unauthenticated host:

```
DES-3810-28:admin#config jwac virtual_ip 1.1.1.1
Command: config jwac virtual_ip 1.1.1.1

Success.

DES-3810-28:admin#
```

39-15 config jwac update_server

Description

This command is used to add or delete a server network address to which the traffic from an unauthenticated client host will not be blocked by the JWAC Switch. Any servers running ActiveX need to be able to have access to accomplish authentication. Before the client passes

authentication, it should be added to the Switch with its IP address. For example, the client may need to access update.microsoft.com or some sites of the Anti-Virus software companies to check whether the OS or Anti-Virus software of the client are the latest; and so IP addresses of update.microsoft.com and of Anti-Virus software companies need to be added in the Switch.

Format

config jwac update_server [add | delete] ipaddress <network_address> {[tcp_port <port_number 1-65535> | udp_port <port_number 1-65535>]}

Parameters

add - Specifies to add a network address to which the traffic will not be blocked. Up to 100 network addresses can be added.
delete - Specifies to delete a network address to which the traffic will not be blocked.
ipaddress - Specifies the network address to add or delete. **<network_address>** - Enter the network address here.
tcp_port - (Optional) Specifies a TCP port number between 1 and 65535. **<port_number 1-65535>** - Specifies a TCP port value between 1 and 65535.
udp_port - (Optional) Specifies a UDP port number between 1 and 65535. **<port_number 1-65535>** - Specifies a UDP port value between 1 and 65535.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure servers the PC may need to connect to in order to complete JWAC authentication:

```
DES-3810-28:admin#config jwac update_server add ipaddress 10.90.90.109/24
Command: config jwac update_server add ipaddress 10.90.90.109/24

Update Server 10.90.90.0/24 is added.

Success.

DES-3810-28:admin#
```

39-16 config jwac switch_http_port

Description

This command is used to configure the TCP port which the JWAC switch listens to. This port number is used in the second stage of the authentication. PC users will connect to the page on the switch to input the user name and password. If not specified, the default port number is 80. If no protocol is specified, the protocol is HTTP.

Format

config jwac switch_http_port <tcp_port_number 1-65535> {[http | https]}

Parameters

<tcp_port_number 1-65535> - Specifies a TCP port which the JWAC switch listens to and uses to finish the authenticating process.
http - (Optional) Specifies the JWAC run HTTP protocol on this TCP port.
https - (Optional) Specifies the JWAC run HTTPS protocol on this TCP port.

Restrictions

HTTP cannot run on TCP port 443, and HTTPS cannot run on TCP port 80. Only Administrators and Operators can issue this command.

Example

To configure the TCP port which the JWAC switch listens to:

```
DES-3810-28:admin#config jwac switch_http_port 8888 http
Command: config jwac switch_http_port 8888 http

Success.

DES-3810-28:admin#
```

39-17 config jwac ports

Description

This command is used to configure port state of JWAC.

Format

config jwac ports [<portlist> | all] {state [enable | disable] | max_authenticating_host <value 0-50> | aging_time [infinite | <min 1-1440>] | idle_time [infinite | <min 1-1440>] | block_time [<sec 0-300>] | auth_mode [host_based | port_based]}(1)

Parameters

<portlist> - Specifies a port range for setting the JWAC state. **all** - Specifies to configure all switch ports' JWAC state.
state - Specifies the port state of JWAC. **enable** - Specifies to enable the JWAC port state. **disable** - Specifies to disable the JWAC port state.
max_authenticating_host - Specifies the maximum number of hosts that can process authentication on each port at the same time. The default value is 50. **<value 0-50>** - Specifies the maximum number of authenticating hosts, between 0 and 50.
aging_time - Specifies a time period during which an authenticated host will keep in authenticated state. **infinite** - Specifies to indicate the authenticated host on the port will never ageout. **<min 1-1440>** - Specifies an aging time between 1 and 1440 minutes. The default value is 1440 minutes.
idle_time - If there is no traffic during idle time, the host will be moved back to unauthenticated state. **infinite** - Specifies to indicate the idle state of the authenticated host on the port will never be checked. The default value is infinite. **<min 1-1440>** - Specifies an idle time between 1 and 1440 minutes.

block_time - If a host fails to pass the authentication, it will be blocked for a period specified by the blocking time.The default value is 60 seconds. **<sec 0-300>** - Specifies a blocking time value between 0 and 300.
auth_mode - Toggle between host_based and port_based. **host_based** - Specifies the host-based authentication mode. **port_based** - Specifies the port-based authentication mode.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the JWAC port state:

```
DES-3810-28:admin#config jwac ports 1-9 state enable
Command: config jwac ports 1-9 state enable

Success.

DES-3810-28:admin#
```

39-18 config jwac radius_protocol

Description

This command is used to specify the RADIUS protocol used by JWAC to complete RADIUS authentication.

Format

config jwac radius_protocol [local | eap_md5 | pap | chap | ms_chap | ms_chapv2]

Parameters

local - Specifies the JWAC switch uses the local user DB to complete the authentication.
eap_md5 - Specifies the JWAC switch uses EAP MD5 to communicate with the RADIUS server.
pap - Specifies the JWAC switch uses PAP to communicate with the RADIUS server.
chap - Specifies the JWAC switch uses CHAP to communicate with the RADIUS server.
ms_chap - Specifies the JWAC switch uses MS-CHAP to communicate with the RADIUS server.
ms_chapv2 - Specifies the JWAC switch uses MS-CHAPv2 to communicate with the RADIUS server.

Restrictions

JWAC shares other RADIUS configurations with 802.1X. When using this command to set the RADIUS protocol, make sure the RADIUS server added by the **config radius** command supports the protocol. Only Administrators and Operators can issue this command.

Example

To configure the RADIUS protocol used by JWAC:

```
DES-3810-28:admin# config jwac radius_protocol ms_chapv2
Command: config jwac radius_protocol ms_chapv2

Success.

DES-3810-28:admin#
```

39-19 create jwac user

Description

This command creates JWAC users in the local database. When “local” is chosen while configuring the JWAC RADIUS protocol, the local database will be used.

Format

create jwac user <username 15> {vlan <vlanid 1-4094>}

Parameters

<username 15> - Specifies the user name to be created.
vlan - (Optional) Specifies the target VLAN ID for the authenticated host which uses this user account to pass authentication. **<vlanid 1-4094>** - Specifies the target VLAN ID for the authenticated host which uses this user account to pass authentication. The VLAN ID value must be between 1 and 4094.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create a JWAC user in the local DB:

```
DES-3810-28:admin# create jwac user 112233
Command: create jwac user 112233

Enter a case-sensitive new password:***
Enter the new password again for confirmation:***
Success.

DES-3810-28:admin#
```

39-20 config jwac user

Description

This command configures a JWAC user.

Format

config jwac user <username 15> {vlan <vlanid 1-4094>}

Parameters

<username 15> - Specifies the user name to be configured.
vlan - (Optional) Specifies the target VLAN ID for the authenticated host which uses this user account to pass authentication. **<vlanid 1-4094>** - Specifies the target VLAN ID for the authenticated host which uses this user account to pass authentication. The VLAN ID value must be between 1 and 4094.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure a JWAC user:

```
DES-3810-28:admin#config jwac user 112233
Command: config jwac user 112233

Enter a old password:***
Enter a case-sensitive new password:***
Enter the new password again for confirmation:***
Success.

DES-3810-28:admin#
```

39-21 delete jwac

Description

This command is used to delete JWAC users from the local database.

Format

delete jwac [user <username 15> | all_users]

Parameters

user - Specifies the user name to be deleted. **<username 15>** - Specifies the user name to be deleted. The user name can be up to 15 characters long.
all_users - Specifies all user accounts in the local database will be deleted.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete a JWAC user from the local database:

```
DES-3810-28:admin#delete jwac user 112233
Command: delete jwac user 112233

Success.

DES-3810-28:admin#
```

39-22 show jwac user

Description

This command is used to display JWAC users in the local database.

Format

show jwac user

Parameters

None.

Restrictions

None.

Example

To display the current JWAC local users:

```
DES-3810-28:admin#show jwac user
Command: show jwac user

Current Accounts:

Username            Password         VID
----------------    ---------------  ---------
123                 w                1
rer                                  -

Total Entries:2

DES-3810-28:admin#
```

39-23 show jwac

Description

This command is used to display the JWAC configuration settings.

Format

show jwac

Parameters

None.

Restrictions

None.

Example

To display the current JWAC configuration:

```
DES-3810-28:admin#show jwac
Command: show jwac

State                    : Disabled
  Enabled Ports          :
  Virtual IP/URL         : 0.0.0.0/-
  Switch HTTP Port       : 80 (HTTP)
  UDP Filtering          : Enabled
  Forcible Logout        : Enabled
  Redirect State         : Enabled
  Redirect Delay Time    : 1 Seconds
  Redirect Destination   : Quarantine Server
  Quarantine Server      :
  Q-Server Monitor       : Disabled
  Q-Server Error Timeout : 5 Seconds
  RADIUS Auth-Protocol   : PAP
  RADIUS Authorization   : Enabled
  Local Authorization    : Enabled

DES-3810-28:admin#
```

39-24 show jwac auth_state ports

Description

This command is used to display information for JWAC client hosts.

Format

show jwac auth_state ports {<portlist>}

Parameters

<portlist> - (Optional) Specifies a port range to show the JWAC authentication entries.

Note: If no port is specified, the JWAC authentication state will be displayed for all ports.

Restrictions

None.

Example

To display JWAC authentication entries for ports 1 to 2:

```
DES-3810-28:admin#show jwac auth_state ports 1-2
Command: show jwac auth_state ports 1-2

Pri:Priority. State – A:Authenticated. B:Bloacked. -:Authenticating
Time – Aging Time/Idle Time for authenticated entries.

Port  MAC Address      State VID Pri  Time          IP            User Name
----- -----------------   -- ---- -- -------- ------------------- ------------
1     00-00-00-00-00-42   -  -    -  4         -                   -
1     00-00-12-34-56-02   -  -    -  21        -                   -
2     00-00-DF-12-E5-6A   -  -    -  24        -                   -
2     00-03-38-10-28-01   -  -    -  13        -                   -

Total Authenticating Hosts  : 4
Total Authenticated Hosts   : 0
Total Blocked Hosts         : 0

DES-3810-28:admin#
```

39-25 show jwac update_server

Description

This command is used to display the JWAC update server.

Format

show jwac update_server

Parameters

None.

Restrictions

None.

Example

To display the JWAC update server:

```
DES-3810-28:admin#show jwac update_server
Command: show jwac update_server

Index  IP                 TCP/UDP  Port  State
-----  -----------------  ------  ----  -------
1      172.18.0.0/21       TCP     1     Active
2      172.18.0.0/21       TCP     2     Active
3      172.18.0.0/21       TCP     3     Active

DES-3810-28:admin#
```

39-26 show jwac ports

Description

This command is used to display the port configuration of JWAC.

Format

show jwac ports {<portlist>}

Parameters

<portlist> - (Optional) Specifies a port range to show the configuration of JWAC.

Restrictions

None.

Example

To display JWAC ports 1 to 4:

```
DES-3810-28:admin#show jwac port 1-4
Command: show jwac port 1-4

Port  State    Aging Time  Idle Time   Block Time  Auth Mode   Max
               (Minutes)   (Minutes)  (Seconds)               Hosts
----- -------- ----------  ----------  ----------  ----------  -----
1     Disabled  1440       Infinite    60         Host_based  50
2     Disabled  1440       Infinite    60         Host_based  50
3     Disabled  1440       Infinite    60         Host_based  50
4     Disabled  1440       Infinite    60         Host_based  50

DES-3810:admin#
```

39-27 clear jwac auth_state

Description

This command is used to clear authentication entries.

Format

clear jwac auth_state [ports [all | <portlist>] {authenticated | authenticating | blocked} | mac_addr <macaddr>]

Parameters

ports - Specifies the port range to delete hosts on. **all** - Specifies to delete all ports. **<portlist>** - Specifies range of ports to delete.
authenticated - (Optional) Specifies the state of host to delete.
authenticating - (Optional) Specifies the state of host to delete.
blocked - (Optional) Specifies the state of host to delete.
mac_addr - Delete a specified host with this MAC address. **<macaddr>** - Enter the MAC address here.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete authentication entries:

```
DES-3810-28:admin#clear jwac auth_state ports all blocked
Command: clear jwac auth_state ports all blocked

Success.

DES-3810-28:admin#
```

39-28 config jwac authenticate_page

Description

This command is used by administrators to decide which authenticate page to use.

Format

config jwac authenticate_page [japanese | english]

Parameters

japanese - Specifies to change to the Japanese page.
english - Specifies to change to the English page. This is the default page.

Restrictions

Only Administrators and Operators can issue this command.

Example

To customize the authenticate page:

```
DES-3810-28:admin#config jwac authenticate_page japanese
Command: config jwac authenticate_page japanese

Success.

DES-3810-28:admin#
```

39-29 show jwac authenticate_page

Description

This command is used to display the element mapping of the customized authenticate page.

Format

show jwac authenticate_page

Parameters

None.

Restrictions

None.

Example

To display the element mapping of the customized authenticate page:

```
DES-3810-28:admin#show jwac authenticate_page
Command: show jwac authenticate_page

 Current Page : English Version
English Page Element
------------------------------------------------------------
Page Title             :
Login Window Title     : Authentication Login
User Name Title       : User Name
Password Title        : Password
Logout Window Title   : Logout from the network
Notification          :


Japanese Page Element
------------------------------------------------------------
Page Title             :
Login Window Title     : 社内 LAN 認証ログイン
User Name Title        : ユーザ ID
Password Title         : パスワード
CTRL+C ESC q Quit SPACE n Next Page ENTER Next Entry a All
```

39-30 config jwac authentication_page element

Description

This command is used by administrators to customize the JWAC authenticate page.

Format

config jwac authentication_page element [japanese | english] [default | page_title <desc 128> | login_window_title <desc 32> | user_name_title <desc 16> | password_title <desc 16> | logout_window_title <desc 32> | notification_line <value 1-5> <desc 128>]

Parameters

japanese - Specifies to change to the Japanese page. **english** - Specifies to change to the English page.
default - Specifies to reset the page element to default.
page_title - Specifies the title of the authenticate page. **<desc 128>** - Specifies the title of the authenticate page. The page title description can be up to 128 characters long.
login_window_title - Specifies the login window title of the authenticate page. **<desc 32>** - Specifies the login window title of the authenticate page. The login window title description can be up to 32 characters long.
user_name_title - Specifies the user name title of the authenticate page. **<desc 16>** - Specifies the user name title of the authenticate page. The user name title description can be up to 16 characters long.
password_title - Specifies the password title of the authenticate page. **<desc 16>** - Specifies the password title of the authenticate page. The password title description can be up to 16 characters long.
logout_window_title - Specifies the logout windown title mapping of the authenticate page. **<desc 32>** - Specifies the logout windown title mapping of the authenticate page. The logout window title description can be up to 32 characters long.
notification_line - Specifies this parameter to set the notification information by line in authentication Web pages. **<value 1-5>** - Specifies a notification line value between 1 and 5. **<desc 128>** - Specifies a notification line description up to 128 characters long.

Restrictions

Only Administrators and Operators can issue this command.

Example

To customize the authenticate page:

```
DES-3810-28:admin#config jwac authentication_page element japanese page_title "
ディーリンクジャパン株式会社"
Command: config jwac authentication_page element japanese page_title "ディーリン
クジャパン株式会社"

Success.

DES-3810-28:admin#config jwac authentication_page element japanese
login_window_title "JWAC 认证"
Command: config jwac authentication_page element japanese login_window_title
"JWAC 认证"

Success.

DES-3810-28:admin#config jwac authentication_page element japanese
user_name_title "ユーザ名"
Command: config jwac authentication_page element japanese user_name_title "ユー
ザ名"

Success.

DES-3810-28:admin#config jwac authentication_page element japanese
password_title "パスワード"
Command: config jwac authentication_page element japanese password_title "パスワ
ード"

Success.

DES-3810-28:admin#config jwac authentication_page element japanese
logout_window_title "ログアウト"
Command: config jwac authentication_page element japanese logout_window_title "
ログアウト"

Success.

DES-3810-28:admin#
```

39-31 config jwac authorization attributes

Description

This command is used to enable or disable acceptation of authorized configuration. When the authorization is enabled for JWAC's RADIUS, the authorized data assigned by the RADUIS server will be accepted if the global authorization network is enabled. When the authorization is enabled for JWAC's local, the authorized data assigned by the local database will be accepted.

Format

config jwac authorization attributes {radius [enable | disable] | local [enable | disable]}(1)

Parameters

radius - If specified to enable, the authorized data assigned by the RADUIS server will be

accepted if the global authorization network is enabled.The default state is enabled. **enable** - Specifies to enable authorized data assigned by the RADUIS server to be accepted. **disable** - Specifies to disable authorized data assigned by the RADUIS server from being accepted.
local - If specified to enable, the authorized data assigned by the local database will be accepted if the global authorization network is enabled. The default state is enabled. **enable** - Specifies to enable authorized data assigned by the local database to be accepted. **disable** - Specifies to disable authorized data assigned by the local database from being accepted.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable the configuration authorized from the local database:

```
DES-3810-28:admin#config jwac authorization attributes local disable
Command: config jwac authorization attributes local disable

Success.

DES-3810-28:admin#
```

Chapter 40 Jumbo Frame Commands

40-1 enable jumbo_frame

Description

This command is used to enable support of Jumbo Frames.

Format

enable jumbo_frame

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable Jumbo Frames:

```
DES-3810-28:admin#enable jumbo_frame
Command: enable jumbo_frame

The maximum size of jumbo frame is 10240 Bytes.
Success.

DES-3810-28:admin#
```

40-2 disable jumbo_frame

Description

This command is used to disable support of Jumbo Frames.

Format

disable jumbo_frame

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable Jumbo Frames:

```
DES-3810-28:admin#disable jumbo_frame
Command: disable jumbo_frame

Success.

DES-3810-28:admin#
```

40-3 show jumbo_frame

Description

This command is used to display Jumbo Frames.

Format

show jumbo_frame

Parameters

None.

Restrictions

None.

Example

To display Jumbo Frames:

```
DES-3810-28:admin#show jumbo_frame
Command: show jumbo_frame

Jumbo Frame State  : Enabled
Maximum Jumbo Frame Size : 10240 Bytes

DES-3810-28:admin#
```

Chapter 41 Label Distribution Protocol (LDP) Commands

enable ldp
disable ldp
create ldp targeted_peer <ipaddr>
config ldp authentication [enable | disable]
config ldp backoff maximum <sec 120-65535>
config ldp control_mode [ordered | independent]
config ldp ipif <ipif_name 12> {state [enable | disable] | targeted_hello_accept [enable | disable] | hello {hold_time <sec 5-65535> | interval <sec 1-65535>}(1) | distribution_mode [du | dod]}(1)
config ldp keepalive_time <sec 15-65535>
config ldp label_retention [conservative | liberal]
config ldp log [enable | disable]
config ldp loop_detect {state [enable | disable] | path_vector_limit <value 1-255> | hop_count_limit <value 1-255>}(1)
config ldp lsr_id [ipif <ipif_name 12> | auto]
config ldp peer <ipaddr> password [<password 32> | none]
config ldp php [implicit_null | explicit_null]
config ldp targeted_peer <ipaddr> {hold_time <sec 15-65535> | interval <sec 5-65535>}(1)
config ldp transport_address [lsr_id | interface | <ipaddr>]
config ldp trap [enable | disable]
clear ldp statistic
delete ldp targeted_peer <ipaddr>
show ldp {statistic}
show ldp binding
show ldp ipif {<ipif_name 12>}
show ldp neighbor {<ipaddr>}
show ldp peer {<ipaddr>}
show ldp session {peer <ipaddr>} {[detail | statistic]}
show ldp targeted_peer {<ipaddr>}

41-1 enable ldp

Description

This command used to enable the LDP function globally. To enable LDP, you should enable MPLS first, otherwise the LDP function will be inactive.

Format

enable ldp

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To enable LDP globally:

```
DES-3810-28:admin#enable ldp
Command: enable ldp

Success.

DES-3810-28:admin#
```

41-2 disable ldp

Description

This command used to disable the LDP function globally.

Format

disable ldp

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To disable LDP globally:

```
DES-3810-28:admin#disable ldp
Command: disable ldp

Success.

DES-3810-28:admin#
```

41-3 create ldp targeted_peer

Description

This command is used to create a targeted peer. The targeted peer specifies a potential indirectly connected neighbor. The extended discovery will be used to discovery the targeted peer. By default, there is no targeted peer.

Format

create ldp targeted_peer <ipaddr>

Parameters

<ipaddr> - Specifies the IP address of the targeted peer. The IP address shall be the LSR ID of the targeted peer.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To create a targeted peer:

```
DES-3810-28:admin#create ldp targeted_peer 172.18.1.1
Command: create ldp targeted_peer 172.18.1.1

Success.

DES-3810-28:admin#
```

41-4 config ldp authentication

Description

This command is used to configure the LDP authentication. If the authentication is enabled, the LSR applies the MD5 algorithm to compute the MD5 digest for the TCP segment that will be sent to the peer. This computation makes use of the peer password as well as the TCP segment. When the LSR receives a TCP segment with an MD5 digest, it validates the segment by calculating the MD5 digest, using its own record of the password, and comparing the computed digest with the received digest. If the comparison fails, the segment is dropped without any response to the sender. The LSR ignores LDP Hellos from any LSR of which a password has not been configured.

Format

config ldp authentication [enable | disable]

Parameters

enable - Specifies that LDP authentication will be enabled. **disable** - Specifies that LDP authentication will be disabled.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To enable LDP authentication:

```
DES-3810-28:admin#config ldp authentication enable
Command: config ldp authentication enable

 Warning: The configuring will lead to LDP sessions restart.
Success.

DES-3810-28:admin#
```

41-5 config ldp backoff maximum

Description

This command is used to configure the LDP backoff feature. The LDP backoff mechanism prevents two incompatibly configured LSRs from engaging in an endless sequence of session setup failures. If a session setup attempt fails due to an incompatibility, the active LSR delays its next attempt and then retries the session establishment. The delay begins at 15 seconds, and it is increased exponentially with each successive failure until the maximum backoff delay is reached. If a session cannot be established and the trap or log state is enabled, LDP will send a trap or a log to the SNMP server to notify the session establishment failure.

Format

config ldp backoff maximum <sec 120-65535>

Parameters

<sec 120-65535> - Enter the maximum backoff delay value here. This value must be between 120 and 65535 seconds. The default value is 600 seconds

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To enable backoff and set the maximum backoff delay to be 240 seconds:

```
DES-3810-28:admin#config ldp backoff maximum 240
Command: config ldp backoff maximum 240

Success.

DES-3810-28:admin#
```

41-6 config ldp control_mode

Description

This command is used to configure the LSP control mode.

In Independent LSP Control, each LSR independently binds a label to a FEC and distributes the binding to its label distribution peers.

In Ordered LSP Control, an LSR only binds a label to a FEC if it is the egress LSR for that FEC, or if it has already received a label binding for that FEC from its next hop for that FEC.

Format

config ldp control_mode [ordered | independent]

Parameters

ordered - Specifies that the control mode will be set to ordered. **independent** - Specifies that the control mode will be set to independant.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To configure the LSP control mode to be ordered mode:

```
DES-3810-28:admin#config ldp control_mode ordered
Command: config ldp control_mode ordered

 Warning: The configuring will lead to LDP sessions restart.
Success.

DES-3810-28:admin#
```

41-7 config ldp ipif

Description

This command used to configure the LDP parameters for a specified interface.

Format

config ldp ipif <ipif_name 12> {state [enable | disable] | targeted_hello_accept [enable | disable] | hello {hold_time <sec 5-65535> | interval <sec 1-65535>}(1) | distribution_mode [du | dod]}(1)

Parameters

<ipif_name 12> - Enter the IP interface name used here. This name can be up to 12 characters long.
state - (Optional) Specifies the state of LDP on the specified interface. Take note that MPLS must be enabled otherwise LDP will be inactive. **enable** - Specifies that the LDP state, on the specified interface, will be set to enabled. **disable** - Specifies that the LDP state, on the specified interface, will be set to disabled.
targeted_hello_accept - (Optional) Specifies to accept or deny targeted hello messages. If a targeted hello message is acceptable, the interface will respond to received targeted hello messages. Otherwise the received targeted hello message will be ignored. **enable** - Specifies that the targeted hello message acceptance will be enabled. **disable** - Specifies that the targeted hello message acceptance will be disabled.

hello - (Optional) Specifies the hello message timer used here. LDP sends link hello message periodically to discover directly connected neighbors. LDP will then maintain a hold timer for each discovered neighbor. If the timer expires without the receipt of a hello message from the neighbor, LDP will conclude that the neighbor has failed. **hold_time** - Specifies the link hello hold time. Default value is 15 seconds. **<sec 5-65535>** - Enter the link hold time value here. This value must be between 5 and 65535 seconds. **interval** - Specifies the interval of the sending link hello message. Default value is 5 seconds. **<sec 1-65535>** - Enter the interval value used here. This value must be between 1 and 65535 seconds.
distribution_mode - (Optional) Specifies the LDP label distribution method used. **du** - Specifies that the distribution mode will be set to Downstream-Unsolicited. **dod** - Specifies that the distribution mode will be set to Downstream-on-Demand.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To configure the LDP interface state to be enabled:

```
DES-3810-28:admin#config ldp ipif System state enable
Command: config ldp ipif System state enable

Success.

DES-3810-28:admin#
```

To configure the LDP hello interval time to 10 seconds:

```
DES-3810-28:admin#config ldp ipif System hello interval 10
Command: config ldp ipif System hello interval 10

Success.

DES-3810-28:admin#
```

To configure Downstream Unsolicited Method:

```
DES-3810-28:admin#config ldp ipif System distribution_mode du
Command: config ldp ipif System distribution_mode du

 Warning: The configuring will lead to LDP sessions on the interface restart.
Success.

DES-3810-28:admin#
```

41-8 config ldp keepalive_time

Description

This command is used to configure the LDP session keep-alive time.

LDP maintains a keep-alive timer for each peer session. If the keep-alive timer expires without the receipt of an LDP PDU from the peer, LDP will conclude that the peer has failed and will terminate the LDP session. Each LSR sends keep-alive messages at regular intervals to its LDP peers to keep the sessions active.

Format

config ldp keepalive_time <sec 15-65535>

Parameters

<sec 15-65535> - Enter the keep-alive timeout value here. This value must be between 15 and 65535 seconds. The default value is 40 seconds.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To configure the keep-alive time to 40 seconds:

```
DES-3810-28:admin#config ldp keepalive_time 40
Command: config ldp keepalive_time 40

 Warning: The configuring will lead to LDP sessions restart.
Success.

DES-3810-28:admin#
```

41-9 config ldp label_retention

Description

This command is used configure the LDP label retention mode.

If the label distribution method is Downstream-Unsolicited and the label retention mode is conservative, it will discard the bindings once the LSR have received label bindings from the LSRs, which are not its next hop for that FEC.

If the label retention mode is liberal, it will maintain the bindings. This helps to speed up the setup of LSP in case there is a change in the next hop.

Format

config ldp label_retention [conservative | liberal]

Parameters

conservative - Specifies that the label retention mode will be set to conservative. **liberal** - Specifies that the label retention mode will be set to liberal.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To configure the label retention mode to be conservative:

```
DES-3810-28:admin#config ldp label_retention conservative
Command: config ldp label_retention conservative

 Warning: The configuring will lead to LDP sessions restart.
Success.

DES-3810-28:admin#
```

41-10 config ldp log

Description

This command used to configure the LDP log state.

Format

config ldp log [enable | disable]

Parameters

enable - Specifies that the LDP log state will be enabled. **disable** - Specifies that the LDP log state will be disabled.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To enable the LDP log:

```
DES-3810-28:admin#config ldp log enable
Command: config ldp log enable

Success.

DES-3810-28:admin#
```

41-11 config ldp loop_detect

Description

This command is used to configure LDP loop detection.

The LDP loop detection mechanism makes use of the Path Vector and Hop Count TLVs carried by the label request and labelling mapping messages to detect looping LSPs.

Format

config ldp loop_detect {state [enable | disable] | path_vector_limit <value 1-255> | hop_count_limit <value 1-255>}(1)

Parameters

state - (Optional) Specifies the loop detection state. **enable** - Specifies that the loop detection state will be enabled. **disable** - Specifies that the loop detection state will be disabled.
path_vector_limit - (Optional) Specifies the path vector limit. The default value is 254. **<value 1-255>** - Enter the path vector limit value used here. This value must be between 1 and 255.
hop_count_limit - (Optional) Specifies the hop count limit. The default Value is 254. **<value 1-255>** - Enter the hop count limit used here. This value must be between 1 and 255.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To enable loop detection:

```
DES-3810-28:admin#config ldp loop_detect state enable
Command: config ldp loop_detect state enable

 Warning: The configuring will lead to LDP sessions restart.
Success.

DES-3810-28:admin#
```

41-12 config ldp lsr_id

Description

This command is used to configure the LDP LSR ID. The LSR ID is used to identify the LSR in the MPLS network and is the IPv4 address of an interface. The recommended interface for the LSR ID is the loopback interface.

If the LSR ID is set to automatically select an interface, this decision will be based on the following rule:

- If a loopback interface is configured, the LSR ID is set to the IP address of the loopback interface. If multiple loopback interfaces are configured, the loopback with the highest IP address will be used.
- If no loopback interface is configured, the LSR ID is set to the highest IP address of the physical interfaces.

Format

config ldp lsr_id [ipif <ipif_name 12> | auto]

Parameters

ipif - Specifies the interface whose IPv4 address is used as LSR ID. **<ipif_name 12>** - Enter the interface name used here. This name can be up to 12 characters long.
auto - Specifies that the interface used will be selected automatically. By default, the LSR ID is automatically selected.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To configure the LDP LSR ID to the loop back interface InterfaceX:

```
DES-3810-28:admin#config ldp lsr_id ipif InterfaceX
Command: config ldp lsr_id ipif InterfaceX

Success.

DES-3810-28:admin#
```

41-13 config ldp peer

Description

This command is used to configure a LDP peer password.

Format

config ldp peer <ipaddr> password [<password 32> | none]

Parameters

<ipaddr> - Specifies the peer IP address. The IP address shall be the peer's LSR ID.
password - Specifies the peer password used. **<password 32>** - Enter the peer password used here. This password can be up to 32 characters long. **none** - Specifies that the peer password will be set to no password.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To configure the password of peer 172.18.1.1 to 123:

```
DES-3810-28:admin#config ldp peer 172.18.1.1 password 123
Command: config ldp peer 172.18.1.1 password 123

 Warning: The configuring will lead to the LDP session of the peer restart.
Success.

DES-3810-28:admin#
```

41-14 config ldp php

Description

This command is used to configure the LDP Penultimate Hop Popping (PHP) behavior.

If the LSR is set as egress and the PHP is configured to *implicit_null*, it will distribute an implicit NULL label to the upstream (Penultimate Hop). The upstream will then do Penultimate Hop Popping.

If the label distributed to Penultimate Hop is set as *explicit_null*, the Penultimate Hop won't pop it.

The following are NULL labels defined in RFC 3032:

1. **0** - IPv4 Explicit NULL Label.
2. **2** - IPv6 Explicit NULL Label.
3. **3** - Implicit NULL Label.

Format

config ldp php [implicit_null | explicit_null]

Parameters

implicit_null	Specifies that the egress LSR will distribute the implicit NULL label to its upstream. The default value is implicit_null.
explicit_null	Specifies that the egress LSR will distribute the explicit NULL label to its upstream.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To configure the LDP PHP to implicit null:

```
DES-3810-28:admin#config ldp php implicit_null
Command: config ldp php implicit_null

 Warning: The configuring will lead to LDP sessions restart.
Success.

DES-3810-28:admin#
```

41-15 config ldp targeted_peer

Description

This command is used to configure the LDP targeted peer.

Format

config ldp targeted_peer <ipaddr> {hold_time <sec 15-65535> | interval <sec 5-65535>}(1)

Parameters

<ipaddr> - Specifies the targeted peer's IP address. It must be the targeted peer's LSR ID.
hold_time - (Optional) Specifies the targeted hello hold time of the targeted peer. The default value is 45 seconds. **<sec 15-65535>** - Enter the targeted hello hold time used here. This value must be between 15 and 65535 seconds.
interval - (Optional) Specifies the targeted hello sending interval of the targeted peer. The default value is 15 seconds. **<sec 5-65535>** - Enter the targeted hello sending interval value used here. This value must be between 5 and 65535 seconds.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To configure a targeted peer that has a hold time of 80 seconds:

```
DES-3810-28:admin#config ldp targeted_peer 172.18.1.1 hold_time 80
Command: config ldp targeted_peer 172.18.1.1 hold_time 80

Success.

DES-3810-28:admin#
```

41-16 config ldp transport_address

Description

This command is used to configure the LDP transport address. The transport address is used to establish the LDP TCP connection. By default, the LSR ID is used as the transport address by all of the interfaces.

If you configure the transport address to a specific IP address, this address is used as the transport address by all the interfaces.

If you configure the transport address to “interface”, the IP address of each interface is used as the transport address.

Format

config ldp transport_address [lsr_id | interface | <ipaddr>]

Parameters

lsr_id - Specifies that the LSR ID will be used as the transport address.
interface - Specifies that the IP address of each interface will be used as the transport address.
<ipaddr> - Enter the IP address, that will be used as the transport address by all interfaces, here. Usually, the transport address is a loopback interface address

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To configure the transport address with the LSR ID:

```
DES-3810-28:admin#config ldp transport_address lsr_id
Command: config ldp transport_address lsr_id

 Warning: The configuring will lead to LDP sessions restart.
Success.

DES-3810-28:admin#
```

41-17 config ldp trap

Description

This command used to configure the LDP trap state.

Format

config ldp trap [enable | disable]

Parameters

enable - Specifies that the LDP trap state will be enabled.
disable - Specifies that the LDP trap state will be disabled.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To enable the LDP trap:

```
DES-3810-28:admin#config ldp trap enable
Command: config ldp trap enable

Success.

DES-3810-28:admin#
```

41-18 clear ldp statistic

Description

This command is used to clear LDP statistics.

Format

clear ldp statistic

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To clear LDP statistics:

```
DES-3810-28:admin#clear ldp statistic
Command: clear ldp statistic

Success.

DES-3810-28:admin#
```

41-19 delete ldp targeted_peer

Description

This command is used to delete an existing targeted peer.

Format

delete ldp targeted_peer <ipaddr>

Parameters

<ipaddr> - Enter the targeted peer IP address used here. It must be the targeted peer's LSR ID.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To delete the targeted peer 172.18.1.1:

```
DES-3810-28:admin#delete ldp targeted_peer 172.18.1.1
Command: delete ldp targeted_peer 172.18.1.1

Success.

DES-3810-28:admin#
```

41-20 show ldp

Description

This command is used to dsplay LDP global information.

Format

show ldp {statistic}

Parameters

statistic - (Optional) Specifies to display LDP statistics.

Restrictions

None. **(EI Mode Command Only)**

Example

To dispay LDP global information:

```
DES-3810-28:admin#show ldp
Command: show ldp

 LSR ID            : 192.10.10.1
 LDP Version       : 1.0
 LDP State         : Enabled
 TCP Port          : 646
 UDP Port          : 646
 Max PDU Length    : 1500
 Max Backoff       : 240 Seconds
 Transport Address : 192.10.10.1
 Keep Alive Time   : 40 Seconds
 LSP Control Mode  : Ordered
 Label Retention   : Conservative
 Loop Detection    : Enabled
 Path Vector Limit : 254
 Hop Count Limit   : 254
 Authentication    : Enabled
 PHP               : Implicit null
 Trap Status       : Enabled
 Log Status        : Enabled


DES-3810-28:admin#
```

To display LDP statistics:

```
DES-3810-28:admin#show ldp statistic
Command: show ldp statistic

 SessionAttempts              : 0
 SessionRejectedNoHelloErrors : 0
 SessionRejectedAdErrors      : 0
 SessionRejectedMaxPduErrors  : 0
 SessionRejectedLRErrors      : 0
 BadLdpIdentifierErrors       : 0
 BadPduLengthErrors           : 0
 BadMessageLengthErrors       : 0
 BadTlvLengthErrors           : 0
 MalformedTlvValueErrors      : 0
 KeepAliveTimerExpErrors      : 0
 ShutdownReceivedNotifications: 0
 ShutdownSentNotifications    : 0

DES-3810-28:admin#
```

41-21 show ldp binding

Description

This command is used to display all LDP label bindings information.

Format

show ldp binding

Parameters

None.

Restrictions

None. **(EI Mode Command Only)**

Example

To display all LDP label binding information:

```
DES-3810-28:admin# show ldp binding
Command: show ldp binding

FEC: 172.18.1.0/24
   State     : Established
   In label  : 1200
   Upstream  : 10.1.1.2
   Out label : 1300
   Downstream: 192.1.1.1

FEC: 172.18.2.0/24
   State     : Established
   In label  : 1500
   Upstream  : 10.1.1.2
   Out label : 1600
   Downstream: 192.1.1.1

Total Entries : 2

DES-3810-28:admin#
```

41-22 show ldp ipif

Description

This command is used to display LDP information of an interface.

Format

show ldp ipif {<ipif_name 12>}

Parameters

<ipif_name 12> - (Optional) Enter the interface name used here. This name can be up to 12 characters long.

Restrictions

None. **(EI Mode Command Only)**

Example

To display all IP interface LDP information:

```
DES-3810-28:admin#show ldp ipif
Command: show ldp ipif

 Interface  : System
 -------------------------------------
 Admin State             : Enabled
 Oper State              : Disabled
 Targeted Hello Accept   : Acceptable
 Hello Interval          : 10(Sec)
 Hello Hold Time         : 15(Sec)
 Distribution Method     : DU

 Total Entries: 1

DES-3810-28:admin#
```

41-23 show ldp neighbor

Description

This command is used to display all adjacencies discovered by LDP.

Format

show ldp neighbor {<ipaddr>}

Parameters

<ipaddr> - (Optional) Enter the IP address of the neighbor LSR ID here. If nothing is specified, all neighbors will be displayed.

Restrictions

None. **(EI Mode Command Only)**

Example

To display all LDP neighbors:

```
DES-3810-28:admin#show ldp neighbor
Command: show ldp neighbor

Neighbor       IP Address   Type      Hold Time   Remain Time
-------------  -----------  --------  ----------  ------------
202.11.1.1:0   202.11.1.1   Link      15(Sec)     10(Sec)
172.18.1.1:0   172.18.2.1   Link      15(Sec)     10(Sec)
               172.18.3.1   Link      15(Sec)     10(Sec)
192.1.1.1:0    192.1.1.1    Targeted  45(Sec)     20(Sec)

Total Entries : 3

DES-3810-28:admin#
```

41-24 show ldp peer

Description

This command is used to display LDP peer information.

Format

show ldp peer {<ipaddr>}

Parameters

<ipaddr> - (Optional) Enter the IP address of the peer LSR ID here. If nothing is specified, all peers will be displayed.

Restrictions

None. **(EI Mode Command Only)**

Example

To display all LDP peers:

```
DES-3810-28:admin#show ldp peer
Command: show ldp peer

Peer : 202.11.1.1:0
 ------------------------------------
 Protocol Version  : 1.0
 Transport address : 202.11.1.1
 Keep Alive Time   : 0 seconds
 Distribute Method : DU
 Loop Detect       : Disabled
 Path vector limit : 0
 Max PDU Length    : 0

 Peer : 192.1.1.1:0
 ------------------------------------
 Protocol Version  : 1.0
 Transport address : 192.1.1.1
 Keep Alive Time   : 0 seconds
 Distribute Method : DU
 Loop Detect       : Disabled
 Path vector limit : 0
 Max PDU Length    : 0

 Peer : 202.20.1.1:0
 ------------------------------------
 Protocol Version  : 1.0
 Transport address : 202.20.1.1
 Keep Alive Time   : 0 seconds
 Distribute Method : DU
 Loop Detect       : Disabled
 Path vector limit : 0
 Max PDU Length    : 1500

Total Entries : 3

DES-3810-28:admin#
```

41-25 show ldp session

Description

This command is used to display all LDP sessions.

Format

show ldp session {peer <ipaddr>} {[detail | statistic]}

Parameters

peer - (Optional) Specifies the IP address used as the peer LSR ID. If not specified, all sessions will be displayed.
<ipaddr> - Enter the peer IP address used here.

detail - (Optional) Specifies that detailed information will be displayed.
statistic - (Optional) Specifies that session statistic information will be displayed.

Restrictions

None. **(EI Mode Command Only)**

Example

To display all LDP session information:

```
DES-3810-28:admin#show ldp session
Command: show ldp session

Peer        Status        Role      Keep Alive  Label Distribution
----------  ------------  --------  ----------- ------------------
10.1.1.2:0  OPERATIONAL   Active    40(Sec)      DU
20.1.1.2:0  OPERATIONAL   Passive   40(Sec)      DU

Total Entries : 2

DES-3810-28:admin#
```

To display LDP session detail information for peer 10.1.1.2:

```
DES-3810-28:admin#show ldp session peer 10.1.1.2 detail
Command: show ldp session peer 10.1.1.2 detail

Peer                : 10.1.1.2:0
Status              : OPERATIONAL
Role                : Active
Keep Alive(Sec)     : 40
Remain Time(Sec)    : 20
Create Time         : 2009-12-1 14:10:30
Label Distribution  : DU
Loop Detection      : Enabled
Max PDU Length      : 1500
Address List        : 10.1.1.2
                      172.18.1.1

DES-3810-28:admin#
```

To display LDP session statistics for peer 10.1.1.2:

```
DES-3810-28:admin#show ldp session peer 10.1.1.2 statistic
Command: show ldp session peer 10.1.1.2 statistic

Peer  : 10.1.1.2
----------------------------------------
Notification Message     : TX 10/RX 2
Initialization Message   : TX 2/RX 2
Keep Alive Message       : TX 100/RX 100
Address Messag           : TX 1/RX 1
Address Withdraw Message : TX 0/RX 0
Label Mapping Message    : TX 2/RX 1
Label Request Message    : TX 2/RX 1
Label Withdraw Message   : TX 0/RX 0
Label Release Message    : TX 0/RX 0
Label Abort Message      : TX 0/RX 0

DES-3810-28:admin#
```

41-26 show ldp targeted_peer

Description

This command is used to display locally configured target peer information.

Format

show ldp targeted_peer {<ipaddr>}

Parameters

<ipaddr> - (Optional) Enter the IP address, used as the targeted peer LSR ID, here. If not specified, all targeted peers will be displayed.

Restrictions

None. **(EI Mode Command Only)**

Example

Display all targeted peers:

```
DES-3810-28:admin#show ldp targeted_peer
Command: show ldp targeted_peer

 Targeted Peer    Hello Interval  Hold Time
 ---------------  --------------  ---------
 172.18.1.1       15(Sec)         45(Sec)

 Total Entries: 1

DES-3810-28:admin#
```

Chapter 42 LACP Configuration Commands

config lacp_port <portlist> mode [active | passive]
show lacp_port {<portlist>}

42-1 config lacp_port

Description

This command is used to configure per-port LACP mode.

Format

config lacp_port <portlist> mode [active | passive]

Parameters

<portlist> - Specifies a range of ports to be configured.
mode – Specifies the port mode. **active** - Specifies the mode as active. **passive** - Specifies the mode as passive.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure port LACP mode for ports 1 to 3:

```
DES-3810-28:admin#config lacp_port 1-3 mode active
Command: config lacp_port 1-3 mode active

Success.

DES-3810-28:admin#
```

42-2 show lacp_port

Description

This command is used to display per-port LACP mode.

Format

show lacp_port {<portlist>}

Parameters

<portlist> - (Optional) Specifies a range of ports to be displayed.

Note: If no parameter is specified, the system will display current LACP port and status for all ports.

Restrictions

None.

Example

To display the current port LACP mode for ports 1 to 3 on the switch:

```
DES-3810-28:admin#show lacp_port 1-3
Command: show lacp_port 1-3

Port    Activity
------  --------
1       Active
2       Active
3       Active

DES-3810-28:admin#
```

Chapter 43 Layer 2 Protocol Tunneling (L2PT) Commands

config l2protocol_tunnel ports [<portlist> | all] type [uni tunneled_protocol [{stp | gvrp | protocol_mac [01-00-0C-CC-CC-CC | 01-00-0C-CC-CC-CD]}(1) | all] {threshold <value 0-65535>} | nni | none]
show l2protocol_tunnel {[uni | nni]}
enable l2protocol_tunnel
disable l2protocol_tunnel

43-1 config l2protocol_tunnel ports

Description

This command is used to configure Layer 2 protocol tunneling on ports.

Layer 2 protocol tunneling is used to tunnel Layer 2 protocol packet.

If a Layer 2 protocol is tunnel-enabled on an UNI, once received the PDU on this port, the multicast destination address of the PDU will be replaced by Layer 2 protocol tunneling multicast address. The Layer 2 protocol tunneling multicast address for STP is 01-05-5D-00-00-00, for GVRP is 01-05-5D-00-00-21, for Layer 2 protocols MAC 01-00-0C-CC-CC-CC is 01-05-5D-00-00-10 and for protocol MAC 01-00-0C-CC-CC-CD is 01-05-5D-00-00-11.

When QinQ is enabled, an S-TAG will be added to the Layer 2 PDU too. The S-TAG is assigned according QinQ VLAN configuration.

Format

config l2protocol_tunnel ports [<portlist> | all] type [uni tunneled_protocol [{stp | gvrp | protocol_mac [01-00-0C-CC-CC-CC | 01-00-0C-CC-CC-CD]}(1) | all] {threshold <value 0-65535>} | nni | none]

Parameters

ports -Specifies the ports on which the Layer 2 protocol tunneling will be configured. **<portlist>** - Enter a list of ports to be configured here. **all** - Specifies to use this configuration on all the ports.
type - Specifies the type of the ports. **uni** - Specifies the port is UNI port **tunneled_protocol** - Specifies tunneled protocols on this UNI port. If specified all, all tunnel-able Layer 2 protocols will be tunneled on this port. **stp** - (Optional) Specifies to use the STP protocol. **gvrp** - (Optional) Specifies to use the GVRP protocol. **protocol_mac** - (Optional) Specifies which protocol MAC address to use. **01-00-0C-CC-CC-CC** - Specifies to use this protocol MAC address. **01-00-0C-CC-CC-CD** - Specifies to use this protocol MAC address. **all** - Specifies to use all the MAC addresses.

threshold - (Optional) Specifies the drop threshold for packets-per-second accepted on this UNI port. The port drops the PDU if the protocol's threshold is exceeded. The range of the threshold value is 0 to 65535 (packet/second). The value 0 means on limit. By default, the value is 0. **<value 0-65535>** - Enter the threshold packets-per-seconds value here. This value must be between 0 and 65535.
nni - Specifies the port is NNI port
none - Disables tunnel on it. By default, a port is none port.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the STP tunneling on ports 1-4:

```
DES-3810-28:admin# config l2protocol_tunnel ports 1-4 type uni
tunneled_protocol stp
Command: config l2protocol_tunnel ports 1-4 type uni tunneled_protocol stp


Success.


DES-3810-28:admin#
```

43-2 show l2protocol_tunnel

Description

This command is used to show Layer 2 protocol tunneling information.

Format

show l2protocol_tunnel {[uni | nni]}

Parameters

uni - (Optional) Specifies show UNI detail information, include tunneled and dropped PDU statistic.
nni - (Optional) Specifies show NNI detail information, include de-capsulated Layer 2 PDU statistic.

Restrictions

None.

Example

To show Layer 2 protocol tunneling information summary:

```
DES-3810-28:admin# show l2protocol_tunnel
Command: show l2protocol_tunnel

Global State: Enabled
UNI Ports: 1-2
NNI Ports: 3-4

DES-3810-28:admin#
```

To show Layer 2 protocol tunneling detail information on UNI ports:

```
DES-3810-28:admin#show l2protocol_tunnel uni
Command: show l2protocol_tunnel uni

 UNI   Tunneled           Threshold     Encapsulated  Drop
 Port  Protocol           (packet/sec)  Counter       Counter
 ----  -----------------  ------------  ------------  ------------
 1     STP                0             0             0
       GVRP               0             0             0
       01-00-0C-CC-CC-CC  0             0             0
       01-00-0C-CC-CC-CD  0             0             0
 2     STP                0             0             0
       GVRP               0             0             0
       01-00-0C-CC-CC-CC  0             0             0
       01-00-0C-CC-CC-CD  0             0             0
 3     STP                0             0             0
       GVRP               0             0             0
       01-00-0C-CC-CC-CC  0             0             0
       01-00-0C-CC-CC-CD  0             0             0
 4     STP                0             0             0
       GVRP               0             0             0
       01-00-0C-CC-CC-CC  0             0             0
       01-00-0C-CC-CC-CD  0             0             0

DES-3810-28:admin#
```

To show Layer 2 protocol tunneling detail information on NNI ports:

```
DES-3810-28:admin#show l2protocol_tunnel nni
Command: show l2protocol_tunnel nni

 NNI   Protocol           De-capsulated
 Port                     Counter
 ----  -----------------  -------------
 1     STP                0
       GVRP               0
       01-00-0C-CC-CC-CC  0
       01-00-0C-CC-CC-CD  0
 2     STP                0
       GVRP               0
       01-00-0C-CC-CC-CC  0
       01-00-0C-CC-CC-CD  0

DES-3810-28:admin#
```

43-3 enable l2protocol_tunnel

Description

Used to enable the Layer 2 protocol tunneling function.

Format

enable l2protocol_tunnel

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable the Layer 2 protocol tunneling function:

```
DES-3810-28:admin# enable l2protocol_tunnel
Command: enable l2protocol_tunnel

Success.

DES-3810-28:admin#
```

43-4 disable l2protocol_tunnel

Description

Used to disable the Layer 2 protocol tunneling function.

Format

disable l2protocol_tunnel

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable the Layer 2 protocol tunneling function:

```
DES-3810-28:admin# disable l2protocol_tunnel
Command: disable l2protocol_tunnel

Success.

DES-3810-28:admin#
```

Chapter 44 Limited Multicast IP Address Commands

create mcast_filter_profile {[ipv4 | ipv6]} profile_id <value 1-60> profile_name <name 32>
config mcast_filter_profile [profile_id <value 1-60> | profile_name <name 32>] {profile_name <name 32> | [add | delete] <mcast_address_list>}(1)
config mcast_filter_profile ipv6 [profile_id <value 1-60> | profile_name <name 32>] {profile_name <name 32> | [add | delete] <mcastv6_address_list>}(1)
delete mcast_filter_profile {[ipv4 | ipv6]} [profile_id [<value 1-60> | all] | profile_name <name 32>]
show mcast_filter_profile {[ipv4 | ipv6]} {[profile_id <value 1-60> | profile_name <name 32>]}
config limited_multicast_addr [ports <portlist> | vlanid <vlanid_list>] {[ipv4 | ipv6]} {[add [profile_id <value 1-60> | profile_name <name 32>] | delete [profile_id <value 1-60> | profile_name <name 32> | all]] | access [permit | deny]}(1)
show limited_multicast_addr [ports <portlist> | vlanid <vlanid_list>] {[ipv4 | ipv6]}
config max_mcast_group [ports <portlist> | vlanid <vlanid_list>] {[ipv4 | ipv6]} {max_group [<value 1-1024> | infinite] | action [drop | replace]} (1)
show max_mcast_group [ports <portlist> | vlanid <vlanid_list>] {[ipv4 | ipv6]}

44-1 create mcast_filter_profile

Description

This command is used to create a multicast address profile. If the IPv4 or IPv6 option is not specified, IPv4 is implied.

Format

create mcast_filter_profile {[ipv4 | ipv6]} profile_id <value 1-60> profile_name <name 32>

Parameters

ipv4 – (Optional) Specifies to add an IPv4 multicast profile.
ipv6 – (Optional) Specifies to add an IPv6 multicast profile.
profile_id – Specifies the ID of the profile. **<value 1-60>** - The profile ID range must be from 1 to 60
profile_name - Provides a meaningful description for the profile. **<name 32>** - The profile name can be up to 32 characters long.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create a multicast address profile named MOD:

```
DES-3810-28:admin#create mcast_filter_profile profile_id 2 profile_name MOD
Command: create mcast_filter_profile profile_id 2 profile_name MOD

Success.

DES-3810-28:admin#
```

44-2 config mcast_filter_profile

Description

This command is used to modify the profile name, add or delete a range of previously defined multicast IP addresses to or from the profile.

Format

config mcast_filter_profile [profile_id <value 1-60> | profile_name <name 32>] {profile_name <name 32> | [add | delete] <mcast_address_list>}(1)

Parameters

profile_id - Specifies the ID of the profile. **<value 1-60>** - The profile ID must be between 1 and 60.
profile_name - Specifies the name of the profile. **<name 32>** - The profile name can be up to 32 characters long.
profile_name –Specifies a new name of the profile. **<name 32>** - The profile name can be up to 32 characters long. **add** - Specifies to add a range of multicast IP addresses. **delete** - Specifies to delete a range of multicast IP addresses. **<mcast_address_list>** - List of the multicast addresses to be added to or deleted from the profile. Either specifiy a single multicast IP address or a range of multicast addresses using a hyphen.

Restrictions

Only Administrators and Operators can issue this command.

Example

To add a range of multicast addresses to a profile:

```
DES-3810-28:admin#config mcast_filter_profile profile_id 2 add 225.1.1.1–
225.1.1.100
Command: config mcast_filter_profile profile_id 2 add 225.1.1.1–225.1.1.100

Success.

DES-3810-28:admin#
```

44-3 config mcast_filter_profile ipv6

Description

This command is used to add or delete a range of previously defined IPv6 multicast IP addresses to or from the profile.

Format

config mcast_filter_profile ipv6 [profile_id <value 1-60> | profile_name <name 32>] {profile_name <name 32> | [add | delete] <mcastv6_address_list>}(1)

Parameters

profile_id - Specifies the ID of the profile. **<value 1-60>** - The profile ID must be between 1 and 60.
profile_name - Specifies the name of the profile. **<name 32>** - The profile name can be up to 32 characters long.
profile_name –Specifies a new name of the profile. **<name 32>** - The profile name can be up to 32 characters long. **add** - Specifies to add a range of multicast IP addresses. **delete** - Specifies to delete a range of multicast IP addresses. **<mcastv6_address_list>** - List of the IPv6 multicast addresses to be added to or deleted from the profile. Either specifiy a single IPv6 multicast IP address or a range of IPv6 multicast addresses using a hyphen.

Restrictions

Only Administrators and Operators can issue this command.

Example

To add the IPv6 multicast address range FF0E::100:0:0:20 – FF0E::100:0:0:22 to profile ID 3:

```
DES-3810-28:admin#config mcast_filter_profile ipv6 profile_id 3 add
FF0E::100:0:0:20-FF0E::100:0:0:22
Command: config mcast_filter_profile ipv6 profile_id 3 add FF0E::100:0:0:20-
FF0E::100:0:0:22

Success.

DES-3810-28:admin#
```

44-4 delete mcast_filter_profile

Description

This command is used to delete a multicast address profile. If the IPv4 or IPv6 option is not specified, IPv4 is implied.

Format

delete mcast_filter_profile {[ipv4 | ipv6]} [profile_id [<value 1-60> | all] | profile_name <name 32>]

Parameters

ipv4 – (Optional) Specifies to delete an IPv4 multicast profile.
ipv6 – (Optional) Specifies to delete an IPv6 multicast profile.
profile_id - Specifies the ID of the profile. The range is from 1 to 60. **<value 1-60>** - The profile ID must be between 1 and 60.
all - All multicast address profiles will be deleted.
profile_name - Specifies a profile based on the profile name. **<name 32>** - The profile name can be up to 32 characters long.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete a multicast profile with a profile ID of 3:

```
DES-3810-28:admin#delete mcast_filter_profile profile_id 3
Command: delete mcast_filter_profile profile_id 3

Success.

DES-3810-28:admin#
```

To delete a multicast profile with a profile named MOD:

```
DES-3810-28:admin#delete mcast_filter_profile profile_name MOD
Command: delete mcast_filter_profile profile_name MOD

Success.

DES-3810-28:admin#
```

44-5 show mcast_filter_profile

Description

This command is used to display defined multicast address profiles. If the IPv4 or IPv6 option is not specified, IPv4 is implied.

Format

show mcast_filter_profile {[ipv4 | ipv6]} {[profile_id <value 1-60> | profile_name <name 32>]}

Parameters

ipv4 - (Optional) Specifies to display an IPv4 multicast profile.
ipv6 - (Optional) Specifies to display an IPv6 multicast profile.
profile_id - (Optional) Specifies the ID of the profile. If both profile_id and profile_name are not specified, all profiles will be displayed. **<value 1-60>** - The profile ID must be between 1 and 60.

profile_name - (Optional) Specifies to display a profile based on the profile name. If both profile_id and profile_name are not specified, all profiles will be displayed. **<name 32>** - The profile name can be up the 32 characters long.

Restrictions

None.

Example

To display all the defined multicast address profiles:

```
DES-3810-28:admin#show mcast_filter_profile
Command: show mcast_filter_profile

Profile ID Name                        Multicast Addresses
---------- --------------------------- ----------------------------
1          MOD                         234.1.1.1–238.244.244.244
                                       234.1.1.1–238.244.244.244
2          customer                    224.19.62.34–224.19.162.200

Total Entries: 2

DES-3810-28:admin#
```

44-6 config limited_multicast_addr

Description

This command is used to configure the multicast address filtering function on a port or VLAN. When there are no profiles specified with a port or VLAN, the limited function is not effective. When the function is configured on a port or VLAN, it limits the multicast group operated by the IGMP/MLD snooping function and layer 3 function. If the IPv4 or IPv6 option is not specified, IPv4 is implied.

Format

config limited_multicast_addr [ports <portlist> | vlanid <vlanid_list>] {[ipv4 | ipv6]} {[add [profile_id <value 1-60> | profile_name <name 32>] | delete [profile_id <value 1-60> | profile_name <name 32> | all]] | access [permit | deny]}(1)

Parameters

ports - Specifies a range of ports to configure the multicast address filtering function. **<portlist>** - Specifies a range of ports to be configured.
vlanid - Specifies the VLAN ID of the VLAN that the multicast address filtering function will be configured on. **<vlanid_list>** - Enter the VLAN ID of the VLAN that the multicast address filtering functions will be configured on here.
ipv4 - (Optional) Specifies the IPv4 multicast profile. **ipv6** - (Optional) Specifies the IPv6 multicast profile.
add - (Optional) Add a multicast address profile to a port or VLAN. **profile_id** - (Optional) Specifies a profile ID to be added to the port or VLAN. **<value 1-60>** - The profile ID must be between 1 and 60.

profile_name - (Optional) Specifies a profile name to be added to the port or VLAN. **<name 32>** - The profile name can be up to 32 characters long.
delete - (Optional) Delete a multicast address profile from a port or VLAN. **profile_id** - (Optional) Specifies a profile ID to be deleted from the port or VLAN. **<value 1-60>** - The profile ID must be between 1 and 60. **profile_name** - (Optional) Specifies a profile name to be deleted from the port or VLAN. **<name 32>** - The profile name can be up to 32 characters long. **all** – Specifiies that all profiles will be deleted.
access - (Optional) Specifies whether the access is permit or deny. **permit** - Specifies that the packets that match the addresses defined in the profiles will be permitted. The default mode is permit. **deny** - Specifies that the packets that match the addresses defined in the profiles will be denied.

Restrictions

Only Administrators and Operators can issue this command.

Example

To add multicast address profile 2 to ports 1 and 3:

```
DES-3810-28:admin#config limited_multicast_addr ports 1,3 add profile_id 2
Command: config limited_multicast_addr ports 1,3 add profile_id 2

Success.

DES-3810-28:admin#
```

44-7 show limited_multicast_addr

Description

This command is used to display a multicast address range by ports or by VLANs. When the function is configured on a port or VLAN, it limits the multicast group operated by the IGMP/MLD snooping function and layer 3 function. If the IPv4 or IPv6 option is not specified, IPv4 is implied.

Format

show limited_multicast_addr [ports <portlist> | vlanid <vlanid_list>] {[ipv4 | ipv6]}

Parameters

ports - Specifies a range of ports to show the limited multicast address configuration. **<portlist>** - Specifies a range of ports to be displayed.
vlanid - Specifies the VLAN ID of VLANs that require information displaying about the multicast address filtering function. **<vlanid_list>** - Enter the VLAN ID of the VLAN here.
ipv4 - (Optional) Specifies to display the IPv4 multicast profile associated with the port or VLAN.
ipv6 - (Optional) Specifies to display the IPv6 multicast profile associated with the port or VLAN.

Restrictions

None.

Example

To display the limited multicast address range on VLAN 1:

```
DES-3810-28:admin#show limited_multicast_addr vlanid 1
Command: show limited_multicast_addr vlanid 1

VLAN    : 1
Access  : Deny

Profile ID      Name                Multicast Addresses
-----------    -----------          ----------------------------
1              customer             224.19.62.34–224.19.162.200

DES-3810-28:admin#
```

To display the limited multicast address range on ports 1 and 3:

```
DES-3810-28:admin#show limited_multicast_addr ports 1,3
Command: show limited_multicast_addr ports 1,3

Port    : 1
Access  : Deny

Profile ID      Name                Multicast Addresses
-----------    -----------          ----------------------------
1              customer             224.19.62.34–224.19.162.200

Port    : 3
Access  : Deny

Profile ID      Name                Multicast Addresses
-----------    ---------------      ----------------------------
1              customer             224.19.62.34–224.19.162.200

DES-3810-28:admin#
```

44-8 config max_mcast_group

Description

This command is used to configure the maximum number of multicast groups a port or VLAN can join. If the IPv4 or IPv6 option is not specified, IPv4 is implied. When the joined groups for a port or a VLAN have reached the maximum number, the newly learned group will be dropped if the action is specified as drop. The newly learned group will replace the oldest group if the action is specified as replace.

Format

config max_mcast_group [ports <portlist> | vlanid <vlanid_list>] {[ipv4 | ipv6]} {max_group [<value 1-1024> | infinite] | action [drop | replace]} (1)

Parameters

ports - Specifies a range of ports to configure the maximum multicast group. **<portlist>** - Specifies a range of ports to be configured.
vlanid - Specifies the VLAN ID to configure the maximum multicast group. **<vlanid_list>** - Enter the VLAN ID of the VLAN here.
ipv4 - (Optional) Specifies that the maximum number of IPv4 learned addresses should be limited.
ipv6 - (Optional) Specifies that the maximum number of IPv6 learned addresses should be limited.
max_group - (Optional) Specifies the maximum number of the multicast groups. **<value 1-1024>** - The range is from 1 to 1024 or infinite. **infinite** - Infinite is the default setting.
action - (Optional) Specifies the action for handling newly learned groups when the register is full. **drop** - The new group will be dropped. **replace** - The new group will replace the oldest group in the register table.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the maximum number of multicast groups that ports 1 and 3 can join to 100:

```
DES-3810-28:admin# config max_mcast_group ports 1, 3 max_group 100
Command: config max_mcast_group ports 1, 3 max_group 100

Success.

DES-3810-28:admin#
```

44-9 show max_mcast_group

Description

This command is used to display the maximum number of multicast groups that a port or VLAN can join. If the IPv4 or IPv6 option is not specified, IPv4 is implied.

Format

show max_mcast_group [ports <portlist> | vlanid <vlanid_list>] {[ipv4 | ipv6]}

Parameters

ports - Specifies a range of ports to display the maximum number of multicast groups. **<portlist>** - Specifies a range of ports to be displayed.
vlanid - Specifies the VLAN ID for displaying the maximum number of multicast groups. **<vlanid_list>** - Enter the VLAN ID of the VLAN here.
ipv4 - (Optional) Specifies to display the maximum number of IPv4 learned addresses.
ipv6 - (Optional) Specifies to display the maximum number of IPv6 learned addresses.

Restrictions

None.

Example

To display the maximum number of multicast groups for ports 1-2:

```
DES-3810-28:admin# show max_mcast_group ports 1-2
Command: show max_mcast_group ports 1-2

Port     Max Multicast Group Number  Action
-----    --------------------------- ---------
1        Infinite                     Drop
2        Infinite                     Drop

Total Entries : 2
DES-3810-28:admin#
```

Chapter 45 Link Aggregation Commands

create link_aggregation group_id <value 1-14> {type [lacp | static]}
delete link_aggregation group_id <value 1-14>
config link_aggregation group_id <value 1-14> {master_port <port> | ports <portlist> | state [enable | disable]} (1)
config link_aggregation algorithm [mac_source | mac_destination | mac_source_dest | ip_source | ip_destination | ip_source_dest | l4_src_port | l4_dest_port | l4_src_dest_port]
show link_aggregation {group_id <value 1-14> | algorithm}

45-1 create link_aggregation group_id

Description

This command is used to create a link aggregation group.

Format

create link_aggregation group_id <value 1-14> {type [lacp | static]}

Parameters

<value 1-14> - Specifies the group ID. The group number identifies each of the groups. The switch allows up to 14 link aggregation groups to be configured.
type - (Optional) Specifies the group type belongs to static or LACP. If type is not specified, the default is the static type. **lacp** - Specifies the group type as LACP. **static** - Specifies the group type as static.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create a link aggregation group:

```
DES-3810-28:admin#create link_aggregation group_id 1 type lacp
Command: create link_aggregation group_id 1 type lacp

Success

DES-3810-28:admin#
```

45-2 delete link_aggregation group_id

Description

This command is used to delete a previously configured link aggregation group.

Format

delete link_aggregation group_id <value 1-14>

Parameters

<value 1-14> - Specifies the group ID. The group number identifies each of the groups. The switch allows up to 14 link aggregation groups to be configured.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete a link aggregation group:

```
DES-3810-28:admin#delete link_aggregation group_id 3
Command: delete link_aggregation group_id 3

Success.

DES-3810-28:admin#
```

45-3 config link_aggregation group_id

Description

This command allows you to configure a link aggregation group that was created with the **create link_aggregation** command above.

Format

config link_aggregation group_id <value 1-14> {master_port <port> | ports <portlist> | state [enable | disable]} (1)

Parameters

<value 1-14> - Specifies the group ID. The group number identifies each of the groups. The switch allows up to 14 link aggregation groups to be configured.
master_port - Specifies which port (by port number) of the link aggregation group will be the master port. All of the ports in a link aggregation group will share the port configuration with the master port. **<port>** - Specifies the master port ID.
ports - Specifies a range of ports that will belong to the link aggregation group. The port list should include the master port. **<portlist>** - Specifies a range of ports to be configured.

state - Enable or disable the specified link aggregation group. If configuring an LACP group, the ports' state machine will start. **enable** - Enable the specified link aggregation group. **disable** - Disable the specified link aggregation group.

Restrictions

Only Administrators and Operators can issue this command.

Example

To define a load-sharing group of ports, group-id 1, master port 7:

```
DES-3810-28:admin#config link_aggregation group_id 1 master_port 7 ports 5-7
Command: config link_aggregation group_id 1 master_port 7 ports 5-7

Success.

DES-3810-28:admin#
```

45-4 config link_aggregation algorithm

Description

This command is used to configure the part of the packet examined by the switch when selecting the egress port for transmitting load-sharing data. If the load sharing algorithm is based on L3 information, and the packet is a non-IP packet, the load sharing algorithm will be based on the **mac_source**.

If the load sharing algorithm is based on L4 information and the packet is not a TCP/UDP packet: If the packet is non-IP packet, the load sharing algorithm will be based on the **mac_source**. If the packet is an IP packet, the load sharing algorithm will be based on the **ip_source**.

Format

config link_aggregation algorithm [mac_source | mac_destination | mac_source_dest | ip_source | ip_destination | ip_source_dest | l4_src_port | l4_dest_port | l4_src_dest_port]

Parameters

mac_source - Indicates that the switch should examine the MAC source address.
mac_destination - Indicates that the switch should examine the MAC destination address.
mac_source_dest - Indicates that the switch should examine the MAC source and destination address.
ip_source - Indicate that the switch should examine the IP source address.
ip_destination - Indicate that the switch should examine the IP destination address.
ip_source_dest - Indicate that the switch should examine the IP source and destination address.
l4_src_port - Indicate that the switch should examine the Layer 4 source port.
l4_dest_port - Indicate that the switch should examine the Layer 4 destination port.
l4_src_dest_port - Indicate that the switch should examine the Layer 4 source and destination port.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the link aggregation algorithm for mac-source-dest:

```
DES-3810-28:admin#config link_aggregation algorithm mac_source_dest
Command: config link_aggregation algorithm mac_source_dest

Success.

DES-3810-28:admin#
```

45-5 show link_aggregation

Description

This command is used to display the current link aggregation configuration of the switch.

Format

show link_aggregation {group_id <value 1-14> | algorithm}

Parameters

group_id - (Optional) Specifies the group ID. The group number identifies each of the groups. **<value 1-14>** - The switch allows up to 14 link aggregation groups to be configured.
algorithm - (Optional) Specifies the display of link aggregation by the algorithm in use by that group.

Note: If no parameter is specified, the system will display all the link aggregation information.

Restrictions

None.

Example

To display the current link aggregation configuration when link aggregation is enabled:

```
DES-3810-28:admin#show link_aggregation
Command: show link_aggregation

Link Aggregation Algorithm = MAC_Source_Dest

Group ID      : 1
Type          : LACP
Master Port   : 1
Member Port   : 1-8
Active Port   : 7
```

```
Status        : Enabled
Flooding Port : 7

Total Entries: 1

DES-3810-28:admin#
```

To display the current link aggregation configuration when link aggregation is disabled:

```
DES-3810-28:admin#show link_aggregation
Command: show link_aggregation

Link Aggregation Algorithm = MAC-Source-Dest
Group ID      : 1
Type          : LACP
Master Port   : 1
Member Port   : 1-8
Active Port   :
Status        : Disabled
Flooding Port :

Total Entries: 1

DES-3810-28:admin#
```

Chapter 46 LLDP Commands

enable lldp
disable lldp
config lldp [message_tx_interval <sec 5-32768> | message_tx_hold_multiplier <int 2-10> | tx_delay <sec 1-8192> | reinit_delay <sec 1-10>]
show lldp
config lldp forward_message [enable | disable]
config lldp notification_interval <sec 5-3600>
config lldp ports [<portlist> | all] [notification [enable | disable] | admin_status [tx_only | rx_only | tx_and_rx | disable] | mgt_addr [ipv4 <ipaddr> | ipv6 <ipv6addr>] [enable | disable] | basic_tlvs [{all} | {port_description | system_name | system_description | system_capabilities}] [enable | disable] | dot1_tlv_pvid [enable| disable] | dot1_tlv_protocol_vid [vlan [all | <vlan_name 32>] | vlanid <vidlist>] [enable | disable] | dot1_tlv_vlan_name [vlan [all | <vlan_name 32>] | vlanid <vidlist>] [enable | disable] | dot1_tlv_protocol_identity [all | {eapol | lacp | gvrp | stp}] [enable | disable] | dot3_tlvs [{all} | {mac_phy_configuration_status | link_aggregation | maximum_frame_size}] [enable | disable]]
show lldp ports {<portlist>}
config lldp_med fast_start repeat_count <value 1-10>
config lldp_med log state [enable | disable]
config lldp_med notification topo_change ports [<portlist> | all] state [enable | disable]
config lldp_med ports [<portlist> | all] med_transmit_capabilities [all | {capabilities | network_policy | inventory} (1)] state [enable | disable]
show lldp_med ports {<portlist>}
show lldp_med
show lldp_med local_ports {<portlist>}
show lldp_med remote_ports {<portlist>}
show lldp local_ports {<portlist>} {mode [brief | normal | detailed]}
show lldp mgt_addr {[ipv4 <ipaddr> | ipv6 <ipv6addr>]}
show lldp remote_ports {<portlist>} {mode [brief | normal | detailed]}
show lldp statistics
show lldp statistics ports {<portlist>}

46-1 enable lldp

Description

This command is used to enable LLDP. This is a global control for the LLDP function. When this function is enabled, the switch can start to transmit LLDP packets and receive and process the LLDP packets. The specific function of each port will depend on the per port LLDP setting. For the advertisement of LLDP packets, the switch announces the information to its neighbor through ports. For the receiving of LLDP packets, the switch will learn the information from the LLDP packets advertised from the neighbor in the neighbor table.The default state for LLDP is disabled.

Format

enable lldp

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable LLDP:

```
DES-3810-28:admin#enable lldp
Command: enable lldp

Success.

DES-3810-28:admin#
```

46-2 disable lldp

Description

This command is used to disable LLDP. The switch will stop the sending and receiving of LLDP advertisement packets.

Format

disable lldp

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable LLDP:

```
DES-3810-28:admin#disable lldp
Command: disable lldp

Success.

DES-3810-28:admin#
```

46-3 config lldp

Description

This command is used to configure LLDP timer values. The message TX interval controls how often active ports retransmit advertisements to their neighbors. The message TX hold multiplier is a multiplier on the msgTxInterval that is used to compute the TTL value of txTTL in an LLDPDU.

The TTL will be carried in the LLDPDU packet. The lifetime will be the minimum of 65535 and (message_tx_interval * message_tx_hold_multiplier). On the partner switch, when the time-to-live for a given advertisement expires, the advertised data is deleted from the neighbor switch's MIB. The TX delay is used to change the minimum time (delay-interval) any LLDP port will delay advertising successive LLDP advertisements due to a change in LLDP MIB content. The TX delay defines the minimum interval between sending of LLDP messages due to the constantly changing MIB content. A re-enabled LLDP port will wait for the reinit delay after the last disable command before reinitializing.

Format

config lldp [message_tx_interval <sec 5-32768> | message_tx_hold_multiplier <int 2-10> | tx_delay <sec 1-8192> | reinit_delay <sec 1-10>]

Parameters

message_tx_interval - Specifies the message TX interval between consecutive transmissions of LLDP advertisements on any given port. **<sec 5-32768>** - The range is from 5 to 32768 seconds. The default setting is 30 seconds.
message_tx_hold_multiplier - Specifies the message TX hold multiplier. **<int 2-10>** - Specifies the range is from 2 to 10. The default setting is 4.
tx_delay - Specifies the TX delay time. **<sec 1-8192>** - Specifies the range is from 1 to 8192 seconds. The default setting is 2 seconds. Note: txDelay should be less than or equal to 0.25 * msgTxInterval.
reinit_delay - Specifies the reinit delay time. **<sec 1-10>** - Specifies the range is from 1 to 10 seconds. The default setting is 2 seconds.

Restrictions

Only Administrators and Operators can issue this command.

Example

To change the packet transmission interval:

```
DES-3810-28:admin#config lldp message_tx_interval 30
Command: config lldp message_tx_interval 30

Success.

DES-3810-28:admin#
```

To change the multiplier value:

```
DES-3810-28:admin#config lldp message_tx_hold_multiplier 3
Command: config lldp message_tx_hold_multiplier 3

Success.

DES-3810-28:admin#
```

To configure the delay-interval interval:

```
DES-3810-28:admin#config lldp tx_delay 8
Command: config lldp tx_delay 8

Success.

DES-3810-28:admin#
```

To change the re-initialization delay interval to five seconds:

```
DES-3810-28:admin#config lldp reinit_delay 5
Command: config lldp reinit_delay 5

Success.

DES-3810-28:admin#
```

46-4 show lldp

Description

This command is used to display LLDP.

Format

show lldp

Parameters

None.

Restrictions

None.

Example

To display LLDP:

```
DES-3810-28:admin#show lldp
Command: show lldp

LLDP System Information
    Chassis ID Subtype          : MAC Address
    Chassis ID                  : 00-01-02-03-04-00
    System Name                 :
    System Description          : Fast Ethernet Switch
    System Capabilities         : Repeater, Bridge

LLDP Configurations
    LLDP State                  : Enabled
    LLDP Forward Status         : Disabled
    Message TX Interval         : 30
```

```
    Message TX Hold Multiplier  : 4
    ReInit Delay                : 2
    TX Delay                    : 2
    Notification Interval       : 5

DES-3810-28:admin#
```

46-5 config lldp forward_message

Description

This command is used to configure LLDP forwarding messages. When LLDP is disabled and LLDP forward message is enabled, the received LLDPDU packet will be forwarded. The default state is disabled.

Format

config lldp forward_message [enable | disable]

Parameters

enable - Enable LLDP forwarding messages.
disable - Disable LLDP forwarding messages.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable LLDP forwarding messages:

```
DES-3810-28:admin#config lldp forward_message enable
Command: config lldp forward_message enable

Success.

DES-3810-28:admin#
```

46-6 config lldp notification_interval

Description

This command is used to configure LLDP timer values. This will globally change the interval between successive LLDP change notifications generated by the switch.

Format

config lldp notification_interval <sec 5-3600>

Parameters

<sec 5-3600> - Specifies the notification interval range is from 5 to 3600 seconds. The default setting is 5 seconds.

Restrictions

Only Administrators and Operators can issue this command.

Example

To change the notification interval to 10 seconds:

```
DES-3810-28:admin#config lldp notification_interval 10
Command: config lldp notification_interval 10

Success.

DES-3810-28:admin#
```

46-7 config lldp ports

Description

Use this command to configure LLDP options by port. Enable or disable each port for sending change notification to configured SNMP trap receiver(s) if an LLDP data change is detected in an advertisement received on the port from an LLDP neighbor. The definition of change includes new available information, information timeout, information update. And the changed type includes any data update /insert/remove.

The admin status options enable to control which ports participate in LLDP traffic and whether the participating ports allow LLDP traffic in only one direction or in both directions.

The config management address command specifies whether system's IP address needs to be advertised from the specified port. For layer 3 devices, each managed address can be individually specified. The management addresses that are added in the list will be advertised in the LLDP from the specified interface, associated with each management address. The interface for that management address will be also advertised in the if-index form.

An active LLDP port on the switch always includes the mandatory data in its outbound advertisements. And there are four optional data that can be configured for an individual port or group of ports to exclude one or more of these data types from outbound LLDP advertisements. The mandatory data type include four basic types of information (end of LLDPDU TLV, chassis ID TLV, port ID TLV, and Time to Live TLV). The mandatory type cannot be disabled. There are also four data types which can be optionally selected. They are port_description, system_name, system_description, and system_capability.

Configure an individual port or group of ports to exclude one or more of IEEE 802.1 Organizationally port vlan ID TLV data types from outbound LLDP advertisements.

Configure an individual port or group of ports to exclude one or more of IEEE 802.1 Organizationally port and protocol VLAN ID TLV data types from outbound LLDP advertisements.

Configure an individual port or group of ports to exclude one or more of IEEE 802.1 Organizationally VLAN name TLV data types from outbound LLDP advertisements.

Configure an individual port or group of ports to exclude one or more of IEEE 802.1 Organizationally protocol identity TLV data types from outbound LLDP advertisements. This TLV optional data type indicates whether the corresponding Local System's Protocol Identity instance will be transmitted on the port. The Protocol Identity TLV provides a way for stations to advertise protocols that are important to the operation of the network. Spanning Tree Protocol, the Link Aggregation Control Protocol, and numerous vendor proprietary variations are responsible for maintaining the topology and connectivity of the network. If EAPOL, GVRP, STP (including MSTP), and LACP protocol identity are enabled on this port and it is enabled to be advertised, then this protocol identity will be advertised.

Format

config lldp ports [<portlist> | all] [notification [enable | disable] | admin_status [tx_only | rx_only | tx_and_rx | disable] | mgt_addr [ipv4 <ipaddr> | ipv6 <ipv6addr>] [enable | disable] | basic_tlvs [{all} | {port_description | system_name | system_description | system_capabilities}] [enable | disable] | dot1_tlv_pvid [enable | disable] | dot1_tlv_protocol_vid [vlan [all | <vlan_name 32>] | vlanid <vidlist>] [enable | disable] | dot1_tlv_vlan_name [vlan [all | <vlan_name 32>] | vlanid <vidlist>] [enable | disable] | dot1_tlv_protocol_identity [all | {eapol | lacp | gvrp | stp }] [enable | disable] | dot3_tlvs [{all} | {mac_phy_configuration_status | link_aggregation | maximum_frame_size}] [enable | disable]]

Parameters

<portlist> - Specifies a range of ports to be configured.

all - Specifies to set all the ports on the system.

notification - Enable or disable the SNMP trap notification of LLDP data changes detected on advertisements received from neighbor devices. The default notification state is disabled.
- **enable** - Enable the SNMP trap notification of LLDP data changes detected on advertisements received from neighbor devices.
- **disable** - Disable the SNMP trap notification of LLDP data changes detected on advertisements received from neighbor devices.

admin_status - Select the desired administrative per port state. The default per port state is tx_and_rx.
- **tx_only** - Configure the specified port(s) to transmit LLDP packets, but block inbound LLDP packets from neighbor devices.
- **rx_only** - Configure the specified port(s) to receive LLDP packets from neighbors, but block outbound packets to neighbors.
- **tx_and_rx** - Configure the specified port(s) to both transmit and receive LLDP packets.
- **disable** - Disable LLDP packet transmit and receive on the specified port(s).

mgt_address - The port types specified for advertising indicated management address instance.
- **ipv4** - Specifies the IP address of IPv4.
  - **<ipaddr>** - Specifies the IP address of IPv4.
- **ipv6** - Specifies the IP address of IPv6.
  - **<ipv6addr>** - Specifies the IP address of IPv6.
- **enable** - Enable port(s) specified for advertising indicated management address instance.
- **disable** - Disable port(s) specified for advertising indicated management address instance.

basic_tlvs - Configure an individual port or group of ports to exclude one or more of optional TLV data types from outbound LLDP advertisements.
- **all** - (Optional) Configure all four TLV data types listed below.
- **port_description** - (Optional) This TLV optional data type indicates that LLDP agent should transmit “Port Description TLV” on the port. The default state is disabled.
- **system_name** - (Optional) This TLV optional data type includes indicates that LLDP agent should transmit “System Name TLV.” The default state is disabled.
- **system_description** - (Optional) This TLV optional data type includes indicates that LLDP

agent should transmit “System Description TLV.” The default state is disabled.

system_capabilities - (Optional) This TLV optional data type includes indicates that LLDP agent should transmit “System Capabilities TLV.” The system capability will indicate whether the device provides repeater, bridge, or router function, and whether the provided functions are currently enabled. The default state is disabled.

enable - Enable configuration of an individual port or group of ports to exclude one or more of optional TLV data types from outbound LLDP advertisements.

disable - Disable configuration of an individual port or group of ports to exclude one or more of optional TLV data types from outbound LLDP advertisements.

dot1_tlv_pvid - This TLV optional data type determines whether the IEEE 802.1 organizationally defined port VLAN ID TLV transmission is allowed on a given LLDP transmission capable port. The default state is disabled.

enable - Enable port VLAN ID TLV transmission on a given LLDP transmission capable port.

disable - Disable port VLAN ID TLV transmission on a given LLDP transmission capable port.

dot1_tlv_protocol_vid - This TLV optional data type determines whether the IEEE 802.1 organizationally defined port and protocol VLAN ID TLV transmission is allowed on a given LLDP transmission capable port. The default state is disabled.

vlan - (Optional) Specifies a VLAN to be transmitted.

all - (Optional) Specifies that all VLAN names will be transmitted.

<vlan_name 32> - (Optional) Specifies a VLAN name to be transmitted.

vlanid - (Optional) Specifies a VLAN ID list to be transmitted.

<vidlist> - Specifies a VLAN ID list to be transmitted.

enable - Enable configuration of an individual port or group of ports to exclude one or more of IEEE 802.1 Organizationally port and protocol VLAN ID TLV data types from outbound LLDP advertisements.

disable - Disable configuration of an individual port or group of ports to exclude one or more of IEEE 802.1 Organizationally port and protocol VLAN ID TLV data types from outbound LLDP advertisements.

dot1_tlv_vlan_name - This TLV optional data type indicates whether the corresponding Local System’s VLAN name instance will be transmitted on the port. If a port is associated with multiple VLANs, those enabled VLAN ID will be advertised. The default state is disabled.

vlan - (Optional) Specifies a VLAN to be transmitted.

all - (Optional) Specifies that all VLAN names will be transmitted.

<vlan_name 32> - (Optional) Specifies a VLAN name to be transmitted.

vlanid - (Optional) Specifies a VLAN ID list to be transmitted.

<vidlist> - Specifies a VLAN ID list to be transmitted.

enable - Enable configuration of an individual port or group of ports to exclude one or more of IEEE 802.1 Organizationally VLAN name TLV data types from outbound LLDP advertisements.

disable - Disable configuration of an individual port or group of ports to exclude one or more of IEEE 802.1 Organizationally VLAN name TLV data types from outbound LLDP advertisements.

dot1_tlv_protocol_identity - This TLV optional data type indicates whether the corresponding Local System's Protocol Identity instance will be transmitted on the port. The Protocol Identity TLV provides a way for stations to advertise protocols that are important to the operation of the network, such as Spanning Tree Protocol, the Link Aggregation Control Protocol, and numerous vendor proprietary variations which are responsible for maintaining the topology and connectivity of the network. If EAPOL, GVRP, STP (including MSTP), and LACP protocol identity are enabled on this port and enabled to be advertised, then the protocol identity will be advertised. The default state is disabled.

all - Advertise all of the protocols lists below.

eapol - (Optional) Advertise EAPOL.

lacp - (Optional) Advertise LACP.

gvrp - (Optional) Advertise GVRP.

stp - (Optional) Advertise STP.

enable - Enable configuration an individual port or group of ports to exclude one or more of IEEE 802.1 Organizationally protocol identity TLV data types from outbound LLDP advertisements.

disable - Disable configuration an individual port or group of ports to exclude one or more of IEEE 802.1 Organizationally protocol identity TLV data types from outbound LLDP

advertisements.
dot3_tlvs - An individual port or group of ports to exclude one or more of IEEE 802.3 Organizationally Specific TLV data types from outbound LLDP advertisements. **all** – (Optional) Configure all of the TLV optional data types below. **mac_phy_configuration_status** - (Optional) This TLV optional data type indicates that LLDP agent should transmit “MAC/PHY configuration/status TLV.” This type indicates it is possible for two ends of an IEEE 802.3 link to be configured with different duplex and/or speed settings and still establish some limited network connectivity. More precisely, the information includes whether the port supports the auto-negotiation function, whether the function is enabled, the auto-negotiated advertised capability, and the operational MAU type. The default state is disabled. **link_aggregation** - (Optional) This TLV optional data type indicates that LLDP agent should transmit “Link Aggregation TLV.” This type indicates the current link aggregation status of IEEE 802.3 MACs. More precisely, the information should include whether the port is capable of doing link aggregation, whether the port is aggregated in an aggregated link, and the aggregated port ID. The default state is disabled. **maximum_frame_size** - (Optional) This TLV optional data type indicates that LLDP agent should transmit “Maximum-frame-size TLV.” The default state is disabled. **enable** - Enable the configuration of an individual port or group of ports to exclude one or more of IEEE 802.3 Organizationally Specific TLV data types from outbound LLDP advertisements. **disable** - Disable the configuration of an individual port or group of ports to exclude one or more of IEEE 802.3 Organizationally Specific TLV data types from outbound LLDP advertisements.

Restrictions

Only Administrators and Operators can issue this command.

Example

To change the SNMP notification state of ports 1 to 5 to enable:

```
DES-3810-28:admin#config lldp ports 1-5 notification enable
Command: config lldp ports 1-5 notification enable

Success.

DES-3810-28:admin#
```

To configure the mode of ports 1 to 5 to transmit and receive:

```
DES-3810-28:admin#config lldp ports 1-5 admin_status tx_and_rx
Command: config lldp ports 1-5 admin_status tx_and_rx

Success.

DES-3810-28:admin#
```

To enable ports 1 to 5 to manage address entries:

```
DES-3810-28:admin#config lldp ports 1-5 mgt_addr ipv4 192.168.254.10 enable
Command: config lldp ports 1-5 mgt_addr ipv4 192.168.254.10 enable

Success.

DES-3810-28:admin#
```

To exclude the system name TLV from the outbound LLDP advertisements for all ports:

```
DES-3810-28:admin#config lldp ports all basic_tlvs system_name enable
Command: config lldp ports all basic_tlvs system_name enable

Success.

DES-3810-28:admin#
```

To exclude the VLAN name TLV from the outbound LLDP advertisements for all ports:

```
DES-3810-28:admin#config lldp ports all dot1_tlv_pvid enable
Command: config lldp ports all dot1_tlv_pvid enable

Success.

DES-3810-28:admin#
```

To exclude the port and protocol VLAN ID TLV from the outbound LLDP advertisements for all ports:

```
DES-3810-28:admin#config lldp ports all dot1_tlv_protocol_vid vlanid 1-3 enable
Command: config lldp ports all dot1_tlv_protocol_vid vlanid 1-3 enable

Success.

DES-3810-28:admin#
```

To exclude the VLAN name TLV from the outbound LLDP advertisements for all ports:

```
DES-3810-28:admin#config lldp ports all dot1_tlv_vlan_name vlanid 1-3 enable
Command: config lldp ports all dot1_tlv_vlan_name vlanid 1-3 enable

Success.

DES-3810-28:admin#
```

To exclude the protocol identity TLV from the outbound LLDP advertisements for all ports:

```
DES-3810-28:admin#config lldp ports all dot1_tlv_protocol_identity all enable
Command: config lldp ports all dot1_tlv_protocol_identity all enable

Success.

DES-3810-28:admin#
```

To exclude the MAC/PHY configuration/status TLV from the outbound LLDP advertisements for all ports:

```
DES-3810-28:admin#config lldp ports all dot3_tlvs mac_phy_configuration_status
enable
Command: config lldp ports all dot3_tlvs mac_phy_configuration_status enable

Success.

DES-3810-28:admin#
```

46-8 show lldp ports

Description

This command is used to display LLDP per port configuration for advertisement options.

Format

show lldp ports {<portlist>}

Parameters

<portlist> - (Optional) Specifies the ports to be displayed.

Note: When a port list is not specified, information for all ports will be displayed.

Restrictions

None.

Example

To display LLDP TLV option port 1:

```
DES-3810-28:admin#show lldp ports 1
Command: show lldp ports 1

Port ID                 : 1
----------------------------------------------------------------
Admin Status            : TX_and_RX
Notification Status     : Disabled
Advertised TLVs Option  :
    Port Description                            Disabled
    System Name                                 Disabled
    System Description                          Disabled
    System Capabilities                         Disabled
    Enabled Management Address
        (None)
    Port VLAN ID                                Disabled
Enabled Port_and_Protocol_VLAN_ID
    (None)
Enabled VLAN Name
    (None)
Enabled Protocol Identity
        (None)
    MAC/PHY Configuration/Status                 Disabled
    Link Aggregation                             Disabled
    Maximum Frame Size                           Disabled

DES-3810-28:admin#
```

46-9 config lldp_med fast_start repeat_count

Description

This command is used to configure the fast start repeat count. When an LLDP-MED Capabilities TLV is detected for an MSAP identifier not associated with an existing LLDP remote system MIB, the application layer shall start the fast start mechanism and set the ‘medFastStart’ timer to ‘medFastStartRepeatCount’ times 1. The default value is 4.

Format

config lldp_med fast_start repeat_count <value 1-10>

Parameters

<value 1-10> - Specifies a fast start repeat count value between 1 and 10. The default value is 4.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure a LLDP-MED fast start repeat count of 5:

```
DES-3810-28:admin#config lldp_med fast_start repeat_count 5
Command: config lldp_med fast_start repeat_count 5

Success.

DES-3810-28:admin#
```

46-10 config lldp_med log state

Description

This command is used to configure the log state of LLDP-MED events.

Format

config lldp_med log state [enable | disable]

Parameters

enable - Enable the log state for LLDP-MED events.
disable - Disable the log state for LLDP-MED events. The default is disabled.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable the log state of LLDP-MED events:

```
DES-3810-28:admin#config lldp_med log state enable
Command: config lldp_med log state enable

Success.

DES-3810-28:admin#
```

46-11 config lldp_med notification topo_change ports

Description

This command is used to enable or disable each port for sending topology change notification to configured SNMP trap receiver(s) if an endpoint device is removed or moved to another port. The default state is disabled.

Format

config lldp_med notification topo_change ports [<portlist> | all] state [enable | disable]

Parameters

<portlist> - Specifies a range of ports to be configured.

all - Specifies to set all ports in the system.
state - Enable or disable the SNMP trap notification of topology change detected state. **enable** - Enable the SNMP trap notification of topology change detected. **disable** - Disable the SNMP trap notification of topology change detected. The default notification state is disabled.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable topology change notification on ports 1 to 2:

```
DES-3810-28:admin#config lldp_med notification topo_change ports 1-2 state
enable
Command: config lldp_med notification topo_change ports 1-2 state enable

Success.

DES-3810-28:admin#
```

46-12 config lldp_med ports

Description

This command is used to enable or disable transmitting LLDP-MED TLVs. It effectively disables LLDP-MED on a per-port basis by disabling transmission of TLV capabilities. In this case, the remote table's objects in the LLDP-MED MIB corresponding to the respective port will not be populated.

Format

config lldp_med ports [<portlist> | all] med_transmit_capabilities [all | {capabilities | network_policy | inventory} (1)] state [enable | disable]

Parameters

<portlist> - Specifies a range of ports to be configured.
all - Specifies to set all ports in the system.
med_transit_capabilities - Select to send the LLDP-MED TLV capabilities specified.
all - Select to send capabilities, network policy, and inventory.
capabilities – (Optional) Specifies that the LLDP agent should transmit "LLDP-MED capabilities TLV." If a user wants to transmit LLDP-MED PDU, this TLV type should be enabled. Otherwise, this port cannot transmit LLDP-MED PDU.
network_policy - (Optional) Specifies that the LLDP agent should transmit "LLDP-MED network policy TLV."
inventory - (Optional) Specifies that the LLDP agent should transmit "LLDP-MED inventory TLV."
state - Enable or disable the transmitting of LLDP-MED TLVs. **enable** - Enable the transmitting of LLDP-MED TLVs. **disable** - Disable the transmitting of LLDP-MED TLVs.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable transmitting of all capabilities on ports 1 to 2:

```
DES-3810-28:admin#config lldp_med ports 1-2 med_transmit_capabilities all state
enable
Command: config lldp_med ports 1-2 med_transmit_capabilities all state enable

Success.

DES-3810-28:admin#
```

46-13 show lldp_med ports

Description

This command is used to display LLDP-MED per port configuration for advertisement options.

Format

show lldp_med ports {<portlist>}

Parameters

<portlist> - Specifies a range of ports to be displayed.

Note: When a port list is not specified, information for all ports will be displayed.

Restrictions

None.

Example

To display LLDP-MED configuration information for port 1:

```
DES-3810-28:admin#show lldp_med ports 1
Command: show lldp_med ports 1

Port ID : 1
------------------------------------------------------------
Topology Change Notification Status         : Enabled
LLDP-MED Capabilities TLV                   : Enabled
LLDP-MED Network Policy TLV                 : Enabled
LLDP-MED Inventory TLV                      : Enabled

DES-3810-28:admin#
```

46-14 show lldp_med

Description

This command is used to display the switch's general LLDP-MED configuration status.

Format

show lldp_med

Parameters

None.

Restrictions

None.

Example

To display the switch's general LLDP-MED configuration status:

```
DES-3810-28:admin#show lldp_med
Command: show lldp_med

LLDP-MED System Information:
    Device Class              : Network Connectivity Device
    Hardware Revision         : A1
    Firmware Revision         : 1.00B010
    Software Revision         : 1.00B039
    Serial Number             : 12345678
    Manufacturer Name         : D-Link
    Model Name                : DES-3810-28 Fast Ethernet Switch
    Asset ID                  :

LLDP-MED Configuration
    Fast Start Repeat Count   : 4
LLDP-MED Log State:Disabled

Success.

DES-3810-28:admin#
```

46-15 show lldp_med local_ports

Description

This command is used to display the per-port LLDP-MED information currently available for populating outbound LLDP-MED advertisements.

Format

show lldp_med local_ports {<portlist>}

Parameters

<portlist> - Specifies a range of ports to be displayed.

Note: When a port list is not specified, information for all ports will be displayed.

Restrictions

None.

Example

To display LLDP-MED information currently available for populating outbound LLDP-MED advertisements for port 1:

```
DES-3810-28:admin#show lldp_med local_ports 1
Command: show lldp_med local_ports 1

Port ID : 1
------------------------------------------------------------------
LLDP-MED Capabilities Support:
    Capabilities               :Support
    Network Policy             :Support
    Location Identification    :Not Support
    Extended Power Via MDI PSE :Not Support
    Extended Power Via MDI PD  :Not Support
    Inventory                  :Support

Network Policy:
  Application Type : Voice
    VLAN ID                    : 100
    Priority                   : 7
    DSCP                       : 0
    Unknown                    : False
    Tagged                     : True

DES-3810-28:admin#
```

46-16 show lldp_med remote_ports

Description

This command is used to display LLDP-MED information learned from neighbors.

Format

show lldp_med remote_ ports {<portlist>}

Parameters

<portlist> - (Optional) Specifies a range of ports to be displayed.

Note: When a port list is not specified, information for all ports will be displayed.

Restrictions

None.

Example

To display remote entry information:

```
DES-3810-28:admin#show lldp_med remote_ports 1
Command: show lldp_med remote_ports 1

Port ID : 1
------------------------------------------------------------------------------
Remote Entities Count : 1
Entity 1
   Chassis ID Subtype                        : MAC Address
   Chassis ID                                : 00-01-02-03-04-00
   Port ID Subtype                           : Net Address
   Port ID                                   : 172.18.10.11

   LLDP-MED capabilities:
       LLDP-MED Device Class: Endpoint Device Class III
       LLDP-MED Capabilities Support:
           Capabilities                      : Support
           Network Policy                    : Support
           Location Identification           : Support
           Extended Power Via MDI            : Support
           Inventory                         : Support
       LLDP-MED Capabilities Enabled:
          Capabilities                       : Enabled
          Network Policy                     : Enabled
          Location Identification            : Enabled
          Extended Power Via MDI             : Enabled
          Inventory                          : Enabled

   Network Policy:
      Application Type : Voice
         VLAN ID                             :
         Priority                            :
         DSCP                                :
         Unknown                             : True
         Tagged                              :
    Application Type : Softphone Voice
         VLAN ID                             : 200
         Priority                            : 7
```

```
          DSCP                                : 5
          Unknown                             : False
          Tagged                              : True

       Location Identification:
          Location Subtype: CoordinateBased
             Location Information             :
          Location Subtype: CivicAddress
             Location Information             :

Extended Power Via MDI
     Power Device Type: PD Device
           Power Priority                     : High
           Power Source                       : From PSE
           Power Request                      : 8 Watts

  Inventory Management:
     Hardware Revision                       :
     Firmware Revision                       :
     Software Revision                       :
     Serial Number                           :
     Manufacturer Name                       :
     Model Name                              :
     Asset ID                                :

DES-3810-28:admin#
```

46-17 show lldp local_ports

Description

This command is used to display the per-port information currently available for populating outbound LLDP advertisements.

Format

show lldp local ports {<portlist>} {mode [brief | normal | detailed]}

Parameters

<portlist> - (Optional) Specifies the ports to be displayed. When a port list is not specified, information for all ports will be displayed.
mode - (Optional) Select the mode: brief, normal, or detailed. **brief** - Specifies to display the information in brief mode. **normal** - Specifies to display the information in normal mode. This is the default display mode. **detailed** - Specifies to display the information in detailed mode.

Restrictions

None.

Example

To display LLDP local port information for port 1:

```
DES-3810-28:admin#show lldp local_ports 1
Command: show lldp local_ports 1

Port ID : 1
------------------------------------------------------------------------------
Port ID Subtype                           : MAC Address
Port ID                                   : 00-01-02-03-04-80
Port Description                          : D-Link DES-3810-28 R1.00B033 Po
                                            rt 1 on Unit 1
Port PVID                                 : 1
Management Address Count                  : 1
PPVID Entries Count                       : 0
VLAN Name Entries Count                   : 1
Protocol Identity Entries Count           : 0
MAC/PHY Configuration/Status              : (See Detail)
Link Aggregation                          : (See Detail)
Maximum Frame Size                        : 1536

DES-3810-28:admin#
```

46-18 show lldp mgt_addr

Description

This command is used to display the LLDP management address.

Format

show lldp mgmt_addr {[ipv4 <ipaddr> | ipv6 <ipv6addr>]}

Parameters

ipv4 - (Optional) Specifies the IPv4 address of the LLDP managament address entry. **<ipaddr>** - Specifies the IPv4 address of the LLDP managament address entry.
ipv6 - (Optional) Specifies the IPv6 address of the LLDP managament address entry. **<ipv6addr>** - Specifies the IPv6 address of the LLDP managament address entry.

Restrictions

None.

Example

To display the LLDP management address:

```
DES-3810-28:admin#show lldp mgt_addr
Command: show lldp mgt_addr

Address 1 :
-----------------------------------------------------
    Subtype                                 : IPv4
    Address                                 : 10.19.72.38
    IF Type                                 : Unknown
    OID                                     : 1.3.6.1.4.1.171.10.114.1.1
    Advertising Ports                       :
Total Entries : 1

DES-3810-28:admin#
```

46-19 show lldp remote_ ports

Description

This command is used to display the information learned from the neighbor parameters.

Format

show lldp remote_ports {<portlist>} {mode [brief | normal | detailed]}

Parameters

<portlist> - (Optional) Specifies the ports to be displayed. When a port list is not specified, information for all ports will be displayed.
mode - (Optional) Select the mode: brief, normal, or detailed. **brief** - Specifies to display the information in brief mode. **normal** - Specifies to display the information in normal mode. This is the default display mode. **detailed** - Specifies to display the information in detailed mode.

Restrictions

None.

Example

To display LLDP information for remote ports 1 and 2:

```
DES-3810-28:admin#show lldp remote_ports 1-2
Command: show lldp remote_ports 1-2

Remote Entities Count : 0


DES-3810-28:admin#
```

46-20 show lldp statistics

Description

This command is used to display an overview of neighbor detection activity on the switch.

Format

show lldp statistics

Parameters

None.

Restrictions

None.

Example

To display LLDP statistics:

```
DES-3810-28:admin#show lldp statistics
Command: show lldp statistics

Last Change Time       : 3648
Number of Table Insert : 0
Number of Table Delete : 0
Number of Table Drop   : 0
Number of Table Ageout : 0

DES-3810-28:admin#
```

46-21 show lldp statistics ports

Description

This command is used to display LLDP statistic information for individual ports.

Format

show lldp statistics ports {<portlist>}

Parameters

<portlist> - (Optional) Specifies the ports to be displayed.

Note: When a port list is not specified, information for all ports will be displayed.

Restrictions

None.

Example

To display LLDP statistic information for port 1:

```
DES-3810-28:admin#show lldp statistics ports 1
Command: show lldp statistics ports 1

Port ID : 1
-----------------------------------------------
    LLDPStatsTXPortFramesTotal           : 0
    LLDPStatsRXPortFramesDiscardTotal    : 0
    LLDPStatsRXPortFramesErrors          : 0
    LLDPStatsRXPortFramesTotal           : 0
    LLDPStatsRXPortTLVsDiscardedTotal    : 0
    LLDPStatsRXPortTLVsUnrecognizedTotal : 0
    LLDPStatsRXPortAgeoutsTotal          : 0

DES-3810-28:admin#
```

Chapter 47 Local Loopback Commands

config local_loopback ports [<portlist> | all] [mac | phy {medium_type [copper | fiber]}] [internal | external] [enable | disable]
show local_loopback ports {<portlist>}

47-1 config local_loopback ports

Description

When internal loopback is enabled, the device starts to send test packets to the port, and keeps monitoring the packets received. When internal loopback is disabled, the loopback test is terminated and the result is displayed. A port can only operate at one loopback mode at a time. When external loopback is enabled, the MAC/PHY is set to external loopback mode. When external loopback is disabled, the MAC/PHY recovers to normal operation.

Format

config local_loopback ports [<portlist> | all] [mac | phy {medium_type [copper | fiber]}] [internal | external] [enable | disable]

Parameters

<portlist> - Specifies a range of ports to be configured.
all - Specifies to set all ports in the system.
mac - Select the MAC layer on which the loopback is performed.
phy - Select the PHY layer on which the loopback is performed. **medium_type** - (Optional) Specifies the medium on which the loopback test is taken for combo ports. If it is not specified, by default, the loopback test will be performed on copper medium. **copper** - Specifies the medium type as copper. **fiber** - Specifies the medium type as fiber.
internal - Set the loopback mode to internal.
external - Set the loopback mode to external.
enable - For internal loopback, start loopback test; for external loopback, set port(s) to external loopback mode.
disable - For internal loopback, stop loopback test; for external loopback, recover port(s) from external loopback mode. This is the default setting.

Restrictions

Only Administrators can issue this command.

Example

To enable a loopback test for port 25 for fiber in internal mode:

```
DES-3810-28:admin#config local_loopback ports 25 phy medium_type fiber internal
enable
Command: config local_loopback ports 25 phy medium_type fiber internal enable

Success.

DES-3810-28:admin#
```

To disable a loopback test for port 25 for fiber in internal mode:

```
DES-3810-28:admin#config local_loopback ports 25 phy medium_type fiber internal
disable
Command: config local_loopback ports 25 phy medium_type fiber internal disable

Port   Loopback     Medium    64 Bytes    512 Bytes   1024 Bytes   1536 Bytes
        Mode         Type     TX  RX      TX  RX       TX  RX       TX  RX
----  ------------ --------  ---------   ---------   ----------   ---------
 25   Internal PHY   Fiber    100  100    100  100    100  100     100  100

Loopback Test Result : Success

Success.

DES-3810-28:admin#
```

47-2 show local_loopback ports

Description

This command is used to display local loopback configuration.

Format

show local_loopback ports {<portlist>}

Parameters

<portlist> - (Optional) Specifies a range of ports to be displayed.

Restrictions

Only Administrators and Operators can issue this command.

Example

To display local loopback configuration for ports 1 to 3:

```
DES-3810-28:admin#show local_loopback ports 1-3
Command: show local_loopback ports 1-3

 Port       Loopback Mode
------     ---------------------
  1         Internal PHY
  2         External MAC
  3         Internal PHY

DES-3810-28:admin#
```

Chapter 48 Loopback Detection Commands

config loopdetect {recover_timer [<value 0> | <value 60-1000000>] | interval <1-32767> | mode [port-based | vlan-based]} (1)
config loopdetect ports [<portlist> | all] state [enabled | disabled]
enable loopdetect
disable loopdetect
show loopdetect
show loopdetect ports [all | <portlist>]
config loopdetect trap [none | loop_detected | loop_cleared | both]

48-1 config loopdetect

Description

This command is used to set up the loop-back detection function (LBD) for the entire switch.

Format

config loopdetect {recover_timer [<value 0> | <value 60-1000000>] | interval <1-32767> | mode [port-based | vlan-based]} (1)

Parameters

recover_timer - The time interval (in seconds) used by the Auto-Recovery mechanism to decide how long to check if the loop status is gone. The default value is 60. **<value 0>** - Zero is a special value which means to disable the auto-recovery mechanism, hence, the user needs to recover the disabled port back manually. **<value 60-1000000>** - Enter a value between 60 and 1000000.
interval - The time interval (in seconds) at which device transmits all the CTP (Configuration Test Protocol) packets to detect the loop-back event. The default setting is 10. **<1-32767>** - Specifies the valid range between 1 and 32767.
mode - Choose the loop-detection operation mode. **port-based** - In the port-based mode, the port will be shut-down (disabled) when detecting a loop. **vlan-based** - In VLAN-based mode, the port cannot forward packets of the VLAN that detects a loop.

Restrictions

Only Administrators and Operators can issue this command.

Example

To set a recover time of 0 and an interval of 20 in VLAN-based mode:

```
DES-3810-28:admin#config loopdetect recover_timer 0 interval 20 mode vlan-based
Command: config loopdetect recover_timer 0 interval 20 mode vlan-based

Success.

DES-3810-28:admin#
```

48-2 config loopdetect ports

Description

This command is used to set up the loop-back detection function for the ports on the switch.

Format

config loopdetect ports [<portlist> | all] state [enabled | disabled]

Parameters

<portlist> - Specifies a range of ports to be configured.
all - To set all ports in the system, use the all parameter.
state – Specifies the status. **enabled** - Enable loop-detect for the ports specified in the port list. **disabled** - Disable loop-detect for the ports specified in the port list. The default is disabled.

Restrictions

Only Administrators and Operators can issue this command.

Example

To set up loop-back detection:

```
DES-3810-28:admin#config loopdetect ports 1-5 state enable
Command: config loopdetect ports 1-5 state enable

Success.

DES-3810-28:admin#
```

48-3 enable loopdetect

Description

This command is used to allow the loop detection function to be globally enabled on the switch. The default value is disabled.

Format

enable loopdetect

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable loop detection:

```
DES-3810-28:admin#enable loopdetect
Command: enable loopdetect

Success.

DES-3810-28:admin#
```

48-4 disable loopdetect

Description

This command allows the loop detection function to be globally disabled on the switch. The default value is disabled.

Format

disable loopdetect

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable loop detection:

```
DES-3810-28:admin#disable loopdetect
Command: disable loopdetect

Success.

DES-3810-28:admin#
```

48-5 show loopdetect

Description

This command is used to display the switch's current loop detection configuration.

Format

show loopdetect

Parameters

None.

Restrictions

None.

Example

To display the switch's current loop detection configuration:

```
DES-3810-28:admin#show loopdetect
Command: show loopdetect

LBD Global Settings
------------------------------
LBD Status                    : Disabled
LBD Mode                      : Port-Based
LBD Interval                  : 10
LBD Recover Time              : 60
LBD Trap Status               : None

DES-3810-28:admin#
```

48-6 show loopdetect ports

Description

This command is used to display the switch's current per-port loop detection configuration and status.

Format

show loopdetect ports [all | <portlist>]

Parameters

all - System will display port loop detection information for all ports.
<portlist> - Specifies a range of ports to be displayed.

Restrictions

None.

Example

To display the loop detection state of ports 1 to 9 in port-based mode:

```
DES-3810-28:admin#show loopdetect  ports 1-9
Command: show loopdetect  ports 1-9

Port   Loopdetect State    Loop Status
------ ------------------ ----------
1      Enabled            Normal
2      Enabled            Normal
3      Enabled            Normal
4      Enabled            Normal
5      Enabled            Loop!
6      Enabled            Normal
7      Enabled            Loop!
8      Enabled            Normal
9      Enabled            Normal

DES-3810-28:admin#
```

To display loop detection state of ports 1 to 9 under VLAN-based mode:

```
DES-3810-28:admin#show loopdetect  ports 1-9
Command: show loopdetect  ports 1-9

Port   Loopdetect State    Loop VLAN
------ ------------------ ----------
1      Enabled            None
2      Enabled            None
3      Enabled            None
4      Enabled            None
5      Enabled            2
6      Enabled            None
7      Enabled            2
8      Enabled            None
9      Enabled            None

DES-3810-28:admin#
```

48-7 config loopdetect trap

Description

This command is used to configure the trap mode. A loop detected trap is sent when the loop condition is detected and a loop cleared trap is sent when the loop condition is cleared.

Format

config loopdetect trap [none | loop_detected | loop_cleared | both]

Parameters

none - Trap will not be sent for both cases.
loop_detected - Trap is sent when the loop condition is detected
loop_cleared - Trap is sent when the loop condition is cleared.
both - Trap will be sent for both cases.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure a trap:

```
DES-3810-28:admin#config loopdetect trap both
Command: config loopdetect trap both

Success.

DES-3810-28:admin#
```

Chapter 49 Loopback Interface Commands

create loopback ipif <ipif_name 12> {<network_address>} {state [enable | disable]}
config loopback ipif <ipif_name 12> [{ipaddress <network_address> | state [enable | disable]}(1)]
show loopback ipif {<ipif_name 12>}
delete loopback ipif [<ipif_name 12> | all]

49-1 create loopback ipif

Description

This command is used to create a loopback interface on the Switch.

Format

create loopback ipif <ipif_name 12> {<network_address>} {state [enable | disable]}

Parameters

<ipif_name 12> - Enter the IP interface name used for this configuration here. This name can be up to 12 characters long.
<network_address> - (Optional) Enter the IPv4 network address of the loopback interface here. It specifies a host address and length of network mask.
state - (Optional) Specifies the state of the loopback interface. **enable** - Specifies that the loopback interface state will be enabled. **disable** - Specifies that the loopback interface state will be disabled.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create one loopback interface named loopback1 with subnet address 20.1.1.1/8 and enable the admin state:

```
DES-3810-28:admin# create loopback ipif loopback1 20.1.1.1/8 state enable
Command: create loopback ipif loopback1 20.1.1.1/8 state enable

Success.

DES-3810-28:admin#
```

49-2 config loopback ipif

Description

This command is used to configure the loopback interface parameters.

Format

config loopback ipif <ipif_name 12> [{ipaddress <network_address> | state [enable | disable]}(1)]

Parameters

<ipif_name 12> - Enter the IP interface name used for this configuration here. This name can be up to 12 characters long.
ipaddress – (Optional) Specifies the IPv4 network address of the loopback interface. **<network_address>** - Enter the IPv4 network address of the loopback interface here. It specifies a host address and length of network mask.
state - (Optional) Specifies the state of the loopback interface. **enable** - Specifies that the loopback interface state will be enabled. **disable** - Specifies that the loopback interface state will be disabled.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the loopback interface named loopback1 with subnet address 10.0.0.1/8:

```
DES-3810-28:admin# config loopback ipif loopback1 ipaddress 10.0.0.1/8
Command: config loopback ipif loopback1 ipaddress 10.0.0.1/8

Success.

DES-3810-28:admin#
```

49-3 show loopback ipif

Description

This command is used to display the information of the loopback interface.

Format

show loopback ipif {<ipif_name 12>}

Parameters

<ipif_name 12> - (Optional) Enter the IP interface name used for this configuration here. This name can be up to 12 characters long.

Restrictions

None.

Example

To show the information of the loopback interface named loopback1:

```
DES-3810-28:admin# show loopback ipif loopback1
Command: show loopback ipif loopback1

Loopback Interface         : loopback1
Interface Admin State      : Enabled
IPv4 Address               : 10.0.0.1/8 (MANUAL)

Total Entries:1

DES-3810-28:admin#
```

49-4 delete loopback ipif

Description

This command is used to delete a loopback interface.

Format

delete loopback ipif [<ipif_name 12> | all]

Parameters

<ipif_name 12> - Enter the IP interface name used for this configuration here. This name can be up to 12 characters long. **all** – Specifies that all the IP loopback interfaces will be deleted.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete the loopback interface named loopback1:

```
DES-3810-28:admin# delete loopback ipif loopback1
Command: delete loopback ipif loopback1

Success.

DES-3810-28:admin#
```

Chapter 50 MAC-based Access Control Commands

enable mac_based_access_control
disable mac_based_access_control
config mac_based_access_control password <passwd 16>
config mac_based_access_control method [local | radius]
config mac_based_access_control guest_vlan ports <portlist>
config mac_based_access_control ports [<portlist> | all] {state [enable | disable] | mode [port_based | host_based] | aging_time [infinite | <min 1-1440>] | block_time <sec 0-300> | max_users [<value 1-1000> | no_limit]}(1)
create mac_based_access_control [guest_vlan <vlan_name 32> | guest_vlanid <vlanid 1-4094>]
delete mac_based_access_control [guest_vlan <vlan_name 32> | guest_vlanid < vlanid 1-4094>]
clear mac_based_access_control auth_state [ports [all | <portlist>] | mac_addr <macaddr>]
create mac_based_access_control_local mac <macaddr> {[vlan <vlan_name 32> | vlanid <vlanid 1-4094>]}
config mac_based_access_control_local mac <macaddr> [vlan <vlan_name 32> | vlanid <vlanid 1-4094> | clear_vlan]
config mac_based_access_control max_users [<value 1-1000> | no_limit]
config mac_based_access_control authorization attributes {radius [enable | disable] | local [enable | disable]}(1)
delete mac_based_access_control_local [mac <macaddr> | vlan <vlan_name 32> | vlanid <vlanid 1-4094>]
show mac_based_access_control auth_state ports {<portlist>}
show mac_based_access_control {ports {<portlist>}}
show mac_based_access_control_local {[mac <macaddr> | vlan <vlan_name 32> | vlanid <vlanid 1-4094>]}

50-1 enable mac_based_access_control

Description

This command is used to enable the MAC-based access control function.

Format

enable mac_based_access_control

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable MAC-based access control:

```
DES-3810-28:admin#enable mac_based_access_control
Command: enable mac_based_access_control

Success.

DES-3810-28:admin#
```

50-2 disable mac_based_access_control

Description

This command is used to disable the MAC-based access control function.

Format

disable mac_based_access_control

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable MAC-based access control:

```
DES-3810-28:admin#disable mac_based_access_control
Command: disable mac_based_access_control

Success.

DES-3810-28:admin#
```

50-3 config mac_based_access_control password

Description

This command is used to set the password that will be used for authentication via RADIUS server.

Format

config mac_based_access_control password <passwd 16>

Parameters

<passwd 16> - In RADIUS mode, the switch communicates with the RADIUS server using this password. The maximum length of the key is 16 characters.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the password “rosebud” that will be used for authentication via RADIUS server:

```
DES-3810-28:admin#config mac_based_access_control password rosebud
Command: config mac_based_access_control password rosebud

Success.

DES-3810-28:admin#
```

50-4 config mac_based_access_control method

Description

This command is used to authenticate via a local database or a RADIUS server.

Format

config mac_based_access_control method [local | radius]

Parameters

local - Specifies to authenticate via local database.
radius - Specifies to authenticate via RADIUS server.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the MAC-based access control method as local:

```
DES-3810-28:admin#config mac_based_access_control method local
Command: config mac_based_access_control method local

Success.

DES-3810-28:admin#
```

50-5 config mac_based_access_control guest_vlan ports

Description

This command is used to put the specified port in guest VLAN mode. For those ports not contained in the port list, they are in non-guest VLAN mode.For detailed information about the operation of guest VLAN mode, please see the description for configuring the MAC-based access control port command.

Format

config mac_based_access_control guest_vlan ports <portlist>

Parameters

<portlist> - When a port is configured as a guest VLAN member port, this port will move to guest VLAN if it's MAC-based access control state is enable.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the MAC-based access control guest VLAN membership for port 1 to 8:

```
DES-3810-28:admin# config mac_based_access_control guest_vlan ports 1-8
Command: config mac_based_access_control guest_vlan ports 1-8

Success.

DES-3810-28:admin#
```

50-6 config mac_based_access_control ports

Description

This command is used to configure the MAC-based access control setting. When the MAC-based access control function is enabled for a port, and the port is not a MAC-based access control guest VLAN member, the user who is attached to this port will not be forwarded unless the user passes the authentication. A user that does not pass the authentication will not be serviced by the switch. If the user passes the authentication, the user will be able to forward traffic operated under the assigned VLAN.

When the MAC-based access control function is enabled for a port, and the port is a MAC-based access control guest VLAN member, the port(s) will be removed from the original VLAN(s) member ports, and added to MAC-based access control guest VLAN member ports. Before the authentication process starts, the user is able to forward traffic under the guest VLAN. After the authentication process, the user will be able to access the assigned VLAN.

If the port authorize mode is port based mode, when the port has been moved to the authorized VLAN, the subsequent users will not be authenticated again. They will operate in the current authorized VLAN. If the port authorize mode is host based mode, then each user will be authorized individually and be capable of getting its own assigned VLAN.

Format

config mac_based_access_control ports [<portlist> | all] {state [enable | disable] | mode [port_based | host_based] | aging_time [infinite | <min 1-1440>] | block_time <sec 0-300> | max_users [<value 1-1000> | no_limit]}(1)

Parameters

<portlist> - Specifies a range of ports to configure the MAC-based access control settings **all** - Specifies to select all the ports.
state - Specifies whether the MAC-based access control function is enabled or disabled. **enable** - Specifies to enable the MAC-based access control function. **disable** - Specifies to disable the MAC-based access control function.
mode - Specifies either port-based or host-based. **port_based** - This means that all users connected to a port share the first authentication result. **host_based** - This means that each user can have its own authentication result.
aging_time - Specifies a time period during which an authenticated host will be kept in the authenticated state. When the aging time is timed-out, the host will be moved back to unauthenticated state. **infinite** - Specifies an unlimited aging time. **<min 1-1440>** - Specifies the age-out time, in minutes, between 1 and 1440.
block_time - Specifies the blocking time, in seconds, between 0 and 300. **<sec 0-300>** - Specifies the blocking time. The blocking time value must be between 0 and 300 seconds.
max_users - Specifies the number of maximum users. **<value 1-1000>** - Specifies the maximum number of users between 1 and 1000. **no_limit** - Specifies an unlimited number of users.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the port state for ports 1 to 8:

```
DES-3810-28:admin# config mac_based_access_control ports 1-8 state enable
Command: config mac_based_access_control ports 1-8 state enable

Success.

DES-3810-28:admin#
```

50-7 create mac_based_access_control

Description

This command is used to create a MAC-based access control guest VLAN.

Format

create mac_based_access_control [guest_vlan <vlan_name 32> | guest_vlanid <vlanid 1-4094>]

Parameters

guest_vlan - Specifies the name of the guest VLAN. **<vlan_name 32>** - Specifies the name of the guest VLAN. The guest VLAN name can be up to 32 characters long.
guest_vlanid - Specifies the VLAN ID of the guest VLAN. **<vlanid 1-4094>** - Specifies the VLAN ID of the guest VLAN. The guest VLAN ID must be between 1 and 4094.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create a MAC-based access control guest VLAN:

```
DES-3810-28:admin#create mac_based_access_control guest_vlan default
Command: create mac_based_access_control guest_vlan default

Success.

DES-3810-28:admin#
```

50-8 delete mac_based_access_control

Description

This command is used to delete MAC-based access control guest VLANs.

Format

delete mac_based_access_control [guest_vlan <vlan_name 32> | guest_vlanid < vlanid 1-4094>]

Parameters

guest_vlan - Specifies the name of the guest VLAN. **<vlan_name 32>** - Specifies the name of the guest VLAN. The guest VLAN name can be up to 32 characters long.
guest_vlanid - Specifies the VLAN ID of the guest VLAN. **<vlanid 1-4094>** - Specifies the VLAN ID of the guest VLAN. The guest VLAN ID must be between 1 and 4094.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete a MAC-based access control guest VLAN:

```
DES-3810-28:admin#delete mac_based_access_control guest_vlan default
```

```
Command: delete mac_based_access_control guest_vlan default

Success.

DES-3810-28:admin#
```

50-9 clear mac_based_access_control auth_state

Description

This command is used to clear the authentication state of a user (or port). The port (or the user) will return to un-authenticated state. All the timers associated with the port (or the user) will be reset.

Format

clear mac_based_access_control auth_state [ports [all | <portlist>] | mac_addr <macaddr>]

Parameters

ports - Specifies the port range to clear the authentication state. **all** - Specifies all ports. **<portlist>** - Specifies a range of ports.
mac_addr - Specifies to clear a specified host authentication state. **<macaddr>** - Enter the MAC address here.

Restrictions

Only Administrators and Operators can issue this command.

Example

To clear the authentication state of all ports:

```
DES-3810-28:admin#clear mac_based_access_control auth_state ports all
Command: clear mac_based_access_control auth_state ports all

Success.

DES-3810-28:admin#
```

50-10 create mac_based_access_control_local mac

Description

This command is used to create a database entry.

Format

create mac_based_access_control_local mac <macaddr> {[vlan <vlan_name 32> | vlanid <vlanid 1-4094>]}

Parameters

<macaddr> - Specifies the MAC address that access accepts by local mode.
vlan - (Optional) If the MAC address is authorized, the port will be assigned to this VLAN. **<vlan_name 32>** - Specifies a VLAN name up to 32 characters long.
vlanid - (Optional) If the MAC address is authorized, the port will be assigned to this VLAN ID. **<vlanid 1-4094>** - Specifies a VLAN ID between 1 and 4094.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create a local database entry:

```
DES-3810-28:admin#create mac_based_access_control_local mac 00-00-00-00-00-01
vlan default
Command: create mac_based_access_control_local mac 00-00-00-00-00-01 vlan
default

Success.

DES-3810-28:admin#
```

50-11 config mac_based_access_control_local mac

Description

This command is used to modify a database entry.

Format

config mac_based_access_control_local mac <macaddr> [vlan <vlan_name 32> | vlanid <vlanid 1-4094> | clear_vlan]

Parameters

<macaddr> - Specifies the MAC address that access is accepted by local mode.
vlan - If the MAC address is authorized, the port will be assigned to this VLAN. **<vlan_name 32>** - Specifies a VLAN name up to 32 characters long.
vlanid - If the MAC address is authorized, the port will be assigned to this VLAN ID. **<vlanid 1-4094>** - Specifies a VLAN ID between 1 and 4094.
clear_vlan - Specifies to clear the specified VLAN.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure a local database entry:

```
DES-3810-28:admin#config mac_based_access_control_local mac 00-00-00-00-00-01
vlan default
```

```
Command: config mac_based_access_control_local mac 00-00-00-00-00-01 vlan
default

Success.

DES-3810-28:admin#
```

50-12 config mac_based_access_control max_users

Description

This command is used to configure the MAC-based access control maximum number of authorized users.

Format

config mac_based_access_control max_users [<value 1-1000> | no_limit]

Parameters

<value 1-1000> - Specifies the maximum number of authorized users.
no_limit - Specifies an unlimited number of authorized users.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the MAC-based access control maximum number of authorized users:

```
DES-3810-28:admin#config mac_based_access_control max_users 2
Command: config mac_based_access_control max_users 2

Success.

DES-3810-28:admin#
```

50-13 config mac_based_access_control authorization attributes

Description

This command is used to enable or disable the acceptance of an authorized configuration. When authorization is enabled for MAC-based access controls with RADIUS authentication, the authorized attributes (for example VLAN, 802.1p default priority, and ACL) assigned by the RADUIS server will be accepted if the global authorization status is enabled. When authorization is enabled for MAC-based access controls with local authentication, the authorized attributes assigned by the local database will be accepted.

Format

config mac_based_access_control authorization attributes {radius [enable | disable] | local [enable | disable]}(1)

Parameters

radius - Specifies to enable or disable the authorized attributes assigned by the RADIUS server that will be accepted. **enable** - If specified to enable, the authorized attributes (for example VLAN, 802.1p default priority, and ACL) assigned by the RADIUS server will be accepted if the global authorization status is enabled. The default state is enabled. **disable** - If specified to disable, the authorized attributes (for example VLAN, 802.1p default priority, and ACL) assigned by the RADIUS server will not be accepted even if the global authorization status is enabled.
local - Specifies to enable to disable the authorized attributes assigned by the local database. **enable** - If specified to enable, the authorized attributes assigned by the local database will be accepted if the global authorization status is enabled. The default state is enabled. **disable** - If specified to disable, the authorized attributes assigned by the local database will not be accepted even if the global authorization status is enabled.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable the configuration authorized from the local database:

```
DES-3810-28:admin#config mac_based_access_control authorization attributes
local disable
Command: config mac_based_access_control authorization attributes local disable


Success.


DES-3810-28:admin#
```

50-14 delete mac_based_access_control_local

Description

This command is used to delete a database entry

Format

delete mac_based_access_control_local [mac <macaddr> | vlan <vlan_name 32> | vlanid <vlanid 1-4094>]

Parameters

mac - Delete database by this MAC address. **<macaddr>** - Enter the MAC address here.
vlan - Delete database by this VLAN name. **<vlan_name 32>** - Specifies a VLAN name up to 32 characters long.
vlanid - Delete database by this VLAN ID. **<vlanid 1-4094>** - Specifies a VLAN ID value must be between 1 and 4094.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete a MAC-based access control local by MAC address:

```
DES-3810-28:admin#delete mac_based_access_control_local mac 00-00-00-00-00-01
Command: delete mac_based_access_control_local mac 00-00-00-00-00-01

Success.

DES-3810-28:admin#
```

To delete a MAC-based access control local by VLAN name:

```
DES-3810-28:admin#delete mac_based_access_control_local vlan default
Command: delete mac_based_access_control_local vlan default

Success.

DES-3810-28:admin#
```

50-15 show mac_based_access_control auth_state ports

Description

This command is used to display MAC-based access control authentication MAC information.

Format

show mac_based_access_control auth_state ports {<portlist>}

Parameters

<portlist> - (Optional) Specifies the ports to display.

Restrictions

None.

Example

To display MAC-based access control authentication MAC information:

```
DES-3810-28:admin#show mac_based_access_control auth_state ports 1-3
Command: show mac_based_access_control auth_state ports 1-3


 (P): Port-based

Port MAC Address          State          VID  Priority Aging Time/
                                                      Block Time
---- -------------------- -------------- ---- -------- ------------
1    00-00-00-00-00-01    Authenticated  4004  3         Infinite
1    00-00-00-00-00-02    Authenticated  1234  -         Infinite
1    00-00-00-00-00-03    Blocked        -     -         60
1    00-00-00-00-00-04    Authenticating -    -          5
2    00-00-00-00-00-10(P) Authenticated  1234 4          1440
3    00-00-00-00-00-20(P) Authenticating -    -          20
3    00-00-00-00-00-21(P) Blocked        -    -          120

Total Authenticating Hosts  : 2
Total Authenticated Hosts   : 3
Total Blocked Hosts         : 2

DES-3810-28:admin#
```

50-16 show mac_based_access_control

Description

This command is used to display MAC-based access control information.

Format

show mac_based_access_control {ports {<portlist>}}

Parameters

ports - (Optional) Specifies to display the MAC-based access control port state. **<portlist>** - Specifies a range of ports to be displayed.

Restrictions

None.

Example

To display MAC-based access control information:

```
DES-3810-28:admin#show mac_based_access_control
Command: show mac_based_access_control

MAC-based Access Control
------------------------------------
State                 : Disabled
```

```
Method                : Local
Password              : default
Max User              : 128
Guest VLAN            :
Guest VLAN Member Ports:
RADIUS Authorization  : Enabled
Local Authorization   : Enabled

DES-3810-28:admin#
```

To display MAC-based access control information for ports 1 to 4:

```
DES-3810-28:admin#show mac_based_access_control ports 1-4
Command: show mac_based_access_control ports 1-4

Port    State     Aging Time   Block Time  Auth Mode    Max User
                    (min)        (sec)
-----  --------   ----------   ---------   ----------   --------
1      Disabled   1440         300         Host-based   128
2      Disabled   1440         300         Host-based   128
3      Disabled   1440         300         Host-based   128
4      Disabled   1440         300         Host-based   128

DES-3810-28:admin#
```

50-17 show mac_based_access_control_local

Description

This command is used to display MAC-based access control local data.

Format

show mac_based_access_control_local {[mac <macaddr> | vlan <vlan_name 32> | vlanid <vlanid 1-4094>]}

Parameters

mac - (Optional) Display MAC-based access control local databases by this MAC address. **<macaddr>** - Enter the MAC address here.
vlan - (Optional) Specifies the VLAN. **<vlan_name 32>** - Specifies the VLAN name up to 32 characters long.
vlanid - (Optional) Specifies the VLAN ID. **<vlanid 1-4094>** - Specifies the VLAN ID value between 1 and 4094.

Restrictions

None.

Example

To display MAC-based access control local data:

```
DES-3810-28:admin#show mac_based_access_control_local
Command: show mac_based_access_control_local

MAC Address             VID
-----------------       ------
00-00-00-00-00-01       1

Total Entries:1

DES-3810-28:admin#
```

To display MAC-based access control local data by MAC address:

```
DES-3810-28:admin#show mac_based_access_control_local mac 00-00-00-00-00-01
Command: show mac_based_access_control_local mac 00-00-00-00-00-01

MAC Address         VID
-----------------   ------
00-00-00-00-00-01   1

Total Entries:1

DES-3810-28:admin#
```

To display MAC-based access control local data by VLAN:

```
DES-3810-28:admin#show mac_based_access_control_local vlan default
Command: show mac_based_access_control_local vlan default

MAC Address          VID
-----------------    ------
00-00-00-00-00-01    1

Total Entries: 1

DES-3810-28:admin#
```

Chapter 51 MAC Notification Commands

enable mac_notification
disable mac_notification
config mac_notification {interval <int 1-2147483647> | historysize <int 1-500>}(1)
config mac_notification ports [<portlist> | all] [enable | disable]
show mac_notification
show mac_notification ports {<portlist>}

51-1 enable mac_notification

Description

This command is used to enable the trap notification for new learned MAC addresses on the Switch.

Format

enable mac_notification

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable the MAC notification function:

```
DES-3810-28:admin#enable mac_notification
Command: enable mac_notification

Success.

DES-3810-28:admin#
```

51-2 disable mac_notification

Description

This command is used to disable the trap notification for new learned MAC addresses on the Switch.

Format

disable mac_notification

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable the MAC notification function:

```
DES-3810-28:admin#disable mac_notification
Command: disable mac_notification

Success.

DES-3810-28:admin#
```

51-3 config mac_notification

Description

This command is used to configure the switch's MAC address table notification global settings.

Format

config mac_notification {interval <int 1-2147483647> | historysize <int 1-500>}(1)

Parameters

interval - Specifies the time interval in seconds to trigger the notification. **<int 1-2147483647>** - Specifies between 1 second and 2147483647 seconds.
historysize - Specifies the entries of new learned MAC to trigger the notification. **<int 1-500>** - Specifies up to 500 entries.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the switch's MAC address table notification global settings:

```
DES-3810-28:admin#config mac_notification interval 1 historysize 500
Command: config mac_notification interval 1 historysize 500

Success.

DES-3810-28:admin#
```

51-4 config mac_notification ports

Description

This command is used to configure the port's MAC address table notification status settings.

Format

config mac_notification ports [<portlist> | all] [enable | disable]

Parameters

<portlist> - Specifiy a range of ports to be configured.
all - Specifies to set all ports in the system.
enable - Specifies to enable the port's MAC address table notification.
disable - Specifies to disable the port's MAC address table notification.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable MAC address table notification for Port 7:

```
DES-3810-28:admin#config mac_notification ports 7 enable
Command: config mac_notification ports 7 enable

Success.

DES-3810-28:admin#
```

51-5 show mac_notification

Description

This command is used to display the switch's MAC address table notification global settings.

Format

show mac_notification

Parameters

None.

Restrictions

None.

Example

To show the switch's MAC address table notification global settings:

```
DES-3810-28:admin#show mac_notification
Command: show mac_notification

Global Mac Notification Settings

State        : Enabled
Interval     : 1
History Size : 500

DES-3810-28:admin#
```

51-6 show mac_notification ports

Description

This command is used to display the port's MAC address table notification status settings.

Format

show mac_notification ports {<portlist>}

Parameters

<portlist> - (Optional) Specifies a range of ports to be configured.

Restrictions

None.

Example

To display the MAC address table notification status settings of all ports:

```
DES-3810-28:admin#show mac_notification ports
Command: show mac_notification ports

Port #  MAC Address Table Notification State
------  ----------------------------------
1                   Disabled
2                   Disabled
3                   Disabled
4                   Disabled
5                   Disabled
6                   Disabled
7                   Disabled
8                   Disabled
9                   Disabled
10                  Disabled

DES-3810-28:admin#
```

Chapter 52 MD5 Configuration Commands

config md5 key <key_id 1-255> <password 16>
create md5 key <key_id 1-255> <password 16>
delete md5 key <key_id 1-255>
show md5 {key <key_id 1-255>}

52-1 config md5

Description

This command is used to configure an MD5 key and password. The MD5 Configuration allows for the entry of a 16 character Message Digest - version 5 (MD5) key which can be used to authenticate every packet exchanged between OSPF routers. It is used as a security mechanism to limit the exchange of network topology information to the OSPF routing domain.

Format

config md5 key <key_id 1-255> <password 16>

Parameters

key - Specifies that the MD5 Key will be configured. **<key_id 1-255>** - Enter the MD5 Key used here. This key must be between 1 and 255. **<password 16>** - Enter an alphanumeric string of between 1 and 16, case-sensitive characters, used to generate the Message Digest which is in turn used to authenticate OSPF packets within the OSPF routing domain.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure an MD5 key and password:

```
DES-3810-28:admin# config md5 key 1 dlink
Command: config md5 key 1 dlink

Success.

DES-3810-28:admin#
```

52-2 create md5

Description

This command is used to create an MD5 key table.

Format

create md5 key <key_id 1-255> <password 16>

Parameters

key - Specifies that the MD5 Key will be created.
<key_id 1-255> - Enter the MD5 Key used here. This key must be between 1 and 255.
<password 16> - Enter an alphanumeric string of between 1 and 16, case-sensitive characters, used to generate the Message Digest which is in turn used to authenticate OSPF packets within the OSPF routing domain.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create an MD5 key table:

```
DES-3810-28:admin# create md5 key 1 dlink
Command: create md5 key 1 dlink

Success.

DES-3810-28:admin#
```

52-3 delete md5

Description

This command is used to delete an MD5 key table.

Format

delete md5 key <key_id 1-255>

Parameters

key - Specifies that the MD5 Key will be removed.
<key_id 1-255> - Enter the MD5 Key used here. This key must be between 1 and 255.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete an MD5 key table:

```
DES-3810-28:admin# delete md5 key 1
Command: delete md5 key 1

Success.

DES-3810-28:admin#
```

52-4 show md5

Description

This command is used to display the MD5 key table.

Format

show md5 {key <key_id 1-255>}

Parameters

key - (Optional) Specifies that the MD5 Key will be displayed. **<key_id 1-255>** - Enter the MD5 Key used here. This key must be between 1 and 255.
If no parameter is specified, the system will display the MD5 key table.

Restrictions

None.

Example

To display the MD5 key table:

```
DES-3810-28:admin#show md5
Command: show md5

MD5 Key Table Configurations

Key-ID  Key
------  ----------
1       dlink

Total Entries: 1

DES-3810-28:admin#
```

Chapter 53 Mirror Commands

config mirror port <port> {[add | delete] source ports <portlist> [rx | tx | both]}
enable mirror
disable mirror
show mirror

53-1 config mirror port

Description

This command is used to allow a range of ports to have all of their traffic also sent to a designated port − where a network sniffer or other device can monitor the network traffic. In addition, you can specify that only traffic received by, sent by or both is mirrored to the target port.

Format

config mirror port <port> {[add |delete] source ports <portlist> [rx | tx | both]}

Parameters

<port> - Specifies the port that will receive the packets duplicated at the mirror port.
add - (Optional) Specifies the mirror entry to be added.
delete - (Optional) Specifies the mirror entry to be deleted.
source ports - (Optional) Specifies the ports that will be mirrored. All packets entering and leaving the source port can be duplicated in the mirror port. **<portlist>** - Specifies a range of ports to be configured.
rx - (Optional) Allow the mirroring of only packets received (flowing into) the port or ports in the port list.
tx - (Optional) Allow the mirroring of only packets sent (flowing out of) the port or ports in the port list.
both - (Optional) Mirror all the packets received or sent by the port or ports in the port list.

Restrictions

Only Administrators and Operators can issue this command.

Example

To add mirroring target port 6 and the source ports 1 to 5 rx and tx packets:

```
DES-3810-28:admin#config mirror port 6 add source ports 1-5 both
Command: config mirror port 6 add source ports 1-5 both

Success.

DES-3810-28:admin#
```

53-2 enable mirror

Description

This command is used to enter a port mirroring configuration into the switch, and then turn the port mirroring on or off without having to modify the port mirroring configuration.

Note: If the target port hasn't been set, enable mirror will not be allowed.

Format

enable mirror

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable mirroring configurations:

```
DES-3810-28:admin#enable mirror
Command: enable mirror

Success.

DES-3810-28:admin#
```

53-3 disable mirror

Description

This command, combined with the **enable mirror** command above, allows you to enter a port mirroring configuration into the switch, and then turn the port mirroring on or off without having to modify the port mirroring configuration.

Format

disable mirror

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable mirroring configurations:

```
DES-3810-28:admin#disable mirror
Command: disable mirror

Success.

DES-3810-28:admin#
```

53-4 show mirror

Description

This command is used to display the current port mirroring configuration on the switch.

Format

show mirror

Parameters

None.

Restrictions

None.

Example

To display mirroring configuration:

```
DES-3810-28:admin#show mirror
Command: show mirror

Current Settings
Mirror Status: Disabled
Target Port  : 7
Mirrored Port
           RX:
           TX: 1-5

DES-3810-28:admin#
```

Chapter 54 MLD Proxy Commands

enable mld_proxy
disable mld_proxy
config mld_proxy downstream_if [add | delete] vlan [<vlan_name 32> | vlanid <vidlist>]
config mld_proxy upstream_if {vlan [<vlan_name 32> | vlanid <1-4094>] | router_ports [add | delete] <portlist> | source_ip <ipv6addr> | unsolicited_report_interval <sec 0-25>} (1)
show mld_proxy {group}

54-1 enable mld_proxy

Description

This command is used to enable the MLD proxy on the switch.

Format

enable mld_proxy

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable the MLD proxy:

```
DES-3810-28:admin#enable mld_proxy
Command: enable mld_proxy

Success.

DES-3810-28:admin#
```

54-2 disable mld_proxy

Description

This command is used to disable the MLD proxy on the switch.

Format

disable mld_proxy

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable the MLD proxy:

```
DES-3810-28:admin#disable mld_proxy
Command: disable mld_proxy

Success.

DES-3810-28:admin#
```

54-3 config mld_proxy downstream_if

Description

This command configures the MLD proxy downstream interfaces. The MLD proxy plays the server role on the downstream interfaces. The downstream interface must be an MLD Snooping enabled VLAN.

Format

config mld_proxy downstream_if [add | delete] vlan [<vlan_name 32> | vlanid <vidlist>]

Parameters

add - Specifies to add a downstream interface.
delete - Specifies to delete a downstream interface .
vlan - Specifies the VLAN by name or ID. **<vlan_name 32>** - Specifies a name of VLAN which belong to the MLD proxy downstream interface. The maximum length is 32 characters. **vlanid** - Specifies a list of VLAN IDs which belong to the MLD proxy downstream interface. **<vidlist>** - Specifies a list of VLAN IDs which belong to the MLD proxy downstream interface.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the MLD Proxy's downstream interface:

```
DES-3810-28:admin#config mld_proxy downstream_if add vlan vlanid 2-7
Command: config mld_proxy downstream_if add vlan vlanid 2-7

Success.

DES-3810-28:admin#
```

54-4 config mld_proxy upstream_if

Description

This command is used to configure the setting for the MLD proxy's upstream interface. The MLD proxy plays the host role on the upstream interface. It will send MLD report packets to the router port. The source IP address determines the source IP address to be encoded in the MLD protocol packet. If the router port is empty, the upstream will send the MLD protocol packet to all member ports on the upstream interface.

Format

config mld_proxy upstream_if {vlan [<vlan_name 32> | vlanid <1-4094>] | router_ports [add | delete] <portlist> | source_ip <ipv6addr> | unsolicited_report_interval <sec 0-25>} (1)

Parameters

vlan - Specifies the VLAN for the upstream interface. **<vlan_name 32>** - Specifies a VLAN name between 1 and 32 characters. **vlanid** - Specifies the VLAN ID for the upstream interface. **<1-4094>** - Specifies the VLAN ID between 1 and 4094.
router_ports - Specifies a list of ports that are connected to multicast-enabled routers. **add** - Specifies to add the router ports. **delete** - Specifies to delete the router ports. **<portlist>** - Specifies a range of ports to be configured.
source_ip - Specifies the source IPv6 address of the upstream protocol packet. If it is not specified, zero IP address will be used as the protocol source IP address. **<ipv6addr>>** - Specifies the IPv6 address.
unsolicited_report_interval - Specifies the time between repetitions of the host's initial report of membership in a group. The default is 10 seconds. If set to 0, only one report packet is sent. **<sec 0-25>** - Specifies the time between 0 and 25 seconds.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the router port of MLD proxy's upstream interface:

```
DES-3810-28:admin#config mld_proxy upstream_if vlan default router_ports add 3
Command: config mld_proxy upstream_if vlan default router_ports add 3

Success.

DES-3810-28:admin#
```

54-5 show mld_proxy

Description

This command is used to display the MLD proxy's configuration or group information. The display status item means group entry is determined by whether or not the chip has been inserted.

Format

show mld_proxy {group}

Parameters

group - (Optional) Specifies the group information.

Note: If the group is not specified, the MLD proxy configuration will be displayed.

Restrictions

None.

Example

To display the MLD proxy's information:

```
DES-3810-28:admin#show mld_proxy
Command: show mld_proxy

MLD Proxy Global State         : Enabled

Upstream Interface
 VLAN ID                        : 1
 Dynamic Router Ports           : 1-4
 Static Router Ports            : 5-6
 Unsolicited Report Interval    : 10
 Source IP Address              : ::

Downstream Interface
 VLAN List                      : 2-4

DES-3810-28:admin#
```

To display the MLD proxy's group information:

```
DES-3810-28:admin#show mld_proxy group
Command: show mld_proxy group

Source           : NULL
Group            : FF1E::0202
Downstream VLAN  : 4
Member Ports     : 3,6
Status           : Active
```

```
Source           : FF80::200
Group            : FF1E::0202
Downstream VLAN  : 2
Member Ports     : 2,5,8
Status           : Inactive

Total Entries: 2

DES-3810-28:admin#
```

Chapter 55 MLD Snooping Commands

config mld_snooping [vlan_name <vlan_name 32> | vlanid <vlanid_list> | all] { state [enable | disable] | fast_done [enable | disable] | report_suppression [enable | disable]} (1)
config mld_snooping data_driven_learning [all | vlan_name <vlan_name 32> | vlanid <vlanid_list>] {state [enable | disable] | aged_out [enable | disable] | expiry_time <sec 1-65535>}(1)
config mld_snooping data_driven_learning max_learned_entry <value 1-1024>
config mld_snooping rate_limit [ports <portlist> | vlanid <vlanid_list>] [<value 1-1000> | no_limit]
show mld_snooping rate_limit [ports <portlist> | vlanid <vlanid_list>]
create mld_snooping static_group [vlan <vlan_name 32> | vlanid <vlanid_list>] <ipv6addr>
config mld_snooping static_group [vlan <vlan_name 32> | vlanid <vlanid_list>] <ipv6addr> [add | delete] <portlist>
delete mld_snooping static_group [vlan <vlan_name 32> | vlanid <vlanid_list>] <ipv6addr>
show mld_snooping static_group {[vlan <vlan_name 32> | vlanid <vlanid_list>] <ipv6addr>}
show mld_snooping statistic counter [vlan <vlan_name 32> | vlanid <vlanid_list> | ports <portlist>]
clear mld_snooping statistics counter
config mld_snooping querier [vlan_name <vlan_name 32> | vlanid <vlanid_list> | all] { query_interval <sec 1-65535> | max_response_time <sec 1-25> | robustness_variable <value 1-7> | last_listener_query_interval <sec 1-25> | state [enable | disable] | version <value 1-2>} (1)
config mld_snooping mrouter_ports [vlan <vlan_name 32> | vlanid <vlanid_list>] [add | delete] <portlist>
config mld_snooping mrouter_ports_forbidden [vlan <vlan_name 32> | vlanid <vlanid_list>] [add | delete] <portlist>
enable mld_snooping
disable mld_snooping
show mld_snooping {[vlan <vlan_name 32> | vlanid <vlanid_list >]}
show mld_snooping group {[vlan <vlan_name 32> | vlanid <vlanid_list> | ports <portlist>] {<ipv6addr>}}
show mld_snooping mrouter_ports [vlan <vlan_name 32> | vlanid <vlanid_list> | all] {[static | dynamic | forbidden]}
show mld_snooping forwarding {[vlan <vlan_name 32> | vlanid <vlanid_list>]}
show mld_snooping host {[vlan <vlan_name 32> | vlanid <vlanid_list > | ports <portlist> | group <ipv6addr>]}

55-1 config mld_snooping

Description

This command is used to configure MLD snooping on the switch.

Format

config mld_snooping [vlan_name <vlan_name 32> | vlanid <vlanid_list> | all] {state [enable | disable] | fast_done [enable | disable] | report_suppression [enable | disable]} (1)

Parameters

vlan_name - Specifies the name of the VLAN for which MLD snooping is to be configured. **<vlan_name 32>** - Specifies the VLAN name. The maximum length is 32 characters.
vlanid - Specifies the VLAN ID list. **<vlanid_list>** - Specifies the VLAN ID list.
all - Specifies to configure all VLANs.
state - Enable or disable MLD snooping for the chosen VLAN. **enable** - Enable MLD snooping for the chosen VLAN. **disable** - Disable MLD snooping for the chosen VLAN.
fast_done - Enable or disable the MLD snooping fast leave function. If enabled, the membership is immediately removed when the system receive the MLD leave message. **enable** - Enable the MLD snooping fast leave function. **disable** - Disable the MLD snooping fast leave function.
report_suppression - When enabled, multiple MLD reports or leave for a specific (S, G) will be integrated into one report only before sending to the router port. **enable** - Enable multiple MLD reports or leave for a specific (S, G) to be integrated into one report only before sending to the router port. **disable** - Disable multiple MLD reports or leave for a specific (S, G) to be integrated into one report only before sending to the router port.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure MLD snooping:

```
DES-3810-28:admin#config mld_snooping vlan_name default state enable
Command: config mld_snooping vlan_name default state enable

Success.

DES-3810-28:admin#
```

55-2 config mld_snooping data_driven_learning

Description

This command is used to enable or disable the data driven learning of a MLD snooping group. When the data-driven learning is enabled for the VLAN, when the switch receives the IP multicast traffic, on this VLAN, an MLD snooping group will be created. That is, the learning of an entry is not activated by MLD membership registration, but activated by the traffic. For an ordinary MLD snooping entry, the MLD protocol will take care the aging out of the entry. For a data-driven entry, the entry can be specified not to be age out or to be aged out by the aged timer. When the data driven learning is enabled, and data driven table is not full, the multicast filtering mode for all ports are ignored. That is, the multicast packets will be forwarded to router ports. If data driven learning table is full, the multicast packets will be forwarded according to multicast filtering mode.

Note that if a data-driven group is created and MLD member ports are learned later, the entry will become an ordinary MLD snooping entry. That is, the aging out mechanism will follow the ordinary MLD snooping entry.

Format

config mld_snooping data_driven_learning [all | vlan_name <vlan_name 32> | vlanid <vlanid_list>] {state [enable | disable] | aged_out [enable | disable] | expiry_time <sec 1-65535>}(1)

Parameters

all - Specifies to configure all VLANs and VLAN IDs.
vlan_name - Specifies the VLAN name to be configured. **<vlan_name 32>** - Specifies the VLAN name. This name can be up to 32 characters long.
vlanid - Specifies the VLAN ID to be configured. **<vlanid_list>** - Specifies a list of VLAN IDs.
state - Specifies whether to enable or disable the data driven learning of an MLD snooping group. This is enabled by default. **enable** - Enable data driven learning of an MLD snooping group. **disable** - Disable data driven learning of an MLD snooping group.
aged_out - Enable or disable the aging of the entry. This is disabled by default. **enable** - Enable the aging of the entry. **disable** - Disable the aging of the entry.
expiry_time - Specifies the data driven group lifetime in seconds. This parameter is valid only when **aged_out** is enabled. **<sec 1-65535>** - Specifies the time between 1 and 65535 seconds.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable the data driven learning of an MLD snooping group on default VLAN:

```
DES-3810-28:admin#config mld_snooping data_driven_learning vlan_name default
state enable
Command: config mld_snooping data_driven_learning vlan_name default state
enable

Success.

DES-3810-28:admin#
```

55-3 config mld_snooping data_driven_learning max_learned_entry

Description

This command is used to configure the maximum number of groups that can be learned by data driven. When the table is full, the system will stop learning of the new data-driven groups. Traffic for the new groups will be dropped.

Format

config mld_snooping data_driven_learning max_learned_entry <value 1-1024>

Parameters

<value 1-1024> - Specifies the maximum number of groups that can be learned by data driven. The default setting is 128.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the maximum number of MLD snooping data driven learning entries as 50:

```
DES-3810-28:admin#config mld_snooping data_driven_learning max_learned_entry 50
Command: config mld_snooping data_driven_learning max_learned_entry 50

Success.

DES-3810-28:admin#
```

55-4 config mld_snooping rate_limit

Description

This command is used to configure the upper limit per second for ingress MLD control packets.

Format

config mld_snooping rate_limit [ports <portlist> | vlanid <vlanid_list>] [<value 1-1000> | no_limit]

Parameters

ports - Specifies a range of ports to be configured. **<portlist>** - Specifies a range of ports to be configured.
vlanid - Specifies a range of VLANs to be configured. **<vlanid_list>** - Specifies the VLAN ID list.
<value 1-1000> - Specifies the rate limit of MLD control packet that the switch can process on a specific port/VLAN. The rate is specified in packet per second. The packet that exceeds the limited rate will be dropped.
no_limit - The default setting is no limit.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the MLD snooping packet rate limit on port 1 for 100:

```
DES-3810-28:admin#config mld_snooping rate_limit ports 1 100
Command: config mld_snooping rate_limit ports 1 100

Success.

DES-3810-28:admin#
```

55-5 show mld_snooping rate_limit

Description

This command is used to display the MLD snooping rate limit setting.

Format

show mld_snooping rate_limit [ports <portlist> | vlanid <vlanid_list>]

Parameters

ports - Specifies a range of ports to be displayed. **<portlist>** - Specifies a range of ports to be displayed.
vlanid - Specifies a range of VLANs to be displayed. **<vlanid_list>** - Specifies the VLAN ID list.

Restrictions

None.

Example

To display the MLD snooping packet rate limit for ports 1 to 2:

```
DES-3810-28:admin#show mld_snooping rate_limit ports 1-2
Command: show mld_snooping rate_limit ports 1-2

 Port      Rate Limit
--------  ------------
1              No Limit
2              No Limit

Total Entries: 2
DES-3810-28:admin#
```

55-6 create mld_snooping static_group

Description

This command is used to create an MLD snooping multicast static group. Member ports can be added to the static group. The static member and the dynamic member port form the member ports of a group.

The static group will only take effect when MLD snooping is enabled on the VLAN. For those static member ports, the device needs to emulate the MLD protocol operation to the querier, and forward the traffic destined to the multicast group to the member ports. For a layer 3 device, the device is

also responsible to route the packet destined for this specific group to static member ports. The static member port will only affect V1 MLD operation. The Reserved IP multicast addresses FF0x::/16 must be excluded from the configured group. The VLAN must be created first before a static group can be created.

Format

create mld_snooping static_group [vlan <vlan_name 32> | vlanid <vlanid_list>] <ipv6addr>

Parameters

vlan - Specifies the name of the VLAN on which the static group resides. **<vlan_name 32>** - Specifies the VLAN name. The maximum length is 32 characters.
vlanid - Specifies the VLAN ID list. **<vlanid_list>** - Specifies the VLAN ID list.
<ipv6addr> - Specifies the multicast group IPv6 address (for Layer 3 switch).

Restrictions

Only Administrators and Operators can issue this command.

Example

To create an MLD snooping static group on vlan1, group FF1E::1:

```
DES-3810-28:admin#create mld_snooping static_group vlan vlan1 FF1E::1
Command: create mld_snooping static_group vlan vlan1 FF1E::1

Success.

DES-3810-28:admin#
```

55-7 config mld_snooping static_group

Description

This command is used to configure an MLD snooping static group on the switch. When a port is configured as a static member port, the MLD protocol will not operate on this port. Therefore, suppose that a port is a dynamic member port learned by MLD. If this port is configured as a static member later, then the MLD protocol will stop operating on this port. The MLD protocol will resume once this port is removed from static member ports. The static member port will only affect V1 MLD operation.

Format

config mld_snooping static_group [vlan <vlan_name 32> | vlanid <vlanid_list>] <ipv6addr> [add | delete] <portlist>

Parameters

vlan - Specifies the name of the VLAN on which the static group resides. **<vlan_name 32>** - Specifies the VLAN name. The maximum length is 32 characters.

vlanid - Specifies the ID of the VLAN on which the static group resides. **<vlanid_list>** - Specifies the VLAN ID list.
<ipv6addr> - Specifies the multicast group IPv6 address (for Layer 3 switch).
add - Specifies to add the member ports.
delete - Specifies to delete the member ports.
<portlist> - Specifies a range of ports to be configured.

Restrictions

Only Administrators and Operators can issue this command.

Example

To unset ports 9 to 10 from MLD Snooping static member ports for group FF1E::1 on default VLAN:

```
DES-3810-28:admin#config mld_snooping static_group vlan default FF1E::1 delete
9-10
Command: config mld_snooping static_group vlan default FF1E::1 delete 9-10

Success.

DES-3810-28:admin#
```

55-8 delete mld_snooping static_group

Description

This command is used to delete an MLD snooping static group on the switch. The deletion of an MLD snooping static group will not affect the MLD snooping dynamic member ports for a group.

Format

delete mld_snooping static_group [vlan <vlan_name 32> | vlanid <vlanid_list>] <ipv6addr>

Parameters

vlan - Specifies the name of the VLAN on which the static group resides. **<vlan_name 32>** - Specifies the VLAN name. The maximum length is 32 characters.
vlanid - Specifies the ID of the VLAN on which the static group resides. **<vlanid_list>** - Specifies the VLAN ID list.
<ipv6addr> - Specifies the multicast group IPv6 address (for Layer 3 switch).

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete an MLD snooping static group from the default VLAN, group FF1E::1:

```
DES-3810-28:admin#delete mld_snooping static_group vlan default FF1E::1
Command: delete mld_snooping static_group vlan default FF1E::1

Success.
```

```
DES-3810-28:admin#
```

55-9 show mld_snooping static_group

Description

This command is used to display the MLD snooping static groups.

Format

show mld_snooping static_group {[vlan <vlan_name 32> | vlanid <vlanid_list>] <ipv6addr>}

Parameters

vlan - (Optional) Specifies the name of the VLAN on which the static group resides. **<vlan_name 32>** - Specifies the VLAN name. The maximum length is 32 characters.
vlanid - (Optional) Specifies the ID of the VLAN on which the static group resides. **<vlanid_list>** - Specifies the VLAN ID list.
<ipv6addr> - (Optional) Specifies the multicast group IPv6 address (for Layer 3 switch).

Restrictions

None.

Example

To display all the MLD snooping static groups:

```
DES-3810-28:admin#show mld_snooping static_group
Command: show mld_snooping static_group

VLAN ID/Name      IP Address      Static Member Ports
-------------    ---------------  --------------------
1/Default         FF1E::1         9-10

Total Entries : 1

DES-3810-28:admin#
```

55-10 show mld_snooping statistic counter

Description

This command is used to display the MLD snooping statistics counters for MLD protocol packets that are transmitted or received by the switch since MLD snooping was enabled.

Format

show mld_snooping statistic counter [vlan <vlan_name 32> | vlanid <vlanid_list> | ports <portlist>]

Parameters

vlan - Specifies a VLAN to be displayed. **<vlan_name 32>** - Specifies the VLAN name. The maximum length is 32 characters.
vlanid - Specifies a list of VLANs to be displayed. **<vlanid_list>** - Specifies the VLAN ID list.
ports – Specifies a list of ports to be displayed. **<portlist>** - Specifies a list of ports.

Restrictions

None.

Example

To display the MLD snooping statistics counters on port 1:

```
DES-3810-28:admin#show mld_snooping statistic counter ports 1
Command: show mld_snooping statistic counter ports 1

Port #           : 1
-------------------------------------------------
Group Number     : 0

Receive Statistics
    Query
      MLD v1 Query                    : 0
      MLD v2 Query                    : 0
      Total                           : 0
      Dropped By Rate Limitation       : 0
     Dropped By Multicast VLAN        : 0

     Report & Done
      MLD v1 Report                    : 0
      MLD v2 Report                    : 0
      MLD v1 Done                      : 0
      Total                            : 0
      Dropped By Rate Limitation        : 0
      Dropped By Max Group Limitation   : 0
      Dropped By Group Filter           : 0
      Dropped By Multicast VLAN         : 0

Transmit Statistics
    Query
      MLD v1 Query                    : 0
      MLD v2 Query                    : 0
      Total                           : 0

     Report & Done
      MLD v1 Report                    : 0
      MLD v2 Report                    : 0
      MLD v1 Done                      : 0
      Total                            : 0
```

```
 Total Entries : 1

DES-3810-28:admin#
```

55-11 clear mld_snooping statistics counter

Description

This command is used to clear the MLD snooping statistics counters.

Format

clear mld_snooping statistics counter

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To clear the MLD snooping statistics counters:

```
DES-3810-28:admin#clear mld_snooping statistics counter
Command: clear mld_snooping statistics counter

Success.

DES-3810-28:admin#
```

55-12 config mld_snooping querier

Description

This command is used to configure the time, in seconds, between general query transmissions, the maximum time to wait for reports from listeners, and the permitted packet loss that guarantees MLD snooping.

Format

config mld_snooping querier [vlan_name <vlan_name 32> | vlanid <vlanid_list> | all] {query_interval <sec 1-65535> | max_response_time <sec 1-25> | robustness_variable <value 1-7> | last_listener_query_interval <sec 1-25> | state [enable | disable] | version <value 1-2>} (1)

Parameters

vlan_name - Specifies the name of the VLAN for which MLD snooping querier is to be

configured. **<vlan_name 32>** - Specifies the VLAN name. The maximum length is 32 characters.
vlanid - Specifies the ID of the VLAN for which MLD snooping querier is to be configured. **<vlanid_list>** - Specifies the VLAN ID list.
all - Specifies all VLANs for which MLD snooping querier is to be configured.
query_interval - Specifies the amount of time in seconds between general query transmissions. **<sec 1-65535>** - Specifies the amount of time in seconds between general query transmissions. The default setting is 125 seconds.
max_response_time - Specifies the maximum time in seconds to wait for reports from members. **<sec 1-25>** - Specifies the maximum time in seconds to wait for reports from members. The default setting is 10 seconds.
robustness_variable - Provides fine-tuning to allow for expected packet loss on a subnet. The value of the robustness variable is used in calculating the following MLD message intervals: 7. Group member interval—Amount of time that must pass before a multicast router decides there are no more members of a group on a network. This interval is calculated as follows: (robustness variable x query interval) + (1 x query response interval). 8. Other querier present interval—Amount of time that must pass before a multicast router decides that there is no longer another multicast router that is the querier. This interval is calculated as follows: (robustness variable x query interval) + (0.5 x query response interval). 9. Last member query count—Number of group-specific queries sent before the router assumes there are no local members of a group. The default number is the value of the robustness variable. **<value 1-7>** - Specifies the value between 1 and 7. Increase the value if you expect a subnet to be lossy. The robustness variable is set to 2 by default.
last_member_query_interval - Specifies the maximum amount of time between group-specific query messages, including those sent in response to leave-group messages. You might lower this interval to reduce the amount of time it takes a router to detect the loss of the last member of a group. **<sec 1-25>** - Specifies the time between 1 and 25 seconds.
state - This allows the switch to be specified as an MLD Querier (sends MLD query packets) or a Non-Querier (does not send MLD query packets). Set to enable or disable. **enable** - Allows the switch to be selected as an MLD Querier (sends MLD query packets). **disable** - When disabled, the switch can not play the role as a querier.
version - Specifies the version of MLD packet that will be sent by this port. If a MLD packet received by the interface has a version higher than the specified version, this packet will be forwarded from the router ports or VLAN flooding. **<value 1-2>** - Specifies the values between 1 and 2.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the MLD snooping querier:

```
DES-3810-28:admin#config mld_snooping querier vlan_name default query_interval
125 state enable
Command: config mld_snooping querier vlan_name default query_interval 125 state
enable

Success.

DES-3810-28:admin#
```

55-13 config mld_snooping mrouter_ports

Description

This command allows users to designate a range of ports as being connected to multicast-enabled routers. This will ensure that all packets with such a router as its destination will reach the multicast-enabled router, regardless of protocol.

Format

config mld_snooping mrouter_ports [vlan <vlan_name 32> | vlanid <vlanid_list>] [add | delete] <portlist>

Parameters

vlan - Specifies the name of the VLAN on which the router port resides. **<vlan_name 32>** - Specifies the name of the VLAN on which the router port resides. The maximum length is 32 characters.
vlanid - Specifies the ID of the VLAN on which the router port resides. **<vlanid_list>** - Specifies a list of VLAN IDs.
add - Specifies to add router ports.
delete - Specifies to delete router ports.
<portlist> - Specifies a range of ports to be configured.

Restrictions

Only Administrators and Operators can issue this command.

Example

To set up static router ports:

```
DES-3810-28:admin#config mld_snooping mrouter_ports vlan default add 1-10
Command: config mld_snooping mrouter_ports vlan default add 1-10

Success.

DES-3810-28:admin#
```

55-14 config mld_snooping mrouter_ports_forbidden

Description

This command allows you to designate a range of ports as being not connected to multicast-enabled routers. This ensures that the forbidden router port will not propagate routing packets out.

Format

config mld_snooping mrouter_ports_forbidden [vlan <vlan_name 32> | vlanid <vlanid_list>] [add | delete] <portlist>

Parameters

vlan - Specifies the name of the VLAN on which the forbidden router port resides. **<vlan_name 32>** - Specifies the name of the VLAN on which the forbidden router port resides. The maximum length is 32 characters.
vlanid - Specifies the ID of the VLAN on which the forbidden router port resides. **<vlanid_list>** - Specifies a list of VLAN IDs.
add - Specifies to add forbidden router ports.
delete - Specifies to delete forbidden router ports.
<portlist> - Specifies a range of ports to be configured.

Restrictions

Only Administrators and Operators can issue this command.

Example

To set up ports as forbidden router port:

```
DES-3810-28:admin#config mld_snooping mrouter_ports_forbidden vlan default add
1-10
Command: config mld_snooping mrouter_ports_forbidden vlan default add 1-10

Success.

DES-3810-28:admin#
```

55-15 enable mld_snooping

Description

This command is used to enable MLD snooping on the switch.

Format

enable mld_snooping

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable MLD snooping on the switch:

```
DES-3810-28:admin#enable mld_snooping
Command: enable mld_snooping

Success.
```

```
DES-3810-28:admin#
```

55-16 disable mld_snooping

Description

This command is used to disable MLD snooping on the switch. MLD snooping can be disabled only if IPv6 multicast routing is not being used. Disabling MLD snooping allows all MLD and IPv6 multicast traffic to flood within a given IPv6 interface.

Format

disable mld_snooping

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable MLD snooping on the switch:

```
DES-3810-28:admin#disable mld_snooping
Command: disable mld_snooping

Success.

DES-3810-28:admin#
```

55-17 show mld_snooping

Description

This command is used to display the current MLD snooping configuration on the switch.

Format

show mld_snooping {[vlan <vlan_name 32> | vlanid <vlanid_list>]}

Parameters

vlan - (Optional) Specifies the name of the VLAN for which to view the MLD snooping configuration. **<vlan_name 32>** - Specifies the name of the VLAN. The maximum length is 32 characters.
vlanid - (Optional) Specifies the ID of the VLAN for which to view the MLD snooping configuration. **<vlanid_list>** - Specifies a list of VLAN IDs.

Note: If no parameter is specified, the system will display all current MLD snooping configurations.

Restrictions

None.

Example

To display MLD snooping:

```
DES-3810-28:admin#show mld_snooping
Command: show mld_snooping

 MLD Snooping Global State               : Disabled

 VLAN Name                      : default
 Query Interval                 : 125
 Max Response Time              : 10
 Robustness Value               : 2
 Last Listener Query Interval   : 1
 Querier State                  : Disabled
 Querier Role                   : Non-Querier
 Querier IP                     : ::
 Querier Expiry Time            : 0 secs
 State                          : Disabled
 Fast Done                      : Disabled
 Rate Limit                     : No Limitation
 Report Suppression             : Enabled
 Version                        : 2

 VLAN Name                      : v2
 Query Interval                 : 125
 Max Response Time              : 10
 Robustness Value               : 2
 Last Listener Query Interval   : 1
 Querier State                  : Disabled
 Querier Role                   : Non-Querier
 Querier IP                     : ::
 Querier Expiry Time            : 0 secs
 State                          : Disabled
 Fast Done                      : Disabled
 Rate Limit                     : No Limitation
 Report Suppression             : Enabled
 Version                        : 2

Total Entries: 2

DES-3810-28:admin#
```

55-18 show mld_snooping group

Description

This command is used to display the current MLD snooping group information on the switch.

Format

show mld_snooping group {[vlan <vlan_name 32> | vlanid <vlanid_list> | ports <portlist>] {<ipv6addr>}}

Parameters

vlan - (Optional) Specifies the name of the VLAN for which to view MLD snooping group information. If VLAN and ports and IP address are not specified, the system will display all current MLD snooping group information. **<vlan_name 32>** - Specifies the VLAN name. The maximum length is 32 characters.
vlanid - (Optional) Specifies the ID of the VLAN for which to view MLD snooping group information. **<vlanid_list>** - Specifies the VLAN ID list.
ports - (Optional) Specifies the list of port for which to view MLD snooping group information. **<portlist>** - Specifies a range of ports to be displayed.
<ipv6addr> - (Optional) Specifies the group IPv6 address for which to view MLD snooping group information.

Restrictions

None.

Example

To display the MLD snooping group:

```
DES-3810-28:admin#show mld_snooping group
Command: show mld_snooping group

Source/Group        : 2001::1/FE1E::1
VLAN Name/VID       :default/1
Member Ports        : 1-2
UP Time             : 26
Expiry Time        : 258
Filter Mode         : INCLUDE

Source/Group        : 2002::2/FE1E::1
VLAN Name/VID:      : default/1
Member Ports        : 3
UP Time             : 29
Expiry Time        : 247
Filter Mode         : EXCLUDE

Source/Group        : NULL/FE1E::2
VLAN Name/VID       : default/1
Member Ports        : 4-5
UP Time             : 40
Expiry Time        : 205
Filter Mode         : EXCLUDE

Source/Group        : NULL/FF1E::5
VLAN Name/VID       : default/1
Member Ports        : 4-5
UP Time             : 100
Expiry Time        : 200
Filter Mode         : EXCLUDE

Total Entries : 4

DES-3810-28:admin#
```

55-19 show mld_snooping mrouter_ports

Description

This command is used to display the router ports on the switch.

Format

show mld_snooping mrouter_ports [vlan <vlan_name 32> | vlanid <vlanid_list> | all] {[static | dynamic | forbidden]}

Parameters

vlan - Specifies the name of the VLAN on which the router port resides. **<vlan_name 32>** - Specifies the name of the VLAN on which the router port resides. The maximum length is 32 characters.
vlanid - Specifies the ID of the VLAN on which the router port resides.

<vlanid_list> - Specifies a list of VLAN IDs.
all - Specifies all VLANs on which the router port resides.
static - (Optional) Display router ports that have been statically configured.
dynamic - (Optional) Display router ports that have been dynamically learned.
forbidden - (Optional) Display forbidden router ports that have been statically configured.

Note: If no parameter is specified, the system will display all router ports on the Switch.

Restrictions

None.

Example

To display router ports:

```
DES-3810-28:admin#show mld_snooping mrouter_ports all
Command: show mld_snooping mrouter_ports all

VLAN Name               : default
Static Router Port      :
Dynamic Router Port     :
  Router IP             :
Forbidden Router Port   :

Total Entries: 1

DES-3810-28:admin#
```

55-20 show mld_snooping forwarding

Description

This command is used to display the switch's current MLD snooping forwarding table. It provides an easy way for users to check the list of ports that the multicast group comes from specific sources will be forwarded to. The packet comes from the source VLAN. They will be forwarded to the forwarding VLAN. The MLD snooping further restricts the forwarding ports.

Format

show mld_snooping forwarding {[vlan <vlan_name 32> | vlanid <vlanid_list>]}

Parameters

vlan - (Optional) Specifies the name of the VLAN for which to view MLD snooping forwarding table information. **<vlan_name 32>** - Specifies the VLAN name. The maximum length is 32 characters.
vlanid - (Optional) Specifies the ID of the VLAN for which to view MLD snooping forwarding table information. **<vlanid_list>** - Specifies the VLAN ID list.

Note: If no parameter is specified, the system will display all currently configured MLD snooping forwarding entries.

Restrictions

None.

Example

To display all MLD snooping forwarding entries located on the switch:

```
DES-3810-28:admin#show mld_snooping forwarding
Command: show mld_snooping forwarding

VLAN Name    : default
Source IP    : 2001::1
Multicast Group: FE1E::1
Port Member  : 2,7

VLAN Name    : default
Source IP    : 2001::1
Multicast Group: FE1E::1
Port Member  : 5

Total Entries: 2

DES-3810-28:admin#
```

55-21 show mld_snooping host

Description

This command is used to display the MLD snooping host on the switch. Note: This function only can work when the Fast Done option is enabled.

Format

show mld_snooping host {[vlan <vlan_name 32> | vlanid <vlanid_list > | ports <portlist> | group <ipv6addr>]}

Parameters

vlan - (Optional) Specifies the VLAN name to display the host information. **<vlan_name 32>** - Specifies the VLAN name. The maximum length is 32 characters.
vlanid - (Optional) Specifies the VLAN ID to display the host information. **<vlanid_list>** - Specifies the VLAN ID list.
ports - (Optional) Specifies the list of ports to display the host information. **<portlist>** - Specifies a range of ports to be displayed.
group - (Optional) Specifies the group's IPv6 address to display the host information. **<ipv6addr>** - Specifies the IPv6 address.

Restrictions

None.

Example

To display the host IP information on the default VLAN:

```
DES-3810-28:admin#show mld_snooping host vlan default
Command: show mld_snooping host vlan default

VLAN ID : 1
Group   : FF1E::1
Port    : 2
Host    : FE80::200:4FF:FE00:11

VLAN ID : 1
Group   : FF1E::2
Port    : 3
Host    : FE80::200:4FF:FE00:11

VLAN ID : 1
Group   : FF1E::3
Port    : 4
Host    : FE80::200:4FF:FE00:11

VLAN ID : 1
Group   : FF1E::1
Port    : 5
Host    : FE80::200:4FF:FE00:11

Total Entries: 4

DES-3810-28:admin#
```

Chapter 56 MLD Snooping Multicast (MSM) VLAN Commands

create mld_snooping multicast_vlan <vlan_name 32> <vlanid 2-4094> {remap_priority [<value 0-7> | none] {replace_priority}}
config mld_snooping multicast_vlan <vlan_name 32> {[add | delete] [member_port <portlist> | [source_port <portlist> | untag_source_port <portlist>] | tag_member_port <portlist>] | state [enable | disable] | replace_source_ipv6 <ipv6addr> | remap_priority [<value 0-7> | none] {replace_priority}}
create mld_snooping multicast_vlan_group_profile <profile_name 1-32>
config mld_snooping multicast_vlan_group_profile <profile_name 1-32> [add | delete] <mcastv6_address_list>
delete mld_snooping multicast_vlan_group_profile [profile_name <profile_name 1-32> | all]
show mld_snooping multicast_vlan_group_profile {<profile_name 1-32>}
config mld_snooping multicast_vlan_group <vlan_name 32> [add | delete] profile_name <profile_name 1-32>
show mld_snooping multicast_vlan_group {<vlan_name 32>}
delete mld_snooping multicast_vlan <vlan_name 32>
enable mld_snooping multicast_vlan
disable mld_snooping multicast_vlan
show mld_snooping multicast_vlan {<vlan_name 32>}
config mld_snooping multicast_vlan forward_unmatched [disable | enable]

56-1 create mld_snooping multicast_vlan

Description

This command is used to create an MLD snooping multicast VLAN and implements relevant parameters as specified. More than one multicast VLAN can be configured. Newly created MLD snooping multicast VLANs must use a unique VLAN ID and name, i.e. they cannot use the VLAN ID or name of any existing 802.1q VLAN. Also keep in mind the following conditions: multicast VLANs cannot be configured or displayed using 802.1Q VLAN commands; an IP interface cannot be bound to a multicast VLAN; and the multicast VLAN snooping function co-exists with the 802.1q VLAN snooping function.

Format

create mld_snooping multicast_vlan <vlan_name 32> <vlanid 2-4094> {remap_priority [<value 0-7> | none] {replace_priority}}

Parameters

<vlan_name 32> - Specifies the name of the multicast VLAN to be created. Each multicast VLAN is given a name that can be up to 32 characters.
<vlanid 2-4094> - Specifies the VLAN ID of the multicast VLAN to be created. The range is from 2 to 4094.
remap_priority - (Optional) Specifies the remap priority here.

<value 0-7> - Specifies the remap priority (0 to 7) to be associated with the data traffic to be forwarded on the multicast VLAN. **none** - If none is specified, the packet's original priority will be used. The default setting is none.
replace_priority - (Optional) Specifies that the packet's priority will be changed by the switch, based on the remap priority. This flag will only take effect when the remap priority is set.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create an MLD snooping multicast VLAN with the VLAN name mv1 and the VID 2:

```
DES-3810-28:admin#create mld_snooping multicast_vlan mv1 2
Command: create mld_snooping multicast_vlan mv1 2

Success.

DES-3810-28:admin#
```

56-2 config mld_snooping multicast_vlan

Description

This command is used to configure MLD snooping multicast VLAN parameters. The member port list and source port list cannot overlap. However, the member port of one multicast VLAN can overlap with another multicast VLAN. The multicast VLAN must be created first using the **create mld_snooping multicast_vlan** command before the multicast VLAN can be configured.

Format

config mld_snooping multicast_vlan <vlan_name 32> {[add | delete] [member_port <portlist> | [source_port <portlist> | untag_source_port <portlist>] | tag_member_port <portlist>] | state [enable | disable] | replace_source_ipv6 <ipv6addr> | remap_priority [<value 0-7> | none] {replace_priority}}

Parameters

<vlan_name 32> - Specifies the name of the multicast VLAN to be configured. Each multicast VLAN is given a name that can be up to 32 characters.
add - Specifies to add a port.
delete - Specifies to delete a port.
member_port - Specifies member port of the multicast VLAN. The specified range of ports will become untagged members of the multicast VLAN. **<portlist>** - Specifies a range of ports to be configured.
source_port - Specifies source port where the multicast traffic is entering the Switch. **<portlist>** - Specifies a range of ports to be configured.
untag_source_port - Specifies the untagged source port where the multicast traffic is entering the Switch. The PVID of the untagged source port is automatically changed to the multicast VLAN. Source ports must be either tagged or untagged for any single multicast VLAN, i.e. both types cannot be members of the same multicast VLAN **<portlist>** - Specifies a range of ports to be configured.

tag_member_port - Specifies the tagged member port of the multicast VLAN. **<portlist>** - Specifies a range of ports to be configured.
state - Specifies if the multicast VLAN for a chosen VLAN should be enabled or disabled. **enable** - Enable multicast VLAN for the chosen VLAN. **disable** - Disable multicast VLAN for the chosen VLAN.
replace_source_ipv6 - With the MLD snooping function, the MLD report packet sent by the host will be forwarded to the source port. Before forwarding of the packet, the source IP address in the join packet needs to be replaced by this IP address. If none is specified, the source IP address will not be replaced. **<ipv6addr>** - Enter the IP address here.
remap_priority - Specifies the remap priority here. **<value 0-7>** - The remap priority value (0 to 7) to be associated with the data traffic to be forwarded on the multicast VLAN. **none** - If none is specified, the packet's original priority is used. The default setting is none.
replace_priority - (Optional) Specifies that the packet priority will be changed to the remap priority, when remap priority is set.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure an MLD snooping multicast VLAN with the name "v1", make ports 1 and 3 members of the VLAN, and set the state to enable:

```
DES-3810-28:admin#config mld_snooping multicast_vlan v1 add member_port 1,3
state enable
Command: config mld_snooping multicast_vlan v1 add member_port 1,3
state enable

Success.

DES-3810-28:admin#
```

56-3 create mld_snooping multicast_vlan_group_profile

Description

This command is used to create a multicast group profile. The profile name for MLD snooping must be unique.

Format

create mld_snooping multicast_vlan_group_profile <profile_name 1-32>

Parameters

<profile_name 1-32> - Specifies the multicast VLAN profile name. The maximum length is 32 characters.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create an MLD snooping multicast group profile with the name “Knicks”:

```
DES-3810-28:admin#create mld_snooping multicast_vlan_group_profile Knicks
Command: create mld_snooping multicast_vlan_group_profile Knicks

Success.

DES-3810-28:admin#
```

56-4 config mld_snooping multicast_vlan_group_profile

Description

This command is used to configure an MLD snooping multicast group profile on the switch.

Format

config mld_snooping multicast_vlan_group_profile <profile_name 1-32> [add | delete] <mcastv6_address_list>

Parameters

<profile_name 32> - Specifies the multicast VLAN profile name. The maximum length is 32 characters. **add** - Specifies to add a multicast address list to this multicast VLAN profile. **delete** - Specifies to delete a multicast address list from this multicast VLAN profile.
<mcastv6_address_list> - Specifies a multicast address list. This can be a continuous single multicast address, such as FF1E::1, FF1E::2, a multicast address range, such as FF1E::3-FF1E::9, or both types, such as FF1E::11, FF1E::12-FF1E::20.

Restrictions

Only Administrators and Operators can issue this command.

Example

To add the single multicast address FF1E::11 and multicast range FF1E::12-FF1E::20 to the MLD snooping multicast VLAN profile named “Knicks”:

```
DES-3810-28:admin#config mld_snooping multicast_vlan_group_profile Knicks add
FF1E::11, FF1E::12-FF1E::20
Command: config mld_snooping multicast_vlan_group_profile Knicks add FF1E::11,
FF1E::12-FF1E::20

Success.

DES-3810-28:admin#
```

56-5 delete mld_snooping multicast_vlan_group_profile

Description

This command is used to delete an existing MLD snooping multicast group profile on the switch. Specifies a profile name to delete it.

Format

delete mld_snooping multicast_vlan_group_profile [profile_name <profile_name 1-32> | all]

Parameters

profile_name - Specifies the multicast VLAN group profile name. The maximum length is 32 characters.
<profile_name 1-32> - Specifies the multicast VLAN group profile name. The profile name can be up to 32 characters long.
all - Specifies to delete all the profiles.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete an MLD snooping multicast group profile named “Knicks”:

```
DES-3810-28:admin#delete mld_snooping multicast_vlan_group_profile profile_name
Knicks
Command: delete mld_snooping multicast_vlan_group_profile profile_name Knicks

Success.

DES-3810-28:admin#
```

56-6 show mld_snooping multicast_vlan_group_profile

Description

This command is used to display an MLD snooping multicast group profile.

Format

show mld_snooping multicast_vlan_group_profile {<profile_name 1-32>}

Parameters

<profile_name 1-32> - (Optional) Specifies the multicast VLAN profile name. The maximum length is 32 characters.

Restrictions

None.

Example

To display all MLD snooping multicast VLAN profiles:

```
DES-3810-28:admin#show mld_snooping multicast_vlan_group_profile
Command: show mld_snooping multicast_vlan_group_profile

Profile Name              Multicast Addresses
------------------------  --------------------------------
rock                      FF1E::1
                          FF1E::10-FF1E::20
Total Entries : 1

DES-3810-28:admin#
```

56-7 config mld_snooping multicast_vlan_group

Description

This command is used to configure the multicast group which will be learned with the specific multicast VLAN. There are two cases that need to be considered. For the first case, suppose that a multicast group is not configured and multicast VLANs do not have overlapped member ports. That means the join packets received by the member port will only be learned with the multicast VLAN that this port belongs to. If not, which is the second case, the join packet will be learned with the multicast VLAN that contains the destination multicast group. If the destination multicast group of the join packet can not be classified into any multicast VLAN that this port belongs to, then the join packet will be learned with the natural VLAN of the packet. Please note that the same profile can not overlap different multicast VLANs. Multiple profiles can be added to a multicast VLAN, however.

Format

config mld_snooping multicast_vlan_group <vlan_name 32> [add | delete] profile_name <profile_name 1-32>

Parameters

<vlan_name 32> - Specifies the name of the multicast VLAN to be configured. Each multicast VLAN is given a name that can be up to 32 characters. **add** - Specifies to associate a profile to a multicast VLAN. **delete** - Specifies to de-associate a profile from a multicast VLAN.
profile_name - Specifies the multicast VLAN profile name. The maximum length is 32 characters. **<profile_name 1-32>** - Specifies the multicast VLAN profile name. The profile name can be up to 32 characters long.

Restrictions

Only Administrators and Operators can issue this command.

Example

To add an MLD snooping profile to a multicast VLAN group with the name “v1”:

```
DES-3810-28:admin#config mld_snooping multicast_vlan_group v1 add profile_name
channel_1
Command: config mld_snooping multicast_vlan_group v1 add profile_name channel_1
Success.

DES-3810-28:admin#
```

56-8 show mld_snooping multicast_vlan_group

Description

This command allows group profile information for a specific multicast VLAN to be displayed.

Format

show mld_snooping multicast_vlan_group {<vlan_name 32>}

Parameters

<vlan_name 32> - (Optional) Specifies the name of the group profile's multicast VLAN to be displayed.

Restrictions

None.

Example

To display all MLD snooping multicast VLANs' group profile information:

```
DES-3810-28:admin#show mld_snooping multicast_vlan_group
Command: show mld_snooping multicast_vlan_group


VLAN Name                       VLAN ID        Multicast Group Profiles
------------------------------  -------  --------------------------------
test2                           20

test1                           100


DES-3810-28:admin#
```

56-9 delete mld_snooping multicast_vlan

Description

This command is used to delete an MLD snooping multicast VLAN.

Format

delete mld_snooping multicast_vlan <vlan_name 32>

Parameters

<vlan_name 32> - Specifies the name of the multicast VLAN to be deleted.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete an MLD snooping multicast VLAN called “v1”:

```
DES-3810-28:admin#delete mld_snooping multicast_vlan v1
Command: delete mld_snooping multicast_vlan v1

Success.

DES-3810-28:admin#
```

56-10 enable mld_snooping multicast_vlan

Description

This command is used to enable the MLD snooping multicast VLAN function. By default, the multicast VLAN is disabled.

Format

enable mld_snooping multicast_vlan

Parameters

None.

Restrictions

Only Administrator users can issue this command.

Example

To enable MLD snooping multicast VLAN:

```
DES-3810-28:admin#enable mld_snooping multicast_vlan
Command: enable mld_snooping multicast_vlan

Success.

DES-3810-28:admin#
```

56-11 disable mld_snooping multicast_vlan

Description

This command is used to disable the MLD snooping multicast VLAN function. By default, the multicast VLAN is disabled.

Format

disable mld_snooping multicast_vlan

Parameters

None.

Restrictions

Only Administrator users can issue this command.

Example

To disable MLD snooping multicast VLAN:

```
DES-3810-28:admin#disable mld_snooping multicast_vlan
Command: disable mld_snooping multicast_vlan

Success.

DES-3810-28:admin#
```

56-12 show mld_snooping multicast_vlan

Description

This command allows information for a specific multicast VLAN to be displayed.

Format

show mld_snooping multicast_vlan {<vlan_name 32>}

Parameters

<vlan_name 32> - (Optional) Specifies the name of the multicast VLAN to be displayed.

Restrictions

None.

Example

To display all MLD snooping multicast VLANs:

```
DES-3810-28:admin#show mld_snooping multicast_vlan
Command: show mld_snooping multicast_vlan

MLD Multicast VLAN Global State        : Disabled
MLD Multicast VLAN Forward Unmatched   : Disabled

VLAN Name                :test
VID                      :100

Member(Untagged) Ports    :1
Tagged Member Ports       :
Source Ports              :3
Untagged Source Ports     :
Status                    :Disabled
Replace Source IP         :::
Remap Priority            :None

Total Entries: 1

DES-3810-28:admin#
```

56-13 config mld_snooping multicast_vlan forward_unmatched

Description

This command is used to configure the forwarding mode for MLD snooping multicast VLAN unmatched packets. When the switch receives an MLD snooping packet, it will match the packet against the multicast profile to determine which multicast VLAN to associate with. If the packet does not match all profiles, the packet will be forwarded in the natural VLAN of the packet, or dropped based on this setting. By default, the packet will be dropped.

Format

config mld_snooping multicast_vlan forward_unmatched [disable | enable]

Parameters

enable - The packet will be flooded on the VLAN.
disable - The packet will be dropped.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the forwarding mode for MLD snooping multicast VLAN unmatched packets:

```
DES-3810-28:admin#config mld_snooping multicast_vlan forward_unmatched enable
Command: config mld_snooping multicast_vlan forward_unmatched enable

Success.

DES-3810-28:admin#
```

Chapter 57 Modify Banner and Prompt Commands

config greeting_message {default}
show greeting_message
config command_prompt [<string 16> | username | default]

57-1 config greeting_message

Description

This command is used to modify the login banner.

Format

config greeting_message {default}

Parameters

default – (Optional) Adding this parameter to the config greeting_message command will return the greeting message (banner) to its original factory default entry.

Restrictions

When users issue the “reset” command, the modified banner will remain in tact. Yet, issuing the “reset system” will return the banner to its original default value.

The maximum character capacity for the banner is 6*80. (6 Lines and 80 characters per line)

In the following example, Ctrl+W will save the modified banner only to the DRAM. Users must enter the “save” command to save this entry to the Flash memory.

Only Administrators and Operators can issue this command.

Example

To edit the banner:

```
DES-3810-28:admin#config greeting_message
Command: config greeting_message

Greeting Messages Editor
================================================================================

                              DES-3810-28 Fast Ethernet Switch
                                 Command Line Interface

                                Firmware: Build 2.10.024
                      Copyright(C) 2011 D-Link Corporation. All rights reserved.
```

```
================================================================================

   <Function Key>                    <Control Key>
   Ctrl+C     Quit without save      left/right/
   Ctrl+W     Save and quit          up/down        Move cursor
                                     Ctrl+D        Delete line
                                     Ctrl+X        Erase all setting
                                     Ctrl+L        Reload original setting
--------------------------------------------------------------------------------

Success.

DES-3810-28:admin#
```

57-2 show greeting_message

Description

This command is used to display the currently configured greeting message on the switch.

Format

show greeting_message

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To display the currently configured greeting message:

```
DES-3810-28:admin#show greeting_message
Command: show greeting_message

================================================================================

                        DES-3810-28 Fast Ethernet Switch
                             Command Line Interface

                            Firmware: Build 2.10.024
          Copyright(C) 2011 D-Link Corporation. All rights reserved.
================================================================================

DES-3810-28:admin#
```

57-3 config command_prompt

Description

This command is used to modify the command prompt. The current command prompt consists of four parts: “product name” + “:” + ”user level” + ”#” (e.g. “**DES-3810-28:admin#”**). This command is used to modify the first part (1. “product name”) with a string consisting of a maximum of 16 characters, or to be replaced with the users’ login user name.

Format

config command_prompt [<string 16> | username | default]

Parameters

<string 16> - Specifies the new command prompt string of no more than 16 characters.
username - Specifies the command to set the login username as the command prompt.
default - Specifies the command to return the command prompt to its original factory default value.

Restrictions

When users issue the “reset” command, the current command prompt will remain in tact. Issuing the “reset system” will return the command prompt to its original factory default value.

Only Administrators and Operators can issue this command.

Example

To edit the command prompt:

```
DES-3810-28:admin#config command_prompt HQ0001
Command: config command_prompt HQ0001

Success.

HQ0001:admin#
```

Chapter 58 MSTP commands

show stp
show stp instance {<value 0-15>}
show stp ports {<portlist>}
show stp mst_config_id
create stp instance_id <value 1-15>
delete stp instance_id <value 1-15>
config stp instance_id <value 1-15> [add_vlan | remove_vlan] <vidlist>
config stp mst_config_id {revision_level <int 0-65535> | name <string>} (1)
enable stp
disable stp
config stp version [mstp | rstp | stp]
config stp priority <value 0-61440> instance_id <value 0-15>
config stp {maxage <value 6-40> | maxhops <value 6-40> | hellotime <value 1-2> | forwarddelay <value 4-30> | txholdcount <value 1-10> | fbpdu [enable | disable] | nni_bpdu_addr [dot1d | dot1ad]} (1)
config stp ports <portlist> {externalCost [auto | <value 1-200000000>] | hellotime <value 1-2> | migrate [yes | no] | edge [true | false | auto] | p2p [true | false | auto] | state [enable | disable] | restricted_role [true | false] | restricted_tcn [true | false] | fbpdu [enable | disable]} (1)
config stp mst_ports <portlist> instance_id <value 0-15> {internalCost [auto | <value 1-200000000>] | priority <value 0-240>} (1)

58-1 show stp

Description

This command is used to display the bridge parameters global settings.

Format

show stp

Parameters

None.

Restrictions

None.

Example

To display STP:

```
DES-3810-28:admin#show stp
Command: show stp

STP Bridge Global Settings
------------------------------
STP Status         : Enabled
STP Version        : MSTP
Max Age            : 20
Forward Delay      : 15
Max Hops           : 20
TX Hold Count      : 6
Forwarding BPDU    : Enabled
NNI BPDU Address   : dot1d

DES-3810-28:admin#
```

58-2 show stp instance

Description

This command is used to display each instance parameters settings. Value means the instance ID, if there is no input of this value, all instances will be shown.

Format

show stp instance {<value 0-15>}

Parameters

<value 0-15> - (Optional) Specifies the MSTP instance ID. Instance 0 represents the default instance: CIST. The bridge supports a total 16 Instances (0 to 15) at most.

Restrictions

None.

Example

To display STP instances:

```
DES-3810-28:admin#show stp instance
Command: show stp instance

STP Instance Settings
--------------------------
Instance Type          : CIST
Instance Status        : Enabled
Instance Priority      : 32768(Bridge Priority : 32768, SYS ID Ext : 0 )

STP Instance Operational Status
-------------------------------
Designated Root Bridge : 32768/00-22-22-22-22-00
External Root Cost     : 0
Regional Root Bridge   : 32768/00-22-22-22-22-00
Internal Root Cost     : 0
Designated Bridge      : 32768/00-22-22-22-22-00
Root Port              : None
Max Age                : 20
Forward Delay          : 15
Last Topology Change   : 2430
Topology Changes Count : 0

DES-3810-28:admin#
```

58-3 show stp ports

Description

This command is used to display the switch's current per-port STP configuration:

STP port configuration, STP port role (Disabled, Alternate, Backup, Root, Designated, NonStp), and

STP port status (Disabled, Discarding, Learning, Forwarding).

Format

show stp ports {<portlist>}

Parameters

<portlist> - (Optional) Specifies a range of ports to be displayed.

Restrictions

None.

Example

To show STP ports:

```
DES-3810-28:admin#show stp ports
Command: show stp ports

MSTP Port Information
Port Index        : 1     ,  Hello Time       : 2 /2 ,  Port STP : enabled
External PathCost : Auto/200000   ,  Edge Port : No /No ,  P2P    : False/No
Port RestrictedRole : False,  Port RestrictedTCN : False
Port Forward BPDU : Enabled

Msti   Designated Bridge   Internal PathCost  Prio  Status      Role
-----  ------------------  -----------------  ----  ----------  ----------
0      N/A                 200000             128   Disabled    Disabled
2      N/A                 200000             128   Disabled    Disabled

DES-3810-28:admin#
```

58-4 show stp mst_config_id

Description

This command is used to display the three elements of the MST configuration Identification, including Configuration Name, Revision Level, and the MST configuration Table. The default Configuration name is the MAC address of the bridge. If two bridges have the same three elements in **mst_config_id**, that means they are in the same MST region.

Format

show stp mst_config_id

Parameters

None.

Restrictions

None.

Example

Display the STP MST Config ID:

```
DES-3810-28:admin#show stp mst_config_id
Command: show stp mst_config_id

Current MST Configuration Identification
---------------------------------------

Configuration Name : 00-22-22-22-22-00                      Revision Level :0
MSTI ID     Vid list
-------     -----------
   CIST     1-4094

DES-3810-28:admin#
```

58-5 create stp instance_id

Description

This command is used to create a new MST instance independent from the default Instance: CIST (Instance 0). After creating the MST instance, a user needs to configure the VLANs (using commands in 58-7), or the newly created MST instance will still be in a disabled state.

Format

create stp instance_id <value 1-15>

Parameters

<value 1-15> - Specifies the MSTP instance ID. Instance 0 represents a default instance CIST. The DUT supports 16 Instance (0 to 15) at most.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create an MSTP instance:

```
DES-3810-28:admin#create stp instance_id 2
Command: create stp instance_id 2

Warning:There is no VLAN mapping to this instance_id!
Success.

DES-3810-28:admin#
```

58-6 delete stp instance_id

Description

This command is used to delete the specified MST Instance. CIST (Instance 0) cannot be deleted and you can only delete one instance at a time.

Format

delete stp instance_id <value 1-15>

Parameters

<value 1-15> - Specifies the MSTP instance ID. Instance 0 represents the default instance CIST. The DUT supports 16 instances (0 to 15) at most.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete an MSTP instance:

```
DES-3810-28:admin#delete stp instance_id 2
Command: delete stp instance_id 2

Success.

DES-3810-28:admin#
```

58-7 config stp instance_id

Description

There are two different action types to deal with an MST instance. They are listed as follows:

- add_vlan: To map specified VLAN lists to an existing MST instance.
- remove_vlan: To delete specified VLAN lists from an existing MST instance.

Format

config stp instance_id <value 1-15> [add_vlan | remove_vlan] <vidlist>

Parameters

<value 1-15> - Specifies the MSTP instance ID. Instance 0 represents a default instance CIST. The DUT supports 16 instances (0-15) at most.
add_vlan - Defined action type to configure an MST instance.
remove_vlan - Defined action type to configure an MST instance.
<vidlist> - Specifies the newly added CLI Value Type. It is similar to **<portlist>** type, but the value range is 1 to 4094.

Restrictions

Only Administrators and Operators can issue this command.

Example

To map a VLAN ID to an MSTP instance:

```
DES-3810-28:admin#config stp instance_id 2 add_vlan 1
Command: config stp instance_id 2 add_vlan 1

Success.

DES-3810-28:admin#
```

To remove a VLAN ID from an MSTP instance:

```
DES-3810-28:admin#config stp instance_id 2 remove_vlan 2
Command: config stp instance_id 2 remove_vlan 2

Success.

DES-3810-28:admin#
```

58-8 config stp mst_config_id

Description

This command is used to configure a configuration name or revision level in the MST configuration identification. The default configuration name is the MAC address of the bridge.

Format

config stp mst_config_id {revision_level <int 0-65535> | name <string>} (1)

Parameters

revision_level - Specifies the revision level.	
	<int 0-65535> - Specifies the revision level.
name - Specifies the name given for a specified MST region.	
	<string> - Specifies the name given for a specified MST region.

Restrictions

Only Administrators and Operators can issue this command.

Example

To change the name and revision level of the MST configuration identification:

```
DES-3810-28:admin#config stp mst_config_id revision_level 1 name R&D_BlockG
Commands: config stp mst_config_id revision_level 1 name R&D_BlockG

Success.

DES-3810-28:admin#
```

58-9 enable stp

Description

Although it is possible to modify to allow a user to enable STP per instance, CIST should be enabled first before enabling other instances. When a user enables the CIST, all MSTIs will be enabled automatically if the STP version is set to MSTP and there is at least one VLAN mapped to this instance.

Format

enable stp

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable STP:

```
DES-3810-28:admin#enable stp
Command: enable stp

Success.

DES-3810-28:admin#
```

58-10 disable stp

Description

This command is used to disable STP functionality in every existing instance.

Format

disable stp

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable STP:

```
DES-3810-28:admin#disable stp
Command: disable stp

Success.

DES-3810-28:admin#
```

58-11 config stp version

Description

This command is used to modify STP version. If the version is configured as STP or RSTP, all currently running MSTIs should be disabled. If the version is configured as MSTP, the current chip design is enabled for all available MSTIs (assuming that CIST is enabled).

Format

config stp version [mstp | rstp | stp]

Parameters

mstp - Specifies to use Multiple Spanning Tree Protocol.
rstp - Specifies to use Rapid Spanning Tree Protocol. This is the default.
stp - Specifies to use Spanning Tree Protocol.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the STP version:

```
DES-3810-28:admin#config stp version mstp
Command: config stp version mstp

Success.

DES-3810-28:admin#
```

To configure the STP version with the same value of the old configuration:

```
DES-3810-28:admin#config stp version mstp
Command: config stp version mstp

Configure value is the same with current value.
Success.

DES-3810-28:admin#
```

58-12 config stp priority

Description

One of the parameters used to select the Root Bridge.

Format

config stp priority <value 0-61440> instance_id <value 0-15>

Parameters

<value 0-61440> - Specifies the bridge priority value, which must be divisible by 4096. The default value is 32768.
instance_id - Specifies the identifier value, which is used to distinguish different STP instances. **<value 0-15>** - Specifies the identifier value, which is used to distinguish different STP instances.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the STP priority for a designated instance:

```
DES-3810-28:admin#config stp priority 61440 instance_id 0
Command: config stp priority 61440 instance_id 0

Success.

DES-3810-28:admin#
```

58-13 config stp

Description

This command is used to configure the bridge parameter global settings.

Format

config stp {maxage <value 6-40> | maxhops <value 6-40> | hellotime <value 1-2> | forwarddelay <value 4-30> | txholdcount <value 1-10> | fbpdu [enable | disable] | nni_bpdu_addr [dot1d | dot1ad]} (1)

Parameters

maxage - Specifies to determine if a BPDU is valid. **<value 6-40>** - Specifies to determine if a BPDU is valid. The default value is 20.
maxhops - Specifies to restrict the forwarded times of one BPDU. **<value 6-40>** - Specifies to restrict the forwarded times of one BPDU. The default value is 20.
hellotime - Specifies the time interval for sending Configuration BPDUs by the Root Bridge. This parameter is for STP and RSTP version. MSTP version uses per-port hellotime parameter.

<value 1-2> - Specifies the time interval for sending Configuration BPDUs by the Root Bridge. This parameter is for STP and RSTP version. MSTP version uses per-port hellotime parameter. The default value is 2 seconds.
forwarddelay - Specifies the maximum delay time for one BPDU to be transmitted by a bridge and received from another bridge. **<value 4-30>**- Specifies the maximum delay time for one BPDU to be transmitted by a bridge and received from another bridge. The default value is 15.
txholdcount - Specifies to restrict the numbers of BPDU transmitted in a time interval (per Hello Time). **<value 1-10>** - Specifies to restrict the numbers of BPDU transmitted in a time interval (per Hello Time).
fbpdu - To decide if the Bridge will flood STP BPDU when STP functionality is disabled. **enable** - Specifies to enable FBPDU. **disable** - Specifies to disable FBPDU.
nni_bpdu_addr - Specifies to determine the BPDU protocol address for STP in service provide site. It can use 802.1d STP address, 802.1ad service provider STP address or an user defined mutilcast address. The range of the user defined address is 0180C2000000 to 0180C2FFFFFF. **dot1d** - Specifies to use an 802.1d STP address. **dot1ad** - Specifies to use an 802.1ad service provider STP address.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure STP:

```
DES-3810-28:admin# config stp maxage 25
Command: config stp maxage 25

Success.

DES-3810-28:admin#
```

58-14 config stp ports

Description

This command is used to configure all the parameters of ports, except for Internal Path Cost and Port Priority.

Format

config stp ports <portlist> {externalCost [auto | <value 1-200000000>] | hellotime <value 1-2> | migrate [yes | no] | edge [true | false | auto] | p2p [true | false | auto] | state [enable | disable] | restricted_role [true | false] | restricted_tcn [true | false] | fbpdu [enable | disable]} (1)

Parameters

<portlist> - Specifies a range of ports.
externalCost - Specifies the path cost between the MST regions from the transmitting Bridge to the CIST Root Bridge. It is only used at CIST level.

auto - Specifies to automatically choose the path cost. **<value 1-200000000>** - Specifies a value between 1 and 200000000.
hellotime - This is a per-Bridge parameter in RSTP, but it becomes a per-Port parameter in MSTP. **<value 1-2>** - This is a per-Bridge parameter in RSTP, but it becomes a per-Port parameter in MSTP. The default value is 2.
migrate - Operation of management in order to specify the port to send MSTP BPDU for a delay time. **yes** - Specifies for port to send MSTP BPDU for a delay time. **no** - Specifies for port not to send MSTP BPDU for a delay time.
edge - Decide if this port is connected to a LAN or a Bridged LAN. In **auto** mode, the bridge will delay for a period to become edge port if no bridge BPDU is received. **true** - Specifies a true edge connection. **false** - Specifies a false edge connection. **auto** - The bridge will delay for a period to become edge port if no bridge BPDU is received.
p2p - Decide if this port is in Full-Duplex or Half-Duplex mode. **true** - Specifies full-duplex mode. **false** - Specifies half-duplex mode. **auto** - The switch will automatically determine the P2P mode.
state - Decide if this port supports the STP functionality. **enable** - Enable to support STP functionality. **disable** - Disable STP functionality support.
restricted_role - Decide if this port is to be selected as Root Port or not. The default value is false. **true** - Decide that this port is not to be selected as Root Port. **false** - Decide that this port is to be selected as Root Port.
restricted_tcn - Decide if this port is to propagate a topology change or not. The default value is false. **true** - Specifies not to propagate a topology change. **false** - Specifies to propagate a topology change.
fbpdu - Decide if this port will flood STP BPDU when STP functionality is disabled. **enable** - Enable port to flood STP BPDU when STP functionality is disabled. **disable** - Disable port from flooding STP BPDU when STP functionality is disabled.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure STP ports:

```
DES-3810-28:admin# config stp ports 1 externalCost auto
Command: config stp ports 1 externalCost auto

Success.

DES-3810-28:admin#
```

58-15 config stp mst_ports

Description

Internal Path Cost and Port Priority of a Port in MSTI can be separately configured to different values from the configuration of CIST (instance ID = 0).

Format

config stp mst_ports <portlist> instance_id <value 0-15> {internalCost [auto | <value 1-200000000>] | priority <value 0-240>} (1)

Parameters

<portlist> - Specifies a range of ports.
instance_id - Specifies an instance ID. **<value 0-15>** - Instance = 0 represents CIST, Instance from 1 to 15 represents MSTI 1 to MSTI 15.
internalCost - The Port Path Cost used in MSTP. **auto** - Specifies to automatically determine the internal cost. **<value 1-200000000>** - Specifies a value between 1 and 200000000.
priority - Specifies the Port Priority. **<value 0-240>** - Specifies a value between 0 and 240.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure STP MST ports:

```
DES-3810-28:admin# config stp mst_ports 1 instance_id 0 internalCost auto
Command: config stp mst_ports 1 instance_id 0 internalCost auto

Success.

DES-3810-28:admin#
```

Chapter 59 Multiprotocol Label Switching (MPLS) Commands

enable mpls
disable mpls
create mpls static_lsp egress <lsp_name 16> {ip_prefix <network_address>} in_label <label> {in_ipif <ipif_name 12>}
create mpls static_lsp ingress <lsp_name 16> ip_prefix <network_address> nexthop <ipaddr> out_label <label> {exp <int 0-7>}
config mpls class_map exp <int 0-7> cos <class_id 0-7>
config mpls fec_exp ip_prefix <network_address> exp [<int 0-7> | default]
config mpls ipif <ipif_name 12> state [enable | disable]
config mpls log [enable | disable]
config mpls trap [enable | disable]
config mpls trust_exp [enable | disable]
delete mpls static_lsp [<lsp_name 16> | all]
show mpls
show mpls class_map
show mpls fec_exp {ip_prefix <network_address>}
show mpls ftn {ip_prefix <network_address>}
show mpls ipif {<ipif_name 12>}
show mpls lsp {ip_prefix <network_address> | detail}

59-1 enable mpls

Description

This command is used to enable the MPLS function globally. By default, the MPLS function is disabled on the Switch.

Format

enable mpls

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To enable MPLS globally:

```
DES-3810-28:admin#enable mpls
Command: enable mpls

Success.

DES-3810-28:admin#
```

59-2 disable mpls

Description

This command disables the MPLS function globally. If MPLS is disabled, all assigned labels will be released, all established LSPs will be destroyed, and all LDP sessions will be closed.

Format

disable mpls

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To disable the MPLS:

```
DES-3810-28:admin#disable mpls
Command: disable mpls

Success.

DES-3810-28:admin#
```

59-3 create mpls static_lsp egress

Description

This command is used to establish a static egress LSP.

Format

create mpls static_lsp egress <lsp_name 16> {ip_prefix <network_address>} in_label <label> {in_ipif <ipif_name 12>}

Parameters

<lsp_name 16> - Enter the LSP name used here. This name can be up to 16 characters long.

ip_prefix - (Optional) Specifies the IP prefix FEC of the LSP. The specified FEC will map to the LSP. **<network_address>** - Enter the IP prefix network address used here.
in_label - Specifies the incoming label used. <label> - Enter the incoming lable used here.
in_ipif - (Optional) Specifies the incoming interface. If no interface is specified, it means any interface. **<ipif_name 12>** - Enter the incoming interface name used here. This name can be up to 12 characters long.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

Configure LSR3 as the egress of the static LSP:

```
DES-3810-28:admin#create mpls static_lsp egress lsp1 ip_prefix 172.18.1.0/24
in_label 30
Command: create mpls static_lsp egress lsp1 ip_prefix 172.18.1.0/24 in_label 30


Success.


DES-3810-28:admin#
```

59-4 create mpls static_lsp ingress

Description

This command is used to establish a static ingress LSP.

Format

create mpls static_lsp ingress <lsp_name 16> ip_prefix <network_address> nexthop <ipaddr> out_label <label> {exp <int 0-7>}

Parameters

<lsp_name 16> - Enter the LSP name used here. This name can be up to 16 characters long.
ip_prefix - Specifies the IP prefix FEC of the LSP. The specified FEC will map to the LSP. **<network_address>** - Enter the IP prefix network address used here.
nexthop - Specifies the IP address of next hop. **<ipaddr>** - Enter the next hop IP address used here.
out_label - Specifies the outbound label used. **<label>** - Enter the outbound label used here.
exp - (Optional) Specifies the EXP value in the outbound label. By default the EXP is set according to the QoS of the incoming packet. If the EXP is specified, the EXP of the outbound label will be set according to specified value. **<int 0-7>** - Enter the EXP value used here. This value must be between 0 and 7.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To establish the LSP <LSR1, LSR2, LSR3 > of destination IP network 172.18.1.0/24.

Configure LSR2 as the ingress of static LSP:

```
DES-3810-28:admin#create mpls static_lsp ingress lsp2 ip_prefix 172.18.1.0/24
nexthop 10.1.1.2 out_label 20
Command: create mpls static_lsp ingress lsp2 ip_prefix 172.18.1.0/24 nexthop
10.1.1.2 out_label 20

Success.

DES-3810-28:admin#
```

59-5 config mpls class_map exp

Description

This command is used to configure the mapping between the EXP and CoS. CoS 7 is reserved for the system. The following table shows the default mapping between EXP and CoS.

EXP	0	1	2	3	4	5	6	7
CoS	2	0	1	3	4	5	6	6

Format

config mpls class_map exp <int 0-7> cos <class_id 0-7>

Parameters

exp - Specifies the EXP value that will be mapped to the CoS. **<int 0-7>** - Enter the EXP value used here. This value must be between 0 and 7.
cos - Specifies the CoS value of the EXP. **<class_id 0-7>** - Enter the CoS value used here. This value must be between 0 and 7.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To map EXP 1 to CoS 1:

```
DES-3810-28:admin#config mpls class_map exp 1 cos 1
Command: config mpls class_map exp 1 cos 1

Success.

DES-3810-28:admin#
```

59-6 config mpls fec_exp ip_prefix

Description

This command is used to configure the EXP assignment of FEC (Forwarding Equivalence Class). If the EXP is not explicitly assigned by creating an LSP, the outbound EXP of the specified FECs will be set according to the configured EXP value. By default, the EXP value in outbound label for all FECs is set according to the incoming packet's QoS.

Format

config mpls fec_exp ip_prefix <network_address> exp [<int 0-7> | default]

Parameters

ip_prefix - Specifies the IP prefix FEC used. You can also specify an IP range, for example: 10.1.1.0/24 – 10.2.1.0/24, then this rule will take effect for all FECs in this range. **<network_address>** - Enter the IP prefix FEC used here.
exp - Specifies the EXP value in the outbound label for the FEC. **<int 0-7>** - Enter the EXP value used here. This value must be between 0 and 7. **default** - Specifies that the EXP value will be set according to the incoming packet's QoS. Otherwise, it is set according to the specified value.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To configure a rule that assigns the EXP value 3 to FEC 10.1.1.0/24:

```
DES-3810-28:admin#config mpls fec_exp ip_prefix 10.1.1.0/24 exp 3
Command: config mpls fec_exp ip_prefix 10.1.1.0/24 exp 3

Success.

DES-3810-28:admin#
```

59-7 config mpls ipif

Description

This command enables or disables MPLS on the specified interface.

Format

config mpls ipif <ipif_name 12> state [enable | disable]

Parameters

ipif - Specifies the IP interface name used. **<ipif_name 12>** - Enter the IP interface name used here. This name can be up to 12 characters long.

state - Specifies if the interface state is enabled or disabled for MPLS. By default, the state is disabled on all interfaces. **enable** - Specifies that the interface state will be enabled. **disable** - Specifies that the interface state will be disabled.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To enable MPLS on interface System:

```
DES-3810-28:admin#config mpls ipif System state enable
Command: config mpls ipif System state enable

Success.

DES-3810-28:admin#
```

59-8 config mpls log

Description

This command used to configure the MPLS log state.

Format

config mpls log [enable | disable]

Parameters

enable - Specifies that MPLS log state will be enabled. **disable** - Specifies that MPLS log state will be disabled.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To enable the MPLS log:

```
DES-3810-28:admin#config mpls log enable
Command: config mpls log enable

Success.

DES-3810-28:admin#
```

59-9 config mpls trap

Description

This command used to configure the MPLS trap state.

Format

config mpls trap [enable | disable]

Parameters

enable - Specifies that MPLS trap state will be enabled. **disable** - Specifies that MPLS trap state will be disabled.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To enable the MPLS trap:

```
DES-3810-28:admin#config mpls trap enable
Command: config mpls trap enable

Success.

DES-3810-28:admin#
```

59-10 config mpls trust_exp

Description

This command is used to enable or disable the MPLS trust EXP. If the EXP is trusted, the EXP value of the incoming label will be used as the QoS of the incoming packet. Otherwise, the EXP value will not be used for QoS.

Format

config mpls trust_exp [enable | disable]

Parameters

enable - Specifies to trust the EXP in the MPLS label. **disable** - Specifies not to trust the EXP in the MPLS label. This is the default option.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To enable MPLS QoS:

```
DES-3810-28:admin#config mpls trust_exp enable
Command: config mpls trust_exp enable

Success.

DES-3810-28:admin#
```

59-11 delete mpls static_lsp

Description

This command used to delete a static LSP.

Format

delete mpls static_lsp [<lsp_name 16> | all]

Parameters

<lsp_name 16> - Enter the static LSP name used here. This name can be up to 16 characters long.
all - Specifies that all the static LSPs will be deleted.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To delete the LSP 1:

```
DES-3810-28:admin#delete mpls static_lsp lsp1
Command: delete mpls static_lsp lsp1

Success.

DES-3810-28:admin#
```

59-12 show mpls

Description

This command used to display MPLS global configuration information.

Format

show mpls

Parameters

None.

Restrictions

None. **(EI Mode Command Only)**

Example

To display the MPLS global configuration:

```
DES-3810-28:admin#show mpls
Command: show mpls

 MPLS Status    :Enabled
 Trust EXP      :Enabled
 Log Status     :Enabled
 Trap Status    :Enabled

DES-3810-28:admin#
```

59-13 show mpls class_map

Description

This command used to display the mapping between EXP and CoS.

Format

show mpls class_map

Parameters

None.

Restrictions

None. **(EI Mode Command Only)**

Example

To display MPLS EXP CoS mapping:

```
DES-3810-28:admin#show mpls class_map
Command: show mpls class_map

 EXP  CoS
 ---  ---
 0    2
 1    1
 2    1
 3    3
 4    4
 5    5
 6    6
 7    6


DES-3810-28:admin#
```

59-14 show mpls fec_exp

Description

This command is used to display FEC EXP assignments. If the FEC's EXP is assigned according to the default rule, it will not display.

Format

show mpls fec_exp {ip_prefix <network_address>}

Parameters

ip_prefix - (Optional) Specifies the IP prefix FECs whose EXP assignment will be displayed. **<network_address>** - Enter the IP prefix value used here.

Note: If no parameter is specified, all information will be displayed.

Restrictions

None. **(EI Mode Command Only)**

Example

To display all EXP assignment:

```
DES-3810-28:admin#show mpls fec_exp
Command: show mpls fec_exp

 FEC                 Exp
 ------------------  ---
 10.1.1.0/24         3

 Total Entries: 1

DES-3810-28:admin#
```

59-15 show mpls ftn

Description

This command used to display the FEC-to-NHLFE (Forwarding Equivalence Class to Next Hop Label Forwarding Entry) map information.

Format

show mpls ftn {ip_prefix <network_address>}

Parameters

ip_prefix - (Optional) Specifies the IP prefix FECs whose FTN will be displayed. **<network_address>** - Enter the IP prefix value used here.

Note: If no parameter is specified, all information will be displayed.

Restrictions

None. **(EI Mode Command Only)**

Example

To display all FTNs:

```
DES-3810-28:admin#show mpls ftn
Command: show mpls ftn

 FEC Type  FEC Value           Next Hop         Label  EXP
 --------  ------------------  ---------------  -----  ---
 Prefix    172.18.1.0/24       10.1.1.2         20     -

 Total Entries: 1

DES-3810-28:admin#
```

59-16 show mpls ipif

Description

This command used to display MPLS enabled interface.

Format

show mpls ipif {<ipif_name 12>}

Parameters

<ipif_name 12> - (Optional) Enter the interface name, that will be displayed, here. This name can be up to 12 characters long.

Note: If no parameter is specified, all information will be displayed.

Restrictions

None. **(EI Mode Command Only)**

Example

To display all MPLS enabled interfaces:

```
DES-3810-28:admin#show mpls ipif
Command: show mpls ipif

 Interface     IP Address           Status
 ------------  ------------------   ----------
 System        10.90.90.90/8        Down

 Total Entries: 1

DES-3810-28:admin#
```

59-17 show mpls lsp

Description

This command is used to display the LSP in the label information base.

Format

show mpls lsp {ip_prefix <network_address> | detail}

Parameters

ip_prefix - Specifies the IP prefix FEC who's LSP will be displayed. **<network_address>** - Enter the IP prefix value used here.
detail - Specifies to display detailed information.

Note: If no parameter is specified, all information will be displayed.

Restrictions

None. **(EI Mode Command Only)**

Example

To display all LSPs in the system:

```
DES-3810-28:admin#show mpls lsp
Command: show mpls lsp

 LSP   FEC                 In Label  Out Label   Out Interface  Next Hop
 ----  ------------------  --------  ----------  -------------  --------------
 2     172.18.1.0/24       -         push 20     System         10.1.1.2

 Total Entries: 1

DES-3810-28:admin#
```

To display LSP detail information in the system:

```
DES-3810-28:admin#show mpls lsp detail
Command: show mpls lsp detail

LSP:2                       Name:lsp2
  Type:Ingress              Status:Down
  FEC:172.18.1.0/24         Owner:Static
  In Label:-                Out Label:push 20
  Next Hop:10.1.1.2         Out Interface:System

 Total Entries: 1

DES-3810-28:admin#
```

Chapter 60 Network Load Balancing (NLB) Commands

create nlb multicast_fdb [<vlan_name 32> | vlanid <vlanid>] <macaddr>
delete nlb multicast_fdb [<vlan_name 32> | vlanid <vlanid>] <macaddr>
config nlb multicast_fdb [<vlan_name 32> | vlanid <vlanid>] <macaddr> [add | delete] <portlist>
show nlb fdb

60-1 create nlb multicast_fdb

Description

This command is used to create the Switch's NLB multicast FDB entry. The network load balancing command setting is used to support the Microsoft server load balancing application where multiple servers can share the same IP address and MAC address. The requests from clients will be forwarded to all servers, but will only be processed by one of them. In multicast mode, the client use the multicast MAC address as the destination MAC to reach the server. Regarding of the mode, this destination MAC is named the shared MAC. The server uses its own MAC address (rather than the shared MAC) as the source MAC address of the reply packet.

Format

create nlb multicast_fdb [<vlan_name 32> | vlanid <vlanid>] <macaddr>

Parameters

<vlan_name 32> - Enter the VLAN name of the NLB multicast FDB entry here. This name can be up to 32 characters long. **vlanid** - Specifies the VLAN ID used. **<vlanid>** - Enter the VLAN ID used here.
<macaddr> - Specifies the MAC address of the NLB multicast FDB entry to be created.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create a NLB multicast FDB entry:

```
DES-3810-28:admin# create nlb multicast_fdb default 03-bf-01-01-01-01
Command: create nlb multicast_fdb default 03-bf-01-01-01-01

Success.

DES-3810-28:admin#
```

60-2 delete nlb multicast_fdb

Description

This command is used to delete the Switch's NLB multicast FDB entry.

Format

delete nlb multicast_fdb [<vlan_name 32> | vlanid <vlanid>] <macaddr>

Parameters

<vlan_name 32> - Enter the VLAN name of the NLB multicast FDB entry here. This name can be up to 32 characters long. **vlanid** - Specifies the VLAN ID used. **<vlanid>** - Enter the VLAN ID used here.
<macaddr> - Specifies the MAC address of the NLB multicast FDB entry to be deleted.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete NLB multicast FDB entry:

```
DES-3810-28:admin# delete nlb multicast_fdb default 03-bf-01-01-01-01
Command: delete nlb multicast_fdb default 03-bf-01-01-01-01

Success.

DES-3810-28:admin#
```

60-3 config nlb multicast_fdb

Description

This command is used to configure the Switch's NLB multicast FDB entry.

Format

config nlb multicast_fdb [<vlan_name 32> | vlanid <vlanid>] <macaddr> [add | delete] <portlist>

Parameters

<vlan_name 32> - Enter the VLAN name of the NLB multicast FDB entry here. This name can be up to 32 characters long. **vlanid** - Specifies the VLAN ID used. **<vlanid>** - Enter the VLAN ID used here.
<macaddr> - Specifies the MAC address of the NLB multicast FDB entry to be configured.
add - Specifies a list of forwarding ports to be added. **delete** - Specifies a list of forwarding ports to be deleted.
<portlist> - Specifies a list of forwarding ports to be added or deleted.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure NLB multicast MAC forwarding database:

```
DES-3810-28:admin# config nlb multicast_fdb default 03-bf-01-01-01-01 add 1-5
Command: config nlb multicast_fdb default 03-bf-01-01-01-01 add 1-5

Success.

DES-3810-28:admin#
```

60-4 show nlb fdb

Description

This command is used to display the NLB forwarding table.

Format

show nlb fdb

Parameters

None.

Restrictions

None.

Example

To display the NLB forwarding table:

```
DES-3810-28:admin#show nlb fdb
Command: show nlb fdb

 MAC Address        VLAN ID    Egress Ports
 ------------------ ---------- ------------------------------------------------
 03-bf-01-01-01-01  100        1-5
 03-bf-01-01-01-01  1          1-5

Total Entries : 2

DES-3810-28:admin#
```

Chapter 61 Network Management Commands

enable snmp
disable snmp
create trusted_host [<ipaddr> | <ipv6addr> | network <network_address> | ipv6_prefix <ipv6networkaddr>] {snmp | telnet | ssh | http | https | ping}
config trusted_host [<ipaddr> | <ipv6addr> | network <network_address> | ipv6_prefix <ipv6networkaddr>] [add | delete] {snmp | telnet | ssh | http | https | ping | all}
delete trusted_host [ipaddr <ipaddr> | ipv6address <ipv6addr> | network <network_address>| ipv6_prefix <ipv6networkaddr> | all]
show trusted_host
config snmp system_name <sw_name>
config snmp system_location <sw_location>
config snmp system_contact <sw_contact>
enable snmp traps
disable snmp traps
enable snmp authenticate_traps
disable snmp authenticate_traps
enable snmp linkchange_traps
disable snmp linkchange_traps
show snmp traps {linkchange_traps {ports <portlist>}}
config snmp linkchange_traps ports [all | <portlist>] [enable | disable]
config snmp coldstart_traps [enable | disable]
config snmp warmstart_traps [enable | disable]
config trap source_ipif [<ipif_name 12> {<ipaddr> | <ipv6addr>} | none]
show trap source_ipif
config rmon trap {rising_alarm [enable | disable] | falling_alarm [enable | disable]}
show rmon

61-1 enable snmp

Description

This command is used to enable the SNMP function. When SNMP function is disabled, the network manager will not be able to access SNMP MIB objects. The device will not send traps or notification to network manager either.

Format

enable snmp

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable SNMP:

```
DES-3810-28:admin#enable snmp
Command: enable snmp

Success.

DES-3810-28:admin#
```

61-2 disable snmp

Description

This command is used to disable the SNMP function. When SNMP function is disabled, the network manager will not be able to access SNMP MIB objects. The device will not send traps or notification to network manager either.

Format

disable snmp

Parameters

None. By default, SNMP is disabled.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable SNMP:

```
DES-3810-28:admin#disable snmp
Command: disable snmp

Success.

DES-3810-28:admin#
```

61-3 create trusted_host

Description

This command is used to create the trusted host. The switch allows you to specify up to twenty IP addresses (or IP ranges) that are allowed to manage the switch via in-band SNMP or Telnet based management software. These IP addresses must be members of the Management VLAN. If no IP addresses are specified, then there is nothing to prevent any IP address from accessing the switch, provided the user knows the Username and Password.

Format

create trusted_host [<ipaddr> | <ipv6addr> | network <network_address> | ipv6_prefix <ipv6networkaddr>] {snmp | telnet | ssh | http | https | ping}

Parameters

<ipaddr> - Specifies the IP address of the trusted host.
<ipv6addr> - Specifies the IPv6 address of the trusted host.
network - Specifies the network address of the trusted network. The form of network address is xxx.xxx.xxx.xxx/y. **<network_address>** - Specifies the network address of the trusted network. The form of network address is xxx.xxx.xxx.xxx/y.
ipv6_prefix - Specifies the IPv6 network address of the trusted network. **<ipv6networkaddr>** - Specifies the IPv6 network address of the trusted network.
snmp - (Optional) Specifies the trusted host for SNMP.
telnet - (Optional) Specifies the trusted host for Telnet.
ssh - (Optional) Specifies the trusted host for SSH.
http - (Optional) Specifies the trusted host for HTTP.
https - (Optional) Specifies the trusted host for HTTPs.
ping - (Optional) Specifies the trusted host for Ping.

Note: If no management method is specified, the IP (range) can access the Switch through any method.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create a trusted host:

```
DES-3810-28:admin#create trusted_host 10.48.74.121
Command: create trusted_host 10.48.74.121

Success.

DES-3810-28:admin#
```

61-4 config trusted_host

Description

This command is used to configure the access interfaces for the trusted host.

Format

config trusted_host [<ipaddr> | <ipv6addr> | network <network_address> | ipv6_prefix <ipv6networkaddr>] [add | delete] {snmp | telnet | ssh | http | https | ping | all}

Parameters

<ipaddr> - Specifies the IP address of the trusted host.
<ipv6addr> - Specifies the IPv6 address of the trusted host.
network - Specifies the network address of the trusted network. **<network_address>** - Specifies the network address of the trusted network.
ipv6_prefix - Specifies the IPv6 network address of the trusted network. **<ipv6networkaddr>** - Specifies the IPv6 network address of the trusted network.
add - Allow to manage applications for a trusted host.
delete - Prevent from managing applications for a trusted host.
snmp - (Optional) Specifies the trusted host for SNMP.
telnet - (Optional) Specifies the trusted host for Telnet.
ssh - (Optional) Specifies the trusted host for SSH.
http - (Optional) Specifies the trusted host for HTTP.
https - (Optional) Specifies the trusted host for HTTPs.
ping - (Optional) Specifies the trusted host for Ping.
all – (Optional) Specifies the trusted host for all applications.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the trusted host:

```
DES-3810-28:admin#config trusted_host 10.48.74.121 add ssh telnet
Command: config trusted_host 10.48.74.121 add ssh telnet

Success.

DES-3810-28:admin#
```

61-5 delete trusted_host

Description

This command is used to delete a trusted host entry.

Format

delete trusted_host [ipaddr <ipaddr> | ipv6address <ipv6addr> | network <network_address> | ipv6_prefix <ipv6networkaddr> | all]

Parameters

ipaddr - Specifies the IP address of the trusted host. **<ipaddr>** - Specifies the IP address of the trusted host.
ipv6address - Specifies the IPv6 address of the trusted host. **<ipv6addr>** - Specifies the IPv6 address of the trusted host.
network - Specifies the network address of the trusted network. The form of network address is xxx.xxx.xxx.xxx/y. **<network_address>** - Specifies the network address of the trusted network. The form of network address is xxx.xxx.xxx.xxx/y.
ipv6_prefix - Specifies the IPv6 network address of the trusted network.

<ipv6networkaddr> - Specifies the IPv6 network address of the trusted network.
all - Specifies that all trusted hosts will be deleted.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete a trusted host:

```
DES-3810-28:admin#delete trusted_host ipaddr 10.48.74.121
Command: delete trusted_host ipaddr 10.48.74.121

Success.

DES-3810-28:admin#
```

61-6 show trusted_host

Description

This command is used to display the trusted hosts.

Format

show trusted_host

Parameters

None.

Restrictions

None.

Example

To display trusted hosts:

```
DES-3810-28:admin#show trusted_host
Command: show trusted_host

Management Stations

IP Address                                              Access Interface
------------------------------------------------------------------------------
10.48.93.100
10.51.17.1
10.50.95.90

Total Entries : 3

DES-3810-28:admin#
```

61-7 config snmp system_name

Description

This command is used to configure the SNMP system name of the switch.

Format

config snmp system_name <sw_name>

Parameters

<sw_name> - Specifies an SNMP system name for the switch. A maximum of 255 characters is allowed.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the switch SNMP name for “DES-3810-28 Fast Ethernet Switch”:

```
DES-3810-28:admin#config snmp system_name DES-3810-28 Fast Ethernet Switch
Command: config snmp system_name DES-3810-28 Fast Ethernet Switch

Success.

DES-3810-28:admin#
```

61-8 config snmp system_location

Description

This command is used to enter a description of the SNMP system location of the switch. A maximum of 255 characters can be used.

Format

config snmp system_location <sw_location>

Parameters

<sw_location> - Specifies an SNMP system location for the switch. A maximum of 255 characters is allowed.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the switch location for “HQ 5F”:

```
DES-3810-28:admin#config snmp system_location HQ 5F
Command: config snmp system_location HQ 5F

Success.

DES-3810-28:admin#
```

61-9 config snmp system_contact

Description

This command is used to enter the name and/or other information to identify an SNMP system contact person who is responsible for the switch. A maximum of 255 characters can be used.

Format

config snmp system_contact <sw_contact>

Parameters

<sw_contact> - Specifies an SNMP system contact person. A maximum of 255 characters is allowed.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the switch contact to “MIS Department IV”:

```
DES-3810-28:admin#config snmp system_contact "MIS Department IV"
Command: config snmp system_contact "MIS Department IV"

Success.

DES-3810-28:admin#
```

61-10 enable snmp traps

Description

This command is used to enable SNMP trap support on the switch.

Format

enable snmp traps

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable SNMP trap support:

```
DES-3810-28:admin#enable snmp traps
Command: enable snmp traps

Success.

DES-3810-28:admin#
```

61-11 disable snmp traps

Description

This command is used to disable SNMP trap support on the switch.

Format

disable snmp traps

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To prevent SNMP traps from being sent from the switch:

```
DES-3810-28:admin#disable snmp traps
Command: disable snmp traps

Success.

DES-3810-28:admin#
```

61-12 enable snmp authenticate_traps

Description

This command is used to enable SNMP authentication failure trap support.

Format

enable snmp authenticate_traps

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable SNMP authentication trap support:

```
DES-3810-28:admin#enable snmp authenticate_traps
Command: enable snmp authenticate_traps

Success.

DES-3810-28:admin#
```

61-13 disable snmp authenticate_traps

Description

This command is used to disable SNMP authentication failure trap support.

Format

disable snmp authenticate_traps

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable SNMP authentication trap support:

```
DES-3810-28:admin#disable snmp authenticate_traps
Command: disable snmp authenticate_traps

Success.

DES-3810-28:admin#
```

61-14 enable snmp linkchange_traps

Description

This command is used to enable SNMP linkchange trap support.

Format

enable snmp linkchange_traps

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command..

Example

To enable SNMP linkchange trap support:

```
DES-3810-28:admin#enable snmp linkchange_traps
Command: enable snmp linkchange_traps

Success.

DES-3810-28:admin#
```

61-15 disable snmp linkchange_traps

Description

This command is used to disable SNMP linkchange trap support.

Format

disable snmp linkchange_traps

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable SNMP linkchange trap support:

```
DES-3810-28:admin#disable snmp linkchange_traps
Command: disable snmp linkchange_traps

Success.

DES-3810-28:admin#
```

61-16 config snmp linkchange_traps ports

Description

This command is used to configure the sending of linkchange traps and per port control for sending of change traps.

Format

config snmp linkchange_traps ports [all | <portlist>] [enable | disable]

Parameters

all - Specifies all ports.
<portlist> - Specifies a port or range of ports.
enable - Enable sending of the link change trap for this port. **disable** - Disable sending of the link change trap for this port.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable SNMP linkchange traps for ports 1 to 4:

```
DES-3810-28:admin#config snmp linkchange_traps ports 1-4 enable
Command: config snmp linkchange_traps ports 1-4 enable

Success.

DES-3810-28:admin#
```

61-17 show snmp traps

Description

This command is used to display the SNMP trap state.

Format

show snmp traps {linkchange_traps {ports <portlist>}}

Parameters

linkchange_traps - (Optional) Specifies to display the status of linkchange traps.
ports - (Optional) Specifies a port or port range. **<portlist>** - Specifies a port or port range.

Restrictions

None.

Example

To display SNMP traps:

```
DES-3810-28:admin#show snmp traps
Command: show snmp traps

SNMP Traps         : Enabled
Authenticate Trap  : Enabled
Linkchange Traps   : Enabled
Coldstart Traps    : Enabled
Warmstart Traps    : Enabled

DES-3810-28:admin#
```

To display SNMP linkchange traps:

```
DES-3810-28:admin#show snmp traps linkchange_traps
Command: show snmp traps linkchange_traps

Linkchange Traps   : Enabled
  Port 1 : Enabled
  Port 2 : Enabled
  Port 3 : Enabled
  Port 4 : Enabled
  Port 5 : Enabled
  Port 6 : Enabled
  Port 7 : Enabled
  Port 8 : Enabled
  Port 9 : Enabled
  Port 10: Enabled
  Port 11: Enabled
  Port 12: Enabled
  Port 13: Enabled
  Port 14: Enabled
  Port 15: Enabled
  Port 16: Enabled
  Port 17: Enabled
  Port 18: Enabled
  Port 19: Enabled
  Port 20: Enabled
CTRL+C ESC q Quit SPACE n Next Page ENTER Next Entry a All
```

61-18 config snmp coldstart_traps

Description

This command is used to configure the trap state for coldstart events.

Format

config snmp coldstart_traps [enable | disable]

Parameters

enable - Enable traps for coldstart events. The default state is enabled.
disable - Disable traps for coldstart events.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable traps for coldstart events:

```
DES-3810-28:admin#config snmp coldstart_traps enable
Command: config snmp coldstart_traps enable

Success.

DES-3810-28:admin#
```

61-19 config snmp warmstart_traps

Description

This command is used to configure the trap state for warmstart events.

Format

config snmp warmstart_traps [enable | disable]

Parameters

enable - Enable traps for warmstart events. The default state is enabled.
disable - Disable traps for warmstart events.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable traps for warmstart events:

```
DES-3810-28:admin#config snmp warmstart_traps enable
Command: config snmp warmstart_traps enable

Success.

DES-3810-28:admin#
```

61-20 config trap source_ipif

Description

This command is used to force change the ipif information in trap messages. By default, trap messages will carry the information of the ipif they belong to.

Format

config trap source_ipif [<ipif_name 12> {<ipaddr> | <ipv6addr>} | none]

Parameters

<ipif_name 12> - Specifies the IP interface name. If only this parameter is specified, the IPv4 address and the smallest IPv6 address of ipif_name will be used as source IP addresses.

<ipaddr> - (Optional) Specifies the IPv4 address.
<ipv6addr> - (Optional) Specifies the IPv6 address.
none - Specifies to clear the configured source IP interface.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the trap source IP interface:

```
DES-3810-28:admin#config trap source_ipif inter4
Command: config trap source_ipif inter4

Success.

DES-3810-28:admin#
```

To clear the configured trap source IP interface:

```
DES-3810-28:admin#config trap source_ipif none
Command: config trap source_ipif none

Success.

DES-3810-28:admin#
```

61-21 show trap source_ipif

Description

This command is used to display the trap source IP interface.

Format

show trap source_ipif

Parameters

None.

Restrictions

None.

Example

To display the trap source IP interface:

```
DES-3810-28:admin#show trap source_ipif
Command: show trap source_ipif

Trap Source IP Interface Configuration:

IP Interface        : ipif4
IPv4 Address        : None
IPv6 Address        : 3000::52

DES-3810-28:admin#
```

61-22 config rmon trap

Description

This command is used to configure the trap state for RMON events.

Format

config rmon trap {rising_alarm [enable | disable] | falling_alarm [enable | disable]}

Parameters

rising_alarm - (Optional) Specifies the trap state for rising alarm. The default state is enabled. **enable** - Enable the trap state for rising alarm. **disable** - Disable the trap state for rising alarm.
falling_alarm - (Optional) Specifies the trap state for falling alarm. The default state is enabled. **enable** - Enable the trap state for falling alarm. **disable** - Disable the trap state for falling alarm.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable the trap state for RMON:

```
DES-3810-28:admin#config rmon trap rising_alarm disable
Command: config rmon trap rising_alarm disable

Success.

DES-3810-28:admin#
```

61-23 show rmon

Description

This command is used to display RMON related settings.

Format

show rmon

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To display current RMON settings:

```
DES-3810-28:admin#show rmon
Command: show rmon

RMON Rising Alarm Trap   : Enabled
RMON Falling Alarm Trap  : Enabled

DES-3810-28:admin#
```

Chapter 62 Network Monitoring Commands

show packet ports <portlist>
show error ports <portlist>
show utilization [ports | cpu]
show utilization dram
show utilization flash
show historical_counter [packet | error] [ports <portlist>] [15_minute {slot <index 1-96>} | 1_day {slot <index 1-2>}]
show historical_utilization [cpu | memory] [15_minute {slot <index 1-96>} | 1_day {slot <index 1-2>}]
clear historical_counters ports [<portlist> | all]
clear counters {ports <portlist>}
clear log
show log {[index <value_list> | severity {module <module_list>} {emergency | alert | critical | error | warning | notice | informational | debug | <level_list 0-7>} | module <module_list>]}
show log_save_timing
show log_software_module
config log_save_timing [time_interval <min 1-65535> | on_demand | log_trigger]
enable syslog
disable syslog
show syslog
config syslog host [<index> | all] {severity [emergency | alert | critical | error | warning | notice | informational | debug | <level 0-7>] | facility [local0 | local1 | local2 | local3 | local4 | local5 | local6 | local7] | udp_port <udp_port_number> | ipaddress [<ipaddr> | <ipv6addr>] | state [enable | disable]}(1)
create syslog host <index 1-4> ipaddress [<ipaddr> | <ipv6addr>] {severity [emergency | alert | critical | error | warning | notice | informational | debug | <level 0-7>] | facility [local0 | local1 | local2 | local3 | local4 | local5 | local6 | local7] | udp_port <udp_port_number> | state [enable | disable]}
delete syslog host [<index 1-4> | all]
show syslog host {<index 1-4>}
config syslog source_ipif [<ipif_name 12> {<ipaddr> | <ipv6addr>} | none]
show syslog source_ipif
show attack_log {index <value_list>}
clear attack_log

62-1 show packet ports

Description

This command is used to display statistics about the packets sent and received by the switch.

Format

show packet ports <portlist>

Parameters

<portlist> - Specifies a port or range of ports to be displayed.

Restrictions

None.

Example

To display the packets analysis for port 7:

```
DES-3810-28:admin#show packet ports 7
Command: show packet ports 7

Port number : 7
================================================================================
Frame Size/Type  Frame Counts          Frames/sec
---------------  --------------------  --------------------
64               572                   27
65-127           151                   5
128-255          39                    0
256-511          65                    0
512-1023         7                     0
1024-1536        0                     0
Unicast RX       4                     0
Multicast RX     162                   1
Broadcast RX     568                   31

Frame Type       Total                 Total/sec
----------       --------------------  --------------------
RX Bytes         81207                 2237
RX Frames        734                   32
TX Bytes         8432                  0
TX Frames        100                   0

DES-3810-28:admin#
```

62-2 show error ports

Description

This command is used to display error statistics for a range of ports.

Format

show errors ports <portlist>

Parameters

<portlist> - Specifies a port or range of ports to be displayed.

Restrictions

None.

Example

To display the errors of port 3:

```
DES-3810-28:admin#show error ports 3
Command: show error ports 3

Port number : 3
RX Frames                                   TX Frames
---------                                   ---------
CRC Error       0                   Late Collision        0
Undersize       0                   Excessive Collision   0
Oversize        0                   Collision             0
Fragment        0
Jabber          0
Drop Pkts       0

CTRL+C ESC q Quit SPACE n Next Page p Previous Page r Refresh
```

62-3 show utilization

Description

This command is used to display real-time port utilization or CPU statistics.

Format

show utilization [ports | cpu]

Parameters

ports - Specifies to display real-time port statistics.
cpu - Specifies to display real-time CPU statistics.

Restrictions

None.

Example

To display port utilization:

```
DES-3810-28:admin#show utilization ports
Command: show utilization ports

Port     TX/sec     RX/sec     Util    Port    TX/sec      RX/sec    Util
------ ---------- ---------- ----    ------ ---------- ---------- ----
1      0          0          0       21    0          0          0
2      0          0          0       22    0          0          0
```

```
3       0            0            0        23     0            0            0
4       0            0            0        24     0            0            0
5       0            0            0        25     0            0            0
6       0            0            0        26     0            0            0
7       0            0            0        27     0            0            0
8       0            0            0       28     0            0            0
9     0           0           0
10    0           0           0
11    0           0           0
12    0           0           0
13    0           0           0
14    0           0           0
15    0           0           0
16    0           0           0
17    0           0           0
18    0           0           0
19    0           0           0
20    0           0           0
CTRL+C ESC q Quit SPACE n Next Page p Previous Page r Refresh
```

To display CPU utilization:

```
DES-3810-28:admin# show utilization cpu
Command: show utilization cpu

CPU utilization :
-------------------------------------------------------------------------------
Five seconds – 20%        One minute – 10%         Five minutes – 70%


CTRL+C ESC q Quit SPACE n Next Page p Previous Page r Refresh
```

62-4 show utilization dram

Description

This command is used to display real-time DRAM utilization statistics.

Format

show utilization dram

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To display DRAM utilization:

```
DES-3810-28:admin# show utilization dram
Command: show utilization dram

DRAM utilization :
           Total DRAM     : 262144   KB
           Used DRAM      :  119586   KB
           Utilization    :  45%


CTRL+C ESC q Quit SPACE n Next Page p Previous Page r Refresh
```

62-5 show utilization flash

Description

This command is used to display real-time Flash utilization statistics.

Format

show utilization flash

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To display Flash utilization:

```
DES-3810-28:admin# show utilization flash
Command: show utilization flash

FLASH Memory Utilization :
           Total FLASH     : 30608   KB
           Used FLASH      :  4786    KB
           Utilization     :  15%


CTRL+C ESC q Quit SPACE n Next Page p Previous Page r Refresh
```

62-6 show historical_counter

Description

This command is used to display the historical statistics count for the packets sent and received by the switch.There are two kinds of statistics offered, 15-minute based and 1-day based. For statistics based on 15 minutes, there are five counting slots for the historical statistic count. Suppose that the system has been up for more than 75 mins, then slot 1 refers to the time since 15 minutes ago until now, and slot 2 refers to the time since 30 minutes ago until 15 minutes ago. For statistics based on a day, there are two counting slots for the historical statistic count. The counter for a slot represents statistics count of occurrence in that time slot.

Format

show historical_counter [packet | error] [ports <portlist>] [15_minute {slot <index 1-96>} | 1_day {slot <index 1-2>}]

Parameters

packet - Specifies to display valid packets.
error - Specifies to display error packets.
<portlist> - Specifies a port or range of ports to be displayed.
15_minute - Specifies to display the 15-minute based statistics count. If there is no option specified, all 15-minutes time slots will be displayed. **slot** – Specifies the slot number to display from 1 to 96. **<index 1-96>** - Specifies the slot number to display from 1 to 96.
1_day - Specifies to display the daily based statistics count. If there is no option specified, all 1-day time slots will be displayed. **slot** - Specifies the slot number to display from 1 to 2. **<index 1-2>** - Specifies the slot number to display from 1 to 2.

Restrictions

None.

Example

To display the statistics count of packets for the slot of the last 15 minutes:

```
DES-3810-28:admin#show historical_counter packet ports 1 15_minute slot 1
Command: show historical_counter packet ports 1 15_minute slot 1

Port 1 15-Minute Slot 1

Starttime : 27 Jan 2000  22:32:51
Endtime    : 27 Jan 2000  22:18:11

Frame Size/Type        Frame Count
---------------        -----------
Pkts TX                   0
Bytes TX                  0
Pkts RX                   43
Bytes RX                  3437
64 RX                     37
```

```
65-127 RX                 3
128-255 RX                0
256-511 RX                3
512-1023 RX               0
1024-1518 RX              0
Unicast RX                0
Multicast RX              0
Broadcast RX              43

CTRL+C ESC q Quit SPACE n Next Page p Previous Page r Refresh
```

To display the statistics count of error packets for slot 2:

```
DES-3810-28:admin#show historical_counter error ports 1 15_minute slot 2
Command: show historical_counter error ports 1 15_minute slot 2

Port 1 15-Minute Slot 2

Starttime : 27 Jan 2000  22:32:51
Endtime    : 27 Jan 2000  22:18:11

Frame Size/Type        Frame Count
---------------        -----------
Fragment RX             0
JabberPktsRX            0
Oversize Pkts RX       0
Undersize Pkts RX      0
Collision TX            0
Dropped Pkts            0

CTRL+C ESC q Quit SPACE n Next Page p Previous Page r Refresh
```

62-7 show historical_utilization

Description

This command is used to display the historical utilization of CPU and memory. There are two kinds of statistics offered, 15-minute based and 1-day based. For statistics based on 15 minutes, there are five counting slots for the historical statistic count. Suppose that the system has been up for more than 75 mins, then slot 1 refers to the time since 15 minutes ago until now, and slot 2 refers to the time since 30 minutes ago until 15 minutes ago. For statistics based on a day, there are two counting slots for the historical statistic count. The statistics for the utilization count the average of CPU utilization and average of memory usage rate in that time slot.

Format

show historical_utilization [cpu | memory] [15_minute {slot <index 1-96>} | 1_day {slot <index 1-2>}]

Parameters

cpu - Specifies to display the utilization of CPU.

memory - Specifies to display the utilization of memory.
15_minute - Specifies to display the 15-minute based statistics count. If there is no option specified, all 15-minutes time slots will be displayed. **slot** – Specifies the slot number to display from 1 to 96. **<index 1-96>** - Specifies the slot number to display from 1 to 96.
1_day - Specifies to display the daily based statistics count. If there is no option specified, all 1-day time slots will be displayed. **slot** - Specifies the slot number to display from 1 to 2. **<index 1-2>** - Specifies the slot number to display from 1 to 2.

Restrictions

None.

Example

To display the CPU utilization of the 15-minutes based slot:

```
DES-3810-28:admin#show historical_utilization cpu 15_minute
Command: show historical_utilization cpu 15_minute

CPU Utilization
-------------------------------------------------------------------------------
----
15-Minute Slot 1 (27 Jan 2000 23:00:51 – 27 Jan 2000 22:45:51)  :   1 %
15-Minute Slot 2 (27 Jan 2000 22:45:51 – 27 Jan 2000 22:30:51)  :   1 %
15-Minute Slot 3 (27 Jan 2000 22:30:51 – 27 Jan 2000 22:15:51)  :   0 %
15-Minute Slot 4 (27 Jan 2000 22:15:51 – 27 Jan 2000 22:00:51)  :  48 %
15-Minute Slot 5 (27 Jan 2000 22:00:51 – 27 Jan 2000 21:45:51)  :   0 %


CTRL+C ESC q Quit SPACE n Next Page p Previous Page r Refresh
```

To display the CPU utilization of the recent daily-based slot:

```
DES-3810-28:admin#show historical_utilization cpu 1_day
Command: show historical_utilization cpu 1_day

CPU Utilization
-------------------------------------------------------------------------------
----
1-Day Slot 1 (27 Jan 2000 23:06:16 – 27 Jan 2000 23:06:16)  :   1 %
1-Day Slot 2 (26 Jan 2000 23:06:16 – 25 Jan 2000 23:06:16)  :   0 %


CTRL+C ESC q Quit SPACE n Next Page p Previous Page r Refresh
```

To display the memory utilization of the 15-minutes based slot:

```
DES-3810-28:admin#show historical_utilization memory 15_minute
Command: show historical_utilization memory 15_minute

Memory Utilization
-------------------------------------------------------------------------------
----
15-Minute Slot 1 (27 Jan 2000 23:00:51 – 27 Jan 2000 22:45:51)  :  49 %
15-Minute Slot 2 (27 Jan 2000 22:45:51 – 27 Jan 2000 22:30:51)  :  49 %
15-Minute Slot 3 (27 Jan 2000 22:30:51 – 27 Jan 2000 22:15:51)  :  49 %
15-Minute Slot 4 (27 Jan 2000 22:15:51 – 27 Jan 2000 22:00:51)  :  49 %
15-Minute Slot 5 (27 Jan 2000 22:00:51 – 27 Jan 2000 21:45:51)  :  48 %


CTRL+C ESC q Quit SPACE n Next Page p Previous Page r Refresh
```

To display the memory utilization of the daily-based slot:

```
DES-3810-28:admin#show historical_utilization memory 1_day
Command: show historical_utilization memory 1_day

Memory Utilization
-------------------------------------------------------------------------------
----------
1-Day Slot 1 (27 Jan 2000 23:06:16 – 27 Jan 2000 23:06:16)  :  48 %
1-Day Slot 2 (26 Jan 2000 23:06:16 – 25 Jan 2000 23:06:16)  :   0 %


CTRL+C ESC q Quit SPACE n Next Page p Previous Page r Refresh
```

62-8 clear historical_counters ports

Description

This command is used to clear port historical counter statistics.

Format

clear historical_counters ports [<portlist> | all]

Parameters

<portlist> - Specifies a port or range of ports to be selected.
all - Specifies that all ports will be selected.

Restrictions

Only Administrators and Operators can issue this command.

Example

To clear the historical counter for all ports:

```
DES-3810-28:admin#clear historical_counters all
Command: clear historical_counters all

Success.

DES-3810-28:admin
```

62-9 clear counters

Description

This command is used to clear the switch's statistics counters.

Format

clear counters {ports <portlist>}

Parameters

ports - Specifies a range of ports to be configured. The beginning and end of the port list range are separated by a dash.
<portlist> - Specifies a range of ports to be configured.

Note: If no parameter is specified, the system will count all of the ports.

Restrictions

Only Administrators and Operators can issue this command.

Example

To clear the switch's statistics counters for ports 7 to 9:

```
DES-3810-28:admin#clear counters ports 7-9
Command: clear counters ports 7-9

Success.

DES-3810-28:admin#
```

62-10 clear log

Description

This command is used to clear the switch's history log.

Format

clear log

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To clear the switch's history log:

```
DES-3810-28:admin#clear log
Command: clear log

Success

DES-3810-28:admin#
```

62-11 show log

Description

This command is used to display the switch history log.

Format

show log {[index <value_list> | severity {module <module_list>} {emergency | alert | critical | error | warning | notice | informational | debug | <level_list 0-7>} | module <module_list>]}

Parameters

index - (Optional) Specifies to display the history log between two values. **<value_list>** - Specifies to display the history log between two values. For example, show log index 1-5 will display the history log from 1 to 5.
severity - (Optional) Specifies the severity level: emergency, alert, critical, error, warning, notice, informational, or debug. **module** – (Optional) Specifies the modules to be displayed. The module can be obtained by the show log_software_module command. Use commas to separate multiple modules. **<module_list>** - Specifies the modules to be displayed.
emergency - (Optional) Specifies severity level 0.
alert - (Optional) Specifies severity level 1.
critical - (Optional) Specifies severity level 2.
error - (Optional) Specifies severity level 3.
warning - (Optional) Specifies severity level 4.
notice - (Optional) Specifies severity level 5.
informational - (Optional) Specifies severity level 6.
debug - (Optional) Specifies severity level 7.
<level_list 0-7> - (Optional) Specifies a list of severity levels to be displayed. If more than one severty level, separate them by comma. The level numbers are from 0 to 7.
module - Specifies the modules to be displayed. The module can be obtained by the show log_software_module command. Use commas to separate multiple modules. **<module_list>** - Specifies the modules to be displayed.

Note: If no parameter is specified, all history log entries will be displayed.

Restrictions

None.

Example

To display the switch history log:

```
DES-3810-28:admin#show log index 1-5
Command: show log index 1-5

Index  Date      Time       Log Text
-----  ------------------  --------------------------------------------------
5      2000-01-01 00:00:41  Port 5 link down
4      2000-01-01 00:00:31  Port 3 link up, 100Mbps FULL duplex
3      2000-01-01 00:00:31  Successful login through Console
(Username:Anonymous)
2      2000-01-01 00:00:31  Console session timed out (Username: dlink)
1      2000-01-01 00:00:31  Spanning Tree Protocol is disabled

DES-3810-28:admin#
```

62-12 show log_save_timing

Description

This command is used to display the method to save log.

Format

show log_save_log_timing

Parameters

None.

Restrictions

None.

Example

To display the method to save log:

```
DES-3810-28:admin#show log_save_timing
Command: show log_save_timing

Saving Log Method:  On_demand

DES-3810-28:admin#
```

62-13 show log_software_module

Description

This command is used to display the protocols or applications that support the enhanced log.

Format

show log_software_module

Parameters

None.

Restrictions

None.

Example

To display the the protocols or applications that support the enhanced log:

```
DES-3810-28:admin#show log_software_module
Command: show log_software_module

CFM_EXT             DHCPV6_RELAY        ERPS                ERROR_LOG
MSTP                OSPFV2

DES-3810-28:admin#
```

62-14 config log_save_timing

Description

This command is used to set the method to save log.

Format

config log_save_timing [time_interval <min 1-65535> | on_demand | log_trigger]

Parameters

time_interval - Specifies to save log to Flash every xxx minutes. If no log occurs in this period, nothing will be saved. **<min 1-65535>** - Specifies the time between 1 and 65535 minutes.

on_demand - Specifies to save log to Flash whenever the user types "save log" or "save all". This is the default.
log_trigger - Specifies to save log to Flash whenever log arrives.

Restrictions

Only Administrators and Operators can issue this command..

Example

To configure method to save log as on demand:

```
DES-3810-28:admin# config log_save_timing on_demand
Command: config log_save_timing on_demand

Success.

DES-3810-28:admin#
```

62-15 enable syslog

Description

This command is used to globally enable syslog to send log messages to a remote server.

Format

enable syslog

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable syslog to send a message:

```
DES-3810-28:admin#enable syslog
Command: enable syslog

Success
DES-3810-28:admin#
```

62-16 disable syslog

Description

This command is used to disable syslog from sending a message.

Format

disable syslog

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable syslog sending a message:

```
DES-3810-28:admin#disable syslog
Command: disable syslog

Success

DES-3810-28:admin#
```

62-17 show syslog

Description

This command is used to display the syslog protocol global state.

Format

show syslog

Parameters

None.

Restrictions

None.

Example

To display the syslog protocol global state:

```
DES-3810-28:admin#show syslog
Command: show syslog

Syslog Global State: Enabled

DES-3810-28:admin#
```

62-18 config syslog host

Description

This command is used to configure the syslog host configuration.

Format

config syslog host [<index> | all] {severity [emergency | alert | critical | error | warning | notice | informational | debug | <level 0-7>] | facility [local0 | local1 | local2 | local3 | local4 | local5 | local6 | local7] | udp_port <udp_port_number> | ipaddress [<ipaddr> | <ipv6addr>] | state [enable | disable]}(1)

Parameters

<index> - Specifies the host index.
all - Specifies all hosts.
severity - (Optional) Specifies the severity level supported: emergency, alert, critical, error, warning, notice, informational, or debug. **emergency** - Specifies emergency messages. **alert** - Specifies alert messages. **critical** - Specifies critical messages. **error** - Specifies error messages. **warning** - Specifies warning messages. **notice** - Specifies notice messages. **informational** - Specifies informational messages. **debug** - Specifies debug messages. **<level 0-7>** - Specifies a level between 0 and 7.
facility - Some of the operating system daemons and processes have been assigned facility values. Processes and daemons that have not been explicitly assigned a facility may use any of the"local use" facilities or they may use the "user level" facility. Those facilities that have been designated are shown in the following: **local0** - User-defined facility. **local1** - User-defined facility. **local2** - User-defined facility. **local3** - User-defined facility. **local4** - User-defined facility. **local5** - User-defined facility. **local6** - User-defined facility. **local7** - User-defined facility.
udp_port - Specifies the UDP port number. **<udp_port_number>** - Specifies the UDP port number.
ipaddress - Specifies the IPv4 address or IPv6 address of the host. **<ipaddr>** - Specifies the IPv4 address of the host. **<ipv6addr>** - Specifies the IPv6 address of the host.
state - The syslog protocol has been used for the transmission of event notification messages across networks to host. This option enables or disables the host to receive such messages. **enable** - Enable the host to receive messages. **disable** - Disable the host to receive messages.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the syslog host configuration:

```
DES-3810-28:admin#config syslog host all severity facility local0
Command: config syslog host all severity facility local0

Success.

DES-3810-28:admin#
```

62-19 create syslog host

Description

This command is used to create a new syslog host.

Format

create syslog host <index 1-4> ipaddress [<ipaddr> | <ipv6addr>] {severity [emergency | alert | critical | error | warning | notice | informational | debug | <level 0-7>] | facility [local0 | local1 | local2 | local3 | local4 | local5 | local6 | local7] | udp_port <udp_port_number> | state [enable | disable]}

Parameters

<index 1-4> - Specifies the host index.
ipaddress - Specifies the IPv4 address or IPv6 address of the host. **<ipaddr>** - Specifies the IPv4 address of the host. **<ipv6addr>** - Specifies the IPv6 address of the host.
severity - (Optional) Specifies the severity level supported: emergency, alert, critical, error, warning, notice, informational, or debug. **emergency** - Specifies emergency messages. **alert** - Specifies alert messages. **critical** - Specifies critical messages. **error** - Specifies error messages. **warning** - Specifies warning messages. **notice** - Specifies notice messages. **informational** - Specifies informational messages. **debug** - Specifies debug messages. **<level 0-7>** - Specifies a level between 0 and 7.
facility - Some of the operating system daemons and processes have been assigned facility values. Processes and daemons that have not been explicitly assigned a facility may use any of the"local use" facilities or they may use the "user level" facility. Those facilities that have been designated are shown in the following: **local0** - User-defined facility. **local1** - User-defined facility. **local2** - User-defined facility. **local3** - User-defined facility. **local4** - User-defined facility.

local5 - User-defined facility. **local6** - User-defined facility. **local7** - User-defined facility.
udp_port - Specifies the UDP port number. **<udp_port_number>** - Specifies the UDP port number.
state - The syslog protocol has been used for the transmission of event notification messages across networks to host. This option enables or disables the host to receive such messages. **enable** - Enable the host to receive messages. **disable** - Disable the host to receive messages.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create a new syslog host:

```
DES-3810-28:admin#create syslog host 1 severity facility local0
Command: create syslog host 1 severity facility local0

Success.

DES-3810-28:admin#
```

62-20 delete syslog host

Description

This command is used to delete syslog host(s).

Format

delete syslog host [<index 1-4> | all]

Parameters

<inex 1-4> - Specifies the host index.
all - Specifies all hosts.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete a syslog host:

```
DES-3810-28:admin#delete syslog host 4
Command: delete syslog host 4

Success
```

```
DES-3810-28:admin#
```

62-21 show syslog host

Description

This command is used to display syslog host configurations.

Format

show syslog host {<index 1-4>}

Parameters

<index 1-4> - (Optional) Specifies the host index.

Note: If no parameter is specified, all hosts will be displayed.

Restrictions

None.

Example

To display syslog host configurations:

```
DES-3810-28:admin#show syslog host
Command: show syslog host

Syslog Global State: Disabled

Host 1
  IP Address      : 10.1.1.2
  Severity        : Warning
  Facility        : Local10
  UDP port        : 514
  Status          : Disabled

Host 2
  IP Address      : 3000:501:100:ffff:101:202:303:1
  Severity        : Emergency
  Facility        : Local10
  UDP port        : 514
  Status          : Disabled

Total Entries : 2

DES-3810-28:admin#
```

62-22 config syslog source_ipif

Description

This command is used to force change the ipif information in syslogs. By default, syslogs will carry the information of the ipif they belong to.

Format

config syslog source_ipif [<ipif_name 12> {<ipaddr> | <ipv6addr>} | none]

Parameters

<ipif_name 12> - Specifies the IP interface name. If only this parameter is specified, the IPv4 address and the smallest IPv6 address of ipif_name will be used as source IP addresses.
<ipaddr> - (Optional) Specifies the IP4 address.
<ipv6addr> - (Optional) Specifies the IPv6 global address.
none - Specifies to clear the configured source IP interface.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the syslog source IP interface:

```
DES-3810-28:admin#config syslog source_ipif Sysetm
Command: config syslog source_ipif System

Success.

DES-3810-28:admin#
```

To clear the configured source IP interface for syslog:

```
DES-3810-28:admin#config syslog source_ipif none
Command: config syslog source_ipif none

Success.

DES-3810-28:admin#
```

62-23 show syslog source_ipif

Description

This command is used to display the syslog source IP interface.

Format

show syslog source_ipif

Parameters

None.

Restrictions

None.

Example

To display the syslog source interface:

```
DES-3810-28:admin#show syslog source_ipif
Command: show syslog source_ipif

Syslog Source IP Interface Configuration:

IP Interface        : System
IPv4 Address        : None
IPv6 Address        : None

DES-3810-28:admin#
```

62-24 show attack_log

Description

This command is used to display the switch's attack log.

Format

show attack_log {index <value_list>}

Parameters

index - (Optional) Specifies the list of index of the entries that need to be displayed. **<value_list>** - Specifies the list of index of the entries that need to be displayed. For example, show attack_log index 1-5 will display the attack log messages from 1 to 5.

Note: If no parameter is specified, all entries in the attack log will be displayed.

Restrictions

None.

Example

To display the switch's attack log:

```
DES-3810-28:admin#show attack_log index 1-3
Command: show attack_log index 1-3
```

```
Index Date       Time      Level     Log Text
----- ---------- -------- -------- ----------------------------------------
3      2009-12-26 14:15:45 WARN(4)   Port security violation mac addrss 00-18-
F3-10-94-89 on locking address full port 28
2      2009-12-26 14:15:45  WARN(4)  Port security violation mac addrss 00-18-
F3-10-94-89 on locking address full port 28
1      2009-12-26 14:15:45  WARN(4)  Port security violation mac addrss 00-18-
F3-10-94-89 on locking address full port 28

DES-3810-28:admin#
```

62-25 clear attack_log

Description

This command is used to clear the switch's attack log.

Format

clear attack_log

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To clear the switch's attack log:

```
DES-3810-28:admin#clear attack_log
Command: clear attack_log

Success.

DES-3810-28:admin#
```

Chapter 63 OAM Commands

config ethernet_oam ports [<portlist> | all] [mode [active | passive] | state [enable | disable] | link_monitor [error_symbol {threshold <range 0-4294967295> | window <millisecond 1000-60000> | notify_state [enable | disable]} (1) | error_frame {threshold <range 0-4294967295> | window <millisecond 1000-60000> | notify_state [enable | disable]} (1) | error_frame_seconds {threshold <range 1-900> | window <millisecond 10000-900000> | notify_state [enable | disable]}(1) | error_frame_period {threshold <range 0-4294967295> | window <number 148810-100000000> | notify_state [enable | disable]}(1)] | critical_link_event [dying_gasp | critical_event] notify_state [enable | disable] | remote_loopback [start | stop] | received_remote_loopback [process | ignore]]
show ethernet_oam ports {<portlist>} [status | configuration | statistics | event_log {index <value_list>}]
clear ethernet_oam ports [<portlist> | all] [event_log | statistics]

63-1 config ethernet_oam ports

Description

This command is used to configure Ethernet OAM. The parameter to configure port Ethernet OAM mode operates in active or passive mode. The following two actions are allowed by ports in active mode, but disallowed by ports in passive mode: Initiate OAM discovery and start or stop remote loopback. Note: When a port is OAM-enabled, changing the OAM mode will cause the OAM discovery to be re-started.

The command used to enable or disable port's Ethernet OAM function. The parameter enabling a port's OAM will cause the port to start OAM discovery. If a port's is active, it initiates the discovery. Otherwise it reacts to the discovery received from peer. Disabling a port's OAM will cause the port to send out a dying gasp event to peers and then disconnect the established OAM link.

The link monitoring parameter is used to configure port Ethernet OAM link monitoring error symbols. The link monitoring function provides a mechanism to detect and indicate link faults under a variety of conditions. OAM monitors the statistics on the number of frame errors as well as the number of coding symbol errors. When the number of symbol errors is equal to or greater than the specified threshold in a period and the event notification state is enabled, it generates an error symbol period event to notify the remote OAM peer. The Ethernet OAM link monitoring error frames parameter provides a mechanism to detect and indicate link faults under a variety of conditions. OAM monitors the counter on the number of frame errors as well as the number of coding symbol errors. When the number of frame errors is equal to or greater than the specified threshold in a period and the event notification state is enabled, it generates an error frame event to notify the remote OAM peer.

The link event parameter configures the capability of the Ethernet OAM critical link event. If the capability for an event is disabled, the port will never send out the corresponding critical link event. The command is used to configure the client to process or to ignore the received Ethernet OAM remote loopback command. In remote loopback mode, all user traffic will not be processed. Ignoring the received remote loopback command will prevent the port from entering remote loopback mode.

Format

config ethernet_oam ports [<portlist> | all] [mode [active | passive] | state [enable | disable] | link_monitor [error_symbol {threshold <range 0-4294967295> | window <millisecond 1000-60000> | notify_state [enable | disable]} (1) | error_frame {threshold <range 0-4294967295> | window <millisecond 1000-60000> | notify_state [enable | disable]} (1) | error_frame_seconds {threshold <range 1-900> | window <millisecond 10000-900000> | notify_state [enable | disable]} (1) | error_frame_period {threshold <range 0-4294967295> | window <number 148810-100000000> | notify_state [enable | disable]}(1)] | critical_link_event [dying_gasp | critical_event] notify_state [enable | disable] | remote_loopback [start | stop] | received_remote_loopback [process | ignore]]

Parameters

<portlist> - Used to specify a range of ports to be configured.

all - Used to specify all ports are to be configured.

mode - Specifies the operation mode. The default mode is active.
- **active** - Specifies to operate in active mode.
- **passive** - Specifies to operate in passive mode.

state - Specifies the OAM function status.
- **enable** - Specifies to enable the OAM function.
- **disable** - Specifies to disable the OAM function.

link_monitor - Used to detect and indicate link faults under a variety of conditions.
- **error_symbol** - Used to generate an error symbol period event to notify the remote OAM peer.
  - **threshold** - Specifies the number of symbol errors in the period that is required to be equal to or greater than in order for the event to be generated. The default value of threshold is 1 symbol error
    - **<range 0-4294967295>** - Specifies the range from 0 to 4294967295.
  - **window** - The range is 1000 to 60000 ms. The default value is 1000ms.
    - **<millisecond 1000-60000>** -The range is 1000 to 60000 ms.
  - **notify_state** - Specifies the event notification status. The default state is enable.
    - **enable** -Specifies to enable event notification.
    - **disable** -Specifies to disable event notification.
- **error_frame** - Specifies the error frame.
  - **threshold** - Specifies a threshold range.
    - **<range 0-4294967295>** - Specifies a threshold range between 0 and 4294967295.
  - **window** - The range is 1000 to 60000 ms. The default value is 1000ms.
    - **<millisecond 1000-60000>** - The range is 1000 to 60000 ms.
  - **notify_state** - Specifies the event notification status. The default state is enable.
    - **enable** - Specifies to enable event notification.
    - **disable** - Specifies to disable event notification.
- **error_frame_seconds** - Specifies error fram time.
  - **threshold** - Specifies a threshold range between 1 and 900.
    - **<range 1-900>** -Specifies a threshold range between 1 and 900.
  - **window** - The range is 1000 to 900000 ms.
    - **<millisecond 10000-900000>** - The range is 1000 to 900000 ms.
  - **notify_state** - Specifies the event notification status. The default state is enable.
    - **enable** - Specifies to enable event notification.
    - **disable** - Specifies to disable event notification.
- **error_frame_period** - Specifies error frame period.
  - **threshold** - Specifies a threshold range between 0 and 4294967295.
    - **<range 0-4294967295>** -Specifies a threshold range between 0 and 4294967295.
  - **window** - The range is 148810 to 100000000 ms.
    - **<number 148810-100000000>** - The range is 148810 to 100000000 ms.
  - **notify_state** - Specifies the event notification status. The default state is enable.
    - **enable** - Specifies to enable event notification.
    - **disable** - Specifies to disable event notification.

critical_link_event –Specifies critical link event. **dying_gasp** - An unrecoverable local failure condition has occurred. **critical_event** - An unspecified critical event has occurred. **notify_state** - Specifies the event notification status. The default state is enable. **enable** - Specifies to enable event notification. **disable** - Specifies to disable event notification.
remote_loopback - Specifies remote loopback. **start** - If start is specified, it will request the peer to change to the remote loopback mode. **stop** - If stop is specified, it will request the peer to change to the normal operation mode.
received_remote_loopback - Specifies receive remote loop-back. **process** - Specifies to process the received Ethernet OAM remote loopback command. **ignore** - Specifies to ignore the received Ethernet OAM remote loopback command. The default method is"ignore".

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure Ethernet OAM on ports 1 to 2 in active mode:

```
DES-3810-28:admin#config ethernet_oam ports 1-2 mode active
Command: config ethernet_oam ports 1-2 mode active

Success.

DES-3810-28:admin#
```

To enable Ethernet OAM on port 1:

```
DES-3810-28:admin#config ethernet_oam ports 1 state enable
Command: config ethernet_oam ports 1 state enable

Success.

DES-3810-28:admin#
```

To configure the error symbol threshold to 2 and period to 1000ms for port 1:

```
DES-3810-28:admin#config ethernet_oam ports 1 link_monitor error_symbol
threshold 2 window 1000 notify_state enable
Command: config ethernet_oam ports 1 link_monitor error_symbol threshold 2
window 1000 notify_state enable

Success.

DES-3810-28:admin#
```

To configure the error frame threshold to 2 and period to 1000 ms for port 1:

```
DES-3810-28:admin#config ethernet_oam ports 1 link_monitor error_frame
threshold 2 window 1000 notify_state enable
Command: config ethernet_oam ports 1 link_monitor error_frame threshold 2
window 1000 notify_state enable

Success.

DES-3810-28:admin#
```

To configure the error frame seconds threshold to 2 and period to 10000 ms for port 1:

```
DES-3810-28:admin#config ethernet_oam ports 1 link_monitor error_frame_seconds
threshold 2 window 10000 notify_state enable
Command: config ethernet_oam ports 1 link_monitor error_frame_seconds threshold
2 window 10000 notify_state enable

Success.

DES-3810-28:admin#
```

To configure the error frame threshold to10 and period to 1000000 ms for port 1:

```
DES-3810-28:admin#config ethernet_oam ports 1 link_monitor error_frame_period
threshold 10 window 1000000 notify_state enable
Command: config ethernet_oam ports 1 link_monitor error_frame_period threshold
10 window 1000000 notify_state enable

Success.

DES-3810-28:admin#
```

To configure a dying gasp event for port 1:

```
DES-3810-28:admin#config ethernet_oam ports 1 critical_link_event dying_gasp
notify_state enable
Command: config ethernet_oam ports 1 critical_link_event dying_gasp
notify_state enable

Success.

DES-3810-28:admin#
```

To start remote loopback on port 1:

```
DES-3810-28:admin#config ethernet_oam ports 1 remote_loopback start
Command: config ethernet_oam ports 1 remote_loopback start

Success.

DES-3810-28:admin#
```

To configure the method of processing the received remote loopback command as “process” on port 1:

```
DES-3810-28:admin#config ethernet_oam ports 1 received_remote_loopback process
Command: config ethernet_oam ports 1 received_remote_loopback process

Success.

DES-3810-28:admin#
```

63-2 show ethernet_oam ports

Description

This command is used to display Ethernet OAM information, including status, configuration, statistics, and event log, on specified ports.

The status information includes:

(1) OAM administration status: enabled or disabled.

(2) OAM operation status. It maybe the below value:

10. Disable: OAM is disabled on this port
11. LinkFault: The link has detected a fault and is transmitting OAMPDUs with a link fault indication.
12. PassiveWait: The port is passive and is waiting to see if the peer device is OAM capable.
13. ActiveSendLocal: The port is active and is sending local information
14. SendLocalAndRemote: The local port has discovered the peer but has not yet accepted or rejected the configuration of the peer.
15. SendLocalAndRemoteOk: The local device agrees the OAM peer entity.
16. PeeringLocallyRejected: The local OAM entity rejects the remote peer OAM entity.
17. PeeringRemotelyRejected: The remote OAM entity rejects the local device.
18. Operational: The local OAM entity learns that both it and the remote OAM entity have accepted the peering.
19. NonOperHalfDuplex: Since Ethernet OAM functions are not designed to work completely over half-duplex port. This value indicates Ethernet OAM is enabled but the port is in half-duplex operation.

(3) OAM mode: passive or active.

(4) Maximum OAMPDU size: The largest OAMPDU that the OAM entity supports. OAM entities exchange maximum OAMPDU sizes and negotiate to use the smaller of the two maximum OAMPDU sizes between the peers.

(5) OAM configuration revision: The configuration revision of the OAM entity as reflected in the latest OAMPDU sent by the OAM entity. The config revision is used by OAM entities to indicate that configuration changes have occurred, which might require the peer OAM entity to re-evaluate whether OAM peering is allowed.

(6) OAM mode change.

(7) OAM Functions Supported: The OAM functions supported on this port. These functions include:

20. Unidirectional: It indicates that the OAM entity supports the transmission of OAMPDUs on links that are operating in unidirectional mode (traffic flowing in one direction only).
21. Loopback: It indicates that the OAM entity can initiate and respond to loopback commands.
22. Link Monitoring: It indicates that the OAM entity can send and receive Event Notification OAMPDUs.

23. Variable: It indicates that the OAM entity can send and receive variable requests to monitor the attribute value as described in the IEEE 802.3 Clause 30 MIB.

The event log displays Ethernet OAM event log information. The switch can buffer 1000 event logs. The event log is different from sys-log as it provides more detailed information than sys-log. Each OAM event will be recorded in both OAM event log and syslog.

Format

show ethernet_oam ports {<portlist>} [status | configuration | statistics | event_log {index <value_list>}]

Parameters

<portlist> - (Optional) Specifies the range of ports to display.
status - Specifies to display the Ethernet OAM status.
configuration - Specifies to display the Ethernet OAM configuration.
statistics - Specifies to display Ethernet OAM statistics.
event_log - Specifies to display the Ethernet OAM event log information. **index** - (Optional) Specifies an index range to display. **<value_list>** - (Optional) Specifies an index range to display.

Restrictions

Only Administrators and Operators can issue this command.

Example

To display Ethernet OAM statistics information for port 1:

```
DES-3810-28:admin#show ethernet_oam ports 1 statistics
Command: show ethernet_oam ports 1 statistics

Port 1
------------------------------------------------------------
Information OAMPDU TX                : 0
Information OAMPDU RX                : 0
Unique Event Notification OAMPDU TX   : 0
Unique Event Notification OAMPDU RX   : 0
Duplicate Event Notification OAMPDU TX: 0
Duplicate Event Notification OAMPDU RX: 0
Loopback Control OAMPDU TX            : 0
Loopback Control OAMPDU RX            : 0
Variable Request OAMPDU TX            : 0
Variable Request OAMPDU RX            : 0
Variable Response OAMPDU TX           : 0
Variable Response OAMPDU RX           : 0
Organization Specific OAMPDUs TX      : 0
Organization Specific OAMPDUs RX      : 0
Unsupported OAMPDU TX                 : 0
Unsupported OAMPDU RX                 : 0
Frames Lost Due To OAM                : 0
```

```
DES-3810-28:admin#
```

63-3 clear ethernet_oam ports

Description

This command is used to clear Ethernet OAM information.

Format

clear ethernet_oam ports [<portlist> | all] [event_log | statistics]

Parameters

<portlist> - Specifies a range of Ethernet OAM ports to be cleared.
all - Specifies to clear all Ethernet OAM ports.
event_log - Specifies to clear Ethernet OAM event log information.
statistics - Specifies to clear Ethernet OAM statistics.

Restrictions

Only Administrators and Operators can issue this command.

Example

To clear port 1 OAM statistics:

```
DES-3810-28:admin#clear ethernet_oam ports 1 statistics
Command: clear ethernet_oam ports 1 statistics

Success.

DES-3810-28:admin#
```

To clear port 1 OAM events:

```
DES-3810-28:admin#clear ethernet_oam ports 1 event_log
Command: clear ethernet_oam ports 1 event_log

Success.

DES-3810-28:admin#
```

Chapter 64 Open Shortest Path First (OSPF) Commands

config ospf [ipif <ipif_name 12> | all] {area <area_id> | priority <value> | hello_interval <sec 1-65535> | dead_interval <sec 1-65535> | authentication [none | simple <password 8> | md5 <key_id 1-255>] | metric <value 1-65535> | state [enable | disable] | passive [enable | disable]}(1)
create ospf aggregation <area_id> <network_address> lsdb_type [summary {advertise [enable | disable]} | nssa_ext {advertise [enable | disable]}]
config ospf aggregation <area_id> <network_address> lsdb_type [summary {advertise [enable | disable]} | nssa_ext {advertise [enable | disable]}]
delete ospf aggregation <area_id> <network_address> lsdb_type [summary | nssa_ext]
show ospf aggregation {<area_id>}
create ospf area <area_id> type [normal | [stub | nssa {translate [enable | disable]}] {stub_summary [enable | disable] | metric <value 0-65535>}]
config ospf area <area_id> type [normal | [stub | nssa {translate [enable | disable]}] {stub_summary [enable | disable] | metric <value 0-65535>}]
delete ospf area <area_id>
show ospf area {<area_id>}
create ospf host_route <ipaddr> {area <area_id> | metric <value 1-65535>}
config ospf host_route <ipaddr> {area <area_id> | metric <value 1-65535>}(1)
delete ospf host_route <ipaddr>
show ospf host_route {<ipaddr>}
config ospf router_id <ipaddr>
create ospf virtual_link <area_id> <neighbor_id> {hello_interval <sec 1-65535> | dead_interval <sec 1-65535> | authentication [none | simple <password 8> | md5 <key_id 1-255>]}
config ospf virtual_link <area_id> <neighbor_id> {hello_interval <sec 1-65535> | dead_interval <sec 1-65535> | authentication [none | simple <password 8> | md5 <key_id 1-255>]}(1)
delete ospf virtual_link <area_id> <neighbor_id>
show ospf virtual_link {<area_id> <neighbor_id>}
enable ospf
show ospf {[ipif <ipif_name 12> | all]}
disable ospf
show ospf lsdb {area <area_id> | advertise_router <ipaddr> | type [rtrlink | netlink | summary | assummary | asextlink | nssa_ext | stub]}
show ospf neighbor {<ipaddr>}
show ospf virtual_neighbor {<area_id> <neighbor_id>}
config ospf default-information {originate [always | default | none] | mettype [1 | 2] | metric <value 1-65535>}(1)

64-1 config ospf

Description

This command is used to configure the OSPF interface settings.

Format

config ospf [ipif <ipif_name 12> | all] {area <area_id> | priority <value> | hello_interval <sec 1-65535> | dead_interval <sec 1-65535> | authentication [none | simple <password 8> | md5 <key_id 1-255>] | metric <value 1-65535> | state [enable | disable] | passive [enable | disable]}(1)

Parameters

ipif - Specifies the name of the IP interface. **<ipif_name 12>** - Enter the IP interface name here. This name can be up to 12 characters long. **all** - Specifies that all the IP interfaces will be used.
area - (Optional) Specifies the area to which the interface is assigned. An Area ID is a 32-bit number in the form of an IP address (xxx.xxx.xxx.xxx) that uniquely identifies the OSPF area in the OSPF domain. **<area_id>** - Enter the area ID used here.
priority - (Optional) Specifies the priority value for the Designated Router election. If a Router Priority of 0 is set, the Switch cannot be elected as the DR for the network. **<value>** - Enter the priority value used here.
hello_interval - (Optional) Allows the specification of the interval between the transmission of OSPF Hello packets, in seconds. Between 1 and 65535 seconds can be specified. The Hello Interval, Dead Interval, Authorization Type, and Authorization Key should be the same for all routers on the same network. **<sec 1-65535>** - Enter the hello packet interval value here. This value must be between 1 and 65535 seconds.
dead_interval - (Optional) Allows the specification of the length of time between the receipt of Hello packets from a neighbor router before the selected area declares that router down. An interval between 1 and 65535 seconds can be specified. The Dead Interval must be evenly divisable by the Hello Interval. **<sec 1-65535>** - Enter the dead packet interval value here. This value must be between 1 and 65535 seconds.
authentication - (Optional) Specifies that authentication value. **none** - Specifies that the authentication value will be set to none. **simple** - Specifies that a simple text password must be specified. **<password 8>** - Enter the simple text password value here. **md5** - Specifies that the authentication will be set to use an MD5 key ID. **<key_id 1-255>** - Enter the MD5 key used here. This key can must be between 1 and 255.
metric - (Optional) Specifies the interface metric used. **<value 1-65535>** - Enter the metric value here. This value must be between 1 and 65535.
state - (Optional) Specifies the OSPF interface state here. **enable** - Specifies that the state will be set to enabled. **disable** - Specifies that the state will be set to disabled.
passive - (Optional) Specifies whether the designated entry should be a passive interface or not. When the interface is specified to be passive, OSPF protocol packets will neither be sent out or received on the interface. **enable** - Specifies that the passive interface will be enabled. **disable** - Specifies that the passive interface will be disabled.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure OSPF interface settings:

```
DES-3810-28:admin# config ospf ipif System priority 2 hello_interval 20 metric
2 state enabled
Command: config ospf ipif System priority 2 hello_interval 20 metric 2 state
enabled

Success.

DES-3810-28:admin#
```

64-2 create ospf aggregation

Description

This command is used to create an OSPF area aggregation entry.

Format

create ospf aggregation <area_id> <network_address> lsdb_type [summary {advertise [enable | disable]} | nssa_ext {advertise [enable | disable]}]

Parameters

<area_id> - A 32-bit number in the form of an IP address (xxx.xxx.xxx.xxx) that uniquely identifies the OSPF area in the OSPF domain.
<network_address> - The IP address that uniquely identifies the network that corresponds to the OSPF Area. The network address format is 'IP address/prefix length'.
lsdb_type - Specifies the Link-State Database (LSDB) type of address aggregation. **summary** - Specifies the LSDB type as summary. **advertise** - (Optional) Allows for the advertisement of the summary LSAs. **enable** - Specifies that the advertisement trigger will be enabled. **disable** - Specifies that the advertisement trigger will be disabled. **nssa_ext** - Specifies the the LSDB type as a Not-So-Stub Area External Route (NSSA EXT). **advertise** - (Optional) Allows for the advertisement of aggregated NSSA external route. **enable** - Specifies that the advertisement trigger will be enabled. **disable** - Specifies that the advertisement trigger will be disabled.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create an OSPF area aggregation entry:

```
DES-3810-28:admin# create ospf aggregation 10.1.1.1 192.168.0.0/16 lsdb_type
summary
Command: create ospf aggresgation 10.1.1.1 192.168.0.0/16 lsdb_type summary

Success.

DES-3810-28:admin#
```

64-3 config ospf aggregation

Description

This command is used to configure the OSPF area aggregation settings.

Format

config ospf aggregation <area_id> <network_address> lsdb_type [summary {advertise [enable | disable]} | nssa_ext {advertise [enable | disable]}]

Parameters

<area_id> - A 32-bit number in the form of an IP address (xxx.xxx.xxx.xxx) that uniquely identifies the OSPF area in the OSPF domain.
<network_address> - The IP address that uniquely identifies the network that corresponds to the OSPF Area. The network address format is 'IP address/prefix length'.
lsdb_type - Specifies the Link-State Database (LSDB) type of address aggregation. **summary** - Specifies the LSDB type as summary. **advertise** - (Optional) Allows for the advertisement of the summary LSAs. **enable** - Specifies that the advertisement trigger will be enabled. **disable** - Specifies that the advertisement trigger will be disabled. **nssa_ext** - Specifies the the LSDB type as a Not-So-Stub Area External Route (NSSA EXT). **advertise** - (Optional) Allows for the advertisement of aggregated NSSA external route. **enable** - Specifies that the advertisement trigger will be enabled. **disable** - Specifies that the advertisement trigger will be disabled.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the OSPF area aggregation settings:

```
DES-3810-28:admin# config ospf aggregation 10.1.1.1 10.48.76.122/16 lsdb_type
summary advertise enabled
Command: config ospf aggregation 10.1.1.1 10.48.76.122/16 lsdb_type summary
advertise enabled

Success.

DES-3810-28:admin#
```

64-4 delete ospf aggregation

Description

This command is used to delete an OSPF area aggregation entry.

Format

delete ospf aggregation <area_id> <network_address> lsdb_type [summary | nssa_ext]

Parameters

<area_id> - A 32-bit number in the form of an IP address (xxx.xxx.xxx.xxx) that uniquely identifies the OSPF area in the OSPF domain.
<network_address> - The IP address that uniquely identifies the network that corresponds to the OSPF Area. The network address format is 'IP address/prefix length'.
lsdb_type - Specifies the LSDB type. **summary** - Specifies the summary type. **nssa_ext** - Specifies the NSSA EXT type.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete an OSPF area aggregation entry:

```
DES-3810-28:admin# delete ospf aggregation 10.1.1.1 10.48.76.122/16 lsdb_type
summary
Command: delete ospf aggregation 10.1.1.1 10.48.76.122/16 lsdb_type summary

Success.

DES-3810-28:admin#
```

64-5 show ospf aggregation

Description

This command is used to display the current OSPF area aggregation settings.

Format

show ospf aggregation {<area_id>}

Parameters

<area_id> - (Optional) Enter the area ID used here.

Restrictions

None.

Example

To display OSPF area aggregation settings:

```
DES-3810-28:admin#show ospf aggregation
Command: show ospf aggregation

OSPF Area Aggregation Settings

Area ID         Aggregated         LSDB     Advertise
                Network Address    Type
--------------- ------------------ -------- ---------
0.0.0.0         10.90.0.0/16       Summary  Enabled
0.0.0.0         10.90.0.0/17       Summary  Enabled
0.0.0.0         10.90.64.0/18      Summary  Enabled

Total Entries : 3

DES-3810-28:admin#
```

64-6 create ospf area

Description

This command is used to create an OSPF area. OSPF allows collections of contiguous networks and hosts to be grouped together. Such a group, together with the routers having interfaces to any one of the included networks, is called an area.

Format

create ospf area <area_id> type [normal | [stub | nssa {translate [enable | disable]}] {stub_summary [enable | disable] | metric <value 0-65535>}]

Parameters

<area_id> - Enter the OSPF area ID used here.
type - Specifies the OSPF area operation type. In some Autonomous Systems, the majority of the topological database may consist of AS external advertisements. An OSPF AS external advertisement is usually flooded throughout the entire AS. However, OSPF allows certain areas to be configured as "stub areas". AS external advertisements are not flooded into/throughout stub areas; routing to AS external destinations in these areas is based on a (per-area) default only. This reduces the topological database size, and therefore the memory requirements, for a stub area's internal routers. **normal** - Specifies that the OSPF area type will be set to normal. **stub** - Specifies that the OSPF area type will be set to STUB. **nssa** - Specifies that the OSPF area type will be set to NSSA. **translate** - (Optional) Specifies if translation will be enabled or disabled. **enable** - Specifies that the translate option will be enabled. **disable** - Specifies that the translate option will be disabled.
stub_summary - (Optional) Specifies whether the summary LSA is effective for this area. **enable** - Specifies that the STUB summary option will be enabled. **disable** - Specifies that the STUB summary option will be disabled.
metric - (Optional) Specifies the metric (1 - 65535; 0 for auto cost) of this area. **<value 0-65535>** - Enter the metric value used here. This value must be between 0 and 65535.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create an OSPF area:

```
DES-3810-28:admin# create ospf area 10.48.74.122 type stub stub_summary enabled
metric 1
Command: create ospf area 10.48.74.122 type stub stub_summary enabled metric 1


Success.


DES-3810-28:admin#
```

64-7 config ospf area

Description

This command is used to configure an OSPF area's settings.

Format

config ospf area <area_id> type [normal | [stub | nssa {translate [enable | disable]}] {stub_summary [enable | disable] | metric <value 0-65535>}]

Parameters

<area_id> - Enter the OSPF area ID used here.
type - Specifies the OSPF area operation type. In some Autonomous Systems, the majority of the topological database may consist of AS external advertisements. An OSPF AS external advertisement is usually flooded throughout the entire AS. However, OSPF allows certain areas to be configured as "stub areas". AS external advertisements are not flooded into/throughout stub areas; routing to AS external destinations in these areas is based on a (per-area) default only. This reduces the topological database size, and therefore the memory requirements, for a stub area's internal routers. **normal** - Specifies that the OSPF area type will be set to normal. **stub** - Specifies that the OSPF area type will be set to STUB. **nssa** - Specifies that the OSPF area type will be set to NSSA. **translate** - (Optional) Specifies if translation will be enabled or disabled. **enable** - Specifies that the translate option will be enabled. **disable** - Specifies that the translate option will be disabled.
stub_summary - (Optional) Specifies whether the summary LSA is effective for this area. **enable** - Specifies that the STUB summary option will be enabled. **disable** - Specifies that the STUB summary option will be disabled.
metric - (Optional) Specifies the metric (1 - 65535; 0 for auto cost) of this area. **<value 0-65535>** - Enter the metric value used here. This value must be between 0 and 65535.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure an OSPF area's settings:

```
DES-3810-28:admin# config ospf area 10.48.74.122 type stub stub_summary enabled
metric 1
Command: config ospf area 10.48.74.122 type stub stub_summary enabled metric 1

Success.

DES-3810-28:admin#
```

64-8 delete ospf area

Description

This command is used to delete an OSPF area.

Format

delete ospf area <area_id>

Parameters

<area_id> - Enter the OSPF area ID used here.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete an OSPF area:

```
DES-3810-28:admin# delete ospf area 10.48.74.122
Command: delete ospf area 10.48.74.122

Success.

DES-3810-28:admin#
```

64-9 show ospf area

Description

This command is used to display an OSPF area's configuration.

Format

show ospf area {<area_id>}

Parameters

<area_id> - (Optional) Enter the OSPF area ID used here.

Restrictions

None.

Example

To display OSPF areas configuration:

```
DES-3810-28:admin# show ospf area
Command: show ospf area

OSPF Area Settings

Area ID         Type   Stub Import Summary LSA Stub Default Cost Translate
--------------- ------ ----------------------- ---------------- ---------
0.0.0.0         Normal None                    None             None
1.1.1.1         Normal None                    None             None
4.4.4.4         Normal None                    None             None
5.5.5.5         Stub   Enabled                 1                None

Total Entries : 4

DES-3810-28:admin#
```

64-10 create ospf host_route

Description

This command is used to create an OSPF host route.

Format

create ospf host_route <ipaddr> {area <area_id> | metric <value 1-65535>}

Parameters

<ipaddr> - Enter the host's IP address used here.
area - (Optional) Specifies a 32-bit number in the form of an IP address (xxx.xxx.xxx.xxx) that uniquely identifies the OSPF area in the OSPF domain. **<area_id>** - Enter the area ID value here.
metric - (Optional) Specifies a metric that will be advertised. **<value 1-65535>** - Enter the metric value used here. This value must be between 1 and 65535.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create an OSPF host route:

```
DES-3810-28:admin# create ospf host_route 10.48.74.122 area 10.1.1.1 metric 2
Command: create ospf host_route 10.48.74.122 area 10.1.1.1 metric 2

Success.

DES-3810-28:admin#
```

64-11 config ospf host_route

Description

This command is used to configure an OSPF host route.

Format

config ospf host_route <ipaddr> {area <area_id> | metric <value 1-65535>}(1)

Parameters

<ipaddr> - Enter the host's IP address used here.
area - (Optional) Specifies a 32-bit number in the form of an IP address (xxx.xxx.xxx.xxx) that uniquely identifies the OSPF area in the OSPF domain. **<area_id>** - Enter the area ID value here.
metric - (Optional) Specifies a metric that will be advertised. **<value 1-65535>** - Enter the metric value used here. This value must be between 1 and 65535.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure an OSPF host route:

```
DES-3810-28:admin# config ospf host_route 10.48.74.122 area 10.1.1.1 metric 2
Command: config ospf host_route 10.48.74.122 area 10.1.1.1 metric 2

Success.

DES-3810-28:admin#
```

64-12 delete ospf host_route

Description

This command is used to delete an OSPF host route.

Format

delete ospf host_route <ipaddr>

Parameters

<ipaddr> - Enter the host's IP address used here.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete an OSPF host route:

```
DES-3810-28:admin# delete ospf host_route 10.48.74.122
Command: delete ospf host_route 10.48.74.122

Success.

DES-3810-28:admin#
```

64-13 show ospf host_route

Description

This command is used to display the current OSPF host route table.

Format

show ospf host_route {<ipaddr>}

Parameters

<ipaddr> - (Optional) Enter the host's IP address used here.

Restrictions

None.

Example

To display the OSPF host route settings:

```
DES-3810-28:admin#show ospf host_route
Command: show ospf host_route

OSPF Host Route Settings

Host Address    Metric Area ID
--------------- ------ ---------------
10.48.73.21     2      10.1.1.1
10.48.74.122    1      10.1.1.1

Total Entries : 2

DES-3810-28:admin#
```

64-14 config ospf router_id

Description

The command is used to configure the router ID for the Switch. Each Switch that is configured to run OSPF must have a unique router ID.

Format

config ospf router_id <ipaddr>

Parameters

<ipaddr> - Enter the router's IP address here.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the router ID for the Switch:

```
DES-3810-28:admin# config ospf router_id 10.48.74.122
Command: config ospf router_id 10.48.74.122

Success.

DES-3810-28:admin#
```

64-15 create ospf virtual_link

Description

This command is used to create an OSPF virtual link.

Format

create ospf virtual_link <area_id> <neighbor_id> {hello_interval <sec 1-65535> | dead_interval <sec 1-65535> | authentication [none | simple <password 8> | md5 <key_id 1-255>]}

Parameters

<area_id> - Specifies a 32-bit number in the form of an IP address (xxx.xxx.xxx.xxx) that uniquely identifies the OSPF area in the OSPF domain.
<neighbor_id> - Specifies the OSPF router ID for the remote area. This is a 32-bit number in the form of an IP address (xxx.xxx.xxx.xxx) that uniquely identifies the remote area's Area Border Router. This is the router ID of the neighbor router.
hello_interval - (Optional) Allows the specification of the interval between the transmission of OSPF Hello packets, in seconds. The Hello Interval, Dead Interval, Authorization Type, and Authorization Key should be the same for all routers on the same network. **<sec 1-65535>** - Enter the hello packet interval used here. This value must be between 1 and 65535.
dead_interval - (Optional) Allows the specification of the length of time between the receipt of Hello packets from a neighbor router before the selected area declares that router down. An interval between 1 and 65535 seconds can be specified. The Dead Interval must be evenly divisable by the Hello Interval. **<sec 1-65535>** - Enter the dead packet interval used here. This value must be between 1 and 65535.
authentication - (Optional) Specifies the authentication type used. **none** - Specifies that the authentication type will be set to none. **simple** - Specifies that a simple text password will be used in the authentication. **<password 8>** - Enter the simple text password value here. This value can be up to 8 characters long. **md5** - Specifies that an MD5 key ID will be used for the authentication. **<key_id 1-255>** - Enter the MD5 key ID value used here. This value can be between 1 and 255.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create a virtual link to another ABR:

```
DES-3810-28:admin# create ospf virtual_link 10.1.1.12 20.1.1.1 hello_interval
10
Command: create ospf virtual_link 10.1.1.12 20.1.1.1 hello_interval 10

Success.

DES-3810-28:admin#
```

64-16 config ospf virtual_link

Description

This command is used to configure the OSPF virtual link.

Format

config ospf virtual_link <area_id> <neighbor_id> {hello_interval <sec 1-65535> | dead_interval <sec 1-65535> | authentication [none | simple <password 8> | md5 <key_id 1-255>]}(1)

Parameters

<area_id> - Specifies a 32-bit number in the form of an IP address (xxx.xxx.xxx.xxx) that uniquely identifies the OSPF area in the OSPF domain.
<neighbor_id> - Specifies the OSPF router ID for the remote area. This is a 32-bit number in the form of an IP address (xxx.xxx.xxx.xxx) that uniquely identifies the remote area's Area Border Router. This is the router ID of the neighbor router.
hello_interval - (Optional) Allows the specification of the interval between the transmission of OSPF Hello packets, in seconds. The Hello Interval, Dead Interval, Authorization Type, and Authorization Key should be the same for all routers on the same network. **<sec 1-65535>** - Enter the hello packet interval used here. This value must be between 1 and 65535.
dead_interval - (Optional) Allows the specification of the length of time between the receipt of Hello packets from a neighbor router before the selected area declares that router down. An interval between 1 and 65535 seconds can be specified. The Dead Interval must be evenly divisable by the Hello Interval. **<sec 1-65535>** - Enter the dead packet interval used here. This value must be between 1 and 65535.
authentication - (Optional) Specifies the authentication type used. **none** - Specifies that the authentication type will be set to none. **simple** - Specifies that a simple text password will be used in the authentication. **<password 8>** - Enter the simple text password value here. This value can be up to 8 characters long. **md5** - Specifies that an MD5 key ID will be used for the authentication. **<key_id 1-255>** - Enter the MD5 key ID value used here. This value can be between 1 and 255.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the OSPF virtual link:

```
DES-3810-28:admin# config ospf virtual_link 10.1.1.2 20.1.1.1 hello_interval 10
Command: config ospf virtual_link 10.1.1.2 20.1.1.1 hello_interval 10

Success.

DES-3810-28:admin#
```

64-17 delete ospf virtual_link

Description

This command is used to delete an OSPF virtual link.

Format

delete ospf virtual_link <area_id> <neighbor_id>

Parameters

<area_id> - Specifies a 32-bit number in the form of an IP address (xxx.xxx.xxx.xxx) that uniquely identifies the OSPF area in the OSPF domain.
<neighbor_id> - Specifies the OSPF router ID for the remote area. This is a 32-bit number in the form of an IP address (xxx.xxx.xxx.xxx) that uniquely identifies the remote area's Area Border Router. This is the router ID of the neighbor router.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete an OSPF virtual link:

```
DES-3810-28:admin# delete ospf virtual_link 10.1.1.12 20.1.1.1
Command: delete ospf virtual_link 10.1.1.12 20.1.1.1

Success.

DES-3810-28:admin#
```

64-18 show ospf virtual_link

Description

This command is used to display the current OSPF virtual link configuration.

Format

show ospf virtual_link {<area_id> <neighbor_id>}

Parameters

<area_id> - (Optional) Specifies a 32-bit number in the form of an IP address (xxx.xxx.xxx.xxx) that uniquely identifies the OSPF area in the OSPF domain.
<neighbor_id> - (Optional) The OSPF router ID for the remote area. This is a 32-bit number in the form of an IP address (xxx.xxx.xxx.xxx) that uniquely identifies the remote area's Area Border Router. This is the router ID of the neighbor router.
If no parameter is specified, the system will display the all current OSPF virtual link configuration.

Restrictions

None.

Example

To display the current OSPF virtual link configuration:

```
DES-3810-28:admin# show ospf virtual_link
Command: show ospf virtual_link

Virtual Interface Configuration

Transit         Virtual         Hello    Dead     Authentication Link
Area ID         Neighbor Router Interval Interval                Status
--------------- --------------- -------- -------- -------------- ------
10.0.0.0        20.0.0.0        10       60       None           DOWN

Total Entries : 1

DES-3810-28:admin#
```

64-19 enable ospf

Description

This command is used to enable OSPF on the Switch.

Format

enable ospf

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable OSPF on the Switch:

```
DES-3810-28:admin# enable ospf
Command: enable ospf

Success.

DES-3810-28:admin#
```

64-20 show ospf

Description

This command is used to display the current OSPF information on the Switch.

Format

show ospf {[ipif <ipif_name 12> | all]}

Parameters

ipif - (Optional) Specifies the IP interface name. **<ipif_name 12>** - Enter the IP interface name here. This name can be up to 12 characters long. **all** - Specifies that all the IP interfaces will be displayed.
If no parameter is specified, the system will display the current OSPF state.

Restrictions

None.

Example

To display the current OSPF state:

```
DES-3810-28:admin# show ospf
Command: show ospf

OSPF Router ID : 10.90.90.90 (Auto selected)
State          : Enabled

OSPF Interface Settings

Interface    IP Address         Area ID         State    Link      Metric
                                                         Status
------------ ------------------ --------------- -------- --------- ---------
System       10.90.90.90/8      0.0.0.0         Disabled Link Down 1

Total Entries : 1

OSPF Area Settings

Area ID         Type   Stub Import Summary LSA Stub Default Cost Translate
--------------- ------ ----------------------- ----------------- ---------
0.0.0.0         Normal None                    None              None
10.0.0.0        Normal None                    None              None
10.0.0.1        NSSA   Enabled                 1                 Disabled
10.0.0.2        Stub   Enabled                 1                 None

Total Entries : 4

Virtual Interface Configuration

Transit         Virtual         Hello    Dead     Authentication Link
Area ID         Neighbor Router Interval Interval                Status
--------------- --------------- -------- -------- -------------- ------
10.0.0.0        10.0.0.1        10       60       None           Down

Total Entries : 1

OSPF Area Aggregation Settings
```

```
Area ID         Aggregated         LSDB     Advertise
                Network Address    Type
--------------- ------------------ -------- ---------
10.0.0.2        10.0.0.0/8         Summary  Enabled

Total Entries : 1

OSPF Host Route Settings

Host Address    Metric Area ID
--------------- ------ ---------------
10.90.91.90     1      0.0.0.0

Total Entries : 1

OSPF Default Information Originate Settings

Originate   : None
Metric Type : Type-2
Metric      : 1

DES-3810-28:admin#
```

64-21 disable ospf

Description

This command is used to disable OSPF on the Switch.

Format

disable ospf

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable OSPF on the Switch:

```
DES-3810-28:admin# disable ospf
Command: disable ospf

Success.

DES-3810-28:admin#
```

64-22 show ospf lsdb

Description

This command is used to display the OSPF Link State Database (LSDB).

Format

show ospf lsdb {area <area_id> | advertise_router <ipaddr> | type [rtrlink | netlink | summary | assummary | asextlink | nssa_ext | stub]}

Parameters

area - (Optional) Specifies a 32-bit number in the form of an IP address (xxx.xxx.xxx.xxx) that uniquely identifies the OSPF area in the OSPF domain. **<area_id>** - Enter the area ID used here.
advertise_router - (Optional) Specifies the IP address of the advertising router. **<ipaddr>** - Enter the advertising router's IP address here.
type - (Optional) Specifies the type of link displayed. **rtrlink** - Specifies the type to be displayed as router link. **netlink** - Specifies the type to be displayed as network link. **summary** - Specifies the type to be displayed as summary. **assummary** - Specifies the type to be displayed as AS summary. **asextlink** - Specifies the type to be displayed as AS external link. **nssa_ext** - Specifies the type to be displayed as NSSA external information. **stub** - Specifies the type to be displayed as STUB link.

Restrictions

None.

Example

To display the link state database of OSPF:

```
DES-3810-28:admin#show ospf lsdb
Command: show ospf lsdb

Area            LSDB      Advertising     Link State    Cost     Sequence
ID              Type      Router ID       ID                     Number
--------------- --------- --------------- ------------- -------- ---------
0.0.0.0         RTRLink   50.48.75.73     50.48.75.73   *        0x80000002
0.0.0.0         Summary   50.48.75.73     10.0.0.0/8    1        0x80000001
1.0.0.0         RTRLink   50.48.75.73     50.48.75.73   *        0x80000001
1.0.0.0         Summary   50.48.75.73     40.0.0.0/8    1        0x80000001
1.0.0.0         Summary   50.48.75.73     50.0.0.0/8    1        0x80000001
0.0.0.0         ASExtLink 50.48.75.73     1.2.0.0/16    20       0x80000001

Total Entries : 6

DES-3810-28:admin#
```

64-23 show ospf neighbor

Description

This command is used to display the OSPF-neighbor information on a per-interface basis.

Format

show ospf neighbor {<ipaddr>}

Parameters

<ipaddr> - (Optional) Specifies the IP address of the neighbor router.
If no parameter is specified, the system will display all OSPF neighbor information.

Restrictions

None.

Example

To display OSPF neighbor information:

```
DES-3810-28:admin# show ospf neighbor
Command: show ospf neighbor

IP Address of   Router ID of    Neighbor Neighbor
Neighbor        Neighbor        Priority State
--------------- --------------- -------- -------------
10.48.74.122    10.2.2.2        1        Initial

Total Entries : 1

DES-3810-28:admin#
```

64-24 show ospf virtual_neighbor

Description

This command is used to display the OSPF-neighbor information of OSPF virtual links.

Format

show ospf virtual_neighbor {<area_id> <neighbor_id>}

Parameters

<area_id> - (Optional) Specifies a 32-bit number in the form of an IP address (xxx.xxx.xxx.xxx) that uniquely identifies the OSPF area in the OSPF domain.
<neighbor_id> - (Optional) Specifies the OSPF router ID for the remote area. This is a 32-bit number in the form of an IP address (xxx.xxx.xxx.xxx) that uniquely identifies the remote area's Area Border Router.
If no parameter is specified, the system will display all OSPF virtual-link neighbor information.

Restrictions

None.

Example

To display OSPF virtual-link neighbor information:

```
DES-3810-28:admin#show ospf virtual_neighbor
Command: show ospf virtual_neighbor

Transit         Router ID of     IP Address of    Virtual Neighbor
Area ID         Virtual Neighbor Virtual Neighbor State
--------------- ---------------- ---------------- ----------------
10.1.1.1        10.2.3.4         10.48.74.111     Exchange

Total Entries : 1

DES-3810-28:admin#
```

64-25 config ospf default-information

Description

This command is used to change the status of originating the OSPF default external route.

Format

config ospf default-information {originate [always | default | none] | mettype [1 | 2] | metric <value 1-65535>}(1)

Parameters

originate - (Optional) Specifies the status of originating default information. **always** - Specifies that the external default route will be originated, whether a default route exists or not. **default** - Specifies that the external default route will be originated only when one default route already exists. **none** - Specifies that the external default route will never be originated. This is the default option.
mettype - (Optional) Specifies the type of LSA that contains the default external route imported into OSPF. **1** - Specifies that this default external route will be calculated using the metric by adding the interface cost to the metric entered in the metric field. **2** - Specifies that this default external route will be calculated using the metric entered in the metric field without change. This is the default option.
metric - (Optional) Specifies the metric used by originating default external route. **<value 1-65535>** - Enter the metric value used here. This value must be between 1 and 65535.

Restrictions

Only Administrators and Operators can issue this command.

Example

To set the status of originating the OSPF default external route:

```
DES-3810-28:admin#config ospf default-information originate always
Command: config ospf default-information originate always

Success.

DES-3810-28:admin#
```

Chapter 65 Packet Storm Commands

config traffic control [<portlist> | all] {broadcast [enable | disable] | multicast [enable | disable] | unicast [enable | disable] | action [drop | shutdown] | threshold <value 0-1488100> | countdown [<value 0> | <value 5-30>] | time_interval <value 5-30>}(1)
config traffic trap [none | storm_occurred | storm_cleared | both]
show traffic control {<portlist>}

65-1 config traffic control

Description

This command is used to configure broadcast/multicast/unicast storm control. The broadcast storm control commands provide a hardware storm control mechanism only. These packet storm control commands include hardware and software mechanisms to provide shutdown, recovery, and trap notification functions.

Format

config traffic control [<portlist> | all] {broadcast [enable | disable] | multicast [enable | disable] | unicast [enable | disable] | action [drop | shutdown] | threshold <value 0-1488100> | countdown [<value 0> | <value 5-30>] | time_interval <value 5-30>}(1)

Parameters

<portlist> - Specifies a range of ports to be configured.
all - Specifies all ports are to be configured.
broadcast - Specifies the broadcast storm status. **enable** - Enable broadcast storm control. **disable** - Disable broadcast storm control.
multicast - Specifies the multicast storm status. **enable** - Enable multicast storm control. **disable** - Disable multicast storm control.
unicast - Specifies the unknown unicast packet storm status. **enable** - Enable unknown unicast packet storm control (only support drop action). **disable** - Disable unknown unicast packet storm control.
action - Specifies the action. **drop** - This is implemented in hardware. **shutdown** - This is implemented in software. If this is chosen, threshold, countdown, and time_interval also need to be configured.
threshold - The upper threshold at which the specified storm control will turn on. This is the number of broadcast/multicast/unknown unicast packets per second received by the switch that will trigger the storm traffic control measure. It must be an unsigned integer. **<value 0-1488100>** - Specifies the value between 0 and 1488100.
countdown - The timer for shutdown mode. When a port enters a shutdown RX state, and if this times out, the port will shut down the port forever. The default is 0 minutes. **<value 0>** - Zero is the disable forever state. **<value 5-30>** - Enter a value between 5 and 30 minutes.
time_interval - The sampling interval of received packet counts. The possible value will be 5 to

30 seconds. This parameter is meaningless for dropping packets is selected as action. **<value 5-30>** - Specifies the value between 5 and 30.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure traffic control and state:

```
DES-3810-28:admin#config traffic control 1-10 broadcast enable action shutdown
threshold 640 time_interval 10
Command: config traffic control 1-10 broadcast enable action shutdown threshold
640 time_interval 10


 Storm control threshold granularity: FE port 500, GE port 640. Actual value:
FE port 500.


Success.


DES-3810-28:admin#
```

65-2 config traffic trap

Description

This command is used to configure whether storm control notification will be generated or not while traffic storm events are detected by a SW traffic storm control mechanism.

Note: A traffic control trap is active only when the control action is configured as shutdown. If the control action is drop there will no traps issue while storm event is detected.

Format

config traffic trap [none | storm_occurred | storm_cleared | both]

Parameters

none - No notification will be generated when storm event is detected or cleared.
storm_occurred - A notification will be generated when a storm event is detected.
storm_cleared - A notification will be generated when a storm event is cleared.
both - A notification will be generated both when a storm event is detected and cleared.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure a traffic control trap:

```
DES-3810-28:admin#config traffic trap both
Command: config traffic trap both

Success.

DES-3810-28:admin#
```

65-3 show traffic control

Description

This command is used to display current traffic control settings.

Format

show traffic control {<portlist>}

Parameters

<portlist> - (Optional) Specifies a range of ports to be shown.

Note: If no parameter is specified, the system will display all port packet storm control configurations.

Restrictions

None.

Example

To display the packet storm control setting for ports 1 to 3:

```
DES-3810-28:admin#show traffic control 1-3
Command: show traffic control 1-3

Traffic Storm Control Trap :[None]

Port Thres  Broadcast Multicast Unicast  Action   Count Time     Shutdown
     hold   Storm     Storm     Storm            Down  Interval Forever
---- ----- --------- --------- -------- -------- ----- -------- --------
1    130560 Disabled  Disabled  Disabled drop     0     5
2    130560 Disabled  Disabled  Disabled drop     0     5
3    130560 Disabled  Disabled  Disabled drop     0     5

DES-3810-28:admin#
```

Chapter 66 Policy Route Commands

create policy_route name <policyroute_name 32>
delete policy_route name <policyroute_name 32>
config policy_route name <policyroute_name 32> acl profile_id <value 1-1024> access_id <value 1-1024> nexthop <ipaddr> state [enable | disable]
show policy_route

66-1 create policy_route name

Description

This command is used to create a policy route and define the route's name.

Format

create policy_route name <policyroute_name 32>

Parameters

<policyroute_name 32> - The policy route name. The maximum length is 32 characters.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create a policy route named "danilo":

```
DES-3810-28:admin#create policy_route name danilo
Command: create policy_route name danilo

Success.

DES-3810-28:admin#
```

66-2 delete policy_route name

Description

This command is used to delete a policy route.

Format

delete policy_route name <policyroute_name 32>

Parameters

<policyroute_name 32> - The policy route name. The maximum length is 32 characters.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete an IP route entry in the Switch's IP routing table named "duhon":

```
DES-3810-28:admin#delete policy_route name duhon
Command: delete policy_route name duhon

Success.

DES-3810-28:admin#
```

66-3 config policy_route name

Description

This command allows users to configure the different fields for a policy route entry. Users can set the state of a policy route to enable or disable.

- The user must create an ACL rule. If the ACL rule does not exist, the system will display an error message.
- If the ACL rule action is drop, these packets will not forward and the policy route will not be implemented.
- When a packet passes from the policy route, its TTL will decrease by 1.
- If a user deletes an ACL rule that is linked to a policy rule, the system will display an error message.

Format

config policy_route name <policyroute_name 32> acl profile_id <value 1-1024> access_id <value 1-1024> nexthop <ipaddr> state [enable | disable]

Parameters

<policyroute_name 32> - The policy route name. The maximum length is 32 characters.
acl profile_id - The ACL profile ID. **<value 1-1024>**- Specifies the value between 1 and 1024.
access_id - The ACL access ID. **<value 1-1024>** - Specifies the value between 1 and 1024.
nexthop - The next hop IP address. **<ipaddr>** - Speciify the IP address.
state - Activate or deactivate this rule. **enable** - Activate this rule. **disable** - Deactivate this rule.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure all packets which match ACL rule profile ID=1 and access ID=1, and then route to 20.1.1.100:

```
DES-3810-28:admin#config policy_route name danillo acl profile_id 1 access_id 1
nexthop 20.1.1.100 state enable
Command: config policy_route name danillo acl profile_id 1 access_id 1 nexthop
20.1.1.100 state enable

Success.

DES-3810-28:admin#
```

66-4 show policy_route

Description

This command is used to display the Switch's current policy route rules.

Format

show policy_route

Parameters

None.

Restrictions

None.

Example

To display the Switch's current policy route rules:

```
DES-3810-28:admin#show policy_route
Command: show policy_route

Policy Routing Table
---------------------

Name                          Profile ID  Access ID  Next Hop      State
----------------------------- ----------  ---------- ------------- --------
1                             1           1          40.1.1.40     Enabled

Total Entries: 1

DES-3810-28:admin#
```

Chapter 67 Port Security Commands

config port_security ports [<portlist> | all] [{admin_state [enable | disable] | max_learning_addr <max_lock_no 0-16384> | lock_address_mode [permanent | deleteontimeout | deleteonreset]} (1) | {vlan [<vlan_name 32> | vlanid <vidlist>] max_learning_addr [<max_lock_no 0-16384> | no_limit]}(1)]
config port_security system max_learning_addr [<max_lock_no 1-16384> | no_limit]
config port_security vlan [<vlan_name 32> | vlanid <vidlist>] max_learning_addr [<max_lock_no 0-16384> | no_limit]
delete port_security_entry [vlan <vlan_name 32> | vlanid <vlanid>] mac_address <macaddr>
clear port_security_entry {ports [<portlist> | all] {[vlan <vlan_name 32> | vlanid <vidlist>]}}
show port_security_entry {ports [<portlist> | all] {[vlan <vlan_name> | vlanid <vidlist>]}}
show port_security {ports [<portlist> | all] {[vlan <vlan_name 32> | vlanid <vidlist>]}}
enable port_security trap_log
disable port_security trap_log

67-1 config port_security ports

Description

This command is used to set the port's state, maximum supported MAC address entries, the default entry type, and set the maximum port-security entries that can be learned with a specific VLAN on a specific port. There are four levels of limitations on the learned entry number, for the entire system, for a port, for a VLAN, and for specific VLAN on a port. If any limitation is exceeded, the new entry will be discarded.

Format

config port_security ports [<portlist> | all] [{admin_state [enable | disable] | max_learning_addr <max_lock_no 0-16384> | lock_address_mode [permanent | deleteontimeout | deleteonreset]} (1) | {vlan [<vlan_name 32> | vlanid <vidlist>] max_learning_addr [<max_lock_no 0-16384> | no_limit]}(1)]

Parameters

<portlist> - Specifies a range of ports to be configured.
all - Specifies that all ports will be configured.
admin_state - Allow the port security to be enabled or disabled for the ports specified in the port list. The default setting is disabled. **enable** - Enable port security for the ports specified in the port list. **disable** - Disable port security for the ports specified in the port list.
max_learning_addr - Specifies the maximum of MAC address entries that can be learned on this port. If the value is set to 0, it means that no user can get authorized by the port security function on this port. If the setting is smaller than the number of current learned entries on the port, the command will be rejected. The default value is 32. **<max_lock_no 0-16384>** - Specifies the value between 0 and 16384.
lock_address_mode - Indicate locking address mode. The default mode is deleteonreset. **permanent** - The address will never be deleted unless the user removes it manually or the VLAN of the entry is removed or the port are removed from the VLAN, or port security is

	disabled on the port where the address resides. **deleteontimeout** - The locked addresses can be aged out after aging timer expires. **deleteonreset** - This address will be removed if the switch is reset or reboots. The cases under which the permanent entries are deleted also apply to the deleteonreset entries
vlan - (Optional) Specifies the VLAN to limit the address learning. **<vlan_name 32>** - Specifies the name of the VLAN. The maximum length is 32 characters. **vlanid** - Specifies a list of VLANs by VLAN ID to limit the address learning. **<vidlist>** - Specifies a list of VLAN ID.	
max_learning_addr - (Optional) Specifies the maximum of MAC address entries that can be learned on this port. If the value is set to 0, it means that no user can get authorized by the port security function on this port. If the setting is smaller than the number of current learned entries on the port, the command will be rejected. The default value is 32. **<max_lock_no 0-16384>** - Specifies the value between 0 and 16384. **no_limit** - Specifies no limitation on the number of entries.	

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure port security:

```
DES-3810-28:admin#config port_security ports 6 admin_state enable
max_learning_addr 10 lock_address_mode permanent
Command: config port_security ports 6 admin_state enable max_learning_addr 10
lock_address_mode permanent

Success.

DES-3810-28:admin#
```

To configure a port security setting:

```
DES-3810-28:admin#config port_security ports 1 vlan vlanid 1 max_learning_addr
16
Command: config port_security ports 1 vlan vlanid 1 max_learning_addr 16

Success.

DES-3810-28:admin#
```

67-2 config port_security system max_learning_addr

Description

This command is used to set the maximum number of MAC address entries that can be authorized system wide. There are four levels of limitations on the learned entry number, for the entire system, for a port, for a VLAN, and for specific VLAN on a port. If any limitation is exceeded, the new entry will be discarded. The setting for system level max learned users must be greater than the total of the max learned users allowed on all ports.

Format

config port_security system max_learning_addr [<max_lock_no 1-16384> | no_limit]

Parameters

<max_lock_no 1-16384> - Specifies the maximum number of MAC address entries that can be learned by the system. If the setting is smaller than the number of current learned entries on all enabled ports, the command will be rejected.
no_limit - By default, the number above is set to no limit.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the maximum number of port security entries to 256:

```
DES-3810-28:admin#config port_security system max_learning_addr 256
Command: config port_security system max_learning_addr 256

Success.

DES-3810-28:admin#
```

67-3 config port_security vlan

Description

This command sets the maximum number of MAC address entries that can be learned on a specific VLAN. There are four levels of limitations on the learned entry number, for the entire system, for a port, for a VLAN, and for specific VLAN on a port. If any limitation is exceeded, the new entry will be discarded.

Format

config port_security vlan [<vlan_name 32> | vlanid <vidlist>] max_learning_addr [<max_lock_no 0-16384> | no_limit]

Parameters

<vlan_name 32> - Specifies the VLAN by name. The maximum length is 32 characters.
vlanid - Specifies a list of VLANs by VLAN ID. **<vidlist>** - Specifies the VLAN ID.
max_learning_addr - Specifies the maximum number of MAC address entries that can be learned with this VLAN. If this parameter is set to 0, it means that no user can get authorization on this VLAN. If the setting is smaller than the number of current learned entries on the VLAN, the command will be rejected. **<max_lock_no 0-16384>** - Specifies the value between 0 and 16384. **no_limit** - Specifies the default value is no limit.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the maximum number of entries that can be learned at 64:

```
DES-3810-28:admin#config port_security vlan vlanid 1 max_learning_addr 64
Command: config port_security vlan vlanid 1 max_learning_addr 64

Success.

DES-3810-28:admin#
```

67-4 delete port_security_entry

Description

This command is used to delete a port security entry by VLAN, VLAN ID, and MAC address.

Format

delete port_security_entry [vlan <vlan_name 32> | vlanid <vlanid>] mac_address <macaddr>

Parameters

vlan - Specifies the VLAN by name. **<vlan_name 32>** - Specifies the VLAN name. The maximum length is 32 characters.
vlanid - Specifies a list of VLANs by VLAN ID. **<vlanid>** - Specifies the VLAN ID.
mac_address - Specifies the MAC address of the entry. **<macaddr>** - Specifies the MAC address of the entry.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete the port security entry with a MAC address of 00-01-30-10-2c-c7 on the default VLAN:

```
DES-3810-28:admin#delete port_security_entry vlan default mac_address 00-01-30-
10-2C-C7
Command: delete port_security_entry vlan default mac_address 00-01-30-10-2C-C7

Success.

DES-3810-28:admin#
```

67-5 clear port_security_entry

Description

This command is used to clear the MAC entries learned from the specified port(s) or VLAN(s) for the port security function.

Format

clear port_security_entry {ports [<portlist> | all] { [vlan <vlan_name 32> | vlanid <vidlist>]}}

Parameters

ports - (Optional) The port-security entries learned on the specified port will be cleared. **<portlist>** - Specifies a range of ports to be configured. **all** - All the port-security entries learned by the system will be cleared.
vlan - (Optional) The port-security entries learned on the specified VLANs will be cleared. **<vlan_name 32>** - Specifies the VLAN name. The maximum length is 32 characters.
vlanid - (Optional) Specifies a list of VLANs by VLAN ID. **<vidlist>** - Specifies a list of the VLAN IDs.

Restrictions

Only Administrators and Operators can issue this command.

Example

To clear port security entry for port 6:

```
DES-3810-28:admin#clear port_security_entry port 6
Command: clear port_security_entry port 6

Success.

DES-3810-28:admin#
```

67-6 show port_security_entry

Description

This command is used to display a port security entry.

Format

show port_security_entry {ports [<portlist> | all] {[vlan <vlan_name> | vlanid <vidlist>]}}

Parameters

ports - (Optional) Specifies a range of ports to be displayed. **<portlist>** - Specifies a range of ports to be displayed. **all** - Specifies to display the entries of all ports.
vlan - (Optional) Specifies a VLAN to display its entry. **<vlan_name 32>** - Specifies the VLAN name. The maximum length is 32 characters.
vlanid - (Optional) Specifies a VLAN list to display its entry. **<vidlist>** - Specifies a list of the VLAN IDs.

Restrictions

None.

Example

To display a port security entry:

```
DES-3810-28:admin#show port_security_entry
Command: show port_security_entry


MAC Address        VID   Port    Lock Mode
-----------------  ---   ----    ----------
00-00-00-00-00-01  1     25      DeleteOnTimeout

Total Entry Number: 1

DES-3810-28:admin#
```

67-7 show port_security

Description

This command is used to display the port security related information of the switch ports including the port security admin state, the maximum number of learning addresses, and the lock mode.

Format

show port_security {ports [<portlist> | all] {[vlan <vlan_name 32> | vlanid <vidlist>]}}

Parameters

ports - (Optional) Specifies a range of ports to be displayed. **<portlist>** - Specifies a range of ports to be displayed. **all** - Specifies to display the configuration of all ports.
vlan - (Optional) Specifies a VLAN to display its configuration. **<vlan_name 32>** - Specifies the VLAN name. The maximum length is 32 characters.
vlanid - (Optional) Specifies a VLAN list to display the configuration. **<vidlist>** - Specifies a list of the VLAN IDs.

Restrictions

None.

Example

To display the port security information of switch ports 1 to 6:

```
DES-3810-28:admin#show port_security ports 1-6
Command: show port_security ports 1-6

 Port Configuration:
 Port   State     Lock Address Mode  Max. Learning Addr.
 -----  --------  -----------------  -------------------
 1      Disabled  DeleteOnReset      32
 2      Disabled  DeleteOnReset      32
 3      Disabled  DeleteOnReset      32
 4      Disabled  DeleteOnReset      32
 5      Disabled  DeleteOnReset      32
 6      Disabled  DeleteOnReset      32

DES-3810-28:admin#
```

67-8 enable port_security trap_log

Description

This command is used to enable port security traps/logs. When this command is enabled, if there's a new MAC that violates the pre-defined port security configuration, a trap will be sent out with the MAC and port information and the relevant information will be logged.

Format

enable port_security trap_log

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable a port security trap:

```
DES-3810-28:admin#enable port_security trap_log
Command: enable port_security trap_log

Success.

DES-3810-28:admin#
```

67-9 disable port_security trap_log

Description

This command is used to disable a port security trap/log. If the port security trap is disabled, no trap will be sent out for MAC violations, and no log will be recorded.

Format

disable port_security trap_log

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To prevent a port security trap from being sent from the switch:

```
DES-3810-28:admin#disable port_security trap_log
Command: disable port_security trap_log

Success.

DES-3810-28:admin#
```

Chapter 68 Power Saving Commands

config power_saving hibernation [[add | delete] time_range <range_name 32> | clear_time_range]
config power_saving led [[add | delete] time_range <range_name 32> | clear_time_range]
config power_saving port [<portlist> | all] [[add | delete] time_range <range_name 32> | clear_time_range]
config power_saving mode {length_detection | link_detection | led | port | hibernation} [enable | disable]
show power_saving {length_detection | link_detection | led | port | hibernation}
config led state [enable | disable]
show led

68-1 config power_saving hibernation

Description

This command is used to add or delete the power saving schedule on system hibernation.

When the system enters hibernation mode, the Switch will go into a low power state and idle. It will shut down all the ports, all network functionality (telnet, ping, etc.) will not work, and only the console connection will work via the RS232 port. If the switch is an endpoint type PSE (Power Sourcing Equipment), the switch will not provide power to the port.

Format

config power_saving hibernation [[add | delete] time_range <range_name 32> | clear_time_range]

Parameters

add - Specifies to add a time range **delete** - Specifies to delete a time range
time_range - Specifies the name of the time range used. **<range_name 32>** - Enter the name of the time range used here. This name can be up to 32 characters long.
clear_time_range - Specifies to clear all the time ranges of system hibernation.

Restrictions

Only Administrators and Operators can issue this command.

Example

To add a time range named “range_1” on system hibernation:

```
DES-3810-28:admin#config power_saving hibernation add time_range range_1
Command: config power_saving hibernation add time_range range_1

Success.

DES-3810-28:admin#
```

To delete a time range named “range_2” on system hibernation:

```
DES-3810-28:admin#config power_saving hibernation delete time_range range_2
Command: config power_saving hibernation delete time_range range_2

Success.

DES-3810-28:admin#
```

68-2 config power_saving led

Description

This command is used to add or delete the power saving schedule on the LED of all ports. When any schedule is up, all port’s LED will be turned off even device’s LED working on PoE mode.

Format

config power_saving led [[add | delete] time_range <range_name 32> | clear_time_range]

Parameters

add - Specifies to add a time range here. **delete** - Specifies to delete a time range here.
time_range - Specifies the name of the time range used. **<range_name 32>** - Enter the name of the time range used here. This name can be up to 32 characters long.
clear_time_range - Specifies to clear all the time ranges of system hibernation.

Restrictions

Only Administrators and Operators can issue this command.

Example

To add a time range named “range_1” on port LED:

```
DES-3810-28:admin#config power_saving led add time_range range_1
Command: config power_saving led add time_range range_1

Success.

DES-3810-28:admin#
```

To delete a time range named “range_2” on LED:

```
DES-3810-28:admin#config power_saving led delete time_range range_2
Command: config power_saving led delete time_range range_2

Success.

DES-3810-28:admin#
```

68-3 config power_saving port

Description

This command is used to add or delete the power saving schedule on the port. When any schedule is up, the specific port will be shut down (disabled).

Format

config power_saving port [<portlist> | all] [[add | delete] time_range <range_name 32> | clear_time_range]

Parameters

port - Specifies the port list used for the configuration. **<portlist>** - Enter the list of ports, used for this configuration, here. **all** - Specifies that all the ports will be used.
add - Specifies to add a time range here. **delete** - Specifies to delete a time range here.
time_range - Specifies the name of the time range used. **<range_name 32>** - Enter the name of the time range used here. This name can be up to 32 characters long.
clear_time_range - Specifies to clear all the time ranges of system hibernation.

Restrictions

Only Administrators and Operators can issue this command.

Example

To add a time range named “range_1” on port 1:

```
DES-3810-28:admin#config power_saving port 1 add time_range range_1
Command: config power_saving port 1 add time_range range_1

Success.

DES-3810-28:admin#
```

To delete a time range named “range_2” on port 1:

```
DES-3810-28:admin#config power_saving port 1 delete time_range range_2
Command: config power_saving port 1 delete time_range range_2

Success.

DES-3810-28:admin#
```

68-4 config power_saving mode

Description

This command is used to configure the power saving state.

For the link detection and length detection functions, this will apply to the ports with copper media.

If the power saving link detection state is enabled, the power is saved by the following mechanisms:

Chapter 1 When no links are detected on the port, the port will automatically turn off and will only wake up the second a single link pulse is sent. While the port is turned off, a simple energy-detect circuit will continuously monitor energy on the cable. The moment energy is detected; the port will turn on fully as to the IEEE specification's requirements. The power saving function is performed while no link is detected and it will not affect the port capabilities while the link is up.

Chapter 2 When a link is detected on the port, for a shorter cable, the power consumption will be reduced by lowering the signal amplitude, since the signal attenuation is proportional to the cable length. The port will adjust the power based on the cable length and still maintain error free applications from both sides of the link. This mechanism is only available using the hardware support cable diagnostics function.

If the power saving state of port is disabled, all power saving schedules of port will not take effect.

If the power saving state of port LED is disabled, all power saving schedules of port LED will not take effect.

If the power saving state of system hibernation is disabled, all power saving schedules of system hibernation will not take effect.

Format

config power_saving mode {length_detection | link_detection | led | port | hibernation} [enable | disable]

Parameters

length_detection - (Optional) Specifies the power saving link detection state.
link_detection - (Optional) Specifies the length detection used.
led - (Optional) Specifies to configure the power saving state of port LED.
port - (Optional) Specifies to configure the power saving state of port.
hibernation - (Optional) Specifies to configure the power saving state of system hibernation.
enable - Specifies to enable the specific state selected. **disable** - Specifies to disable the specific state selected.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable the power saving state of port and hibernation:

```
DES-3810-28:admin#config power_saving mode port hibernation enable
Command: config power_saving mode port hibernation enable

Success.

DES-3810-28:admin#
```

68-5 show power_saving

Description

This command is used to display the setting of power saving function.

Format

show power_saving {length_detection | link_detection | led | port | hibernation}

Parameters

length_detection - Display the length detection configuration of power saving.
link_detection - Display the link detection configuration of power saving.
led - Display the port LED configuration of power saving.
port - Display the port configuration of power saving.
hibernation - Display the system hibernation configuration of power saving.

Restrictions

None.

Example

To display all power saving configurations:

```
DES-3810-28:admin#show power_saving
Command: show power_saving

 Link Detection State: Enabled
 Length Detection State: Enabled

 Power Saving Configuration On System Hibernation
 ------------------------------------------------
 State: Enabled
 Time Range
 --------------------------------
 range_1

 Power Saving Configuration On Port LED
 ---------------------------------------
```

```
 State: Disabled
 Time Range
 ------------------------------
 range_1

 Power Saving Configuration On Port
 ----------------------------------------
 State: Enabled
 Port       Time Range
 -------    ------------------------------
 1          range_1

DES-3810-28:admin#
```

To display power saving configuration on system hibernation:

```
DES-3810-28:admin#show power_saving hibernation
Command: show power_saving hibernation

 Power Saving Configuration On System Hibernation
 ------------------------------------------------
 State: Enabled
 Time Range
 ------------------------------
 range_1

DES-3810-28:admin#
```

To display power saving configuration on port LED:

```
DES-3810-28:admin#show power_saving led
Command: show power_saving led

 Power Saving Configuration On Port LED
 --------------------------------------
 State: Disabled
 Time Range
 ------------------------------
 range_1

DES-3810-28:admin#
```

To display the power saving configuration on port:

```
DES-3810-28:admin#show power_saving port
Command: show power_saving port

 Power Saving Configuration On Port
 ----------------------------------------
 State: Enabled
 Port       Time Range
 -------    --------------------------------
 1          range_1

DES-3810-28:admin#
```

To display the power saving configuration for length detection:

```
DES-3810-28:admin#show power_saving length_detection
Command: show power_saving length_detection

 Length Detection State: Enabled

DES-3810-28:admin#
```

68-6 config led state

Description

This command is used to configure the LED admin state of all ports.

When the port LED admin state is disabled, the LED of all the ports will always be turned off. If the port LED admin state is enabled, the LED's state of the port will be controlled by the port's link status, by the LED status of PoE, or by the LED power saving schedule.

Format

config led state [enable | disable]

Parameters

enable - Specifies that the LED admin state will be enabled. **disable** - Specifies that the LED admin state will be disabled.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable the LED admin state:

```
DES-3810-28:admin#config led state enable
Command: config led state enable

Success.

DES-3810-28:admin#
```

68-7 show led

Description

This command is used to display the setting of all port's LED admin state.

Format

show led

Parameters

None.

Restrictions

None.

Example

To display the setting of all the port's LED admin state:

```
DES-3810-28:admin#show led
Command: show led

 Port LED state: Enabled

DES-3810-28:admin#
```

Chapter 69 PPPoE Circuit ID Insertion Commands

config pppoe circuit_id_insertion state [enable | disable]
show pppoe circuit_id_insertion

69-1 config pppoe circuit_id_insertion state

Description

When the setting is enabled, the system will insert the circuit ID tag to the received PPPoE discover and request packet if the tag is absent, and remove the circuit ID tag from the received PPPoE offer and session confirmation packet. The insert circuit ID will contain the following information: client MAC address, device ID and port number. By default, the switch IP address is used as the device ID to encode the circuit ID option. By default, the setting is disabled.

Format

config pppoe circuit_id_insertion state [enable | disable]

Parameters

enable - Specifies to enable the PPPoE circuit ID insertion function.
disable - Specifies to disable the PPPoE circuit ID insertion function.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the PPPoE circuit ID insertion status:

```
DES-3810-28:admin#config pppoe circuit_id_insertion state enable
Command: config pppoe circuit_id_insertion state enable

Success.

DES-3810-28:admin#
```

69-2 show pppoe circuit_id_insertion

Description

This command is used to display the PPPoE circuit ID insertion status.

Format

show pppoe circuit_id_insertion

Parameters

None.

Restrictions

None.

Example

To display the PPPoE circuit ID status:

```
DES-3810-28:admin#show pppoe circuit_id_insertion
Command: show pppoe circuit_id_insertion

Status: Disabled

DES-3810-28:admin#
```

Chapter 70 Protocol Independent Multicast (PIM) Commands

config pim [[ipif <ipif_name 12> | all] {hello <sec 1-18724> | jp_interval <sec 1-18724> | state [enable | disable] | mode [dm | sm | sm-dm] | dr_priority <uint 0-4294967294>} | register_probe_time <value 1-127> | register_suppression_time <value 3-255>]
enable pim
disable pim
show pim neighbor {ipif <ipif_name 12> | ipaddress <network_address>}
show pim {ipif <ipif_name 12>}
config pim cbsr [ipif <ipif_name 12> {priority [-1 | <value 0-255>]} | hash_masklen <value 0-32> | bootstrap_period <value 1-255>]
show pim cbsr {ipif <ipif_name 12>}
config pim crp {holdtime <value 0-255> | priority <value 0-255> | wildcard_prefix_cnt [0 | 1]}
create pim crp group <network_address> rp <ipif_name 12>
delete pim crp group <network_address>
show pim crp
config pim last_hop_spt_switchover [never | immediately]
show pim ipmroute
create pim static_rp group <network_address> rp <ipaddr>
delete pim static_rp group <network_address>
show pim static_rp
show pim rpset
create pim register_checksum_include_data rp_address <ipaddr>
delete pim register_checksum_include_data rp_address <ipaddr>
show pim register_checksum_include_data_rp_list
config pim-ssm {state [enable | disable] | group_range [default | <network_address>]}
show pim-ssm

70-1 config pim

Description

This command is used to configure the PIM settings.

Format

config pim [[ipif <ipif_name 12> | all] {hello <sec 1-18724> | jp_interval <sec 1-18724> | state [enable | disable] | mode [dm | sm | sm-dm] | dr_priority <uint 0-4294967294>} | register_probe_time <value 1-127> | register_suppression_time <value 3-255>]

Parameters

ipif - Specifies the IP interface name. **<ipif_name 12>** - Enter the IP interface name used here. This name can be up to 12 characters long. **all** - Specifies that all the IP interfaces will be used.

hello - (Optional) Specifies the time between issuing hello packets to find neighboring routers. **<sec 1-18724>** - Enter the hello time value here. This value must be between 1 and 18724 seconds. The default value is 30 seconds.
jp_interval - (Optional) Specifies the interval between transmitting (flooding to all interfaces) multicast messages to downstream routers, and automatically 'pruning' a branch from the multicast delivery tree. This interval also determines the time interval the router uses to automatically remove prune information from a branch of a multicast delivery tree and begin to flood multicast messages to all branches of that delivery tree. These two actions are equivalent. The default is 60 seconds. **<sec 1-18724>** - Enter the join/prune interval value here. This value must be between 1 and 18724 seconds.
state - (Optional) Specifies to allow the PIM function to be disabled or enabled for the above IP interface. The default is disabled. **enable** - Specifies that the PIM function will be enabled. **disable** - Specifies that the PIM function will be disabled.
mode - (Optional) Specifies the multicast protocol mode used. – dense mode or sparse mode, or sm-dm mode. The default value is dense mode. **dm** - Specifies that the multicast protocol mode will be set to dense mode. **sm** - Specifies that the multicast protocol mode will be set to sparse mode. **sm-dm** - Specifies that the multicast protocol mode will be set to both dense and sparse mode.
dr_priority - (Optional) Specifies the priority for DR (Designated Router) election. The DR will forward multicast traffic from a unicast source to the appropriate RP (Rendezvous Point). The router with the highest priority value will be elected as the DR in the VLAN. When multiple routers are configured with the same highest priority value, the router with the highest IP addres will the elected as the DR. **<uint 0-4294967294>** - Enter the DR priority value used here. This value must be between 0 and 4294967294.
register_probe_time - Specifies the time before the Register-Stop Timer expires. This is used when a DR may send a Null-Register to the RP to cause it to resend a Register-Stop message. The default value is 5 sec. **<value 1-127>** - Enter the register probe time value here. This value must be between 1 and 127.
register_suppression_time - Specifies the period after which a PIM DR will stop sending register encapsulated data to the RP after receiving a Register-Stop message. The default value is 60 sec. **<value 3-255>** - Enter the register suppression time value here. This value must be between 3 and 255.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure PIM configurations of IP interface System:

```
DES-3810-28:admin# config pim ipif System hello 35 jp_interval 70 state enable
Command: config pim ipif System hello 35 jp_interval 70 state enable

Success.

DES-3810-28:admin#
```

70-2 enable pim

Description

This command is used to enable PIM on the switch.

Format

enable pim

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable PIM:

```
DES-3810-28:admin# enable pim
Command: enable pim

Success.

DES-3810-28:admin#
```

70-3 disable pim

Description

This command is used to disable PIM on the switch.

Format

disable pim

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable PIM:

```
DES-3810-28:admin# disable pim
```

```
Command: disable pim

Success.

DES-3810-28:admin#
```

70-4 show pim neighbor

Description

This command is used to display the current PIM neighbor router table.

Format

show pim neighbor {ipif <ipif_name 12> | ipaddress <network_address>}

Parameters

ipif - (Optional) Specifies the name of the IP interface for which you want to display the current PIM neighbor router table. **<ipif_name 12>** - Enter the IP interface name used here. This name can be up to 12 characters long.
ipaddress - (Optional) Specifies the IP address and netmask of the destination. **<network_address>** - Enter the destination IP address and netmask used here.
If no parameter is specified, the system will display all the PIM neighbor addresses in the table.

Restrictions

None.

Example

To display PIM neighbor address table:

```
DES-3810-28:admin# show pim neighbor
Command: show pim neighbor

PIM Neighbor Address Table
Interface Name   Neighbor Address  Expire Time
---------------  ----------------  -----------
System           10.48.74.122      5

Total Entries : 1

DES-3810-28:admin#
```

70-5 show pim

Description

This command is used to display the current PIM configuration.

Format

show pim {ipif <ipif_name 12>}

Parameters

ipif - (Optional) Specifies the name of the IP interface used to display the PIM configuration. **<ipif_name 12>** - Enter the IP interface name used here. This name can be up to 12 characters long.
If no parameter is specified, the system will display all the PIM configurations of all IP interfaces.

Restrictions

None.

Example

To display PIM configurations of IP interface System:

```
DES-3810-28:admin# show pim
Command: show pim

PIM Global State          : Enabled
Last Hop SPT Switchover   : Never
Register Probe Time       : 5
Register Suppression Time : 60

PIM Interface Table
                              Designated      Hello    J/P
Interface  IP Address         Router          Interval Interval Mode  State
---------- ------------------ --------------- -------- -------- ----- --------
System     10.90.90.101/8     10.90.90.101    35       70       DM    Enabled

Total Entries : 1

DES-3810-28:admin#
```

70-6 config pim cbsr

Description

This command is used to configure the BSR (Bootstrap Router) candidate feature and parameters used by this Switch. The BSR elected, wil keep all the routers in the PIM-SM domain informed of the currently assigned RP for each multicast group. As a rule, there should be multiple BSR candidates configured in a PIM-SM domain. The reason for this is when the elected BSR becomes unavailable, another candidate can simply take its place. In the BSR election process the BSR candidate with the highest priority value will be determained as the elected BSR. When the highest priority value on multiple BSR candidates are the same, the highest IP address will be selected.

Format

config pim cbsr [ipif <ipif_name 12> {priority [-1 | <value 0-255>]} | hash_masklen <value 0-32> | bootstrap_period <value 1-255>]

Parameters

ipif - Specifies the IP interface used for this configuration. **<ipif_name 12>** - Enter the IP interface name used here. This name can be up to 12 characters long.
priority - (Optional) Specifies to set the C-BSR priority. The lower value indicates lower priority. The default value is -1. Note that only one interface can be the C-BSR in one device. **-1** - Specifies that the interface will be disable to be the BSR. **<value 0-255>** - Enter the C-BSR priority value used here. This value must be between 0 and 255.
hash_masklen - Enter a hash mask length, which will be used with the IP address of the candidate RP and the multicast group address, to calculate the hash algorithm used by the router to determine which CRP on the PIM-SM enabled network will be the RP. **<value 0-32>** - Enter the hash mask lenght value here. This value must be between 0 and 32. The default value is 30 seconds.
bootstrap_period - Specifies the interval between originating Bootstrap message. **<value 1-255>** - Enter the bootstrap period value used here. This value must be between 1 and 255. The default value is 60 seconds.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the C-BSR for the System interface :

```
DES-3810-28:admin# config pim cbsr ipif System priority 255
Command: config pim cbsr ipif System priority 255

Success.

DES-3810-28:admin#
```

70-7 show pim cbsr

Description

This command is used to list the candidate bootstrap router related information.

Format

show pim cbsr {ipif <ipif_name 12>}

Parameters

ipif - Specifies the IP interface to be displayed. **<ipif_name 12>** - Enter the IP interface name used here. This name can be up to 12 characters long.
If no parameter is specified, the system will display all C-BSR configurations.

Restrictions

None.

Example

To display the C-BSR settings:

```
DES-3810-28:admin#show pim cbsr
Command: show pim cbsr

PIM Candidate-BSR Table

C-BSR Hash Mask Len        : 30
C-BSR Bootstrap Period     : 60

Interface    IP Address         Priority
------------ ------------------ -------------
System       192.168.69.123/24  -1 (Disabled)

Total Entries: 1

DES-3810-28:admin#
```

70-8 config pim crp

Description

This command is used to configure the RP (Rendezvous Point) candidate feature and parameters used by this Switch. The elected RP, for a specific multicast group, will receive requested multicast traffic from the DR (Designated Router) and will forward this to the multicast receiver(s) requesting the traffic. In a multicast group only one active RP can exist. All other RPs will be configured as candidate RPs.

Format

config pim crp {holdtime <value 0-255> | priority <value 0-255> | wildcard_prefix_cnt [0 | 1]}

Parameters

holdtime - (Optional) This field is used to set the time Candidate RP (CRP) advertisements are valid on the PIM-SM enabled network. If CRP advertisements are not received by the BSR within this time frame, the CRP is removed from the list of candidates. An entry of 0 will send out one advertisement that states to the BSR that it should be immediately removed from CRP status on the PIM-SM network. **<value 0-255>** - Enter the hold time for the RP here. This value must be between 0 and 255. The default value is 150 seconds.
priority - (Optional) Specifies the priority used for RP election. This priority value will be included in the router's CRP advertisements. A lower value means a higher priority, yet, if there is a tie for the highest priority, the router having the higher IP address will become the RP. **<value 0-255>** - Enter the priority value used here. This value must be between 0 and 255. The default value is 192.
wildcard_prefix_cnt - (Optional) Specifies the Prefix Count value of the wildcard address (224.0.0.0/24) to be choosed. The default vaule is 0. **0** - Specifies that the wildcard prefix count value will be set to 0. **1** - Specifies that the wildcard prefix count value will be set to 1.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the candidate rendezvous point (RP) holdtime, priority and wildcard prefix count:

```
DES-3810-28:admin# config pim crp holdtime 150 priority 192 wildcard_prefix_cnt
0
Command: config pim crp holdtime 150 priority 192 wildcard_prefix_cnt 0

Success.

DES-3810-28:admin#
```

70-9 create pim crp group

Description

This command is used to add a multicast group range into a C-RP serve list for PIM-SM.

Format

create pim crp group <network_address> rp <ipif_name 12>

Parameters

group - Specifies the multicast group address for this Switch to become a Candidate RP. This address must be a class D address. **<network_address>** - Enter the group network address used here.
rp - Specifies that the interface will act as C-RP for the group. **<ipif_name 12>** - Enter the IP interface name used here. This name can be up to 12 characters long.

Restrictions

Only Administrators and Operators can issue this command.

Example

To add a multicast group range into a C-RP server list:

```
DES-3810-28:admin# create pim crp group 224.1.2.3/32 rp System
Command: create pim crp group 224.1.2.3/32 rp System

Success.

DES-3810-28:admin#
```

70-10 delete pim crp group

Description

This command is used to delete a multicast group range from the C-RP server list.

Format

delete pim crp group <network_address>

Parameters

group - Specifies the multicast group address for this switch to be removed from being a Candidate RP. This address must be a class D address. **<network_address>** - Enter teh multicast group network address used here.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete a multicast group range from the C-RP server list:

```
DES-3810-28:admin# delete pim crp group 224.1.2.3/32
Command: delete pim crp group 224.1.2.3/32

Success.

DES-3810-28:admin#
```

70-11 show pim crp

Description

This command is used to list all the candidate rendezvous point (C-RP) related information.

Format

show pim crp

Parameters

None.

Restrictions

None.

Example

To list all the candidate rendezvous point (C-RP) related information:

```
DES-3810-28:admin# show pim crp
Command: show pim crp

PIM Candidate-RP Table

C-RP Holdtime                : 150
C-RP Priority                : 192
C-RP Wildcard Prefix Count   : 0

Group              Interface
---------------------- -----------------
224.0.0.0/4        System

Total Entries: 1

DES-3810-28:admin#
```

70-12 config pim last_hop_spt_switchover

Description

This command is used by the last hop router to decide whether to receive the multicast data from the shared tree or switch over to the shortest path tree. When the switchover mode is set to be never, the last hop router will always receive the multicast data from the shared tree. When the mode is set to immediately, the last hop router will always receive the multicast data from the shortest path tree.

Format

config pim last_hop_spt_switchover [never | immediately]

Parameters

never - Specifies that the router will always receive multicast data from the shared tree.
immediately - Specifies that the router will always receive multicast data from shortest path tree.

Restrictions

Only Administrators and Operators can issue this command.

Example

Set the SPT-switchover mode to never:

```
DES-3810-28:admin# config pim last_hop_spt_switchover never
Command: config pim last_hop_spt_switchover never

Success.

DES-3810-28:admin#
```

70-13 show pim ipmroute

Description

This command is used to list all the entries of multicast routing, includes (*,G), (S,G) and (S,G,rpt).

Format

show pim ipmroute

Parameters

None.

Restrictions

None.

Example

To list all the entries of multicast routing:

```
DES-3810-28:admin# show pim ipmroute
Command: show pim ipmroute

PIM IP Multicast Route Table

UA = Upstream AssertTimer
AM = Assert Metric
AMPref = Assert MetricPref
ARB    = Assert RPTBit

Group Address    Source Address    UA    AM   AMPref  ARB  Flag Type    Mode
---------------- ----------------- ---- ---- ------ ---- ---- ------- ----
225.0.0.0        12.90.90.90/32    0     0     0      0      RPT  (*.G)   ASM
225.0.0.1        12.90.90.90/32    0     0     0      0      RPT  (*.G)   ASM
225.0.0.5        12.90.90.90/32    0     0     0      0      RPT  (*.G)   ASM
225.7.7.5        12.90.90.90/32    0     0     0      0      RPT  (*.G)   ASM
226.0.0.0        12.90.90.90/32    0     0     0      0      RPT  (*.G)   ASM
227.0.0.3        12.90.90.90/32    0     0     0      0      RPT  (*.G)   ASM
232.0.0.0        12.90.90.114/32   0     0     0      0      SPT  (S.G)   SSM
239.255.255.250  12.90.90.90/32    0     0     0      0      RPT  (*.G)   ASM

Total Entries: 8


DES-3810-28:admin#
```

70-14 create pim static_rp group

Description

This command is used to create a static RP.

Format

create pim static_rp group <network_address> rp <ipaddr>

Parameters

group - Specifies to assign the multicast group address for this static RP. **<network_address>** - Enter the multicast group address used here.
rp - Specifies the IP address used by this static RP. **<ipaddr>** - Enter the IP address used here.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create a static RP:

```
DES-3810-28:admin# create pim static_rp group 239.1.1.0/24 rp 10.52.33.18
Command: create pim static_rp group 239.1.1.0/24 rp 10.52.33.18

Success.

DES-3810-28:admin#
```

70-15 delete pim static_rp group

Description

This command is used to delete a static RP.

Format

delete pim static_rp group <network_address>

Parameters

group - Specifies the multicast group address that will removed from the static RP. **<network_address>** - Enter the multicast group address used here.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete a static RP:

```
DES-3810-28:admin# delete pim static_rp group 224.1.2.0/24
Command: delete pim static_rp group 224.1.2.0/24

```

```
Success.

DES-3810-28:admin#
```

70-16 show pim static_rp

Description

This command is used to list all the static RP settings.

Format

show pim static_rp

Parameters

None.

Restrictions

None.

Example

To list all the static RP settings:

```
DES-3810-28:admin# show pim static_rp
Command: show pim static_rp

PIM Static RP Table

Group              RP Address
------------------ ------------------
224.1.2.0/24       10.52.33.4
239.1.1.0/24       10.52.33.18

Total Entries: 2

DES-3810-28:admin#
```

70-17 show pim rpset

Description

This command is used to list all the RPset information.

Format

show pim rpset

Parameters

None.

Restrictions

None.

Example

To list all the RPset information:

```
DES-3810-28:admin# show pim rpset
Command: show pim rpset

PIM RP-Set Table

Bootstrap Router: 10.54.71.9

Group Address      RP Address         Holdtime  Expired Time Type
------------------ ------------------ --------- ------------ ------
224.0.0.0/4        10.20.6.36         210       196          dynamic
224.0.0.0/4        10.54.71.9         0         0            static

Total Entries: 2

DES-3810-28:admin#
```

70-18 create pim register_checksum_include_data rp_address

Description

This command is used to decide the checksum in register packet will include the data portion or not. As defined in RFC 4601, the checksum for Registers is done only on the first 8 bytes of the packet, including the PIM header and the next 4 bytes, excluding the data packet portion. Some earlier PIM-SM routers will calculate checksum for register packet including data portion. This configuration makes our routers communicate with those earlier routers smoothly. The default set is not including data portion.

Format

create pim register_checksum_include_data rp_address <ipaddr>

Parameters

rp_address - Specifies that the RP will expect to receive a register packet in which the checksum will be included in the data portion . **<ipaddr>** - Enter the IP address used here.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create an entry for a specific RP in which the checksum in the registered packet will include the data portion:

```
DES-3810-28:admin# create pim register_checksum_include_data rp_address
24.1.2.3
Command: create pim register_checksum_include_data rp_address 24.1.2.3

Success.

DES-3810-28:admin#
```

70-19 delete pim register_checksum_include_data rp_address

Description

This command is used to delete the register checksum including the data for the specific RP address.

Format

delete pim register_checksum_include_data rp_address <ipaddr>

Parameters

rp_address - Specifies the RP address that will be removed from the checksum, including the data portion list. **<ipaddr>** - Enter the RP address used here.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete the register checksum including the data for the specific RP address:

```
DES-3810-28:admin# delete pim register_checksum_include_data rp_address
10.54.71.9
Command: delete pim register_checksum_include_data rp_address 10.54.71.9

Success.

DES-3810-28:admin#
```

70-20 show pim register_checksum_include_data_rp_list

Description

This command is used to list all the RPs of the registered checksum, including the data.

Format

show pim register_checksum_include_data_rp_list

Parameters

None.

Restrictions

None.

Example

To list all the RPs of the registered checksum, including the data:

```
DES-3810-28:admin#show pim register_checksum_include_data_rp_list
Command: show pim register_checksum_include_data_rp_list

PIM Register Checksum Include Data

RP Address
-----------------------------------
24.0.0.0
24.1.2.3

Total Entries: 2

DES-3810-28:admin#
```

70-21 config pim-ssm

Description

This command is used to enable the SSM (Source-Specific Multicast) service model in PIM-SM on the switch. The PIM-SSM function will take active only when SSM service model and PIM-SM state both enabled.

Format

config pim-ssm {state [enable | disable] | group_range [default | <network_address>]}

Parameters

state - (Optional) Specifies to enable or disable the SSM service model on the Switch. **enable** - Specifies that the SSM service model will be enabled. **disable** - Specifies that the SSM service model will be disabled.
group_range - (Optional) Specifies the group address range for the SSM service in IPv4. **default** - The default indicates that the group address range is 232.0.0.0/8. **<network_address>** - Enter the group address range for the SSM service here.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure PIM-SSM state and group range:

```
DES-3810-28:admin# config pim-ssm state enable group_range default
Command: config pim-ssm state enable group_range default

Success.

DES-3810-28:admin#
```

70-22 show pim-ssm

Description

This command is used to list all PIM-SSM protocol related information.

Format

show pim-ssm

Parameters

None.

Restrictions

None.

Example

To display PIM-SSM state and group range:

```
DES-3810-28:admin# show pim-ssm
Command: show pim-ssm

SSM Service Model State    : Enabled
SSM Group                  : 232.0.0.0/8

DES-3810-28:admin#
```

Chapter 71 Protocol VLAN Commands

create dot1v_protocol_group group_id <id> {group_name <name 32>}
config dot1v_protocol_group [group_id <id> | group_name <name 32>] [add protocol [ethernet_2 | ieee802.3_snap | ieee802.3_llc] <protocol_value> | delete protocol [ethernet_2 | ieee802.3_snap | ieee802.3_llc] <protocol_value>]
delete dot1v_protocol_group [group_id <id> | group_name <name 32>| all]
show dot1v_protocol_group {group_id <id> | group_name <name 32>}
config port dot1v ports [<portlist> | all] [add protocol_group [group_id <id> | group_name <name 32>] [vlan< vlan_name 32> | vlanid <id>] {priority <value 0-7>} | delete protocol_group [group_id <id> | all]]
show port dot1v {ports <portlist>}

71-1 create dot1v_protocol_group group_id

Description

This command is used to create a protocol group for the protocol VLAN function.

Format

create dot1v_protocol_group group_id <id> {group_name <name 32>}

Parameters

group_id - Specifies the ID of the protocol group which is used to identify a set of protocols. **<id>** - The ID range is between 1 and 8.
group_name – (Optional) Specifies the name of the protocol group. **<name 32>** - Specifies the name of the protocol group. The maximum length is 32 characters.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create a protocol group:

```
DES-3810-28:admin#create dot1v_protocol_group group_id 4 group_name
General_Group
Command: create dot1v_protocol_group group_id 4 group_name General_Group


Success.
DES-3810-28:admin#
```

71-2 config dot1v_protocol_group

Description

This command is used to add a protocol to a protocol group. The selection of a protocol can be a pre-defined protocol type or a user defined protocol.

Format

config dot1v_protocol_group [group_id <id> | group_name <name 32>] [add protocol [ethernet_2 | ieee802.3_snap | ieee802.3_llc] <protocol_value> | delete protocol [ethernet_2 | ieee802.3_snap | ieee802.3_llc] <protocol_value>]

Parameters

group_id - Specifies the ID of the protocol group which is used to identify a set of protocols. **<id>** - The ID range is between 1 and 8.
group_name - Specifies the name of the protocol group. **<name 32>** - Specifies the name of the protocol group. The maximum length is 32 characters.
add protocol - Specifies the protocol to be added. Depending on the frame type, the octet string will have one of the following values below. The form of the input is 0x0 to 0xffff. **ethernet_2** - This is a 16-bit (2-octet) hex value. Example: IPv4 is 800, IPv6 is 86dd, ARP is 806, etc. **ieee802.3_snap** - This is a 16-bit (2-octet) hex value. Example: IPv4 is 800, IPv6 is 86dd, ARP is 806, etc. **ieee802.3_llc** - This is the 2-octet IEEE 802.2 Link Service Access Point (LSAP) pair: first octet for Destination Service Access Point (DSAP) and second octet for Source.
<protocol_value> - Specifies the protocol value used to identify a protocol of the frame type. The form of the input is 0x0 to 0xffff. Depending on the frame type, the octet string will have one of the following values: For Ethernet II, this is a 16-bit (2-octet) hex value. For example, IPv4 is 800, IPv6 is 86dd, ARP is 806, etc. For IEEE802.3 SNAP, this is this is a 16-bit (2-octet) hex value. For IEEE802.3 LLC, this is the 2-octet IEEE 802.2 Link Service Access Point (LSAP) pair. The first octet is for Destination Service Access Point (DSAP) and the second octet is for Source.
delete protocol - Specifies the protocol to be deleted. Depending on the frame type, the octet string will have one of the following values below. The form of the input is 0x0 to 0xffff. **ethernet_2** - This is a 16-bit (2-octet) hex value. Example: IPv4 is 800, IPv6 is 86dd, ARP is 806, etc. **ieee802.3_snap** - This is a 16-bit (2-octet) hex value. Example: IPv4 is 800, IPv6 is 86dd, ARP is 806, etc. **ieee802.3_llc** - This is the 2-octet IEEE 802.2 Link Service Access Point (LSAP) pair: first octet for Destination Service Access Point (DSAP) and second octet for Source.
<protocol_value> - Specifies the protocol value used to identify a protocol of the frame type. The form of the input is 0x0 to 0xffff. Depending on the frame type, the octet string will have one of the following values: For Ethernet II, this is a 16-bit (2-octet) hex value. For example, IPv4 is 800, IPv6 is 86dd, ARP is 806, etc. For IEEE802.3 SNAP, this is this is a 16-bit (2-octet) hex value. For IEEE802.3 LLC, this is the 2-octet IEEE 802.2 Link Service Access Point (LSAP) pair. The first octet is for Destination Service Access Point (DSAP) and the second octet is for Source.

Restrictions

Only Administrators and Operators can issue this command.

Example

To add a protocol IPv6 to protocol group 4:

```
DES-3810-28:admin# config dot1v_protocol_group group_id 4 add protocol
ethernet_2 86dd
Command: config dot1v_protocol_group group_id 4 add protocol ethernet_2 86dd

Success.
DES-3810-28:admin#
```

To delete a protocol IPv6 from protocol group ID 4:

```
DES-3810-28:admin# config dot1v_protocol_group_group_id 4 delete protocol
ethernet_2 86dd
Command: config dot1v_protocol_group group_id 4 delete protocol ethernet_2 86dd

Success.
DES-3810-28:admin#
```

71-3 delete dot1v_protocol_group

Description

This command is used to delete a protocol group.

Format

delete dot1v_protocol_group [group_id <id> | group_name <name 32> | all]

Parameters

group_id - Specifies the group ID to be deleted. **<id>** - Specifies the group ID to be deleted.
group_name - Specifies the name of the protocol group to be deleted. **<name 32>** - Specifies the name of the protocol group to be deleted. The maximum length is 32 characters.
all - Specifies to delete all protocol groups.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete protocol group ID 4:

```
DES-3810-28:admin# delete dot1v_protocol_group group_id 4
Command: delete dot1v_protocol_group group_id 4

Success.
DES-3810-28:admin#
```

71-4 show dot1v_protocol_group

Description

This command is used to display the protocols defined in protocol groups.

Format

show dot1v_protocol_group {group_id <id> | group_name <name 32>}

Parameters

group_id - (Optional) Specifies the group ID to be displayed. **<id>** - Specifies the group ID to be displayed.
group_name - (Optional) Specifies the name of the protocol group. **<name 32>** - Specifies the name of the protocol group. The maximum length is 32 characters.

Note: If no parameter is specified, all configured protocol groups will be displayed

Restrictions

None.

Example

To display protocol group ID 4:

```
DES-3810-28:admin#show dot1v_protocol_group group_id 4
Command: show dot1v_protocol_group group_id 4

Protocol Group ID Protocol Group Name           Frame Type     Protocol Value
----------------- ----------------------------- -------------- -----------
4                 4                             EthernetII     86DD

Total Entries: 1

DES-3810-28:admin#
```

71-5 config port dot1v

Description

This command is used to assign the VLAN for untagged packets ingress from the portlist based on the protocol group configured. This assignment can be removed by using the **delete protocol_group** option.

When priority is not specified in the command, the port default prority will be the priority for those untagged packets classified by the protocol VLAN.

Format

config port dot1v ports [<portlist> | all] [add protocol_group [group_id <id>| group_name <name 32>] [vlan <vlan_name 32> | vlanid <id>] {priority <value 0-7>} | delete protocol_group [group_id <id> | all]]

Parameters

<portlist> - Specifies a range of ports to apply this command.
all - Specifies all ports.
add protocol_group - Specifies to add a protocol group. **group_id** - Specifies the group ID of the protocol group. **<id>**- Specifies the group ID of the protocol group. **group_name** - Specifies the name of the protocol group. **<name 32>** - Specifies the name of the protocol group. The maximum length is 32 characters.
vlan - Specifies the VLAN that is to be associated with this protocol group on this port. **<vlan_name 32>** - Specifies the VLAN that is to be associated with this protocol group on this port. The maximum length is 32 characters.
vlanid - Specifies the VLAN ID. **<id>** - Specifies the VLAN ID.
priority - Specifies the priority to be associated with the packet which has been classified to the specified VLAN by the protocol. **<value 0-7>** - Specifies a value between 0 and 7.
delete protocol_group - Specifies to delete a protocol group. **group_id** – Specifies the group ID to be deleted. **<id>** - Specifies the group ID. **all** – Specifies all groups.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the group ID 4 on port 3 to be associated with VLAN 2:

```
DES-3810-28:admin# config port dot1v ports 3 add protocol_group group_id 4 vlan
VLAN2
Command: config port dot1v ports 3 add protocol_group group_id 4 vlan VLAN2


Success.
DES-3810-28:admin#
```

71-6 show port dot1v

Description

This command is used to display the VLAN to be associated with untagged packets ingressed from a port based on the protocol group.

Format

show port dot1v {ports <portlist>}

Parameters

ports - (Optional) Specifies a range of ports to be displayed. **<portlist>** - Specifies a range of ports to be displayed.

Note: If no parameter is specified, information for all ports will be displayed.

Restrictions

None.

Example

To display the protocol VLAN information for ports 1 to 2:

```
DES-3810-28:admin#show port dot1v ports 1-2
Command: show port dot1v ports 1-2

 Port: 1
 Protocol Group ID     VLAN Name                          Protocol Priority
 -------------------   --------------------------------   -----------------
 1                     default                                    -

 Port: 2
 Protocol Group ID     VLAN Name                          Protocol Priority
 -------------------   --------------------------------   -----------------
 1                     default                                    -

Total Entries: 2

DES-3810-28:admin#
```

Chapter 72 QoS Commands

config bandwidth_control [<portlist> | all] {rx_rate [no_limit | <value 64-1024000>] | tx_rate [no_limit | <value 64-1024000>]}(1)
show bandwidth_control {<portlist>}
config per_queue bandwidth_control {ports [<portlist> | all]} <cos_id_list 0-7> {max_rate [no_limit | <value 64-1024000>]}(1)
show per_queue bandwidth _control {<portlist>}
config scheduling_group <profile_id 2-8> [add | delete] <portlist>
config schedule_profile [default | <profile_id 2-8>] cos <cos_id_list 0-7> [strict | wrr weight <value 1-255>]
show scheduling_group {<profile_id 1-8>}
show schedule_profile {<profile_id 1-8>}
config 802.1p user_priority <priority 0-7> <class_id 0-7>
show 802.1p user_priority
config 802.1p default_priority [<portlist> | all] <priority 0-7>
show 802.1p default_priority {<portlist>}
enable hol_prevention
disable hol_prevention
show hol_prevention
config dscp trust [<portlist> | all] state [enable | disable]
show dscp trust {<portlist>}
config dscp map [dscp_priority <dscp_list> to <priority 0-7> | dscp_dscp <dscp_list> to <dscp 0-63>]
show dscp map [dscp_priority | dscp_dscp] {dscp <dscp_list>}

72-1 config bandwidth_control

Description

This command is used to set the maximum limit for port bandwidth.

Format

config bandwidth_control [<portlist> | all] {rx_rate [no_limit | <value 64-1024000>] | tx_rate [no_limit | <value 64-1024000>]}(1)

Parameters

<portlist> - Specifies a range of ports to be configured. **all** - Specifies all ports.
rx_rate - (Optional) Specifies the limitation of receive data rate. **no_limit** - Specifies to indicate there is no limit on port rx bandwidth. **<value 64-1024000>** - Specifies an integer value from 64 to 1024000 to set a maximum limit in Kbits/sec. The specified bandwidth limit may be equaled but not exceeded. This exact logical limit or token value is hardware determined. Note: 1 Kbit = 1000 bits, 1 Gigabit = 1000*1000 Kbits. Actual rate = (inputted rate/ 64) * 64.
tx_rate - (Optional) Specifies the limitation of transmit data rate. **no_limit** - Specifies to indicate there is no limit on port tx bandwidth. **<value 64-1024000>** - Specifies an integer value from 64 to 1024000 to set a maximum limit in Kbits/sec. The specified bandwidth limit may be equaled but not exceeded. This exact logical limit or token value is hardware determined. Actual rate = (inputted rate/ 64) * 64.

On the GE port, the minimal granularity for the TX rate is 1850Kbps. Actual rate = (inputted rate/ 1850) * 1850. Note: On the GE port, the TX rate granularity is different.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure port bandwidth:

```
DES-3810-28:admin#config bandwidth_control 1-10 tx_rate 1024
Command: config bandwidth_control 1-10 tx_rate 1024

Success.

DES-3810-28:admin#
```

72-2 show bandwidth_control

Description

This command is used to display the port bandwidth configurations. The bandwidth can also be assigned by the RADIUS server through the authentication process. If the RADIUS server has assigned the bandwidth, then the RADIUS-assigned bandwidth will be the effective bandwidth.

Format

show bandwidth_control {<portlist>}

Parameters

<portlist> - (Optional) Specifies a range of ports to be displayed.

Note: If no parameter is specified, the system will display all port bandwidth configurations.

Restrictions

None.

Example

To display the port bandwidth control table for ports 1 to 2:

```
DES-3810-28:admin#show bandwidth_control 1-2
Command: show bandwidth_control 1-2

Bandwidth Control Table

Port   RX Rate      TX Rate       Effective RX        Effective TX
      (Kbit/sec)    (Kbit/sec)    (Kbit/sec)          (Kbit/sec)
----  ----------    ----------    ----------------    ----------------
 1    No Limit      No Limit      No Limit            No Limit
 2    No Limit      No Limit      No Limit            No Limit

DES-3810-28:admin#
```

72-3 config per_queue bandwidth_control

Description

This command is used to set the bandwidth control for each specific egress queue on specified ports. The maximum rate limits the bandwidth. When specified, packets transmitted from the queue will not exceed the specified limit even if extra bandwidth is available. The specification of maximum rate is effective regardless of whether the queue is operating in strict or Shaped Deficit Weighted Round Robin (SDWRR) mode.

Format

config per_queue bandwidth_control {ports [<portlist> | all]} <cos_id_list 0-7> {max_rate [no_limit | <value 64-1024000>]}(1)

Parameters

ports - (Optional) Specifies a range of ports to be configured. **<portlist>** - Specifies a range of ports to be configured. **all** - Specifies to set all ports in the system. If no parameter is specified, the system will set all the ports.
<cos_id_list 0-7> - Specifies a list of priority queues. The priority queue number ranges from 0 to 7.
max_rate - Specifies one of the parameters below will be applied to the maximum rate that the class specified above will be allowed to transmit packets at. **no_limit** - Indicates there is no limit on egress queue of specified port bandwidth. **<value 64-1024000>** - Specifies an integer value from 64 to 1024000 to set a maximum limit in Kbits/sec. The specified bandwidth limit may be equaled but not exceeded. The exact logical limit or token value is hardware determined. Note: 1 Kbit = 1000 bits, 1 Gigabit = 1000*1000 Kbits. Actual rate = (inputted rate/ 64) * 64. On a GE port, the minimal granularity for TX rate is 1850Kbps. Actual rate = (inputted rate/ 1850) * 1850. Note: On a GE port, the TX rate granularity is different.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the maximum rate to be 100 on queue 1 for ports 1 to 10:

```
DES-3810-28:admin#config per_queue bandwidth_control ports 1-10 1 max_rate 100
Command: config per_queue bandwidth_control ports 1-10 1 max_rate 100

The setting value is not an integer multiple of granularity 64. The closest
value 64 is chosen.

Success.

DES-3810-28:admin#
```

72-4 show per_queue bandwidth _control

Description

This command is used to display the bandwidth control setting of per egress queue for each port.

Format

show per_queue bandwidth _control {<portlist>}

Parameters

<portlist> - (Optional) Specifies a range of ports to be displayed.

Restrictions

None

Example

To display the port bandwidth control table for port 1:

```
DES-3810-28:admin#show per_queue bandwidth_control 1
Command: show per_queue bandwidth_control 1

Queue Bandwidth Control Table On Port: 1

Queue     Max Rate(Kbit/sec)
0         No Limit
1         No Limit
2         No Limit
3         No Limit
4         No Limit
5         No Limit
6         No Limit
7         No Limit

DES-3810-28:admin#
```

72-5 config scheduling_group

Description

This command is used to bind a port or ports to a specific schedule profile.

Format

config scheduling_group <profile_id 2-8> [add | delete] <portlist>

Parameters

<profile_id 2-8> - Specifies the transmit scheduler profile index. Each port is configured to be associated with one of the scheduling profiles.
add - This attaches the specified ports to a specific schedule profile. After adding a port to a schedule profile, the port will be deleted automatically from the previous schedule profile that it belongs to. **delete** - This detaches these ports from the specific schedule profile. When deleting a port from a profile, it will be added to the default schedule profile automatically.
<portlist> - Specifies the port numbers that will be configured to use the specific schedule profile parameter.

Restrictions

Only Administrators and Operators can issue this command.

Example

To bind ports 1 to 15 to schedule profile 3:

```
DES-3810-28:admin#config scheduling_group 3 add 1-15
Command: config scheduling_group 3 add 1-15

Success.

DES-3810-28:admin#
```

72-6 config schedule_profile

Description

This command is used to configure the arbiter group for a specific queue. The weight parameter only takes effect when the queue's arbiter group is SDWRR, and it cannot be set to zero.

Note: The queues in the SDWRR arbiter group must be continuous.

Format

config schedule_profile [default | <profile_id 2-8>] cos <cos_id_list 0-7> [strict | wrr weight <value 1-255>]

Parameters

default - Specifies the default scheduler profile index (reserve profile ID 1 is the default profile). If the port has not been attached to any other schedule profile, it will be attached to the default schedule profile. **<profile_id 2-8>** - Specifies the transmit scheduler profile index. Each port is configured to be associated with one of the scheduling profiles.
cos - Specifies the transmit queue index. The range is from 0 to 7. Queue 7 has the highest priority and Queue 7-1 has the next highest priority. Queue 0 has the lowest priority. **<cos_id_list 0-7>** - Specifies the transmit queue index. This CoS value must be between 0 and 7.
strict - Specifies strict arbiter group. Within this group, queues are scheduled according to the queue numbers. Traffic in higher queue numbers is always scheduled prior to traffic in lower queue numbers. Strict is the default setting.
wrr weight - Specifies SDWRR arbiter group. Within this group, the queues are serviced according to their configured “weight”. If there are four queues in the group, and the desired bandwidth division is 10%, 20%, 30%, and 40%, the weight assignment to each queue is set to 1, 2, 3, and 4 respectively. **<value 1-255>** - Specifies WRR arbiter group. The WRR weight value must be between 1 and 255.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the arbiter group of queue index 0 to 3 in schedule profile 3 as strict:

```
DES-3810-28:admin#config schedule_profile 3 cos 0-3 strict
Command: config schedule_profile 3 cos 0-3 strict

Success.

DES-3810-28:admin#
```

72-7 show scheduling_group

Description

This command is used to display ports that use a specific schedule profile.

Format

show scheduling_group {<profile_id 1-8>}

Parameters

<profile_id 1-8> - (Optional) Specifies the schedule profile to be displayed.

Note: If no parameter is specified, all schedule profiles will be displayed.

Restrictions

None.

Example

To display the portlist of the QoS schedule profile:

```
DES-3810-28:admin#show scheduling_group
Command: show scheduling_group

QOS Output Schedule Group
-----------------------------------------
Profile ID:  1
Group PortList :   1-28

Profile ID:  2
Group PortList :

Profile ID:  3
Group PortList :

Profile ID:  4
Group PortList :

Profile ID:  5
Group PortList :

Profile ID:  6
Group PortList :

Profile ID:  7
CTRL+C ESC q Quit SPACE n Next Page ENTER Next Entry a All
```

72-8 show schedule_profile

Description

This command is used to display a specified schedule profile parameter.

Format

show schedule_profile {<profile_id 1-8>}

Parameters

<profile_id 1-8> - (Optional) Specifies the schedule profile that needs to be displayed.

Note: If no parameter is specified, all schedule profiles will be displayed.

Restrictions

None.

Example

To display schedule profile 1:

```
DES-3810-28:admin#show schedule_profile 1
Command: show schedule_profile 1

QOS Output Schedule Profile
Profile ID:  1
Cos        mechanism      weight
-----      -----------    --------
0           Strict          1
1           Strict          2
2           Strict          3
3           Strict          4
4           Strict          5
5           Strict          6
6           Strict          7
7           Strict          8

DES-3810-28:admin#
```

72-9 config 802.1p user_priority

Description

This command is used to configure the way by which the switch will map an incoming packet, based on its 802.1p user priority, to one of the eight available hardware priority queues on the switch. The switch's default is to map the following incoming 802.1p user priority values to the eight hardware priority queues. The suggested mapping is shown in the following table. Users can change this mapping by specifying the 802.1p user priority to assign to the <class_id>.

Priority in Frames	Priority Queue of ASIC	Remark
0	2	Mid-Low
1	0	Lowest
2	1	Lowest
3	3	Mid-Low
4	4	Mid-High
5	5	Mid-High
6	6	Highest
7	7	Highest

Format

config 802.1p user_priority <priority 0-7> <class_id 0-7>

Parameters

<priority 0-7> - Specifies the 802.1p user priority to associate with the <class_id> (the number of the hardware queue).
<class_id 0-7> - Specifies the number of the switch's hardware priority queue. The switch has eight hardware priority queues available. They are numbered between 0 (the lowest priority) and 7 (the highest priority).

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure an 802.1p user priority of 1 map to class ID of 3:

```
DES-3810-28:admin#config 802.1p user_priority 1 3
Command: config 802.1p user_priority 1 3

Success.

DES-3810-28:admin#
```

72-10 show 802.1p user_priority

Description

This command is used to display 802.1p user priority.

Format

show 802.1p user_priority

Parameters

None.

Restrictions

None.

Example

To display the 802.1p user priority:

```
DES-3810-28:admin#show 802.1p user_priority
Command: show 802.1p user_priority

QOS Class of Traffic
Priority-0  ->  <Class-2>
Priority-1  ->  <Class-0>
Priority-2  ->  <Class-1>
```

```
Priority-3  ->  <Class-3>
Priority-4  ->  <Class-4>
Priority-5  ->  <Class-5>
Priority-6  ->  <Class-6>
Priority-7  ->  <Class-7>

DES-3810-28:admin#
```

72-11 config 802.1p default_priority

Description

This command is used to specify default priority for untagged packets received on a port of the switch.

Format

config 802.1p default_priority [<portlist> | all] <priority 0-7>

Parameters

<portlist> - Specifies a range of ports for which the default priority is to be configured. That is, a range of ports for which all untagged packets received will be assigned the priority specified below. The beginning and end of the port list range are separated by a dash. **all** - Specifies that the command applies to all ports on the switch.
<priority 0-7> - Specifies a priority value (0 to 7) to assign to untagged packets received by the switch or a range of ports on the switch.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure an 802.1p default priority settings of 5 on all Switch ports:

```
DES-3810-28:admin#config 802.1p default_priority all 5
Command: config 802.1p default_priority all 5

Success.

DES-3810-28:admin#
```

72-12 show 802.1p default_priority

Description

This command is used to display the current default priority settings on the switch. The default priority can also be assigned by the RADIUS server through the authentication process. Authentication with the RADIUS server can be either per port or per user. For per port authentication, the priority assigned by the RADIUS server will be the default priority of the effective port. For per user authentication, the priority assigned by RADIUS will not be the effective

port default priority, as the will priority associated with MAC address will be assigned. Note that only devices supporting MAC-based VLANs can provide per user authentication.

Format

show 802.1p default_priority {<portlist>}

Parameters

<portlist> - (Optional) Specifies a range of ports to be displayed.

Note: If no parameter is specified, the system will display all ports with 802.1p default priority.

Restrictions

None.

Example

To display 802.1p default priority for ports 1 to 4:

```
DES-3810-28:admin#show 802.1p default_priority 1-4
Command: show 802.1p default_priority 1-4

Port       Priority      Effective Priority
----       -----------   ------------------
1          0             0
2          0             0
3          0             0
4          0             0

DES-3810-28:admin#
```

72-13 enable hol_prevention

Description

This command is used to enable head of line prevention on the switch.

Format

enable hol_prevention

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable HOL prevention on the switch:

```
DES-3810-28:admin#enable hol_prevention
Command: enable hol_prevention

Success.

DES-3810-28:admin#
```

72-14 disable hol_prevention

Description

This command is used to disable head of line prevention on the switch.

Format

disable hol_prevention

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable HOL prevention on the switch:

```
DES-3810-28:admin#disable hol_prevention
Command: disable hol_prevention

Success.

DES-3810-28:admin#
```

72-15 show hol_prevention

Description

This command is used to display the head of line prevention state on the switch.

Format

show hol_prevention

Parameters

None.

Restrictions

None.

Example

To display HOL prevention state on the switch:

```
DES-3810-28:admin#show hol_prevention
Command: show hol_prevention

Device HOL Prevention State: Enabled

DES-3810-28:admin#
```

72-16 config dscp trust

Description

This command is used to configure the state of DSCP trust per port. When the DSCP is not trusted, 802.1p is trusted.

Format

config dscp trust [<portlist> | all] state [enable | disable]

Parameters

<portlist> - Specifies a range of ports to configure. **all** - Specifies to configure all ports on the switch.
state - Specifiesto enable or disable DSCP trust. By default, DSCP trust is disabled. **enable** - Specifies to enable DSCP trust. **disable** - Specifies to disable DSCP trust.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable DSCP trust on ports 1 to 8:

```
DES-3810-28:admin#config dscp trust 1-8 state enable
Command: config dscp trust 1-8 state enable

Success.

DES-3810-28:admin#
```

72-17 show dscp trust

Description

This command is used to display the DSCP trusted state for the specified ports on the switch.

Format

show dscp trust {<portlist>}

Parameters

<portlist> - (Optional) Specifies a range of ports to display.

Note: If no parameter is specified, the system will display the DSCP trusted state for all ports on the switch.

Restrictions

None.

Example

To display DSCP trust status on ports 1 to 5:

```
DES-3810-28:admin#show dscp trust 1-5
Command: show dscp trust 1-5

Port  DSCP-Trust
----- ----------
1     Disabled
2     Disabled
3     Disabled
4     Enabled
5     Enabled

DES-3810-28:admin#
```

72-18 config dscp map

Description

This command is used to configure the mapping of DSCP to a priority or new DSCP. The mapping of DSCP to a priority will be used to determine the priority of the packet (which will then be used to determine the scheduling queue) when the port is in DSCP trust state. The DSCP-to-DSCP mapping is used in the swap of DSCP of the packet when the packet ingresses the port. The remaining processing of the packet will be based on the new DSCP. By default, the DSCP is mapped to the same DSCP. The DSCP mapping will take effect at the same time the IP packet ingresses from a DSCP-trusted port.

Format

config dscp map [dscp_priority <dscp_list> to <priority 0-7> | dscp_dscp <dscp_list> to <dscp 0-63>]

Parameters

dscp_priority - Specifies a list of DSCP values to be mapped to a specific priority. **<dscp_list>** - Specifies the DSCP list here. **<priority 0-7>** - Specifies the result priority of a mapping.
dscp_dscp - Specifies a list of DSCP values to be mapped to a specific DSCP. **<dscp_list>** - Specifies the DSCP list here. **<dscp 0-63>** - Specifies the result DSCP of mapping.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the global mapping of DSCP 1 to priority 1:

```
DES-3810-28:admin#config dscp map dscp_priority 1 to 1
Command: config dscp map dscp_priority 1 to 1

Success.

DES-3810-28:admin#
```

72-19 show dscp map

Description

This command is used to display the DSCP map configuration parameters.

Format

show dscp map [dscp_priority | dscp_dscp] {dscp <dscp_list>}

Parameters

dscp_priority - Specifies the list of DSCP values to be mapped to a specific priority.
dscp_dscp - Specifies the list of DSCP values to be mapped to a specific DSCP.
dscp - (Optional) Specifies the DSCP value whose mapping state will be displayed. **<dscp_list>** - Specifies the DSCP list here.

Restrictions

None.

Example

To display the DSCP map configuration:

```
DES-3810-28:admin#show dscp map dscp_priority
Command: show dscp map dscp_priority

DSCP to 802.1p Priority Mapping:

DSCP 0-7 is mapped to 0
DSCP 8-15 is mapped to 1
DSCP 16-23 is mapped to 2
DSCP 24-31 is mapped to 3
DSCP 32-39 is mapped to 4
DSCP 40-47 is mapped to 5
DSCP 48-55 is mapped to 6
DSCP 56-63 is mapped to 7

DES-3810-28:admin#
```

Chapter 73 Q-in-Q Commands

enable qinq
disable qinq
show qinq
config qinq ports [<portlist> | all] {role [uni | nni] | missdrop [enable | disable] | inner_tpid <hex 0x1-0xffff> | outer_tpid <hex 0x1-0xffff> | [add | delete] vlan_translation_profile <profile_id>} (1)
show qinq ports {<portlist>}
create vlan_translation ports [<portlist> | all] [add cvid <vidlist> | replace cvid <vlanid 1-4094>] svid <vlanid 1-4094> {priority <priority 0-7>}
delete vlan_translation ports [<portlist> | all] {cvid <vidlist>}
show vlan_translation {[ports <portlist> | cvid <vidlist>]}
create vlan_translation_profile <profile_id>
delete vlan_translation_profile [<profile_id> | all] {rule_id [<rule_id_list> | all]}
config vlan_translation_profile <profile_id> add rule_id {<rule_id>} [add svid <vlanid 1-4094> {priority <priority 0-7>} classify {source_mac <macaddr> {sa_mask <macmask>} | destination_mac <macaddr> {da_mask <macmask>} | source_ipv4 <ipaddr> {sip_mask <netmask>} | destination_ipv4 <ipaddr> {dip_mask <netmask>} | outer_vid <vidlist> | 802.1p <priority 0-7> | ip_protocol <value 0-255> | l4_src_port <value 1-65535> | l4_dest_port <value 1-65535>} | replace svid <vlanid 1-4094> {priority <priority 0-7>} classify outer_vid <vlanid 1-4094> {source_mac <macaddr> {sa_mask <macmask>} | destination_mac <macaddr> {da_mask <macmask>} | source_ipv4 <ipaddr> {sip_mask <netmask>} | destination_ipv4 <ipaddr> {dip_mask <netmask>} | 802.1p <priority 0-7> | ip_protocol <value 0-255> | l4_src_port <value 1-65535> | l4_dest_port <value 1-65535>}]
show vlan_translation_profile {<profile_id_list>}
create double_vlan_translation ports [<portlist> | all] replace svid <vlanid 1-4094> cvid <vlanid 1-4094> new_svid <vlanid 1-4094> {priority <priority 0-7>}
delete double_vlan_translation ports [<portlist> | all] {svid <vlanid 1-4094> {cvid <vlanid 1-4094>}}
show double_vlan_translation {ports <portlist>}

73-1 enable qinq

Description

This command is used to enable Q-in-Q. When Q-in-Q is enabled, all network port roles will be NNI ports and outer TPID will be set to 0x88A8; all existing static VLANs will run as S-VLAN; all dynamic learned L2 addresses will be cleared; all dynamic registered VLAN entries will be cleared; and GVRP will be disabled. To run GVRP on the switch, the administrator should enable GVRP manually. In Q-in-Q mode, GVRP protocol will employ the reserve address 01-80-C2-00-00-0D. The default setting of Q-in-Q is disabled.

Format

enable qinq

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable Q-in-Q:

```
DES-3810-28:admin#enable qinq
Command: enable qinq

Success.

DES-3810-28:admin#
```

73-2 disable qinq

Description

This command is used to disable Q-in-Q. When Q-in-Q is disabled, all dynamic learned L2 addresses will be cleared, all dynamic registered VLAN entries will be cleared, and GVRP will be disabled. To run GVRP on the switch, the administrator should enable GVRP manually.

Format

disable qinq

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable Q-in-Q:

```
DES-3810-28:admin#disable qinq
Command: disable qinq

Success.

DES-3810-28:admin#
```

73-3 show qinq

Description

This command is used to display the global Q-in-Q status.

Format

show qinq

Parameters

None.

Restrictions

None.

Example

To display Q-in-Q:

```
DES-3810-28:admin#show qinq
Command: show qinq

QinQ Status : Enabled

DES-3810-28:admin#
```

73-4 config qinq ports

Description

This command is used to configure Q-in-Q port parameters, including: role of a port, Missdrop of a port, Outer-TPID of a port, Inner-TPID of a port, and adding or deleting VLAN translation profile of a port.

Format

config qinq ports [<portlist> | all] {role [uni | nni] | missdrop [enable | disable] | inner_tpid <hex 0x1-0xffff> | outer_tpid <hex 0x1-0xffff> | [add | delete] vlan_translation_profile <profile_id>} (1)

Parameters

<portlist> - Specifies a range of ports to configure.
all - Specifies to configure all ports.
role - Specifies the port role in Q-in-Q mode. **uni** - The port is connecting to the customer network. **nni** - The port is connecting to the service provider network.
missdrop - Enable or disable the tagged packet drop that does not match any assignment rule in the Q-in-Q profile. **enable** - Enable miss drop of ports. **disable** - Disable miss drop of ports.
inner_tpid - Specifies the inner-TPID of a port. **<hex 0x1-0xffff>** - Specifies the inner-TPID of a port.
outer_tpid - Specifies the outer-TPID of a port. **<hex 0x1-0xffff>** - Specifies the outer-TPID of a port.
add - Specifies to add the VLAN translation profile specified below.
delete - Specifies to delete the VLAN translation profile specified below.

vlan_translation_profile - Specifies the profile ID of the VLAN translation profile. **<profile_id>** - Specifies the profile ID of the VLAN translation profile.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure ports 1 to 4 as NNI ports and set the TPID to 0x88A8:

```
DES-3810-28:admin#config qinq ports 1-4 role nni outer_tpid 0x88a8
Command: config qinq ports 1-4 role nni outer_tpid 0x88a8

Success.

DES-3810-28:admin#
```

73-5 show qinq ports

Description

This command is used to display the Q-in-Q configuration of ports, including: Role of a port, Outer-TPID of a port, Inner-TPID of a port, Miss drop state of a port, Add inner-tag status of a port, and the Q-in-Q profile which binds a port.

Format

show qinq ports {<portlist>}

Parameters

<portlist> - (Optional) Specifies a range of ports to be displayed.

Note: If no parameter specified, the system will display port information for all ports.

Restrictions

None.

Example

To display the Q-in-Q mode for ports 1 to 2:

```
DES-3810-28:admin#show qinq ports 1-2
Command: show qinq ports 1-2

Port ID:    1
------------------------------------------------------------
  Role:                   NNI
  Miss Drop:              Disabled
```

```
  Outer Tpid:              0x88a8
  Inner Tpid:              0x8100
  Vlan Translation Profile:

Port ID:    2
------------------------------------------------------------
  Role:                    NNI
  Miss Drop:               Disabled
  Outer Tpid:              0x88a8
  Inner Tpid:              0x8100
  Vlan Translation Profile:

DES-3810-28:admin#
```

73-6 create vlan_translation ports

Description

This command is used to create translation relationships between C-VLAN and S-VLAN. This setting will not be effective when the Q-in-Q mode is disabled. This configuration is only effective for a UNI port. At the UNI port, the ingress C-VLAN tagged packets will be translated to S-VLAN tagged packets by adding or replacing according the configured rule. The S-VLAN Tag of egress packets at this port will be recovered to C-VLAN Tag or stripped.

Format

create vlan_translation ports [<portlist> | all] [add cvid <vidlist> | replace cvid <vlanid 1-4094>] svid <vlanid 1-4094> {priority <priority 0-7>}

Parameters

<portlist> - Specifies a range of ports on which the C-VLAN will be translated to S-VLAN.
all - Specifies to configure all ports.
add cvid - Specifies to add a S-tag before C-tag for incoming packets with a specific CVID. **<vidlist>** - Specifies the CVID (or list) to be matched for incoming packets.
replace cvid - Specifies to replace the original C-tag to a new S-tag for incoming packets with a specific CVID. **<vlanid 1-4094>** - Specifies the CVID to be matched for incoming packets.
svid - Specifies the SVID of the S-tag to be added or replaced to the packets. **<vlanid 1-4094>** - Specifies the SVID between 1 and 4094.
priority - (Optional) Specifies a 802.1p priority of the S-Tag between 0 and 7. If the priority is NOT specified, 802.1p priority of S-Tag will be assigned by the priority in C-tag. **<priority 0-7>** - Specifies a 802.1p priority of the S-Tag between 0 and 7.

Restrictions

Only Administrators and Operators can issue this command.

Example

To replace the C-tag by the S-tag with SVID 200 and priority in C-tag, if the incoming packet with CVID 20:

```
DES-3810-28:admin#create vlan_translation ports 1 replace cvid 20 svid 200
Command: create vlan_translation ports 1 replace cvid 20 svid 200

 Success.

DES-3810-28:admin#
```

To add S-tag with SVID 300 and 802.1p priority 5, if incoming packet with CVID 30:

```
DES-3810-28:admin#create vlan_translation ports 1 add cvid 30 svid 300 priority
5
Command: create vlan_translation ports 1 add cvid 30 svid 300 priority 5

 Success.

DES-3810-28:admin#
```

73-7 delete vlan_translation ports

Description

This command is used to delete translation relationships between C-VLAN and S-VLAN.

Format

delete vlan_translation ports [<portlist> | all] {cvid <vidlist>}

Parameters

<portlist> - Specifies the ports to be deleted.
all - Specifies to delete all ports.
cvid - (Optional) Specifies to delete the rules for the specified CVIDs. If the CVID is not specified, all rules configured for the port will be deleted. **<vidlist>** - Specifies a range of VLAN IDs.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete a VLAN translation rule on ports 1 to 4:

```
DES-3810-28:admin#delete vlan_translation ports 1-4
Command: delete vlan_translation ports 1-4

Success.

DES-3810-28:admin#
```

73-8 show vlan_translation

Description

This command is used to display existing C-VLAN based VLAN translation rules.

Format

show vlan_translation {[ports <portlist> | cvid <vidlist>]}

Parameters

ports - Specifies to display the C-VLAN based VLAN translation rules of the ports. **<portlist>** - Specifies a range of ports to be displayed.
cvid - Specifies to display the rules for the specified CVIDs. **<vidlist>** - Specifies a range of VLAN IDs.

Restrictions

None.

Example

To display VLAN translation for ports 1 and 2:

```
DES-3810-28:admin#show vlan_translation ports 1-2
Command: show vlan_translation ports 1-2

 Port   CVID   SVID  Action  Priority
-----  -----  ----- ------- --------
1      10     100    Add       4
1      20     100    Add       5
1      30     200    Add       6
2      10     100    Add       7
2      20     100    Add       1

 Total Entries: 5

DES-3810-28:admin#
```

73-9 create vlan_translation_profile

Description

This command is used to create Q-in-Q flow- based VLAN translation profiles. Multiple flow-based VLAN translation rules can be specified for a profile.

Format

create vlan_translation_profile <profile_id>

Parameters

<profile_id> - Specifies the ID number of the profile.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create Q-in-Q profile 2:

```
DES-3810-28:admin#create vlan_translation_profile 2
Command: create vlan_translation_profile 2

Success.

DES-3810-28:admin#
```

73-10 delete vlan_translation_profile

Description

This command is used to delete a Q-in-Q translation profile or delete a Q-in-Q rule in a profile.

Format

delete vlan_translation_profile [<profile_id> | all] {rule_id [<rule_id_list> | all]}

Parameters

<profile_id> - Specifies the profile ID number to be deleted.
all - Specifies all profile ID numbers will be deleted.
rule_id - (Optional) Specifies to delete the rule ID. If the rule ID is not specified, all rules of the profile will be deleted at first, and then the profile will be deleted. **<rule_id_list>** - Specifies the rule ID range to be deleted. **all** - Specifies to delete all rules of the profile.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete VLAN translation profile ID 2:

```
DES-3810-28:admin#delete vlan_translation_profile 2
Command: delete vlan_translation_profile 2

Success.

DES-3810-28:admin#
```

To delete a Q-in-Q rule with an ID of 3 from profile 2:

```
DES-3810-28:admin#delete vlan_translation_profile 2 rule_id 3
Command: delete vlan_translation_profile 2 rule_id 3

Success.

DES-3810-28:admin#
```

73-11 config vlan_translation_profile

Description

This command is used to configure a flow-based Q-in-Q translation rule. The S-VLAN assignment may be based on source MAC, destination MAC, 802.1p priority, source IP, destination IP, outer VID, etc. Flow-based VLAN translation rules indicate which S-VLAN will be assigned for matched packets and will indicate whether to add an S-Tag or replace the C-Tag by S-Tag. Each Q-in-Q rule has a priority. The rules of lower profile ID have higher priority, while in in the same profile, the rule which has the lower access ID has higher priority.

Format

config vlan_translation_profile <profile_id> add rule_id {<rule_id>} [add svid <vlanid 1-4094> {priority <priority 0-7>} classify {source_mac <macaddr> {sa_mask <macmask>} | destination_mac <macaddr> {da_mask <macmask>} | source_ipv4 <ipaddr> {sip_mask <netmask>} | destination_ipv4 <ipaddr> {dip_mask <netmask>} | outer_vid <vidlist> | 802.1p <priority 0-7> | ip_protocol <value 0-255> | l4_src_port <value 1-65535> | l4_dest_port <value 1-65535>} | replace svid <vlanid 1-4094> {priority <priority 0-7>} classify outer_vid <vlanid 1-4094> {source_mac <macaddr> {sa_mask <macmask>} | destination_mac <macaddr> {da_mask <macmask>} | source_ipv4 <ipaddr> {sip_mask <netmask>} | destination_ipv4 <ipaddr> {dip_mask <netmask>} | 802.1p <priority 0-7> | ip_protocol <value 0-255> | l4_src_port <value 1-65535> | l4_dest_port <value 1-65535>}]

Parameters

<profile_id> - Specifies the profile ID number to be configured.
add rule_id - Specifies the rule ID to be added to the profile. If the rule ID is not specified, it will be assigned automatically. **<rule_id>** - (Optional) Specifies the rule ID to be added to the profile.
add svid - The action indicates to add a tag for the assigned S-VLAN before the Outer-VLAN tag. If there is an S-TAG in the packet, this rule will not take effect. **<vlanid 1-4094>** - Specifies the VLAN ID between 1 and 4094. **priority** - (Optional) Specifies a value for priority between 0 and 7. **<priority 0-7>** - Specifies a value for priority between 0 and 7.
classify - Specifies to classify by key(this is a flexible way that can assign S-Tag based on source MAC address, destination MAC address, Outer-VID, 802.1P priority, source IP address, destination IP address, IP L4 source port number, and IP L4 destination port number). **source_mac** - Specifies source MAC address for match. **<macaddr>** - Specifies the MAC address. **sa_mask** - (Optional) Specifies the source address mask. **<macmask>** - Specifies the source address mask. **destination_mac** - Specifies destination MAC address for match. **<macaddr>** - Specifies the MAC address. **da_mask** - (Optional) Specifies the destination mask.

<macmask> - Specifies the destination mask. **source_ipv4** - Specifies source IPv4 address or IPv4 subnet for match. **<ipaddr>** - Specifies source IPv4 address. **sip_mask** - (Optional) Specifies the SIP mask. **<netmask>** - Specifies the SIP mask. **destination_ipv4** - Specifies destination IPv4 address or IPv4 subnet for match. **<ipaddr>** - Specifies destination IPv4 address. **dip_mask** - (Optional) Specifies the DIP mask. **<netmask>** - Specifies the DIP mask. **outer_vid** - Specifies packet's Outer-VID for match. **<vidlist>** - Specifies a range of VLAN IDs. **802.1p** - Specifies packet's 802.1p priority for match. **<priority 0-7>** - Specifies a value between 0 and 7. **ip_protocol** - Specifies the IP protocol. **<value 0-255>** - Specifies a value between 0 and 255. **l4_src_port** - Specifies the l4 source port ID for match. **<value 1-65535>** - Specifies a value between 1 and 65535. **l4_dest_port** - Specifies the l4 destination port ID for match. **<value 1-65535>** - Specifies a value between 1 and 65535.
replace svid - The action indicates to replace the Outer-VLAN ID in the tag by the SVID. If there is no TAG in the packet, this rule will not take effect. **<vlanid 1-4094>** - Specifies the VLAN ID between 1 and 4094. **priority** - (Optional) Specifies a value for priority between 0 and 7. **<priority 0-7>** - Specifies a value for priority between 0 and 7.
classify outer_vid - Specifies to classify by Outer-VID **<vlanid 1-4094>** - Specifies the VLAN ID between 1 and 4094. **source_mac** - (Optional) Specifies source MAC address for match. **<macaddr>** - Specifies the MAC address. **sa_mask** - (Optional) Specifies the source address mask. **<macmask>** - Specifies the source address mask. **destination_mac** - (Optional) Specifies destination MAC address for match. **<macaddr>** - Specifies the MAC address. **da_mask** - (Optional) Specifies the destination mask. **<macmask>** - Specifies the destination mask. **source_ipv4** - (Optional) Specifies source IPv4 address or IPv4 subnet for match. **<ipaddr>** - Specifies source IPv4 address. **sip_mask** - (Optional) Specifies the SIP mask. **<netmask>** - Specifies the SIP mask. **destination_ipv4** - (Optional) Specifies destination IPv4 address or IPv4 subnet for match. **<ipaddr>** - Specifies destination IPv4 address. **dip_mask** - (Optional) Specifies the DIP mask. **<netmask>** - Specifies the DIP mask. **802.1p** - (Optional) Specifies packet's 802.1p priority for match. **<priority 0-7>** - Specifies a value between 0 and 7. **ip_protocol** - (Optional) Specifies the IP protocol. **<value 0-255>** - Specifies a value between 0 and 255. **l4_src_port** - (Optional) Specifies the l4 source port ID for match. **<value 1-65535>** - Specifies a value between 1 and 65535. **l4_dest_port** - (Optional) Specifies the l4 destination port ID for match. **<value 1-65535>** - Specifies a value between 1 and 65535.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure a flow-based Q-in-Q translation rule:

Note: First create a VLAN translation profile named 2 before doing the configuration below.

```
DES-3810-28:admin#config vlan_translation_profile 2 add rule 3 add svid 100
classify outer_vid 1-1000
Command: config vlan_translation_profile 2 add rule 3 add svid 100 classify
outer_vid 1-1000

Success.

DES-3810-28:admin#
```

To add an S-Tag in which the S-VID is 100 to the ingress packets of Port 3 if packet's C-VID is 10, MAC-SA is 00:00:00:11:22:33, Ether-type is 0x8000, SIP is 10.10.10.10, Priority is 2, and the port number of IPv4 is 1813:

Note: First create a VLAN translation profile named 3 before doing the configuration below and then add Q-in-Q port 3 to the profile.

```
DES-3810-28:admin#config vlan_translation_profile 3 add rule_id 4 add svid 100
classify source_mac 00:00:00:11:22:33 source_ipv4 10.10.10.10 802.1p 2
ip_protcol 0x8000 l4_dest_port 1813 outer_vid 10
Command: config vlan_translation_profile 3 add rule_id 4 add svid 100 classify
source_mac 00:00:00:11:22:33 source_ipv4 10.10.10.10 802.1p 2 ip_protcol 0x8000
l4_dest_port 1813 outer_vid 10

Success.

DES-3810-28:admin#
```

73-12 show vlan_translation_profile

Description

This command is used to show profiles for QinQ rules. There are two status conditions of a rule:

24. ACTIVE: The rule has been set in hardware on the Active port.
25. INACTIVE: The rule has been set in the database, but not in the hardware.

The active port is the port where the rule takes effect.

Format

show vlan_translation_profile {<profile_id_list>}

Parameters

<profile_id_list> - (Optional) Specifies the profile ID number to be displayed. If no profile ID is input, all profiles will be displayed.

Restrictions

None.

Example

To display all profile rules:

```
DES-3810-28:admin#show vlan_translation_profile
Command: show vlan_translation_profile

QinQ Profile ID       :1
Ports                 :1-3
-----------------------------------
Rule ID               : 1
Status                : ACTIVE
Active Port           : 1-2
Action                : Add
SP VLAN ID            : 100
Priority
Match:
   Outer-VID          : 10

Rule ID               : 2
Status: ACTIVE
Active Port: 1-2
Action: Replace
SP VLAN ID: 200
Priority:
Match:
   Source IP: 10.10.0.0/255.255.0.0
   Destination IP: 10.90.90.90

QinQ Profile ID:2
Ports: 5-9
-----------------------------------
Rule ID: 3
Status: INACTIVE
Active Port:
Action: Add
SP VLAN ID: 300
Priority:
Match:
   Out-VID: 30-100
   Destination MAC: 00-12-34-56-78-00/ff-ff-ff-ff-ff-00

Total Rules : 3

DES-3810-28:admin#
```

73-13 create double_vlan_translation ports

Description

This command is used to add translation relationships between S-VLAN, C-VLAN pairs, and new S-VLANs.

Format

create double_vlan_translation ports [<portlist> | all] replace svid <vlanid 1-4094> cvid <vlanid 1-4094> new_svid <vlanid 1-4094> {priority <priority 0-7>}

Parameters

<portlist> - Specifies a range of ports on which the S-VLAN Tag will be translated to a new S-VLAN Tag.
all - Specifies that all ports on which the S-VLAN Tag will be translated to a new S-VLAN Tag.
replace – Specifies to replace the S-tag of incoming packet when both SVID and CVID of the packet are matched. **svid** - Specifies the S-VLAN to be matched. **<vlanid 1-4094>** - Specifies the VLAN ID between 1 and 4094. **cvid** - Specifies the C-VLAN to be matched. **<vlanid 1-4094>** - Specifies the VLAN ID between 1 and 4094.
new_svid - Specifies the SVID of the new S-tag used for replacement. **<vlanid 1-4094>** - Specifies the VLAN ID between 1 and 4094.
priority - (Optional) Specifies an 802.1p priority of the new S-tag. If the priority is not specified, the 802.1p priority of S-Tag will be assigned by the priority in old S-tag. **<priority 0-7>** - Specifies a value between 0 and 7.

Restrictions

Only Administrators and Operators can issue this command.

Example

To replace a new S-tag with SVID 200 and priority in old S-tag to the packet which original SVID is 20 and CVID is 10.

```
DES-3810-28:admin#create double_vlan_translation ports 2 replace svid 20 cvid
10 new_svid 200
Command: create double_vlan_translation ports 2 replace svid 20 cvid 10
new_svid 200


Success.


DES-3810-28:admin#
```

73-14 delete double_vlan_translation ports

Description

This command is used to delete translation relationships between S-VLAN + C-VLAN and new S-VLAN.

Format

delete double_vlan_translation ports [<portlist> | all] {svid <vlanid 1-4094> {cvid <vlanid 1-4094>}}

Parameters

<portlist> - Specifies a range of ports for which the rule will be deleted.
all - Specifies that all ports for a rule will be deleted.
svid - (Optional) Specifies the SVID for which the rules will be deleted. **<vlanid 1-4094>** - Specifies the VLAN ID between 1 and 4094. **cvid** - (Optional) Specifies the CVID for which the rules will be deleted. **<vlanid 1-4094>** - Specifies the VLAN ID between 1 and 4094.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete double tagged VLAN translation rules when the SVID is 2 and the CVID is 1 on ports 1-4:

```
DES-3810-28:admin#delete double_vlan_translation ports 1-4 svid 2 cvid 1
Command: delete double_vlan_translation ports 1-4 svid 2 cvid 1

Success.

DES-3810-28:admin#
```

73-15 show double_vlan_translation

Description

This command is used to display existing double VLAN translation rules.

Format

show double_vlan_translation {ports <portlist>}

Parameters

ports - (Optional) Specifies the the double VLAN translation rule of the ports. **<portlist>** - Specifies a range of ports to be displayed.

Restrictions

None.

Example

To display double tagged VLAN translation rules in the system:

```
DES-3810-28:admin#show double_vlan_translation
```

```
Command: show double_vlan_translation

Port    SVID   CVID   Action    New_svid   Priority
----    ----   ----   -------   --------   --------
1       100    10     replace   300        4
1       100    20     replace   300        5
1       200    30     replace   1000       6
2       100    30     replace   300        7
2       100    20     replace   300        1

Total Entries: 5

DES-3810-28:admin#
```

Chapter 74 Routing Information Protocol (RIP) Commands

enable rip
config rip [ipif <ipif_name 12> | all] {authentication [enable <password 16> | disable] | tx_mode [disable | v1_only | v1_compatible | v2_only] | rx_mode [v1_only | v2_only | v1_or_v2 | disable] | state [enable | disable]}(1)
disable rip
show rip {ipif <ipif_name 12>}

74-1 enable rip

Description

This command is used to enable RIP for the Switch. The default setting is disabled.

Format

enable rip

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable RIP:

```
DES-3810-28:admin# enable rip
Command: enable rip

Success.

DES-3810-28:admin#
```

74-2 config rip

Description

This command is used to configure the RIP settings for one or more IP interfaces.

Format

config rip [ipif <ipif_name 12> | all] {authentication [enable <password 16> | disable] | tx_mode [disable | v1_only | v1_compatible | v2_only] | rx_mode [v1_only | v2_only | v1_or_v2 | disable] | state [enable | disable]}(1)

Parameters

ipif_name - Specifies the IP interface name used for this configuration. **<ipif_name 12>** - Enter the IP interface name used here. This name can be up to 12 characters long. **all** - Specifies that all the IP interfaces will be used in this configuration.
authentication - (Optional) Specifies to set the state of authentication. **enable** - Specifies that the authentication state will be enabled. **<password 16>** - When the authentication state is enabled, enter the password used here. This value can be up to 16 characters long. **disable** - Specifies that the authentication state will be disabled.
tx_mode - (Optional) Specifies the RIP transmission mode. **disable** - Specifies to prevent the transmission of RIP packets. **v1_only** - Specifies that only RIP version 1 format packets will be transmitted. **v1_compatible** - Specifies to transmit RIP version 2 format packets to the broadcast address. **v2_only** - Specifies that only RIP version 2 format packets will be transmitted.
rx_mode - (Optional) Specifies the RIP receive mode. **v1_only** - Specifies to receive RIP version 1 format packets. **v2_only** - Specifies to receive RIP version 2 format packets. **v1_or_v2** - Specifies to receive both v1 and v2 packets. **disable** - Specifies that the receiving of RIP packets will be prevented.
state - (Optional) Specifies that the RIP state will be enabled or disabled. If the state is disabled, then RIP packets will not be either transmitted or received by the interface. The network configured on this interface will not be in the RIP database. **enable** - Specifies that the RIP state will be enabled. **disable** - Specifies that the RIP state will be disabled.

Restrictions

Only Administrators and Operators can issue this command.

Example

To change the RIP receive mode for the IP interface System:

```
DES-3810-28:admin# config rip ipif System rx_mode v1_only
Command: config rip ipif System rx_mode v1_only

Success.

DES-3810-28:admin#
```

74-3 disable rip

Description

This command is used to disable RIP for the Switch.

Format

disable rip

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable RIP:

```
DES-3810-28:admin# disable rip
Command: disable rip

Success.

DES-3810-28:admin#
```

74-4 show rip

Description

This command is used to display the RIP configuration for one or all IP interfaces.

Format

show rip {ipif <ipif_name 12>}

Parameters

ipif - (Optional) Specifies the IP interface name used for this configuration. **<ipif_name 12>** - Enter the IP interface name used here. This name can be up to 12 characters long.
If no parameter is specified, the system will display RIP configuration and statistics for all the IP interfaces.

Restrictions

None.

Example

To display RIP configuration and statistics for all IP interfaces.

```
DES-3810-28:admin# show rip
Command: show rip

RIP Global State : Enabled

RIP Interface Settings

Interface     IP Address         TX Mode    RX Mode       Authen-    State
                                                          tication
------------- ------------------ ---------- ------------- ---------- -----
Interface2    10.3.3.3/24        V1 Only    V1 Only       Disabled   Disabled
Interface3    10.4.4.4/24        V1 Comp.   V2 Only       Disabled   Enabled
Interface4    10.5.5.5/24        V2 Only    V1 or V2      Disabled   Disabled
System        192.168.69.123/24  Disabled   Disabled      Disabled   Disabled

Total Entries : 4

DES-3810-28:admin#
```

Chapter 75 RSPAN Commands

enable rspan
disable rspan
create rspan vlan [vlan_name <vlan_name> | vlan_id <vlanid 1-4094>]
delete rspan vlan [vlan_name <vlan_name> | vlan_id <vlanid 1-4094>]
config rspan vlan [vlan_name <vlan_name> | vlan_id <vlanid 1-4094>] [redirect [add | delete] ports <portlist> | source {[add | delete] ports <portlist> [rx | tx | both]}]
show rspan {[vlan_name <vlan_name> | vlan_id <vlanid 1-4094>]}

75-1 enable rspan

Description

This command is used to enable all previously entered RSPAN configurations.

Format

enable rspan

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable all previously entered RSPAN configurations:

```
DES-3810-28:admin#enable rspan
Command: enable rspan

Success.

DES-3810-28:admin#
```

75-2 disable rspan

Description

This command is used to disable all previously entered RSPAN configurations.

Format

disable rspan

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable all previously entered RSPAN configurations:

```
DES-3810-28:admin#disable rspan
Command: disable rspan

Success.

DES-3810-28:admin#
```

75-3 create rspan vlan

Description

This command is used to create an RSPAN VLAN. Up to 16 RSPAN VLANs can be created.

Format

create rspan vlan [vlan_name <vlan_name> | vlan_id <vlanid 1-4094>]

Parameters

vlan_name - Create the RSPAN VLAN by VLAN name. **<vlan_name>** - Specifies the VLAN name.
vlan_id - Create the RSPAN VLAN by VLAN ID. **<vlanid 1-4094>** - Specifies the VLAN ID between 1 and 4094.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create an RSPAN VLAN entry by VLAN name “v2”:

```
DES-3810-28:admin#create rspan vlan vlan_name v2
Command: create rspan vlan vlan_name v2

Success.

DES-3810-28:admin#
```

To create an RSPAN VLAN entry by VLAN ID “3”:

```
DES-3810-28:admin#create rspan vlan vlan_id 3
Command: create rspan vlan vlan_id 3

Success.

DES-3810-28:admin#
```

75-4 delete rspan vlan

Description

This command is used to delete RSPAN VLANs.

Format

delete rspan vlan [vlan_name <vlan_name> | vlan_id <vlanid 1-4094>]

Parameters

vlan_name - Specifies the RSPAN VLAN by VLAN name.	
	<vlan_name> - Specifies the VLAN name.
vlan_id - Specifies the RSPAN VLAN by VLAN ID.	
	<vlanid 1-4094> - Specifies the VLAN ID between 1 and 4094.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete an RSPAN VLAN entry by VLAN name “v2”:

```
DES-3810-28:admin#delete rspan vlan vlan_name v2
Command: delete rspan vlan vlan_name v2

Success.

DES-3810-28:admin#
```

To delete an RSPAN VLAN entry by VLAN ID “3”:

```
DES-3810-28:admin#delete rspan vlan vlan_id 3
Command: delete rspan vlan vlan_id 3

Success.

DES-3810-28:admin#
```

75-5 config rspan vlan

Description

This command is used by the source switch to configure the source setting for the RSPAN VLAN. The redirect command is used by the intermediate or last switch to configure the output port of the RSPAN VLAN packets, and makes sure that the RSPAN VLAN packets can egress to the redirect ports. In addition, the VLAN setting must be correctly configured to make the RSPAN VLAN work correctly. That is, for the intermediate switch, the redirect port must be a tagged member port of the RSPAN VLAN. For the last switch, the redirect port must be either a tagged member port or an untagged member port of the RSPAN VLAN based on the users' requirements. If untagged membership is specified, the RSPAN VLAN tag will be removed. The redirect function will only work when RSPAN is enabled. Multiple RSPAN VLANs can be configured with the redirect setting at the same time.

A RSPAN VLAN can be configured with the source setting and the redirect setting at the same time.

Format

config rspan vlan [vlan_name <vlan_name> | vlan_id <vlanid 1-4094>] [redirect [add | delete] ports <portlist> | source {[add | delete] ports <portlist> [rx | tx | both]}]

Parameters

vlan_name - Specifies the RSPAN VLAN by VLAN name. **<vlan_name>** - Specifies the VLAN name.
vlan_id - Specifies the RSPAN VLAN by VLAN ID. **<vlanid 1-4094>** - Specifies the VLAN ID between 1 and 4094.
redirect - Specifies output port list for the RSPAN VLAN packets. If the redirect port is a Link Aggregation port, the Link Aggregation behavior will apply to the RSPAN packets. **add** - Specifies to add the redirect port. **delete** - Specifies to delete the redirect port. **ports** - Specifies the output port list to add to or delete from the RSPAN packets. **<portlist>** - Specifies a range of ports to be configured.
source - If the ports are not specified by this command, the source of RSPAN will come from the source specified by the mirror command or the flow-based source specified by an ACL. If no parameter is specified for source, it deletes the configured source parameters. **add** - (Optional) Specifies to add source ports. **delete** - (Optional) Specifies to delete source ports. **ports** - (Optional) Specifies source port list to add to or delete from the RSPAN source. **<portlist>** - Specifies a range of ports to be configured. **rx** - (Optional) Specifies to only monitor ingress packets. **tx** - (Optional) Specifies to only monitor egress packets. **both** - (Optional) Specifies to monitor both ingress and egress packets.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure an RSPAN source entry without source target port:

```
DES-3810-28:admin#config rspan vlan vlan_name vlan2 source add ports 2-5 rx
Command: config rspan vlan vlan_name vlan2 source add ports 2-5 rx

Success.

DES-3810-28:admin#
```

To configure an RSPAN source entry for per flow RSPAN, without any source ports:

```
DES-3810-28:admin#config rspan vlan vlan_id 2 source
Command: config rspan vlan vlan_id 2 source

Success.

DES-3810-28:admin#
```

To configure RSPAN redirect for “VLAN 2” to ports 18 and 19:

```
DES-3810-28:admin#config rspan vlan vlan_name vlan2 redirect add ports 18-19
Command: config rspan vlan vlan_name vlan2 redirect add ports 18-19

Success.

DES-3810-28:admin#
```

75-6 show rspan

Description

This command is used to display RSPAN VLAN configuration.

Format

show rspan {[vlan_name <vlan_name> | vlan_id <vlanid 1-4094>]}

Parameters

vlan_name - Specifies the RSPAN VLAN by VLAN name. **<vlan_name>** - Specifies the VLAN name.
vlan_id - Specifies the RSPAN VLAN by VLAN ID. **<vlanid 1-4094>** - Specifies the VLAN ID between 1 and 4094.

Restrictions

None.

Example

To display specific RSPAN VLAN settings:

```
DES-3810-28:admin#show rspan vlan_id 2
Command: show rspan vlan_id 2

RSPAN   : Enabled

RSPAN VLAN ID  : 2
--------------------
  Source Port
      RX           : 10
      TX           : 10
  Redirect Port    : 11

DES-3810-28:admin#
```

To display all RSPAN VLAN settings:

```
DES-3810-28:admin#show rspan
Command: show rspan

RSPAN   : Enabled

RSPAN VLAN ID  : 2
--------------------
  Source Port
      RX           : 10
      TX           : 10
  Redirect Port    : 11

Total RSPAN VLAN :1

DES-3810-28:admin#
```

Chapter 76 Safeguard Engine Commands

config safeguard_engine {state [enable | disable] | utilization {rising <value 20-100> | falling <value 20-100>}(1) | trap_log [enable | disable] | mode [strict | fuzzy]} (1)
show safeguard_engine

76-1 config safeguard_engine

Description

This command is used to configure the safeguard engine for the system.

Format

config safeguard_engine {state [enable | disable] | utilization {rising <value 20-100> | falling <value 20-100>}(1) | trap_log [enable | disable] | mode [strict | fuzzy]} (1)

Parameters

state - (Optional) Configure the safeguard engine state to enable or disable. **enable** - Configure the safeguard engine state to enable. **disable** - Configure the safeguard engine state to disable.
utilization - (Optional) Configure the safeguard engine threshold. **rising** - (Optional) Configure the utilization rising threshold. The range is between 20%-100%. If the CPU utilization is over the rising threshold, the switch enters exhausted mode. **<value 20-100>** - Configure the utilization rising threshold. The range is between 20%-100%. **falling** - (Optional) Configure the utilization falling threshold. The range is between 20%-100%. If the CPU utilization is lower than the falling threshold, the switch enters normal mode. **<value 20-100>** - Configure the utilization falling threshold. The range is between 20%-100%. If the CPU utilization is lower than the falling threshold, the switch enters normal mode.
trap_log - (Optional) Configure the state of the safeguard engine related to the trap/log mechanism to enable or disable. **enable** - If set to enable, trap and log will be active while the safeguard engine current mode is changed. **disable** - If set to disable, the current mode change will not trigger trap and log events.
mode - (Optional) Determines the controlling method of broadcast traffic. There are two modes, strict and fuzzy. **strict** - In strict, the switch will stop receiving all 'ARP not to me' packets (the protocol address of the target in the ARP packet is the Switch itself). That means no matter what reasons cause the high CPU utilization (may not be caused by ARP storm), the Switch reluctantly processes any 'ARP not to me' packets in exhausted mode. **fuzzy** - In fuzzy mode, the switch will adjust the bandwidth dynamically depending on some reasonable algorithm.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the safeguard engine:

```
DES-3810-28:admin#config safeguard_engine state enable utilization rising 50
falling 30 trap_log enable
Command: config safeguard_engine state enable utilization rising 50 falling 30
trap_log enable

Success.

DES-3810-28:admin#
```

76-2 show safeguard_engine

Description

This command is used to display safeguard engine information.

Format

show safeguard_engine

Parameters

None.

Restrictions

None.

Example

To display safeguard engine information:

```
DES-3810-28:admin#show safeguard_engine
Command: show safeguard_engine

Safeguard Engine State          : Disabled
Safeguard Engine Current Status : Normal Mode
================================================
CPU Utilization Information:
Rising Threshold  :  30%
Falling Threshold :  20%
Trap/Log State    :  Disabled
Mode              :  Fuzzy

DES-3810-28:admin#
```

Note: The safeguard engine current status has two modes: exhausted and normal mode.

Chapter 77 sFlow Commands

enable sflow
disable sflow
show sflow
create sflow flow_sampler ports [<portlist> | all] analyzer_server_id <value 1-4> {rate <value 0-255> | maxheadersize <value 18-256>}
config sflow flow_sampler ports [<portlist> | all] {rate <value 0-255> | maxheadersize <value 18-256>} (1)
delete sflow flow_sampler ports [<portlist> | all]
create sflow analyzer_server <value 1-4> owner <name 16> {timeout [<sec 1-2000000> | infinite] | collectoraddress <ipaddr> | collectorport <udp_port_number 1-65535> | maxdatagramsize <value 300-1400>}
delete sflow analyzer_server <value 1-4>
config sflow analyzer_server <value 1-4> {timeout [<sec 1-2000000> | infinite] | collectoraddress <ipaddr> | collectorport <udp_port_number 1-65535> | maxdatagramsize <value 300-1400>} (1)
show sflow analyzer_server
create sflow counter_poller ports [<portlist> | all] analyzer_server_id <value 1-4> {interval [disable | <sec 20-120>]}
config sflow counter_poller ports [<portlist> | all] interval [disable | <sec 20-120>]
delete sflow counter_poller ports [<portlist> | all]
show sflow counter_poller
show sflow flow_sampler

77-1 enable sflow

Description

This command is used to enable the sFlow function.

Format

enable sflow

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable the sFlow function:

```
DES-3810-28:admin#enable sflow
Command: enable sflow

Success.

DES-3810-28:admin#
```

77-2 disable sflow

Description

This command is used to disable the sFlow function.

Format

disable sflow

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable the sFlow function:

```
DES-3810-28:admin#disable sflow
Command: disable sflow

Success.

DES-3810-28:admin#
```

77-3 show sflow

Description

This command is used to display sFlow information.

Format

show sflow

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To display the sFlow information:

```
DES-3810-28:admin#show sflow
Command: show sflow

 sFlow Version  : V5
 sFlow Address  : 10.90.90.90
 sFlow State    : Disabled

DES-3810-28:admin#
```

77-4 create sflow flow_sampler ports

Description

This command is used to create the sFlow flow sampler.

Format

create sflow flow_sampler ports [<portlist> | all] analyzer_server_id <value 1-4> {rate <value 0-255> | maxheadersize <value 18-256>}

Parameters

<portlist> - Specifies the list of ports to be configured.
all - Specifies to configure all ports.
analyzer_server_id - Specifies the ID of an analyzer server where the packet will be forwarded. **<value 1-4>** - Specifies the ID of an analyzer server where the packet will be forwarded.
rate - (Optional) Specifies the sampling rate for packet sampling. **<value 0-255>** - Specifies the sampling rate for packet sampling. The configured rate value multiplied by 256 is the actual rate. For example, if the rate is 20, the actual rate 5120. One packet will be sampled from every 5120 packets. If set to 0, the sampler is disabled. If the rate is not specified, its default value is 0.
maxheadersize - (Optional) Specifies the maximum number of leading bytes in the packet which has been sampled that will be encapsulated and forwarded to the server. **<value 18-256>** - Specifies the maximum number of leading bytes in the packet which has been sampled that will be encapsulated and forwarded to the server. If not specified, the default value is 128.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create the sFlow flow sampler:

```
DES-3810-28:admin#create sflow flow_sampler ports 1 analyzer_server_id 1 rate
200 maxheadersize 120
Command: create sflow flow_sampler ports 1 analyzer_server_id 1 rate 200
maxheadersize 120

Success.

DES-3810-28:admin#
```

77-5 config sflow flow_sampler ports

Description

This command is used to configure the sFlow flow sampler parameters.

Format

config sflow flow_sampler ports [<portlist> | all] {rate <value 0-255> | maxheadersize <value 18-256>} (1)

Parameters

<portlist> - Specifies the list of ports to be configured.
all - Specifies to configure all ports.
rate - Specifies the sampling rate for packet sampling. **<value 0-255>** - Specifies the sampling rate for packet sampling. The configured rate value multiplied by 256 is the actual rate. For example, if the rate is 20, the actual rate 5120. One packet will be sampled from every 5120 packets. If set to 0, the sampler is disabled. If the rate is not specified, its default value is 0.
maxheadersize - Specifies the maximum number of leading bytes in the packet which has been sampled that will be encapsulated and forwarded to the server. **<value 18-256>** - Specifies the maximum number of leading bytes in the packet which has been sampled that will be encapsulated and forwarded to the server. If not specified, the default value is 128.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the sFlow flow sampler parameters:

```
DES-3810-28:admin#config sflow flow_sampler ports all rate 1
Command: config sflow flow_sampler ports all rate 1

Success.

DES-3810-28:admin#
```

77-6 delete sflow flow_sampler ports

Description

This command is used to delete the sFlow flow sampler.

Format

delete sflow flow_sampler ports [<portlist> | all]

Parameters

<portlist> - Specifies the list of ports to be deleted.
all - Specifies to delete all ports.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete the sFlow flow sampler for ports 1 to 3:

```
DES-3810-28:admin#delete sflow flow_sampler ports 1-3
Command: delete sflow flow_sampler ports 1-3

Success.

DES-3810-28:admin#
```

77-7 create sflow analyzer_server

Description

This command is used to create the sFlow analyzer server.

Format

create sflow analyzer_server <value 1-4> owner <name 16> {timeout [<sec 1-2000000> | infinite] | collectoraddress <ipaddr> | collectorport <udp_port_number 1-65535> | maxdatagramsize <value 300-1400>}

Parameters

<value 1-4> - Specifies a value between 1 and 4.
owner - Specifies the entity making use of this sflow analyzer server. When owner is set or modified, the timeout value will become 400 automatically. **<name 16>** - Specifies the entity making use of this sflow analyzer server. When owner is set or modified, the timeout value will become 400 automatically.
timeout - (Optional) Specifies the length of time before the server is timed out. When the analyzer server times out, all of the flow samplers and counter pollers associated with this analyzer server will be deleted. If not specified, its default value is 400. If it is specified as infinite, the server will never time out.

<sec 1-2000000> - Specifies the time out value, in seconds, between 1 and 2000000. **infinite** - Specifies to never time out.
collectoraddress - (Optional) Specifies the IP address of the analyzer server. **<ipaddr>** - Specifies the IP address of the analyzer server. If not specified, the address will be 0.0.0.0, which means that the entry will be inactive.
collectorport - (Optional) Specifies the destination UDP port for sending the sFlow datagrams. **<udp_port_number 1-65535>** - Specifies the destination UDP port for sending the sFlow datagrams. If not specified, the default value is 6343.
maxdatagramsize - (Optional) Specifies the maximum number of data bytes that can be packed in a single sample datagram. **<value 300-1400>** - Specifies the maximum number of data bytes that can be packed in a single sample datagram. If not specified, the default value is 1400.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create an sFlow analyzer server named “monitor”:

```
DES-3810-28:admin#create sflow analyzer_server 1 owner monitor
Command: create sflow analyzer_server 1 owner monitor

Success.

DES-3810-28:admin#
```

77-8 delete sflow analyzer_server

Description

This command is used to delete the sFlow analyzer server.

Format

delete sflow analyzer_server <value 1-4>

Parameters

<value 1-4> - Specifies a value between 1 and 4.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete the sFlow analyzer server 1:

```
DES-3810-28:admin#delete sflow analyzer_server 1
Command: delete sflow analyzer_server 1

Success.

DES-3810-28:admin#
```

77-9 config sflow analyzer_server

Description

This command is used to configure the sFlow analyzer server information. More than one collector with the same IP address can be specified if the UDP port numbers are unique.

Format

config sflow analyzer_server <value 1-4> {timeout [<sec 1-2000000> | infinite] | collectoraddress <ipaddr> | collectorport <udp_port_number 1-65535> | maxdatagramsize <value 300-1400>} (1)

Parameters

<value 1-4> - Specifies a value between 1 and 4.
timeout - (Optional) Specifies the time (in seconds) remaining before the sample is released and stops sampling. When the analyzer_server times out, all of the flow_samplers and counter_pollers associated with this analyzer_server will be deleted. If it is specified as infinite, the server will never be timeout. **<sec 1-2000000>** - Specifies the time out value, in seconds, between 1 and 2000000. **infinite** - Specifies to never time out.
collectoraddress - (Optional) Specifies the IP address of the server. **<ipaddr>** - Specifies the IP address of the server. If set to 0, sFlow packets will not be sent to this server.
collectorport - (Optional) Specifies the destination port for sending sflow datagrams. **<udp_port_number 1-65535>** - Specifies the destination port for sending sflow datagrams. The number is between 1 and 65535.
maxdatagramsize - (Optional) Specifies the maximum number of data bytes that can be packed in a single sample datagram. **<value 300-1400>** - Specifies the maximum number of data bytes that can be packed in a single sample datagram. The values is between 300 and 1400.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the sFlow analyzer server information:

```
DES-3810-28:admin#config sflow analyzer_server 1 collectoraddress 10.90.90.9
Command: config sflow analyzer_server 1 collectoraddress 10.90.90.9

Success.

DES-3810-28:admin#
```

77-10 show sflow analyzer_server

Description

This command is used to display sFlow analyzer server information.

Format

show sflow analyzer_server

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To display sFlow analyzer server information:

```
DES-3810-28:admin#show sflow analyzer_server
Command: config sflow analyzer_server

sFlow Analyzer_server Information
------------------------------
Server ID                 : 1
Owner                     : master1
Timeout                   : Infinite
Current countdown time     : Infinite
Collector Address          : 10.90.90.3
Collector Port             : 6343
Max Datagram Size          : 1400

Server ID                  : 3
Owner                      : master2
Timeout                    : 400
Current countdown time      : 300
Collector Address           : 10.90.90.3
Collector Port              : 6353
Max Datagram Size           : 1400

Server ID                  : 4
Owner                      : master3
Timeout                    : 5000
Current countdown time      : 3005
Collector Address           : 0.0.0.0
Collector Port              : 6343
Max Datagram Size           : 1400
```

```
Total Entries: 3

DES-3810-28:admin#
```

77-11 create sflow counter_poller ports

Description

This command is used to create the sFlow counter poller. With the poller function, the statistics counter information with respect to a port will be forwarded to the server at the configured interval. These counters are RFC 2233 counters.

Format

create sflow counter_poller ports [<portlist> | all] analyzer_server_id <value 1-4> {interval [disable | <sec 20-120>]}

Parameters

<portlist> - Specifies the ports to be configured.
all - Specifies to configure all ports.
analyzer_server_id - Specifies the ID of an analyzer server where the packet will be forwarded. **<value 1-4>** - Specifies the ID of an analyzer server where the packet will be forwarded.
interval - (Optional) Specifies the maximum number of seconds between successive statistic counters information. If set to disable, the counter-poller is disabled. If the interval is not specified, its default value is disable. **disable** - Specifies to disable the interval. **<sec 20-120>** - Specifies the interval, in seconds, between 20 and 120.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create the sFlow counter poller:

```
DES-3810-28:admin#create sflow counter_poller ports 1 analyzer_server_id 1
Command: create sflow counter_poller ports 1 analyzer_server_id 1

Success.

DES-3810-28:admin#
```

77-12 config sflow counter_poller ports

Description

This command is used to configure the sflow counter poller parameters. If a user wants to change the analyzer server ID, they need to delete the counter poller and create a new one.

Format

config sflow counter_poller ports [<portlist> | all] interval [disable | <sec 20-120>]

Parameters

<portlist> - Specifies the ports to be configured.
all - Specifies to configure all ports.
interval - Specifies the maximum number of seconds between successive samples of the counters. If set to disabled, the counter sample is disabled. **disable** - Specifies to disable the interval. **<sec 20-120>** - Specifies the interval, in seconds, between 20 and 120.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the sFlow counter poller parameters interval to 50 for port 1:

```
DES-3810-28:admin#config sflow counter_poller ports 1 interval 50
Command: config sflow counter_poller ports 1 interval 50

Success.

DES-3810-28:admin#
```

77-13 delete sflow counter_poller ports

Description

This command is used to delete the sFlow counter poller.

Format

delete sflow counter_poller ports [<portlist> | all]

Parameters

<portlist> - Specifies the ports to be deleted.
all - Specifies to delete all ports.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete the sFlow counter poller for port 1:

```
DES-3810-28:admin#delete sflow counter_poller ports 1
Command: delete sflow counter_poller ports 1

Success.
```

```
DES-3810-28:admin#
```

77-14 show sflow counter_poller

Description

This command is used to display sFlow counter poller information for the ports that have been created.

Format

show sflow counter_poller

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To display sFlow counter poller information for the ports that have been created:

```
DES-3810-28:admin#show sflow counter_poller
Command: show sflow counter_poller

 Port   Analyzer Server ID   Polling Interval (sec)
 ----   ------------------   ----------------------
 1      1                    50

Total Entries: 1

DES-3810-28:admin#
```

77-15 show sflow flow_sampler

Description

This command is used to display sFlow sampler information for the ports that have been created.

Format

show sflow flow_sampler

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To display sFlow sampler information for the ports that have been created:

```
DES-3810-28:admin #show sflow flow_sampler
Command: show sflow flow_sampler

 Port   Analyzer Server ID   Configured Rate   Active Rate   Max Header Size
 ----   ------------------   ---------------   -----------   ---------------
 1      1                    20                0             255

Total Entries: 1

DES-3810-28:admin#
```

Chapter 78 Single IP Management Commands

enable sim
disable sim
show sim {[candidates {<candidate_id 1-100>} | members {<member_id 1-32>} | group {commander_mac <macaddr>} | neighbor]}
reconfig [member_id <value 1-32> | exit]
config sim_group [add <candidate_id 1-100> {<password>} | delete <member_id 1-32>]
config sim [[commander {group_name <groupname 64> } | candidate] | dp_interval <sec 30-90> | hold_time <sec 100-255>]
download sim_ms [firmware_from_tftp | configuration_from_tftp] <ipaddr> <path_filename> {[members <mslist 1-32> | all]}
upload sim_ms [configuration_to_tftp | log_to_tftp] <ipaddr> <path_filename> {[members <mslist> | all]}

78-1 enable sim

Description

This command is used to configure the single IP management on the switch as enabled.

Format

enable sim

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable single IP management:

```
DES-3810-28:admin#enable sim
Command: enable sim

Success.

DES-3810-28:admin#
```

78-2 disable sim

Description

This command is used to configure the single IP management on the switch as disabled.

Format

disable sim

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable single IP management:

```
DES-3810-28:admin#disable sim
Command: disable sim

Success.

DES-3810-28:admin#
```

78-3 show sim

Description

This command is used to display the information of the specific sorts of devices including of self, candidate, member, group, and neighbor.

Format

show sim {[candidates {<candidate_id 1-100>} | members {<member_id 1-32>} | group {commander_mac <macaddr>} | neighbor]}

Parameters

candidates - (Optional) Specifies the candidate devices. **<candidate_id 1-100>** - (Optional) Specifies the candidate devices. The ID is from 1 to 100.
members - (Optional) Specifies the member devices. **<member_id 1-32>** - (Optional) Specifies the member devices. The ID is from 1 to 32.
group – (Optional) Specifies other group devices. **commander_mac** - Specifies the commander MAC address. **<macaddr>** - Specifies the commander MAC address.
neighbor - (Optional) Specifies other neighbor devices.

Restrictions

None.

Example

To show the self information in detail:

```
DES-3810-28:admin#show sim
Command: show sim

SIM Version        : VER-1.61
Firmware Version   : 2.10.024
Device Name        :
MAC Address        : 00-01-02-03-04-00
Capabilities       : L3
Platform           : DES-3810-28 L3 Switch
SIM State          : Disabled
Role State         : Candidate
Discovery Interval : 30 sec
Hold Time          : 100 sec

DES-3810-28:admin#
```

To show the candidate information in summary:

```
DES-3810-28:admin#show sim candidate
Command: show sim candidates

ID  MAC Address       Platform /               Hold  Firmware  Device Name
                      Capability               Time  Version
--- ----------------- ------------------------ ----- --------- ----------------
 1  00-01-02-03-04-00 DES-3810-28 L3 Switch    40    2.10.024  ClassRoom1
 2  00-55-55-00-55-00 DES-3810-28 L3 Switch    140   2.10.024  ClassRoom2

Total Entries: 2

DES-3810-28:admin#
```

To show the member information in summary:

```
DES-3810-28:admin#show sim member
Command: show sim members

ID  MAC Address       Platform /               Hold  Firmware  Device Name
                      Capability               Time  Version
--- ----------------- ------------------------ ----- --------- ----------------
 1  00-01-02-03-04-00 DES-3810-28 L3 Switch    40    2.10.024  ClassRoom1
 2  00-55-55-00-55-00 DES-3810-28 L3 Switch    140   2.10.024  ClassRoom2

Total Entries: 2

DES-3810-28:admin#
```

To show other groups information in summary:

```
DES-3810-28:admin#show sim group
Command: show sim group

SIM Group Name : default

ID  MAC Address       Platform /               Hold  Firmware  Device Name
                      Capability               Time  Version
--- ----------------- ------------------------ ----- --------- ----------------
*1  00-01-02-03-04-00 DES-3810-28 L3 Switch    40    2.10.024 ClassRoom1
 2  00-55-55-00-55-00

SIM Group Name : SIM2

ID  MAC Address       Platform /               Hold  Firmware  Device Name
                      Capability               Time  Version
--- ----------------- ------------------------ ----- --------- ----------------
*1  00-01-02-03-04-00 DES-3810-10 L3 Switch    40    2.10.024 ClassRoom1
 2  00-55-55-00-55-00

‘*’ means commander switch.

DES-3810-28:admin#
```

To show an SIM neighbor table:

```
DES-3810-28:admin#show sim neighbor
Command: show sim neighbor

Neighbor Table

Port    MAC Address         Role
------  ------------------  ---------
23      00-35-26-00-11-99   Commander
23      00-35-26-00-11-91   Member
24      00-35-26-00-11-90   Candidate

Total Entries: 3

DES-3810-28:admin#
```

78-4 reconfig

Description

This command is used to re-Telnet to a member.

Format

reconfig [member_id <value 1-32> | exit]

Parameters

member_id - Specifies the serial number of a member. **<value 1-32>** - Specifies the serial number of a member. The value is between 1 and 32.
exit - Specifies to terminate command switch access.

Restrictions

Only Administrators and Operators can issue this command.

Example

To re-Telnet to a member:

```
DES-3810-28:admin#reconfig member_id 1
Command: reconfig member_id 1

DES-3810-28:admin#
Login:
```

78-5 config sim_group

Description

This command is used to configure group information on the switch.

Format

config sim_group [add <candidate_id 1-100> {<password>} | delete <member_id 1-32>]

Parameters

add - Specifies to add a specific candidate to the group. **<candidate_id 1-100>** - Specifies to add a specific candidate to the group. **<password>** - (Optional) Specifies the password of a candidate, if necessary.
delete - Specifies to remove a specific member from the group. **<member_id 1-32>** - Specifies to remove a specific member from the group. The ID is from 1 to 32.

Restrictions

Only Administrators and Operators can issue this command.

Example

To add a member:

```
DES-3810-28:admin#config sim_group add 2
Command: config sim_group add 2

Please wait for ACK !!!
SIM Config Success !!!
```

```
Success.

DES-3810-28:admin#
```

To delete a member:

```
DES-3810-28:admin#config sim_group delete 1
Command: config sim_group delete 1

Please wait for ACK !!!
SIM Config Success !!!

Success.

DES-3810-28:admin#
```

78-6 config sim

Description

This command is used to configure the role state and parameters of discovery protocol on the switch.

Format

config sim [[commander {group_name <groupname 64>} | candidate] | dp_interval <sec 30-90> | hold_time <sec 100-255>]

Parameters

commander - Transfer the role to commander. **group_name** - (Optional) If commander, users can specify the name of the group. **<groupname 64>** - If commander, users can specify the name of the group. The maximum length is 64 characters.
candidate - Transfer role to candidate.
dp_interval - Specifies the time in seconds between discoveries. **<sec 30-90>** - Specifies the time in seconds between discoveries.
hold_time - Specifies the time in seconds the device holds the discovery result. **<sec 100-255>** - Specifies the time in seconds the device holds the discovery result.

Restrictions

Only Administrators and Operators can issue this command.

Example

To transfer to commander:

```
DES-3810-28:admin#config sim commander
Command: config sim commander

```

```
Success.

DES-3810-28:admin
```

To transfer to candidate:

```
DES-3810-28:admin#config sim candidate
Command: config sim candidate

Success.

DES-3810-28:admin#
```

To update the name of a group:

```
DES-3810-28:admin#config sim commander group_name mygroup
Command: config sim commander group_name mygroup

Success.

DES-3810-28:admin#
```

To change the time interval of discovery protocol:

```
DES-3810-28:admin#config sim dp_interval 30
Command: config sim dp_interval 30

Success.

DES-3810-28:admin#
```

To change the hold time of discovery protocol:

```
DES-3810-28:admin#config sim hold_time 200
Command: config sim hold_time 200

Success.

DES-3810-28:admin#
```

78-7 download sim_ms

Description

This command is used to download firmware or configuration from a TFTP server to indicated devices.

Format

download sim_ms [firmware_from_tftp | configuration_from_tftp] <ipaddr> <path_filename> {[members <mslist 1-32> | all]}

Parameters

firmware_from_tftp - Specifies to download firmware from a TFTP server.
configuration_from_tftp - Specifies to download configuration from a TFTP server.
<ipaddr> - Specifies the IP address of the TFTP server.
<path_filename> - Specifies the file path of firmware or configuration in the TFTP server.
members – (Optional) Specifies a range of members which download this firmware or configuration. **<mslist 1-32>** - Specifies a range of members which download this firmware or configuration. **all** - Specifies all members which download this firmware or configuration.

Restrictions

Only Administrators can issue this command.

Example

To download firmware:

```
DES-3810-28:admin#download sim_ms firmware_from_tftp 10.55.47.1 D:\dwl600x.tfp
members 1-3
Commands: download sim_ms firmware_from_tftp 10.55.47.1 D:\dwl600x.tfp members
1-3

This device is updating firmware.  Please wait several minutes...

Download Status :

ID   MAC Address        Result
---  -----------------  ----------------
1   00-01-02-03-04-00  Success
2   00-07-06-05-04-03  Fail
3   00-07-06-05-04-04  Fail

DES-3810-28:admin#
```

To download configuration:

```
DES-3810-28:admin#download sim_ms configuration_from_tftp 10.55.47.1
D:\test.txt members 1-3
Commands: download sim_ms configuration_from_tftp 10.55.47.1 D:\test.txt
members 1-3

This device is updating configuration.  Please wait several minutes...

Download Status :

ID   MAC Address        Result
---  -----------------  ----------------
1   00-01-02-03-04-00  Success
2   00-07-06-05-04-03  Fail
3   00-07-06-05-04-03  Fail

DES-3810-28:admin#
```

78-8 upload sim_ms

Description

This command is used to upload configuration or a log from indicated devices to a TFTP server.

Format

upload sim_ms [configuration_to_tftp | log_to_tftp] <ipaddr> <path_filename> {[members <mslist> | all]}

Parameters

configuration_to_tftp - Specifies to upload configuration to a TFTP server.
log_to_tftp - Specifies to upload a log to a TFTP server.
<ipaddr> - Specifies the IP address of the TFTP server.
<path_filename> - Specifies the file path to store configuration or a log in the TFTP server.
members – (Optional) Specifiy the members which upload its configuration. **<mslist>** - Specifiy the members which upload its configuration.The value is from 1 to 32. **all** - Specifies all members which upload its configuration.

Restrictions

Only Administrators and Operators can issue this command.

Example

To upload a configuration:

```
DES-3810-28:admin#upload sim_ms configuration_to_tftp 10.55.47.1
D:\configuration.txt members 1
Command: upload sim_ms configuration_to_tftp 10.55.47.1 D:\configuration.txt
members 1


This device is uploading configuration. Please wait several minutes...


Upload Status:

ID   MAC Address        Result
--   ----------------   -------
 1    00-01-02-03-04-00  Success

DES-3810-28:admin#
```

Chapter 79 SMTP Commands

enable smtp
disable smtp
config smtp {server <ipaddr> | server_port <tcp_port_number 1-65535> | self_mail_addr <mail_addr 64> | [add mail_receiver <mail_addr 64> | delete mail_receiver <index 1-8>]}(1)
show smtp
smtp send_testmsg

79-1 enable smtp

Description

This command is used to enable SMTP status. If SMTP is enabled, the Switch sends e-mail with the urgent events including system start, port link change, SNMP authentication failure, config or log save by user, config reset by user, and TFTP update FW status to the designated e-mail address when any problem occurs on the Switch.

Format

enable smtp

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To enable SMTP status:

```
DES-3810-28:admin#enable smtp
Command: enable smtp

Success.

DES-3810-28:admin#
```

79-2 disable smtp

Description

This command is used to disable SMTP status.

Format

disable smtp

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To disable SMTP status:

```
DES-3810-28:admin#disable smtp
Command: disable smtp

Success.

DES-3810-28:admin#
```

79-3 config smtp

Description

This command is used to configure SMTP settings.

Format

config smtp {server <ipaddr> | server_port <tcp_port_number 1-65535> | self_mail_addr <mail_addr 64> | [add mail_receiver <mail_addr 64> | delete mail_receiver <index 1-8>]}(1)

Parameters

server - Specifies the SMTP server IP address. **<ipaddr>** - Specifies the SMTP server IP address.
server_port - Specifies the SMTP server port. **<tcp_port_number 1-65535>** - Specifies the SMTP server port number between 1 and 65535.
self_mail_addr - Specifies the sender's mail address. **<mail_addr 64>** - Specifies the sender's mail address. The maximum length is 64 characters.
add mail_receiver - Specifies to add the mail receiver's address. **<mail_addr 64>** - Specifies to add the mail receiver's address. The maximum length is 64 characters.
delete mail_receiver - Specifies to delete the mail receiver's address. **<index 1-8>** - Specifies the index between 1 and 8.

Restrictions

Only Administrators can issue this command.

Example

To configure an SMTP server IP address:

```
DES-3810-28:admin#config smtp server 172.18.208.9
Command: config smtp server 172.18.208.9

Success.

DES-3810-28:admin#
```

To configure an SMTP server port:

```
DES-3810-28:admin#config smtp server_port 25
Command: config smtp server_port 25

Success.

DES-3810-28:admin#
```

To configure a mail source address:

```
DES-3810-28:admin#config smtp self_mail_addr clyde_frazier@dlink.com
Command: config smtp self_mail_addr clyde_frazier@dlink.com

Success.

DES-3810-28:admin#
```

To add a mail destination address:

```
DES-3810-28:admin#config smtp add mail_receiver willis_reed@dlink.com
Command: config smtp add mail_receiver willis_reed@dlink.com

Success.

DES-3810-28:admin#
```

To delete a mail destination address:

```
DES-3810-28:admin#config smtp delete mail_receiver 2
Command: config smtp delete mail_receiver 2

Success.

DES-3810-28:admin#
```

79-4 show smtp

Description

This command is display the current SMTP information.

Format

show smtp

Parameters

None.

Restrictions

None.

Example

To display the current SMTP information:

```
DES-3810-28:admin#show smtp
Command: show smtp

SMTP Status            : Disabled
SMTP Server Address    : 0.0.0.0
SMTP Server Port       : 0
Self Mail Address      :

Index    Mail Receiver Address
-----    ------------------------------------------------------------------
1
2
3
4
5
6
7
8

DES-3810-28:admin#
```

79-5 smtp send_testmsg

Description

This command is used to test whether the SMTP server can be reached.

Format

smtp send_testmsg

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To test whether the SMTP server can be reached:

Note: The sentences following “Subject:” and “Content:” are user inputs.

```
DES-3810-28:admin#smtp send_testmsg
Command: smtp send_testmsg

Subject: This is a test of SMTP.
Content: Hello, everybody!

Sending mail, please wait!

Success.

DES-3810-28:admin#
```

Chapter 80 SNMPv1/v2/v3 Commands

create snmp user <user_name 32> <groupname 32> {encrypted [by_password auth [md5 <auth_password 8-16 > | sha <auth_password 8-20 >] priv [none | des <priv_password 8-16>]| by_key auth [md5 <auth_key 32-32>| sha <auth_key 40-40>] priv [none | des <priv_key 32-32>]]}
delete snmp user <user_name 32>
show snmp user
show snmp groups
create snmp view <view_name 32> <oid> view_type [included | excluded]
delete snmp view <view_name 32> [all | <oid>]
show snmp view {<view_name 32>}
create snmp community <community_string 32> view <view_name 32> [read_only | read_write]
delete snmp community <community_string 32>
show snmp community {<community_string 32>}
config snmp engineID <snmp_engineID 10-64>
show snmp engineID
create snmp group <groupname 32> [v1 | v2c | v3 [noauth_nopriv | auth_nopriv | auth_priv]] {read_view <view_name 32> | write_view <view_name 32> | notify_view <view_name 32>}(1)
delete snmp group <groupname 32>
create snmp [host <ipaddr> | v6host <ipv6addr>] [v1 | v2c | v3 [noauth_nopriv | auth_nopriv | auth_priv]] <auth_string 32>
delete snmp [host <ipaddr> | v6host <ipv6addr>]
show snmp v6host {<ipv6addr>}
show snmp host {<ipaddr>}

Note: If SNMPv3 commands are used, the SNMPv1/v2 commands are not necessary.

80-1 create snmp user

Description

This command is used to create a new user to an SNMP group originated by this command. Users can choose input authentication and privacy by password or by key.

Format

create snmp user <user_name 32> <groupname 32> {encrypted [by_password auth [md5 <auth_password 8-16> | sha <auth_password 8-20>] priv [none | des <priv_password 8-16>] | by_key auth [md5 <auth_key 32-32> | sha <auth_key 40-40>] priv [none | des <priv_key 32-32>]]}

Parameters

<user_name 32> - Specifies the name of the user on the host that connects to the agent. The range is 1 to 32 characters.
<groupname 32> - Specifies the name of the group to which the user is associated. The range is

1 to 32 characters.
encrypted - (Optional) Specifies whether the password appears in encrypted format.
by_password auth - Indicate the input password for authentication
sha - Specifies the HMAC-SHA-96 authentication level between 8 and 20 characters. **<auth_password 8-20>** - Specifies the HMAC-SHA-96 authentication level between 8 and 20 characters.
md5 – Specifies the HMAC-MD5-96 authentication level between 8 and 16 characters. **<auth_password 8-16>** - Specifies the HMAC-MD5-96 authentication level between 8 and 16 characters.
priv - Indicate the input password for privacy. The options are none and DES. **none** - Specifies there will be no privacy string. **des** - Specifies a privacy string used by DES between 8 and 16 characters. **<priv_password 8-16>** - Specifies a privacy string used by DES between 8 and 16 characters.
by_key auth - Indicate the input key for authentication. The options are MD5 and SHA1.
md5 - Specifies an authentication key used by MD5. This is a hex string type of 32 characters. **<auth_key 32-32>** - Specifies an authentication key used by MD5. This is a hex string type of 32 characters.
sha - Specifies an authentication key used by SHA1. This is a hex string type of 40 characters. **<auth_key 40-40>** - Specifies an authentication key used by SHA1. This is a hex string type of 40 characters.
priv - Indicate the input key for privacy. The options are none and DES. **none** - Specifies there will be no privacy key. **des** - Specifies a privacy key used by DES. This is a hex string type of 32 characters **<priv_key 32-32>** - Specifies a privacy key used by DES. This is a hex string type of 32 characters.

Restrictions

Only Administrators can issue this command.

Example

To create a new user to an SNMP group originated by this command:

```
DES-3810-28:admin#create snmp user dlink D-Link_group encrypted by_password
auth md5 12345678 priv des 12345678
Command: create snmp user dlink D-Link_group encrypted by_password auth md5
12345678 priv des 12345678


Success.


DES-3810-28:admin#
```

80-2 delete snmp user

Description

This command is used to remove a user from an SNMP group and deletes the associated group in the SNMP group.

Format

delete snmp user <user_name 32>

Parameters

<user_name 32> - Specifies the name of the user on the host to be deleted. The range is 1 to 32 characters.

Restrictions

Only Administrators can issue this command.

Example

To delete an SNMP user:

```
DES-3810-28:admin#delete snmp user dlink
Command: delete snmp user dlink

Success.

DES-3810-28:admin#
```

80-3 show snmp user

Description

This command is used to display information on each SNMP username in the group username table.

Format

show snmp user

Parameters

None.

Restrictions

None.

Example

To display SNMP user information:

```
DES-3810-28:admin#show snmp user
Command: show snmp user

Username                    Group Name                  VerAuthPriv
--------------------------  --------------------------  ------------
initial                     initial                     V3 NoneNone

Total Entries : 1

DES-3810-28:admin#
```

80-4 show snmp groups

Description

This command is used to display the names of groups on the switch, and the security model, level, and the status of the different views.

Format

show snmp groups

Parameters

None.

Restrictions

None.

Example

To display the names of the SNMP groups on the switch:

```
DES-3810-28:admin#show snmp groups
Command: show snmp groups

Vacm Access Table Settings

Group    Name    : public
ReadView Name    : CommunityView
WriteView Name   :
Notify View Name : CommunityView
Security Model   : SNMPv1
Security Level   : NoAuthNoPriv

Group    Name    : public
ReadView Name    : CommunityView
WriteView Name   :
Notify View Name : CommunityView
Security Model   : SNMPv2
Security Level   : NoAuthNoPriv

Group    Name    : private
ReadView Name    : CommunityView
WriteView Name   : CommunityView
Notify View Name : CommunityView
Security Model   : SNMPv2
Security Level   : NoAuthNoPriv

Total Entries: 3
```

```
DES-3810-28:admin#
```

80-5 create snmp view

Description

This command is used to assign views to community strings to limit which MIB objects an SNMP manager can access.

Format

create snmp view <view_name 32> <oid> view_type [included | excluded]

Parameters

<view_name 32> - Specifies the view name to be created.
<oid> - Specifies the object-identified tree (the MIB tree).
view_type - Specifies the access type of of the MIB tree in this view.
included - Specifies to include this view.
excluded - Specifies to exclude this view.

Restrictions

Only Administrators can issue this command.

Example

To assign views to community strings to limit which MIB objects an SNMP manager can access:

```
DES-3810-28:admin#create snmp view dlinkview 1.3.6 view_type included
Command: create snmp view dlinkview 1.3.6 view_type included

Success.

DES-3810-28:admin#
```

80-6 delete snmp view

Description

This command is used to remove a view record.

Format

delete snmp view <view_name 32> [all | <oid>]

Parameters

<view_name 32> - Specifies the view name of the user who will be deleted.
all - Specifies to view all records.
<oid> - Specifies the object-identified tree (the MIB tree).

Restrictions

Only Administrators can issue this command.

Example

To remove a view record:

```
DES-3810-28:admin#delete snmp view dlinkview all
Command: delete snmp view dlinkview all

Success.

DES-3810-28:admin#
```

80-7 show snmp view

Description

This command is used to display SNMP view records.

Format

show snmp view {<view_name 32>}

Parameters

<view_name 32> - (Optional) Specifies the view name of the user to be displayed.

Restrictions

None.

Example

To display SNMP view records:

```
DES-3810-28:admin#show snmp view
Command: show snmp view

Vacm View Table Settings
View Name             Subtree                    View Type
--------------------  -------------------------  ----------
restricted            1.3.6.1.2.1.1              Included
restricted            1.3.6.1.2.1.11             Included
restricted            1.3.6.1.6.3.10.2.1         Included
restricted            1.3.6.1.6.3.11.2.1         Included
restricted            1.3.6.1.6.3.15.1.1         Included
CommunityView         1                          Included
CommunityView         1.3.6.1.6.3                Excluded
CommunityView         1.3.6.1.6.3.1              Included

Total Entries: 8

DES-3810-28:admin#
```

80-8 create snmp community

Description

This command is used to create an SNMP community string. Use an SNMP community string to define the relationship between the SNMP manager and the agent. The community string acts like a password to permit access to the agent on the switch. You can specify one or more of the following characteristics associated with the string: An access list of IP addresses of the SNMP managers that are permitted to use the community string to gain access to the agent; A MIB view, which defines the subset of all MIB objects accessible to the given community; Read and write or read-only permission for the MIB objects accessible to the community.

Format

create snmp community <community_string 32> view <view_name 32> [read_only | read_write]

Parameters

<community_string 32> - Specifies the community string. The maximum string length is 32 characters.
view - Specifies the view name of the MIB. The maximum length is 32 characters. **<view_name 32>** - Specifies the view name of the MIB. The maximum length is 32 characters.
read_only - Specifies read-only permission.
read_write - Specifies read and write permission.

Restrictions

Only Administrators can issue this command.

Example

To create an SNMP community string:

```
DES-3810-28:admin#create snmp community dlink view CommunityView read_write
Command: create snmp community dlink view CommunityView read_write

Success.

DES-3810-28:admin#
```

80-9 delete snmp community

Description

This command is used to remove a specific community string.

Format

delete snmp community <community_string 32>

Parameters

<community_string 32> - Specifies the community string that will be deleted.

Restrictions

Only Administrators can issue this command.

Example

To delete an SNMP community:

```
DES-3810-28:admin#delete snmp community dlink
Command: delete snmp community dlink

Success.

DES-3810-28:admin#
```

80-10 show snmp community

Description

This command is used to display community string configurations.

Format

show snmp community {<community_string 32>}

Parameters

<community_string 32> - (Optional) Specifies the community string to be displayed.

Note: If a community string is not specified, all community string information will be displayed.

Restrictions

None.

Example

To display the current community string configurations:

```
DES-3810-28:admin#show snmp community
Command: show snmp community

SNMP Community Table
Community Name                View Name                Access Right
----------------------------  -----------------------  ------------
private                       CommunityView            read_write
public                        CommunityView            read_only

Total Entries : 2

DES-3810-28:admin#
```

80-11 config snmp engineID

Description

This command is used to configure an identifier for the SNMP engine on the switch. Associated with each SNMP entity is a unique engine ID.

Format

config snmp engineID <snmp_engineID 10-64>

Parameters

<snmp_engineID 10-64> - Specifies the identify for the SNMP engine on the switch.

Restrictions

Only Administrators can issue this command.

Example

To configure an identifier for the SNMP engine on the switch:

```
DES-3810-28:admin#config snmp engineID 1023457890
Command: config snmp engineID 1023457890

Success.

DES-3810-28:admin#
```

80-12 show snmp engineID

Description

This command is used to display the identification of the SNMP engine on the switch.

Format

show snmp engineID

Parameters

None.

Restrictions

None.

Example

To display the identification of an SNMP engine:

```
DES-3810-28:admin#show snmp engineID
Command: show snmp engineID

SNMP Engine ID : 1023457890

DES-3810-28:admin#
```

80-13 create snmp group

Description

This command is used to create a new SNMP group.

Format

create snmp group <groupname 32> [v1 | v2c | v3 [noauth_nopriv | auth_nopriv | auth_priv]] {read_view <view_name 32> | write_view <view_name 32> | notify_view <view_name 32>}(1)

Parameters

<groupname 32> - Specifies the name of the group.
v1 - Specifies the least secure of the possible security models.
v2c - Specifies the second least secure of the possible security models.

v3 - Specifies the most secure of the possible security models. Specifies authentication of a packet.
noauth_nopriv - Specifies to neither support packet authentication nor encrypting.
auth_nopriv - Specifies to support packet authentication.
auth_priv - Specifies to support packet authentication and encrypting.
read_view - Specifies the view name between 1 and 32 characters. **<view_name 32>** - Specifies the view name between 1 and 32 characters.
write_view - Specifies the view name between 1 and 32 characters. **<view_name 32>** - Specifies the view name between 1 and 32 characters.
notify_view - Specifies the view name between 1 and 32 characters. **<view_name 32>** - Specifies the view name between 1 and 32 characters.

Restrictions

Only Administrators can issue this command.

Example

To create a new SNMP group:

```
DES-3810-28:admin#create snmp group D-Link_group v3 auth_priv read_view
CommunityView write_view CommunityView notify_view CommunityView
Command: create snmp group D-Link_group v3 auth_priv read_view CommunityView
write_view CommunityView notify_view CommunityView


Success.


DES-3810-28:admin#
```

80-14 delete snmp group

Description

This command is used to remove an SNMP group.

Format

delete snmp group <groupname 32>

Parameters

<groupname 32> - Specifies the name of the group that will be deleted.

Restrictions

Only Administrators can issue this command.

Example

To remove an SNMP group:

```
DES-3810-28:admin#delete snmp group D_Link_group
Command: delete snmp group D_Link_group

Success.

DES-3810-28:admin#
```

80-15 create snmp

Description

This command is used to create a recipient of an SNMP operation.

Format

create snmp [host <ipaddr> | v6host <ipv6addr>] [v1 | v2c | v3 [noauth_nopriv | auth_nopriv | auth_priv]] <auth_string 32>

Parameters

host - Specifies the IP address of the recipient for which the traps are targeted. **<ipaddr>** - Specifies the IP address of the recipient for which the traps are targeted.
v6host - Specifies the v6host IP address to which the trap packet will be sent. **<ipv6addr>** - Specifies the v6host IP address to which the trap packet will be sent.
v1 - Specifies the least secure of the possible security models.
v2c - Specifies the second least secure of the possible security models.
v3 - Specifies the most secure of the possible security models.
noauth_nopriv - Specifies to neither support packet authentication nor encrypting.
auth_nopriv - Specifies to support packet authentication.
auth_priv - Specifies to support packet authentication and encrypting.
<auth_string 32> - Specifies the authentication string. If v1 or v2 is specified, the auth_string presents the community string, and it must be one of the entries in the community table. If v3 is specified, the auth_string presents the user name, and it must be one of the entries in the user table.

Restrictions

Only Administrators can issue this command.

Example

To create a recipient of an SNMP operation:

```
DES-3810-28:admin#create snmp host 10.48.74.100 v3 noauth_nopriv initial
Command: create snmp host 10.48.74.100 v3 noauth_nopriv initial

Success.

DES-3810-28:admin#
```

80-16 delete snmp

Description

This command is used to delete a recipient of an SNMP trap operation.

Format

delete snmp [host <ipaddr> | v6host <ipv6addr>]

Parameters

host - Specifies the IP address of the SNMP host recipient to be deleted. **<ipaddr>** - Specifies the IP address of the SNMP host recipient to be deleted.
v6host - Specifies the IPv6 address of the SNMP host recipient to be deleted. **<ipv6addr>** - Specifies the IPv6 address of the SNMP host recipient to be deleted.

Restrictions

Only Administrators can issue this command.

Example

To delete a recipient of an SNMP trap operation:

```
DES-3810-28:admin#delete snmp host 10.48.74.100
Command: delete snmp host 10.48.74.100

Success.

DES-3810-28:admin#
```

80-17 show snmp host

Description

This command is used to display the recipient for which the traps are targeted.

Format

show snmp host {<ipaddr>}

Parameters

<ipaddr> - (Optional) Specifies the IP address of the recipient for which the traps are targeted.

Note: If no parameter is specified, all SNMP hosts will be displayed.

Restrictions

None.

Example

To display the receipient for which the traps are targeted:

```
DES-3810-28:admin# show snmp host
Command: show snmp host

SNMP Host Table
Host IP Address  SNMP Version     Community Name / SNMPv3 User Name
---------------  ---------------  ---------------------------------
10.48.76.100     V3 noauthnopriv  initial
10.51.17.1       V2c              public

Total Entries : 2

DES-3810-28:admin#
```

80-18 show snmp v6host

Description

This command is used to display the recipient for which the traps are targeted.

Format

show snmp v6host {<ipv6addr>}

Parameters

<ipv6addr> - (Optional) Specifies the v6host IP address.

Note: If no parameter is specified, all SNMP IPv6 hosts will be displayed.

Restrictions

None.

Example

To display the recipient for which the traps are targeted:

```
DES-3810-28:admin# show snmp v6host
Command: show snmp v6host

SNMP Host Table
------------------------------------------------------------------
Host IPv6 Address: FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF
SNMP Version     : V3 na/np
Community Name/SNMPv3 User Name: 123456789101234567890

Host IPv6 Address: FECO:1A49:2AA:FF:FE34:CA8F
SNMP Version     : V3 a/np
Community Name/SNMPv3 User Name: abcdefghijk

Total Entries : 2

DES-3810-28:admin#
```

Chapter 81 SSH Commands

config ssh algorithm [3DES | AES128 | AES192 | AES256 | arcfour | blowfish | cast128 | twofish128 | twofish192 | twofish256 | MD5 | SHA1 | RSA | DSA] [enable | disable]
show ssh algorithm
config ssh authmode [password | publickey | hostbased] [enable | disable]
show ssh authmode
config ssh user <username 15> authmode [hostbased [hostname <domain_name 32> | hostname_IP <domain_name 32> [<ipaddr> | <ipv6addr>]] | password | publickey]
show ssh user authmode
config ssh server {maxsession <int 1-8> | contimeout <sec 120-600> | authfail <int 2-20> | rekey [10min | 30min | 60min | never] | port <tcp_port_number 1-65535>}(1)
enable ssh
disable ssh
show ssh server

81-1 config ssh algorithm

Description

This command is used to configure the SSH service algorithm.

Format

config ssh algorithm [3DES | AES128 | AES192 | AES256 | arcfour | blowfish | cast128 | twofish128 | twofish192 | twofish256 | MD5 | SHA1 | RSA | DSA] [enable | disable]

Parameters

3DES - Specifies an SSH server encryption algorithm. **blowfish** - Specifies an SSH server encryption algorithm. **AES(128,192,256)** - Specifies an SSH server encryption algorithm. **arcfour** - Specifies an SSH server encryption algorithm. **cast128** - Specifies an SSH server encryption algorithm. **twofish (128,192,256)** - Specifies an SSH server encryption algorithm. **MD5** - Specifies an SSH server data integrality algorithm. **SHA1** - Specifies an SSH server data integrality algorithm. **DSA** - Specifies an SSH server public key algorithm. **RSA** - Specifies an SSH server public key algorithm.
enable - Specifies to enable the algorithm. **disable** - Specifies to disable the algorithm.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable an SSH server public key algorithm:

```
DES-3810-28:admin#config ssh algorithm DSA enable
Command: config ssh algorithm DSA enable

Success.

DES-3810-28:admin#
```

81-2 show ssh algorithm

Description

This command is used to display the SSH authentication algorithm.

Format

show ssh algorithm

Parameters

None.

Restrictions

None.

Example

To show the SSH server algorithms:

```
DES-3810-28:admin#show ssh algorithm
Command: show ssh algorithm

Encryption Algorithm
--------------------------
3DES       : Enabled
AES128     : Enabled
AES192     : Enabled
AES256     : Enabled
arcfour    : Enabled
blowfish   : Enabled
cast128    : Enabled
twofish128 : Enabled
twofish192 : Enabled
twofish256 : Enabled

Data Integrity Algorithm
--------------------------
MD5        : Enabled
SHA1       : Enabled

Public Key Algorithm
--------------------------
```

```
RSA         : Enabled
DSA         : Enabled

DES-3810-28:admin#
```

81-3 config ssh authmode

Description

This command is used to update the user authentication for SSH configuration.

Format

config ssh authmode [password | publickey | hostbased] [enable | disable]

Parameters

password - Specifies the user authentication method. **publickey** - Specifies the user authentication method. **hostbased** - Specifies the user authentication method.
enable - Specifies to enable the user authentication method. **disable** - Specifies to disable the user authentication method.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the SSH user authentication method:

```
DES-3810-28:admin#config ssh authmode publickey enable
Command: config ssh authmode publickey enable

Success.

DES-3810-28:admin#
```

81-4 show ssh authmode

Description

This command is used to display the user authentication methods.

Format

show ssh authmode

Parameters

None.

Restrictions

None.

Example

To display the SSH user authentication method:

```
DES-3810-28:admin#show ssh authmode
Command: show ssh authmode

The SSH Authmode
-----------------------------------------------------
Password  : Enabled
Publickey : Enabled
Hostbased : Enabled

DES-3810-28:admin#
```

81-5 config ssh user

Description

This command is used to update SSH user information.

Format

config ssh user <username 15> authmode [hostbased [hostname <domain_name 32> | hostname_IP <domain_name 32> [<ipaddr> | <ipv6addr>]] | password | publickey]

Parameters

<username 15> - Specifies the user name.
authmode - Specifies the authentication mode.
hostbased - Specifies the user authentication method. **hostname** - Specifies the host domain name. **<domain_name 32>** - Specifies the host domain name. The hostname value can be up to 32 characters long. **hostname_IP** - Specifies the host domain name and IP address. **<domain_name 32>** - Specifies the host domain name. The hostname value can be up to 32 characters long. **<ipaddr>** - Specifies the host IP address. **<ipv6addr>** - Specifies the host IPv6 address.
password - Specifies the user authentication method.
publickey - Specifies the user authentication method.

Restrictions

Only Administrators can issue this command.

Note: The user account must be created first.

Example

To update user “danilo” in authentication mode:

```
DES-3810-28:admin# config ssh user danilo authmode publickey
Command: config ssh user danilo authmode publickey

Success.

DES-3810-28:admin#
```

81-6 show ssh user authmode

Description

This command is used to display SSH user information.

Format

show ssh user authmode

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To show user information about SSH configuration:

```
DES-3810-28:admin#show ssh user authmode
Command: show ssh user authmode

Current Accounts
User Name         Authentication       Host Name         Host IP
----------------  -------------        ------------      -------------
test              Public Key
alpha             Host-based           alpha-local       172.18.61.180
beta              Host-based           beta-local        3000::105

Total Entries : 3

DES-3810-28:admin#
```

81-7 config ssh server

Description

This command is used to configure SSH server general information.

Format

config ssh server {maxsession <int 1-8> | contimeout <sec 120-600> | authfail <int 2-20> | rekey [10min | 30min | 60min | never] | port <tcp_port_number 1-65535>}(1)

Parameters

maxsession - Specifies the SSH server maximum session at the same time. **<int 1-8>** - Specifies the SSH server maximum session at the same time. The maximum session value must be between 1 and 8. The default value is 8.
contimeout - Specifies the SSH server connection timeout. **<sec 120-600>** - Specifies the SSH server connection timeout. The connection timeout value must be between 120 and 600 seconds. The default value is 120 seconds.
authfail - Specifies the user maximum fail attempts. **<int 2-20>** - Specifies the user maximum fail attempts. The maximum authentication fail attempts must be between 2 and 20. The default value is 2.
rekey - (Optional) Specifies the time to re-generate the session key. **10min** - Specifies 10 minutes to re-generate the session key. **30min** - Specifies 30 minutes to re-generate the session key. **60min** - Specifies 60 minutes to re-generate the session key. **never** - Do not re-generate the session key.
port - Specifies a TCP port number between 1 and 65535. **<tcp_port_number 1-65535>** - Specifies a TCP port number between 1 and 65535.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure an SSH server maximum session of 3:

```
DES-3810-28:admin#config ssh server maxsession 3
Command: config ssh server maxsession 3

Success.

DES-3810-28:admin#
```

81-8 enable ssh

Description

This command is used to enable SSH server services.

Format

enable ssh

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable SSH:

```
DES-3810-28:admin#enable ssh
Command: enable ssh

Success.

DES-3810-28:admin#
```

81-9 disable ssh

Description

This command is used to disable SSH server services.

Format

disable ssh

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable SSH:

```
DES-3810-28:admin#disable ssh
Command: disable ssh

Success.

DES-3810-28:admin#
```

81-10 show ssh server

Description

This command is used to display SSH server general information.

Format

show ssh server

Parameters

None.

Restrictions

None.

Example

To show SSH server:

```
DES-3810-28:admin#show ssh server
Command: show ssh server

The SSH Server Configuration
Maximum Session              : 8
Connection Timeout           : 120
Authentication Fail Attempts : 2
Rekey Timeout                : Never
TCP Port Number              : 22


DES-3810-28:admin#
```

Chapter 82 SSL Commands

download ssl certificate <ipaddr> certfilename <path_filename 64> keyfilename <path_filename 64>
enable ssl {ciphersuite {RSA_with_RC4_128_MD5 | RSA_with_3DES_EDE_CBC_SHA | DHE_DSS_with_3DES_EDE_CBC_SHA | RSA_EXPORT_with_RC4_40_MD5 }(1)}
disable ssl {ciphersuite {RSA_with_RC4_128_MD5 | RSA_with_3DES_EDE_CBC_SHA | DHE_DSS_with_3DES_EDE_CBC_SHA | RSA_EXPORT_with_RC4_40_MD5 }(1)}
show ssl {certificate}
show ssl cachetimeout
config ssl cachetimeout <value 60-86400>

82-1 download ssl certificate

Description

This command is used to download specified certificates to a device according to the desired key exchange algorithm. For RSA key exchange, a user must download an RSA type certificate and for DHS_DSS must use the DSA certificate for key exchange.

Format

download ssl certificate <ipaddr> certfilename <path_filename 64> keyfilename <path_filename 64>

Parameters

<ipaddr> - Specifies the TFTP server IP address.
certfilename - Specifies the desired certificate file name and the certificate file path in respect to the TFTP server root path. Input characters with a maximum of 64 octets. **<path_filename 64>** - Specifies the desired certificate file name and the certificate file path in respect to the TFTP server root path. Input characters with a maximum of 64 octets. The certificate file name can be up to 64 characters long.
keyfilename - Specifies the private key file name which accompanies the certificate and the private key file path in respect to the TFTP server root path. Input characters with a maximum of 64 octets. **<path_filename 64>** - Specifies the private key file name which accompanies the certificate and the private key file path in respect to the TFTP server root path. Input characters with a maximum of 64 octets. The private key file name can be up to 64 characters long.

Restrictions

Only Administrators can issue this command.

Example

To download a certificate from a TFTP server:

```
DES-3810-28:admin# download ssl certificate 10.55.47.1 certfilename cert.der
keyfilename pkey.der
Command: download ssl certificate 10.55.47.1 certfilename cert.der keyfilename
pkey.der

Success.

DES-3810-28:admin#
```

82-2 enable ssl

Description

This command is used to enable the SSL status and its individual cipher suites. Using the **enable ssl** command will enable the SSL feature, which means SSLv3 and TLSv1. Each cipher suite must be enabled by this command.

Format

enable ssl {ciphersuite {RSA_with_RC4_128_MD5 | RSA_with_3DES_EDE_CBC_SHA | DHE_DSS_with_3DES_EDE_CBC_SHA | RSA_EXPORT_with_RC4_40_MD5}(1)}

Parameters

ciphersuite - (Optional) This is used for configuring a cipher suite combination.
- **RSA_with_RC4_128_MD5** - Indicate an RSA key exchange with RC4 128 bits encryption and MD5 hash.
- **RSA_with_3DES_EDE_CBC_SHA** - Indicate an RSA key exchange with 3DES_EDE_CBC encryption and SHA hash.
- **DHE_DSS_with_3DES_EDE_CBC_SHA** - Indicate a DH key exchange with 3DES_EDE_CBC encryption and SHA hash.
- **RSA_EXPORT_with_RC4_40_MD5** - Indicate an RSA_EXPORT key exchange with RC4 40 bits encryption and MD5 hash.

Restrictions

Only Administrators can issue this command.

Example

To enable the SSL ciphersuite for RSA_with_RC4_128_MD5:

```
DES-3810-28:admin# enable ssl ciphersuite RSA_with_RC4_128_MD5
Command: enable ssl ciphersuite RSA_with_RC4_128_MD5

Success.

DES-3810-28:admin#
```

To enable SSL:

```
DES-3810-28:admin# enable ssl
Command: enable ssl

Note: Web will be disabled if SSL is enabled.
Success.

DES-3810-28:admin#
```

82-3 disable ssl

Description

This command is used to disable the SSL feature and supported ciphersuites.

Format

disable ssl {ciphersuite {RSA_with_RC4_128_MD5 | RSA_with_3DES_EDE_CBC_SHA | DHE_DSS_with_3DES_EDE_CBC_SHA | RSA_EXPORT_with_RC4_40_MD5}(1)}

Parameters

ciphersuite - (Optional) This is used for configuring cipher suite combination.
- **RSA_with_RC4_128_MD5** - Indicate an RSA key exchange with RC4 128 bits encryption and MD5 hash.
- **RSA_with_3DES_EDE_CBC_SHA** - Indicate an RSA key exchange with 3DES_EDE_CBC encryption and SHA hash.
- **DHE_DSS_with_3DES_EDE_CBC_SHA** - Indicate a DH key exchange with 3DES_EDE_CBC encryption and SHA hash.
- **RSA_EXPORT_with_RC4_40_MD5** - Indicate an RSA_EXPORT key exchange with RC4 40 bits encryption and MD5 hash.

Restrictions

Only Administrators can issue this command.

Example

To disable the SSL ciphersuite for RSA_with_RC4_128_MD5:

```
DES-3810-28:admin# disable ssl ciphersuite RSA_with_RC4_128_MD5
Command: disable ssl ciphersuite RSA_with_RC4_128_MD5

Success.

DES-3810-28:admin#
```

To disable the SSL feature:

```
DES-3810-28:admin# disable ssl
Command: disable ssl

Success.
```

```
DES-3810-28:admin#
```

82-4 show ssl

Description

This command is used to display the current SSL status and supported ciphersuites.

Format

show ssl {certificate}

Parameters

certificate - (Optional) Specifies the certificate type.

Restrictions

None.

Example

To display SSL:

```
DES-3810-28:admin# show ssl
Commands: show ssl

SSL Status                                  Disabled

RSA_WITH_RC4_128_MD5                        Enabled
RSA_WITH_3DES_EDE_CBC_SHA                   Enabled
DHE_DSS_WITH_3DES_EDE_CBC_SHA               Enabled
RSA_EXPORT_WITH_RC4_40_MD5                  Enabled

DES-3810-28:admin#
```

82-5 show ssl cachetimeout

Description

This command is used to display the cache timeout value which is designed for a **dlktimer** library to remove the session ID after it has expired. In order to support the resume session feature, the SSL library keeps the session ID on the web server and invokes the **dlktimer** library to remove this session ID by the cache timeout value.

Format

show ssl cachetimeout

Parameters

None.

Restrictions

None.

Example

To show the SSL cache timeout:

```
DES-3810-28:admin# show ssl cachetimeout
Commands: show ssl cachetimeout

Cache timeout is 600 second(s)

DES-3810-28:admin#
```

82-6 config ssl cachetimeout

Description

This command is used to configure the cache timeout value which is designed for the **dlktimer** library to remove the session ID after expiration. In order to support the resume session feature, the SSL library keeps the session ID on the web server, and invokes the **dlktimer** library to remove this session ID by the cache timeout value. The unit of argument's value is second and its boundary is between 60 (1 minute) and 86400 (24 hours). The default value is 600 seconds.

Format

config ssl cachetimeout <value 60-86400>

Parameters

cachetimeout - Specifies the SSL cache timeout value attributes. The SSL cache timeout value must be between 60 and 86400 seconds. The default value is 600 seconds **<value 60-86400>** - Specifies the SSL cache timeout value attributes. The SSL cache timeout value must be between 60 and 86400 seconds. The default value is 600 seconds.

Restrictions

Only Administrators can issue this command.

Example

To configure an SSL cache timeout value of 60:

```
DES-3810-28:admin# config ssl cachetimeout 60
Commands: config ssl cachetimeout 60

Success.
DES-3810-28:admin#
```

Chapter 83 Static MAC-based VLAN Commands

create mac_based_vlan mac_address <macaddr> [vlan <vlan_name 32> | vlanid <vlanid 1-4094>]
delete mac_based_vlan {mac_address <macaddr> [vlan <vlan_name 32>| vlanid <vlanid 1-4094>]}
show mac_based_vlan {mac_address <macaddr> | [vlan <vlan_name 32> | vlanid <vlanid 1-4094>]}

83-1 create mac_based_vlan mac_address

Description

This command is used to create static MAC-based VLAN entries.

Format

create mac_based_vlan mac_address <macaddr> [vlan <vlan_name 32> | vlanid <vlanid 1-4094>]

Parameters

<macaddr> - Specifies the MAC address.
vlan - Specifies the VLAN to be associated with the MAC address. The name must be an existing static VLAN name. **<vlan_name 32>** - Specifies the VLAN name. The maximum length is 32 characters.
vlanid - Specifies the VLAN ID to be associated with the MAC address. The ID must be an existing static VLAN ID. **<vlanid 1-4094>** - Specifies the VLAN ID between 1 and 4094.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create a static MAC-based VLAN entry:

```
DES-3810-28:admin#create mac_based_vlan mac_address 00-00-00-00-00-01 vlan
default
Command: create mac_based_vlan mac_address 00-00-00-00-00-01 vlan default
Success.

DES-3810-28:admin#
```

83-2 delete mac_based_vlan

Description

This command is used to delete static MAC-based VLAN entries.

Format

delete mac_based_vlan {mac_address <macaddr> [vlan <vlan_name 32>| vlanid <vlanid 1-4094>]}

Parameters

mac_address - (Optional) Specifies the MAC address to be deleted. **<macaddr>** - Specifies the MAC address to be deleted.
vlan - (Optional) Specifies the VLAN associated with the MAC address. **<vlan_name 32>** - Specifies the VLAN name. The maximum length is 32 characters.
vlanid - (Optional) Specifies the VLAN ID associated with the MAC address. **<vlanid 1-4094>** - Specifies the VLAN ID between 1 and 4094.

Note: If the MAC address and VLAN are not specified, all static entries associated with the port will be removed.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete a static MAC-based VLAN entry:

```
DES-3810-28:admin#delete mac_based_vlan mac_address 00-00-00-00-00-01 vlan
default
Command: delete mac_based_vlan mac mac_address 00-00-00-00-00-01 vlan default
Success.

DES-3810-28:admin#
```

83-3 show mac_based_vlan

Description

This command is used to display the MAC-based VLAN entries.

Format

show mac_based_vlan {mac_address <macaddr> | [vlan <vlan_name 32> | vlanid <vlanid 1-4094>]}

Parameters

mac_address - (Optional) Specifies the MAC address to be displayed. **<macaddr>** - Specifies the MAC address to be displayed.

vlan - (Optional) Specifies the VLAN associated with the MAC address. **<vlan_name 32>** - Specifies the VLAN name. The maximum length is 32 characters.
vlanid - (Optional) Specifies the VLAN ID associated with the MAC address. **<vlanid 1-4094>** - Specifies the VLAN ID between 1 and 4094.

Restrictions

None.

Example

In the following example, MAC address “00-80-c2-33-c3-45” is assigned to VLAN 300 by manual configuration. It is assigned to VLAN 400 by MAC-based Access Control. Since MAC-based Access Control has higher priority than manual configuration, the manually configured entry will become inactive. To display the MAC-based VLAN entries:

```
DES-3810-28:admin#show mac_based_vlan

MAC Address         VLAN ID      Status       Type
------------------  ------------  ----------- --------
00-80-e0-14-a7-57   200           Active      Static
00-80-c2-33-c3-45   300           Inactive    Static
00-80-c2-33-c3-45   400           Active      MAC_based Access Control
00-a2-44-17-32-98   400           Active      WAC

Total Entries : 4

DES-3810-28:admin#
```

Chapter 84 Static Replication Commands

enable ipmc_vlan_replication
disable ipmc_vlan_replication
config ipmc_vlan_replication {[ttl [decrease | no_decrease] | src_mac [replace | no_replace]]}(1)
config ipmc_vlan_replication_entry destination <name 16> [add | delete] [vlan <vlan_name 32> | vlanid <vidlist>] ports <portlist>
config ipmc_vlan_replication_entry source <name 16> [[vlan <vlan_name 32> | vlanid <vlanid 1-4094>] | group [add | delete] [mcast_ip <mcast_address_list> | mcast_ipv6 <mcastv6_address_list>] {[source_ip <ipaddr> | source_ipv6 <ipv6addr>]}]
delete ipmc_vlan_replication_entry <name 16>
show ipmc_vlan_replication
show ipmc_vlan_replication_entry {<name 16> | hardware}
create ipmc_vlan_replication_entry <name 16>
show ipmc {ipif <ipif_name 12> | protocol [inactive | dvmrp | pim]}
show ipmc cache {group <group>} {ipaddress <network_address>}

84-1 enable ipmc_vlan_replication

Description

This command is used to enable static configuration of IP multicast VLAN replication.

Format

enable ipmc_vlan_replication

Parameters

None

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable static configuration of IP multicast VLAN replication:

```
DES-3810-28:admin#enable ipmc_vlan_replication
Command: enable ipmc_vlan_replication

Success.

DES-3810-28:admin#
```

84-2 disable ipmc_vlan_replication

Description

This command is used to disable static configuration of IP multicast VLAN replication.

Format

disable ipmc_vlan_replication

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable static configuration of IP multicast VLAN replication:

```
DES-3810-28:admin#disable ipmc_vlan_replication
Command: disable ipmc_vlan_replication

Success.

DES-3810-28:admin#
```

84-3 config ipmc_vlan_replication

Description

This command is used to configure the IP multicast VLAN replication global setting. Generally, when a multicast packet is forwarded across VLANs, the TTL will be decreased by one. If no decrease is specified, the TTL will not be decreased. Similarly, it can be specified to replace a source MAC address for a packet to be forwarded across VLANs.

Format

config ipmc_vlan_replication {[ttl [decrease | no_decrease] | src_mac [replace | no_replace]]}(1)

Parameters

ttl - Specifies whether to decrease or not the time to live of a packet. **decrease** - Specifies whether to decrease the time to live of a packet. By default, the TTL will be decreased. **no_decrease** - Specifies not to decrease the time to live of a packet.
src_mac - Specifies where to replace or not a source MAC address of a packet. **replace** - Specifies whether to replace a source MAC address of a packet.By default, the source MAC address will be replaced **no_replace** - Specifies not to replace a source MAC address of a packet.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure static configuration of IP multicast VLAN replication:

```
DES-3810-28:admin#config ipmc_vlan_replication ttl no_decrease
Command: config ipmc_vlan_replication ttl no_decrease

Success.

DES-3810-28:admin#
```

84-4 config ipmc_vlan_replication_entry destination

Description

For the traffic that matches an IPMC VLAN replication entry, it will be replicated based on the destination setting. Multiple destination entries can be defined for an IPMC VLAN replication entry. Each destination entry specifies the VLAN and the outgoing port on which the traffic will be replicated. The outgoing port must be a member port of the VLAN. Whether a packet egress to a port is tagged or untagged will be determined by the VLAN setting.

Format

config ipmc_vlan_replication_entry destination <name 16> [add | delete] [vlan <vlan_name 32> | vlanid <vidlist>] ports <portlist>

Parameters

<name 16> - Specifies the name of the IP multicast VLAN replication entry to be configured.
add - Specifies to add an IP multicast replication entry.
delete - Specifies to delete an IP multicast replication entry.
vlan - Specifies the outgoing VLAN name. **<vlan_name 32>** - The VLAN name can be up to 32 characters long.
vlanid - Specifies the outgoing VLAN ID. **<vidlist>** - Specifies the outgoing VLAN ID here.
ports - Specifies the outgoing port list. **<portlist>** - Specifies a range of ports to be configured.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the destination of an IP multicast VLAN replication entry named mr1:

```
DES-3810-28:admin#config ipmc_vlan_replication_entry destination mr1 add vlanid
5 port 10-17
Command: config ipmc_vlan_replication_entry destination mr1 add vlanid 5 port
10-17

Success.

DES-3810-28:admin#
```

84-5 config ipmc_vlan_replication_entry source

Description

This command is used to configure the traffic to be replicated by the IP multicast VLAN replication entry. The traffic is described as a source VLAN, a list of multicast group addresses, and an optional source IP address associated with the multicast group. Each (V, G, S) will consume one resource entry. Therefore, the resource entry consumed by a replication entry is not constant and it will be determined by the number of (V, G, S) pairs defined by the entry. If the entry (V, G, S) exists in two replication entries, both will take effect. The traffic will be replicated to the destination defined by both entries.

Format

config ipmc_vlan_replication_entry source <name 16> [[vlan <vlan_name 32> | vlanid <vlanid 1-4094>] | group [add | delete] [mcast_ip <mcast_address_list> | mcast_ipv6 <mcastv6_address_list>] {[source_ip <ipaddr> | source_ipv6 <ipv6addr>]}]

Parameters

<name 16> - Specifies the name of the IP multicast VLAN replication entry to be configured. This name can be up to 16 characters long.
vlan - Specifies the source VLAN name. **<vlan_name 32>** - The VLAN name can be up to 32 characters long.
vlanid - Specifies the source VLAN ID. **<vlanid 1-4094>** - The VLAN ID must be between 1 and 4094.
group - Specifies the multicast IP address list. **add** - Specifies to add a group. **delete** - Specifies to delete a group.
mcast_ip - Specifies the multicast IP address list. **<mcast_address_list>** - Enter the multicast IP address list here.
mcast_ipv6 - Specifies the multicast IPv6 address list. **<mcastv6_address_list>** - Enter the multicast IPv6 address list here.
source_ip - (Optional) Specifies the source IP address. **<ipaddr>** - Enter the source IP address here.
source_ipv6 - (Optional) Specifies the source IPv6 address. **<ipv6addr>** - Enter the source IPv6 address here.

Restrictions

Only Administrators and Operators can issue this command.

Example

To set the source VLAN of an IP multicast VLAN replication entry to VLAN v2:

```
DES-3810-28:admin# config ipmc_vlan_replication_entry source mr1 vlan v2
Command: config ipmc_vlan_replication_entry source mr1 vlan v2

Success.

DES-3810-28:admin#
```

84-6 delete ipmc_vlan_replication_entry

Description

This command is used to delete an IP multicast VLAN replication entry.

Format

delete ipmc_vlan_replication_entry <name 16>

Parameters

<name 16> - Specifies the name of the IP multicast VLAN replication entry to be deleted.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete an IP multicast VLAN replication entry named mr1:

```
DES-3810-28:admin#delete ipmc_vlan_replication_entry mr1
Command: delete ipmc_vlan_replication_entry mr1

Success.

DES-3810-28:admin#
```

84-7 show ipmc_vlan_replication

Description

This command is used to display the static IP multicast VLAN replication global setting.

Format

show ipmc_vlan_replication

Parameters

None.

Restrictions

None.

Example

To display the static IP multicast VLAN replication global setting:

```
DES-3810-28:admin#show ipmc_vlan_replication
Command: show ipmc_vlan_replication

IP Multicast VLAN Replication State : Enabled
ttl                                 : Decrease
Source Mac Address                  : Replace

DES-3810-28:admin#
```

84-8 show ipmc_vlan_replication_entry

Description

This command is used to display the IP multicast VLAN replication entry.

Format

show ipmc_vlan_replication_entry {<name 16> | hardware}

Parameters

<name 16> - (Optional) Specifies the name of the IP multicast VLAN replication entry to be displayed.
hardware - (Optional) Specifies to display the (S,G) groups which are in the chipset.

Restrictions

None.

Example

To display the static configuration of IP multicast VLAN replication for hardware:

```
DES-3810-28:admin#show ipmc_vlan_replication_entry hardware
Command: show ipmc_vlan_replication_entry hardware

Name      : ipmc_vlan_replication_entry name
Src-v     : The source VLAN
Dest-v    : The destination VLAN
Name             Src_v  Group          SIP              Dest_v Portlist
---------------- ----- -------------- ---------------- ----- -------------
mr1               1     255.1.1.1       *                2     1-11, 13
mr1               1     255.1.1.1       *                3     12, 15
mr1               1     255.1.1.1       10.0.0.1         2     1-11, 13
mr1               1     255.1.1.1       10.0.0.1         3     12, 15
mr2               3     255.1.1.2       *                2     5-6
mr2               3     255.1.1.2       10.0.0.1         2     5-6


Total Entries : 6

DES-3810-28:admin#
```

84-9 create ipmc_vlan_replication_entry

Description

This command is used to create an IPMC VLAN replication entry. The entry will be identified by name. An IP multicast VLAN replication entry defines what traffic will be replicated and how the packet will be replicated.

Format

create ipmc_vlan_replication_entry <name 16>

Parameters

<name 16> - Specifies the name of the IP multicast VLAN replication entry.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create an IP multicast VLAN replication entry named mr1:

```
DES-3810-28:admin#create ipmc_vlan_replication_entry mr1
Command: create ipmc_vlan_replication_entry mr1

Success.

DES-3810-28:admin#
```

84-10 show ipmc

Description

This command is used to display the IP Multicast interface table.

Format

show ipmc {ipif <ipif_name 12> | protocol [inactive | dvmrp | pim]}

Parameters

ipif - (Optional) Specifies the IP Multicast interface that will be displayed. **<ipif_name 12>** - Enter the IP Multicast interface name, that will be displayed, here. This name can be up to 12 characters long.
protocol - (Optional) Specifies which kind of routing protocol the interface table will display. **inactive** - Specifies that the protocol display feature will be inactive **dvmrp** - Specifies that the DVMRP protocol will be displayed. **pim** - Specifies that the PIM protocol will be displayed.

Restrictions

None.

Example

To display the IP Multicast interface table:

```
DES-3810-28:admin#show ipmc
Command: show ipmc

Interface Name  IP Address      Multicast Routing
--------------- --------------- -----------------
System          10.90.90.90     INACT
n1              1.3.2.3         PIM-SM
n2              2.3.2.3         PIM-SM-DM
n3              3.3.2.3         PIM-DM
n4              4.3.2.3         DVMRP

Total Entries: 5

DES-3810-28:admin#
```

84-11 show ipmc cache

Description

This command is used to display the IP multicast forwarding cache.

Format

show ipmc cache {group <group>} {ipaddress <network_address>}

Parameters

group - (Optional) Specifies the multicast group. **<group>** - Enter the multicast group value here.
ipaddress - (Optional) Specifies the network address used here. **<network_address>** - Enter the network address used here.

Restrictions

None.

Example

To display the IP multicast forwarding cache:

```
DES-3810-28:admin#show ipmc cache
Command: show ipmc cache

IP Multicast Forwarding Table

Multicast        Source Address/Netmask  Upstream         Expire  Routing
Group                                    Neighbor         Time    Protocol
---------------  ----------------------  ---------------  ------  ---------
224.1.1.1        10.48.74.121/8          10.48.75.63      30      DVMRP
224.1.1.1        20.48.74.25/8           20.48.75.25      20      PIM-DM
224.1.2.3        10.48.75.3/8            10.48.76.6       30      DVMRP

Total Entries: 3

DES-3810-28:admin#
```

Chapter 85 Subnet VLAN Commands

create subnet_vlan [network <network_address> | ipv6network <ipv6networkaddr>] [vlan <vlan_name 32> | vlanid <vlanid 1-4094>] {priority <value 0-7>}
delete subnet_vlan [network <network_address> | ipv6network <ipv6networkaddr> | vlan <vlan_name 32> | vlanid <vidlist> | all]
show subnet_vlan {[network <network_address> | ipv6network <ipv6networkaddr> | vlan <vlan_name 32> | vlanid <vidlist>]}

85-1 create subnet_vlan

Description

This command is used to create a subnet VLAN entry. A subnet VLAN entry is an IP subnet-based VLAN classification rule. If an untagged or priority-tagged IP packet is received on a port, its source IP address will be used to match the subnet VLAN entries. If the source IP is in the subnet of an entry, the packet will be classified to the VLAN defined for this subnet.

Format

create subnet_vlan [network <network_address> | ipv6network <ipv6networkaddr>] [vlan <vlan_name 32> | vlanid <vlanid 1-4094>] {priority <value 0-7>}

Parameters

network - Specifies an IPv4 network address. **<network_address>** - Specifies an IPv4 network address. The format is ipaddress/prefix length.
ipv6network - Specifies an IPv6 network address. **<ipv6networkaddr>** - Specifies an IPv6 network address. The format is ipaddress/prefix length. The prefix length of IPv6 network address shall not be greater than 64.
vlan - Specifies a VLAN name to be associated with the subnet. The VLAN must be an existing static VLAN. **<vlan_name 32>** - Specifies a VLAN name. The maximum length is 32 characters.
vlanid - Specifies the VLAN ID to be associated with the subnet. The VLAN must be an existing static VLAN. **<vlanid 1-4094>** - Specifies the VLAN ID between 1 and 4094.
priority - (Optional) Specifies the priority to be associated with the subnet. **<value 0-7>** - Specifies the priority to be associated with the subnet. The range is 0 to 7.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create a subnet VLAN entry:

```
DES-3810-28:admin#create subnet_vlan network 172.168.1.1/24 vlan v2 priority 2
Command: create subnet_vlan network 172.168.1.1/24 vlan v2 priority 2

Success.

DES-3810-28:admin#
```

To create an IPv6 subnet VLAN entry:

```
DES-3810-28:admin#create subnet_vlan ipv6network fe80::250:baff::0/64 vlan v2
priority 2
Command: create subnet_vlan ipv6network fe80::250:baff::0/64 vlan v2 priority 2

Success.

DES-3810-28:admin#
```

85-2 delete subnet_vlan

Description

This command is used to delete a subnet VLAN from the switch. Users can delete a subnet VLAN entry by IP subnet or VLAN, or delete all subnet VLAN entries.

Format

delete subnet_vlan [network <network_address> | ipv6network <ipv6networkaddr> | vlan <vlan_name 32> | vlanid <vidlist> | all]

Parameters

network - Specifies an IPv4 network address. **<network_address>** - Specifies an IPv4 network address. The format is ipaddress/prefix length.
ipv6network - Specifies an IPv6 network address. **<ipv6networkaddr>** - Specifies an IPv6 network address. The format is ipaddress/prefix length.
vlan - Specifies to delete all subnet VLAN entries associated with this VLAN. **<vlan_name 32>** - Specifies a VLAN name. The maximum length is 32 characters.
vlanid - Specifies a list of VLANs by VLAN ID. **<vidlist>** - Specifies the VLAN ID.
all - Specifies to delete all subnet VLAN entries.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete a subnet VLAN entry:

```
DES-3810-28:admin#delete subnet_vlan network 172.168.1.1/24
Command: delete subnet_vlan network 172.168.1.1/24

Success.

DES-3810-28:admin#
```

To delete all subnet VLAN entries:

```
DES-3810-28:admin#delete subnet_vlan all
Command: delete subnet_vlan all

Success.

DES-3810-28:admin#
```

85-3 show subnet_vlan

Description

This command is used to display a subnet VLAN.

Format

show subnet_vlan {[network <network_address> | ipv6network <ipv6networkaddr> | vlan <vlan_name 32> | vlanid <vidlist>]}

Parameters

network - (Optional) Specifies an IPv4 network address. **<network_address>** - Specifies an IPv4 network address. The format is ipaddress/prefix length.
ipv6network - (Optional) Specifies an IPv6 network address. **<ipv6networkaddr>** - Specifies an IPv6 network address. The format is ipaddress/prefix length.
vlan - (Optional) Specifies to display all subnet VLAN entries associated with this VLAN. **<vlan_name 32>** - Specifies a VLAN name. The maximum length is 32 characters.
vlanid - (Optional) Specifies a list of VLANs by VLAN ID. **<vidlist>** - Specifies the VLAN ID.

Note: If no parameter is specified, all subnet VLAN information will be displayed.

Restrictions

None.

Example

To display a specified subnet VLAN entry:

```
DES-3810-28:admin#show subnet_vlan network 172.168.1.1/24
Command: show subnet_vlan network 172.168.1.1/24

IP Address/Subnet Mask          VLAN      Priority
------------------------        -----     ----------
172.168.1.1/24                   10           2

DES-3810-28:admin#
```

To display a specied IPv6 subnet VLAN entry:

```
DES-3810-28:admin#show subnet_vlan network fe80::250:baff::0/64
Command: show subnet_vlan network fe80::250:baff::0/64

IP Address/Subnet Mask          VLAN      Priority
------------------------        -----     ----------
fe80::250:baff::0/64             10           2

DES-3810-28:admin#
```

To display all subnet VLAN entries:

```
DES-3810-28:admin#show subnet_vlan
Command: show subnet_vlan

IP Address/Subnet Mask          VLAN      Priority
------------------------        -----     ----------
172.168.1.1/24                   10           2
172.18.211.1/255.255.255.0       20           3
172.18.211.6/24                   5           1
fe80::250:baff::0/64             10           2

Total Entries: 3

DES-3810-28:admin#
```

Chapter 86 Switch Port Commands

config ports [<portlist> | all] {medium_type [fiber | copper]} {speed [auto | 10_half | 10_full | 100_half | 100_full | 1000_full {[master | slave]}] | flow_control [enable | disable] | learning [enable | disable] | state [enable | disable] | mdix [auto | normal | cross] | [description <desc 1-32> | clear_description]}(1)
show ports {<portlist>} {[description | err_disabled | details | media_type]}

86-1 config ports

Description

This command is used to change switch port settings.

Format

config ports [<portlist> | all] {medium_type [fiber | copper]} {speed [auto | 10_half | 10_full | 100_half | 100_full | 1000_full {[master | slave]}] | flow_control [enable | disable] | learning [enable | disable] | state [enable | disable] | mdix [auto | normal | cross] | [description <desc 1-32> | clear_description]}(1)

Parameters

<portlist> - Specifies a range of ports to be configured.
all – Specifies to set all ports in the system.
medium_type - (Optional) Specifies the medium type when configuring ports that are combo ports. **fiber** - Specifies the fiber port. **copper** - Specifies the copper port.
speed - Set port speed for the specified ports. **auto** - Set port speed to auto negotiation. **10_half** - Set port speed to 10_half. **10_full** - Set port speed to 10_full. **100_half** - Set port speed to 100_half. **100_full** - Set port speed to 100_full. **1000_full** - Set port speed to 1000_full. When setting copper port speed to 1000_full, users should specify master and slave mode in pair for 1000BASE-T and 1000BASE-TX, and leave the 1000_full without any master or slave setting for fiber. **master** - (Optional) Set to master. **slave** - (Optional) Set to slave.
flow_control - Turn on or turn off flow control on one or more ports by setting flow_control to enable or disable. The default value is disable. **enable** - Turn on flow control. **disable** - Turn off flow control.
learning - Turn on or turn off MAC address learning on one or more ports. The default value is enable. **enable** - Turn on MAC address learning. **disable** - Turn off MAC address learning.
state - Enable or disable the state of the specified port. If the ports are in error-disabled status,

configuring their state to enable will recover these ports from a disabled to an enabled state. The default value is enable. **enable** - Enable the specified port(s). **disable** - Disable the specified port(s).
mdix - Specifies the type of cabling. The default value is auto. **auto** - Select auto for auto sensing of the optimal type of cabling. **normal** - Select normal for normal cabling. If set to normal state, the port is in MDI mode and can be connected to a PC NIC using a straight-through calbe or a port (in MDI mode) on another switch through a cross-over cable. **cross** - Select cross for cross cabling. If set to cross state, the port is in MDIX mode, and can be connected to a port (in MDI mode) on another switch through a straight cable.
description - (Optional) Describe the port interface. **<desc 1-32>** - Describe the port interface. **clear_description** - (Optional) Deletes the present description of the port interface.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the speed of ports 1 to 3 to be 10 Mbps, with full duplex, learning enabled, state enabled, and flow control enabled:

```
DES-3810-28:admin#config ports 1-3 speed 10_full state enable learning enable
flow_control enable
Command: config ports 1-3 speed 10_full state enable learning enable
flow_control enable

Success.

DES-3810-28:admin#
```

86-2 show ports

Description

This command is used to display the current configurations of a range of ports.

Format

show ports {<portlist>} {[description | err_disabled | details | media_type]}

Parameters

<portlist> - (Optional) Specifies a range of ports to be displayed.
description - (Optional) Specifies to display the port description.
err_disabled - (Optional) Specifies to display disabled information.
details - (Optional) Specifies to indicate if port detail information will be included in the display.
media_type - (Optional) Specifies to display the current port media type. For FE ports, the media type should be 100BASE-T. For GE ports (the combo port), if the current active port is the fiber port, the media type is 1000BASE-X or 100BASE-X; if the current active port is the copper port, the media type is 1000BASE-T.

Note: If no parameter is specified, all ports will be displayed.

Restrictions

None.

Example

To display the configuration of ports 1 to 4:

```
DES-3810-28:admin#show ports 1-4
Command: show ports 1-4

Port     Port            Settings             Connection          Address
         State     Speed/Duplex/FlowCtrl  Speed/Duplex/FlowCtrl   Learning
------  --------  ---------------------  ----------------------  ---------
1       Enabled   Auto/Disabled           100M/Full/None          Enabled
2       Enabled   Auto/Disabled           Link Down               Enabled
3       Enabled   Auto/Disabled           Link Down               Enabled
4       Enabled   Auto/Disabled           Link Down               Enabled

CTRL+C ESC q Quit SPACE n Next Page p Previous Page r Refresh
```

To display the description information of ports 1 to 4:

```
DES-3810-28:admin#show ports 1-4 description
Command: show ports 1-4 description

Port     Port           Settings             Connection         Address
         State    Speed/Duplex/FlowCtrl  Speed/Duplex/FlowCtrl   Learning
------  --------  ---------------------  ----------------------  --------
1       Enabled   Auto/Disabled          100/Full/None           Enabled
         Description:
2       Enabled   Auto/Disabled          Link Down               Enabled
         Description:
3       Enabled   Auto/Disabled          Link Down               Enabled
         Description:
4       Enabled   Auto/Disabled          Link Down               Enabled
         Description:

CTRL+C ESC q Quit SPACE n Next Page p Previous Page r Refresh
```

Note: Connection status has the following situations: Link Down, Speed/Duplex/FlowCtrl (link up), and Err-Disabled.

To display port error-disabled information:

```
DES-3810-28:admin#show ports err-disabled
Command: show ports err-disabled

Port    Port      Connection Status      Reason
        State
------  --------  ---------------------  ----------------
1       Enabled   Err-Disabled           Storm control
        Description: port1.
8       Enabled   Err-Disabled           Storm control
        Description: port8.

DES-3810-28:admin#
```

Chapter 87 Switch Resource Management (SRM) Commands

config srm mode [routing | vpws]
show srm mode

87-1 config srm mode

Description

This command is used to configure the SRM mode. The user should reboot the Switch for the new SRM mode to take effect.

Format

config srm mode [routing | vpws]

Parameters

mode - Specifies the SRM mode used on this Switch. **routing** - Specifies that more hardware resources will be assigned to the L3 routing functions. **vpws** - Specifies that more hardware resources will be assigned to MPLS functions.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To configure the SRM mode to VPWS mode:

```
DES-3810-28:admin#config srm mode vpws
Command: config srm mode vpws

The SRM Mode has been changed to VPWS mode and it will take effect on next
reboot.

Success.

DES-3810-28:admin#
```

87-2 show srm mode

Description

This command is used to display the SRM settings.

Format

show srm mode

Parameters

None.

Restrictions

None. **(EI Mode Command Only)**

Example

To display the SRM settings on the Switch. In this example, the Switch is operating in Routing mode and the user changed the SRM mode to VPWS mode, but has not rebooted the Switch yet:

```
DES-3810-28:admin#show srm mode
Command: show srm mode

SRM Mode          : VPWS
Current SRM Mode  : Routing


DES-3810-28:admin#
```

After the reboot:

```
DES-3810-28:admin#show srm mode
Command: show srm mode

SRM Mode          : VPWS
Current SRM Mode  : VPWS


DES-3810-28:admin#
```

Chapter 88 System Severity Commands

config system_severity [trap | log | all] [emergency | alert | critical | error | warning | notice | information | debug | <level 0-7>]
show system_severity

88-1 config system_severity

Description

This command is used to configure severity level control for the system.

Format

config system_severity [trap | log | all] [emergency | alert | critical | error | warning | notice | information | debug | <level 0-7>]

Parameters

trap - Configure severity level control for a trap.
log - Configure severity level control for a log.
all - Configure severity level control for a trap and a log.
emergency - Specifies to configure the severity level for emergency messages.
alert - Specifies to configure the severity level for alert messages.
critical - Specifies to configure the severity level for critical messages.
error - Specifies to configure the severity level for error messages.
warning - Specifies to configure the severity level for warning messages.
notice - Specifies to configure the severity level for notice messages.
informational - Specifies to configure the severity level for informational messages.
debug - Specifies to configure the severity level for debug messages.
<level 0-7> - Specifies to configure a severity level between 0 and 7.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure severity level control for information level for a trap:

```
DES-3810-28:admin#config system_severity trap information
Command: config system_severity trap information

Success.

DES-3810-28:admin#
```

88-2 show system_severity

Description

This command is used to show the severity level control for a system.

Format

show system_severity

Parameters

None.

Restrictions

None.

Example

To show the severity level control for a system:

```
DES-3810-28:admin#show system_severity
Command: show system_severity

System Severity Trap : warning
System Severity Log  : information

DES-3810-28:admin#
```

Chapter 89 Tech Support Commands

show tech_support
upload tech_support_toTFTP <ipaddr> <path_filename 64>

89-1 show tech_support

Description

This command is used to display technical support information. It is especially useful for technical support personnel that need to view the overall device operation information.

Format

show tech_support

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Note: The switch may become inaccessible when dumping the technical support data.

Note: The management session may time out if dumping technical support data takes longer than the configured session timeout period. It is strongly recommended to set the serial port timeout to never to disable the auto disconnection of the console session.

Example

To display technical support information:

```
DES-3810-28:admin#show tech_support
Command: show tech_support

#------------------------------------------------------------------------------
#                      DES-3810-28 Fast Ethernet Switch
#                        Technical Support Information
#
#                           Firmware: Build 2.10.024
#          Copyright(C) 2011 D-Link Corporation. All rights reserved.
#------------------------------------------------------------------------------

********************   Basic System Information   ********************
[SYS 2011-1-8 10:29:24]
Boot Time           : 5 Jan 2011  14:35:26
```

89-2 upload tech_support_toTFTP

Description

This command is used to upload technical support information to a TFTP server. This command can be interrupted by Ctrl – C or ESC when it is executing.

Format

upload tech_support_toTFTP <ipaddr> <path_filename 64>

Parameters

<ipaddr> - Specifies the IPv4 address of the TFTP server.
<path_filename 64> - Specifies the file name of the technical support information file sent to the TFTP server. The maximum size of the file name is 64 characters.

Restrictions

Only Administrators and Operators can issue this command.

Example

To upload technical support information:

```
DES-3810-28:admin#upload tech_support_toTFTP 10.0.0.66 tech_suppport.txt
Command: upload tech_support_toTFTP 10.0.0.66 tech_suppport.txt

Connecting to server.................. Done.
Upload techsupport file.............. Done.

Success.

DES-3810-28:admin#
```

Chapter 90 Time and SNTP Commands

config sntp {primary <ipaddr> | secondary <ipaddr> | poll-interval <int 30-99999>} (1)
show sntp
enable sntp
disable sntp
config time <date ddmthyyyy> <time hh:mm:ss>
config time_zone {operator [+ | -] | hour <gmt_hour 0-13> | min <minute 0-59>} (3)
config dst [disable | repeating {s_week <start_week 1-4,last> | s_day <start_day sun-sat> | s_mth <start_mth 1-12> | s_time <start_time hh:mm> | e_week <end_week 1-4,last> | e_day <end_day sun-sat> | e_mth <end_mth 1-12> | e_time <end_time hh:mm> | offset [30 | 60 | 90 | 120]} | annual {s_date <start_date 1-31> | s_mth <start_mth 1-12> | s_time <start_time hh:mm> | e_date <end_date 1-31> | e_mth <end_mth 1-12> | e_time <end_time hh:mm> | offset [30 | 60 | 90 | 120]}]
show time

90-1 config sntp

Description

This command is used to change SNTP configurations.

Format

config sntp {primary <ipaddr> | secondary <ipaddr> | poll-interval <int 30-99999>} (1)

Parameters

primary - (Optional) Specifies the SNTP primary server IP address. **<ipaddr>** - Specifies the SNTP primary server IP address.
secondary - (Optional) Specifies the SNTP secondary server IP address. **<ipaddr>** - Specifies the SNTP secondary server IP address.
poll-interval - (Optional) Specifies the polling interval range. **<int 30-99999>** - Specifies the polling interval range between 30 and 99999 seconds.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure SNTP:

```
DES-3810-28:admin#config sntp primary 10.1.1.1 secondary 10.1.1.2 poll-interval
30
Command: config sntp primary 10.1.1.1 secondary 10.1.1.2 poll-interval 30

Success.

DES-3810-28:admin#
```

90-2 show sntp

Description

This command is used to display the current SNTP time source and configuration.

Format

show sntp

Parameters

None.

Restrictions

None.

Example

To show SNTP:

```
DES-3810-28:admin#show sntp
Command: show sntp

Current Time Scource  : System Clock
SNTP                  : Disabled
SNTP Primary Server   : 10.1.1.1
SNTP Secondary Server : 10.1.1.2
SNTP Poll Interval    : 720 sec

DES-3810-28:admin#
```

90-3 enable sntp

Description

This command is used to turn on SNTP support.

Format

enable sntp

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable SNTP:

```
DES-3810-28:admin#enable sntp
Command: enable sntp

Success.

DES-3810-28:admin#
```

90-4 disable sntp

Description

This command is used to turn off SNTP support.

Format

disable sntp

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable SNTP:

```
DES-3810-28:admin#disable sntp
Command: disable sntp

Success.

DES-3810-28:admin#
```

90-5 config time

Description

This command is used to change the time settings.

Format

config time <date ddmthyyyy> <time hh:mm:ss>

Parameters

<date ddmthyyyy> - Specifies the system clock date.
<time hh:mm:ss> - Specifies the system clock time.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure time:

```
DES-3810-28:admin# config time 30jun2003 16:30:30
Command: config time 30jun2003 16:30:30

Success.

DES-3810-28:admin#
```

90-6 config time_zone

Description

This command is used to change time zone settings.

Format

config time_zone {operator [+ | -] | hour <gmt_hour 0-13> | min <minute 0-59>} (3)

Parameters

operator - Specifies the operator of the time zone. **+** - Positive. **-** - Negative.
hour - Specifies the hour of the time zone. **<gmt_hour 0-13>** - Specifies the hour of the time zone between 0 and 13.
min - Specifies the minute of the time zone. **<minute 0-59>** - Specifies the minute of the time zone between 0 and 59.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the time zone:

```
DES-3810-28:admin#config time_zone operator + hour 2 min 30
Command: config time_zone operator + hour 2 min 30

Success.

DES-3810-28:admin#
```

90-7 config dst

Description

This command is used to change Daylight Saving Time settings.

Format

config dst [disable | repeating {s_week <start_week 1-4,last> | s_day <start_day sun-sat> | s_mth <start_mth 1-12> | s_time <start_time hh:mm> | e_week <end_week 1-4,last> | e_day <end_day sun-sat> | e_mth <end_mth 1-12> | e_time <end_time hh:mm> | offset [30 | 60 | 90 | 120]} | annual {s_date <start_date 1-31> | s_mth <start_mth 1-12> | s_time <start_time hh:mm> | e_date <end_date 1-31> | e_mth <end_mth 1-12> | e_time <end_time hh:mm> | offset [30 | 60 | 90 | 120]}]

Parameters

disable - Disable the DST of the switch.
repeating - Set the DST to repeating mode.
s_week - Configure the start week number of DST. **<start_week 1-4,last>** - Configure the start week number of DST. The values are 1 to 4.
s_day - Configure the start day number of DST. **<start_day sun-sat>** - Configure the start day number of DST. The values are sun, mon, tue, wed, thu, fri and sat.
s_mth - Configure the start month number of DST. **<start_mth 1-12>** - Configure the start month number of DST. The values are 1 to 12.
s_time - Configure the start time of DST. **<start_time hh:mm>** - Configure the start time in hh:mm of DST.
e_week - Configure the end week number of DST. **<end_week 1-4,last>** - Configure the end week number of DST. The values are 1 to 4.
e_day - Configure the end day number of DST. **<end_day sun-sat>** - Configure the end day number of DST. The values are sun, mon, tue, wed, thu, fri and sat.
e_mth - (Optional) Configure the end month number of DST. **<end_mth 1-12>** - Configure the end month number of DST. The values are 1 to 12.
e_time - Configure the end time of DST. **<end_time hh:mm>** - Configure the end time in hh:mm of DST.
offset - Specifies the number of minutes to add or to subtract during summertime. The range of offsets are 30, 60, 90, and 120. The default value is 60. **30** - Specifies 30 minutes to add or to subtract during summertime. **60** - Specifies 60 minutes to add or to subtract during summertime. **90** - Specifies 90 minutes to add or to subtract during summertime. **120** - Specifies 120 minutes to add or to subtract during summertime.
annual - Set the DST to annual mode.
s_date - Configure the start date number of DST. **<start_date 1-31>** - Configure the start date number of DST. The values are 1 to 31.
s_mth - Configure the start month number of DST. **<start_mth 1-12>** - Configure the start month number of DST. The values are 1 to 12.
s_time - Configure the start time of DST.

<start_time hh:mm> - Configure the start time in hh:mm of DST.
e_date - Configure the end date number of DST. **<end_date 1-31>** - Configure the end date number of DST. The values are 1 to 31.
e_mth - Configure the end month number of DST. **<end_mth 1-12>** - Configure the end month number of DST. The values are 1 to 12.
e_time - Configure the end time of DST. **<end_time hh:mm>** - Configure the end time in hh:mm of DST.
offset - Specifies the number of minutes to add or to subtract during summertime. The range of offsets are 30, 60, 90, and 120. The default value is 60. **30** - Specifies 30 minutes to add or to subtract during summertime. **60** - Specifies 60 minutes to add or to subtract during summertime. **90** - Specifies 90 minutes to add or to subtract during summertime. **120** - Specifies 120 minutes to add or to subtract during summertime.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure time:

```
DES-3810-28:admin#config dst repeating s_week 2 s_day tue s_mth 4 s_time 15:00
e_week 2 e_day wed e_mth 10 e_time 15:30 offset 30
Command: config dst repeating s_week 2 s_day tue s_mth 4 s_time 15:00 e_week 2
e_day wed e_mth 10 e_time 15:30 offset 30

Success.

DES-3810-28:admin#
```

90-8 show time

Description

This command is used to display current time states.

Format

show time

Parameters

None.

Restrictions

None.

Example

To show time:

```
DES-3810-28:admin#show time
```

```
Command: show time

Current Time Source  : System Clock
Boot Time    : 8 Jan 2000  21:44:33
Current Time : 9 Jan 2000  03:25:17
Time Zone    : GMT +00:00
Daylight Saving Time : Disabled
Offset In Minutes: 60
         Repeating From   : Apr 1st  Sun 00:00
                   To     : Oct last Sun 00:00
         Annual    From   : 29 Apr 00:00
                   To     : 12 Oct 00:00
DES-3810-28:admin#
```

Chapter 91 Traffic Segmentation Commands

config traffic_segmentation [<portlist> | all] forward_list [null | all | <portlist>]
show traffic_segmentation {<portlist>}

91-1 config traffic_segmentation

Description

This command is used to configure traffic segmentation.

Format

config traffic_segmentation [<portlist> | all] forward_list [null | all | <portlist>]

Parameters

<portlist> - Specifies a range of ports to be configured.
all - Specifies all ports.
forward_list - Specifies a range of port forwarding domains. **null** - Specifies the range of the port forwarding domain is null. **all** - Specifies all ports. **<portlist>** - Specifies a range of ports to be configured.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure traffic segmentation:

```
DES-3810-28:admin#config traffic_segmentation 1-6 forward_list 7-8
Command: config traffic_segmentation 1-6 forward_list 7-8

Success.

DES-3810-28:admin#
```

91-2 show traffic_segmentation

Description

This command is used to display the traffic segmentation table.

Format

show traffic_segmentation {<portlist>}

Parameters

<portlist> - (Optional) Specifies a range of ports to be displayed.

Note: If no parameter is specified, the system will display all current traffic segmentation tables.

Restrictions

None.

Example

To display the traffic segmentation table for ports 1 to 3:

```
DES-3810-28:admin#show traffic_segmentation 1-3
Command: show traffic_segmentation 1-3

Traffic Segmentation Table

Port    Forward Portlist
------  ------------------------------------------------
1       1-28
2       1-28
3       1-28

DES-3810-28:admin#
```

Chapter 92 Utility Commands

download [[firmware_fromTFTP | cfg_fromTFTP] [<ipaddr> | <ipv6addr>] src_file <path_filename 64> {dest_file <path_filename 64>} | firmware_fromFTP [<ipaddr> {tcp_port <tcp_port_number 1-65535>} src_file <path_filename 64> | ftp:<string user:pasword@ipaddr:tcpport/path_filename>] {dest_file <path_filename 64> {boot_up}} | cfg_fromFTP [<ipaddr> {tcp_port <tcp_port_number 1-65535>} src_file <path_filename 64> | ftp: <string user:pasword@ipaddr:tcpport/path_filename>] {dest_file <path_filename 64>}]
download cfg_fromRCP [{username <username 15>} {<ipaddr>} src_file <path_filename 64> | rcp: <string {user@}ipaddr/path_filename>] {dest_file <pathname 64>}
download firmware_fromRCP [{username <username 15>} {<ipaddr>} src_file <path_filename 64> | rcp: <string {user@}ipaddr/path_filename>] {dest_file <pathname 64>}
upload [cfg_toTFTP [<ipaddr> | <ipv6addr>] dest_file <path_filename 64> {src_file <path_filename 64>} {[include | exclude | begin] <filter_string 80> {<filter_string 80> {<filter_string 80>}} {[include | exclude | begin] <filter_string 80> {<filter_string 80> {<filter_string 80>}} {[include | exclude | begin] <filter_string 80> {<filter_string 80> {<filter_string 80>}}}}} | log_toTFTP [<ipaddr> | <ipv6addr>] <path_filename 64> | attack_log_toTFTP [<ipaddr> | <ipv6addr>] <path_filename 64> | firmware_toTFTP [<ipaddr> | <ipv6addr>] dest_file <path_filename 64> {src_file <path_filename 64>} | cfg_toFTP [<ipaddr> {tcp_port <tcp_port_number 1-65535>} dest_file <path_filename 64> | ftp: <string user:pasword@ipaddr:tcpport/path_filename>] {src_file <path_filename 64>} {[include | exclude | begin] <filter_string 80> {<filter_string 80> {<filter_string 80>}} {[include | exclude | begin] <filter_string 80> {<filter_string 80> {<filter_string 80>}} {[include | exclude | begin] <filter_string 80> {<filter_string 80> {<filter_string 80>}}}}} | log_toFTP [<ipaddr> {tcp_port <tcp_port_number 1-65535>} dest_file <path_filename 64> | ftp: <string user:pasword@ipaddr:tcpport/path_filename>] | attack_log_toFTP [<ipaddr> {tcp_port <tcp_port_number 1-65535>} dest_file <path_filename 64> | ftp: <string user:pasword@ipaddr:tcpport/path_filename>] | firmware_toFTP [<ipaddr> {tcp_port <tcp_port_number 1-65535>} dest_file <path_filename 64> | ftp: <string user:pasword@ipaddr:tcpport/path_filename>] {src_file <pathname 64>}]
upload attack_log_toRCP [{username <username 15>} {<ipaddr>} dest_file <path_filename 64> | rcp: <string {user@}ipaddr/path_filename>]
upload cfg_toRCP [{username <username 15>} {<ipaddr>} dest_file <path_filename 64> | rcp: <string {user@} ipaddr/path_filename>] {src_file <pathname 64>}
upload firmware_toRCP [{username <username 15>} {<ipaddr>} dest_file <path_filename 64> | rcp: <string {user@}ipaddr/path_filename>] {src_file <pathname 64>}
upload log_toRCP [{username <username 15>} {<ipaddr>} dest_file <path_filename 64> | rcp: <string {user@}ipaddr/path_filename>]
config firmware image <path_filename 64> boot_up
config configuration <pathname 64> [boot_up | active]
show config [current_config | file <pathname 64>] {[include | exclude | begin] <filter_string 80> {<filter_string 80> {<filter_string 80>}} {[include | exclude | begin] <filter_string 80> {<filter_string 80> {<filter_string 80>}} {[include | exclude | begin] <filter_string 80> {<filter_string 80> {<filter_string 80>}}}}
show boot_file
config rcp server {ipaddress <ipaddr> | username <username 15>}(1)
config rcp server clear [ipaddr | username | both]
show rcp server
ping <ipaddr> {times <value 1-255>} {timeout <sec 1-99>}
ping6 <ipv6addr> {times <value 1-255> | size <value 1-6000> | timeout <value 1-10>}
traceroute <ipaddr> {ttl <value 1-60>} {port <value 30000-64900>} {timeout <sec 1-65535>} {probe <value 1-9>}
traceroute6 <ipv6addr> {ttl <value 1-60> | port <value 30000-64900> | timeout <sec 1-65535> | probe <value 1-9>}
telnet <ipaddr> {tcp_port <value 0-65535>}

92-1 download

Description

This command is used to download a new firmware or a switch configuration file.

Format

download [[firmware_fromTFTP | cfg_fromTFTP] [<ipaddr> | <ipv6addr>] src_file <path_filename 64> {dest_file <path_filename 64>} | firmware_fromFTP [<ipaddr> {tcp_port <tcp_port_number 1-65535>} src_file <path_filename 64> | ftp:<string user:pasword@ipaddr:tcpport/path_filename>] {dest_file <path_filename 64> {boot_up}} | cfg_fromFTP [<ipaddr> {tcp_port <tcp_port_number 1-65535>} src_file <path_filename 64> | ftp: <string user:pasword@ipaddr:tcpport/path_filename>] {dest_file <path_filename 64>}]

Parameters

firmware_fromTFTP - Download and install new firmware on the switch from a TFTP server.
cfg_fromTFTP - Download and install new configuration file on the switch from a TFTP server.
<ipaddr> - Specifies the IP address of the TFTP server.
<ipv6addr> - Specifies the IPv6 address of the TFTP server.
src_file - Specifies the path name and file name of the TFTP server. It can be a relative path name or an absolute path name. If path name is not specified, it refers to the TFTP server path. The maximum length is 64 characters. **<path_filename 64> -** Specifies the path name and file name of the TFTP server. It can be a relative path name or an absolute path name. If path name is not specified, it refers to the TFTP server path. The maximum length is 64 characters.
dest_file - (Optional) Specifies an absolute path name on the device file system. If path name is not specified, it overwrites the bootup image on the Switch. The maximum length is 64 characters. **<path_filename 64>** - Specifies an absolute path name on the device file system. The maximum length is 64 characters.
firmware_fromFTP - Download and install new firmware on the switch from a FTP server. **<ipaddr>** - Specifies the IP address of the FTP server.
tcp_port - (Optional) Specifies the port number using to establish command connection. **<tcp_port_number 1-65535>** - Specifies the port number using to establish command connection.
src_file - Specifies the path name and file name of the TFTP server. It can be a relative path name or an absolute path name. If path name is not specified, it refers to the TFTP server path. The maximum length is 64 characters. **<path_filename 64>** - Specifies the path name and file name of the TFTP server. It can be a relative path name or an absolute path name. If path name is not specified, it refers to the TFTP server path. The maximum length is 64 characters.
ftp: - This is a standard command, containing user name, password, server IP, TCP port, the directory of file, and file name. Example: Tiberius:123456@172.18.211.41:21/image/des-3810.had. **<string user:password@ipaddr:tcpport/path_filename>** - This is a standard command, containing user name, password, server IP, TCP port, the directory of file, and file name. Example: Tiberius:123456@172.18.211.41:21/image/des-3810.had.
dest_file - (Optional) Specifies the path name specifies an absolute path name on the device. If path name is not specified, it refers to the boot up the image file. **<path_filename 64>** - Specifies the path name specifies an absolute path name on the device.
boot_up - (Optional) Specifies as boot up file.
cfg_fromFTP - Download and install new configuration file on the switch from a FTP server. **<ipaddr>** - Specifies the IP address of the FTP server.

tcp_port - (Optional) Specifies the port number using to establish command connection. **<tcp_port_number 1-65535>** - Specifies the port number using to establish command connection.
src_file - Specifies the path name and file name of the FTP server. It can be a relative path name or an absolute path name. If path name is not specified, it refers to the TFTP server path. The maximum length is 64 characters. **<path_filename 64>** - Specifies the path name and file name of the FTP server. It can be a relative path name or an absolute path name. If path name is not specified, it refers to the TFTP server path. The maximum length is 64 characters.
ftp: - This is a standard command, containing user name, password, server IP, TCP port, the directory of file, and file name. Example: Tiberius:123456@172.18.211.41:21/image/des-3810.had. **<string user:password@ipaddr:tcpport/path_filename>** - This is a standard command, containing user name, password, server IP, TCP port, the directory of file, and file name. Example: Tiberius:123456@172.18.211.41:21/image/des-3810.had.
dest_file - (Optional) Specifies an absolute path name on the device. If path name is not specified, it refers to the boot up configuration file. **<path_filename 64>** - Specifies an absolute path name on the device.

Restrictions

Only Administrators can issue this command.

Example

To download runtime configuration firmware from a TFTP server:

```
DES-3810-28:admin#download cfg_fromTFTP 10.90.90.90 src_file des3810.cfg
Command: download cfg_fromTFTP 10.90.90.90 src_file des3810.cfg

Connecting to server.................. Done.
Download configuration................. Done.

DES-3810-28:admin#
```

92-2 download cfg_fromRCP

Description

This command is used to download a configuration file from a Remote Copy Protocol (RCP) server.

Format

download cfg_fromRCP [{username <username 15>} {<ipaddr>} src_file <path_filename 64> | rcp: <string {user@}ipaddr/path_filename>] {dest_file <pathname 64>}

Parameters

username - (Optional) Specifies the remote user name on the RCP server. **<username 15>** - Specifies the remote user name on the RCP server.
<ipaddr> - (Optional) Specifies the IP address of the RCP server.
src_file - Specifies the path and file name of the switch configuration file on the RCP server. The maximum length is 64. **<path_filename 64> -** Specifies the path and file name of the switch configuration file on the RCP server. The maximum length is 64.

rcp: - Syntax: rcp: username@ipaddr/directory/filename. Example for full path: user_name@10.1.1.1/home/user_name/desxxxx.had; Example for relative path: user_name@10.1.1.1./desxxxx.had. Note: No spaces in the whole <string>. **<string {user@}ipaddr/path_filename>** - Syntax: rcp: username@ipaddr/directory/filename. Example for full path: user_name@10.1.1.1/home/user_name/desxxxx.had; Example for relative path: user_name@10.1.1.1./desxxxx.had. Example for omitted user name in RCP string: 10.1.1.1./desxxxx.had. Note: No spaces in the whole <string>.
dest_file - (Optional) Specifies the path and file name of the destination file on the device. **<path_filename 64>** - Specifies the path and file name of the destination file.

Restrictions

Only Administrators can issue this command.

Example

To download a configuration file from an RCP server:

```
DES-3810-28:admin#download cfg_fromRCP username rcp_user 172.18.212.106
src_file /home/DES-3810.cfg
Command: download cfg_fromRCP username rcp_user 172.18.212.106 src_file
/home/DES-3810.cfg

Connecting to server.................. Done.
Download configuration................. Done.

DES-3810-28:admin#
```

92-3 download firmware_fromRCP

Description

This command is used to download a firmware file from a Remote Copy Protocol (RCP) server..

Format

download firmware_fromRCP [{username <username 15>} {<ipaddr>} src_file <path_filename 64> | rcp: <string {user@}ipaddr/path_filename>] {dest_file <pathname 64>}

Parameters

username - (Optional) Specifies the remote user name on the RCP server. **<username 15>** - Specifies the remote user name on the RCP server.
<ipaddr> - (Optional) Specifies the IP address of the RCP server.
src_file - Specifies the path name on the RCP server or local. Note: If a user specifies the relative file path, the path search strategy depends on the server system. **<path_filename 64>** - Specifies the path name on the RCP server or local. Note: If a user specifies the relative file path, the path search strategy depends on the server system.
rcp: - Syntax: rcp: username@ipaddr/directory/filename. Example for full path: user_name@10.1.1.1/home/user_name/desxxxx.had; Example for relative path: user_name@10.1.1.1./desxxxx.had; Example for omitted user name in RCP string: 10.1.1.1./desxxxx.had. Note: No spaces are allowed in the <string>. **<string {user@}ipaddr/path_filename>** - Syntax: rcp: username@ipaddr/directory/filename. Example for full path: user_name@10.1.1.1/home/user_name/desxxxx.had; Example for relative path: user_name@10.1.1.1./desxxxx.had; Example for omitted user name in RCP

string: 10.1.1.1./desxxxx.had. Note: No spaces are allowed in the <string>.
dest_file - (Optional) Specifies the path and file name of the destination file on the device.
<path_filename 64> - Specifies the path and file name of the destination file.

Restrictions

Only Administrators can issue this command.

Example

To download firmware from an RCP server:

```
DES-3810-28:admin#download firmware_fromRCP username rcp_user 10.90.90.90
src_file /home/DES-3810.had
Command: download firmware_fromRCP username rcp_user 10.90.90.90 src_file
/home/DES-3810.had

Connecting to server.................. Done.
Download firmware..................... Done.   Do not power off !!
Please wait, programming flash......... Done.
Saving current settings to NV-RAM...... Done.

DES-3810-28:admin#
```

92-4 upload

Description

This command is used to download a new firmware or a switch configuration file.

Format

upload [cfg_toTFTP [<ipaddr> | <ipv6addr>] dest_file <path_filename 64> {src_file <path_filename 64>} {[include | exclude | begin] <filter_string 80> {<filter_string 80> {<filter_string 80>}} {[include | exclude | begin] <filter_string 80> {<filter_string 80> {<filter_string 80>}} {[include | exclude | begin] <filter_string 80> {<filter_string 80> {<filter_string 80>}}}}} | log_toTFTP [<ipaddr> | <ipv6addr>] <path_filename 64> | attack_log_toTFTP [<ipaddr> | <ipv6addr>] <path_filename 64> | firmware_toTFTP [<ipaddr> | <ipv6addr>] dest_file <path_filename 64> {src_file <path_filename 64>} | cfg_toFTP [<ipaddr> {tcp_port <tcp_port_number 1-65535>} dest_file <path_filename 64> | ftp: <string user:pasword@ipaddr:tcpport/path_filename>] {src_file <path_filename 64>} {[include | exclude | begin] <filter_string 80> {<filter_string 80> {<filter_string 80>}} {[include | exclude | begin] <filter_string 80> {<filter_string 80> {<filter_string 80>}} {[include | exclude | begin] <filter_string 80> {<filter_string 80> {<filter_string 80>}}}}} | log_toFTP [<ipaddr> {tcp_port <tcp_port_number 1-65535>} dest_file <path_filename 64> | ftp: <string user:pasword@ipaddr:tcpport/path_filename>] | attack_log_toFTP [<ipaddr> {tcp_port <tcp_port_number 1-65535>} dest_file <path_filename 64> | ftp: <string user:pasword@ipaddr:tcpport/path_filename>] | firmware_toFTP [<ipaddr> {tcp_port <tcp_port_number 1-65535>} dest_file <path_filename 64> | ftp: <string user:pasword@ipaddr:tcpport/path_filename>] {src_file <pathname 64>}]

Parameters

cfg_toTFTP - Used to upload a configuration file from a device to a TFTP server. **<ipaddr>** - Specifies the IP address of the TFTP server. **<ipv6addr>** - Specifies the IPv6 address of the TFTP server.
dest_file - Specifies the path name on the TFTP server. It can be a relative path name or an absolute path name **<path_filename 64>** - Specifies the location of the switch configuration file on the TFTP server. This file will be replaced by the uploaded file from the switch. The maximum length is 64 characters.
src_file - (Optional) Specifies an absolute path name on the device file system. If a path name is not specified, it refers to the boot up configuration file. **<path_filename 64>** - Specifies the location of the switch configuration file on device. The maximum length is 64 characters.
include - (Optional) Includes lines that contain the specified filter string. **<filter_string 80>** - Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
exclude - (Optional) Excludes lines that contain the specified filter string. **<filter_string 80>** - Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
begin - (Optional) The first line that contains the specified filter string will be the first line of the output. **<filter_string 80>** - Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
<filter_string 80> - (Optional) Specifies a case-sensitive octet string enclosed by the double quotation marks, “”. The filter string itself cannot contain the quotation marks. **<filter_string 80>** - (Optional) Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
include - (Optional) Includes lines that contain the specified filter string. **<filter_string 80>** - Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
exclude - (Optional) Excludes lines that contain the specified filter string. **<filter_string 80>** - Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
begin - (Optional) The first line that contains the specified filter string will be the first line of the output. **<filter_string 80>** - Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
<filter_string 80> - (Optional) Specifies a case-sensitive octet string enclosed by the double quotation marks, “”. The filter string itself cannot contain the quotation marks. **<filter_string 80>** - (Optional) Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
include - (Optional) Includes lines that contain the specified filter string. **<filter_string 80>** - Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
exclude - (Optional) Excludes lines that contain the specified filter string. **<filter_string 80>** - Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
begin - (Optional) The first line that contains the specified filter string will be the first line of the output.

<filter_string 80> - Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
<filter_string 80> - (Optional) Specifies a case-sensitive octet string enclosed by the double quotation marks, “”. The filter string itself cannot contain the quotation marks. **<filter_string 80>** - (Optional) Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
log_toTFTP - Used to upload a log file from the device to a TFTP server. **<ipaddr>** - Specifies the IP address of the TFTP server. **<ipv6addr>** - Specifies the Ipv6 address of the TFTP server.
<path_filename 64> - Specifies the path name on the TFTP server. It can be a relative path name or an absolute path name.
attack_log_toTFTP - Used to upload the attack log to a TFTP server. **<ipaddr>** - Specifies the IP address of the TFTP server. **<ipv6addr>** - Specifies the Ipv6 address of the TFTP server.
<path_filename 64> - Specifies the path name on the TFTP server. It can be a relative path name or an absolute path name.
firmware_toTFTP - Used to upload firmware from the device to a TFTP server. **<ipaddr>** - Specifies the IP address of the TFTP server. **<ipv6addr>** - Specifies the Ipv6 address of the TFTP server.
dest_file - Specifies the path name if the TFTP server. **<path_filename 64>** - Specifies the path name if the TFTP server.
src_file - (Optional) Specifies an absolute path name on the device file system. If the path name is not specified, it refers to the boot up image. **<path_filename 64>** - Specifies an absolute path name on the device file system. If the path name is not specified, it refers to the boot up image.
cfg_toFTP - **<ipaddr> -** Specifies the IP address of the TFTP server.
tcp_port - (Optional) **<tcp_port_number 1-65535>** -
dest_file – Specifies the path name if the FTP server. **<path_filename 64>** - Specifies the path name if the FTP server.
ftp: - This is a standard command, containing user name, password, server IP, TCP port, the directory of file, and file name. Example: Tiberius:123456@172.18.211.41:21/image/des-3810.had. **<string user:password@ipaddr:tcpport/path_filename>** - This is a standard command, containing user name, password, server IP, TCP port, the directory of file, and file name. Example: Tiberius:123456@172.18.211.41:21/image/des-3810.had.
src_file - (Optional) Specifies an absolute path name on the device file system. If the path name is not specified, it refers to the configuration file. **<path_filename 64>** - Specifies an absolute path name on the device file system. If the path name is not specified, it refers to the the configuration file.
include - (Optional) Includes lines that contain the specified filter string. **<filter_string 80>** - Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
exclude - (Optional) Excludes lines that contain the specified filter string. **<filter_string 80>** - Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
begin - (Optional) The first line that contains the specified filter string will be the first line of the output. **<filter_string 80>** - Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
<filter_string 80> - (Optional) Specifies a case-sensitive octet string enclosed by the double quotation marks, “”. The filter string itself cannot contain the quotation marks. **<filter_string 80>** - (Optional) Specifies a filter string enclosed by the quotation mark symbol.

Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
include - (Optional) Includes lines that contain the specified filter string. **<filter_string 80>** - Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
exclude - (Optional) Excludes lines that contain the specified filter string. **<filter_string 80>** - Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
begin - (Optional) The first line that contains the specified filter string will be the first line of the output. **<filter_string 80>** - Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
<filter_string 80> - (Optional) Specifies a case-sensitive octet string enclosed by the double quotation marks, “”. The filter string itself cannot contain the quotation marks. **<filter_string 80>** - (Optional) Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
include - (Optional) Includes lines that contain the specified filter string. **<filter_string 80>** - Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
exclude - (Optional) Excludes lines that contain the specified filter string. **<filter_string 80>** - Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
begin - (Optional) The first line that contains the specified filter string will be the first line of the output. **<filter_string 80>** - Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
<filter_string 80> - (Optional) Specifies a case-sensitive octet string enclosed by the double quotation marks, “”. The filter string itself cannot contain the quotation marks. **<filter_string 80>** - (Optional) Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
log_toFTP - Used to upload a log file from the device to an FTP server. **<ipaddr>** - Specifies the IP address of the TFTP server.
tcp_port - (Optional) Specifies the port number used to establish a command connection. **<tcp_port_number 1-65535>** - Specifies the port number used to establish a command connection.
dest_file - Specifies the path name of the FTP server. **<path_filename 64>** - Specifies the path name of the FTP server.
ftp: - This is standard command, containing user name, password, server IP, TCP port, the directory of file, and file name. Example: Zira:123456@172.18.211.41:21/image/log.txt. **<string user:password@ipaddr:tcpport/path_filename>** - This is standard command, containing user name, password, server IP, TCP port, the directory of file, and file name. Example: Zira:123456@172.18.211.41:21/image/log.txt.
attack_log_toFTP - Used to upload an attack log from the device to an FTP server. **<ipaddr>** - Specifies the IP address of the TFTP server.
tcp_port - (Optional) Specifies the port number used to establish a command connection. **<tcp_port_number 1-65535>** - Specifies the port number used to establish a command connection.
dest_file - Specifies the path name of the FTP server. **<path_filename 64>** - Specifies the path name of the FTP server.
ftp: - This is a standard command, containing user name, password, server IP, TCP port, the directory of file, and file name. Example: Tiberius:123456@172.18.211.41:21/image/des-

3810.had. **<string user:password@ipaddr:tcpport/path_filename>** - This is a standard command, containing user name, password, server IP, TCP port, the directory of file, and file name. Example: Tiberius:123456@172.18.211.41:21/image/des-3810.had.
firmware_toFTP - Used to upload firmware from the device to an FTP server. **<ipaddr>** - Specifies the IP address of the FTP server.
tcp_port - (Optional) Specifies the port number used to establish a command connection. **<tcp_port_number 1-65535>** - Specifies the port number used to establish a command connection.
dest_file - Specifies the path name of the FTP server. **<path_filename 64>** - Specifies the path name of the FTP server.
ftp: - This is a standard command, containing user name, password, server IP, TCP port, the directory of file, and file name. Example: Tiberius:123456@172.18.211.41:21/image/des-3810.had. **<string user:password@ipaddr:tcpport/path_filename>** - This is a standard command, containing user name, password, server IP, TCP port, the directory of file, and file name. Example: Tiberius:123456@172.18.211.41:21/image/des-3810.had.
src_file - (Optional) Specifies an absolute path name on the device file system. If the path name is not specified, it refers to the boot up image. **<path_filename 64>** - Specifies an absolute path name on the device file system. If the path name is not specified, it refers to the boot up image.

Restrictions

Only Administrators and Operators can issue this command.

Example

To upload a configuration file to an FTP server using the in interactive mode:

```
DES-3810-28:admin#upload cfg_toFTP 10.48.74.121 dest_file 3810.cfg
Command: upload cfg_toFTP 10.48.74.121 dest_file 3810.cfg

Connecting to server.................. Done.
User(Anonymous):Danilo
Pass:***
Upload configuration.................. Done.

DES-3810-28:admin#
```

To upload a configuration file to an FTP server using a string:

```
DES-3810-28:admin#upload cfg_toFTP ftp: Danilo:123456@10.90.90.15:21/cfg/DES-
3810/cfg.txt src_file config.cfg
Command: upload cfg_toFTP ftp: Danilo:123456@10.90.90.15:21/cfg/DES-
3810/cfg.txt src_file config.cfg

Connecting to server.................. Done.
Upload configuration  ................ Done.

DES-3810-28:admin#
```

To upload a configuration file to an FTP server using a string and filter expression:

```
DES-3810-28:admin#upload cfg_toFTP ftp: Danilo:123456@10.90.90.15:21/cfg/DES-
3810/cfg.txt src_file config.cfg include “VLAN” “ipif” exclude “fdb”
Command: upload cfg_toFTP ftp: Danilo:123456@10.90.90.15:21/cfg/DES-
3810/cfg.txt src_file config.cfg include “VLAN” “ipif” exclude “fdb”

Connecting to server.................. Done.
Upload configuration.................. Done.

DES-3810-28:admin#
```

To upload a log to an FTP server:

```
DES-3810-28:admin#upload log_toFTP 10.48.74.121 d:/log.txt
Command: upload log_toFTP 10.48.74.121 d:/log.txt

Connecting to server.................. Done.
User(Anonymous):Danilo
Password:******
Upload log............................ Done.

DES-3810-28:admin#
```

To upload a log to an FTP server using a string:

```
DES-3810-28:admin#upload log_toFTP ftp: Danilo:123456@10.90.90.15:21/log/DES-
3810/log.txt
Command: upload log_toFTP ftp: Danilo:123456@10.90.90.15:21/log/DES-
3810/log.txt

Connecting to server.................. Done.
Upload log............................ Done.

DES-3810-28:admin#
```

To upload a firmware to an FTP server using a string:

```
DES-3810-28:admin#upload firmware_toFTP ftp:
Danilo:123456@10.90.90.15:21/image/image.had src_file 2.10.024.had
Command: upload firmware_toFTP ftp:
Danilo:123456@10.90.90.15:21/image/image.had src_file 2.10.024.had

Connecting to server.................. Done.
Upload firmware....................... Done.

DES-3810-28:admin#
```

To upload all attack logs to an FTP server:

```
DES-3810-28:admin#upload attack_log_toFTP 10.48.74.121 dst_file log.txt
Command: admin#upload attack_log_toFTP 10.48.74.121 dst_file log.txt

Connecting to server.................. Done.
User(Anonymous):Danilo
Password:******
Upload attack log..................... Done.

DES-3810-28:admin#
```

To upload all attack logs to an FTP server using a string:

```
DES-3810-28:admin#upload attack_log_toFTP ftp:
Danilo:123456@10.90.90.15:21/log.txt
Command: upload attack_log_toFTP ftp: Danilo:123456@10.90.90.15:21/log.txt

Connecting to server.................. Done.
Upload attack log..................... Done.

DES-3810-28:admin#
```

To upload firmware from a file system device to a TFTP server:

```
DES-3810-28:admin#upload firmware_toTFTP 10.1.1.1 dest_file D:\firmware.had
src_file 2.10.024.had
Command: upload firmware_toTFTP 10.1.1.1 dest_file D:\firmware.had src_file
2.10.024.had

Connecting to server.................. Done.
Upload firmware....................... Done.

DES-3810-28:admin#
```

To upload the current configuration file to a TFTP server:

```
DES-3810-28:admin#upload cfg_toTFTP 10.48.74.121 dest_file c:\cfg\DES-3810\cfg
Command: upload cfg_toTFTP 10.48.74.121 dest_file c:\cfg\DES-3810\cfg

Connecting to server.................. Done.
Upload configuration.................. Done.

DES-3810-28:admin#
```

To upload all logs to a TFTP server:

```
DES-3810-28:admin#upload log_toTFTP 10.48.74.121 dest_file c:\log\DES-3810\log
Command: upload log_toTFTP 10.48.74.121 dest_file c:\log\DES-3810\log

Connecting to server.................. Done.
Upload log............................ Done.

DES-3810-28:admin#
```

To upload a dangerous log:

```
DES-3810-28:admin# upload attack_log_toTFTP 10.48.74.121 dest_file c:\alert.txt
Command: upload attack_log_toTFTP 10.48.74.121 dest_file c:\alert.txt

Success.

DES-3810-28:admin#
```

92-5 upload attack_log_toRCP

Description

This command is used to upload the attack log file from the device to an RCP server.

Note: If a user specifies the relative file path, the path search strategy will depend on the server system. For some systems, it will search the current user working directory first, and then search the environment paths.

Format

upload attack_log_toRCP [{username <username 15>} {<ipaddr>} dest_file <path_filename 64> | rcp: <string {user@}ipaddr/path_filename>]

Parameters

username - (Optional) The remote user name on the RCP Server. **<username 15>** - Enter the remote username used here. This name can be up to 15 characters long.
<ipaddr> - (Optional) Enter the IP address used for the configuration here.
dest_file – Specifies the destination file used. **<path_filename 64>** - The pathname specifies the pathname on the RCP server or local device.
rcp: - Syntax: rcp: username@ipaddr/directory/filename. Example for FULL path: user_name@10.1.1.1/home/user_name/desxxxx.had. Example for relative path: user_name@10.1.1.1./desxxxx.had. Note: Do not use any blank spaces in the <string>. **<string {user@}ipaddr/path_filename>** - Enter the RCP string here.

Restrictions

Only Administrators can issue this command.

Example

To upload the attack log from the device to an RCP server:

```
DES-3810-28:admin#  upload attack_log_toRCP username rcp_user 172.18.212.104
/home/DES-XXXX.log unit 2
Command: upload attack_log_toRCP username rcp_user 172.18.212.104 /home/DES-
XXXX.log unit 2


Connecting to server.......... Done.
Upload attack log............. Done.

DES-3810-28:admin#
```

92-6 upload cfg_toRCP

Description

This command is used to upload a configuration file from the device to a Remote Copy Protocol (RCP) server.

Format

upload cfg_toRCP [{username <username 15>} {<ipaddr>} dest_file <path_filename 64> | rcp: <string {user@} ipaddr/path_filename>] {src_file <pathname 64>}

Parameters

username - (Optional) Specifies the remote user name on the RCP server. **<username 15>** - Specifies the remote user name on the RCP server.
<ipaddr> - (Optional) Specifies the IP address of the RCP server.
dest_file - Specifies the path name on the RCP server. Note: If a user specifies the relative file path, the path search strategy will depend on the server system. For some systems, the current user working directory will be searched first, followed by the environment paths. **<path_filename 64>** - Specifies the path name on the RCP server or local RCP client.
rcp: - Specifies the path on the RCP server or local RCP client. Note: If a user specifies the relative file path, the path search strategy will depend on the server system. For some systems, the current user working directory will be searched first, followed by the environment paths. **<string {user@}ipaddr/path_filename>** - Specifies the path on the RCP server or local RCP client.
src_file - (Optional) Specifies the path name of the source file. **<path_filename 64>** - Specifies the path name of the source file. Note that if no path name is specifies, only the current device configuration will be uploaded.

Restrictions

Only Administrators can issue this command.

Example

To upload the current configuration from the device to an RCP server:

```
DES-3810-28:admin#upload cfg_toRCP username rcp_user 10.48.74.121 dest_file
/home/DES-3810.cfg
Command: upload cfg_toRCP username rcp_user 10.48.74.121 dest_file /home/DES-
3810.cfg


Connecting to server... Done.
Upload configuration... Done.


DES-3810-28:admin#
```

92-7 upload firmware_toRCP

Description

This command is used to upload firmware from a device to a Remote Copy Protocol (RCP) server.

Format

upload firmware_toRCP [{username <username 15>} {<ipaddr>} dest_file <path_filename 64> | rcp: <string {user@}ipaddr/path_filename>] {src_file <pathname 64>}]

Parameters

username - (Optional) Specifies the remote user name on the RCP server. **<username 15>** - Specifies the remote user name on the RCP server.
<ipaddr> - (Optional) Specifies the IP address of the RCP server.
dest_file - Specifies the path name on the RCP server. Note: If a user specifies the relative file path, the path search strategy will depend on the server system. For some systems, the current user working directory will be searched first, followed by the environment paths. **<path_filename 64>** - Specifies the path name on the RCP server.
rcp: - Specifies the path name on the RCP server or local RCP client. Syntax: rcp: username@ipaddr/directory/filename. Example for full path: user_name@10.1.1.1/home/user_name/desxxxx.had. Example for relative path: user_name@10.1.1.1./desxxxx.had. Note: No spaces allowed in the <string>. **<string {user@}ipaddr/path_filename>** - Specifies the path name on the RCP server or local RCP client. Syntax: rcp: username@ipaddr/directory/filename. Example for full path: user_name@10.1.1.1/home/user_name/desxxxx.had. Example for relative path: user_name@10.1.1.1./desxxxx.had. Note: No spaces allowed in the <string>.
src_file - (Optional) Specifies the path name of the source file. If not specified, the bootup image on the device will be uploaded. **<path_filename 64>** - Specifies the path name of the source file.

Restrictions

Only Administrators can issue this command.

Example

To upload firmware image to an RCP server:

```
DES-3810-28:admin#upload firmware_toRCP rcp: rcp_user@172.18.212.106/DES-3810-
2.10.024.had src_file 2.10.024.had
Command: upload firmware_toRCP rcp: rcp_user@172.18.212.106/DES-3810-
2.10.024.had src_file 2.10.024.had


Connecting to server.............. Done.
Upload firmware.................. Done.


DES-3810-28:admin#
```

92-8 upload log_toRCP

Description

This command is used to upload a log file from the device to a Remote Copy Protocol (RCP) server.

Format

upload log_toRCP [{username <username 15>}{<ipaddr>} dest_file <path_filename 64> | rcp:

<string {user@}ipaddr/path_filename>]

Parameters

username - (Optional) Specifies the remote user name on the RCP server. **<username 15>** - Specifies the remote user name on the RCP server.
<ipaddr> - (Optional) Specifies the IP address of the RCP server.
dest_file - Specifies the path name of the RCP server. Note: If a user specifies the relative file path, the path search strategy will depend on the server system. For some systems, the current user working directory will be searched first, followed by the environment paths. **<path_filename 64>** - Specifies the path name of the RCP server.
rcp: - Specifies the path name on the RCP server. **<string {user@}ipaddr/path_filename>** - Specifies the path name on the RCP server. Syntax: rcp: username@ipaddr/directory/filename. Example for full path: user_name@10.1.1.1/home/user_name/desxxxx.had. Example for relative path: user_name@10.1.1.1./desxxxx.had. Note: No spaces are allowed in the whole <string>.

Restrictions

Only Administrators can issue this command.

Example

To upload the log from the device to an RCP server:

```
DES-3810-28:admin#upload log_toRCP rcp_user 172.18.212.104 dest_file /home/DES-
3810.log
Command: upload log_toRCP rcp_user 172.18.212.104 dest_file /home/DES-3810.log

Connecting to server... Done.
Upload log.............. Done.

DES-3810-28:admin#
```

To upload log from the device to an RCP server using an RCP string:

```
DES-3810-28:admin#upload log_toRCP rcp: rcp_user 172.18.212.104/home/DES-
3810.log
Command: upload log_toRCP rcp: rcp_user 172.18.212.104/home/DES-3810.log

Connecting to server... Done.
Upload log.............. Done.

DES-3810-28:admin#
```

92-9 config firmware image

Description

This command is used to configure firmware as a boot-up image.

Format

config firmware image <path_filename 64> boot_up

Parameters

<path_filename 64> - Specifies a firmware on the device file system.
boot_up - Specifies as a boot-up file.

Restrictions

Only Administrators can issue this command.

Example

To configure a firmware file to bootup:

```
DES-3810-28:admin#config firmware image 2.10.024.had boot_up
Command: config firmware image 2.10.024.had boot_up

Success.

DES-3810-28:admin#
```

92-10 config configuration

Description

This command is used to select a configuration file as the next boot up configuration or to apply a specific configuration to the system.

Format

config configuration <pathname 64> [boot_up | active]

Parameters

<path_filename 64> - Specifies a configuration file on the device file system.
boot_up - Specifies as a boot up file.
active - Specifies to apply the configuration.

Restrictions

Only Administrators can issue this command.

Example

To configure the specific configuration file as boot up:

```
DES-3810-28:admin#config configuration 1 boot_up
Command: config configuration 1 boot_up

Success

DES-3810-28:admin#
```

92-11 show config

Description

This command is used to display configuration information. The output stream of the configuration data can be filtered by the expression specified at the end of the command. The expression can contain up to three multiple filter evaluations. A filter evaluation begins with a filter type (include, exclude, and begin), followed by up to three filter strings (ex: “stp”). A filter string is enclosed by symbol ". The following describes the meaning of the each filter type: include: Includes lines that contain the specified filter string; exclude: Excludes lines that contain the specified filter string; and begin: The first line that contains the specified filter string will be the first line of the output.

The relationship of multiple filter strings following the same filter type is OR. That is, one line is qualified if one of specified filter strings is matched. If more than one filter evaluation is specified, the output of filtered by the former evaluation will be used as the input of the latter evaluation.

Format

show config [current_config | file <pathname 64>] {[include | exclude| begin] <filter_string 80> {<filter_string 80> {<filter_string 80>}} {[include | exclude | begin] <filter_string 80> {<filter_string 80> {<filter_string 80>}} {[include | exclude | begin] <filter_string 80> {<filter_string 80> {<filter_string 80>}}}}}

Parameters

current_config - Specifies the current configuration.
file - Specifies an absolute path name on the device file system. **<pathname 64>** - Specifies an absolute path name on the device file system.
include – (Optional) Includes lines that contain the specified filter string. **<filter_string 80>** - Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
exclude - (Optional) Excludes lines that contain the specified filter string. **<filter_string 80>** - Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
begin - (Optional) The first line that contains the specified filter string will be the first line of the output. **<filter_string 80>** - Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
<filter_string 80> - (Optional) Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive. **<filter_string 80>** - (Optional) Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
include – (Optional) Includes lines that contain the specified filter string. **<filter_string 80>** - Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
exclude - (Optional) Excludes lines that contain the specified filter string. **<filter_string 80>** - Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
begin - (Optional) The first line that contains the specified filter string will be the first line of the output.

<filter_string 80> - Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
<filter_string 80> - (Optional) Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive. **<filter_string 80>** - (Optional) Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
include – (Optional) Includes lines that contain the specified filter string. **<filter_string 80>** - Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
exclude - (Optional) Excludes lines that contain the specified filter string. **<filter_string 80>** - Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
begin - (Optional) The first line that contains the specified filter string will be the first line of the output. **<filter_string 80>** - Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.
<filter_string 80> - (Optional) Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive. **<filter_string 80>** - (Optional) Specifies a filter string enclosed by the quotation mark symbol. Thus, the filter string itself cannot contain the quotation mark character. The filter string is case sensitive.

Restrictions

Only Administrators can issue this command.

Example

To display configuration information:

```
DES-3810-28:admin#show config current_config
Command: show config current_config

#------------------------------------------------------------------------
#                              DES-3810-28 Fast Ethernet Switch
#                                       Configuration
#
#                                  Firmware: Build 2.10.024
#                 Copyright(C) 2011 D-Link Corporation. All rights reserved.
#------------------------------------------------------------------------

# ENVIRONMENT

config temperature threshold high 79
config temperature threshold low 11
config temperature trap state disable
config temperature log state enable

# BASIC
```

```
# ACCOUNT LIST
# ACCOUNT END
# PASSWORD ENCRYPTION
disable password_encryption
CTRL+C ESC q Quit SPACE n Next Page ENTER Next Entry a All
```

92-12 show boot_file

Description

This command is used to display the configuration file and firmware image assigned as boot up files.

Format

show boot_file

Parameters

None.

Restrictions

None.

Example

To display the configuration file and firmware image assigned as a boot up file:

```
DES-3810-28:admin#show boot_file
Command: show boot_file

 Bootup Firmware        : c:/runtime.had
 Bootup Configuration   : c:/config.cfg

DES-3810-28:admin#
```

92-13 config rcp server

Description

This command is used to configure Remote Copy Protocol (RCP) global server information. This global RCP server setting can be used when the server or remote user name is not specified. Only one RCP server can be configured for each system. If a user does not specify the RCP server in the CLI command, and the global RCP server was not configured, the switch will ask the user to input the server IP address or remote user name while executing the RCP commands.

Format

config rcp server {ipaddress <ipaddr> | username <username 15>}(1)

Parameters

ipaddress - (Optional) Specifies the IP address of the global RCP server. By default, the server is unspecified. **<ipaddr>** - Specifies the IP address of the RCP server.
username - (Optional) Specifies the remote user name on the RCP server. **<username 15>** - Specifies the remote user name on the RCP server.

Restrictions

Only Administrators can issue this command.

Example

To configure RCP global server information for the username “travel”:

```
DES-3810-28:admin#config rcp server username travel
Command: config rcp server username travel

Success.

DES-3810-28:admin#
```

92-14 config rcp server clear

Description

This command is used to clear Remote Copy Protocol (RCP) global server information.

Format

config rcp server clear [ipaddr | username | both]

Parameters

ipaddr - Clear the IP address of the RCP server.
username - Clear the username of the RCP server.
both - Clear both the IP address and the username of the RCP server.

Restrictions

Only Administrators can issue this command.

Example

To clear the current username of the RCP global server:

```
DES-3810-28:admin#config rcp server clear username
Command: config rcp server clear username

Success.

DES-3810-28:admin#
```

92-15 show rcp server

Description

This command is used to display Remote Copy Protocol (RCP) global server information.

Format

show rcp server

Parameters

None.

Restrictions

Only Administrators can issue this command.

Example

To display RCP global server information:

```
DES-3810-28:admin#show rcp server
Command: show rcp server

RCP Server Address        :
RCP Server Username       : travel

DES-3810-28:admin#
```

92-16 ping

Description

This command is used to send Internet Control Message Protocol (ICMP) echo messages to a remote IP address. The remote IP address will then “echo” or return the message. This is used to confirm connectivity between the switch and the remote device.

Format

ping <ipaddr> {times <value 1-255>} {timeout <sec 1-99>}

Parameters

<ipaddr> - Specifies the IP address of the host.
times – (Optional) Specifies the number of individual ICMP echo messages to be sent. **<value 1-255>** - Specifies the number of individual ICMP echo messages to be sent. A value of 0 will send an infinite ICMP echo messages. The maximum value is 255. The default is 0
timeout – (Optional) Specifies the time-out period while waiting for a response from the remote device. A value of 1 to 99 seconds can be specified. The default is 1 second. **<sec 1-99>** - Specifies the time-out period while waiting for a response from the remote device. A value of 1 to 99 seconds can be specified. The default is 1 second.

Restrictions

None.

Example

To send ICMP echo message to “10.51.17.1” for 4 times:

```
DES-3810-28:admin#ping 10.51.17.1 times 4
Command: ping 10.51.17.1 times 4

Reply from 10.51.17.1, time<10ms
Reply from 10.51.17.1, time<10ms
Reply from 10.51.17.1, time<10ms
Reply from 10.51.17.1, time<10ms

Ping Statistics for 10.51.17.1
Packets: Sent =4, Received =4, Lost =0

DES-3810-28:admin#
```

92-17 ping6

Description

This command is used to send Internet Control Message Protocol (ICMP) echo messages to a remote IPv6 address. The remote IPv6 address will then “echo” or return the message. This is used to confirm connectivity between the switch and the remote device.

Format

ping6 <ipv6addr> {times <value 1-255> | size <value 1-6000> | timeout <value 1-10>}

Parameters

<ipv6addr> - Specifies the IPv6 address of the host.
times - (Optional) Specifies the number of individual ICMP echo messages to be sent. **<value 1-255>** - Specifies the number of individual ICMP echo messages to be sent. A value of 0 will send an infinite ICMP echo messages. The maximum value is 255. The default is 0.
size - (Optional) Specifies the size. **<value 1-6000>** - Specifies the size. A value of 1 to 6000 can be specified. The default is 100.
timeout - (Optional) Specifies the time-out period while waiting for a response from the remote

device.
<value 1-10> - Specifies the time-out period while waiting for a response from the remote device. A value of 1 to 10 can be specified. The default is 1 second.

Restrictions

None.

Example

To send ICMP echo message to "3FFE:2::D04D:7878:66D:E5BC" for 10 times:

```
DES-3810-28:admin#ping6 3FFE:2::D04D:7878:66D:E5BC times 10 size 6000 timeout
10
Command: ping6 3FFE:2::D04D:7878:66D:E5BC times 10 size 6000 timeout 10

Reply from 3FFE:2::D04D:7878:66D:E5BC, bytes=6000 time<10 ms
Reply from 3FFE:2::D04D:7878:66D:E5BC, bytes=6000 time<10 ms
Reply from 3FFE:2::D04D:7878:66D:E5BC, bytes=6000 time<10 ms
Reply from 3FFE:2::D04D:7878:66D:E5BC, bytes=6000 time<10 ms
Reply from 3FFE:2::D04D:7878:66D:E5BC, bytes=6000 time<10 ms
Reply from 3FFE:2::D04D:7878:66D:E5BC, bytes=6000 time<10 ms
Reply from 3FFE:2::D04D:7878:66D:E5BC, bytes=6000 time<10 ms
Reply from 3FFE:2::D04D:7878:66D:E5BC, bytes=6000 time<10 ms
Reply from 3FFE:2::D04D:7878:66D:E5BC, bytes=6000 time<10 ms
Reply from 3FFE:2::D04D:7878:66D:E5BC, bytes=6000 time<10 ms
Ping Statistics for 3FFE:2::D04D:7878:66D:E5BC
Packets: Sent =10, Received =10, Lost =0

DES-3810-28:admin#
```

92-18 traceroute

Description

This command is used to trace a route between the switch and a given host on the network.

Format

traceroute <ipaddr> {ttl <value 1-60>} {port <value 30000-64900>} {timeout <sec 1-65535>} {probe <value 1-9>}

Parameters

<ipaddr> - Specifies the IP address of the destination end station.
ttl - (Optional) Specifies the time to live value of the trace route request.
<value 1-60> - Specifies the time to live value of the trace route request. This is the maximum number of routers that a trace route packet can pass while seeking the network path between two devices. The range for the TTL is 1 to 60 hops. The default value is 30.
port - (Optional) Specifies the port number.
<value 30000-649000> - Specifies the port number. The value range is from 30000 to 64900. The default is 33435.
timeout - (Optional) Specifies the timeout period while waiting for a response from the remote device.

<sec 1-65535> - Specifies the timeout period while waiting for a response from the remote device. A value of 1 to 65535 seconds can be specified. The default is 5 seconds.
probe – (Optional) Specifies the number of probes. **<value 1-9>** - Specifies the number of probes. The range is from 1 to 9. If unspecified, the default value is 1.

Restrictions

Only Administrators and Operators can issue this command.

Example

To trace the route path between the switch and 10.48.74.121:

```
DES-3810-28:admin#traceroute 10.48.74.121 probe 3
Command: traceroute 10.48.74.121 probe 3

 <10 ms  10.12.73.254
 <10 ms  10.12.73.254
 <10 ms  10.12.73.254
 <10 ms  10.19.68.1
 <10 ms  10.19.68.1
 <10 ms  10.19.68.1
 <10 ms  10.48.74.121
Trace complete.

DES-3810-28:admin#
```

92-19 traceroute6

Description

This command is used to trace the IPv6 routed path between the Switch and a destination end station.

Format

traceroute6 <ipv6addr> {ttl <value 1-60> | port <value 30000-64900> | timeout <sec 1-65535> | probe <value 1-9>}

Parameters

<ipv6addr> - Specifies the IPv6 address of the destination end station.
ttl - (Optional) Specifies the time to live value of the trace route request. **<value 1-60>** - Specifies the time to live value of the trace route request. This is the maximum number of routers that a trace route packet can pass while seeking the network path between two devices. The range for the TTL is 1 to 60 hops. The default value is 30.
port - (Optional) Specifies the port number. **<value 30000-649000>** - Specifies the port number. The value range is from 30000 to 64900. The default is 33435.
timeout - (Optional) Specifies the timeout period while waiting for a response from the remote device. **<sec 1-65535>** - Specifies the timeout period while waiting for a response from the remote device. A value of 1 to 65535 seconds can be specified. The default is 5 seconds.

probe – (Optional) Specifies the number of probes. **<value 1-9>** - Specifies the number of probes. The range is from 1 to 9. If unspecified, the default value is 1.

Restrictions

Only Administrators and Operators can issue this command.

Example

Trace the IPv6 routed path between the switch and 3000::1:

```
DES-3810-28:admin# traceroute6 3000::1 probe 1
Command: traceroute6 3000::1 probe 1

1   <10 ms.     1345:142::11
2   <10 ms.     2011:14::100
3   <10 ms.     3000::1

Trace complete.
DES-3810-28:admin#
```

Trace the IPv6 routed path between the switch and 1210:100::11 with port 40000:

```
DES-3810-28:admin# traceroute6 1210:100::11 port 40000
Command: traceroute6 1210:100::11 port 40000

1   <10 ms.     3100::25
2   <10 ms.     4130::100
3   <10 ms.     1210:100::11

Trace complete.

DES-3810-28:admin#
```

92-20 telnet

Description

This command is used to login a Telnet server.

Format

telnet <ipaddr> {tcp_port <value 0-65535>}

Parameters

<ipaddr> - Specifies the IP address of the Telnet server.
tcp_port - (Optional) Specifies the Telnet server port number to be connected to. If not specified, the default port is 23. **<value 0-65535>** - Enter a value between 0 and 65535.

Restrictions

Only Administrators and Operators can issue this command.

Example

To Telnet to a switch by specifying the IP address:

```
DES-3810-28:admin#telnet 10.1.1.1
Command: telnet 10.1.1.1

                        DES-3810-28 Fast Ethernet Switch
                             Command Line Interface

                            Firmware: Build 2.10.024
          Copyright(C) 2011 D-Link Corporation. All rights reserved.

UserName:
```

Chapter 93 Virtual Private Wire Service (VPWS) Commands

create vpws vc <vc_id> peer <ipaddr> {port <port> | vlan <vlanid 1-4094>}(1) {inbound <label> outbound <label> | exp <int 0-7> | mtu <int 0-65535>}
config vpws log [enable | disable]
config vpws trap [pw_updown | pw_delete] [enable | disable]
config vpws type [eth_raw | eth_tagged]
show vpws {vc {<vc_id> {detail}}}
delete vpws vc <vc_id>

93-1 create vpws vc

Description

This command is used to create a VPWS

The VC (Virtual Channel) ID is used to identify the particular PW (Pseudo-Wire). The VC ID must be unique at both ends of the PW. There are two VC labels associated with one PW. One is an outbound label used in the outbound direction and the other is an inbound label used in the inbound direction. The VC labels can be dynamically assigned and distributed by the LDP (Label Distribution Protocol) or statically assigned manually. The VC ID is used to bind the two VC labels with the PW.

The peer is used to identify the other end PE's IP address of the PW. The tunnel must be set up between the two end PEs of the PW and the PW will be carried in this tunnel. Because the MPLS LSP (Label Switch Path) has a unidirectional path, bi-directional MPLS tunnel needs a pair of MPLS LSPs (one is an inbound LSP, the other is an outbound LSP for one PE). A PW is bound with an MPLS tunnel according to the peer IP address of the PW.

The local AC (Attachment Circuit) to which this PW is bound, must be specified. The port, or VLAN or pair (port, VLAN) can be used to identify the local AC.

PWs can be configured manually or via LDP. If the PW is configured manually, the inbound and outbound VC label must be specified at the creation time or configured after it is created.

The EXP (Experimental) bit value can be statically assigned manually. It can be assigned at the creation time or configured after it is created. By default, the EXP bit value in an outbound label for the VC and is set according to the incoming packet's QoS.

The MPLS and LDP function must be enabled for VPWS PW to work.

Format

create vpws vc <vc_id> peer <ipaddr> {port <port> | vlan <vlanid 1-4094>}(1) {inbound <label> outbound <label> | exp <int 0-7> | mtu <int 0-65535>}

Parameters

vc - Specifies to uniquely identify the PW. **<vc_id>** - Enter the VC ID used here.

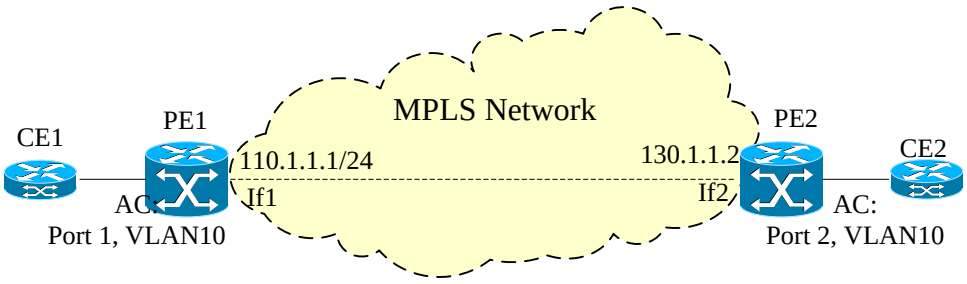
peer - Specifies the peer IP address of the PW. The peer IP address must be its LSR ID. **<ipaddr>** - Enter the peer IP address used here.
port - (Optional) Specifies the AC's ingress port of the PW if the AC is identified by port or by pair (port, vlan). **<port>** - Enter the port value used here.
vlan - (Optional) Specifies the AC's ingress vlan of the PW if the AC is identified by vlan or by pair (port, vlan). **<vlanid 1-4094>** - Enter the VLAN ID used here. This value must be between 1 and 4094.
inbound - (Optional) Specifies the inbound VC label. **<label>** - Enter the inbound VC label used here.
outbound - (Optional) Specifies the outbound VC label. **<label>** - Enter the outbound VC label used here.
exp - (Optional) Specifies the EXP value for the VC. If not specified, the EXP value in the outbound label for the VC is set according to the incoming packet's QoS. **<int 0-7>** - Enter the EXP value manually here. This value must be between 0 and 7.
mtu - (Optional) Specifies the local CE-PE link's MTU that will be advertised to the remote peer. If the MTU is specified as 0, LDP will not advertised to the local MTU. The MTU must be same at both local and remote, otherwise the PW will not succeed. If not specified, the default MTU will be used. The default MTU value is 1500. **<int 0-65535>** - Enter the MTU value used here. This value must be between 0 and 65535.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

Assume the network topology is as follows:



The Attachment Circuit (AC) from the Customer Edge Bridge (CE1) to the Provider Edge Bridge (PE1) is (port1, VLAN 10) and the AC for the CE2 to the PE2 is (port 2, VLAN 10). VLAN 10 packets from the CE one can be transmitted to the other end through the MPLS network. Create the Pseudo-wire (PW) from PE1 to PE2 as follows:

Configuring PE1:

```
DES-3810-28:admin#create loopback ipif lo 110.1.1.1/24
Command: create loopback ipif lo 110.1.1.1/24

Success.

DES-3810-28:admin#config mpls ipif if1 state enable
Command: config mpls ipif if1 state enable

Success.

DES-3810-28:admin#enable mpls
```

```
Command: enable mpls

Success.

DES-3810-28:admin#config ldp lsr_id ipif lo
Command: config ldp lsr_id ipif lo

Success.

DES-3810-28:admin#config ldp ipif if1 state enable
Command: config ldp ipif if1 state enable

Success.

DES-3810-28:admin#enable ldp
Command: enable ldp

Success.

DES-3810-28:admin#create ldp targeted_peer 130.1.1.2
Command: create ldp targeted_peer 130.1.1.2

Success.

DES-3810-28:admin#create vpws vc 2 peer 130.1.1.2 port 1 vlan 10
Command: create vpws vc 2 peer 130.1.1.2 port 1 vlan 10

Success.

DES-3810-28:admin#
```

Configuring PE2:

```
DES-3810-28:admin#create loopback ipif lo 130.1.1.2/24
Command: create loopback ipif lo 130.1.1.2/24

Success.

DES-3810-28:admin#config mpls ipif if2 state enable
Command: config mpls ipif if2 state enable

Success.

DES-3810-28:admin#enable mpls
Command: enable mpls

Success.

DES-3810-28:admin#config ldp lsr_id ipif lo
Command: config ldp lsr_id ipif lo

Success.
```

```
DES-3810-28:admin#config ldp ipif if2 state enable
Command: config ldp ipif if2 state enable

Success.

DES-3810-28:admin#enable ldp
Command: enable ldp

Success.

DES-3810-28:admin#create ldp targeted_peer 110.1.1.1
Command: create ldp targeted_peer 110.1.1.1

Success.

DES-3810-28:admin#create vpws vc 2 peer 110.1.1.1 port 2 vlan 10
Command: create vpws vc 2 peer 110.1.1.1 port 2 vlan 10

Success.

DES-3810-28:admin#
```

93-2 config vpws log

Description

This command is used to enable or disable VPWS log state.

Format

config vpws log [enable | disable]

Parameters

enable - Specifies to enable the VPWS log state. **disable** - Specifies to disable the VPWS log state.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To enable the VPWS log state:

```
DES-3810-28:admin#config vpws log enable
Command: config vpws log enable

Success.

DES-3810-28:admin#
```

93-3 config vpws trap

Description

This command is used to enable or disable VPWS trap state.

Format

config vpws trap [pw_updown | pw_delete] [enable | disable]

Parameters

pw_updown - Specifies the trap of the PW in an up or down event.
pw_delete - Specifies the trap of a delete PW event.
enable - Specifies to enable the VPWS trap state. **disable** - Specifies to disable the VPWS trap state.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To enable the VPWS PW up/down trap state:

```
DES-3810-28:admin#config vpws trap pw_updown enable
Command: config vpws trap pw_updown enable

Success.

DES-3810-28:admin#
```

93-4 config vpws type

Description

This command is used to configure the VPWS type. VPWS type is used to distinguish between different VPWS services. There are two VPWS types defined for Ethernet service; one is Ethernet raw; and the other is Ethernet tagged.

The VPWS type is globally configured. All PWs will operate in Ethernet raw mode, and S-tags are never sent over the PWs for the Ethernet raw type VPWS. The other alternative is all PWs will operate in Ethernet tagged mode, and every frame sent on the PWs must then have an S-tag for the Ethernet tagged type VPWS. The VPWS type must be the same at both sides of the VPWS ends.

Format

config vpws type [eth_raw | eth_tagged]

Parameters

eth_raw - Specifies that the Ethernet raw type will be used. The PW will then have no S-tag.
eth_tagged - Specifies that the Ethernet tagged type will be used. The PW will then have an S-tag.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To configure VPWS type:

```
DES-3810-28:admin#config vpws type eth_raw
Command: config vpws type eth_raw

Success.

DES-3810-28:admin#
```

93-5 show vpws

Description

This command is used to display the VPWS information or PW information on this system.

Format

show vpws {vc {<vc_id> {detail}}}

Parameters

vc - (Optional) Specifies the PW's VC used for this display. **<vc_id>** - Enter the PW's VC ID used here.
detail - (Optional) Specifies to display detailed PW information.

Restrictions

None. **(EI Mode Command Only)**

Example

To display VPWS global configured information on this system:

```
DES-3810-28:admin#show vpws
Command: show vpws

 VPWS Type: Ethernet Tagged
 UpDown Trap: Enabled
 Delete Trap: Disabled
 Log State: Enabled

DES-3810-28:admin#
```

To display the VPWS information for all PWs on the system:

```
DES-3810-28:admin#show vpws vc
Command: show vpws vc

 VC ID       Peer              Local AC            Admin Status  Oper Status
 ----------  ---------------   ------------------  ------------  -----------
 1           172.18.1.2        Port 1   VLAN 2     Enabled       Up
 2           110.1.1.1         Port 2   VLAN 10    Enabled       Down

DES-3810-28:admin#
```

To display VPWS PW 2 detailed information on the system:

```
DES-3810-28:admin#show vpws vc 2 detail
Command: show vpws vc 2 detail

 VC ID: 2, Peer IP Address: 110.1.1.1
 Admins Status: Enabled, Operate Status: Down
 Local Info
         VC Inbound Label: N/A EXP: N/A
         Local AC: Ethernet Port 2/VLAN 10, AC Status: Down
         MTU: 1500, Group ID: 0, Control Word: Disabled
         Inbound Tunnel Label: N/A, EXP: N/A
 Remote Info
         VC Outbound Label: N/A
         Remote AC: N/A, AC status: N/A
         MTU: N/A, Group ID: 0
         Outbound Tunnel Label: N/A

DES-3810-28:admin#
```

93-6 delete vpws vc

Description

This command is used to delete a VPWS PW.

Format

delete vpws vc <vc_id>

Parameters

vc - Specifies the existing PW's VC ID that will be deleted. **<vc_id>** - Enter the VC ID value used here.

Restrictions

Only Administrators and Operators can issue this command. **(EI Mode Command Only)**

Example

To delete the PW 2:

```
DES-3810-28:admin#delete vpws vc 2
Command: delete vpws vc 2

Success.

DES-3810-28:admin#
```

Chapter 94 Virtual Router Redundancy Protocol (VRRP) Commands

enable vrrp {ping}
disable vrrp {ping}
create vrrp vrid <vrid 1-255> ipif <ipif_name 12> ipaddress <ipaddr> {state [enable | disable] | priority <int 1-254> | advertisement_interval <int 1-255> | preempt [true | false] | critical_ip <ipaddr> | critical_ip_state [enable | disable]}
config vrrp vrid <vrid 1-255> ipif <ipif_name 12> {state [enable | disable] | priority <int 1-254> | ipaddress <ipaddr> | advertisement_interval <int 1-255> | preempt [true | false] | critical_ip <ipaddr> | critical_ip_state [enable | disable]}
config vrrp ipif <ipif_name 12> [authtype [none | simple authdata <string 8> | ip authdata <string 16>]]
delete vrrp {vrid <vrid 1-255> ipif <ipif_name 12>}
show vrrp {ipif <ipif_name 12> {vrid <vrid 1-255>}}

94-1 enable vrrp

Description

This command is used to enable VRRP globally.

Format

enable vrrp {ping}

Parameters

ping - (Optional) Specifies that the ping option will be enabled.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable VRRP:

```
DES-3810-28:admin# enable vrrp
Command: enable vrrp

Success.

DES-3810-28:admin#
```

94-2 disable vrrp

Description

This command is used to disable VRRP globally.

Format

disable vrrp {ping}

Parameters

ping - (Optional) Specifies that the ping option will be disabled.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable VRRP:

```
DES-3810-28:admin# disable vrrp
Command: disable vrrp

Success.

DES-3810-28:admin#
```

94-3 create vrrp vrid

Description

This command is used to create a virtual router entry by VRID.

Format

create vrrp vrid <vrid 1-255> ipif <ipif_name 12> ipaddress <ipaddr> {state [enable | disable] | priority <int 1-254> | advertisement_interval <int 1-255> | preempt [true | false] | critical_ip <ipaddr> | critical_ip_state [enable | disable]}

Parameters

vrid - Specifies the ID of the Virtual Router used. **<vrid 1-255>** - Enter the Virtual Router ID used here. This value must be between 1 and 255.
ipif - Specifies the IP interface used for this configuration. **<ipif_name 12>** - Enter the IP interface name used here. This name can be up to 12 characters long.
ipaddress - Specifies the virtual router's IP address used. **<ipaddr>** - Enter the virtual router's IP address used here.
state - (Optional) Specifies the state of the virtual router function. **enable** - Specifies that the virtual router function will be enabled. **disable** - Specifies that the virtual router function will be disabled.

priority - (Optional) Specifies the priority to be used for the Virtual Router Master election process **<int 1-254>** - Enter the priority value used here. This value must be between 1 and 254.
advertisement_interval - (Optional) Specifies the time interval used between sending advertisement messages. **<int 1-255>** - Enter the advertisement interval value here. This value must be between 1 and 255 seconds.
preempt - (Optional) Controls whether a higher priority virtual router will preempt a lower priority master. The preempt setting must be consistent with all the routers participating within the same VRRP group. Default is settings is true. **true** - Specifies that if the backup router's priority is set higher than the masters priority, it will become the master instead of the current one. **false** - Specifies that if the backup router's priority is higher than the masters priority, it will not become the master until the master failed.
critical_ip - (Optional) Specifies an IP address that will provide the most direct route to the Internet or other critical network connections from this virtual router. This IP address must be a real IP address of a real device on the network. If the connection from the virtual router to this IP address fails, the virtual router will automatically be disabled. A new Master will be elected from the backup routers participating in the VRRP group. Different critical IP addresses may be assigned to different routers participating in the VRRP group and can therefore define multiple routes to the Internet or other critical network connections. **<ipaddr>** - Enter the critical interface's IP address used here.
critical_ip_state - (Optional) Specifies the state of checking the status (active or inactive) of a critical IP address. **enable** - Specifies that the critical IP state checking will be enabled. **disable** - Specifies that the critical IP state checking will be disabled.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create a VRRP entry:

```
DES-3810-28:admin# create vrrp vrid 1 ipif System ipaddress 10.90.90.91 state
enable
Command: create vrrp vrid 1 ipif System ipaddress 10.90.90.91 state enable

Success.

DES-3810-28:admin#
```

94-4 config vrrp vrid

Description

This command is used to configure the virtual router settings by VRID.

Format

config vrrp vrid <vrid 1-255> ipif <ipif_name 12> {state [enable | disable] | priority <int 1-254> | ipaddress <ipaddr> | advertisement_interval <int 1-255> | preempt [true | false] | critical_ip <ipaddr> | critical_ip_state [enable | disable]}

Parameters

vrid - specifies the ID of the Virtual Router used. **<vrid 1-255>** - Enter the Virtual Router ID used here. This value must be between 1 and 255.
ipif - Specifies the IP interface used for this configuration. **<ipif_name 12>** - Enter the IP interface name used here. This name can be up to 12 characters long.
state - (Optional) Specifies the state of the virtual router function. **enable** - Specifies that the virtual router function will be enabled. **disable** - Specifies that the virtual router function will be disabled.
priority - (Optional) specifies the priority to be used for the Virtual Router Master election process **<int 1-254>** - Enter the priority value used here. This value must be between 1 and 254.
ipaddress - (Optional) Specifies the virtual router's IP address used. **<ipaddr>** - Enter the virtual router's IP address used here.
advertisement_interval - (Optional) Specifies the time interval used between sending advertisement messages. **<int 1-255>** - Enter the advertisement interval value here. This value must be between 1 and 255 seconds.
preempt - (Optional) Controls whether a higher priority virtual router will preempt a lower priority master. The preempt setting must be consistent with all the routers participating within the same VRRP group. Default is setting is true. **true** - Specifies that if the backup router's priority is set higher than the masters priority, it will become the master instead of the current one. **false** - Specifies if the backup router's priority is higher than the masters priority, it will not become the master until the master failed.
critical_ip - (Optional) specifies an IP address that will provide the most direct route to the Internet or other critical network connections from this virtual router. This IP address must be a real IP address of a real device on the network. If the connection from the virtual router to this IP address fails, the virtual router will automatically be disabled. A new Master will be elected from the backup routers participating in the VRRP group. Different critical IP addresses may be assigned to different routers participating in the VRRP group and can therefore define multiple routes to the Internet or other critical network connections. **<ipaddr>** - Enter the critical interface's IP address used here.
critical_ip_state - (Optional) Specifies the state of checking the status (active or inactive) of a critical IP address. **enable** - Specifies that the critical IP state checking will be enabled. **disable** - Specifies that the critical IP state checking will be disabled.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure VRRP:

```
DES-3810-28:admin# config vrrp vrid 1 ipif System state enable
Command: config vrrp vrid 1 ipif System state enable

Success.

DES-3810-28:admin#
```

94-5 config vrrp ipif

Description

This command is used to configure a virtual router authentication type on an interface.

Format

config vrrp ipif <ipif_name 12> [authtype [none | simple authdata <string 8> | ip authdata <string 16>]]

Parameters

ipif - Specifies the name of IP interface used for this configuration. **<ipif_name 12>** - Enter the IP interface name used here. This name can be up to 12 characters long.
authtype - Specifies the VRRP's authentication type. **none** - Specifies that no authentication algorithm will be used on this interface. **simple** - Specifies that the authentication algorithm will be set to simple text on this interface. **authdata** - Specifies the authentication data used in the simple text authentication algorithm. **<string 8>** - Enter the authentication data used in the simple text authentication algorithm here. This value can be up to 8 characters long. **ip** - Specifies that the authentication algorithm will be set to IP authentication header on this interface. **authdata** - Specifies the authentication data used in the IP authentication header algorithm. **<string 16>** - Enter the authentication data used in the IP authentication header algorithm here. This value can be up to 16 characters long.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure a VRRP IP interface:

```
DES-3810-28:admin# config vrrp ipif System authtype simple authdata 12345678
Command: config vrrp ipif System authtype simple authdata 12345678

Success.

DES-3810-28:admin#
```

94-6 delete vrrp

Description

This command is used to delete the VRRP entries.

Format

delete vrrp {vrid <vrid 1-255> ipif <ipif_name 12>}

Parameters

vrid - (Optional) Specifies the Virtual Router ID used. **<vrid 1-255>** - Enter the Virtual Router ID used here. This value must be between 1 and 255.

ipif - (Optional) Specifies the IP interface name used. **<ipif_name 12>** - Enter the IP interface name used here. This name can be up to 12 characters long.
If no parameter is specified, all the VRRP entries will be deleted.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete VRRP:

```
DES-3810-28:admin# delete vrrp vrid 3 ipif System
Command: delete vrrp vrid 3 ipif System

Success.

DES-3810-28:admin#
```

94-7 show vrrp

Description

This command is used to display the VRRP settings.

Format

show vrrp {ipif <ipif_name 12> {vrid <vrid 1-255>}}

Parameters

ipif - (Optional) Specifies the IP interface name to be displayed. **<ipif_name 12>** - Enter the IP interface name to be displayed here. This name can be up to 12 characters long.
vrid - (Optional) Specifies the Virtual Router ID to be displayed. **<vrid 1-255>** - Enter the Virtual Router ID to be displayed here. This value must be between 1 and 255.
If no parameter is specified, then all the VRRP entries will be displayed.

Restrictions

None.

Example

To display the VRRP configuration:

```
DES-3810-28:admin# show vrrp
Command: show vrrp

 Global VRRP            : Disabled
 Non-owner response Ping: Disabled

 Interface Name               : System
 Authentication type          : No Authentication

         VRID                  : 1
         Virtual IP Address    : 10.90.90.91
         Virtual MAC Address   : 00-00-5E-00-01-01
         Virtual Router State  : Initialize
         State                 : Enabled
         Priority              : 100
         Master IP Address     : 10.90.90.90
         Critical IP Address   : 0.0.0.0
         Checking Critical IP  : Disabled
         Advertisement Interval : 1 secs
         Preempt Mode          : True
         Virtual Router Up Time : 0 centi-secs
 Total Entries: 1

DES-3810-28:admin#
```

Chapter 95 VLAN Commands

create vlan <vlan_name 32> tag <vlanid 2-4094> {type [1q_vlan | private_vlan]} {advertisement}
create vlan vlanid <vidlist> {type [1q_vlan | private_vlan]} {advertisement}
delete vlan <vlan_name 32>
delete vlan vlanid <vidlist>
config vlan <vlan_name 32> {[add [tagged | untagged | forbidden] | delete] <portlist> | advertisement [enable | disable]} (1)
config vlan vlanid <vidlist> {[add [tagged | untagged | forbidden] | delete] <portlist> | advertisement [enable | disable] | name <vlan_name 32>} (1)
config port_vlan [<portlist> | all] {gvrp_state [enable | disable] | ingress_checking [enable | disable] | acceptable_frame [tagged_only | admit_all] | pvid <vlanid 1- 4094>} (1)
show port_vlan {<portlist>}
config gvrp [timer [join | leave | leaveall] <value 100-100000> | nni_bpdu_addr [dot1d | dot1ad]]
enable gvrp
disable gvrp
show vlan {<vlan_name 32>}
show vlan vlanid <vidlist>
show vlan ports {<portlist>}
show gvrp
create vlan_counter [vlan <vlan_name> | vlanid <vidlist>] {ports [<portlist> | all]} [all_frame | broadcast | multicast | unicast] [packet | byte]
delete vlan_counter [all | [vlan <vlan_name> | vlanid <vidlist>] [all | ports <portlist> [all | [all_frame | broadcast | multicast | unicast] [packet | byte]]]]
clear vlan_counter statistics [all | [vlan <vlan_name> | vlanid <vidlist>] [all | ports <portlist>]]
show vlan_counter {[vlan <vlan_name> | vlanid <vidlist>]}
show vlan_counter statistics {[vlan <vlan_name> | vlanid <vidlist>] {ports <portlist>}}
config private_vlan [<vlan_name 32> | vid <vlanid 1-4094>] [add [isolated | community] | remove] [<vlan_name 32> | vlanid <vidlist>]
show private_vlan {[<vlan_name 32> | vlanid <vidlist>]}
enable pvid auto_assign
disable pvid auto_assign
show pvid auto_assign

95-1 create vlan

Description

This command is used to create a VLAN on the switch. The VLAN ID must be always specified for creating a VLAN.

Format

create vlan <vlan_name 32 > tag <vlanid 2-4094> {type [1q_vlan | private_vlan]} {advertisement}

Parameters

<vlan_name 32 > - Specifies the name of the VLAN to be created. The maximum length is 32 characters.
tag - Specifies the VLAN ID of the VLAN to be created. **<vlanid 2-4094>** - The range is from 2 to 4094.

type - (Optional) Specifies the type of VLAN to be created. **1q_vlan** - Specifies the VLAN is a 802.1q VLAN. **private_vlan** - Specifies the VLAN is a private VLAN.
advertisement - (Optional) Specifies to allow the Switch sending out GVRP packets to outside sources, notifying that they may join the existing VLAN.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create a VLAN with the name “v2” and VLAN ID 2:

```
DES-3810-28:admin#create vlan v2 tag 2 type 1q_vlan advertisement
Command: create vlan v2 tag 2 type 1q_vlan advertisement

Success.

DES-3810-28:admin#
```

To create a private VLAN with the name “v3” and VLAN ID 3:

```
DES-3810-28:admin#create vlan v3 tag 3 type private_vlan
Command: create vlan v3 tag 3 type private_vlan

Success.

DES-3810-28:admin#
```

95-2 create vlan vlanid

Description

This command is used to create a VLAN on the switch. The VLAN ID must be always specified for creating a VLAN.

Format

create vlan vlanid <vidlist> {type [1q_vlan | private_vlan]} {advertisement}

Parameters

<vidlist> - Specifies the VLAN ID of the VLAN to be created.
type - (Optional) Specifies the type of VLAN to be created. **1q_vlan** - Specifies the VLAN is a 802.1q VLAN. **private_vlan** - Specifies the VLAN is a private VLAN.
advertisement - (Optional) Specifies to allow the Switch sending out GVRP packets to outside sources, notifying that they may join the existing VLAN.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create a VLAN with VLAN ID 2:

```
DES-3810-28:admin#create vlan vlanid 2 type 1q_vlan advertisement
Command: create vlan vlanid 2 type 1q_vlan advertisement

Success.

DES-3810-28:admin#
```

To create a private VLAN with VLAN ID 3:

```
DES-3810-28:admin#create vlan vlanid 3 type private_vlan
Command: create vlan vlanid 3 type private_vlan

Success.

DES-3810-28:admin#
```

95-3 delete vlan

Description

This command is used to delete a previously configured VLAN on the switch.

Format

delete vlan <vlan_name 32>

Parameters

<vlan_name 32> - Specifies the VLAN name of the VLAN to be deleted. The maximum length is 32 characters.

Restrictions

Only Administrators and Operators can issue this command.

Example

To remove VLAN v1:

```
DES-3810-28:admin#delete vlan v1
Command: delete vlan v1

Success.

DES-3810-28:admin#
```

95-4 delete vlan vlanid

Description

This command is used to delete a previously configured VLAN ID on the switch.

Format

delete vlan vlanid <vidlist>

Parameters

<vidlist> - Specifies a range of VLAN ID to be deleted.

Restrictions

Only Administrators and Operators can issue this command.

Example

To remove a VLAN ID 2:

```
DES-3810-28:admin#delete vlan vlanid 2
Command: delete vlan vlanid 2

Success.

DES-3810-28:admin#
```

95-5 config vlan

Description

This command is used to add or delete ports to or from the port list of a previously configured VLAN. Users can specify the additional ports as tagged, untagged, or forbidden.

Format

config vlan <vlan_name 32> {[add [tagged | untagged | forbidden] | delete] <portlist> | advertisement [enable | disable]} (1)

Parameters

<vlan_name 32> - Specifies the name of the VLAN to add or delete ports to. The maximum length is 32 characters.
add - Specifies the port attribute to add. **tagged** - Specifies the additional ports as tagged. **untagged** - Specifies the additional ports as untagged. **forbidden** - Specifies the ports to be forbidden from becoming members of the VLAN dynamically and not able to forward packets in this VLAN.
delete - Specifies the port status to delete.
<portlist> - Specifies a range of ports to add or delete to the VLAN.
advertisement - Specifies to send GVRP out for this VLAN or not. If not, the VLAN cannot be

joint dynamically.
enable - Specifies to enable GVRP.
disable - Specifies to disable GVRP.

Restrictions

Only Administrators and Operators can issue this command.

Example

To add 4 through 8 as tagged ports to the VLAN v1:

```
DES-3810-28:admin#config vlan v1 add tagged 4-8
Command: config vlan v1 add tagged 4-8

Success.

DES-3810-28:admin#
```

To delete ports 4 through 8 from VLAN v1:

```
DES-3810-28:admin#config vlan v1 delete 4-8
Command: config vlan v1 delete 4-8

Success.

DES-3810-28:admin#
```

To enable the VLAN default advertisement:

```
DES-3810-28:admin#config vlan default advertisement enable
Command: config vlan default advertisement enable

Success.

DES-3810-28:admin#
```

95-6 config vlan vlanid

Description

This command is used to add or delete ports to the port list of a previously configured VLAN. Users can specify the additional ports as tagged, untagged, or forbidden.

Format

config vlan vlanid <vidlist> {[add [tagged | untagged | forbidden] | delete] <portlist> | advertisement [enable | disable] | name <vlan_name 32>} (1)

Parameters

<vidlist> - Specifies the VLAN ID of the VLAN to add or delete ports to.

add - Specifies the port attribute to add. **tagged** - Specifies the additional ports as tagged. **untagged** - Specifies the additional ports as untagged. **forbidden** - Specifies the ports to be forbidden from becoming members of the VLAN dynamically and not able to forward packets in this VLAN.
delete - Specifies the port status to delete.
<portlist> - Specifies a range of ports to add or delete to the VLAN.
advertisement - Specifies to send GVRP out for this VLAN or not. If not, the VLAN cannot be joint dynamically. **enable** - Specifies to enable GVRP. **disable** - Specifies to disable GVRP.
name - Specifies the VLAN name. **<vlan_name 32>** - The maximum length is 32 characters.

Restrictions

Only Administrators and Operators can issue this command.

Example

To add 4 through 8 as tagged ports to the VLAN 1:

```
DES-3810-28:admin#config vlan vlanid 1 add tagged 4-8
Command: config vlan vlanid 1 add tagged 4-8

Success.

DES-3810-28:admin#
```

To delete ports 4 through 8 from VLAN 1:

```
DES-3810-28:admin#config vlan vlanid 1 delete 4-8
Command: config vlan vlanid 1 delete 4-8

Success.

DES-3810-28:admin#
```

To enable the VLAN default advertisement:

```
DES-3810-28:admin#config vlan vlanid default advertisement enable
Command: config vlan vlanid default advertisement enable

Success.

DES-3810-28:admin#
```

95-7 config port_vlan

Description

This command is used to set the ingress checking status and the sending and receiving of GVRP information.

Format

config port_vlan [<portlist> | all] {gvrp_state [enable | disable] | ingress_checking [enable | disable] | acceptable_frame [tagged_only | admit_all] | pvid <vlanid 1- 4094>} (1)

Parameters

<portlist> - Specifies a range of ports to be set.
all - Specifies to make all ports to be set.
gvrp_state - Specifies if the port is allowed to dynamically become a member of a VLAN when receiving GVRP. **enable** - Enable GVRP for the ports specified in the port list. **disable** - Disable GVRP for the ports specified in the port list.
ingress_checking - When ingress checking is enabled, the Switch checks if the incoming packet was assigned a VLAN on which the ingress port is a VLAN member. If the incoming packet and the ingress port are not in the same VLAN, the packet will be dropped. **enable** - Enable ingress checking for the specified port list. **disable** - Disable ingress checking for the specified port list.
acceptable_frame - Specifies the type of frame that will be accepted by the port. **tagged_only** - Only tagged frame will be received. **admit_all** - Both tagged and untagged frames will be accepted.
pvid - Specifies the Port VID (PVID) that will be associated with the port. **<vlanid 1- 4094>** - Specifies the VLAN ID between 1 and 4094.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the port VLAN:

```
DES-3810-28:admin#config port_vlan 1-5 gvrp_state enable ingress_checking
enable acceptable_frame tagged_only pvid 2
Command: config port_vlan 1-5 gvrp_state enable ingress_checking enable
acceptable_frame tagged_only pvid 2


Success.


DES-3810-28:admin#
```

95-8 show port_vlan

Description

This command is used to display the GVRP status for a port list on the switch.

Format

show port_vlan {<portlist>}

Parameters

<portlist> - (Optional) Specifies a range of ports to be displayed.

Note: If no parameter is specified, the system will display GVRP information for all ports.

Restrictions

None.

Example

To display 802.1q port settings for ports 1 to 3:

```
DES-3810-28:admin#show port_vlan 1-3
Command: show port_vlan 1-3

Port     PVID  GVRP      Ingress Checking  Acceptable Frame Type
-------  ----  --------  ----------------  ---------------------------
 1       1     Disabled  Enabled           All Frames
 2       1     Disabled  Enabled           All Frames
 3       1     Disabled  Enabled           All Frames

Total Entries : 3

DES-3810-28:admin#
```

95-9 config gvrp

Description

This command is used to set the GVRP timer's value.

Format

config gvrp [timer [join | leave | leaveall] <value 100-100000> | nni_bpdu_addr [dot1d | dot1ad]]

Parameters

timer – Specifies GVRP timer. **join** - Specifies the Join time will be set. The default value is 200 milliseconds. **leave** - Specifies the Leave time will be set. The default value is 600 milliseconds. **leaveall** - Specifies the LeaveAll time. The default value is 10000 milliseconds.
<value 100-100000> - Specifies the time value. The value range is 100 to 100000 milliseconds. In addition, the Leave time should greater than 2 Join times and the LeaveAll time should greater than Leave time.
nni_bpdu_addr - Determine the BPDU protocol address for GVRP in service provide site. It can use 802.1d GVRP address, or 802.1ad service provider GVRP address. **dot1d** - Specifies a 802.1d GVRP address. **dot1ad** - Specifies a 802.1ad service provider GVRP address.

Restrictions

Only Administrators and Operators can issue this command.

Example

To set the Join time to 200 milliseconds:

```
DES-3810-28:admin#config gvrp timer join 200
Command: config gvrp timer join 200

Success.

DES-3810-28:admin#
```

95-10 enable gvrp

Description

This command is used to enable the Generic VLAN Registration Protocol (GVRP). The default is disabled.

Format

enable gvrp

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable the generic VLAN Registration Protocol (GVRP):

```
DES-3810-28:admin#enable gvrp
Command: enable gvrp

Success.

DES-3810-28:admin#
```

95-11 disable gvrp

Description

This command is used to disable Generic VLAN Registration Protocol (GVRP).

Format

disable gvrp

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable Generic VLAN Registration Protocol (GVRP):

```
DES-3810-28:admin#disable gvrp
Command: disable gvrp

Success.

DES-3810-28:admin#
```

95-12 show vlan

Description

This command is used to display summary information about each VLAN, which includes: VLAN ID, VLAN Name, Tagged/Untagged/Forbidden status for each port, and Member/Non-member status for each port.

Format

show vlan {<vlan_name 32>}

Parameters

<vlan_name 32> - (Optional) Specifies the name of the VLAN to be displayed. The maximum length is 32 characters.

Restrictions

None.

Example

To display VLAN settings:

```
DES-3810-28:admin#show vlan
Command: show vlan

VLAN Trunk State         : Disabled
VLAN Trunk Member Ports  :

VID             : 1               VLAN Name       : default
VLAN Type       : Static          Advertisement   : Enabled
Member Ports    : 1-28
```

```
Static Ports    : 1-28
Current Tagged Ports  :
Current Untagged Ports: 1-28
Static Tagged Ports   :
Static Untagged Ports : 1-28
Forbidden Ports       :

Total Static VLAN Entries: 1
Total GVRP VLAN Entries: 0

DES-3810-28:admin#
```

95-13 show vlan vlanid

Description

This command is used to display summary information about each VLAN, which includes: VLAN ID, VLAN Name, Tagged/Untagged/Forbidden status for each port, and Member/Non-member status for each port.

Format

show vlan vlanid <vidlist>

Parameters

<vidlist> - Specifies the VLAN ID number to be displayed.

Restrictions

None.

Example

To display VLAN settings for VLAN ID 1:

```
DES-3810-28:admin#show vlan vlanid 1
Command: show vlan vlanid 1

VID             : 1               VLAN Name       : default
VLAN Type       : Static          Advertisement   : Enabled
Member Ports    : 1-28
Static Ports    : 1-28
Current Tagged Ports  :
Current Untagged Ports: 1-28
Static Tagged Ports   :
Static Untagged Ports : 1-28
Forbidden Ports       :

Total Entries : 1

DES-3810-28:admin#
```

95-14 show vlan ports

Description

This command is used to display summary information about Tagged, Untagged, and Forbidden status for each port.

Format

show vlan ports {<portlist>}

Parameters

<portlist> - (Optional) Specifies a range of ports for which you want to display VLAN. The beginning and end of the port list range are separated by a dash.

Restrictions

None.

Example

To display VLAN port settings:

```
DES-3810-28:admin#show vlan ports 1-2
Command: show vlan ports 1-2

Port      VID    Untagged   Tagged   Dynamic  Forbidden
------     -----  --------   ------   -------  ---------
 1         1       X          -         -       -
 2         1       X          -         -       -

DES-3810-28:admin#
```

95-15 show gvrp

Description

This command is used to display the GVRP status for the switch.

Format

show gvrp

Parameters

None.

Restrictions

None.

Example

To display the GVRP status of the switch:

```
DES-3810-28:admin#show gvrp
Command: show gvrp

Global GVRP   : Disabled
Join Time     : 200 Milliseconds
Leave Time    : 600 Milliseconds
LeaveAll Time : 10000 Milliseconds
NNI BPDU Address: dot1d

DES-3810-28:admin#
```

95-16 create vlan_counter

Description

This command is used to create control entries to count statistics for specific VLANs, or to count statistics for specific ports on a specific VLAN. The statistics can be either byte count or packet count. The statistics can be counted for different frame types.

Format

create vlan_counter [vlan <vlan_name> | vlanid <vidlist>] {ports [<portlist> | all]} [all_frame | broadcast | multicast | unicast] [packet | byte]

Parameters

vlan - Specifies the VLAN name. **<vlan_name>** - Specifies the VLAN name.
vlanid - Specifies a list of VLANs by VLAN ID. **<vidlist>** - Specifies a list of VLANs by VLAN ID.
ports - (Optional) Specifies to enable to count statistics by a specific port on a specific VLAN. **<portlist>** - Specifies the port list. **all** - Specifies to count statistics for all ports for a specific VLAN.
all_frame - Specifies to count statistics for all packets.
broadcast - Specifies to count broadcast packets.
multicast - Specifies to count multicast packets.
unicast - Specifies to count unicast packets.
packet - Specifies to count at the packet level.
byte - Specifies to count at the byte level.

Restrictions

Only Administrators and Operators can issue this command.

Example

To begin counting at the packet level for broadcast packets for VLAN 1:

```
DES-3810-28:admin#create vlan_counter vlanid 1 broadcast packet
```

```
Command: create vlan_counter vlanid 1 broadcast packet

Success.

DES-3810-28:admin#
```

95-17 delete vlan_counter

Description

This command is used to delete the control entries for VLAN traffic flow statistics.

Format

delete vlan_counter [all | [vlan <vlan_name> | vlanid <vidlist>] [all | ports <portlist> [all | [all_frame | broadcast | multicast | unicast] [packet | byte]]]]

Parameters

all - Specifies to delete all VLAN statistics control entries.
vlan - Specifies the VLAN name. **<vlan_name>** - Specifies the VLAN name.
vlanid - Specifies a list of VLANs by VLAN ID. **<vidlist>** - Specifies a list of VLANs by VLAN ID.
all - Specifies to delete statistics counter for all ports.
ports - Specifies to disable to count statistics by a specific port on a specific VLAN. **<portlist>** - Specifies a port list. **all** - Specifies to stop the counting of all the categories below. **all_frame** - Specifies to stop the counting of all packets. **broadcast** - Specifies to stop the counting of broadcast packets. **multicast** - Specifies to stop the counting of multicast packets. **unicast** - Specifies to stop the counting of unicast packets.
packet - Specifies to stop packet level counting.
byte - Specifies to stop byte level counting.

Restrictions

Only Administrators and Operators can issue this command.

Example

To stop the counting at the packet level for all packet types for VLAN 1:

```
DES-3810-28:admin#delete vlan_counter vlanid 1 all packet
Command: delete vlan_counter vlanid 1 all packet

Success.

DES-3810-28:admin#
```

95-18 clear vlan_counter statistics

Description

This command is used to clear statistics gathered by VLAN counters.

Format

clear vlan_counter statistics [all | [vlan <vlan_name> | vlanid <vidlist>] [all | ports <portlist>]]

Parameters

all - Specifies to clear all VLAN statistics.
vlan - Specifies the VLAN name. **<vlan_name>** - Specifies the VLAN name.
vlanid - Specifies a list of VLANs by VLAN ID. **<vidlist>** - Specifies a list of VLANs by VLAN ID.
all - Specifies to clear statistics counters for all ports on a specifc VLAN.
ports - Specifies to clear statistics counters by a specific port on a specific VLAN. **<portlist>** - Specifies a port list.

Restrictions

Only Administrators and Operators can issue this command.

Example

To clear counter statistics for VLANs 1 to 10:

```
DES-3810-28:admin#clear vlan_counter statistics vlanid 1-10
Command: clear vlan_counter statistics vlanid 1-10

Success.

DES-3810-28:admin#
```

95-19 show vlan_counter

Description

This command is used to display the VLAN counter rules.

Format

show vlan_counter {[vlan <vlan_name> | vlanid <vidlist>]}

Parameters

vlan - (Optional) Specifies the VLAN name. **<vlan_name>** - Specifies the VLAN name.
vlanid - (Optional) Specifies a list of VLANs by VLAN ID. **<vidlist>** - Specifies a list of VLANs by VLAN ID.

Note: If no VLAN is specified, all VLAN counters will be displayed.

Restrictions

None.

Example

To display the VLAN counter rules for VLAN IDs 1 and 2:

```
Command: show vlan_counter vlanid 1-2

VLAN ID  Ports         Packet Type   Counter Type
-------  ------------- -----------   --------------
1                      Broadcast     Packet Count
1                      Broadcast     Byte Count
1                      Multicast     Packet Count
1                      Unicast       Byte Count
1                      All Frame     Packet Count
1        2,5-7         Broadcast     Byte Count
1        1-12          Multicast     Packet Count
1        1-6           Unicast       Byte Count
1        1,3,5         All Frame     Packet Count
2                      All Frame     Packet Count
2        1-3           Broadcast     Packet Count
2        2-4           Multicast     Packet Count
2        2,3-6         Unicast       Byte Count
2        3,7           All Frame     Byte COunt

DES-3810-28:admin#
```

95-20 show vlan_counter statistics

Description

This command is used to display the VLAN level receives packet or receive byte statistics.

Format

show vlan_counter statistics {[vlan <vlan_name> | vlanid <vidlist>] {ports <portlist>}}

Parameters

vlan - (Optional) Specifies the VLAN name. **<vlan_name>** - Specifies the VLAN name.
vlanid - (Optional) Specifies a list of VLANs by VLAN ID. **<vidlist>** - Specifies a list of VLANs by VLAN ID.
ports - (Optional) Specifies to clear statistics counters by a specific port on a specific VLAN. **<portlist>** - Specifies a port list.

Note: If no VLAN is specified, statistics for all VLANs will be displayed.

Restrictions

None.

Example

To display the VLAN counter statistics for VLAN ID 1 and 2:

```
DES-3810-28:admin#show vlan_counter statistics vlanid 1-2
Command: show vlan_counter statistics vlanid 1-2

VLAN  Port  Type          RX Frames/ RX Bytes    Frames Per Sec / Bytes Per Sec
----- ----- ------------  ---------------------  ------------------------------
 1     -   Broadcast(Byte)               1211                            103
1     -   Multicast(Byte)               111                             10
1     1   Broadcast(Byte)                80                              7
1     8   Broadcast(Byte)                30                              8

CTRL+C ESC q Quit SPACE n Next Page p Previous Page r Refresh
```

95-21 config private_vlan

Description

A private VLAN is comprised of a primary VLAN, up to one isolated VLAN, and a number of community VLANs. A private VLAN ID is presented by the VLAN ID of the primary VLAN. The command used to associate or de-associate a secondary VLAN with a primary VLAN. A primary VLAN is created via the command **create vlan type private_vlan**. A secondary VLAN is created via the command **create vlan type 1q_vlan**. A secondary VLAN cannot be associated with multiple primary VLANs. The untagged member port of the primary VLAN is named as the promiscuous port. The tagged member port of the primary VLAN is named as the trunk port. A promiscuous port of a private VLAN cannot be promiscuous port of other private VLANs. The primary VLAN member port cannot be a secondary VLAN member at the same time, or vice versa. A secondary VLAN can only have the untagged member port. The member port of a secondary VLAN cannot be member port of other secondary VLAN at the same time. When a VLAN is associated with a primary VLAN as the secondary VLAN, the promiscuous port of the primary VLAN will behave as the untagged member of the secondary VLAN, and the trunk port of the primary VLAN will behave as the tagged member of the secondary VLAN. A secondary VLAN cannot be specified with advertisement. Only the primary VLAN can be configured as a layer 3 interface. The private VLAN member port cannot be configured with the traffic segmentation function.

Format

config private_vlan [<vlan_name 32> | vid <vlanid 1-4094>] [add [isolated | community] | remove] [<vlan_name 32> | vlanid <vidlist>]

Parameters

<vlan_name 32> - Specifies the name of the private VLAN. The maximum length is 32 characters.

vid - Specifies the VLAN ID of the private VLAN. **<vlanid 1-4094>** - Specifies the VLAN ID between 1 and 4094.
add - Specifies to add isolated or community. **isolated** - Specifies the secondary VLAN as an isolated VLAN. **community** - Specifies the secondary VLAN as a community VLAN.
remove - Specifies to remove the specified private VLAN.
<vlan_name 32> - Specifies the VLAN of a range of secondary VLANs to add to the private VLAN or remove from it. The maximum length is 32 characters.
vlanid - Specifies a range of the second VLAN IDs to add to the private VLAN or remove from it. **<vidlist>** - Specifies the VLAN ID.

Restrictions

Only Administrators and Operators can issue this command.

Example

To associate a secondary VLAN to private VLAN p1:

```
DES-3810-28:admin#config private_vlan p1 add community vlanid 2-5
Command: config private_vlan p1 add community vlanid 2-5

Success.

DES-3810-28:admin#
```

95-22 show private_vlan

Description

This command is used to display private VLAN information on the switch.

Format

show private_vlan {[<vlan_name 32> | vlanid <vidlist>]}

Parameters

<vlan_name 32> - (Optional) Specifies the name of the private VLAN. The maximum length is 32 characters.
vlanid - (Optional) Specifies the VLAN ID of the private VLAN. **<vidlist>** - Specifies the VLAN ID of the private VLAN.

Restrictions

None.

Example

To display private VLAN settings:

```
DES-3810-28:admin#show private_vlan
Command: show private_vlan
```

```
Private VLAN 100
-----------------
   Promiscuous Ports: 1
   Trunk Ports      : 2
   Isolated Ports   : 3-5           Isolated VLAN : 20
   Community Ports  : 6-8           Community VLAN: 30
   Community Ports  : 9-10          Community VLAN: 40

Private VLAN 200
-----------------
   Promiscuous Ports: 11
   Trunk Ports      : 12
   Isolated Ports   : 13-15           Isolated VLAN : 20
   Community Ports  : 16-18           Community VLAN: 30


DES-3810-28:admin#
```

95-23 enable pvid auto_assign

Description

This command is used to enable the auto-assignment of PVID. If auto-assign PVID is disabled, PVID can only be changed by PVID configuration (user changes explicitly). The VLAN configuration will not automatically change PVID. If Auto-assign PVID is enabled, PVID can be changed by PVID or VLAN configuration. When a user configures a port to VLAN X's untagged membership, this port's PVID will be updated with VLAN X. PVID is updated with the last item of the VLAN list. When a user removes a port from the untagged membership of the PVID's VLAN, the port's PVID will be assigned with "default VLAN".

Format

enable pvid auto_assign

Parameters

None. The default setting is enabled.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable the auto-assign PVID:

```
DES-3810-28:admin#enable pvid auto_assign
Command: enable pvid auto_assign

Success.

DES-3810-28:admin#
```

95-24 disable pvid auto_assign

Description

The command is used to disable the auto-assignment of PVID. If auto-assign PVID is disabled, PVID can only be changed by PVID configuration (user changes explicitly). The VLAN configuration will not automatically change PVID. If auto-assign PVID is enabled, PVID can be changed by PVID or VLAN configuration. When a user configures a port to VLAN X's untagged membership, this port's PVID will be updated with VLAN X. PVID is updated with the last item of the VLAN list. When a user removes a port from the untagged membership of the PVID's VLAN, the port's PVID will be assigned with "default VLAN".

Format

disable pvid auto_assign

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable the auto-assign PVID:

```
DES-3810-28:admin#disable pvid auto_assign
Command: disable pvid auto_assign

Success.

DES-3810-28:admin#
```

95-25 show pvid auto_assign

Description

This command is used to display the PVID auto-assign state.

Format

show pvid auto_assign

Parameters

None.

Restrictions

None.

Example

To display the PVID auto-assignment state:

```
DES-3810-28:admin#show pvid auto_assign

PVID Auto-assignment: Enabled.

DES-3810-28:admin#
```

Chapter 96 VLAN Trunking Commands

enable vlan_trunk
disable vlan_trunk
config vlan_trunk ports [<portlist> | all] state [enable | disable]
show vlan_trunk

96-1 enable vlan_trunk

Description

This command is used to enable VLAN trunking. When VLAN trunking function is enabled, the VLAN trunk ports shall be able to forward all tagged frames with any VID.

Format

enable vlan_trunk

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable VLAN trunking:

```
DES-3810-28:admin#enable vlan_trunk
Command: enable vlan_trunk

Success

DES-3810-28:admin#
```

96-2 disable vlan_trunk

Description

This command is used to disable VLAN trunking.

Format

disable vlan_trunk

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable VLAN trunking:

```
DES-3810-28:admin#disable vlan_trunk
Command: disable vlan_trunk

Success.

DES-3810-28:admin#
```

96-3 config vlan_trunk

Description

This command is used to configure a port as a VLAN trunking port. By default, none of the ports is a VLAN trunking port. A VLAN trunking port and a non-VLAN trunking port cannot be grouped as an aggregated link. To change the VLAN trunking setting for an aggregated link, the user must apply the command to the master port. If the command is applied to link aggregation member port excluding the master, the command will be rejected. Ports with different VLAN configurations are not allowed to form an aggregated link. However, if they are specified as a VLAN trunking port, they are allowed to form an aggregated link.

For a VLAN trunking port, the VLANs on which the packets can be by passed will not be advertised by GVRP on this port. However, since the traffic on these VLANs is forwarded, this VLAN trunking port should participate in the MSTP instances corresponding to these VLANs.

Format

config vlan_trunk ports [<portlist> | all] | state [enable | disable]

Parameters

ports - Specifies the ports to be configured. **<portlist>** - Specifies the list of ports to be configured. **all** - Specifies all ports will be configured.
state - Specifies the ports as VLAN or non-VLAN trunking ports. **enable** - Specifies the ports as VLAN trunking ports. **disable** - Specifies the ports as non-VLAN trunking ports.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure ports 1 to 5 as VLAN trunking ports:

```
DES-3810-28:admin#config vlan_trunk ports 1-5 state enable
Command: config vlan_trunk ports 1-5 state enable

Success.

DES-3810-28:admin#
```

To configure port 6 as an LA-1 member port and port 7 as an LA-2 master port:

```
DES-3810-28:admin# config vlan_trunk ports 6-7 state enable
Command: config vlan_trunk ports 6-7 state enable

The link aggregation member port cannot be configured.
Fail.

DES-3810-28:admin# config vlan_trunk ports 7 state disable
Command: config vlan_trunk ports 7 state disable

Success.

DES-3810-28:admin# config vlan_trunk ports 6-7 state disable
Command: config vlan_trunk ports 6-7 state disable

The link aggregation member port cannot be configured.
Fail.

DES-3810-28:admin#
```

To configure port 6 as an LA-1 member port and port 7 as an LA-1 master port:

```
DES-3810-28:admin# config vlan_trunk ports 6-7 state enable
Command: config vlan_trunk ports 6-7 state enable

Success.

DES-3810-28:admin#
```

Ports 6 and 7 have different VLAN configurations before enabling VLAN trunking. To configure port 6 as an LA-1 member port and port 7 as an LA-1 master port:

```
DES-3810-28:admin# config vlan_trunk ports 7 state disable
Command: config vlan_trunk ports 7 state disable

The link aggregation needs to be deleted first.
Fail.
```

Ports 6 and 7 have the same VLAN configuration before enabling VLAN trunking. To configure port 6 as an LA-1 member port and port 7 as an LA-1 master port:

```
DES-3810-28:admin# config vlan_trunk ports 7 state disable
Command: config vlan_trunk ports 7 state disable

Success.

DES-3810-28:admin# config vlan_trunk ports 6-7 state disable
Command: config vlan_trunk ports 6-7 state disable

Success.

DES-3810-28:admin#
```

96-4 show vlan_trunk

Description

This command is used to display VLAN trunking information.

Format

show vlan_trunk

Parameters

None.

Restrictions

None.

Example

To display the current VLAN trunking information:

```
DES-3810-28:admin#show vlan_trunk
Command: show vlan_trunk

VLAN Trunk Global Setting
---------------------------
VLAN Trunk Status  : Disabled
VLAN Trunk Member Ports :

DES-3810-28:admin#
```

Chapter 97 Voice VLAN Commands

enable voice_vlan [<vlan_name 32> | vlanid <vlanid 1-4094>]
disable voice_vlan
config voice_vlan priority <int 0-7>
config voice_vlan oui [add | delete] <macaddr> <macmask> {description <desc 32>}
config voice_vlan ports [<portlist> | all] [state [enable | disable] | mode [auto | manual]]
config voice_vlan log state [enable | disable]
config voice_vlan aging_time <min 1-65535>
show voice_vlan
show voice_vlan oui
show voice_vlan ports {<portlist>}
show voice_vlan voice_device ports {<portlist>}

97-1 enable voice_vlan

Description

This command is used to enable the global voice VLAN function on a switch. To enable the voice VLAN, the voice VLAN must be also assigned. At the same time, the VLAN must be an existing static 802.1Q VLAN. To change the voice VLAN, the user must disable the voice VLAN function, and re-issue this command. By default, the global voice VLAN state is disabled.

Format

enable voice_vlan [<vlan_name 32> | vlanid <vlanid 1-4094>]

Parameters

<vlan_name 32> - Specifies the name of the voice VLAN. The maximum length is 32 characters. The name must be an existing static VLAN name.
vlanid - Specifies the VLAN ID of the voice VLAN. The ID must be an existing static VLAN ID. **<vlanid 1-4094>** - Specifies the VLAN ID between 1 and 4094.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable voice VLAN named v2:

```
DES-3810-28:admin#enable voice_vlan v2
Command: enable voice_vlan v2

Success.

DES-3810-28:admin#
```

97-2 disable voice_vlan

Description

This command is used to disable the voice VLAN function on a switch. When the voice VLAN function is disabled, the voice VLAN will become unassigned.

Format

disable voice_vlan

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable voice VLAN:

```
DES-3810-28:admin#disable voice_vlan
Command: disable voice_vlan

Success.

DES-3810-28:admin#
```

97-3 config voice_vlan priority

Description

This command is used to configure voice VLAN priority. The voice VLAN priority will be the priority associated with the voice VLAN traffic to distinguish the QoS of the voice traffic from data traffic.

Format

config voice_vlan priority <int 0-7>

Parameters

<int 0-7> - Specifies the priority of the voice VLAN. The range is 0 to 7. The default priority is 5.

Restrictions

Only Administrators and Operators can issue this command.

Example

To set the priority of the voice VLAN to be six:

```
DES-3810-28:admin#config voice_vlan priority 6
Command: config voice_vlan priority 6

Success.

DES-3810-28:admin#
```

97-4 config voice_vlan oui

Description

This command is used to configure the user-defined voice traffic's OUI. The OUI is used to identify the voice traffic. There are a number of pre-defined OUIs. The user can further define the user-defined OUIs if needed. The user-defined OUI cannot be the same as the pre-defined OUI. The following are the pre-defined voice traffic's OUI:

OUI	Vendor	Mnemonic Name
00:E0:BB	3COM	3com
00:03:6B	Cisco	cisco
00:E0:75	Veritel	veritel
00:D0:1E	Pingtel	pingtel
00:01:E3	Siemens	siemens
00:60:B9	NEC/ Philips	nec&philips
00:0F:E2	Huawei-3COM	huawei&3com
00:09:6E	Avaya	avaya

Format

config voice_vlan oui [add | delete] <macaddr> <macmask> {description <desc 32>}

Parameters

add - Specifies to add a user-defined OUI of Voice device vendor.
delete - Specifies to delete a user-defined OUI of Voice device vendor.
<macaddr> - Specifies a user-defined OUI MAC address.
<macmask> - Specifies a user-defined OUI MAC address mask.
description - (Optional) Specifies a description for the user-defined OUI. **<desc 32>** - Specifies a description for the user-defined OUI. The maximum length is 32 characters.

Restrictions

Only Administrators and Operators can issue this command.

Example

To add a user-defined OUI of a voice device:

```
DES-3810-28:admin#config voice_vlan oui add 00-0A-0B-00-00-00 FF-FF-FF-00-00-00
Command: config voice_vlan oui add 00-0A-0B-00-00-00 FF-FF-FF-00-00-00

Success.

DES-3810-28:admin#
```

97-5 config voice_vlan ports

Description

This command is used to enable or disable the voice VLAN function on ports or mode per port.

Format

config voice_vlan ports [<portlist> | all] [state [enable | disable] | mode [auto | manual]]

Parameters

<portlist> - Specifies a range of ports to set.
all - Specifies to set all ports.
state - Specifies the voice VLAN function state on ports. The default state is disabled. **enable** - Specifies to enable the voice VLAN function state on ports. **disable** - Specifies to disable the voice VLAN function state on ports.
mode - The voice VLAN mode. The default mode is auto. **auto** - When the mode is auto, the port may become the voice VLAN member port by auto-learning. If the MAC address of the received packet matches the configured OUI, the port will be learned as dynamic member port. The dynamic membership will be removed via the aging out mechanism. **manual** - When the mode is set to manual, the port needs to be manually added into or removed from the voice VLAN by 802.1Q VLAN configuration command.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure voice VLAN ports 4 to 6 to enable:

```
DES-3810-28:admin#config voice_vlan ports 4-6 state enable
Command: config voice_vlan ports 4-6 state enable

Success.

DES-3810-28:admin#
```

To set voice VLAN ports 4 to 6 to auto mode:

```
DES-3810-28:admin#config voice_vlan ports 4-6 mode auto
Command: config voice_vlan ports 4-6 mode auto

Success.

DES-3810-28:admin#
```

97-6 config voice_vlan log state

Description

This command is used to configure the voice VLAN log state.

Format

config voice_vlan log state [enable | disable]

Parameters

enable - Specifies to enable the voice VLAN log state.
disable - Specifies to disable the voice VLAN log state.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable the voice VLAN log state:

```
DES-3810-28:admin#config voice_vlan log state enable
Command: config voice_vlan log state enable

Success.

DES-3810-28:admin#
```

97-7 config voice_vlan aging_time

Description

This command is used to set the aging time of the voice VLAN. The aging time is used to remove a port from voice VLAN if the port is an automatic VLAN member. When the last voice device stops sending traffic and the MAC address of this voice device is aged out, the voice VLAN aging timer will be started. The port will be removed from the voice VLAN after expiration of voice VLAN aging timer. If the voice traffic resumes during the aging time, the aging timer will be reset and stop.

Format

config voice_vlan aging_time <min 1-65535>

Parameters

<min 1-65535> - Specifies the aging time. The range is 1 to 65535 minutes. The default value is 720 minutes.

Restrictions

Only Administrators and Operators can issue this command.

Example

To set 60 minutes as the aging time of voice VLAN:

```
DES-3810-28:admin#config voice_vlan aging_time 60
Command: config voice_vlan aging_time 60

Success.

DES-3810-28:admin#
```

97-8 show voice_vlan

Description

This command is used to display voice VLAN global information.

Format

show voice_vlan

Parameters

None.

Restrictions

None.

Example

To display voice VLAN information:

```
DES-3810-28:admin#show voice_vlan
Command: show voice_vlan

Voice VLAN State    : Disabled
Voice VLAN          : Unassigned
Priority            : 5
```

```
Aging Time          : 720 minutes
Log State           : Enabled

DES-3810-28:admin#
```

97-9 show voice_vlan oui

Description

This command is used to display the OUI information for voice VLAN.

Format

show voice_vlan oui

Parameters

None.

Restrictions

None.

Example

To display voice VLAN OUI:

```
DES-3810-28:admin#show voice_vlan oui
Command: show voice_vlan oui

OUI Address         Mask              Description
------------------  ----------------  ---------------
00-01-E3-00-00-00   FF-FF-FF-00-00-00  Siemens
00-03-6B-00-00-00   FF-FF-FF-00-00-00  Cisco
00-09-6E-00-00-00   FF-FF-FF-00-00-00  Avaya
00-0F-E2-00-00-00   FF-FF-FF-00-00-00  Huawei&3COM
00-60-B9-00-00-00   FF-FF-FF-00-00-00  NEC&Phillips
00-D0-1E-00-00-00   FF-FF-FF-00-00-00  Pingtel
00-E0-75-00-00-00   FF-FF-FF-00-00-00  Veritel
00-E0-BB-00-00-00   FF-FF-FF-00-00-00  3COM

Total Entries: 8

DES-3810-28:admin#
```

97-10 show voice_vlan ports

Description

This command is used to display port voice VLAN information.

Format

show voice_vlan ports {<portlist>}

Parameters

<portlist> - (Optional) Specifies a range of ports to display.

Note: If no parameter is specified, all voice VLAN port information will be displayed.

Restrictions

None.

Example

To display voice VLAN ports 1 to 3:

```
DES-3810-28:admin#show voice_vlan ports 1-3
Command: show voice_vlan ports 1-3

Ports  Status     Mode
-----  ---------  --------
 1      Disabled   Auto
 2      Disabled   Auto
 3      Disabled   Auto

DES-3810-28:admin#
```

97-11 show voice_vlan voice_device ports

Description

This command is used to show voice devices that are connected to the ports. The start time is the time when the device is detected on this port and the activate time is the latest time when the device sends the traffic.

Format

show voice_vlan voice_device ports {<portlist>}

Parameters

<portlist> - (Optional) Specifies a range of ports to display.

Note: If no parameter is specified, the system will display the connected Voice device of all ports.

Restrictions

None.

Example

To display voice VLAN device ports 1 to 2:

```
DES-3810-28:admin#show voice_vlan voice_device ports 1-2
Command: show voice_vlan voice_device ports 1-2

Ports  Voice Device       Start Time        Last Active Time
-----  -----------------  ----------------  -----------------

Total Entries : 0

DES-3810-28:admin#
```

Chapter 98 Web-based Access Control (WAC) Commands

enable wac
disable wac
config wac authorization attributes {radius [enable | disable] | local [enable | disable]}(1)
config wac ports [<portlist> | all] {state [enable | disable] | aging_time [infinite | <min 1-1440>] | idle_time [infinite | <min 1-1440>] | block_time [<sec 0-300>]}(1)
config wac method [local | radius]
config wac default_redirpath <string 128>
config wac clear_default_redirpath
config wac virtual_ip <ipaddr>
config wac switch_http_port <tcp_port_number 1-65535> {[http | https]}
create wac user <username 15> {[vlan <vlan_name 32> | vlanid <vlanid 1-4094>]}
delete wac [user <username 15> | all_users]
config wac user <username 15> [vlan <vlan_name 32> | vlanid <vlanid 1-4094> | clear_vlan]
show wac
show wac ports {<portlist>}
show wac user
show wac auth_state ports {<portlist>}
clear wac auth_state [ports [<portlist> | all] {authenticated | authenticating | blocked} | macaddr <macaddr>]

98-1 enable wac

Description

This command is used to enable the WAC function.

Format

enable wac

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To enable the WAC function:

```
DES-3810-28:admin#enable wac
Command: enable wac

Success.

DES-3810-28:admin#
```

98-2 disable wac

Description

This command is used to disable the WAC function.

Format

disable wac

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To disable the WAC function:

```
DES-3810-28:admin#disable wac
Command: disable wac

Success.

DES-3810-28:admin#
```

98-3 config wac authorization attributes

Description

This command is used to configure the acceptance of an authorized configuration. When the authorization is enabled for WAC's RADIUS, the authorized data assigned by the RADUIS server will be accepted if the global authorization network is enabled. When the authorization is enabled for WAC's local, the authorized data assigned by the local database will be accepted.

Format

config wac authorization attributes {radius [enable | disable] | local [enable | disable]}(1)

Parameters

radius - If specified to enable, the authorized data assigned by the RADUIS server will be accepted if the global authorization network is enabled. The default state is enabled. **enable** - Specifies to enable authorized data assigned by the RADIUS server to be accepted. **disable** - Specifies to disable authorized data assigned by the RADIUS server from being accepted.
local - If specified to enable, the authorized data assigned by the local database will be accepted if the global authorization network is enabled. The default state is enabled. **enable** - Specifies to enable authorized data assigned by the local database to be accepted. **disable** - Specifies to disable authorized data assigned by the local database from being accepted.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the acceptance of an authorized configuration:

```
DES-3810-28:admin#config wac authorization attributes local disable
Command: config wac authorization attributes local disable

Success.

DES-3810-28:admin#
```

98-4 config wac ports

Description

This command is used to configure the WAC port parameters.

Format

config wac ports [<portlist> | all] {state [enable | disable] | aging_time [infinite | <min 1-1440>] | idle_time [infinite | <min 1-1440>] | block_time [<sec 0-300>]}(1)

Parameters

<portlist> - Specifies a range of ports to configure. **all** - Specifies to configure all ports.
state - Specifies to enable or disable the WAC state. **enable** - Specifies to enable the WAC state. **disable** - Specifies to disable the WAC state.
aging_time - Specifies a time period during which an authenticated host will be kept in authenticated state. The default value is 1440 minutes. **infinite** - Specifies to indicate the authenticated host on the port will not ageout. **<min 1-1440>** - Specifies an ageout value between 1 and 1440 minutes.
idle_time - Specifies a time period after which an authenticated host will be moved to un-authenticated state if there is no traffic during that period. The default value is infinite. **infinite** - Specifies to indicate the host will not be removed from the authenticated state due to idle of traffic. **<min 1-1440>** - Specifies an idle time between 1 and 1440 minutes.
block_time - If a host fails to pass the authentication, it will be blocked for this period of time

before it can be re-authenticated.The default value is 60 seconds. **<sec 0-300>** - Specifies a block time between 0 and 300 seconds.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the WAC port state:

```
DES-3810-28:admin#config wac ports 1-8 state enable
Command: config wac ports 1-8 state enable

Success.

DES-3810-28:admin#
```

To configure the WAC port aging time:

```
DES-3810-28:admin#config wac ports 1-5 aging_time 200
Command: config wac ports 1-5 aging_time 200

Success.

DES-3810-28:admin#
```

98-5 config wac method

Description

This command is used to allow specification of the RADIUS protocol used by WAC to complete RADIUS authentication. WAC shares other RADIUS configuration with 802.1X. When using this command to set the RADIUS protocol, users must make sure the RADIUS server added by the config radius command supports the protocol.

Format

config wac method [local | radius]

Parameters

local - Specifies the authentication will be done via the local database.
radius - Specifies the authentication will be done via the RADIUS server.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the WAC authentication method:

```
DES-3810-28:admin#config wac method radius
Command: config wac method radius

Success.

DES-3810-28:admin#
```

98-6 config wac default_redirpath

Description

This command is used to configure the WAC default redirect path. If default redirect path is configured, the user will be redirected to the default redirect path after successful authentication. When the string is cleared, the client will not be redirected to another URL after successful authentication.

Format

config wac default_redirpath <string 128>

Parameters

<string 128> - Specifies the URL that the client will be redirected to after successful authentication. By default, the redirected path is cleared.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the WAC default redirect path:

```
DES-3810-28:admin#config wac default_redirpath http://www.dlink.com
Command: config wac default_redirpath http://www.dlink.com

Success.

DES-3810-28:admin#
```

98-7 config wac clear_default_redirpath

Description

This command is used to clear the WAC default redirect path. When the string is cleared, the client will not be redirected to another URL after successful authentication.

Format

config wac clear_default_redirpath

Parameters

None.

Restrictions

Only Administrators and Operators can issue this command.

Example

To clear the WAC default redirect path:

```
DES-3810-28:admin#config wac clear_default_redirpath
Success.

DES-3810-28:admin#
```

98-8 config wac virtual_ip

Description

This command is used to configure the WAC virtual IP address. When virtual IP is specified, the TCP packets sent to the virtual IP will get a reply. If virtual IP is enabled, TCP packets sent to the virtual IP or physical IPIF's IP address will both get the reply. When virtual IP is set 0.0.0.0, the virtual IP will be disabled. By default, the virtual IP is 0.0.0.0. The virtual IP will not respond to any ARP requests or ICMP packets. To make this function work properly, the virtual IP should not be an existing IP address. It also cannot be located on an existing subnet.

Format

config wac virtual_ip <ipaddr>

Parameters

<ipaddr> - Specifies the IP address of the virtual IP.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the WAC virtual IP address used to accept authentication requests from unauthenticated hosts:

```
DES-3810-28:admin# config wac virtual_ip 1.1.1.1
Command: config wac virtual_ip 1.1.1.1

Success.

DES-3810-28:admin#
```

98-9 config wac switch_http_port

Description

This command is used to configure the TCP port which the WAC switch listens to. The TCP port for HTTP or HTTPs is used to identify the HTTP or HTTPs packets that will be trapped to CPU for authentication processing, or to access the login page. If not specified, the default port number for HTTP is 80, and the default port number for HTTPS is 443. If no protocol is specified, the protocol is HTTP.

Format

config wac switch_http_port <tcp_port_number 1-65535> {[http | https]}

Parameters

<tcp_port_number 1-65535> - Specifies a TCP port which the WAC switch listens to and uses to finish the authenticating process.
http - (Optional) Specifies that WAC runs HTTP protocol on this TCP port.
https - (Optional) Specifies that WAC runs HTTPS protocol on this TCP port.

Restrictions

The HTTP cannot run at TCP port 443, and the HTTPS cannot run at TCP port 80. Only Administrators and Operators can issue this command.

Example

To configure a TCP port which the WAC switch listens to:

```
DES-3810-28:admin# config wac switch_http_port 8888 http
Command: config wac switch_http_port 8888 http

Success.

DES-3810-28:admin#
```

98-10 create wac user

Description

This command is used to create accounts for Web-based Access Control. This user account is independent of the login user account. If VLAN is not specified, the user will not get a VLAN assigned after the authentication.

Format

create wac user <username 15> {[vlan <vlan_name 32> | vlanid <vlanid 1-4094>]}

Parameters

<username 15> - Specifies the user account for Web-based Access Control.
vlan - (Optional) Specifies the authentication VLAN name.

<vlan_name 32> - Specifies the authentication VLAN name. The VLAN name can be up to 32 characters long.
vlanid - (Optional) Specifies the authentication VLAN ID number. **<vlanid 1-4094>** - Specifies the authentication VLAN ID number. The VLAN ID must be between 1 and 4094.

Restrictions

Only Administrators and Operators can issue this command.

Example

To create a WAC account:

```
DES-3810-28:admin# create wac user abc vlanid 123
Command: create wac user abc vlanid 123
Enter a case-sensitive new password:**
 Enter the new password again for confirmation:**
Success.

DES-3810-28:admin#
```

98-11 delete wac

Description

This command is used to delete an account.

Format

delete wac [user <username 15> | all_users]

Parameters

user - Specifies the user account for Web-based Access Control. **<username 15>** - Specifies the user account for Web-based Access Control. The username can be up to 15 characters long.
all_users - Specifies this option to delete all current WAC users.

Restrictions

Only Administrators and Operators can issue this command.

Example

To delete a WAC account:

```
DES-3810-28:admin#delete wac user duhon
Command: delete wac user duhon

Success.

DES-3810-28:admin#
```

98-12 config wac user

Description

This command is used to change the VLAN associated with a user.

Format

config wac user <username 15> [vlan <vlan_name 32> | vlanid <vlanid 1-4094> | clear_vlan]

Parameters

<username 15> - Specifies the name of user account which will change its VID.
vlan - Specifies the authentication VLAN name. **<vlan_name 32>** - Specifies the authentication VLAN name. The VLAN name can be up to 32 characters long.
vlanid - Specifies the authentication VLAN ID. **<vlanid 1-4094>** - Specifies the authentication VLAN ID. The VLAN ID must be between 1 and 4094.
clear_vlan - Specifies to clear the specified VLAN.

Restrictions

Only Administrators and Operators can issue this command.

Example

To configure the user's VLAN:

```
DES-3810-28:admin# config wac user abc vlanid 100
Command: config wac user abc vlanid 100

Enter a old password:**
Enter a case-sensitive new password:**
Enter the new password again for confirmation:**
Success.

DES-3810-28:admin#
```

98-13 show wac

Description

This command is used to display the WAC global setting.

Format

show wac

Parameters

None.

Restrictions

None.

Example

To display WAC:

```
DES-3810-28:admin#show wac
Command: show wac

Web-Base Access Control
---------------------------------
State                   : Disabled
Method                  : Local
Redirect Path           :
Virtual IP              : 0.0.0.0
Switch HTTP Port        : 80 (HTTP)
RADIUS Authorization    : Enabled
Local Authorization     : Enabled

DES-3810-28:admin#
```

98-14 show wac ports

Description

This command is used to display WAC port information.

Format

show wac ports {<portlist>}

Parameters

<portlist> - (Optional) Specifies a range of member ports to display the status.

Restrictions

None.

Example

To display WAC ports 1 to 3:

```
DES-3810-28:admin#show wac ports 1-3
Command: show wac ports 1-3

 Port    State        Aging Time    Idle Time      Block Time
                        (min)         (min)          (sec)
 -----  --------    -------------  -------------  -------------
 1      Disabled    1440           Infinite       60
 2      Disabled    1440           Infinite       60
 3      Disabled    1440           Infinite       60

DES-3810-28:admin#
```

98-15 show wac user

Description

This command is used to display WAC user accounts.

Format

show wac user

Parameters

None.

Restrictions

None.

Example

To show Web authentication user accounts:

```
DES-3810-28:admin# show wac user
Command: show wac user
Username        Password    VID
---------       ----------  ----------
123             *****       1000

Total Entries   : 1

DES-3810-28:admin#
```

98-16 show wac auth_state ports

Description

This command is used to display the authentication state for ports.

Format

show wac auth_state ports {<portlist>}

Parameters

<portlist> - (Optional) Specifies the list of ports whose WAC authentication state will be displayed.

Restrictions

None.

Example

To display the WAC authentication status of ports:

```
DES-3810-28:admin# show wac auth_state ports
Command: show wac auth_state ports

P:Port-based   Pri:Priority

Port    MAC Address       Original  State       VID Pri Aging Time/ Idle
                           RX VID                      Block Time  Time
------ ------------------- ---- -------------- ---- -- ----------- ----
1      00-05-5D-F9-16-76    1    Authenticating -    -  26          -

 Total Authenticating Hosts  : 1
 Total Authenticated Hosts   : 0
 Total Blocked Hosts         : 0

DES-3810-28:admin#
```

98-17 clear wac auth_state

Description

This command is used to clear the authentication state of a port. The port will return to un-authenticated state. All the timers associated with the port will be reset.

Format

clear wac auth_state [ports [<portlist> | all] {authenticated | authenticating | blocked} | macaddr <macaddr>]

Parameters

ports - Specifies the list of ports whose WAC state will be cleared. **<portlist>** - Specifies a range of ports. **all** - Specifies to clear all ports.
authenticated - (Optional) Specifies to clear all authenticated users for a port.
authenticating - (Optional) Specifies to clear all authenticating users for a port.
blocked - (Optional) Specifies to clear all blocked users for a port.

macaddr - Specifies to clear a specific user. **<macaddr>** - Enter the MAC address here.

Restrictions

Only Administrators and Operators can issue this command.

Example

To clear the WAC authentication state of ports 1 to 5:

```
DES-3810-28:admin# clear wac auth_state ports 1-5
Command: clear wac auth_state ports 1-5

Success.

DES-3810-28:admin#
```

Appendix A Mitigating ARP Spoofing Attacks Using Packet Content ACL

How Address Resolution Protocol works

Address Resolution Protocol (ARP) is the standard method for finding a host's hardware address (MAC address) when only its IP address is known. However, this protocol is vulnerable because crackers can spoof the IP and MAC information in the ARP packets to attack a LAN (known as ARP spoofing). This document is intended to introduce the ARP protocol, ARP spoofing attacks, and the countermeasures brought by D-Link's switches to thwart ARP spoofing attacks.

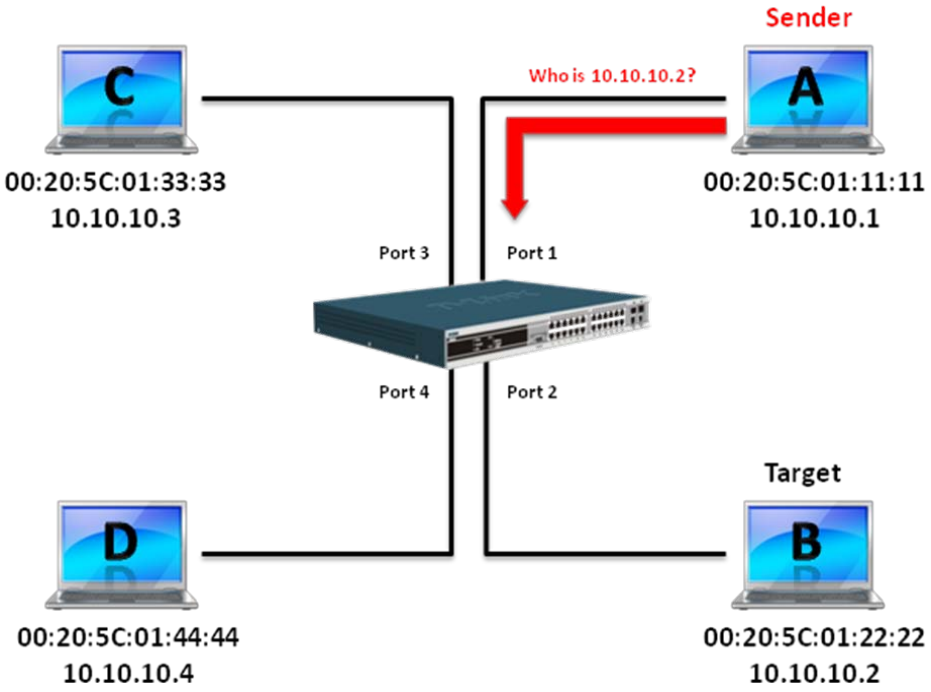


Figure 1

In the process of ARP, PC A will first issue an ARP request to query PC B's MAC address. The network structure is shown in Figure 1.

In the meantime, PC A's MAC address will be written into the "Sender H/W Address" and its IP address will be written into the "Sender Protocol Address" in the ARP payload. As PC B's MAC address is unknown, the "Target H/W Address" will be "00-00-00-00-00-00," while PC B's IP address will be written into the "Target Protocol Address," shown in Table1.

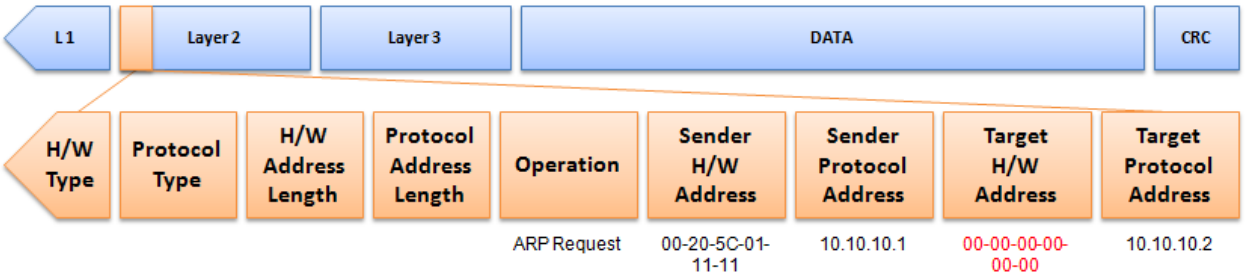


Table 1. ARP Payload

The ARP request will be encapsulated into an Ethernet frame and sent out. As can be seen in Table 2, the “Source Address” in the Ethernet frame will be PC A’s MAC address. Since an ARP request is sent via broadcast, the “Destination address” is in a format of Ethernet broadcast (FF-FF-FF-FF-FF-FF).

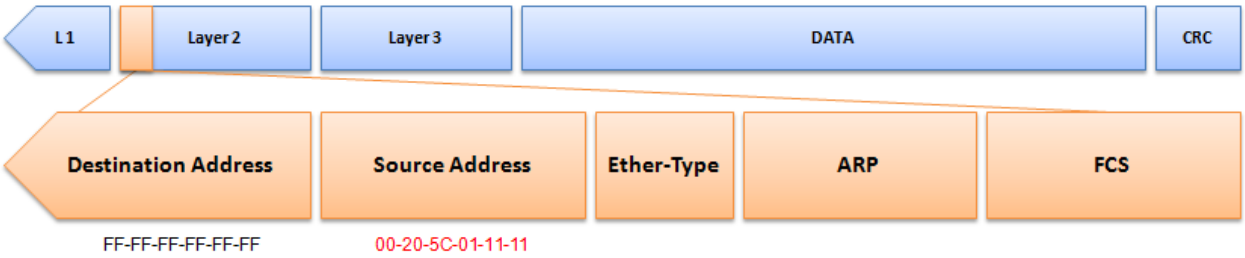


Table 2. Ethernet Frame Format

When the switch receives the frame, it will check the “Source Address” in the Ethernet frame’s header. If the address is not in its Forwarding Table, the switch will learn PC A’s MAC and the associated port into its Forwarding Table.

In addition, when the switch receives the broadcasted ARP request, it will flood the frame to all ports except the source port, port 1 (see Figure 2).

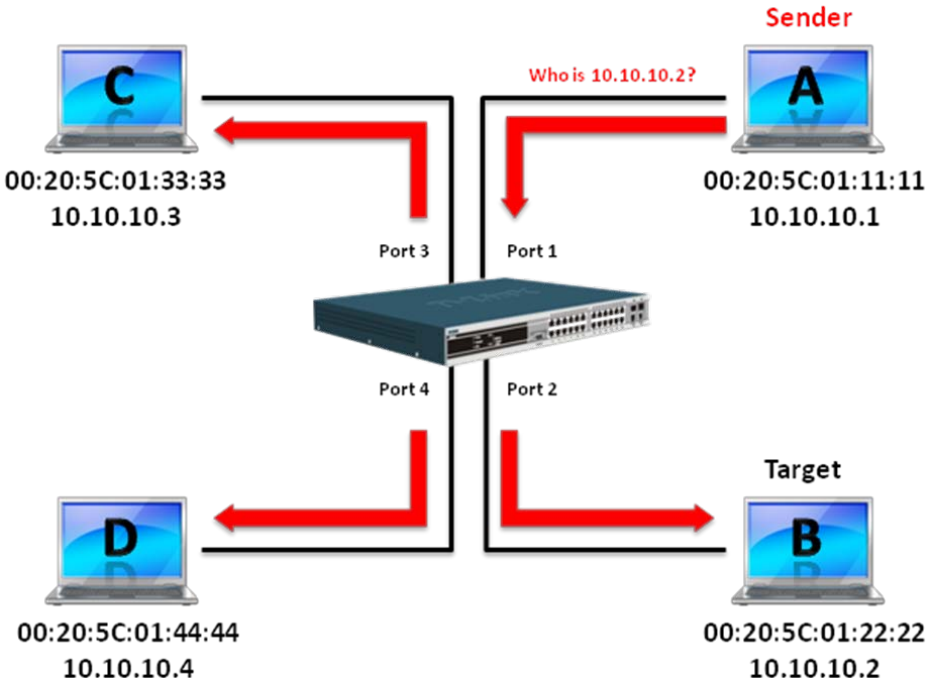


Figure 2

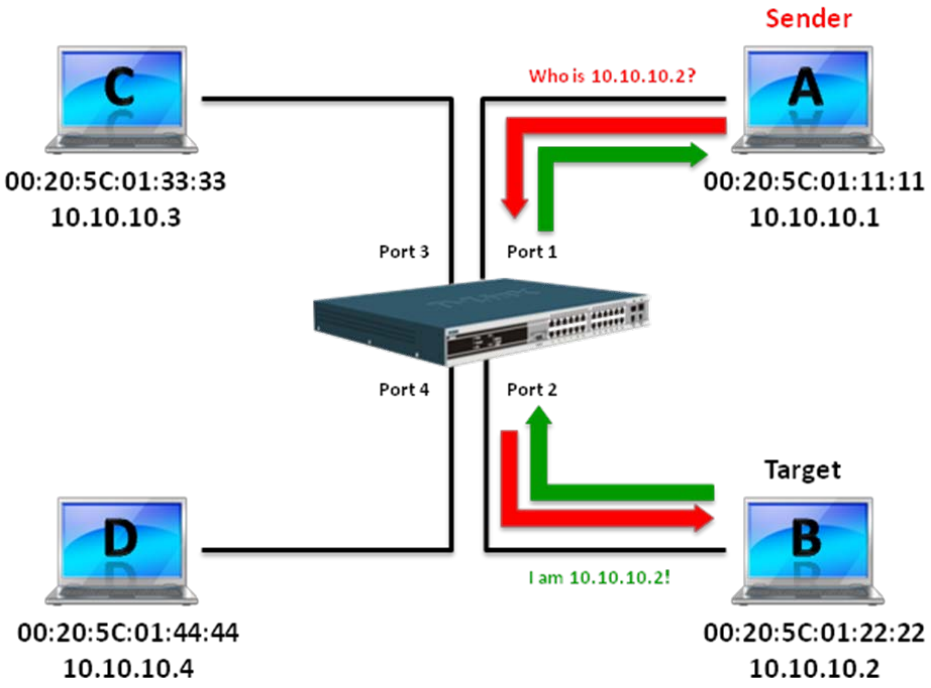


Figure 3

When PC B replies to the ARP request, its MAC address will be written into “Target H/W Address” in the ARP payload shown in Table 3. The ARP reply will be then encapsulated into an Ethernet frame again and sent back to the sender. The ARP reply is in a form of Unicast communication.

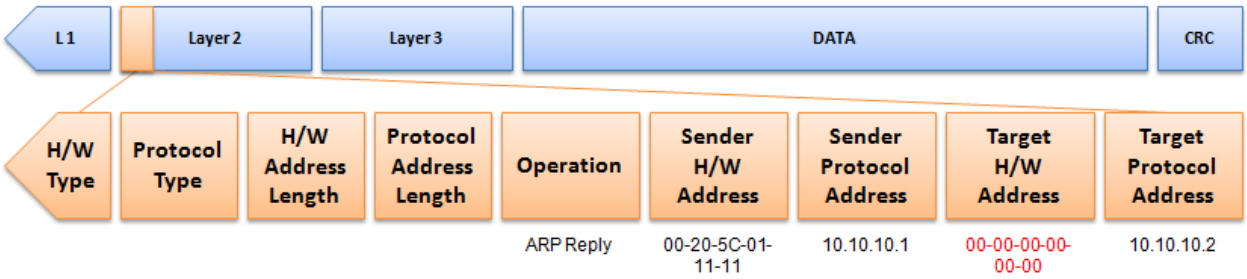


Table 3. ARP Payload

When PC B replies to the query, the “Destination Address” in the Ethernet frame will be changed to PC A’s MAC address. The “Source Address” will be changed to PC B’s MAC address (see Table 4).

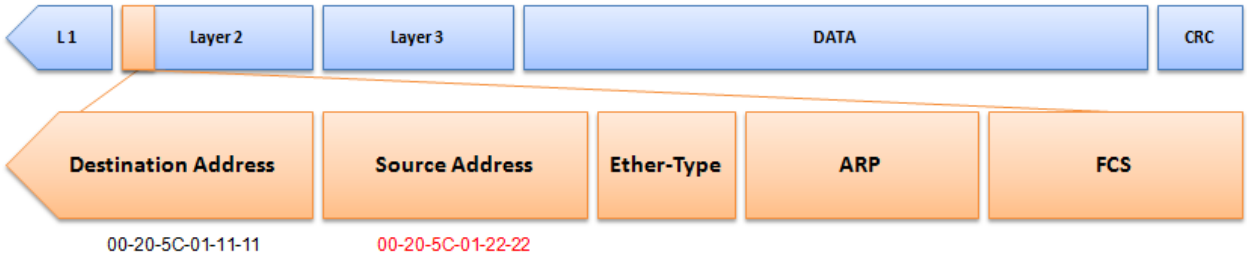
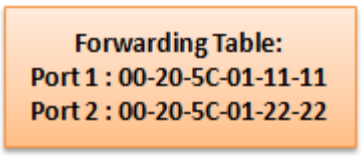


Table 4. Ethernet Frame Format

The switch will also examine the “Source Address” of the Ethernet frame and find that the address is not in the Forwarding Table. The switch will learn PC B’s MAC and update its Forwarding Table.



How ARP Spoofing Attacks a Network

ARP spoofing, also known as ARP poisoning, is a method to attack an Ethernet network which may allow an attacker to sniff data frames on a LAN, modify the traffic, or stop the traffic altogether (known as a Denial of Service – DoS attack). The principle of ARP spoofing is to send the fake, or spoofed ARP messages to an Ethernet network.

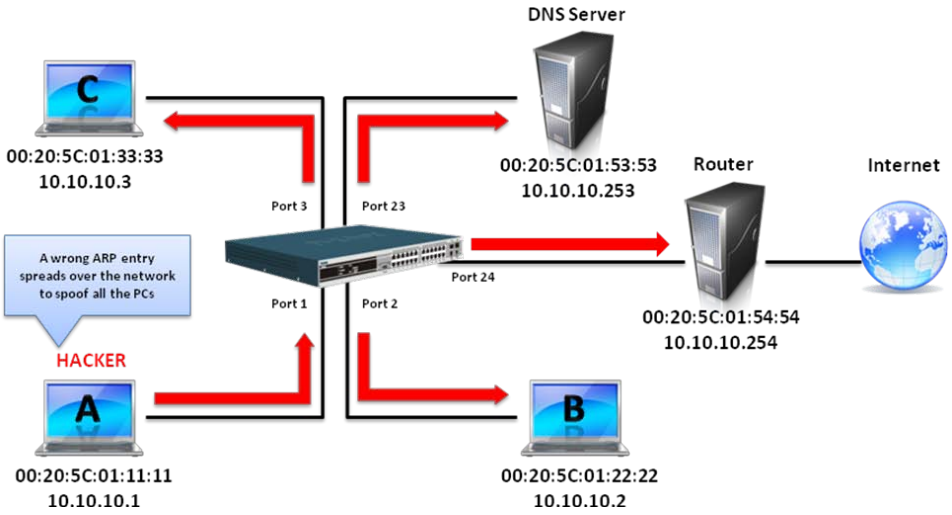
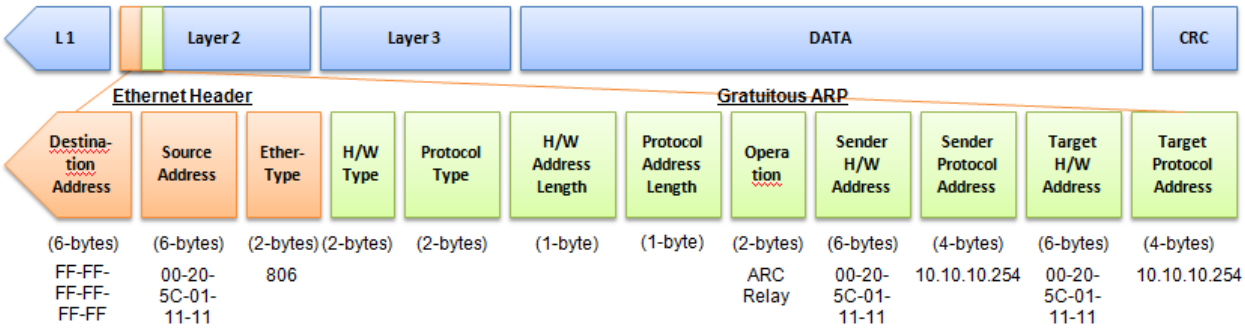


Figure 4

Generally, the aim is to associate the attacker's or random MAC address with the IP address of another node (such as the default gateway). Any traffic meant for that IP address would be mistakenly re-directed to the node specified by the attacker.

IP spoofing attack is caused by Gratuitous ARP that occurs when a host sends an ARP request to resolve its own IP address. Figure-4 shows a hacker within a LAN to initiate ARP spoofing attack.

In the Gratuitous ARP packet, the “Sender protocol address” and “Target protocol address” are filled with the same source IP address itself. The “Sender H/W Address” and “Target H/W address” are filled with the same source MAC address itself. The destination MAC address is the Ethernet broadcast address (FF-FF-FF-FF-FF-FF). All nodes within the network will immediately update their own ARP table in accordance with the sender’s MAC and IP address. The format of Gratuitous ARP is shown in the following table.



A common DoS attack today can be done by associating a nonexistent or any specified MAC address to the IP address of the network’s default gateway. The malicious attacker only needs to broadcast one Gratuitous ARP to the network claiming it is the gateway so that the whole network operation will be turned down as all packets to the Internet will be directed to the wrong node.

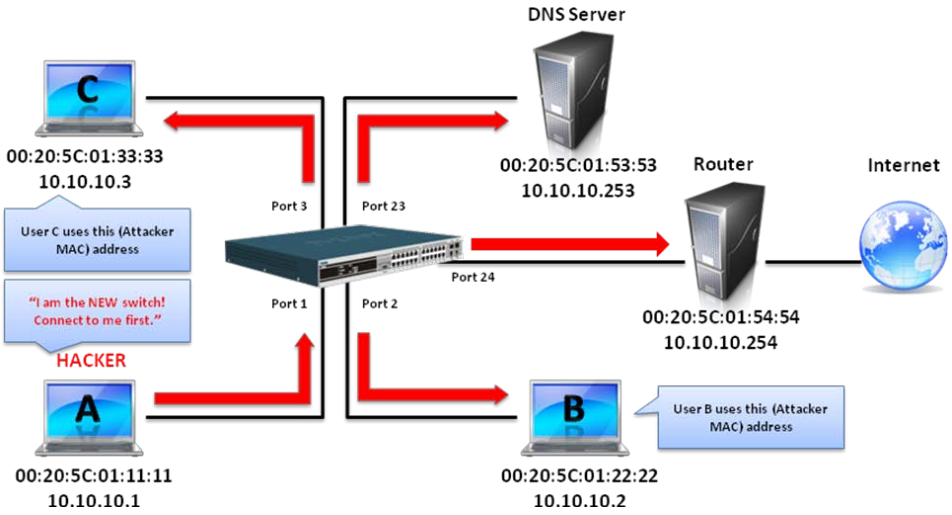


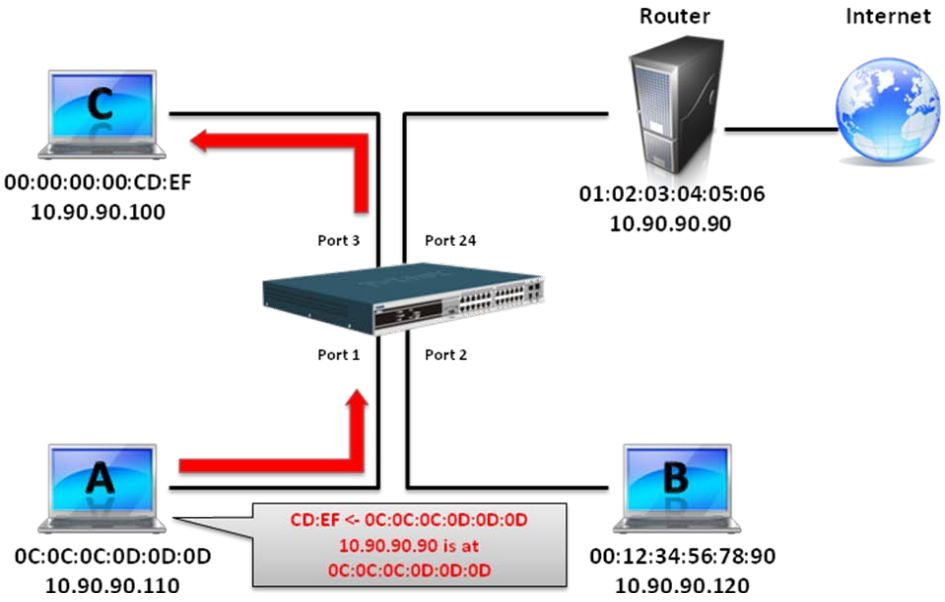
Figure 5

Likewise, the attacker can either choose to forward the traffic to the actual default gateway (passive sniffing) or modify the data before forwarding it (man-in-the-middle attack).

The hacker cheats the victim PC that it is a router and cheats the router that it is the victim. As can be seen in Figure 5 all traffic will be then sniffed by the hacker but the users will not discover.

Prevent ARP Spoofing via Packet Content ACL

D-Link managed switches can effectively mitigate common DoS attacks caused by ARP spoofing via a unique Package Content ACL.



For the reason that basic ACL can only filter ARP packets based on packet type, VLAN ID, Source, and Destination MAC information, there is a need for further inspections of ARP packets. To prevent ARP spoofing attack, we will demonstrate here via using Packet Content ACL on the Switch to block the invalid ARP packets which contain faked gateway's MAC and IP binding.

Configuration

The configuration logic is as follows:

1. Only if the ARP matches Source MAC address in Ethernet, Sender MAC address and Sender IP address in ARP protocol can pass through the switch. (In this example, it is the gateway's ARP.)
2. The switch will deny all other ARP packets which claim they are from the gateway's IP.

The design of Packet Content ACL on the Switch enables users to inspect any offset chunk. An offset chunk is a 4-byte block in a HEX format, which is utilized to match the individual field in an Ethernet frame. Each profile is allowed to contain up to a maximum of four offset chunks. Furthermore, only one single profile of Packet Content ACL can be supported per switch. In other words, up to 16 bytes of total offset chunks can be applied to each profile and a switch. Therefore, a careful consideration is needed for planning and configuration of the valuable offset chunks.

In Table 6, you will notice that the Offset_Chunk0 starts from the 127th byte and ends at the 128th byte. It also can be found that the offset chunk is scratched from 1 but not zero.

Offset Chunk	Offset Chunk0	Offset Chunk1	Offset Chunk2	Offset Chunk3	Offset Chunk4	Offset Chunk5	Offset Chunk6	Offset Chunk7	Offset Chunk8	Offset Chunk9	Offset Chunk10	Offset Chunk11	Offset Chunk12	Offset Chunk13	Offset Chunk14	Offset Chunk15
Byte	127	3	7	11	15	19	23	27	31	35	39	43	47	51	55	59
Byte	128	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60
Byte	1	5	9	13	17	21	25	29	33	37	41	45	49	53	57	61
Byte	2	6	10	14	18	22	26	30	34	38	42	46	50	54	58	62

Offset Chunk	Offset Chunk16	Offset Chunk17	Offset Chunk18	Offset Chunk19	Offset Chunk20	Offset Chunk21	Offset Chunk22	Offset Chunk23	Offset Chunk24	Offset Chunk25	Offset Chunk26	Offset Chunk27	Offset Chunk28	Offset Chunk29	Offset Chunk30	Offset Chunk31
Byte	63	67	71	75	79	83	87	91	95	99	103	107	111	115	119	123
Byte	64	68	72	76	80	84	88	92	96	100	104	108	112	116	120	124
Byte	65	69	73	77	81	85	89	93	97	101	105	109	113	117	121	125
Byte	66	70	74	78	82	86	90	94	98	102	106	110	114	118	122	126

Table 6. Chunk and Packet Offset

The following table indicates a completed ARP packet contained in Ethernet frame which is the pattern for the calculation of packet offset.

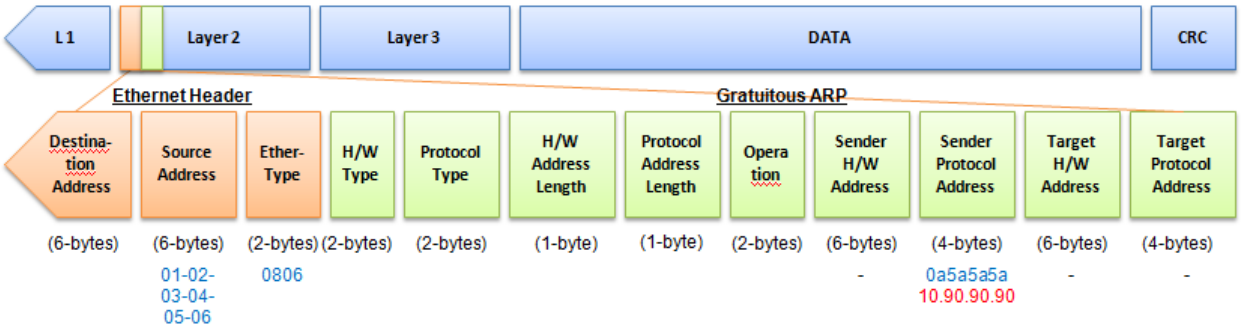


Table 7. A Completed ARP Packet Contained in an Ethernet Frame

	Command	Description
Step 1:	`create access_profile_id 1 profile_name 1 ethernet source_mac FF-FF-FF-FF-FF-FF ethernet_type`	• Create access profile 1 to match Ethernet Type and Source MAC address.
Step 2:	`config access_profile profile_id 1 add access_id 1 ethernet source_mac 01-02-03-04-05-06 ethernet_type 0x806 port 1-12 permit`	• Configure access profile 1 • Only if the gateway's ARP packet that contains the correct Source MAC in the Ethernet frame can pass through the switch.
Step 3:	`create access_profile profile_id 2 profile_name 2 packet_content_mask offset1 l2 0 0xFF offset2 l2 1 0xFF offset3 l2 16 0xFF offset4 l2 17 0xFF offset5 l2 18 0xFF offset6 l2 19 0xFF`	• Create access profile 2 • The first chunk starts from offset 1, 2 mask for Ethernet Type. (Blue in Table 6, 13th and 14th bytes) • The second chunk starts from offset 3, 4 mask for Sender IP in ARP packet. (Green in Table 6, 29th and 30th bytes) • The third chunk starts from offset 5, 6 mask for Sender IP in ARP packet. (Brown in Table 6, 31st and 32nd bytes)
Step 4:	`config access_profile profile_id 2 add access_id 1 packet_content offset1 l2 0 0x08 offset2 l2 1 0x06 offset3 l2 16 0x0A offset4 l2 17 0x5A offset5 l2 18 0x5A offset6 l2 19 0x5A port 1-12 deny`	• Configure access profile 2. • The rest of the ARP packets whose Sender IP claim they are the gateway's IP will be dropped.
Step 5:	`save`	• Save configuration.

Appendix B Password Recovery Procedure

This chapter describes the procedure for resetting passwords on D-Link switches. Authenticating any user who tries to access networks is necessary and important. The basic authentication method used to accept qualified users is through a local login, utilizing a Username and Password. Sometimes, passwords get forgotten or destroyed, so network administrators need to reset these passwords. This chapter explains how the Password Recovery feature can help network administrators reach this goal.

The following steps explain how to use the Password Recovery feature on D-Link devices to easily recover passwords.

Complete these steps to reset the password:

- For security reasons, the Password Recovery feature requires the user to physically access the device. Therefore this feature is only applicable when there is a direct connection to the console port of the device. It is necessary for the user needs to attach a terminal or PC with terminal emulation to the console port of the switch.
- Power on the switch. After the runtime image and UART init are loaded to 100%, the switch will allow 2 seconds for the user to press the hotkey [^] (Shift + 6) to enter the "Password Recovery Mode." Once the switch enters the "Password Recovery Mode," all ports on the switch will be disabled and all port LEDs will be lit.

```
  Boot Procedure                                          V2.00.004
--------------------------------------------------------------------------------

  Power On Self Test ....................................  100%

  MAC Address   : 00-03-38-10-28-01
  H/W Version   : A1

  Please Wait, Loading V2.10.024 Runtime Image ..............  100 %
  UART init .................................................  100 %
```

```
Password Recovery Mode
>
```

- In the "Password Recovery Mode" only the following commands can be used.

Command	Parameters
reset config {force_agree}	The **reset config** command resets the whole configuration back to the default values.
reboot {force_agree}	The **reboot** command exits the Reset Password Recovery Mode and restarts the switch. A confirmation message will be displayed to allow the user to save the current settings.

Command	Parameters
reset account	The **reset account** command deletes all the previously created accounts.
reset password {<username>}	The **reset password** command resets the password of the specified user. If a username is not specified, the passwords of all users will be reset.
show account	The **show account** command displays all previously created accounts.

Appendix C System Log Entries

The following table lists all possible entries and their corresponding meanings that will appear in the System Log of this Switch.

Category	Log Description	Severity	Note
System	Event description: System started up Log Message: System started up	Critical	
	Event description: Configuration saved to flash Log Message: Configuration saved to flash (Username: <username>) Parameters description: username: The user name that save the configuration.	Informational	
	Event description: System log saved to flash Log Message: System log saved to flash(Username: <username>) Parameters description: username: The user name that save the configuration.	Informational	
	Event description: Configuration and log saved to flash Log Message: Configuration and log saved to flash (Username: <username>) Parameters description: username: The user name that save the configuration.	Informational	
Peripherals	Event description: Temperature sensor enters alarm state. Log Message: Temperature sensor <sensorID> enters alarm state (current temperature: <temperature>) Parameters description: sensorID: The sensor ID. temperature: The temperature.	Informational	
	Event description: Temperature recovers to normal. Log Message: Temperature sensor <sensorID> recovers to normal state (current temperature: <temperature>) Parameters description: sensorID: The sensor ID. temperature: The temperature.	Informational	
	Event description: Internal Power failed. Log Message: Internal Power failed	Critical	
	Event description: Internal Power is recovered. Log Message: Internal Power is recovered	Critical	
	Event description: Redundant Power failed. Log Message: Redundant Power failed	Critical	
	Event description: Redundant Power is working. Log Message: Redundant Power is working	Critical	
SNMP	Event description: SNMP request received with invalid community string Log Message: SNMP request received from <ipAddress> with invalid community string! Parameters description: ipAddress: IP address.	Informational	
Interface	Event description: Port link up Log Message: Port <portNum> link up, <link state> Parameters description: portNum: The port number link state: port link status, for example: 100Mbps FULL duplex	Informational	
	Event description: Port link down Log Message: Port <portNum> link down Parameters description: portNum: The port number.	Informational	
Debug	Event description: System fatal error Log Message: System re-start reason: system fatal error	Emergency	

	Event description: CPU exception Log Message: System re-start reason: CPU exception	Emergency	
TFTP Client	Event description: Firmware upgraded successfully. Log Message: Firmware upgrade by <session> successfully (Username: <username>, IP: <ipaddr>, MAC: <macaddr>) Parameters description: session: The user's session. Username: Represent current login user. Ipaddr: Represent client IP address. macaddr : Represent client MAC address.	Informational	
	Event description: Firmware upgrade was unsuccessful. Log Message: Firmware upgrade by <session> was unsuccessful (Username: <username>, IP: <ipaddr>, MAC: <macaddr>) Parameters description: session: The user's session. Username: Represent current login user. Ipaddr: Represent client IP address. macaddr : Represent client MAC address.	Warning	
	Event description: Firmware successfully uploaded. Log Message: Firmware successfully uploaded by <session> (Username: <username>, IP: <ipaddr>, MAC: <macaddr>) Parameters description: session: The user's session. Username: Represent current login user. Ipaddr: Represent client IP address. macaddr : Represent client MAC address.	Informational	
	Event description: Firmware upload was unsuccessful. Log Message: Firmware upload by <session> was unsuccessful! (Username: <username>, IP: <ipaddr>, MAC: <macaddr>) Parameters description: session: The user's session. Username: Represent current login user. Ipaddr: Represent client IP address.	Warning	
	Event description: Configuration successfully downloaded. Log Message: Configuration successfully downloaded by <session> (Username: <username>, IP: <ipaddr>, MAC: <macaddr>) Parameters description: session: The user's session. Username: Represent current login user. Ipaddr: Represent client IP address. macaddr : Represent client MAC address.	Informational	
	Event description: Configuration download was unsuccessful. Log Message: Configuration download by <session> was unsuccessful! (Username: <username>, IP: <ipaddr>, MAC: <macaddr>) Parameters description: session: The user's session. Username: Represent current login user. Ipaddr: Represent client IP address. macaddr : Represent client MAC address.	Warning	
	Event description: Configuration successfully uploaded. Log Message: Configuration successfully uploaded by <session> (Username: <username>, IP: <ipaddr>, MAC: <macaddr>) Parameters description: session: The user's session. Username: Represent current login user. Ipaddr: Represent client IP address. macaddr : Represent client MAC address.	Informational	
	Event description: Configuration upload was unsuccessful. Log Message: Configuration upload by <session> was unsuccessful! (Username: <username>, IP: <ipaddr>, MAC: <macaddr>) Parameters description: session: The user's session. Username: Represent current login user. Ipaddr: Represent client IP address. macaddr : Represent client MAC address.	Warning	
	Event description: Log message successfully uploaded.	Informational	

	Log Message: Log message successfully uploaded by <session> (Username: <username>, IP: <ipaddr>, MAC: <macaddr>) Parameters description: session: The user's session. Username: Represent current login user. Ipaddr: Represent client IP address. macaddr : Represent client MAC address.		
	Event description: Log message upload was unsuccessful. Log Message: Log message upload by <session> was unsuccessful! (Username: <username>, IP: <ipaddr>, MAC: <macaddr>) Parameters description: session: The user's session. Username: Represent current login user. Ipaddr: Represent client IP address. macaddr : Represent client MAC address.	Warning	
RCP	Event description: Firmware downloaded successfully Log Message: Firmware download by RCP successfully (Username: <username>, RCP: <ipaddr>) Parameters description: username: user name. ipaddr : RCP server address.	Informational	
	Event description: Firmware download fail Log Message: Firmware download by RCP fail ! (Username: <username>, RCP: <ipaddr>) Parameters description: username: user name. ipaddr : RCP server address.	Warning	
	Event description: Firmware uploaded successfully Log Message: Firmware upload by RCP successfully (Username: <username>, RCP: <ipaddr>) Parameters description: username: user name. ipaddr : RCP server address.	Informational	
	Event description: Firmware upload fail Log Message: Firmware upload by RCP fail ! (Username: <username>, RCP: <ipaddr>) Parameters description: username: user name. ipaddr : server address.	Warning	
	Event description: Firmware applied successfully Log Message: Firmware applied successfully (Username: <username>, IP <ipaddr>) Parameters description: username: user name. ipaddr : RCP server address.	Informational	
	Event description: Firmware apply fail Log Message: Firmware apply fail ! (Username: <username>, IP <ipaddr>) Parameters description: username: user name. ipaddr : server address.	Warning	
	Event description: CFG downloaded successfully Log Message: Configuration download by RCP successfully (Username: <username>, RCP: <ipaddr>) Parameters description: username: user name. ipaddr : RCP server address.	Informational	
	Event description: CFG download fail Log Message: Configuration download by RCP fail ! (Username: <username>, RCP: <ipaddr>) Parameters description: username: user name. ipaddr: RCP server address.	Warning	
	Event description: CFG upload successfully Log Message: Configuration uploaded by RCP successfully	Informational	

	(Username: <username>, RCP: <ipaddr>) Parameters description: username: user name. ipaddr : RCP server address.		
	Event description: CFG upload fail Log Message: Configuration upload by RCP fail ! (Username: <username>, RCP: <ipaddr>) Parameters description: username: user name. ipaddr : RCP server address.	Warning	
	Event description: CFG applied successfully Log Message: configuration apply successfully (Username: <username>, IP: <ipaddr>) Parameters description: username: user name. ipaddr : server address.	Informational	
	Event description: CFG apply fail Log Message: configuration apply fail ! (Username: <username>, IP: <ipaddr>) Parameters description: username: user name. ipaddr : server address.	Warning	
	Event description: Log upload successfully Log Message: Log uploaded by RCP successfully (Username: <username>, RCP: <ipaddr>) Parameters description: username: user name. ipaddr : RCP server address.	Informational	
	Event description: Log upload fail Log Message: Log upload by RCP fail ! (Username: <username>, RCP: <ipaddr>) Parameters description: username: user name. ipaddr : RCP server address.	Warning	
	Event description: Attack log uploaded successfully Log Message: Attack log uploaded by RCP successfully (Username: <username>, RCP: <ipaddr>) Parameters description: username: user name. ipaddr : RCP server address.	Warning	
	Event description: Attack log upload fail Log Message: Attack log upload by RCP fail ! (Username: <username>, RCP: <ipaddr>) Parameters description: username: user name. ipaddr : RCP server address.	Warning	
MSTP Debug Enhancement	Event description: Topology changed. Log Message: Topology changed [([Instance:<InstanceID>] ,port:<portNum> [,MAC: <macaddr>])] Parameters description: InstanceID: Instance ID. portNum:Port ID macaddr: MAC address	Informational	
	Event description: New Root selected Log Message: [CIST | CIST Region | MSTI Region] New Root bridge selected ([Instance: <InstanceID>] MAC:<macaddr>, Priority: <value>) Parameters description: InstanceID: Instance ID. macaddr: root bridge MAC address value: root bridge priority	Informational	
	Event description: Spanning tree protocol is enabled Log Message: Spanning Tree Protocol is enabled.	Informational	
	Event description: Spanning tree protocol is disabled	Informational	

	Log Message: Spanning Tree Protocol is disabled.		
	Event description: Spannnig Tree instance created. Log Message: Spanning Tree instance create (Instance:<InstanceID>) Parameters description: InstanceID: Instance ID.	Informational	
	Event description: Spannnig Tree instance deleted. Log Message: Spanning Tree instance delete (Instance:<InstanceID>) Parameters description: InstanceID: Instance ID.	Informational	
	Event description: Spanning Tree Version changed. Log Message: Spanning Tree version changed.(new version:<new_version>) Parameters description: new_version: New STP version.	Informational	
	Event description: Spanning Tree MST configuration ID name and revision level changed. Log Message: Spanning Tree MST configuration ID name and revision level changed (name:<name> revision level <revision_level>). Parameters description: name : New name. revision_level:New revision level.	Informational	
	Event description: Spanning Tree MST configuration ID VLAN mapping table deleted. Log Message: Spanning Tree MST configuration ID VLAN mapping table change (Instance: <InstanceID> delete vlan <startvlanid> [-<endvlanid>]). Parameters description: InstanceID: Instance ID. startvlanid- endvlanid:VLANlist	Informational	
	Event description: Spanning Tree MST configuration ID VLAN mapping table added. Log Message: Spanning Tree MST configuration ID VLAN mapping table changed (Instance: <InstanceID> add vlan <startvlanid> [-<endvlanid>]). Parameters description: InstanceID: Instance ID. startvlanid- endvlanid:VLANlist	Informational	
	Event description: New root port Log Message: New root port selected [([Instance:<InstanceID>], port:< portNum>)] Parameters description: InstanceID: Instance ID. portNum:Port ID	Notice	
	Event description: Spanning Tree port status changed Log Message: Spanning Tree port status change [([Instance:<InstanceID>], port:<portNum>)] <old_status> -> <new_status> Parameters description: InstanceID: Instance ID. portNum: Port ID old_status: Old status new_status: New status	Notice	
	Event description: Spanning Tree port role changed. Log Message: Spanning Tree port role change [([Instance:<InstanceID>], port:<portNum>)] <old_role> -> <new_role> Parameters description: InstanceID: Instance ID. portNum:Port ID old_role: Old role new_status:New role	Informational	
ERPS	Event description: Signal failure detected Log Message: Signal fail detected on node <macaddr>	Notice	

	Parameters description: macaddr: The system MAC of the node		
	Event description: Signal failure cleared Log Message: Signal fail cleared on node <macaddr> Parameters description: macaddr: The system MAC of the node	Notice	
	Event description: RPL owner conflict Log Message: RPL owner conflicted on the ring <macaddr> Parameters description: macaddr: The system MAC of the node	Warning	
LLDP-MED	Event description: LLDP-MED topology change detected Log Message: LLDP-MED topology change detected (on port <portNum>. chassis id: <chassisType>, <chassisID>, port id: <portType>, <portID>, device class: <deviceClass>) Parameters description: portNum: The port number. chassisType: chassis ID subtype. Value list: 1. chassisComponent(1) 2. interfaceAlias(2) 3. portComponent(3) 4. macAddress(4) 5. networkAddress(5) 6. interfaceName(6) 7. local(7) chassisID: chassis ID. portType: port ID subtype. Value list: 1. interfaceAlias(1) 2. portComponent(2) 3. macAddress(3) 4. networkAddress(4) 5. interfaceName(5) 6. agentCircuitId(6) 7. local(7) portID: port ID. deviceClass: LLDP-MED device type.	Notice	
	Event description: Conflict LLDP-MED device type detected Log Message: Conflict LLDP-MED device type detected (on port < portNum >, chassis id: < chassisType>, <chassisID>, port id: < portType>, <portID>, device class: <deviceClass>) Parameters description: portNum: The port number. chassisType: chassis ID subtype. Value list: 1. chassisComponent(1) 2. interfaceAlias(2) 3. portComponent(3) 4. macAddress(4) 5. networkAddress(5) 6. interfaceName(6) 7. local(7) chassisID: chassis ID. portType: port ID subtype. Value list: 1. interfaceAlias(1) 2. portComponent(2) 3. macAddress(3) 4. networkAddress(4) 5. interfaceName(5) 6. agentCircuitId(6) 7. local(7) portID: port ID. deviceClass: LLDP-MED device type.	Notice	
	Event description: Incompatible LLDP-MED TLV set detected Log Message: Incompatible LLDP-MED TLV set detected (on port < portNum >, chassis id: < chassisType>, <chassisID>, port id: < portType>, <portID>, device class: <deviceClass>) Parameters description:	Notice	

	portNum: The port number. chassisType: chassis ID subtype. Value list: 1. chassisComponent(1) 2. interfaceAlias(2) 3. portComponent(3) 4. macAddress(4) 5. networkAddress(5) 6. interfaceName(6) 7. local(7) chassisID: chassis ID. portType: port ID subtype. Value list: 1. interfaceAlias(1) 2. portComponent(2) 3. macAddress(3) 4. networkAddress(4) 5. interfaceName(5) 6. agentCircuitId(6) 7. local(7) portID: port ID. deviceClass: LLDP-MED device type.		
CFM	Event description: Cross-connect is detected Log Message: CFM cross-connect. VLAN:<vlanid>, Local(MD Level:<mdlevel>, Port <portNum>, Direction:<mepdirection>) Remote(MEPID:<mepid>, MAC:<macaddr>) Parameters description: vlanid: Represents VLAN identifier of the MEP. mdlevel: Represents MD level of the MEP. portNum: Represents the logical port number of the MEP. mepdirection: Can be "inward" or "outward". mepid: Represents the MEPID of the MEP. macaddr: Represents the MAC address of the MEP.	Critical	
	Event description: Error CFM CCM packet is detected Log Message: CFM error ccm. MD Level:<mdlevel>, VLAN:<vlanid>, Local(Port <portNum>, Direction:<mepdirection>) Remote(MEPID:<mepid>, MAC:<macaddr>) Parameters description: vlanid: Represents VLAN identifier of the MEP. mdlevel: Represents MD level of the MEP. portNum: Represents logical port number of the MEP. mepdirection: Can be "inward" or "outward". mepid: Represents MEPID of the MEP. macaddr: Represents MAC address of the MEP.	Warning	
	Event description: Can not receive remote MEP's CCM packet Log Message: CFM remote down. MD Level:<mdlevel>, VLAN:<vlanid>, Local(Port <portNum>, Direction:<mepdirection>) Parameters description: vlanid: Represents VLAN identifier of the MEP. mdlevel: Represents MD level of the MEP. portNum: Represents logical port number of the MEP. mepdirection: Can be "inward" or "outward".	Warning	
	Event description: Remote MEP's MAC reports an error status Log Message: CFM remote MAC error. MD Level:<mdlevel>, VLAN:<vlanid>, Local(Port <portNum>, Direction:<mepdirection>) Parameters description: vlanid: Represents VLAN identifier of the MEP. mdlevel: Represents MD level of the MEP. portNum: Represents the logical port number of the MEP. mepdirection: Can be "inward" or "outward".	Warning	
	Event description: Remote MEP detects CFM defects Log Message: CFM remote detects a defect. MD Level:<mdlevel>, VLAN:<vlanid>, Local(Port <portNum>, Direction:<mepdirection>) Parameters description: vlanid: Represents VLAN identifier of the MEP. mdlevel: Represents MD level of the MEP. portNum: Represents logical port number of the MEP. mepdirection: Can be "inward" or "outward".	Informational	
Voice VLAN	Event description: When a new voice device is detected in the port. Log Message: New voice device detected (MAC <macaddr>, Port	Informational	

	<portNum>) Parameters description: portNum : The port number. macaddr: Voice device MAC address		
	Event description: When a port which is in auto voice VLAN mode joins the voice VLAN Log Message: Port < portNum > add into voice VLAN <vid > Parameters description: portNum : The port number. vid:VLAN ID	Informational	
	Event description: When a port leaves the voice VLAN and at the same time, no voice device is detected in the aging interval for that port, the log message will be sent. Log Message: Port < portNum > remove from voice VLAN <vid > Parameters description: portNum : The port number. vid:VLAN ID	Informational	
MAC-based Access Control	Event description: A host fails to pass the authentication Log Message: MAC-based Access Control unauthenticated host(MAC: <macaddr>, Port <portNum>, VID: <vid>) Parameters description: macaddr: MAC address portNum: The port number. vid: VLAN ID on which the host exists	Critical	
	Event description: The authorized user number on a port reaches the max user limit. Log Message: Port <portNum> enters MAC-based Access Control stop learning state. Parameters description: portNum: The port number.	Warning	
	Event description: The authorized user number on a port is below the max user limit in a time interval (interval is project depended). Log Message: Port <portNum> recovers from MAC-based Access Control stop learning state. Parameters description: portNum: The port number.	Warning	
	Event description: The authorized user number on whole device reaches the max user limit. Log Message: MAC-based Access Control enters stop learning state. Parameters description: None	Warning	
	Event description: The authorized user number on whole device is below the max user limit in a time interval (interval is project depended). Log Message: MAC-based Access Control recovers from stop learning state. Parameters description: None	Warning	
	Event description: A host passes the authentication Log Message: MAC-based Access Control host login successful (MAC: <macaddr>, port: <portNum>, VID: <vid>) Parameters description: macaddr: MAC address portNum: The port number. vid: VLAN ID on which the host exists	Informational	
	Event description: A host is aged out. Log Message: MAC-based Access Control host aged out (MAC: <macaddr>, port: <portNum>, VID: <vid>) Parameters description: macaddr: MAC address portNum: The port number. vid: VLAN ID on which the host exists	Informational	
802.1X	Event description: 802.1X Authentication failure. Log Message: 802.1XAuthentication failure [for <reason>] from (Username: <username>, Port: <portNum>, MAC: <macaddr>)	Warning	

	Parameters description: reason: The reason for failed authentication. username: The user that is being authenticated. portNum: The port number. macaddr: the MAC address of authenticated device.		
	Event description: 802.1X Authentication success. Log Message: 802.1X Authentication success from (Username: <username>, Port: <portNum>, MAC: <macaddr>) Parameters description: username: The user that being authenticated. portNum: The port number. macaddr: the MAC address of authenticated device.	Informational	
AAA and SSH	Event description: Successful login through a session. Log Message: Successful login through <Console | Telnet | Web | Web(SSL) | SSH>(Username: <username>, IP: <ipaddr | ipv6address>). Parameters description: ipaddr: IP address. username: user name. ipv6address: IPv6 address.	Informational	The IP parameter not for Console.
	Event description: Login failed through a session. Log Message: Login failed through <Console | Telnet | Web | Web(SSL) |SSH> (Username: <username>, IP: <ipaddr | ipv6address>). Parameters description: ipaddr: IP address. username: user name. ipv6address: IPv6 address.	Warning	The IP parameter not for Console.
	Event description: Logout through a session. Log Message: Logout through <Console | Telnet | Web | Web(SSL) | SSH> (Username: <username>, IP: <ipaddr | ipv6address>). Parameters description: ipaddr: IP address. username: user name. ipv6address: IPv6 address.	Informational	The IP parameter not for Console.
	Event description: session timed out. Log Message: <Console | Telnet | Web | Web(SSL) | SSH> session timed out (Username: <username>, IP: <ipaddr | ipv6address>). Parameters description: ipaddr: IP address. username: user name. ipv6address: IPv6 address.	Informational	The IP parameter not for Console session.
	Event description: SSH server is enabled. Log Message: SSH server is enabled	Informational	
	Event description: SSH server is disabled. Log Message: SSH server is disabled	Informational	
	Event description: Login failed through a session due to AAA server timeout or improper configuration. Log Message: Login failed through <Console | Telnet | Web | Web(SSL) | SSH> [from <ipaddr | ipv6address>] due to AAA server <ipaddr | ipv6address> timeout or improper configuration (Username: <username>). Parameters description: ipaddr: IP address. ipv6address: IPv6 address. username: user name.	Warning	The string “[from <ipaddr | ipv6address>]” not for console session.
	Event description: Enable Admin failed through a session due to AAA server timeout or improper configuration. Log Message: Enable Admin failed through <Console | Telnet | Web | Web(SSL) | SSH> [from <ipaddr | ipv6address>] due to AAA server <ipaddr | ipv6address> timeout or improper configuration (Username: <username>) Parameters description: ipaddr: IP address. ipv6address: IPv6 address. username: user name.	Warning	The string “[from <ipaddr | ipv6address>]” not for console session.
	Event description: Enable Admin failed through a session	Warning	The string “[from

	authenticated by AAA local or server. Log Message: Enable Admin failed through <Console | Telnet | Web| Web(SSL) | SSH> [from <ipaddr | ipv6address>] authenticated by AAA < local | server <ipaddr | ipv6address>> (Username: <username>). Parameters description: local: enable admin by AAA local method. server: enable admin by AAA server method. ipaddr: IP address. ipv6address: IPv6 address. username: user name.		<ipaddr | ipv6address>]" not for console session.
	Event description: Successful Enable Admin through a session authenticated by AAA local or none or server. Log Message: Successful Enable Admin through <Console | Telnet | Web | Web(SSL) | SSH> [from <ipaddr | ipv6address>] authenticated by AAA <local | none | server <ipaddr | ipv6address>> (Username: <username>). Parameters description: local: enable admin by AAA local method. none: enable admin by AAA none method. server: enable admin by AAA server method. ipaddr: IP address. ipv6address: IPv6 address. username: user name.	Informational	The string "[from <ipaddr | ipv6address>]" not for console session.
	Event description: Login failed through a session authenticated by AAA local or server. Log Message: Login failed through <Console | Telnet | Web | Web(SSL) | SSH> [from <ipaddr | ipv6address>] authenticated by AAA <local | server <ipaddr | ipv6address>> (Username: <username>). Parameters description: local: specify AAA local method. server: specify AAA server method. ipaddr: IP address. ipv6address: IPv6 address. username: user name.	Warning	The string "[from <ipaddr | ipv6address>]" not for console session.
	Event description: Successful login through a session authenticated by AAA local or none or server. Log Message: Successful login through <Console | Telnet | Web | Web(SSL) | SSH> [from < ipaddr | ipv6address >] authenticated by AAA <local | none | server <ipaddr | ipv6address>> (Username: <username>). Parameters description: local: specify AAA local method. none: specify none method. server: specify AAA server method. ipaddr: IP address. ipv6address: IPv6 address. username: user name.	Informational	The string "[from <ipaddr | ipv6address>]" not for console session.
	Event description: Authentication Policy is enabled Log Message: Authentication Policy is enabled (Module: AAA)		
	Event description: Authentication Policy is disabled Log Message: Authentication Policy is disabled (Module: AAA)		
Port Security	Event description: Address full on a port Log Message: Port security violation [([mac address:<macaddr>] on locking address full [port:< portNum>])] Parameters description: macaddr: The violation MAC address. portNum: The port number.	Warning	
IMPB	Event description: Dynamic IMPB entry conflicts with static ARP Log Message: Dynamic IMPB entry conflicts with static ARP(IP: <ipaddr>, MAC: <macaddr>, Port <portNum>) Parameters description: ipaddr: IP address macaddr: MAC address portNum : The port number	Warning	
	Event description: Dynamic IMPB entry conflicts with static FDB. Log Message: Dynamic IMPB entry conflicts with static FDB(IP: [<ipaddr> | <ipv6addr>], MAC: <macaddr>, Port <portNum>)	Warning	

	Parameters description: ipaddr: IP address ipv6addr: IPv6 address macaddr: MAC address portNum : The port number		
	Event description: Dynamic IMPB entry conflicts with static IMPB. Log Message: Dynamic IMPB entry conflicts with static IMPB(IP: [<ipaddr> | <ipv6addr>], MAC: <macaddr>, Port <portNum>). Parameters description: ipaddr: IP address ipv6addr: IPv6 address macaddr: MAC address portNum : The port number	Warning	
	Event description: Creating IMPB entry failed due to no ACL rule being available. Log Message: Creating IMPB entry failed due to no ACL rule being available(IP: [<ipaddr> | <ipv6addr>], MAC: <macaddr>, Port <portNum>) Parameters description: ipaddr: IP address ipv6addr: IPv6 address macaddr: MAC address portNum : The port number	Warning	
	Event description: IMPB checks a host illegal. Log Message: Unauthenticated IP-MAC address and discarded by IMPB (IP: [<ipaddr> | <ipv6addr>]], MAC :< macaddr >, Port <portNum >). Parameters description: ipaddr: IP address ipv6addr: IPv6 address macaddr: MAC address portNum : The port number	Warning	
	Event description: Dynamic IMPB entry conflicts with static NDP Log Message: Dynamic IMPB entry conflicts with static NDP (IP: [< ipaddr > | < ipv6addr >], MAC: <macaddr>, Port <portNum>) Parameters description: ipaddr: IP address ipv6addr: IPv6 address macaddr: MAC address portNum : The port number	Warning	
BPDU Attack Protection	Event description: BPDU attack happened. Log Message: Port <portNum> enter BPDU under protection state (mode: drop | block | shutdown) Parameters description: portNum : The port number drop / block / shutdown: There only one of they in a log entry.	Informational	
	Event description: BPDU attack automatically recover. Log Message: Port <portNum > recover from BPDU under protection state automatically Parameters description: portNum : The port number	Informational	
	Event description: BPDU attack manually recover. Log Message: Port <portNum > recover from BPDU under protection state manually Parameters description: portNum : The port number	Informational	
WAC	Event description: When a client host fail to authenticate. Log Message: WAC unauthenticated user (Username: <string>, IP: <ipaddr>, MAC: <macaddr>, Port: <portNum>) Parameters description: string: Username ipaddr: IP address macaddr: MAC address portNum : The port number	Warning	
	Event description: This log will be triggered when the authorized user number reaches the max user limit on whole device.	Warning	

	Log Message: WAC enters stop learning state.		
	Event description: This log will be triggered when the authorized user number is below the max user limit on whole device in a time interval (interval is project depended). Log Message: WAC recovers from stop learning state.	Warning	
	Event description: When a client host authenticated successful. Log Message: WAC authenticated user (Username: <string>, IP: <ipaddr>, MAC: <macaddr>, Port: <[unitID:] portNum>) Parameters description: string: User name ipaddr: IP address macaddr: MAC address unitID: The unit ID portNum : The port number	Warning	
JWAC	Event description: When a client host authenticated successful. Log Message: JWAC authenticated user (Username: <string>, IP: <ipaddr>, MAC: <macaddr>, Port: <portNum>) Parameters description: string: Username ipaddr: IP address macaddr: MAC address portNum : The port number	Warning	
	Event description: When a client host fail to authenticate. Log Message: JWAC unauthenticated user (Username: <string>, IP: <ipaddr>, MAC: <macaddr>, Port: <portNum>). Parameters description: string: Username ipaddr: IP address macaddr: MAC address portNum : The port number	Warning	
	Event description: This log will be triggered when the authorized user number reaches the max user limit on whole device. Log Message: JWAC enters stop learning state.	Warning	
	Event description: This log will be triggered when the authorized user number is below the max user limit on whole device in a time interval (interval is project depended). Log Message: JWAC recovers from stop learning state.	Warning	
LBD	Event Description: Loop back is detected under port-based mode. Log Message: Port < portNum> LBD loop occurred. Port blocked. Parameters Description: portNum: The port number.	Critical	
	Event Description: Port recovered from LBD blocked state under port-based mode. Log Message: Port< portNum> LBD port recovered. Loop detection restarted Parameters Description: portNum: The port number.	Informational	
	Event Description: Loop back is detected under VLAN-based mode. Log Message: Port <portNum> VID <vlanID> LBD loop occurred. Packet discard begun Parameters Description: portNum: The port number. vlanID: the VLAN ID number.	Critical	
	Event Description: Port recovered from LBD blocked state under VLAN-based mode. Log Message: Port < portNum> VID <vlanID> LBD recovered. Loop detection restarted Parameters Description: portNum: The port number. vlanID: the VLAN ID number.	Informational	
	Event Description: The number of VLAN in which loop back occurs hit the specified number. Log Message: Loop VLAN number overflow. Parameters Description: None	Informational	

Traffic Control	Event description: Broadcast storm occurrence. Log Message: Port <portNum> Broadcast storm is occurring. Parameters description: portNum: The port number.	Warning	
	Event description: Broadcast storm cleared. Log Message: Port <portNum> Broadcast storm has cleared. Parameters description: portNum: The port number.	Informational	
	Event description: Multicast storm occurrence. Log Message: Port <portNum> Multicast storm is occurring. Parameters description: portNum: The port number.	Warning	
	Event description: Multicast Storm cleared. Log Message: Port <portNum> Multicast storm has cleared. Parameters description: portNum: The port number.	Informational	
	Event description: Port shut down due to a packet storm Log Message: Port <portNum> is currently shut down due to a packet storm Parameters description: portNum: The port number.	Warning	
SafeGuard	Event description: Safeguard Engine is in normal mode Log Message: Safeguard Engine enters NORMAL mode	Informational	
	Event description: Safeguard Engine is in filtering packet mode Log Message: Safeguard Engine enters EXHAUSTED mode	Warning	
IP and Password Changed	Event description: Password change activity Log Message: Password was changed by console (Username: <username>) Parameters description: username: user name.	Informational	
DoS Attack Function	Event description: Spoofing attack: 1. The soure ip is same as switch's interface ip but the source mac is different 2. Source ip is the same as the switch's IP in ARP packet 3. Self IP packet dected Log Message: Possible spoofing attack from IP: <ipaddr>, MAC: <macaddr>, port: <portNum> Parameters description: ipaddr: IP address macaddr: MAC address portNum : The port number	Critical	
Gratuitous ARP	Event description: IP conflict was detected Log Message: Conflict IP was detected with this device (IP: <ipaddr>, MAC: <macaddr>, Port <portNum>, Interface: < intf-name>) Parameters description: ipaddr: IP address macaddr: MAC address portNum : The port number intf-name: Interface name	Informational	
DHCP Server Screening	Event description: Detected untrusted DHCP server IP address. Log Message: Detected untrusted DHCP server(IP: <ipaddr>, Port <portNum>) Parameters description: ipaddr: The untrusted IP address which has beenis detected with our device. portNum : Represent the logic port number of the device.	Informational	
OSPF Debug Enhancement	Event description: OSPF interface link state changed. Log Message: OSPF interface <intf-name> changed state to <Up | Down> Parameters description: intf-name: Name of OSPF interface.	Informational	
	Event description: OSPF interface administrator state changed. Log Message: OSPF protocol on interface <intf-name> changed	Informational	

	state to <Enabled | Disabled> Parameters description: intf-name: Name of OSPF interface.		
	Event description: One OSPF interface changed from one area to another. Log Message: OSPF interface <intf-name> changed from area <area-id> to area <area-id> Parameters description: intf-name: Name of OSPF interface. area-id: OSPF area ID.	Notice	
	Event description: One OSPF neighbor state changed from Loading to Full. Log Message: OSPF nbr <nbr-id> on interface <intf-name> changed state from Loading to Full Parameters description: intf-name: Name of OSPF interface. nbr-id: Neighbor's router ID.	Notice	
	Event description: One OSPF neighbor state changed from Full to Down. Log Message: OSPF nbr <nbr-id> on interface <intf-name> changed state from Full to Down Parameters description: intf-name: Name of OSPF interface. nbr-id: Neighbor's router ID.	Notice	
	Event description: One OSPF neighbor state's dead timer expired. Log Message: OSPF nbr <nbr-id> on interface <intf-name> dead timer expired Parameters description: intf-name: Name of OSPF interface. nbr-id: Neighbor's router ID.	Notice	
	Event description: One OSPF virtual neighbor state changed from Loading to Full. Log Message: OSPF nbr <nbr-id> on virtual link changed state from Loading to Full Parameters description: nbr-id: Neighbor's router ID.	Notice	
	Event description: One OSPF virtual neighbor state changed from Full to Down. Log Message: OSPF nbr <nbr-id> on virtual link changed state from Full to Down Parameters description: nbr-id: Neighbor's router ID.	Notice	
	Event description: OSPF router ID was changed. Log Message: OSPF router ID changed to <router-id> Parameters description: router-id: OSPF router ID.	Informational	
	Event description: Enable OSPF. Log Message: OSPF state changed to Enabled	Informational	
	Event description: Disable OSPF. Log Message: OSPF state changed to Disabled	Informational	
VRRP Debug Enhancement	Event description: One virtual router state becomes Master. Log Message: VR <vr-id> at interface <intf-name> switch to Master Parameters description: vr-id: VRRP virtual router ID. intf-name: Interface name on which virtual router is based.	Informational	
	Event description: One virtual router state becomes Backup. Log Message: VR <vr-id> at interface <intf-name> switch to Backup Parameters description: vr-id: VRRP virtual router ID. intf-name: Interface name on which virtual router is based.	Informational	
	Event description: One virtual router state becomes Init. Log Message: VR <vr-id> at interface <intf-name> switch to Init. Parameters description:	Informational	

	vr-id: VRRP virtual router ID. intf-name: Interface name on which virtual router is based.		
	Event description: Authentication type mismatch of one received VRRP advertisement message. Log Message: Authentication type mismatch on VR <vr-id> at interface <intf-name>. Parameters description: vr-id: VRRP virtual router ID. intf-name: Interface name on which virtual router is based.	Warning	
	Event description: Authentication checking fail of one received VRRP advertisement message. Log Message: Authentication fail on VR <vr-id> at interface <intf-name>. Auth type <auth-type>. Parameters description: vr-id: VRRP virtual router ID. intf-name: Interface name on which virtual router is based. Auth-type: VRRP interface authentication type.	Warning	
	Event description: Checksum error of one received VRRP advertisement message. Log Message: Received an ADV msg with incorrect checksum on VR <vr-id> at interface <intf-name>. Parameters description: vr-id: VRRP virtual router ID. intf-name: Interface name on which virtual router is based.	Warning	
	Event description: Virtual router ID mismatch of one received VRRP advertisement message. Log Message: Received ADV msg virtual router ID mismatch. VR <vr-id> at interface <intf-name>. Parameters description: vr-id: VRRP virtual router ID. intf-name: Interface name on which virtual router is based.	Warning	
	Event description: Advertisement interval mismatch of one received VRRP advertisement message. Log Message: Received ADV msg adv interval mismatch. VR <vr-id> at interface <intf-name>. Parameters description: vr-id: VRRP virtual router ID. intf-name: Interface name on which virtual router is based.	Warning	
	Event description: A virtual MAC address is added into switch L2 table Log Message: Added a virtual MAC <vrrp-mac-addr> into L2 table. Parameters description: vrrp-mac-addr: VRRP virtual MAC address	Notice	
	Event description: A virtual MAC address is deleted from switch L2 table. Log Message: Deleted a virtual MAC <vrrp-mac-addr> from L2 table. Parameters description: vrrp-mac-addr: VRRP virtual MAC address	Notice	
	Event description: A virtual MAC address is adding into switch L3 table. Log Message: Added a virtual IP <vrrp-ip-addr> MAC <vrrp-mac-addr> into L3 table. Parameters description: vrrp-ip-addr: VRRP virtual IP address vrrp-mac-addr: VRRP virtual MAC address	Notice	
	Event description: A virtual MAC address is deleting from switch L3 table. Log Message: Deleted a virtual IP <vrrp-ip-addr> MAC <vrrp-mac-addr> from L3 table. Parameters description: vrrp-ip-addr: VRRP virtual IP address vrrp-mac-addr: VRRP virtual MAC address	Notice	
	Event description: Failed when adding a virtual MAC into switch chip L2 table. Log Message: Failed to add virtual MAC <vrrp-mac-addr> into chip L2 table. Errcode <vrrp-errcode>.	Error	

	Parameters description: vrrp-mac-addr: VRRP virtual MAC address vrrp-errcode: Errcode of VRRP protocol behavior.		
	Event description: Failed when deleting a virtual MAC from switch chip L2 table. Log Message: Failed to delete virtual MAC <vrrp-mac-addr> from chip L2 table. Errcode <vrrp-errcode>. Parameters description: vrrp-mac-addr: VRRP virtual MAC address vrrp-errcode: Errcode of VRRP protocol behavior.	Error	
	Event description: Failed when adding a virtual MAC into switch L3 table. The L3 table is full. Log Message: Failed to add virtual IP <vrrp-ip-addr> MAC <vrrp-mac-addr> into L3 table. L3 table is full. Parameters description: vrrp-ip-addr: VRRP virtual IP address vrrp-mac-addr: VRRP virtual MAC address	Error	
	Event description: Failed when adding a virtual MAC into switch L3 table. The port where the MAC is learned from is invalid. Log Message: Failed to add virtual IP <vrrp-ip-addr> MAC <vrrp-mac-addr> into L3 table. Port <mac-port> is invalid. Parameters description: vrrp-ip-addr: VRRP virtual IP address vrrp-mac-addr: VRRP virtual MAC address mac-port: port number of VRRP virtual MAC.	Error	
	Event description: Failed when adding a virtual MAC into switch L3 table. The interface where the MAC is learned from is invalid. Log Message: Failed to add virtual IP <vrrp-ip-addr> MAC <vrrp-mac-addr> into L3 table. Interface <mac-intf> is invalid. Parameters description: vrrp-ip-addr: VRRP virtual IP address vrrp-mac-addr: VRRP virtual MAC address mac-intf: interface id on which VRRP virtual MAC address is based.	Error	
	Event description: Failed when adding a virtual MAC into switch L3 table. The box where the MAC is learned from is invalid. Log Message: Failed to add virtual IP <vrrp-ip-addr> MAC <vrrp-mac-addr> into L3 table. Box id <mac-box> is invalid. Parameters description: vrrp-ip-addr: VRRP virtual IP address vrrp-mac-addr: VRRP virtual MAC address mac-box: stacking box number of VRRP virtual MAC.	Error	
	Event description: Failed when adding a virtual MAC into switch chip's L3 table. Log Message: Failed to add virtual IP <vrrp-ip-addr> MAC <vrrp-mac-addr> into chip L3 table. Errcode <vrrp-errcode> Parameters description: vrrp-ip-addr: VRRP virtual IP address vrrp-mac-addr: VRRP virtual MAC address vrrp-errcode: Err code of VRRP protocol behavior.	Error	
	Event description: Failed when deleting a virtual MAC from switch chip's L3 table. Log Message: Failed to delete virtual IP <vrrp-ip-addr> MAC <vrrp-mac-addr> from chip L3 table. Errcode <vrrp-errcode>. Parameters description: vrrp-ip-addr: VRRP virtual IP address vrrp-mac-addr: VRRP virtual MAC address vrrp-errcode: Err code of VRRP protocol behavior.	Error	
CFM Extension	Event description: AIS condition detected Log Message: [CFM_EXT(1):]AIS condition detected. MD Level:<mdlevel>, VLAN:<vlanid>, Local(Port <portNum>, Direction:<mepdirection>, MEPID:<mepid>) Parameters description: vlanid: Represents the VLAN identifier of the MEP. mdlevel: Represents the MD level of the MEP. portNum: Represents the logical port number of the MEP. mepdirection: Represents the direction of the MEP. This can be	Notice	

	"inward" or "outward". mepid: Represents the MEPID of the MEP.		
	Event description: AIS condition cleared Log Message: [CFM_EXT(2):]AIS condition cleared. MD Level:<mdlevel>, VLAN:<vlanid>, Local(Port <portNum>, Direction:<mepdirection>, MEPID:<mepid>) Parameters description: vlanid: Represents the VLAN identifier of the MEP. mdlevel: Represents the MD level of the MEP. portNum: Represents the logical port number of the MEP. mepdirection: Represents the direction of the MEP. This can be "inward" or "outward". mepid: Represents the MEPID of the MEP.	Notice	
	Event description: LCK condition detected Log Message: [CFM_EXT(3):]LCK condition detected. MD Level:<mdlevel>, VLAN:<vlanid>, Local(Port <portNum>, Direction:<mepdirection>, MEPID:<mepid>) Parameters description: vlanid: Represents the VLAN identifier of the MEP. mdlevel: Represents the MD level of the MEP. portNum: Represents the logical port number of the MEP. mepdirection: Represents the direction of the MEP. This can be "inward" or "outward". mepid: Represents the MEPID of the MEP.	Notice	
	Event description: LCK condition cleared Log Message: [CFM_EXT(4):]LCK condition cleared. MD Level:<mdlevel>, VLAN:<vlanid>, Local(Port <portNum>, Direction:<mepdirection>, MEPID:<mepid>) Parameters description: vlanid: Represents the VLAN identifier of the MEP. mdlevel: Represents the MD level of the MEP. portNum: Represents the logical port number of the MEP. mepdirection: Represents the direction of the MEP. This can be "inward" or "outward". mepid: Represents the MEPID of the MEP.	Notice	
DULD	Event description: A unidirectional link has been detected on this port Log Message: Port: <portNum> is unidirectional. Parameters description: portNum: port number	Informational	
SRM	Event Description: SRM mode change Log Message: The SRM mode has been changed to <srm_mode> Parameters Description: srm_mode: the SRM mode, could be Routing or VPWS	Informational	
RADIUS	Event description: VID assigned from RADIUS server after RADIUS client is authenticated by RADIUS server successfully .This VID will be assigned to the port and this port will be the VLAN untagged port member. Log Message: RADIUS server <ipaddr> assigned VID :<vlanID> to port <portNum> (account :<username>) Parameters description: ipaddr: The IP address of the RADIUS server. vlanID: The VID of RADIUS assigned VLAN. portNum: The port number. Username: The user that is being authenticated.	Informational	
	Event description: Ingress bandwidth assigned from RADIUS server after RADIUS client is authenticated by RADIUS server successfully .This Ingress bandwidth will be assigned to the port. Log Message: RADIUS server <ipaddr> assigned ingress bandwith :<ingressBandwidth> to port <portNum> (account : <username>) Parameters description: ipaddr: The IP address of the RADIUS server. ingressBandwidth: The ingress bandwidth of RADIUS assign. portNum: The port number. Username: The user that is being authenticated.	Informational	
	Event description: Egress bandwidth assigned from RADIUS server after RADIUS client is authenticated by RADIUS server successfully .This egress bandwidth will be assigned to the port.	Informational	

	Log Message: RADIUS server <ipaddr> assigned egress bandwith :<egressBandwidth> to port <portNum> (account: <username>) Parameters description: ipaddr: The IP address of the RADIUS server. egressBandwidth: The egress bandwidth of RADIUS assign. portNum: The port number. Username: The user that is being authenticated.		
	Event description: 802.1p default priority assigned from RADIUS server after RADIUS client is authenticated by RADIUS server successfully. This 802.1p default priority will be assigned to the port. Log Message: RADIUS server <ipaddr> assigned 802.1p default priority:<priority> to port <portNum> (account : <username>) Parameters description: ipaddr: The IP address of the RADIUS server. priority: Priority of RADIUS assign. portNum: The port number. Username: The user that is being authenticated.	Informational	
	Event description: Failed to assign ACL profiles/rules from RADIUS server. Log Message: RADIUS server <ipaddr> assigns <username> ACL failure at port <portNum> (<string>) Parameters description: ipaddr: The IP address of the RADIUS server. portNum: The port number. Username: The user that is being authenticated. string: The failed RADIUS ACL command string.	Warning	
DHCPv6 Relay	Event description: DHCPv6 relay on a specific interface's administrator state changed. Log Message: [DHCPv6_RELAY(1):]DHCPv6 relay on interface <intf-name> changed state to <enabled | disabled> Parameters description: intf-name: Name of the DHCPv6 relay agent interface.	Informational	
VPWS	Event description: Pseudowire link down Log Message: Pseudowire <vc_id> link down. Parameters description: vc_id: the link down pseudowire ID	Informational	
	Event description: Pseudowire link up Log Message: Pseudowire <vc_id> link up. Parameters description: vc_id: the link up pseudowire ID	Informational	
	Event description: Pseudowire is deleted Log Message: Pseudowire <vc_id> is deleted. Parameters description: vc_id: the deleted pseudowire ID	Informational	
LDP	Event description: the number of Session Initialization messages exceeds the value of the 'mplsLdpEntityInitSessionThreshold' Log Message: Session of peer <lsrid> initialization exceeded threshold < threshold > Parameters description: lsrid: LSR ID of peer threshold: LDP session initialization threshold.	Informational	
	Event description: Path vector limit mismatch Log Message: LDP entity path vector limit <value> does not match the peer <lsrid> path vector limit <value> Parameters description: lsrid: LSR ID of peer value: Path Vector limit	Informational	
	Event description: LDP session state enters the operational state Log Message: LDP session of peer <lsrid> is operational Parameters description: lsrid: LSR ID of peer	Informational	
	Event description: LDP session state restart Log Message: LDP session of peer <lsrid> restart	Informational	

	Parameters description: lsrid: LSR ID of peer		
MPLS	Event description: LSP is up Log Message: LSP <lsp_id> is up Parameters description: lsp_id: The established LSP ID	Informational	
	Event description: LSP is down Log Message: LSP <lsp_id> is down Parameters description: lsp_id: The deleted LSP ID	Informational	

Appendix D Trap Entries

This table lists the trap logs found on the Switch.

Category	Trap Name	Description	Note
SNMP	coldStart/1.3.6.1.6.3.1.1.5.1	A coldStart trap signifies that the SNMP entity, supporting a notification originator application, is reinitializing itself and that its configuration may have been altered.	(RFC1907 SNMPv2-MIB)
	warmStart/1.3.6.1.6.3.1.1.5.2	A warmStart trap signifies that the SNMP entity, supporting a notification originator application, is initializing itself such that its configuration is unaltered.	(RFC1907 SNMPv2-MIB)
	linkDown/1.3.6.1.6.3.1.1.5.3	A linkDown trap signifies that the SNMP entity, acting in an agent role, has detected that the ifOperStatus object for one of its communication links is about to enter the down state from some other state. This other state is indicated by the included value of ifOperStatus. Binding objects: (1)ifIndex (2)ifAdminStatus (3)ifOperStatus	(RFC2233 IF-MIB)
	linkUp/1.3.6.1.6.3.1.1.5.4	A linkUp trap signifies that the SNMP entity, acting in an agent role, has detected that the ifOperStatus object for one of its communication links left the down state and transitioned into some other state. This other state is indicated by the included value of ifOperStatus. Binding objects: (1)ifIndex (2)ifAdminStatus (3)ifOperStatus	(RFC2233 IF-MIB)
	authenticationFailure/1.3.6.1.6.3.1.1.5.5	An authenticationFailure trap signifies that the SNMP entity has received a protocol message that is not properly authenticated.	(RFC1907 SNMPv2-MIB)
BRIDGE-MIB	newRoot/1.3.6.1.2.1.17.0.1	The newRoot trap indicates that the sending agent has become the new root of the Spanning Tree	
	topologyChange/1.3.6.1.2.1.17.0.2	A topologyChange trap is sent by a bridge when any of its configured ports transitions from the learning state to the forwarding state, or from the forwarding state to the blocking state.	
OAM	dot3OamNonThresholdEvent/1.3.6.1.2.1.158.0.2	A dot3OamNonThresholdEvent notification is sent when a local or remote non-threshold crossing event is detected. A local event is detected by the local entity, while a remote event is detected by the reception of an Ethernet OAM Event Notification OAMPDU that indicates a non-threshold crossing event. Binding objects: (1)dot3OamEventLogTimestamp (2)dot3OamEventLogOui (3)dot3OamEventLogType(olny support the value: dyingGaspEvent(257)) (4)dot3OamEventLogLocation (5)dot3OamEventLogEventTotal	(ie8023ah.mib)
MAC-based Access Control	swMacBasedAccessControlLoggedSuccess/ 1.3.6.1.4.1.171.12.35.11.1.0.1	The trap is sent when a MAC-based Access Control host is successfully logged in. Binding objects: (1) swMacBasedAuthInfoMacIndex (2) swMacBasedAuthInfoPortIndex (3) swMacBasedAuthVID	
	swMacBasedAccessControlLoggedFail/ 1.3.6.1.4.1.171.12.35.11.1.0.2	The trap is sent when a MAC-based Access Control host login fails. Binding objects: (1) swMacBasedAuthInfoMacIndex (2) swMacBasedAuthInfoPortIndex (3) swMacBasedAuthVID	

	swMacBasedAccessControlAgesOut/ 1.3.6.1.4.1.171.12.35.11.1.0.3	The trap is sent when a MAC-based Access Control host ages out. Binding objects: (1) swMacBasedAuthInfoMacIndex (2) swMacBasedAuthInfoPortIndex (3) swMacBasedAuthVID	
RMON (RFC2819.mib)	risingAlarm/1.3.6.1.2.1.16.0.1	The SNMP trap that is generated when an alarm entry crosses its rising threshold and generates an event that is configured for sending SNMP traps. Binding objects： (1)alarmIndex, (2)alarmVariable (3)alarmSampleType, (4)alarmValue, (5)alarmRisingThreshold	
	fallingAlarm/1.3.6.1.2.1.16.0.2	The SNMP trap that is generated when an alarm entry crosses its falling threshold and generates an event that is configured for sending SNMP traps. Binding objects: (1)alarmIndex, (2)alarmVariable (3)alarmSampleType, (4)alarmValue, (5)alarmFallingThreshold	
LLDP (lldp.mib)	lldpRemTablesChange/1.0.8802.1.1.2.0.0.1	A lldpRemTablesChange notification is sent when the value of lldpStatsRemTableLastChangeTime changes. It can be utilized by an NMS to trigger LLDP remote systems table maintenance polls. Binding objects： (1)lldpStatsRemTablesInserts, (2)lldpStatsRemTablesDeletes, (3)lldpStatsRemTablesDrops, (4)lldpStatsRemTablesAgeouts	
LLDP-MED	lldpXMedTopologyChangeDetected/1.0.8802.1.1.2.1.5.4795.0.1	A notification generated by the local device sensing a change in the topology that indicates that a new remote device attached to a local port, or a remote device disconnected or moved from one port to another. Binding objects: (1) lldpRemChassisIdSubtype (2) lldpRemChassisId (3) lldpXMedRemDeviceClass	
Port Security	swL2PortSecurityViolationTrap/1.3.6.1.4.1.171.11.115.1.2.2.100.1.2.0.2	When the port security trap is enabled, new MAC addresses that violate the pre-defined port security configuration will trigger trap messages to be sent out. Binding objects: (1)swPortSecPortIndex (2)swL2PortSecurityViolationMac	
FDB	swL2macNotification/1.3.6.1.4.1.171.11.115.1.2.2.100.1.2.0.1	This trap indicates the MAC addresses variation in address table Binding objects: (1)swL2macNotifyInfo	
Peripherals	swHighTemperature/ /1.3.6.1.4.1.171.12.11.2.2.4.0.1	When Temperature High. Binding objects： (1) swTemperatureUnitIndex (2) swTemperSensorID (3) swTemperatureCurrent	
	swHighTemperatureRecover /1.3.6.1.4.1.171.12.11.2.2.4.0.2	When Temperature recover from High. Binding objects： (1) swTemperatureUnitIndex (2) swTemperSensorID (3) swTemperatureCurrent	
	swLowTemperature /1.3.6.1.4.1.171.12.11.2.2.4.0.3	When Temperature Low. Binding objects: (1) swTemperatureUnitIndex (2) swTemperSensorID (3) swTemperatureCurrent	
	swLowTemperatureRecover/ /1.3.6.1.4.1.171.12.11.2.2.4.0.4	When Temperature recover from Low. Binding objects: (1) swTemperatureUnitIndex (2) swTemperSensorID	

		(3) swTemperatureCurrent	
	swPowerStatusChg/ /1.3.6.1.4.1.171.12.11.2.2.2.0.1	When Power Status Change. Binding objects: (1) swPowerUnitIndex (2) swPowerID (3) swPowerStatus	
	swPowerFailure /1.3.6.1.4.1.171.12.11.2.2.2.0.2	When Power Fail. Binding objects: (1) swPowerUnitIndex (2) swPowerID (3) swPowerStatus	
	swPowerRecover /1.3.6.1.4.1.171.12.11.2.2.2.0.3	When Power Recover. Binding objects: (1) swPowerUnitIndex (2) swPowerID (3) swPowerStatus	
SafeGuard	swSafeGuardChgToExhausted /1.3.6.1.4.1.171.12.19.4.1.0.1	This trap indicates System change operation mode from normal to exhausted. Binding objects: (1) swSafeGuardCurrentStatus	
	swSafeGuardChgToNormal /1.3.6.1.4.1.171.12.19.4.1.0.2	This trap indicates System change operation mode from exhausted to normal. Binding objects: (1) swSafeGuardCurrentStatus	
Traffic Control	swPktStormOccurred/ /1.3.6.1.4.1.171.12.25.5.0.1	This trap is sent when a packet storm is detected by a packet storm mechanism and a shutdown action is taken. Binding objects: (1) swPktStormCtrlPortIndex	
	swPktStormCleared /1.3.6.1.4.1.171.12.25.5.0.2	The trap is sent when the packet storm is cleared by the packet storm mechanism. Binding objects: (1) swPktStormCtrlPortIndex	
IMPB	swIpMacBindingViolation Trap/ /1.3.6.1.4.1.171.12.23.5.0.1	When the IMPB trap is enabled, if there's a new MAC that violates the predefined port security configuration, a trap will be sent out. Binding objects: swIpMacBindingPortIndex swIpMacBindingViolationIP swIpMacBindingViolationMac	
	swIpMacBindingIPv6ViolationTrap/ 1.3.6.1.4.1.171.12.23.5.0.4	When the IP-MAC Binding trap is enabled, if there's a new MAC that violates the pre-defined IPv6 IMPB configuration, a trap will be sent out. Binding objects: (1) swIpMacBindingPortIndex (2) swIpMacBindingViolationIPv6Addr (3) swIpMacBindingViolationMac	
Gratuitous ARP	agentGratuitousARPTrap/1.3.6.1.4.1.171.12.1.7.2.0.5	This trap is sent when there is an IP address conflict. Binding objects: (1)agentGratuitousARPIpAddr (2)agentGratuitousARPMacAddr (3)agentGratuitousARPPortNumber (4)agentGratuitousARPInterfaceName	
DHCP Server Screening	swFilterDetectedTrap /1.3.6.1.4.1.171.12.37.100.0.1	Send trap when an illegal DHCP server is detected. The same illegal DHCP server IP address detected is just sent once to the trap receivers within the log ceasing unauthorized duration. Binding objects: (1) swFilterDetectedIP (2) swFilterDetectedport	
LBD	swPortLoopOccurred /1.3.6.1.4.1.171.12.41.10.0.1	The trap is sent when a port loop occurs. Binding objects: (1) swLoopDetectPortIndex	
	swPortLoopRestart /1.3.6.1.4.1.171.12.41.10.0.2	The trap is sent when a port loop restarts after the interval time. Binding objects: (1) swLoopDetectPortIndex	
	swVlanLoopOccurred /1.3.6.1.4.1.171.12.41.10.0.3	The trap is sent when a port loop occurs under LBD VLAN-based mode. Binding objects: (1) swLoopDetectPortIndex (2) swVlanLoopDetectVID	

	swVlanLoopRestart /1.3.6.1.4.1.171.12.41.10.0.4	The trap is sent when a port loop restarts under LBD VLAN-based mode after the interval time. Binding objects: (1) swLoopDetectPortIndex (2) swVlanLoopDetectVID	
BPDU Attack Protection	swBpduProtectionUnderAttackingTrap /1.3.6.1.4.1.171.12.76.4.0.1	When the BPDU Protection trap is enabled, if the specific port changes from a normal state to an under attack state, a trap will be sent out. Binding objects: (1)swBpduProtectionPortIndex (2)swBpduProtectionPortMode	
	swBpduProtectionRecoveryTrap /1.3.6.1.4.1.171.12.76.4.0.2	When the BPDU Protection trap is enabled, if the specific port changes from an under attack state to a normal state, a trap will be sent out. Binding objects: (1)swBpduProtectionPortIndex (2)swBpduProtectionRecoveryMethod	
ERPS	swERPSSFDetectedTrap /1.3.6.1.4.1.171.12.78.4.0.1	When a signal failure occurs, a trap will be generated. Binding objects: (1)swERPSNodeId	
	swERPSSFClearedTrap /1.3.6.1.4.1.171.12.78.4.0.2	When the signal failure clears, a trap will be generated. Binding objects: (1)swERPSNodeId	
	swERPSRPLOwnerConflictTrap /1.3.6.1.4.1.171.12.78.4.0.3	When a conflict occurs, a trap will be generated. Binding objects: (1)swERPSNodeId	
CFM	dot1agCfmFaultAlarm /1.3.111.2.802.1.1.8.0.1	A MEP has a persistent defect condition. A notification (fault alarm) is sent to the management entity with the OID of the MEP that has detected the fault. Binding objects: (1)dot1agCfmMepHighestPrDefect	
CFM Extension	swCFMExtAISOccurred / 1.3.6.1.4.1.171.12.86.100.0.1	A notification is generated when local MEP enters AIS status. Binding objects: (1) dot1agCfmMdIndex (2) dot1agCfmMaIndex (3) dot1agCfmMepIdentifier	
	swCFMExtAISCleared / 1.3.6.1.4.1.171.12.86.100.0.2	A notification is generated when local MEP exits AIS status. Binding objects: (1) dot1agCfmMdIndex (2) dot1agCfmMaIndex (3) dot1agCfmMepIdentifier	
	swCFMExtLockOccurred / 1.3.6.1.4.1.171.12.86.100.0.3	A notification is generated when local MEP enters lock status. Binding objects: (1) dot1agCfmMdIndex (2) dot1agCfmMaIndex (3) dot1agCfmMepIdentifier	
	swCFMExtLockCleared / 1.3.6.1.4.1.171.12.86.100.0.4	A notification is generated when local MEP exits lock status. Binding objects: (1) dot1agCfmMdIndex (2) dot1agCfmMaIndex (3) dot1agCfmMepIdentifier	
MPLS	mplsXCUp /1.3.6.1.2.1.10.166.2.0.1	This notification is generated when the mplsXCOperStatus object for one or more contiguous entries in the mplsXCTable is about to enter the up state from another state.	
	mplsXCDown /1.3.6.1.2.1.10.166.2.0.2	This notification is generated when the mplsXCOperStatus object for one or more contiguous entries in the mplsXCTable is about to enter the up state from another state.	
LDP	mplsLdpInitSessionThresholdExceeded /1.3.6.1.2.1.10.166.4.0.1	This notification is generated when the number of Session Initialization messages exceeds the value of the 'mplsLdpEntityInitSessionThreshold'	
	mplsLdpPathVectorLimitMismatch /1.3.6.1.2.1.10.166.4.0.2	This notification is sent when the'mplsLdpEntityPathVectorLimit' does NOT match the value of the 'mplsLdpPeerPathVectorLimit' for a specific Entity.	

	mplsLdpSessionUp /1.3.6.1.2.1.10.166.4.0.3	If this notification is sent when the value of 'mplsLdpSessionState' enters the 'operational(5)' state	
	mplsLdpSessionDown /1.3.6.1.2.1.10.166.4.0.4	This notification is sent when the value of 'mplsLdpSessionState' leaves the 'operational(5)' state	
VPWS	pwUp /1.3.6.1.2.1.10.246.0.1	This notification is generated when the pwOperStatus object for one or more contiguous entries in the pwTable which are about to enter the up(1) state from some other state except the notPresent(5) state and given that the pwDown notification issued for these entries.	
	pwDown /1.3.6.1.2.1.10.246.0.2	This notification is generated when the pwOperStatus object for one or more contiguous entries in the pwTable which are about to enter the down(2) or lowerLayerDown(6) state from any other state, except for transition from the notPresent(5) state.	
	pwDeleted /1.3.6.1.2.1.10.246.0.3	This notification is generated when the PW has been deleted, i.e., when the pwRowStatus has been set destroy(6) or the PW has been deleted by a non-MIB application or due to an auto-discovery process.	

Appendix E RADIUS Attributes Assignment

The RADIUS Attributes Assignment on the Switch is used in the following modules: 802.1X (Port-based and Host-based), Japanese Web-based Access Control, Web-based Access Control, and MAC-based Access Control.

The description that follows explains the following RADIUS Attributes Assignment types:

- Ingress/Egress Bandwidth
- 802.1p Default Priority
- VLAN
- ACL

To assign **Ingress/Egress bandwidth by RADIUS Server**, the proper parameters should be configured on the RADIUS Server. The tables below show the parameters for bandwidth.

The parameters of the Vendor-Specific attributes are:

Vendor-Specific Attribute	Description	Value	Usage
Vendor-ID	Defines the vendor.	171 (DLINK)	Required
Vendor-Type	Defines the attribute.	2 (for ingress bandwidth) 3 (for egress bandwidth)	Required
Attribute-Specific Field	Used to assign the bandwidth of a port.	Unit (Kbits)	Required

If the user has configured the bandwidth attribute of the RADIUS server (for example, ingress bandwidth 1000Kbps) and the 802.1X authentication is successful, the device will assign the bandwidth (according to the RADIUS server) to the port. However, if the user does not configure the bandwidth attribute and authenticates successfully, the device will not assign any bandwidth to the port.

If the bandwidth attribute is configured on the RADIUS server with a value of “0”, the effective bandwidth will be set to “no_limited”.

If the bandwidth attribute is configured to be less than “0” or greater than the maximum supported value, the effective bandwidth will be ignored.

To assign **802.1p default priority by RADIUS Server**, the proper parameters should be configured on the RADIUS Server. The tables below show the parameters for 802.1p default priority.

The parameters of the Vendor-Specific attributes are:

Vendor-Specific Attribute	Description	Value	Usage
Vendor-ID	Defines the vendor.	171 (DLINK)	Required
Vendor-Type	Defines the attribute.	4	Required
Attribute-Specific Field	Used to assign the 802.1p default priority of the port.	0-7	Required

If the user has configured the 802.1p priority attribute of the RADIUS server (for example, priority 7) and the 802.1X, or MAC based authentication is successful, the device will assign the 802.1p default priority (according to the RADIUS server) to the port. However, if the user does not configure the priority attribute and authenticates successfully, the device will not assign a priority to this port. If the priority attribute is configured on the RADIUS server is a value out of range (>7), it will not be set to the device.

To assign **VLAN by RADIUS Server**, the proper parameters should be configured on the RADIUS Server. To use VLAN assignment, RFC3580 defines the following tunnel attributes in RADIUS packets.

The table below shows the parameters for a VLAN:

RADIUS Tunnel Attribute	Description	Value	Usage
Tunnel-Type	This attribute indicates the tunneling protocol(s) to be used (in the case of a tunnel initiator) or the tunneling protocol in use (in the case of a tunnel terminatior).	13 (VLAN)	Required
Tunnel-Medium-Type	This attribute indicates the transport medium being used.	6 (802)	Required
Tunnel-Private-Group-ID	This attribute indicates group ID for a particular tunneled session.	A string (VID)	Required

A summary of the Tunnel-Private-Group-ID Attribute format is shown below.

```
 0                   1                   2                   3
 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|      Type     |    Length     |     Tag       |   String...
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

The table below shows the definition of Tag field (different with RFC 2868):

Tag field value	String field format	Note
0x01	VLAN name (ASCII)	A tag field of greater than 0x1F

0x02	VLAN ID (ASCII)	is interpreted as the first octet of the following field.
Others (0x00, 0x03 ~ 0x1F, >0x1F)	1. When the Switch receives the VLAN setting string, it will think it is the VLAN ID first. In other words, the Switch will check all existing VLAN IDs for a match. 2. If the Switch can find one match, it will move to that VLAN. 3. If the Switch cannot find the matching VLAN IDs, it will think of the VLAN setting string as a “VLAN Name”. 4. Then it will check to find a matched VLAN Name.	

If the user has configured the VLAN attribute of the RADIUS server (for example, VID 3) and the 802.1X, MAC based Access Control, or WAC authentication is successful, the port will be assigned to VLAN 3. However, if the user does not configure the VLAN attributes, when the port is not a guest VLAN member, it will be kept in its current authentication VLAN. When the port is guest VLAN member, it will be assigned to its original VLAN.

To assign **ACL by RADIUS Server**, the proper parameters should be configured on the RADIUS Server. The table below shows the parameters for an ACL. The RADIUS ACL assignment is only used in 802.1X, WAC, JWAC and MAC-based Access Control.

The parameters of the Vendor-Specific Attribute are:

RADIUS Tunnel Attribute	Description	Value	Usage
Vendor-ID	Defines the vendor.	171 (DLINK)	Required
Vendor-Type	Defines the attribute.	12 (for ACL profile) 13 (for ACL rule)	Required
Attribute-Specific Field	Used to assign the ACL profile or rule.	ACL Command For example: ACL profile: create access_profile profile_id 100 profile_name 100 ethernet vlan 0xFFF; ACL rule: config access_profile profile_id 100 add access_id auto_assign ethernet vlan default port all deny;	Required

If the user has configured the ACL attribute of the RADIUS server (for example, ACL profile: **create access_profile profile_id 100 profile_name 100 ethernet vlan 0xFFF**; ACL rule: **config access_profile profile_id 100 add access_id auto_assign ethernet vlan default port all deny**), and the MAC-based Access Cotntrol authentication is successful, the device will assign the ACL

profiles and rules according to the RADIUS server. For more information about the ACL module, please refer to the ‘Access Control List (ACL) Commands’ section.