CLI Reference Manual

Product Model: DAS-3636

VDSL2 Switch

Release 1.00

July 2009 P/N 651370012005G

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INTRODUCTION

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

This manual provides a reference for all of the commands contained in the CLI. Configuration and management of the VDSL Switch via the Web-based management agent is discussed in the User Manual.

This manual provides a reference for all of the commands contained in the CLI for the DAS-3626. Examples present in this manual may refer to either member of this series and may show different port counts, but are universal to this series of switches, unless otherwise stated. Configuration and management of the VDSL Switch via the Web-based management agent is discussed in the User Guide.

NOTE: For the remainder of this manual, the DAS-3626 switches will be referred to as simply the Switch or the DAS-3600 Series.

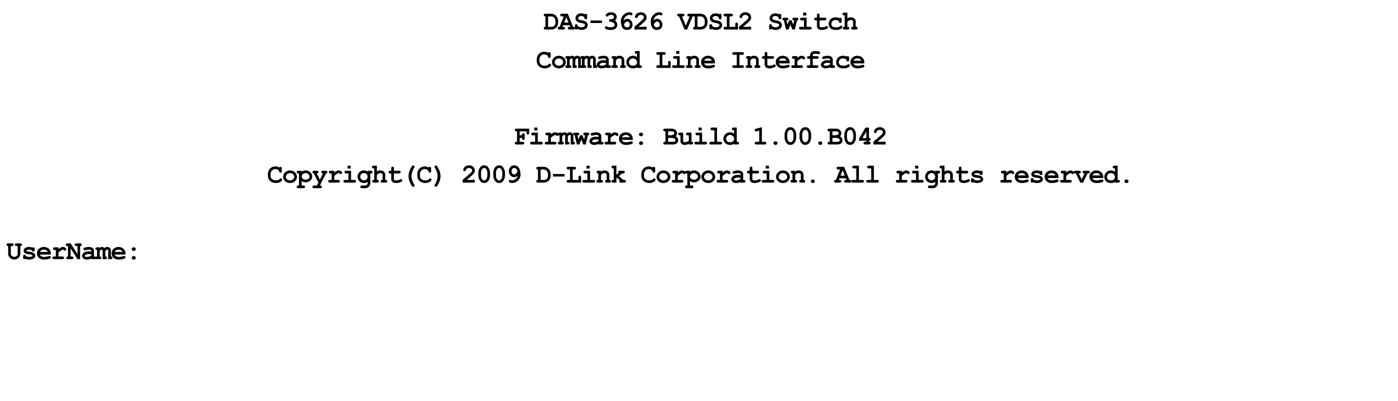
Accessing the Switch via the Serial Port

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, the following screen should be visible. If this screen does not appear, try pressing Ctrl+r to refresh the console screen.



```
                              DAS-3626 VDSL2 Switch
                             Command Line Interface

                            Firmware: Build 1.00.B042
                 Copyright(C) 2009 D-Link Corporation. All rights reserved.

UserName:
```

Figure 1-1. Initial CLI screen

There is no initial username or password. Just press the **Enter** key twice to display the CLI input cursor – **DAS-3626:admin#**. This is the command line where all commands are input.

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. Users 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                                          V1.03.B016
-------------------------------------------------------------------------------

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

  MAC Address   : 00-26-54-60-54-60
  H/W Version   :

  Please Wait, Loading V1.02.B018 Runtime Image [1] ........  100%

 R2R3R4R5R6
  BME 1:POST: Success
  BME 2:POST: Success
  BME 3:POST: Success
  BME 1:Download: Downloaded successfully
  BME 2:Download: Downloaded successfully
  BME 3:Download: Downloaded successfully

  VDSL driver version 5.3.0.13IK005010

  UART init .................................................  100 %
```

Figure 1-2. Boot screen

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.

The IP address may be set using the Command Line Interface (CLI) over the console serial port as follows:

1. 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.
2. Alternatively, users 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.

```
DAS-3626:admin#config ipif System ipaddress 10.24.73.21/8
Command: config ipif System ipaddress 10.24.73.21/8

Success.

DAS-3626:admin#
```

Figure 1-3. Assigning an IP Address screen

In the above example, the Switch was assigned an IP address of 10.24.73.21 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.

2

Using the Console CLI

The DAS-3600 Series supports a console management interface that allows the user to connect to the Switch's management agent via a serial port and a terminal or a computer running a terminal emulation program. The console can also be used over the network using the TCP/IP Telnet protocol. The console program can be used to configure the Switch to use an SNMP-based network management software over the network.

This chapter describes how to use the console interface to access the Switch, change its settings, and monitor its operation.

***Note**: Switch configuration settings are saved to non-volatile RAM using the save command. The current configuration will then be retained in the Switch's NV-RAM, and reloaded when the Switch is rebooted. If the Switch is rebooted without using the save command, the last configuration saved to NV-RAM will be loaded.*

Connecting to the Switch

The console interface is used by connecting the Switch to a VT100-compatible terminal or a computer running an ordinary terminal emulator program (e.g., the **HyperTerminal** program included with the Windows operating system) using an RS-232C serial cable. Your terminal parameters will need to be set to:

- **VT-100 compatible**
- **115200 baud**
- **8 data bits**
- **No parity**
- **One stop bit**
- **No flow control**

Users can also access the same functions over a Telnet interface. Once users have set an IP address for your Switch, users can use a Telnet program (in VT-100 compatible terminal mode) to access and control the Switch. All of the screens are identical, whether accessed from the console port or from a Telnet interface.

After the Switch reboots and users have logged in, the console looks like this:

```
                         DAS-3626 VDSL2 Switch
                        Command Line Interface
                       Firmware: Build 1.02-B018
               Copyright(C) 2008 D-Link Corporation. All rights reserved.
UserName:
```

Figure 2-1. Initial Console screen after logging in

Commands are entered at the command prompt, **DAS-3626:admin#**.

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

```
?
cable_diag ports
cfm linktrace
cfm loopback
clear
clear address_binding dhcp_snoop binding_entry ports
clear arptable
clear attack_log
clear cfm pkt_cnt
clear counters
clear ethernet_oam ports
clear fdb
clear historical_counters ports
clear igmp_snooping data_driven_group
clear igmp_snooping statistic counter
clear log
clear mac_based_access_control auth_mac
clear mld_snooping data_driven_group
clear mld_snooping statistic counter
clear port_security_entry
clear vlan_counter statistics

CTRL+C ESC q Quit SPACE n Next Page ENTER Next Entry a All
```

Figure 2-2. The ? Command

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

```
DAS-3626:admin#config account
Command: config account
Next possible completions:
<username>

DAS-3626:admin#
```

Figure 2-3. Example Command Parameter Help

In this case, the command **config account** was entered with the parameter **<username>**. The CLI will then prompt users 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.

```
 DAS-3626:admin#config account
Command: config account
Next possible completions:
<username>

DAS-3626:admin#config account
Command: config account
Next possible completions:
<username>

DAS-3626:admin#
```

Figure 2-4. Using the Up Arrow to Re-enter a Command

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 top-level commands will be displayed under the **Available commands:** prompt.

```
 DAS-3626:admin#the
Available commands:
..                  ?                   cfm
clear               config              create              delete
disable             download            enable              login
logout              ping                ping6               reboot
reconfig            reset               save                show
upload

DAS-3626:admin#
```

Figure 2-5. The Next Available Commands Prompt

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

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

```
DAS-3626:admin#show
Command: show
Next possible completions:
802.1p              802.1x              access_profile      account
accounting          alarm               arpentry            asymmetric_vlan
attack_log          authen              authen_enable       authen_login
authen_policy       authentication      authorization       bandwidth_control
bpdu-filter         cfm                 command_history     config
current_config      dhcp_relay          dot1v_protocol_group
dscp_replace_priority                   error               external_alarm
fdb                 filter              firmware            greeting_message
gvrp                hardware            igmp_snooping       ipif
ipif_ipv6_link_local_auto               iproute             ipv6
jumbo_frame         lacp_port           limited_multicast_addr
link_aggregation    log                 log_save_timing
log_support_module                      loopdetect          lpr
mac_spoof_detect    max_mcast_group     mcast_filter_profile
mirror              mld_snooping        module_info         multicast
multicast_fdb       packet              port                port_security
port_vlan           ports               pvid                qinq
radius              ratelimit           rmt                 router_ports
safeguard_engine    scheduling          scheduling_mechanism
serial_port         session             snmp                sntp
ssh                 ssl                 stp                 switch
syslog              system_severity     system_usage_threshold
time                time_range          traffic
traffic_segmentation                    trusted_host        utilization
vdsl                vlan                vlan_counter        vlan_translation
vlan_translation_profile                vlan_trunk
DAS-3626:admin#
```

Figure 2-6. Next possible completions: Show Command

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.

3

COMMAND SYNTAX

The following symbols are used to describe how command entries are made and values and arguments are specified in this manual. The online help contained in the CLI and available through the console interface uses the same syntax.

Note: All commands are case-sensitive. Be sure to disable Caps Lock or any other unwanted function that changes text case.

Purpose	Encloses a variable or value that must be specified.
Syntax	**config ipif <ipif_name 12> [{ipaddress <network_address> |vlan <vlan_name 32> |state [enable |disable]} | bootp |dhcp | ipv6 [ipv6address <ipv6networkaddr> | state [enable| disable]] |ipv4 state [enable | disable]]**
Description	In the above syntax example, users must supply an IP interface name in the <ipif_name 12> space, a VLAN name in the <vlan_name 32> space, and the network address in the <network_address> space. Do not type the angle brackets.
Example Command	**config ipif Engineering ipaddress 10.24.22.5/255.0.0.0 vlan Design state enable**

Purpose	Encloses a required value or set of required arguments. One value or argument can be specified.
Syntax	**create account [admin | operator | user] <username 15>**
Description	In the above syntax example, users must specify either an **admin** or a **user** level account to be created. Do not type the square brackets.
Example Command	**create account admin Tommy**

Purpose	Separates two or more mutually exclusive items in a list, one of which must be entered.
Syntax	**create account [admin | operator | user] <username 15>**
Description	In the above syntax example, users must specify either **admin,** or **user**. Do not type the backslash.
Example Command	**create account admin Tommy**

Purpose	Encloses an optional value or set of optional arguments.
Syntax	**reset {[config |system]} {force_agree}**
Description	In the above syntax example, users have the option to specify **config** or **system**. It is not necessary to specify either optional value, however the effect of the system reset is dependent on which, if any, value is specified. Therefore, with this example there are three possible outcomes of performing a system reset. See the following chapter, Basic Commands for more details about the reset command.
Example command	**reset config**

Delete	Deletes the character under the cursor and then shifts the remaining characters in the line to the left.
Backspace	Deletes the character to the left of the cursor and then shifts the remaining characters in the line to the left.
Left Arrow	Moves the cursor to the left.
Right Arrow	Moves the cursor to the right.
Up Arrow	Repeats the previously entered command. Each time the up arrow is pressed, the command previous to that displayed appears. This way it is possible to review the command history for the current session. Use the down arrow to progress sequentially forward through the command history list.
Down Arrow	The down arrow will display the next command in the command history entered in the current session. This displays each command sequentially as it was entered. Use the up arrow to review previous commands.
Tab	Shifts the cursor to the next field to the left.

Space	Displays the next page.
CTRL+c	Stops the display of remaining pages when multiple pages are to be displayed.
ESC	Stops the display of remaining pages when multiple pages are to be displayed.
n	Displays the next page.
p	Displays the previous page.
q	Stops the display of remaining pages when multiple pages are to be displayed.
r	Refreshes the pages currently displayed.
a	Displays the remaining pages without pausing between pages.
Enter	Displays the next line or table entry.

4

Basic Switch Commands

The basic switch commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
create account	[admin | operator | user] <username 15>
config account	<username>
show account	
delete account	[<username>]
show session	
show switch	
show device_status	
show serial_port	
config serial_port	{ baud_rate [9600|19200|38400|115200] | auto_logout [never|2_minutes|5_minutes|10_minutes|15_minutes] }
enable clipaging	
disable clipaging	
enable telnet	<tcp_port_number 1-65535>
disable telnet	
enable web	<tcp_port_number 1-65535>
disable web	
save	{[config | log | all]}
reboot	
reboot	{force_agree}
reset	{[config |system]} {force_agree}
reset	{[config force_agree | system force_agree]}
login	
logout	

Each command is listed, in detail, in the following sections.

create account

Purpose	Used to create user accounts.
Syntax	**create account [admin | operator | user] <username 15>**
Description	This command is used to create user accounts that consist of a username of 1 to 15 characters and a password of 0 to 15 characters. Up to 8 user accounts can be created.
Parameters	[admin | operator | user] <username 15>
Restrictions	Only Administrator-level users can issue this command. Usernames can be between 1 and 15 characters. Passwords can be between 0 and 15 characters.

Example usage:

To create an administrator-level user account with the username “dlink”.

```
DAS-3626:admin#create account admin dlink
Command: create account admin dlink

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

DAS-3626:admin#
```

NOTICE: In case of lost passwords or password corruption, please refer to the “Password Recovery Command List” section in this manual, and the “Password Recovery Procedure” will guide you through the steps necessary to resolve this issue.

config account

Purpose	Used to configure user accounts
Syntax	**config account <username>**
Description	When the password information is not specified in the command, the system will prompt the user to input the password interactively.
Parameters	*<username>* – Name of the account. The account must already be defined. Passwords must have a minimum of 0 character and can have a maximum of 15 characters.
Restrictions	Only Administrator-level users can issue this command. Usernames can be between 1 and 15 characters. Passwords can be between 0 and 15 characters.

Example usage:

To configure the user password of “dlink” account:

```
DAS-3626: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.

DAS-3626:admin#
```

show account

Purpose	Used to display user accounts.
Syntax	**show account**
Description	This command is used to display all user accounts created on the Switch. Up to 8 user accounts can exist at one time.
Parameters	None.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To display the accounts that have been created:

```
DAS-3626:admin#show account
Command: show account

Current Accounts:
Username         Access Level
---------------  ------------
dlink             Admin

Total Entries: 1

DAS-3626:admin#
```

delete account

Purpose	Used to delete an existing user account.
Syntax	**delete account <username>**
Description	This command is used to delete an existing account.
Parameters	*<username>* – Name of the user who will be deleted.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To delete the user account “System”:

```
DAS-3626:admin#delete account System
Command: delete account System

Success.

DAS-3626:admin#
```

Purpose	Used to display a list of currently logged-in users.
Syntax	**show session**
Description	This command is used to display a list of all the users that are logged-in at the time the command is issued.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To display a list of current logged-in users:

```
DAS-3626:admin#show session
Command: show session

ID   Live Time       From           Level    Name
---  ---------       ------------   -----    -------
 8   00:00:16.250    Serial Port    5        Anonymous

Total Entries: 1

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

Purpose	Used to display general information about the Switch.
Syntax	**show switch**
Description	This command is used to display information about the Switch.
Parameters	None.
Restrictions	None.

Example usage:

To display the Switch's information:

```
DAS-3626:admin#show switch
Command: show switch

Device Type       : DAS-3600-12 Gigabit Ethernet Switch
MAC Address       : 00-21-91-AF-37-D0
IP Address        : 10.24.73.21 (Manual)
VLAN Name         : default
Subnet Mask       : 255.0.0.0
Default Gateway   : 0.0.0.0
Boot PROM Version : Build 1.00.B002
Firmware Version  : Build 1.00.B035
Hardware Version  : A1
System Name       :
System Location   :
System Contact    :
Spanning Tree     : Disabled
GVRP              : Disabled
IGMP Snooping     : Disabled
MLD Snooping      : Disabled
TELNET            : Enabled (TCP 23)
WEB               : Enabled (TCP 80)
SNMP              : Disabled
SSL Status        : Disabled
SSH Status        : Disabled
802.1x            : Disabled

CTRL+C ESC q Quit SPACE n Next Page ENTER Next Entry a All
```

Purpose	Used to display the current Switch power, temperature and fan status.
Syntax	**show device_status**
Description	This command is used to display status of both the Switch's internal and external power, temperature, and fan status.
Parameters	None.
Restrictions	None.

Example usage:

To display the Switch status:

```
DAS-3626:admin#show device_status
Command: show device_status

DAS-3626:admin#show device_status
Command: show device_status

 Power Status: AC Active
    DC Status: DC POWER DOES NOT EXIST
    AC Status: AC POWER EXIST

 FAN TRAY INSERT

  FAN     RPM     Max       Min      Status   errCount
------------------------------------------------------
   1      4560     4560     4440     Normal     0
   2      4500     4560     4500     Normal     0
   3      4500     4560     4440     Normal     0

 Sensor    deg C    Max   Min    Threshold(Hi/Lo)   Status   errCount
---------------------------------------------------------------------
   T1       33       32     31     77  / 0         Normal    0
   T2       33       33     29     81  / 0         Normal    0
   T3       34       34     31     65  / 0         Normal    0
```

show serial_port	
Purpose	Used to display the current serial port settings.
Syntax	**show serial_port**
Description	This command is used to display the current serial port settings.
Parameters	None.

show serial_port	
Restrictions	None.

Example usage:

To display the serial port settings:

```
DAS-3626:admin#show serial_port
Command: show serial_port

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

DAS-3626:admin#
```

config serial_port	
Purpose	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.
Syntax	**config serial_port {baud_rate [9600 | 19200 | 38400 | 115200] | auto_logout [never | 2_minutes | 5_minutes | 10_minutes | 15_minutes]}**
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.
Parameters	*baud_rate [9600 | 19200 | 38400 | 115200]* – The serial bit rate that will be used to communicate with the management host. There are four options: 9600, 19200, 38400, 115200. Factory default setting is 115200. *never* – No time limit on the length of time the console can be open with no user input. *2_minutes* – The console will log out the current user if there is no user input for 2 minutes. *5_minutes* – The console will log out the current user if there is no user input for 5 minutes. *10_minutes* – The console will log out the current user if there is no user input for 10 minutes. *15_minutes* – The console will log out the current user if there is no user input for 15 minutes.

config serial_port	
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure baud rate:

```
DAS-3626:admin#config serial_port baud_rate 115200
Command: config serial_port baud_rate 115200

Success.

DAS-3626:admin#
```

NOTE: If a user configures the serial port's baud rate, the baud rate will take effect and save immediately. Baud rate settings will not change even if the user resets or reboots the Switch. The Baud rate will only change when the user configures it again. The serial port's baud rate setting is not stored in the Switch's configuration file. Resetting the Switch will not restore the baud rate to the default setting.

enable clipaging

Purpose	Used to pause the scrolling of the console screen when a command displays more than one page.
Syntax	**enable clipaging**
Description	This command is used when issuing a command which causes the console screen to rapidly scroll through several pages. This command will cause the console to pause at the end of each page. The default setting is enabled.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

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

```
DAS-3626:admin#enable clipaging
Command: enable clipaging


DAS-3626:admin#
```

disable clipaging

Purpose	Used to disable the pausing of the console screen scrolling at the end of each page when a command displays more than one screen of information.
Syntax	**disable clipaging**
Description	This command is used to disable the pausing of the console screen at the end of each page when a command would display more than one screen of information.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

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

```
DAS-3626:admin#disable clipaging
Command: disable clipaging

Success.

DAS-3626:admin#
```

enable telnet

Purpose	Used to enable communication with and management of the Switch using the Telnet protocol.
Syntax	**enable telnet <tcp_port_number 1-65535>**
Description	This command is used to enable the Telnet protocol on the Switch. The user can specify the TCP or UDP port number the Switch will use to listen for Telnet requests.
Parameters	*<tcp_port_number 1-65535>* – 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 Administrator and Operator-level users can issue this command.

Example usage:

To enable Telnet and configure port number:

```
DAS-3626:admin#enable telnet 23
Command: enable telnet 23

Success.

DAS-3626:admin#
```

disable telnet

Purpose	Used to disable the Telnet protocol on the Switch.
Syntax	**disable telnet**
Description	This command is used to disable the Telnet protocol on the Switch.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To disable the Telnet protocol on the Switch:

```
DAS-3626:admin#disable telnet
Command: disable telnet


Success.

DAS-3626:admin#
```

enable web

Purpose	Used to enable the HTTP-based management software on the Switch.
Syntax	**enable web <tcp_port_number 1-65535>**
Description	This command is used to enable the Web-based management software on the Switch. The user can specify the TCP port number the Switch will use to listen for Telnet requests.
Parameters	*<tcp_port_number 1-65535>* – The TCP port number. TCP ports are numbered between 1 and 65535. The "well-known" port for the Web-based management software is 80.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To enable HTTP and configure port number:

```
DAS-3626:admin#enable web 80
```

```
Command: enable web 80

Success.

DAS-3626:admin#
```

disable web

Purpose	Used to disable the HTTP-based management software on the Switch.
Syntax	**disable web**
Description	This command disables the Web-based management software on the Switch.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To disable HTTP:

```
DAS-3626:admin#disable web
Command: disable web

Success.

DAS-3626:admin#
```

save

Purpose	Used to save changes in the Switch's configuration to non-volatile RAM.
Syntax	**save {[config <config_id 1-2> | log | all]}**
Description	This command is used to enter the current switch configuration into non-volatile RAM. The saved switch configuration will be loaded into the Switch's memory each time the Switch is restarted.
Parameters	*config <config_id 1-2>* – Specify to save current settings to configuration file 1 or 2. *log* – Specify to save current Switch log to NV-RAM. *all* – Specify to save all configuration settings. If nothing is specified after "save", the Switch will save all current configuration to non-volatile RAM.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To save the Switch's current configuration to non-volatile RAM:

```
DAS-3626:admin#save
Command: save

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

DAS-3626:admin#
```

reboot

Purpose	Used to restart the Switch.
Syntax	**Reboot {force_agree}**
Description	This command is used to restart the Switch.
Parameters	*force_agree* – When force_agree is specified, the reboot command will be executed immediatedly without further confirmation.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To restart the Switch:

```
DAS-3626:admin#reboot
Command: reboot
Are you sure you want to proceed with the system reboot? (y|n)y
Please wait, the switch is rebooting...
```

reset

Purpose	Used to reset the Switch to the factory default settings.
Syntax	**reset {[config |system]} {force_agree}**
Description	This command is used to restore the Switch's configuration to the default settings assigned from the factory.
Parameters	*config* – If the keyword 'config' is specified, all of the factory default settings are restored on the Switch including the IP address, user accounts, and the switch history log. The Switch will not save or reboot. *system* – If the keyword 'system' is specified all of the factory default settings are restored on the Switch. The Switch will save and reboot after the settings are changed to default. Rebooting will clear all entries in the Forwarding Data Base. *force_agree* – When force_agree is specified, the reset command will be executed immediatedly without further confirmation. If no parameter is specified, the Switch's current IP address, banner, user accounts, and the switch history log are not changed. All other parameters are restored to the factory default settings. The Switch will not save or reboot.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To restore all of the Switch's parameters to their default values:

```
DAS-3626:admin#reset config
Command: reset config

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

Success.

DAS-3626:admin#
```

login

Purpose	Used to log in a user to the Switch’s console.
Syntax	**login**
Description	This command is used to initiate the login procedure. The user will be prompted for a Username and Password.
Parameters	None.
Restrictions	None.

Example usage:

To initiate the login procedure:

```
DAS-3626:admin#login
Command: login

UserName:
```

logout

Purpose	Used to log out a user from the Switch’s console.
Syntax	**logout**
Description	This command terminates the current user’s session on the Switch’s console.
Parameters	None.
Restrictions	None.

Example usage:

To terminate the current user’s console session:

```
DAS-3626:admin#logout
```

5

MODIFY BANNER AND PROMPT COMMANDS

Administrator level users can modify the login banner (greeting message) and command prompt by using the commands described below.

Command	Parameters
config command_ prompt	[<string 16> | username | default]
config greeting_message	{default}
show greeting_message	

The modify Banner and Prompt commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

config command prompt	
Purpose	Used to configure the command prompt.
Syntax	**config command_prompt [<string 16> | username | default]**
Description	This command is for users to change the command prompt.
Parameters	*string 16* –The command prompt can be changed by entering a new name of no more that 16 characters. *username* – The command prompt will be changed to the login username. *default* – The command prompt will reset to factory default command prompt.
Restrictions	Only Administrator and Operator-level users can issue this command. Other restrictions include: • If the "**reset**" command is executed, the modified command prompt will remain modified. However, the "**reset config/reset system**" command will reset the command prompt to the original factory banner.

Example usage:

To modify the command prompt to "AtYourService":

```
DAS-3626:admin#config command_prompt AtYourService
Command: config command_prompt AtYourService

Success.

AtYourService:admin5#
```

config greeting _message

Purpose	Used to configure the login banner (greeting message).
Syntax	**config greeting _message {default}**
Description	This command is used to modify the login banner (greeting message).
Parameters	*default* – If the user enters *default* to the modify banner command, then the banner will be reset to the original factory banner. To open the Banner Editor, click *enter* after typing the **config greeting_message** command. Type the information to be displayed on the banner by using the commands described on the Banner Editor: Quit without save: Ctrl+C Save and quit: Ctrl+W Move cursor: Left/Right/Up/Down Delete line: Ctrl+D Erase all settings: Ctrl+X Reload original settings: Ctrl+L

```
DAS-3626:admin#config command_prompt AtYourService
Command: config command_prompt AtYourService

Success.

AtYourService:admin5#
```

Restrictions	Only Administrator and Operator-level users can issue this command. Other restrictions include: • If the “**reset**” command is executed, the modified banner will remain modified. However, the “**reset config/reset system**” command will reset the modified banner to the original factory banner. • The capacity of the banner is 6*80. 6 Lines and 80 characters per line. • Ctrl+W will only save the modified banner in the DRAM. Users need to type the “**save**” command to save it into FLASH. • Only valid in threshold level.

Example usage:

To modify the banner:

```
DAS-3626:admin#config greeting_message
Command: config greeting_message

Greeting Messages Editor
===========================================================================
                                DAS-3626 VDSL2 Switch
                            Command Line Interface

                          Firmware: Build 1.00.B042
           Copyright(C) 2009 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
---------------------------------------------------------------------------
```

show greeting_message

Purpose	Used to view the currently configured greeting message configured on the Switch.
Syntax	**show greeting_message**
Description	This command is used to view the currently configured greeting message on the Switch.
Parameters	None.
Restrictions	None.

Example usage:

To view the currently configured greeting message:

```
DAS-3626:admin#show greeting_message
Command: show greeting_message

       ========================================================================
                                DAS-3626 VDSL2 Switch
                                Command Line Interface

                              Firmware: Build 1.00.B042
             Copyright(C) 2009 D-Link Corporation. All rights reserved.
       ========================================================================

DAS-3626:admin#
```

6

SWITCH UTILITY COMMANDS

The switch utility commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
download	[firmware_fromTFTP [<ipaddr> |<ipv6addr>] <path_filename 64> {image_id <int 1-2>} | cfg_fromTFTP [<ipaddr> | <ipv6addr>] <path_filename 64>]
config firmware	image_id <int 1-2> [delete | boot_up]
show firmware information	
show config	[current_config | config_in_nvram | information]
upload	[cfg_toTFTP [<ipaddr> |<ipv6addr>] <path_filename 64> | log_toTFTP [<ipaddr> | <ipv6addr>] path_filename 64> | attack_log_toTFTP [<ipaddr> |<ipv6addr>] <path_filename 64>]
ping	<ipaddr> {times <value 1-255>} {timeout <sec 1-99>} { size <value 32-1500> }

Command	Parameters
ping6	<ipv6addr> {times <value 1-255>| size <value 1-6000>| timeout <value 1-10>}

Each command is listed, in detail, in the following sections.

download	
Purpose	Used to download and install new firmware or a Switch configuration file from a TFTP server.
Syntax	**download [firmware_fromTFTP [<ipaddr> |<ipv6addr>] <path_filename 64> {image_id <int 1-2>} | cfg_fromTFTP [<ipaddr> |<ipv6addr>] <path_filename 64>]**
Description	This command is used to download a new firmware or a Switch configuration file from a TFTP server.
Parameters	*firmware_fromTFTP* – Download and install new firmware on the Switch from a TFTP server. *cfg_fromTFTP* – Download a switch configuration file from a TFTP server. *<ipaddr>* – The IP address of the TFTP server. *<ipv6addr>* – The IPv6 address of the TFTP server. *<path_filename>* – The DOS path and filename of the firmware or switch configuration file on the TFTP server. For example, C:\3700.had. *image_id <int 1-2>* – Specify the working section ID. The Switch can hold two firmware versions for the user to select from, which are specified by section ID. *increment* – Allows the download of a partial switch configuration file. This allows a file to be downloaded that will change only the switch parameters explicitly stated in the configuration file. All other switch parameters will remain unchanged.

download	
Restrictions	The TFTP server must be on the same IP subnet as the Switch. Only Administrator-level users can issue this command.

Example usage:

To download a configuration file:

```
DAS-3626:admin#download cfg_fromTFTP 10.48.74.121 c:\cfg\setting.txt
Command: download cfg_fromTFTP 10.48.74.121 c:\cfg\setting.txt

Connecting to server.................. Done.
Download configuration................ Done.

DAS-3626:admin#
DAS-3626:admin##----------------------------------------------------------
DAS-3626:admin##                DAS-3626 VDSL2 Configuration
DAS-3626:admin##
DAS-3626:admin##               Firmware: Build 1.00.B042
DAS-3626:admin##Copyright(C) 2009 D-Link Corporation. All rights reserved.
DAS-3626:admin##----------------------------------------------------------
DAS-3626:admin#
DAS-3626:admin#
DAS-3626:admin## BASIC
DAS-3626:admin#
DAS-3626:admin#config serial_port baud_rate 115200 auto_logout 10_minutes
Command: config serial_port baud_rate 115200 auto_logout 10_minutes
```

The download configuration command will initiate the loading of the various settings in the order listed in the configuration file. When the file has been successfully loaded the message “End of configuration file for DAS-3600-12” appears followed by the command prompt.

```
DAS-3626:admin#disable authen_policy
Command: disable authen_policy

Success.

DAS-3626:admin#
DAS-3626:admin##-------------------------------------------------------
DAS-3626:admin##        End of configuration file for DAS-3600-12
DAS-3626:admin##-------------------------------------------------------
DAS-3626:admin#
```

config firmware	
Purpose	Used to configure the firmware section as a boot up section, or to delete the firmware section
Syntax	**config firmware image_id <int 1-2> [delete | boot_up]**
Description	This command is used to configure the firmware section. The user may choose to remove the firmware section or use it as a boot up section.
Parameters	*image_id* – Specifies the working section. The Switch can hold two firmware versions for the user to select from, which are specified by image ID. *delete* – Entering this parameter will delete the specified firmware section. *boot_up* – Entering this parameter will specify the firmware image ID as a boot up section.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To configure firmware image 1 as a boot up section:

```
DAS-3626:admin#config firmware image_id 1 boot_up
Command: config firmware image_id 1 boot_up

Success.

DAS-3626:admin#
```

show firmware information

Purpose	Used to display the firmware section information.
Syntax	**show firmware information**
Description	This command is used to display the firmware section information.
Parameters	None.
Restrictions	None.

Example usage:

To display the current firmware information on the Switch:

```
DAS-3626:admin#show firmware information
Command: show firmware information

 Image ID    : 1(Boot up firmware)
 Version    : 1.00.B035
 Size       : 2562816 Bytes
 Update Time: 2000/01/01 00:13:55
 From       : 10.73.21.1(Console)
 User       : Anonymous

 Image ID: 2
 Version    :  (Empty)
 Size       :
 Update Time:
 From       :

DAS-3626:admin#
```

show config	
Purpose	Used to display the current or saved version of the configuration settings of the switch.
Syntax	**show config [current_config | config_in_nvram | information]**
Description	This command is used to display all the configuration settings that are saved to NV RAM or display the configuration settings as they are currently configured. Use the keyboard to list settings one line at a time (Enter), one page at a time (Space) or view all (a). The configuration settings are listed by category in the following order: 1. Basic (serial port, Telnet and web management status) 2. storm control 3. IP group management 4. syslog 5. QoS 6. port mirroring 7. traffic segmentation 8. port 9. port lock 10. 8021x 11. SNMPv3 12. management (SNMP traps RMON) 13. VLAN 14. FDB (forwarding data base) 15. MAC address table notification 16. STP 17. SSH 18. SSL 19. ACL 20. SNTP 21. IP route 22. LACP 23. ARP 24. IP 25. IGMP snooping 26. access authentication control (TACACS etc.)
Parameters	*current_config* – Entering this parameter will display configurations entered without being saved to NVRAM. *config_in_NVRAM* – Entering this parameter will display configurations entered and saved to NVRAM. *information* – Entering this parameter will display the global information for the configuration settings.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To view the current configuration settings:

```
DAS-3626:admin#show config current_config
Command: show config current_config

#-------------------------------------------------------
#                  DAS-3600-12 Configuration
#
#                Firmware: Build 1.00.B042
# Copyright(C) 2009 D-Link Corporation. All rights reserved.
#-------------------------------------------------------


# STACK



# BASIC

# ACCOUNT LIST
# ACCOUNT END
# PASSWORD ENCRYPTION
disable password encryption
config serial_port auto_logout 10_minutes
enable telnet 23
enable web 80

CTRL+C ESC q Quit SPACE n Next Page ENTER Next Entry a All
```

upload

Purpose	Used to upload the current switch settings or the switch history log to a TFTP.
Syntax	**[cfg_toTFTP [<ipaddr> |<ipv6addr>] <path_filename 64> | log_toTFTP [<ipaddr> | <ipv6addr>] <path_filename 64> | attack_log_toTFTP [<ipaddr> |<ipv6addr>] <path_filename 64>]**
Description	This command is used to upload either the Switch's current settings or the Switch's history log to a TFTP server.
Parameters	*cfg_toTFTP* – Specifies that the Switch's current settings will be uploaded to the TFTP server. *log_toTFTP* – Specifies that the switch history log will be uploaded to the TFTP server. *attack_log_toTFTP* – Specifies that the switch attack log will be uploaded to the TFTP server. *<ipaddr>* – The IP address of the TFTP server. The TFTP server must be on the same IP subnet as the Switch. <*ipv6addr*> – The IPv6 address of the TFTP server. *<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.
Restrictions	The TFTP server must be on the same IP subnet as the Switch. Only Administrator and Operator-level users can issue this command.

Example usage:

To upload a configuration file:

```
DAS-3626:admin#upload cfg_toTFTP 10.48.74.121 c:\cfg\configuration.txt
Command: upload cfg_toTFTP 10.48.74.121 c:\cfg\configuration.txt

Connecting to server.................. Done.
Upload configuration..................Done.

DAS-3626:admin#
```

ping	
Purpose	Used to test the connectivity between network devices.
Syntax	**ping <ipaddr> {times <value 1-255>} {timeout <sec 1-99>} {size <value 32-1500>}**
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.
Parameters	*<ipaddr>* - Specifies the IP address of the host. *times <value 1-255>* - 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 <sec 1-99>* - Defines 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. *size <value 32-1500>* - Defines the packet size.
Restrictions	None.

Example usage:

To ping the IP address 10.48.74.121 four times:

```
DAS-3626:admin#ping 10.48.74.121 times 4
Command: ping 10.48.74.121

Reply from 10.48.74.121, time<10ms
Reply from 10.48.74.121, time<10ms
Reply from 10.48.74.121, time<10ms
Reply from 10.48.74.121, time<10ms

Ping statistics for 10.48.74.121
Packets: Sent =4, Received =4, Lost =0

DAS-3626:admin#
```

ping6	
Purpose	Used to test the connectivity between network devices.
Syntax	**ping6 <ipv6addr> {times <value 1-255>| size <value 1-6000>| timeout<value 1-10>}**
Description	This command is used to send Internet Control Message Protocol (ICMPv6) echo messages to a remote IP 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.
Parameters	< *ipv6addr* > – Specifies the IPv6 address of the host. *times* <*value 1-255*> – The number of individual ICMPv6 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* <*value 1-6000*> – Use this parameter to set the datagram size of the packet, or in essence, the number of bytes in each ping packet. Users may set a size between 1 and 6000 bytes with a default setting of 100 bytes. *timeout* <*value 1-10*> – Select a timeout period between 1 and 10 seconds for this Ping message to reach its destination. If the packet fails to find the IPv6 address in this specified time, the Ping packet will be dropped.
Restrictions	None.

Example usage:

To ping the IPv6 address 1001::3702 four times:

```
DAS-3626:admin#ping6 1001::3702 times 4
Command: ping6 1001::3702 times 4

Reply from 1001::3702, bytes=100 time<10 ms
Reply from 1001::3702, bytes=100 time<10 ms
Reply from 1001::3702, bytes=100 time<10 ms
Reply from 1001::3702, bytes=100 time<10 ms
 Ping Statistics for 1001::3702
 Packets: Sent =4, Received =4, Lost =0

DAS-3626:admin#
```

7

BASIC IP COMMANDS

The IP interface commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

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

Each command is listed, in detail, in the following sections.

*See Switch Utility Commands for descriptions of all autoconfig commands.

config ipif

Purpose	Used to configure the IP interface.
Syntax	**config ipif <ipif_name 12> [{ipaddress <network_address> |vlan <vlan_name 32> |state [enable |disable]} | bootp |dhcp | ipv6 [ipv6address <ipv6networkaddr> | state [enable| disable]] |ipv4 state [enable | disable]]**
Description	This command is used to configure the IP interface on the Switch.
Parameters	*<ipif_name 12>* – Enter an alphanumeric string of up to 12 characters to identify this IP interface. *ipaddress <network_address>* – IP address and netmask of the IP interface to be created. Users can specify 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_name 32>* – The name of the VLAN corresponding to the System IP interface. *state [enable* | *disable]* – Allows users to enable or 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 IP interface. If users are using the autoconfig feature, the Switch becomes a DHCP client automatically so it is not necessary to change the ipif settings. *ipv6address* – IPv6 network address. The address should specify a host address and length of network prefix. There can be multiple v6 addresses defined on an interface. Thus, as a new address is defined, it is added on this ipif. *Ipv6 state* – Allows users to enable IPv6 address on the IP interface. *ipv4 state* – Allows users to enable IPv4 address on the IP interface.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure the IP interface System:

```
DAS-3626:admin#config ipif System ipaddress 10.48.74.122/8
Command: config ipif System ipaddress 10.48.74.122/8

Success.

DAS-3626:admin#
```

show ipif

Purpose	Used to display the configuration of an IP interface on the Switch.
Syntax	**show ipif {<ipif_name 12>}**
Description	This command is used to display the configuration of an IP interface on the Switch.
Parameters	*<ipif_name 12>* – The name created for the IP interface.
Restrictions	None.

Example usage:

To display IP interface settings.

```
DAS-3626:admin#show ipif System
Command: show ipif System

IP Interface                : System
VLAN Name                   : default
Interface Admin State       : Enabled
Link Status                 : LinkUp
IPv4 Address                : 10.24.73.21/8 (Manual)  Primary
IPv4 State                  : Enabled

DAS-3626:admin#
```

enable ipif_ipv6_link_local_auto

Purpose	This command enables the auto configuration of link local addresses when no IPv6 address is configured.
Syntax	**enable ipif_ipv6_link_local_auto [<ipif_name 12> | all]**
Description	This command is used to enable the auto configuration of link local addresses 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.
Parameters	*<ipif_name 12>* – The name of the IP interface. *all* – Indidcates all IP interfaces.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

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

```
DAS-3626:admin#enable ipif_ipv6_link_local_auto all
Command: enable ipif_ipv6_link_local_auto all

Success.

DAS-3626:admin#
```

disable ipif_ipv6_link_local_auto

Purpose	Disables the auto configuration of link local addresses when no IPv6 addresses are configured.
Syntax	**disable ipif_ipv6_link_local_auto [<ipif_name 12> | all]**
Description	This command is used to disable the auto configuration of link local addresses when no IPv6 address is explicitly configured.
Parameters	*<ipif_name 12>* – The name of the IP interface. *all* – Indicates all IP interfaces.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

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

```
DAS-3626:admin#disable ipif_ipv6_link_local_auto System
Command: disable ipif_ipv6_link_local_auto System

Success.

DAS-3626:admin#
```

show ipif_ipv6_link_local_auto

Purpose	Displays the link local address automatic configuration state.
Syntax	**show ipif_ipv6_link_local_auto {<ipif_name 12>}**
Description	This command is used to display the link local address automatic configuration state.
Parameters	*<ipif_name 12>* – The name created for the IP interface.
Restrictions	None.

Example usage:

To display the link local address automatic configuration state:

```
DAS-3626:admin#show ipif_ipv6_link_local_auto
Command: show ipif_ipv6_link_local_auto

 IPIF: System          Automatic Link Local Address: Disabled

DAS-3626:admin#
```

8

Routing Table Commands

The routing table commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
create iproute	[default] <ipaddr> {<metric 1-65535>}
delete iproute	[default] <ipaddr>
show iproute	{static}

Each command is listed, in detail, in the following sections.

create iproute default	
Purpose	Used to create IP route entries to the Switch's IP routing table.
Syntax	**create iproute [default] <ipaddr> {<metric 1-65535>}**
Description	This command is used to create a default static IP route entry to the Switch's IP routing table.
Parameters	*<ipaddr>* – The gateway IP address for the next hop router. *<metric 1-65535>* – Allows the entry of a routing protocol metric entry representing the number of routers between the Switch and the IP address above. The default setting is 1.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To add the default static address 10.48.74.121, with a metric setting of 1, to the routing table:

```
DAS-3626:admin#create iproute default 10.48.74.121 1
Command: create iproute default 10.48.74.121 1

Success.

DAS-3626:admin#
```

delete iproute default	
Purpose	Used to delete a default IP route entry from the Switch's IP routing table.
Syntax	**delete iproute [default]**
Description	This command will delete an existing default entry from the Switch's IP routing table.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To delete the default IP route 10.53.13.254:

```
DAS-3626:admin#delete iproute default
Command: delete iproute default

Success.

DAS-3626:admin#
```

show iproute	
Purpose	Used to display the Switch's current IP routing table.
Syntax	**show iproute**
Description	This command will display the Switch's current IP routing table.
Parameters	None.
Restrictions	None.

Example usage:

To display the contents of the IP routing table:

```
DAS-3626:admin#show iproute
Command: show iproute

Routing Table

IP Address/Netmask  Gateway      Interface    Cost    Protocol
---------------     ---------    ------------ ----   -----------
0.0.0.0             10.1.1.254    System       1      Default
10.0.0.0/8          10.48.74.122 System       1      Local

Total Entries: 2

DAS-3626:admin#
```

9

IPv6 Neighbor Discovery Commands

The following commands are used to detect IPv6 neighbors on the switch and to keep a running database about these neighbor devices. The IPv6 Neighbor Detection commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
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]
config ipv6 nd ns ipif	<ipif_name 12> retrans_time <uint 0-4294967295>
show ipv6 nd	{ipif <ipif_name 12>}

Each command is listed, in detail, in the following sections.

create ipv6 neighbor_cache ipif

Purpose	This command is used to add a static IPv6 neighbor.
Syntax	**create ipv6 neighbor_cache ipif <ipif_name 12> <ipv6addr> <macaddr>**
Description	This command is used to add a static IPv6 neighbor to an existing IPv6 interface previously created on the switch.
Parameters	*<ipif_name 12>* – Enter the IPv6 interface name previously created using the create ipif command. *<ipv6addr>* – Enter the IPv6 address of the neighbor device to be added as an IPv6 neighbor of the IP interface previously entered in this command. *<macaddr>* – Enter the MAC address of the neighbor device to be added as an IPv6 neighbor of the IP interface previously entered in this command.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To create a static IPv6 neighbor:

```
DAS-3626: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.

DAS-3626:admin#
```

delete ipv6 neighbor_cache ipif

Purpose	Used to remove a static IPv6 neighbor.
Syntax	**delete ipv6 neighbor_cache ipif [<ipif_name 12> | all] [<ipv6addr> | static | dynamic | all]**
Description	This command is used to remove a static IPv6 neighbor from an existing IPv6 interface previously created on the switch.
Parameters	*<ipif_name 12>* – Enter the IPv6 interface name previously created using the **create ipif** commands. *all* – Enter this parameter to denote all IPv6 interfaces created on the switch. *<ipv6addr>* – Enter the IPv6 address of the neighbor device to be removed from being an IPv6 neighbor of the IP interface previously entered in this command. *static* – Enter this command to remove all statically configured neighbor devices from being an IPv6 neighbor of the IP interface previously entered. *dynamic* – Enter this command to remove all dynamically configured neighbor devices from being an IPv6 neighbor of the IP interface previously entered. *all* – Enter this parameter to remove all IPv6 neighbors of the switch.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To delete a static IPv6 neighbor:

```
DAS-3626:admin#delete ipv6 neighbor_cache ipif  System 3FFC::1
Command: delete ipv6 neighbor_cache ipif  System 3FFC::1
Success.

DAS-3626:admin#
```

show ipv6 neighbor_cache ipif

Purpose	Used to view the neighbor cache of an IPv6 interface located on the Switch.
Syntax	**show ipv6 neighbor_cache ipif [<ipif_name 12> | all] | [ipv6address <ipv6addr> | static | dynamic | all]**
Description	This command is used to display the IPv6 neighbors of a configured IPv6 interface currently set on the switch. Users may specify an IP interface, IPv6 address or statically entered IPv6 addresses by which to view the neighbor cache.
Parameters	*<ipif_name 12>* – Enter the IP interface for which to view IPv6 neighbors. This will display all IPv6 neighbors of this interface. *all* – Enter this parameter to denote all IPv6 interfaces created on the switch. *ipv6address <ipv6addr>* – Enter the IPv6 address of the neighbor by which to view this information. *static* – Enter this parameter to view all statically entered IPv6 neighbors of the switch. *dynamic* – Enter this command to view all dynamically configured neighbor devices which are IPv6 neighbors of the IP interface previously entered. *all* – Enter this parameter to view all configured neighbor devices which are IPv6 neighbors of the IP interface previously entered.
Restrictions	None.

Example usage:

```
DAS-3626:admin#show ipv6 neighbor_cache ipif System all
Command: show ipv6 neighbor_cache ipif System all

Neighbor                         Link Layer Address Interface    State
-------------------------------  ------------------ ------------ -----
FE80::216:36FF:FEB5:48DF         00-16-36-B5-48-DF  System       S
FE80::230:65FF:FE98:BFAC         00-30-65-98-BF-AC  System       S
FE80::280:C8FF:FE25:9050         00-80-C8-25-90-50  System       S
FE80::2D0:BAFF:FEF4:3282         00-D0-BA-F4-32-82  System       S

Total Entries: 4

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.


DAS-3626:admin#
```

To display the IPv6 neighbors of a configured IP interface:

config ipv6 nd ns ipif

Purpose	Used to configure the parameters for Neighbor solicitation messages to be sent from the switch.
Syntax	**config ipv6 nd ns ipif <ipif_name 12> retrans_time <uint 0-4294967295>**
Description	This command will configure the parameters for Neighbor Solicitation messages sent from the switch. These messages are used to detect IPv6 neighbors on the switch.
Parameters	*<ipif_name 12>* – Enter the IPv6 interface name for which to dispatch Neighbor solicitation messages. *retrans_time <uint 0-4294967295>* – Use this field to set the interval, in milliseconds that the Switch will produce Neighbor Solicitation packets to be sent out over the local network. This is used to discover IPv6 neighbors on the local link. The user may select a time between 0 and 4294967295 milliseconds. Very fast intervals, represented by a low number, are not recommended for this field.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To configure the retrans time of a configured IP interface:

```
DAS-3626:admin#config ipv6 nd ns ipif System retrans_time 1000000
Command: config ipv6 nd ns ipif System retrans_time 1000000

Success.

DAS-3626:admin#
```

show ipv6 nd

Purpose	Used to display information regarding Neighbor Detection on the switch.
Syntax	**show ipv6 nd {ipif <ipif_name 12>}**
Description	This command is used to show information regarding the IPv6 Neighbor Detection function of the switch. Users may specify an IP interface for which to view this information.
Parameters	*<ipif_name 12>* – Enter the IP interface of the IPv6 interface for which to view this information. Omitting this parameter will display all information regarding neighbor detection currently set on the switch.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To display the neighbor detection parameters for IPv6:

```
DAS-3626:admin#show ipv6 nd
Command: show ipv6 nd


Interface Name            : System
NS Retransmit Time        : 1000000 (ms)

DAS-3626:admin#
```

10

LIMITED IP MULTICAST ADDRESS

The Limited IP Multicast command allows the administrator to permit or deny access to a port or range of ports by specifying a range of multicast addresses. The Limited IP Multicast Commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
create mcast_filter_profile	{[ipv4|ipv6]} profile_id <value 1-60> profile_name <name 1-32>
config mcast_filter_profile	[profile_id < value 1-60>| profile_name <name 1-32>] { profile_name <name 1-32> | [add | delete] <mcast_address_list>}
config mcast_filter_profile ipv6	[profile_id < value 1-60>| profile_name <name 1-32>] { profile_name <name 1-32> | [add | delete] <mcastv6_address_list>}
delete mcast_filter_profile profile_id	{[ipv4|ipv6]} [<value 1-60> | all]
delete mcast_filter_profile profile_name	{[ipv4|ipv6]} <name 1-32>
show mcast_filter_profile	{[ipv4|ipv6]} { profile_id <value 1-60> | profile name < name 1-32 >}
config limited_multicast_addr ports	[ports <portlist> | vlanid <vlanid_list >] {[ipv4|ipv6]} {[add | delete] [profile_id <value 1-60> | profile_name <name 1-32>] | access [permit | deny]}
show limited_multicast_addr ports	{[ipv4|ipv6]} [ports {<portlist>} | vlanid <vlanid_list >]
config max_mcast_group ports	{[ipv4|ipv6]} [ports <portlist> | vlanid <vlanid_list] max_group [<value 1-1024> | infinite]
show max_mcast_group ports	{[ipv4|ipv6]} [ports <portlist>} | vlanid <vlanid_list >]

Each command is listed, in detail, in the following sections.

create mcast_filter_profile profile_id

Purpose	This command creates a multicast address profile.
Syntax	**create mcast_filter_profile {[ipv4|ipv6]}profile_id <value 1-60> <name 1-32>**
Description	This command configures a multicast address profile. Mutliple ranges of multicast addresses can be defined in the profile.
Parameters	*profile_id* – ID of the profile. The range is *1* to *60*. *<name 1-32>* – Provides a meaningful description for the profile.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To create a multicast filter profile:

```
DAS-3626:admin#create mcast_filter_profile ipv4 profile_id 2 profile_name RG
Command: create mcast_filter_profile ipv4 profile_id 2 profile_name RG

Success.

DAS-3626:admin#
```

config mcast_filter_profile

Purpose	This command adds or deletes a range of multicast addresses to the profile.
Syntax	**config mcast_filter_profile [profile_id < value 1-60>| profile_name <name 1-32>] { profile_name <name 1-32> | [add | delete] <mcast_address_list>}**
Description	This command allows the user to add or delete a range of multicast IP addresses previously defined.
Parameters	*profile_id* – ID of the profile. The range is *1* to *60*. *profile_name* – Provides a meaningful description for the profile. *mcast_address_list* – List of the multicast addresses to be put in the profile. You can either specifiy a single multicast IP address or a range of multicast addresses using.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To config an IPv4 multicast filter profile:

```
DAS-3626:admin#config mcast_filter_profile profile_id 2 add 225.1.1.1-225.1.1.1
Command: config mcast_filter_profile profile_id 2 add 225.1.1.1

Success.

DAS-3626:admin#
```

config mcast_filter_profile ipv6

Purpose	This command adds or deletes a range of IPv6 multicast addresses to the profile.
Syntax	**config mcast_filter_profile ipv6 [profile_id < value 1-60>| profile_name <name 1-32>] { profile_name <name 1-32> | [add | delete] <mcastv6_address_list>}**
Description	This command allows the user to add or delete a range of multicast IPv6 addresses previously defined.
Parameters	*profile_id* – ID of the profile. Range is from *1* to *60*. *profile_name* – Provides a meaningful description for the profile. *mcast_address_list* – List of the IPv6 multicast addresses to be put in the profile. You can either specifiy a single IPv6 multicast IP address or a range of IPv6 multicast addresses.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To config an IPv6 mcast_filter_ profile:

```
DAS-3626:admin#config mcast_filter_profile ipv6 profile_id 2 add FF12::1-FF12::1
Command: config mcast_filter_profile ipv6 profile_id 2 add FF12::1

Success.

DAS-3626:admin#
```

delete mcast_filter_profile profile_id

Purpose	This command deletes a multicast address profile.
Syntax	**delete mcast_filter_profile profile_id {[ipv4|ipv6]} [<value 1-60> | all]**
Description	This command deletes a multicast address profile.
Parameters	*profile_id* – ID of the profile. *all* – All multicast address profiles will be deleted.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To delete a multicast filter profile:

```
DAS-3626:admin#delete mcast_filter_profile profile_id ipv4 2
Command: delete mcast_filter_profile profile_id ipv4 2

Success.

DAS-3626:admin#delete mcast_filter_profile profile_id ipv6 2
Command: delete mcast_filter_profile profile_id ipv6 2

Success.

DAS-3626:admin#
```

delete mcast_filter_profile profile_name

Purpose	This command deletes a multicast profile name.
Syntax	**delete mcast_filter_profile profile_name {[ipv4|ipv6]} <name 1-32>**
Description	This command deletes a multicast profile.
Parameters	*profile_name <name 1-32 >* – Name of the profile.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To delete a multicast filter profile profile name:

```
DAS-3626:admin#delete mcast_filter_profile profile_name ipv4 DG
Command: delete mcast_filter_profile profile_name ipv4 DG

Success.

DAS-3626:admin#delete mcast_filter_profile profile_id ipv6 RG
Command: delete mcast_filter_profile profile_id ipv6 RG

Success.

DAS-3626:admin#
```

show mcast_filter_profile

Purpose	This command displays the defined multicast address profiles.
Syntax	**show mcast_filter_profile {[ipv4|ipv6]} { profile_id <value 1-60> | profile_name <name 1-32>}**
Description	This command displays the defined multicast address profiles.
Parameters	*profile_id* – ID of the profile if not specified all profiles will be displayed. *profile_name <name 1-32 >* – Name of the profile if not specified all profiles will be displayed.
Restrictions	None.

Example usage:

To display a multicast filter profile:

```
DAS-3626:admin#show mcast_filter_profile ipv4
Command: show mcast_filter_profile ipv4

Profile ID       Name         Multicast Addresses
----             ----------   ---------------------------
1                 RG         234.1.1.1 - 238.244.244.244

Total Profile Count : 1

DAS-3626:admin#
```

config limited_multicast_addr ports

Purpose	Used to configure the multicast address filtering function on a port.
Syntax	**config limited_multicast_addr [ports <portlist> | vlanid <vlanid_list>] {[ipv4|ipv6]} {[add | delete] [profile_id <value 1-60> | profile_name <name 1-32>] | access [permit | deny]}**
Description	This command is used to configure the multicast address filtering function on a port. When there are no profiles specified with a port, the limited function is not effective. When the function is configured on a port, it limits the multicast group operated by the IGMP.
Parameters	*<portlist>* – A range of ports to config the multicast address filtering function. *<vlanid_list>* – A range of VLAN IDs to config the multicast address filtering function. *add* – Add a multicast address profile to a port. *delete* – Delete a multicast address profile to a port. *profile_id* – A profile to be added to or deleted from the port. *profile_name <name 1-32>* – The name of the profile. *permit* – Specifies that the packet that match the addresses defined in the profiles will be permitted. The default mode is permit. *deny* – Specifies that the packet that match the addresses defined in the profiles will be denied.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To config port 1,3 to set the multicast address profile 2:

```
DAS-3626:admin#config limited_multicast_addr ports 1,3 ipv4 add profile_id 2
Command: config limited_multicast_addr ports 1,3 ipv4 add profile_id 2

Success.

DAS-3626:admin#
```

show limited_multicast_addr ports

Purpose	Used to show per-port Limited IP multicast address range.
Syntax	**show limited_multicast_addr {[ipv4|ipv6]} [ports {<portlist>} | vlanid <vlanid_list>]**
Description	This command allows you to show multicast address range by ports. When the function is configured on a port, it limits the multicast groups operated by the IGMP or MLD snooping function and layer 3 function.
Parameters	*<portlist>* – A range of ports to show the limited multicast address configuration. *<vlanid_list>* – range of VLAN IDs to show the multicast address configuration.
Restrictions	None.

Example usage:

To show a limited multicast address range:

```
DAS-3626:admin#show limited_multicast_addr ipv4 ports 1,3
Command: show limited_multicast_addr ipv4 ports 1,3

Port    : 1
Access  : Deny

Profile ID Name                             Multicast Addresses
---------- -------------------------------- -------------------------------
2          RG                                234.1.1.1 - 238.244.244.244



Port    : 3
Access  : Deny

Profile ID Name                             Multicast Addresses
---------- -------------------------------- -------------------------------
2          TG



DAS-3626:admin#
```

config max_mcast_group ports

Purpose	This command configures the maximum number of multicast groups that a port can join.
Syntax	**config max_mcast_group {[ipv4|ipv6]} [ports <portlist> | vlanid <vlanid_list] max_group [<value 1-1024> | infinite]**
Description	This command configures the maximum number of multicast groups that a port can join.
Parameters	*<portlist>* – A range of ports to config the max_mcast_group. *<vlanid_list>* – A range of VLAN IDs to config the max_mcast_group. *max_group* – Specifies the maximum number of the multicast groups. The range is from *1* to *1024* or infinite. Infinite is the default setting.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure the maximum number of multicast groups:

```
DAS-3626:admin#config max_mcast_group ipv4 ports 1,3 max_group 100
Command: config max_mcast_group ipv4 ports 1,3 max_group 100

Success.

DAS-3626:admin#
```

show max_mcast_group ports

Purpose	This command display the max number of multicast groups that a port can join.
Syntax	**show max_mcast_group {[ipv4|ipv6]} [ports <portlist>} | vlanid <vlanid_list >]**
Description	This command is used to display the max number of multicast groups that a port can join.
Parameters	*<portlist>* – A range of ports to display the max number of multicast groups. *<vlanid_list>* – A range of VLAN IDs to display the max number of multicast groups.
Restrictions	None.

Example usage:

To display the maximum number of multicast groups:

```
DAS-3626:admin#show max_mcast_group ipv4 ports 1,3
Command: show max_mcast_group ipv4 ports 1,3

Port      Max Multicast Group Number
------    ----------------------------
1         100
3         100

Total Entries: 2

DAS-3626:admin#
```

11

SWITCH PORT COMMANDS

The switch port commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
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] | [description <desc 1-32 > | clear_description]}
show ports	{[<portlist>]} {[description | err_disabled]}
enable jumbo_frame	
disable jumbo_frame	
show jumbo_frame	

Each command is listed, in detail, in the following sections.

Purpose	Used to configure the Switch’s port settings.
Syntax	**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] | [description <desc 1-32> | clear_description]}**
Description	This command allows for the configuration of the Switch’s Ethernet ports. Only the ports listed in the *<portlist>* will be affected.
Parameters	*all* – Configure all ports on the Switch. *<portlist>* – Specifies a port or range of ports to be configured. *speed* – Allows the user to adjust the speed for a port or range of ports. The user has a choice of the following: • *auto* – Enables auto-negotiation for the specified range of ports. • *[10 | 100 | 1000]* – Configures the speed in Mbps for the specified range of ports. Gigabit ports are statically set to 1000 and cannot be set to slower speeds. When setting port speed to 1000_full, user should specify master or slave mode for 1000-based TX interface, and leave the 1000_full without any master or slave setting for other interfaces. • *[half | full]* – Configures the specified range of ports as either full-duplex or half-duplex. *flow_control [enable | disable]* – Enable or disable flow control for the specified ports. *learning [enable | disable]* – Enables or disables the MAC address learning on the specified range of ports. *medium_type* – Specify the medium type while the configured ports are combo ports. It’s an optional parameter for configuring medium type combo ports. For no combo ports, user does not need to specify medium_type in the commands. *state [enable | disable]* – Enables or disables the specified range of ports. *description* – Enter an alphanumeric string of no more than 32 characters to describe a selected port interface. *clear description* – To clear the description.
Restrictions	Only Administrator and Operator-level users can issue this command.

NOTE: VDSL port can not be configured for speed, state and medium type. Gigabit Ethernet Fiber ports only can be set to 1000M, Full, or auto.

Example usage:

To configure the speed of port 25 to be 10 Mbps, full duplex , learning enabled, state enabled and flow control enabled:

```
DAS-3626:admin#config port 25 speed 10_full learning enable state enable flow_control
enable
Command: config port 25 speed 10_full learning enable state enable flow_control enable

Success.

DAS-3626:admin#
```

show ports	
Purpose	Used to display the current configuration of a range of ports.
Syntax	**show ports {<portlist>} { [description | err_disabled] }**
Description	This command is used to display the current configuration of a range of ports.
Parameters	*<portlist>* – Specifies a port or range of ports to be displayed. *description* – Adding this parameter to the **show ports** command indicates that a previously entered port description will be included in the display. *err_disabled* – Use this to list disabled ports including connection status and reason for being disabled.
Restrictions	None.

Example usage:

To display the configuration of all ports on a standalone switch:

```
DAS-3626:admin#show ports
Command: show ports
Port      Port           Settings             Connection          Address
           State     Speed/Duplex/FlowCtrl  Speed/Duplex/FlowCtrl   Learning
 -------  --------  ---------------------  ----------------------  ---------
 1        Enabled   Auto/Disabled           Link Down               Enabled
 2        Enabled   Auto/Disabled           Link Down               Enabled
 3        Enabled   Auto/Disabled           VDSL/None               Enabled
 4        Enabled   Auto/Disabled           Link Down               Enabled
 5        Enabled   Auto/Disabled           Link Down               Enabled
 6        Enabled   Auto/Disabled           Link Down               Enabled
 7        Enabled   Auto/Disabled           VDSL/None               Enabled
 8        Enabled   Auto/Disabled           Link Down               Enabled
 9        Enabled   Auto/Disabled           Link Down               Enabled
 10       Enabled   Auto/Disabled           Link Down               Enabled
 11       Enabled   Auto/Disabled           Link Down               Enabled
 12       Enabled   Auto/Disabled           Link Down               Enabled

Notes:(F)indicates fiber medium and (C)indicates copper medium in a combo port

DAS-3626:admin#
```

Example usage:

To display the configuration of all ports on a standalone switch, with description.

```
DAS-3626:admin#show ports description
Command: show ports description

 Port      Port            Settings            Connection          Address
           State     Speed/Duplex/FlowCtrl  Speed/Duplex/FlowCtrl   Learning
 -------  --------  ---------------------  ----------------------  ---------
 1        Enabled   Auto/Disabled          Link Down               Enabled
           Description:
 2        Enabled   Auto/Disabled          Link Down               Enabled
           Description:
 3        Enabled   Auto/Disabled          VDSL/None               Enabled
           Description:
 4        Enabled   Auto/Disabled          Link Down               Enabled
           Description:
 5        Enabled   Auto/Disabled          Link Down               Enabled
           Description:
 6        Enabled   Auto/Disabled          Link Down               Enabled
           Description:
 7        Enabled   Auto/Disabled          VDSL/None               Enabled
           Description:
 8        Enabled   Auto/Disabled          Link Down               Enabled
           Description:

DAS-3626:admin#
```

NOTE: Connection status displays the following status: Link Down, Speed/Duplex/FlowCtrl (link up), or Err-Disabled.

Example usage:

To display disabled ports including connection status and reason for being disabled on a standalone switch:

```
DAS-3626:admin#show ports err_disabled
Command: show ports err_disabled

 Port     Port      Connection Status      Reason
          State
 -----    --------  ---------------------  ----------------

DAS-3626:admin#
```

Purpose	Used to enable the jumbo frame function on the Switch.
Syntax	**enable jumbo_frame**
Description	This command will allow ethernet frames larger than 1536 bytes to be processed by the Switch. The maximum size of the jumbo frame may not exceed 10240 Bytes tagged.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To enable the jumbo frame:

```
DAS-3626:admin#enable jumbo_frame
Command: enable jumbo_frame

The maximum size of jumbo frame is 10240 bytes.
Success.

DAS-3626:admin#
```

Purpose	Used to disable the jumbo frame function on the Switch.
Syntax	**disable jumbo_frame**
Description	This command will disable the jumbo frame function on the Switch.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To disable the jumbo frame:

```
DAS-3626:admin#disable jumbo_frame
Command: disable jumbo_frame

Success.

DAS-3626:admin#
```

Purpose	Used to show the status of the jumbo frame function on the Switch.
Syntax	**show jumbo_frame**
Description	This command will show the status of the jumbo frame function on the Switch.
Parameters	None.
Restrictions	None.

Example usage:

To show the jumbo frame status currently configured on the Switch:

```
DAS-3626:admin#show jumbo_frame
Command: show jumbo_frame

Jumbo Frame State  : Disabled
Maximum Frame Size : 1536 Bytes


DAS-3626:admin#
```

12

ARP COMMANDS

The ARP commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

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

Command	Parameters
clear arptable	

Each command is listed, in detail, in the following sections.

create arpentry	
Purpose	Used to make a static entry into the ARP table.
Syntax	**create arpentry <ipaddr> <macaddr>**
Description	This command is used to enter an IP address and the corresponding MAC address into the Switch's ARP table.
Parameters	*<ipaddr>* – The IP address of the end node or station. *<macaddr>* – The MAC address corresponding to the IP address above.

create arpentry	
Restrictions	Only Administrator and Operator-level users can issue this command. The Switch supports up to 255 static ARP entries.

Example usage:

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

```
DAS-3626: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.

DAS-3626:admin#
```

config arpentry	
Purpose	Used to configure a static entry in the ARP table.
Syntax	**config arpentry <ipaddr> <macaddr>**
Description	This command is used to configure a static entry in the ARP Table. The user may specify the IP address and the corresponding MAC address of an entry in the Switch's ARP table.
Parameters	*<ipaddr>* – The IP address of the end node or station. *<macaddr>* – The MAC address corresponding to the IP address.

config arpentry

Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure a static arp entry for the IP address 10.48.74.12 and MAC address 00:50:BA:00:07:36:

```
DAS-3626:admin#config arpentry 10.48.74.12 00-50-BA-00-07-36
Command: config arpentry 10.48.74.12 00-50-BA-00-07-36

Success.

DAS-3626:admin#
```

delete arpentry

Purpose	Used to delete a static entry into the ARP table.
Syntax	**delete arpentry [<ipaddr> | all]**
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. Specifying *all* clears the Switch's ARP table.
Parameters	*<ipaddr>* – The IP address of the end node or station. *all* – Deletes all ARP entries.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

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

```
DAS-3626:admin#delete arpentry 10.48.74.121
Command: delete arpentry 10.48.74.121

Success.

DAS-3626:admin#
```

config arp_aging time

Purpose	Used to configure the age-out timer for ARP table entries on the Switch.
Syntax	**config arp_aging time <value 0-65535>**
Description	This command sets 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.
Parameters	*time <value 0-65535>* – The ARP age-out time, in minutes. The value may be set in the range of *0* to *65535* minutes with a default setting of *20* minutes.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure ARP aging time:

```
DAS-3626:admin#config arp_aging time 30
Command: config arp_aging time 30

Success.

DAS-3626:admin#
```

show arpentry

Purpose	Used to display the ARP table.
Syntax	**show arpentry {ipif <ipif_name 12> | ipaddress <ipaddr> | static }**
Description	This command is used to display the current contents of the Switch's ARP table.
Parameters	*ipif <ipif_name 12>* – The name of the IP interface the end node or station for which the ARP table entry was made, resides on. *ipaddress <ipaddr>* – The network address corresponding to the IP interface name above. *static* – Displays the static entries to the ARP table.
Restrictions	None.

Example usage:

To display the ARP table**:**

```
DAS-3626: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         10.24.73.21      00-01-02-03-04-00  Local
System         10.48.74.121     00-50-BA-00-07-36  Static
System         10.255.255.255   FF-FF-FF-FF-FF-FF  Local/Broadcast

Total Entries: 4


DAS-3626:admin#
```

clear arptable

Purpose	Used to remove all dynamic ARP table entries.
Syntax	**clear arptable**
Description	This command is used to remove dynamic ARP table entries from the Switch's ARP table. Static ARP table entries are not affected.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To remove dynamic entries in the ARP table:

```
DAS-3626:admin#clear arptable
Command: clear arptable

Success.

DAS-3626:admin#
```

13

DHCP RELAY

The DHCP relay commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
config dhcp_relay	{hops <value 1-16> | time <sec 0-65535>}
config dhcp_relay add ipif	<ipif_name 12> <ipaddr>
config dhcp_relay delete ipif	<ipif_name 12> <ipaddr>
config dhcp_relay option_82 state	[enable | disable]
config dhcp_relay option_82 check	[enable | disable]
config dhcp_relay option_82 policy	[replace | drop | keep]
show dhcp_relay	{ipif <ipif_name 12>}
enable dhcp_relay	
disable dhcp_relay	

Each command is listed in detail in the following sections.

config dhcp_relay

Purpose	Used to configure the DHCP/BOOTP relay feature of the switch.
Syntax	**config dhcp_relay {hops <value 1-16> | time <sec 0-65535>}**
Description	This command is used to configure the DHCP/BOOTP relay feature.
Parameters	*hops <value 1-16>* – Specifies the maximum number of relay agent hops that the DHCP packets can cross. *time <sec 0-65535>* – If this time is exceeded, the Switch will relay the DHCP packet.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To config DHCP relay:

```
DAS-3626:admin#config dhcp_relay hops 2 time 23
Command: config dhcp_relay hops 2 time 23

Success.

DAS-3626:admin#
```

config dhcp_relay add ipif

Purpose	Used to add an IP destination address to the switch's DHCP/BOOTP relay table.
Syntax	**config dhcp_relay add ipif <ipif_name 12> <ipaddr>**
Description	This command adds an IP address as a destination to forward (relay) DHCP/BOOTP relay packets to.
Parameters	*<ipif_name 12>* – The name of the IP interface in which DHCP relay is to be enabled. *<ipaddr>* – The DHCP server IP address.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To add an IP destination to the DHCP relay table:

```
DAS-3626:admin#config dhcp_relay add ipif System 10.58.44.6
Command: config dhcp_relay add ipif System 10.58.44.6

Success.

DAS-3626:admin#
```

config dhcp_relay delete ipif

Purpose	Used to delete one or all IP destination addresses from the Switch's DHCP/BOOTP relay table.
Syntax	**config dhcp_relay delete ipif <ipif_name 12> <ipaddr>**
Description	This command is used to delete an IP destination addresses in the Switch’s DHCP/BOOTP relay table.
Parameters	*<ipif_name 12>* – The name of the IP interface that contains the IP address below. *<ipaddr>* – The DHCP server IP address.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To delete an IP destination from the DHCP relay table:

```
DAS-3626:admin#config dhcp_relay delete ipif System 10.58.44.6
Command: config dhcp_relay delete ipif System 10.58.44.6

Success.

DAS-3626:admin#
```

config dhcp_relay option_82 state

Purpose	Used to configure the state of DHCP relay agent information option 82 of the switch.
Syntax	**config dhcp_relay option_82 state [enable | disable]**
Description	This command is used to configure the state of DHCP relay agent information option 82 of the switch.
Parameters	*enable* – When this field is toggled to *Enabled* the relay agent will insert and remove DHCP relay information (option 82 field) in messages between DHCP server and client. When the relay agent receives the DHCP request, it adds the option 82 information, and the IP address of the relay agent (if the relay agent is configured), to the packet. Once the option 82 information has been added to the packet it is sent on to the DHCP server. When the DHCP server receives the packet, if the server is capable of option 82, it can implement policies like restricting the number of IP addresses that can be assigned to a single remote ID or circuit ID. Then the DHCP server echoes the option 82 field in the DHCP reply. The DHCP server unicasts the reply to the back to the relay agent if the request was relayed to the server by the relay agent. The switch verifies that it originally inserted the option 82 data. Finally, the relay agent removes the option 82 field and forwards the packet to the switch port that connects to the DHCP client that sent the DHCP request. *disable* – If the field is toggled to *disable* the relay agent will not insert and remove DHCP relay information (option 82 field) in messages between DHCP servers and clients, and the check and policy settings will have no effect.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure DHCP relay option 82 state:

```
DAS-3626:admin#config dhcp_relay option_82 state enable
Command: config dhcp_relay option_82 state enable

Success.

DAS-3626:admin#
```

config dhcp_relay option_82 check

Purpose	Used to configure the checking mechanism of DHCP relay agent information option 82 of the switch.
Syntax	**config dhcp_relay option_82 check [enable | disable]**
Description	This command is used to configure the checking mechanism of DHCP/BOOTP relay agent information option 82 of the switch.
Parameters	*enable* – When the field is toggled to *enable*, the relay agent will check the validity of the packet's option 82 field. If the switch receives a packet that contains the option 82 field from a DHCP client, the switch drops the packet because it is invalid. In packets received from DHCP servers, the relay agent will drop invalid messages. *disable* – When the field is toggled to *disable*, the relay agent will not check the validity of the packet's option 82 field.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure DHCP relay option 82 check:

```
DAS-3626:admin#config dhcp_relay option_82 check enable
Command: config dhcp_relay option_82 check enable

Success.

DAS-3626:admin#
```

config dhcp_relay option_82 policy

Purpose	Used to configure the reforwarding policy of relay agent information option 82 of the switch.
Syntax	**config dhcp_relay option_82 policy [replace | drop | keep]**
Description	This command is used to configure the reforwarding policy of DHCP relay agent information option 82 of the switch.
Parameters	*replace* – The option 82 field will be replaced if the option 82 field already exists in the packet received from the DHCP client. *drop* – The packet will be dropped if the option 82 field already exists in the packet received from the DHCP client. *keep* – The option 82 field will be retained if the option 82 field already exists in the packet received from the DHCP client.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure DHCP relay option 82 policy:

```
DAS-3626:admin#config dhcp_relay option_82 policy replace
Command: config dhcp_relay option_82 policy replace

Success.

DAS-3626:admin#
```

show dhcp_relay

Purpose	Used to display the current DHCP/BOOTP relay configuration.
Syntax	**show dhcp_relay {ipif <ipif_name 12>}**
Description	This command will display the current DHCP relay configuration for the Switch, or if an IP interface name is specified, the DHCP relay configuration for that IP interface.
Parameters	*ipif <ipif_name 12>* – The name of the IP interface for which to display the current DHCP relay configuration.
Restrictions	None.

Example usage:

To show the DHCP relay configuration:

```
DAS-3626:admin#show dhcp_relay
Command: show dhcp_relay

DHCP/Bootp Relay Status         : Disabled
DHCP/Bootp Hops Count Limit     : 2
DHCP/Bootp Relay Time Threshold : 23
DHCP Relay Agent Information Option 82 State  : Disabled
DHCP Relay Agent Information Option 82 Check  : Disabled
DHCP Relay Agent Information Option 82 Policy : Replace

Interface    Server 1        Server 2        Server 3        Server 4
----------- -------------- -------------- -------------- --------------


DAS-3626:admin#
```

Example usage:

To show a single IP destination of the DHCP relay configuration:

```
DAS-3626:admin#show dhcp_relay ipif System
Command: show dhcp_relay ipif System

DHCP/Bootp Relay Status         : Disabled
DHCP/Bootp Hops Count Limit     : 2
DHCP/Bootp Relay Time Threshold : 23
DHCP Relay Agent Information Option 82 State  : Disabled
DHCP Relay Agent Information Option 82 Check  : Disabled
DHCP Relay Agent Information Option 82 Policy : Replace

Interface    Server 1        Server 2        Server 3        Server 4
----------- -------------- -------------- -------------- --------------

DAS-3626:admin#
```

enable dhcp_relay

Purpose	Used to enable the DHCP/BOOTP relay function on the Switch.
Syntax	**enable dhcp_relay**
Description	This command is used to enable the DHCP/BOOTP relay function on the Switch.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To enable DHCP relay:

```
DAS-3626:admin#enable dhcp_relay
Command: enable dhcp_relay

Success.

DAS-3626:admin#
```

disable dhcp_relay

Purpose	Used to disable the DHCP/BOOTP relay function on the Switch.
Syntax	**disable dhcp_relay**
Description	This command is used to disable the DHCP/BOOTP relay function on the Switch.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To disable DHCP relay:

```
DAS-3626:admin#disable dhcp_relay
Command: disable dhcp_relay

Success.

DAS-3626:admin#
```

14

External Alarm Commands

The external alarm commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
show external_alarm	
config external_alarm	channel <value 1-4> message <sentence 1-128>

Each command is listed, in detail, in the following sections.

show external_alarm

Purpose	Used to display the current external alarm status on the Switch.
Syntax	**show external_alarm**
Description	This command is used to display the current external alarm status on the Switch.
Parameters	None.
Restrictions	None.

Example usage:

To display the current external alarm on the Switch:

```
DAS-3626:admin#show external_alarm
Command: show external_alarm

  Channel     Status      Alarm Message
-----------   ---------   ---------------------------------------
     1        Normal      External Alarm 1 Occurred!
     2        Normal      External Alarm 2 Occurred!
     3        Normal      External Alarm 3 Occurred!
     4        Normal      External Alarm 4 Occurred!

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

config external_alarm

Purpose	Used to configure the external alarm prompt messages on the Switch.
Syntax	**config external_alarm channel <value 1-4> message <sentence 1-128>**
Description	This command is used to set the message to be displayed on console when external alarm occurs.
Parameters	*channel* – used to select one of the 4 channels *message* – prompt message
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure the external alarm on channel 1:

```
DAS-3626:admin#config external_alarm channel 1 message Channel 1  alarm occurs
Command: config external_alarm channel 1 message Channel 1  alarm occurs

Success.

DAS-3626:admin#
```

15

NETWORK MANAGEMENT (SNMP) COMMANDS

The Switch supports the Simple Network Management Protocol (SNMP) versions 1, 2c, and 3. Users can specify which version of the SNMP users want to use to monitor and control the Switch. The three versions of SNMP vary in the level of security provided between the management station and the network device. The following table lists the security features of the three SNMP versions:

SNMP Version	Authentication Method	Description
v1	Community String	Community String is used for authentication – NoAuthNoPriv
v2c	Community String	Community String is used for authentication – NoAuthNoPriv
v3	Username	Username is used for authentication – NoAuthNoPriv, AuthNoPriv or AuthPriv
v3	MD5 or SHA	Authentication is based on the HMAC-MD5 or HMAC-SHA algorithms – AuthNoPriv
v3	MD5 DES or SHA DES	Authentication is based on the HMAC-MD5 or HMAC-SHA algorithms – AuthPriv. DES 56-bit encryption is added based on the CBC-DES (DES-56) standard

The network management commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
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	
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>}
delete snmp group	<groupname 32>
show snmp groups	
create snmp host	[host <ipaddr> | v6host <ipv6addr>] [v1 | v2c | v3 [noauth_nopriv | auth_nopriv | auth_priv]]

Command	**Parameters**
	<auth_string 32>
delete snmp host	<ipaddr>
delete snmp v6host	<ipv6addr>
show snmp host	{<ipaddr>}
show snmp v6host	{<ipv6addr>}
create trusted_host	[<ipaddr> | network <network_address>]
delete trusted_host	[ipaddr <ipaddr> | network <network_address> | all]
show trusted_host	{<network_address>}
enable snmp traps	
enable snmp authenticate_traps	
show snmp traps	
disable snmp traps	
disable snmp authenticate_traps	
config snmp system_contact	<sw_contact>
config snmp system_location	<sw_location>
config snmp system_name	<sw_name>
enable snmp	
disable snmp	

Each command is listed, in detail, in the following sections.

Purpose	Used to create a new SNMP user and adds the user to an SNMP group that is also created by this command.
Syntax	**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>]]}**
Description	This command is used to create a new SNMP user and adds the user to an SNMP group that is also created by this command. SNMP ensures: Message integrity – Ensures that packets have not been tampered with during transit. Authentication – Determines if an SNMP message is from a valid source. Encryption – Scrambles the contents of messages to prevent it from being viewed by an unauthorized source.
Parameters	*<user_name 32>* – An alphanumeric name of up to 32 characters that will identify the new SNMP user. *<groupname 32>* – An alphanumeric name of up to 32 characters that will identify the SNMP group the new SNMP user will be associated with. *encrypted* – Allows the user to choose a type of authorization for authentication using SNMP. The user may choose: *by_password* – Requires the SNMP user to enter a password for authentication and privacy. The password is defined by specifying the auth_password below. This method is recommended.

	by_key – Requires the SNMP user to enter a encryption key for authentication and privacy. The key is defined by specifying the key in hex form below. This method is not recommended. *auth* – The user may also choose the type of authentication algorithms used to authenticate the snmp user. The choices are: *md5* – Specifies that the HMAC-MD5-96 authentication level will be used. md5 may be utilized by entering one of the following: • *<auth password 8-16>* - An alphanumeric string of between 8 and 16 characters that will be used to authorize the agent to receive packets for the host. • *<auth_key 32-32>* - Enter an alphanumeric string of exactly 32 characters, in hex form, to define the key that will be used to authorize the agent to receive packets for the host. *sha* – Specifies that the HMAC-SHA-96 authentication level will be used. • *<auth password 8-20>* - An alphanumeric string of between 8 and 20 characters that will be used to authorize the agent to receive packets for the host. • *<auth_key 40-40>* - Enter an alphanumeric string of exactly 40 characters, in hex form, to define the key that will be used to authorize the agent to receive packets for the host. *priv* – Adding the priv (privacy) parameter will allow for encryption in addition to the authentication algorithm for higher security. The user may choose: des – Adding this parameter will allow for a 56-bit encryption to be added using the DES-56 standard using: • *<priv_password 8-16>* - An alphanumeric string of between 8 and 16 characters that will be used to encrypt the contents of messages the host sends to the agent. • *<priv_key 32-32>* - Enter an alphanumeric key string of exactly 32 characters, in hex form, that will be used to encrypt the contents of messages the host sends to the agent. *none* – Adding this parameter will add no encryption.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To create an SNMP user on the Switch:

```
DAS-3626:admin#create snmp user dlink default encrypted by_password auth md5 canadian
priv none
Command: create snmp user dlink default encrypted by_password auth md5 canadian priv
none

Success.

DAS-3626:admin#
```

Purpose	Used to remove an SNMP user from an SNMP group and also to delete the associated SNMP group.
Syntax	**delete snmp user <user_name 32>**
Description	This command is used to remove an SNMP user from its SNMP group and then deletes the associated SNMP group.
Parameters	*<user_name 32>* – An alphanumeric string of up to 32 characters that identifies the SNMP user that will be deleted.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To delete a previously entered SNMP user on the Switch:

```
DAS-3626:admin#delete snmp user dlink
Command: delete snmp user dlink

Success.

DAS-3626:admin#
```

show snmp user

Purpose	Used to display information about each SNMP username in the SNMP group username table.
Syntax	**show snmp user**
Description	This command is used to display information about each SNMP username in the SNMP group username table.
Parameters	None.
Restrictions	None.

Example usage:

To display the SNMP users currently configured on the Switch:

```
DAS-3626:admin#show snmp user
Command: show snmp user

Username     Group Name        VerAuthPriv
--------     -------------     -----------
initial       initial          V3 NoneNone
Total Entries: 1

DAS-3626:admin#
```

create snmp view

Purpose	Used to assign views to community strings to limit which MIB objects and SNMP manager can access.
Syntax	**create snmp view <view_name 32> <oid> view_type [included | excluded]**
Description	This command is used to assign views to community strings to limit which MIB objects an SNMP manager can access.
Parameters	*<view_name 32>* – An alphanumeric string of up to 32 characters that identifies the SNMP view that will be created. *<oid>* – The object ID that identifies an object tree (MIB tree) that will be included or excluded from access by an SNMP manager. *view type* – Sets the view type to be: • *included* – Include this object in the list of objects that an SNMP manager can access. • *excluded* – Exclude this object from the list of objects that an SNMP manager can access.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To create an SNMP view:

```
DAS-3626:admin#create snmp view dlinkview 1.3.6 view_type included
Command: create snmp view dlinkview 1.3.6 view_type included

Success.

DAS-3626:admin#
```

delete snmp view

Purpose	Used to remove an SNMP view entry previously created on the Switch.
Syntax	**delete snmp view <view_name 32> [all | <oid>]**
Description	This command is used to remove an SNMP view previously created on the Switch.
Parameters	*<view_name 32>* – An alphanumeric string of up to 32 characters that identifies the SNMP view to be deleted. *all* – Specifies that all of the SNMP views on the Switch will be deleted. *<oid>* – The object ID that identifies an object tree (MIB tree) that will be deleted from the Switch.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To delete a previously configured SNMP view from the Switch:

```
DAS-3626:admin#delete snmp view dlinkview all
Command: delete snmp view dlinkview all

Success.

DAS-3626:admin#
```

show snmp view

Purpose	Used to display an SNMP view previously created on the Switch.
Syntax	**show snmp view {<view_name 32>}**
Description	This command is used to display an SNMP view previously created on the Switch.
Parameters	*<view_name 32>* – An alphanumeric string of up to 32 characters that identifies the SNMP view that will be displayed.
Restrictions	None.

Example usage:

To display SNMP view configuration:

```
DAS-3626: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

DAS-3626:admin#
```

create snmp community

Purpose	Used to create an SNMP community string to define the relationship between the SNMP manager and an agent. The community string acts like a password to permit access to the agent on the Switch. One or more of the following characteristics can be associated with the community string: An Access List of IP addresses of SNMP managers that are permitted to use the community string to gain access to the Switch's SNMP agent. An MIB view that defines the subset of all MIB objects that will be accessible to the SNMP community. *read_write* or *read_only* level permission for the MIB objects accessible to the SNMP community.
Syntax	**create snmp community <community_string 32> view <view_name 32> [read_only | read_write]**
Description	This command is used to create an SNMP community string and to assign access-limiting characteristics to this community string.
Parameters	*<community_string 32>* – An alphanumeric string of up to 32 characters that is used to identify members of an SNMP community. This string is used like a password to give remote SNMP managers access to MIB objects in the Switch's SNMP agent. *view <view_name 32>* – An alphanumeric string of up to 32 characters that is used to identify the group of MIB objects that a remote SNMP manager is allowed to access on the Switch. *read_only* – Specifies that SNMP community members using the community string created with this command can only read the contents of the MIBs on the Switch. *read_write* – Specifies that SNMP community members using the community string created with this command can read from and write to the contents of the MIBs on the Switch.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To create the SNMP community string "dlink":

```
DAS-3626:admin#create snmp community dlink view ReadView read_write
Command: create snmp community dlink view ReadView read_write

Success.

DAS-3626:admin#
```

delete snmp community

Purpose	Used to remove a specific SNMP community string from the Switch.
Syntax	**delete snmp community <community_string 32>**
Description	This command is used to remove a previously defined SNMP community string from the Switch.
Parameters	*<community_string 32>* – An alphanumeric string of up to 32 characters that is used to identify members of an SNMP community. This string is used like a password to give remote SNMP managers access to MIB objects in the Switch's SNMP agent.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To delete the SNMP community string "dlink":

```
DAS-3626:admin#delete snmp community dlink
Command: delete snmp community dlink

Success.

DAS-3626:admin#
```

show snmp community	
Purpose	Used to display SNMP community strings configured on the Switch.
Syntax	**show snmp community {<community_string 32>}**
Description	This command is used to display SNMP community strings that are configured on the Switch.
Parameters	*<community_string 32>* – An alphanumeric string of up to 32 characters that is used to identify members of an SNMP community. This string is used like a password to give remote SNMP managers access to MIB objects in the Switch's SNMP agent.

show snmp community	
Restrictions	None.

Example usage:

To display the currently entered SNMP community strings:

```
DAS-3626:admin#show snmp community
Command: show snmp community

SNMP Community Table
Community Name   View Name     Access Right
--------------  -----------    ------------
dlink            ReadView       read_write
private          CommunityView  read_write
public           CommunityView  read_only

Total Entries: 3

DAS-3626:admin#
```

config snmp engineID

Purpose	Used to configure a name for the SNMP engine on the Switch.
Syntax	**config snmp engineID <snmp_engineID 10-64>**
Description	This command is used to configure a name for the SNMP engine on the Switch.
Parameters	*<config snmp_engineID>* – An alphanumeric string that will be used to identify the SNMP engine on the Switch.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To give the SNMP agent on the Switch the name “0035636666”:

```
DAS-3626:admin#config snmp engineID 0035636666
Command: config snmp engineID 0035636666

Success.

DAS-3626:admin#
```

show snmp engineID

Purpose	Used to display the identification of the SNMP engine on the Switch.
Syntax	**show snmp engineID**
Description	This command is used to display the identification of the SNMP engine on the Switch.
Parameters	None.
Restrictions	None.

Example usage:

To display the current name of the SNMP engine on the Switch:

```
DAS-3626:admin#show snmp engineID
Command: show snmp engineID

SNMP Engine ID : 800000ab03000102030400

DAS-3626:admin#
```

create snmp group

Purpose	Used to create a new SNMP group, or a table that maps SNMP users to SNMP views.
Syntax	**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>}**
Description	This command is used to create a new SNMP group, or a table that maps SNMP users to SNMP views.
Parameters	*<groupname 32>* – An alphanumeric name of up to 32 characters that will identify the SNMP group the new SNMP user will be associated with. *v1* – Specifies that SNMP version 1 will be used. The Simple Network Management Protocol (SNMP), version 1, is a network management protocol that provides a means to monitor and control network devices. *v2c* – Specifies that SNMP version 2c will be used. The SNMP v2c supports both centralized and distributed network management strategies. It includes improvements in the Structure of Management Information (SMI) and adds some security features. *v3* – Specifies that the SNMP version 3 will be used. SNMP v3 provides secure access to devices through a combination of authentication and encrypting packets over the network. SNMP v3 adds: • Message integrity – Ensures that packets have not been tampered with during transit. • Authentication – Determines if an SNMP message is from a valid source. • Encryption – Scrambles the contents of messages to prevent it being viewed by an unauthorized source. *noauth_nopriv* – Specifies that there will be no authorization and no encryption of packets sent between the Switch and a remote SNMP manager. *auth_nopriv* – Specifies that authorization will be required, but there will be no encryption of packets sent between the Switch and a remote SNMP manager. *auth_priv* – Specifies that authorization will be required, and that packets sent between the Switch and a remote SNMP manger will be encrypted. *read_view* – Specifies that the SNMP group being created can request SNMP messages. *write_view* – Specifies that the SNMP group being created has write privileges. *notify_view* – Specifies that the SNMP group being created can receive SNMP trap messages generated by the Switch's SNMP agent. *<view_name 32>* – An alphanumeric string of up to 32 characters that is used to identify the group of MIB objects that a remote SNMP manager is allowed to access on the Switch.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To create an SNMP group named "sg1":

```
DAS-3626:admin#create snmp group sg1 v3 noauth_nopriv read_view v1 write_view v1
notify_view v1
Command: create snmp group sg1 v3 noauth_nopriv read_view v1 write_view v1 notify_view
v1

Success.

DAS-3626:admin#
```

delete snmp group

Purpose	Used to remove an SNMP group from the Switch.
Syntax	**delete snmp group <groupname 32>**
Description	This command is used to remove an SNMP group from the Switch.
Parameters	*<groupname 32>* – An alphanumeric name of up to 32 characters that will identify the SNMP group the new SNMP user will be associated with.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To delete the SNMP group named “sg1”.

```
DAS-3626:admin#delete snmp group sg1
Command: delete snmp group sg1

Success.

DAS-3626:admin#
```

show snmp groups

Purpose	Used to display the group-names of SNMP groups currently configured on the Switch. The security model, level, and status of each group are also displayed.
Syntax	**show snmp groups**
Description	This command is used to display the group-names of SNMP groups currently configured on the Switch. The security model, level, and status of each group are also displayed.
Parameters	None.
Restrictions	None.

Example usage:

To display the currently configured SNMP groups on the Switch:

```
DAS-3626:admin#show snmp groups
Command: show snmp groups
Vacm Access Table Settings

Group    Name       : Group3
ReadView Name       : ReadView
WriteView Name      : WriteView
Notify View Name    : NotifyView
Security Model      : SNMPv3
Security Level      : NoAuthNoPriv

Group    Name       : Group4
ReadView Name       : ReadView
WriteView Name      : WriteView
Notify View Name    : NotifyView
Security Model      : SNMPv3
Security Level      : authNoPriv

Group    Name       : Group5
ReadView Name       : ReadView
WriteView Name      : WriteView
Notify View Name    : NotifyView
Security Model      : SNMPv3
Security Level      : authNoPriv

Group    Name       : initial
ReadView Name       : restricted
WriteView Name      :
Notify View Name    : restricted
Security Model      : SNMPv3
Security Level      : NoAuthNoPriv

Group    Name       : ReadGroup
ReadView Name       : CommunityView
WriteView Name      :
Notify View Name    : CommunityView
Security Model      : SNMPv1
Security Level      : NoAuthNoPriv

Total Entries: 5

DAS-3626:admin#
```

create snmp host

Purpose

Used to create a recipient of SNMP traps generated by the Switch's SNMP agent.

Syntax

create snmp [host <ipaddr> | v6host <ipv6addr>] [v1 | v2c | v3 [noauth_nopriv | auth_nopriv | auth_priv] <auth_string 32>]

Description

This command is used to create a recipient of SNMP traps generated by the Switch's SNMP agent.

Parameters

<ipaddr> – The IP address of the remote management station that will serve as the SNMP host for the Switch.

v6host – Specifies the v6host IP address to which the trap packet will be sent.

v1 – Specifies that SNMP version 1 will be used. The Simple Network Management Protocol (SNMP), version 1, is a network management protocol that provides a means to monitor and control network devices.

v2c – Specifies that SNMP version 2c will be used. The SNMP v2c supports both centralized and distributed network management strategies. It includes improvements in the Structure of Management Information (SMI) and adds some security features.

v3 – Specifies that the SNMP version 3 will be used. SNMP v3 provides secure access to devices through a combination of authentication and encrypting packets over the network. SNMP v3 adds:

- Message integrity – ensures that packets have not been tampered with during transit.
- Authentication – determines if an SNMP message is from a valid source.
- Encryption – scrambles the contents of messages to prevent it being viewed by an unauthorized source.

noauth_nopriv – Specifies that there will be no authorization and no encryption of packets sent between the Switch and a remote SNMP manager.

auth_nopriv – Specifies that authorization will be required, but there will be no encryption of packets sent between the Switch and a remote SNMP manager.

auth_priv – Specifies that authorization will be required, and that packets sent between the Switch and a remote SNMP manger will be encrypted.

<auth_string 32> – An alphanumeric string used to authorize a remote SNMP manager to access the Switch's SNMP agent.

create snmp host

Restrictions	Only Administrator-level users can issue this command.

Example usage:

To create an SNMP host to receive SNMP messages:

```
DAS-3626:admin#create snmp host 10.48.74.100 v3 auth_priv public
Command: create snmp host 10.48.74.100 v3 auth_priv public

Success.

DAS-3626:admin#
```

delete snmp host

Purpose	Used to remove a recipient of SNMP traps generated by the Switch's SNMP agent.
Syntax	**delete snmp host <ipaddr>**
Description	This command is used to delete a recipient of SNMP traps generated by the Switch's SNMP agent.
Parameters	*<ipaddr>* – The IP address of a remote SNMP manager that will receive SNMP traps generated by the Switch's SNMP agent.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To delete an SNMP host entry:

```
DAS-3626:admin#delete snmp host 10.48.74.100
Command: delete snmp host 10.48.74.100

Success.

DAS-3626:admin#
```

show snmp host	
Purpose	Used to display the recipient of SNMP traps generated by the Switch's SNMP agent.
Syntax	**show snmp host {<ipaddr>}**
Description	This command is used to display the IP addresses and configuration information of remote SNMP managers that are designated as recipients of SNMP traps that are generated by the Switch's SNMP agent.
Parameters	*<ipaddr>* – The IP address of a remote SNMP manager that will receive SNMP traps generated by the Switch's SNMP agent.

show snmp host	
Restrictions	None.

Example usage:

To display the currently configured SNMP hosts on the Switch:

```
DAS-3626:admin#show snmp host
Command: show snmp host

SNMP Host Table
Host IP Address  SNMP Version Community Name/SNMPv3 User Name
---------------  ------------  ------------------------------
10.48.76.23      V2c                    private
10.48.74.100     V3     authpriv        public

Total Entries: 2

DAS-3626:admin#
```

show snmp v6host

Purpose	Used to display the recipient of SNMP traps generated by the Switch's SNMP agent.
Syntax	**show snmp v6host {<ipv6addr>}**
Description	This command is used to display the IP addresses and configuration information of remote SNMP managers that are designated as recipients of SNMP traps generated by the Switch's SNMP agent.
Parameters	*<ipv6addr>* – The IPv6 address of a remote SNMP manager that will receive SNMP traps generated by the Switch's SNMP agent.

show snmp v6host	
Restrictions	None.

Example usage:

To display the currently configured SNMP hosts on the Switch:

```
DAS-3626:admin#show snmp v6host
Command: show snmp v6host

SNMP Host Table
------------------------------------------------------------------
Host IPv6 Address : ::C084:1
SNMP Version      : V1
Community Name/SNMPv3 User Name : 2

Total Entries: 1

DAS-3626:admin#
```

create trusted_host

Purpose	Used to create the trusted host.
Syntax	**create trusted_host <ipaddr>**
Description	This command is used to create the trusted host. The Switch allows users to specify up to four IP addresses 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.
Parameters	*<ipaddr>* – The IP address of the trusted host to be created.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To create the trusted host:

```
DAS-3626:admin#create trusted_host 10.62.32.1
Command: create trusted_host 10.62.32.1

Success.
```

Purpose	Used to create the trusted host.
Syntax	**create trusted_host network <network_address>**
Description	This command is used to create the trusted host.
Parameters	*<network_address>* – IP address and netmask of the trusted host to be created.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To create the trusted host network.

```
DAS-3626:admin#create trusted_host network 10.62.32.1/16
Command: create trusted_host network 10.62.32.1/16

Success.
```

show trusted_host

Purpose	Used to display a list of trusted hosts entered on the Switch using the **create trusted_host** command above.
Syntax	**show trusted_host {<network_address>}**
Description	This command is used to display a list of trusted hosts entered on the Switch using the **create trusted_host** command above.
Parameters	<network_address> – the network address to show
Restrictions	None.

Example usage:

To display the list of trust hosts:

```
DAS-3626:admin#show trusted_host
Command: show trusted_host
```

```
Management Stations

IP Address
------------------
10.62.32.1/32
10.62.32.1/16

Total Entries: 2
```

delete trusted_host ipaddr

Purpose	Used to delete a trusted host entry made using the **create trusted_host** command above.
Syntax	**delete trusted** ***host ipaddr<ipaddr>***
Description	This command is used to delete a trusted host entry made using the **create trusted_host** command above.
Parameters	*<ipaddr>* – The IP address of the trusted host.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To delete a trusted host with an IP address 10.62.32.1:

```
DAS-3626:admin#delete trusted_host ipaddr 10.62.32.1
Command: delete trusted_host ipaddr 10.62.32.1

Success.
```

delete trusted_host network

Purpose	Used to delete a trusted host entry made using the **create trusted_host network** command above.
Syntax	**delete trusted _host network <network_address>**
Description	This command is used to delete a trusted host entry made using the **create trusted_host network** command above.
Parameters	*<network_address>* – IP address and netmask of the trusted host network.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To delete a trusted host network IP address 10.62.31.1/16:

```
DAS-3626:admin#delete trusted_host network 10.62.32.1/16
Command: delete trusted_host network 10.62.32.1/16

Success.
```

delete trusted_host all

Purpose	Used to delete all trusted host entries made using the **create trusted_host ipaddr and create trusted_host network** commands above.
Syntax	**delete trusted _host all**
Description	This command is used to delete all trusted host entries made using the **create trusted_host ipaddr and create trusted_host network** commands above.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To delete all trusted host entries:

```
DAS-3626:admin#delete trusted_host all
Command: delete trusted_host all

Success.
```

enable snmp traps

Purpose	Used to enable SNMP trap support.
Syntax	**enable snmp traps**
Description	This command is used to enable SNMP trap support on the Switch.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To enable SNMP trap support on the Switch:

```
DAS-3626:admin#enable snmp traps
Command: enable snmp traps

Success.

DAS-3626:admin#
```

enable snmp authenticate_traps

Purpose	Used to enable SNMP authentication trap support.
Syntax	**enable snmp authenticate_traps**
Description	This command is used to enable SNMP authentication trap support on the Switch.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To turn on SNMP authentication trap support:

```
DAS-3626:admin#enable snmp authenticate_traps
Command: enable snmp authenticate_traps

Success.

DAS-3626:admin#
```

show snmp traps

Purpose	Used to show SNMP trap support on the Switch.
Syntax	**show snmp traps**
Description	This command is used to view the SNMP trap support status currently configured on the Switch.
Parameters	None.
Restrictions	None.

Example usage:

To view the current SNMP trap support:

```
DAS-3626:admin#show snmp traps
Command: show snmp traps

SNMP Traps           : Enabled
Authenticate Trap    : Enabled

DAS-3626:admin#
```

disable snmp traps

Purpose	Used to disable SNMP trap support on the Switch.
Syntax	**disable snmp traps**
Description	This command is used to disable SNMP trap support on the Switch.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To prevent SNMP traps from being sent from the Switch:

```
DAS-3626:admin#disable snmp traps
Command: disable snmp traps

Success.

DAS-3626:admin#
```

disable snmp authenticate_traps

Purpose	Used to disable SNMP authentication trap support.
Syntax	**disable snmp authenticate_traps**
Description	This command is used to disable SNMP authentication support on the Switch.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To disable the SNMP authentication trap support:

```
DAS-3626:admin#disable snmp authenticate_traps
Command: disable snmp authenticate_traps

Success.

DAS-3626:admin#
```

config snmp system_contact

Purpose	Used to enter the name of a contact person who is responsible for the Switch.
Syntax	**config snmp system_contact <sw_contact>**
Description	This command is used to enter the name and/or other information to identify a contact person who is responsible for the Switch. A maximum of 255 character can be used.
Parameters	*<sw_contact>* – A maximum of 255 characters is allowed. A NULL string is accepted if there is no contact.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure the Switch contact to "**MIS Department II**":

```
DAS-3626:admin#config snmp system_contact MIS Department II
Command: config snmp system_contact MIS Department II

Success.

DAS-3626:admin#
```

config snmp system_location

Purpose	Used to enter a description of the location of the Switch.
Syntax	**config snmp system_location <sw_location>**
Description	This command is used to enter a description of the location of the Switch. A maximum of 255 characters can be used.
Parameters	*<sw_location>* – A maximum of 255 characters is allowed. A NULL string is accepted if there is no location desired.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure the Switch location for "HQ 5F":

```
DAS-3626:admin#config snmp system_location HQ 5F
Command: config snmp system_location HQ 5F

Success.

DAS-3626:admin#
```

config snmp system_name

Purpose	Used to configure the name for the Switch.
Syntax	**config snmp system_name <sw_name>**
Description	This command is used to configure the name of the Switch.
Parameters	*<sw_name>* – A maximum of 255 characters is allowed. A NULL string is accepted if no name is desired.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure the Switch name for “DAS-3600-12 Switch”:

```
DAS-3626:admin#config snmp system_name DAS-3600-12 Switch
Command: config snmp system_name DAS-3600-12 Switch

Success.

DAS-3626:admin#
```

enable snmp

Purpose	Used to enable the SNMP interface access function.
Syntax	**enable snmp**
Description	This command is used to enable the SNMP function.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To enable snmp on the Switch:

```
DAS-3626:admin#enable snmp
Command: enable snmp

Success.

DAS-3626:admin#
```

disable snmp

Purpose	Used to disable the SNMP interface access function.
Syntax	**disable snmp**
Description	This command is used to disable the SNMP function. When the SNMP function is disabled, the network manager will not be able to access SNMP MIB objects. The device will not send traps or notifications to the network manager either.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To disable SNMP on the Switch:

```
DAS-3626:admin#disable snmp
Command: disable snmp

Success.

DAS-3626:admin#
```

16

TIME AND SNTP COMMANDS

The Simple Network Time Protocol (SNTP) (an adaptation of the Network Time Protocol (NTP)) commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
config sntp	{primary <ipaddr> | secondary <ipaddr> | poll-interval <int 30-99999>}
show sntp	
enable sntp	
disable sntp	
config time	<date ddmmmyyyy > <time hh:mm:ss >
config time_zone	{operator [+ | -] | hour <gmt_hour 0-13> | min <minute 0-59>}
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	

Each command is listed, in detail, in the following sections.

config sntp

Purpose	Used to setup SNTP service.
Syntax	**config sntp {primary <ipaddr> | secondary <ipaddr> | poll-interval <int 30-99999>}**
Description	This command is used to configure SNTP service from an SNTP server. SNTP must be enabled for this command to function (See enable sntp).
Parameters	*primary* – This is the primary server from which the SNTP information will be taken. *<ipaddr>* – The IP address of the primary server. *secondary* – This is the secondary server the SNTP information will be taken from in the event the primary server is unavailable. *<ipaddr>* – The IP address for the secondary server. *poll-interval <int 30-99999>* – This is the interval between requests for updated SNTP information. The polling interval ranges from 30 to 99,999 seconds.
Restrictions	Only Administrator and Operator-level users can issue this command. SNTP service must be enabled for this command to function (*enable sntp*).

Example usage:

To configure SNTP settings:

```
DAS-3626: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.

DAS-3626:admin#
```

show sntp

Purpose	Used to display the SNTP information.
Syntax	**show sntp**
Description	This command will display SNTP settings information including the source IP address, time and poll interval.
Parameters	None.
Restrictions	None.

Example usage:

To display SNTP configuration information:

```
DAS-3626:admin#show sntp
Command: show sntp

Current Time Source      : System Clock
SNTP                     : Disabled
SNTP Primary Server      : 10.1.1.1
SNTP Secondary Server    : 10.1.1.2
SNTP Poll Interval       : 30 sec

DAS-3626:admin#
```

enable sntp

Purpose	To enable SNTP server support.
Syntax	**enable sntp**
Description	This command will enable SNTP support. SNTP service must be separately configured (see **config sntp**). Enabling and configuring SNTP support will override any manually configured system time settings.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command. SNTP settings must be configured for SNTP to function (**config sntp**).

Example usage:

To enable the SNTP function:

```
DAS-3626:admin#enable sntp
Command: enable sntp

Success.

DAS-3626:admin#
```

disable sntp

Purpose	To disable SNTP server support.
Syntax	**disable sntp**
Description	This command will disable SNTP support. SNTP service must be separately configured (see **config sntp**).
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To disable SNTP support:

```
DAS-3626:admin#disable sntp
Command: disable sntp

Success.

DAS-3626:admin#
```

config time

Purpose	Used to manually configure system time and date settings.
Syntax	**config time <date ddmmmyyyy> <time hh:mm:ss>**
Description	This command will configure the system time and date settings. These will be overridden if SNTP is configured and enabled.
Parameters	*date* – Express the date using two numerical characters for the day of the month, three alphabetical characters for the name of the month, and four numerical characters for the year. For example: 03aug2003. *time* – Express the system time using the format hh:mm:ss, that is, two numerical characters each for the hour using a 24-hour clock, the minute and second. For example: 19:42:30.
Restrictions	Only Administrator and Operator-level users can issue this command. Manually configured system time and date settings are overridden if SNTP support is enabled.

Example usage:

To manually set system time and date settings:

```
DAS-3626:admin#config time 30jun2003 16:30:30
Command: config time 30jun2003 16:30:30

Success.

DAS-3626:admin#
```

config time_zone

Purpose	Used to determine the time zone used in order to adjust the system clock.
Syntax	**config time_zone {operator [+ | -] | hour <gmt_hour 0-13> | min <minute 0-59>}**
Description	This command will adjust system clock settings according to the time zone. Time zone settings will adjust SNTP information accordingly.
Parameters	*operator* – Choose to add (+) or subtract (-) time to adjust for time zone relative to GMT. *hour* – Select the number of hours different from GMT. *min* – Select the number of minutes difference added or subtracted to adjust the time zone.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure time zone settings:

```
DAS-3626:admin#config time_zone operator + hour 2 min 30
Command: config time_zone operator + hour 2 min 30

Success.

DAS-3626:admin#
```

config dst

Purpose	Used to enable and configure time adjustments to allow for the use of Daylight Savings Time (DST).
Syntax	**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]}]**
Description	This command is used to enable and configure DST. When enabled this will adjust the system clock to comply with any DST requirement. DST adjustment effects system time for both manually configured time and time set using SNTP service.
Parameters	*disable* – Disable the DST seasonal time adjustment for the Switch. *repeating* – Using repeating mode will enable DST seasonal time adjustment. Repeating mode requires that the DST beginning and ending date be specified using a formula. For example, specify to begin DST on Saturday during the second week of April and end DST on Sunday during the last week of October. *annual* – Using annual mode will enable DST seasonal time adjustment. Annual mode requires that the DST beginning and ending date be specified concisely. For example, specify to begin DST on April 3 and end DST on October 14. *s_week* – Configure the week of the month in which DST begins. • *<start_week 1-4,last>* – The number of the week during the month in which DST begins where 1 is the first week, 2 is the second week and so on, last is the last week of the month. *e_week* – Configure the week of the month in which DST ends. • *<end_week 1-4,last>* – The number of the week during the month in which DST ends where 1 is the first week, 2 is the second week and so on, last is the last week of the month. *s_day* – Configure the day of the week in which DST begins. • *<start_day sun-sat>* – The day of the week in which DST begins expressed using a three character abbreviation (sun, mon, tue, wed, thu, fri, sat) *e_day* – Configure the day of the week in which DST ends. • *<end_day sun-sat>* – The day of the week in which DST ends expressed using a three character abbreviation (sun, mon, tue, wed, thu, fri, sat) *s_mth* – Configure the month in which DST begins. • *<start_mth 1-12>* – The month to begin DST expressed as a number. *e_mth* – Configure the month in which DST ends. • *<end_mth 1-12>* – The month to end DST expressed as a number. *s_time* – Configure the time of day to begin DST. • *<start_time hh:mm>* – Time is expressed using a 24-hour clock, in hours and minutes.

config dst

	e_time – Configure the time of day to end DST. - *<end_time hh:mm>* – Time is expressed using a 24-hour clock, in hours and minutes. *s_date* – Configure the specific date (day of the month) to begin DST. - *<start_date 1-31>* – The start date is expressed numerically. *e_date* – Configure the specific date (day of the month) to begin DST. - *<end_date 1-31>* – The end date is expressed numerically. *offset [30 | 60 | 90 | 120]* – Indicates number of minutes to add or to subtract during the summertime. The possible offset times are 30,60,90,120. The default value is 60.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure daylight savings time on the Switch:

```
DAS-3626: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.

DAS-3626:admin#
```

show time

Purpose	Used to display the current time settings and status.
Syntax	**show time**
Description	This command will display system time and date configuration as well as display current system time.
Parameters	None.
Restrictions	None.

Example usage:

To show the time currently set on the Switch's System clock:

```
DAS-3626:admin#show time
Command: show time

     Current Time Source  : System Clock
     Boot Time    : 3 Jan 2000  22:45:36
     Current Time : 4 Jan 2000  01:56:30
     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

DAS-3626:admin#
```

17

VLAN COMMANDS

The VLAN commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
create vlan	< vlan_name 32> tag <vlanid 2-4094> {type 1q_vlan advertisement}
create vlan vlanid	<vidlist> { advertisement }
delete vlan	<vlan_name 32>
delete vlan vlanid	<vidlist>
config vlan	<vlan_name 32> {[add [tagged | untagged | forbidden] | delete] <portlist> | advertisement [enable | disable]}
config vlan vlanid	<vidlist> { [add [tagged | untagged | forbidden] | delete] <portlist> | advertisement [enable | disable]| name <vlan_name>}
config port_vlan	[<portlist> | all] { gvrp_state [enable | disable]|ingress_checking [enable | disable] |acceptable_frame[tagged_only | admit_all] | pvid<vlanid 1-4094> }
enable gvrp	
disable gvrp	
show vlan	<vlan_name 32> | vlanid < vidlist > | ports <portlist>
show port_vlan	<portlist>
create dot1v_protocol_group	group_id <id 1-16> {group_name <name 32>}
config dot1v_protocol_group	[group_id < id 1-16> | group_name <name 32>] add protocol [ethernet_2| ieee802.3_snap| ieee802.3_llc] < protocol_value>
config dot1v_protocol_group	[group_id < id 1-16> | group_name <name 32>] delete protocol [ethernet_2 | ieee802.3_snap | ieee802.3_llc] < protocol_value>
delete dot1v_protocol_group	[group_id <id 1-16> | group_name <name 32>| all]
show dot1v_protocol_group	{group_id <id 1-16> | group_name <name 32>}
config port dot1v ports	[<portlist> | all] [add protocol_group [group_id <id 1-16> | group_name <name 32>] [vlan< vlan_name 32> | vlanid <id>] {priority <value 0-7>} | delete protocol_group [group_id <id 1-16>|all]]
show port dot1v	{ports <portlist>}
enable pvid auto_assign	
disable pvid auto_assign	
show pvid auto_assign	
config gvrp	[timer [join | leave | leaveall] < value 100-100000> | nni_bpdu_addr [dot1d | dot1ad]]
show gvrp	

Each command is listed, in detail, in the following sections.

create vlan	
Purpose	Used to create a VLAN on the Switch.
Syntax	**create vlan <vlan_name 32 > tag <vlanid 2-4094> { type 1q_vlan advertisement }**
Description	This command allows the user to create a VLAN on the Switch.
Parameters	*<vlan_name 32>* – The name of the VLAN to be created. *<vlanid 2-4094>* – The VLAN ID of the VLAN to be created. Allowed values = 2-4094 *advertisement* – Specifies that the VLAN is able to join GVRP.

create vlan	
Restrictions	Each VLAN name can be up to 32 characters. Up to 4094 static VLANs may be created per configuration. Only Administrator and Operator-level users can issue this command.

Example usage:

To create a VLAN v1, tag 2:

```
DAS-3626:admin#create vlan v1 tag 2
Command: create vlan v1 tag 2

Success.

DAS-3626:admin#
```

create vlan vlanid	
Purpose	Used to create multiple VLANs by VLAN ID list on the switch.
Syntax	**create vlan vlanid <vidlist> { advertisement }**
Description	This command is used to create multiple VLANs on the switch.
Parameters	<*vidlist*> – Specifies a range of multiple VLAN IDs to be created. *advertisement* – Join GVRP or not. If not, the VLAN can't join dynamically.

create vlan vlanid	
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To create a VLAN ID on the Switch:

```
DAS-3600:5#create vlan vlanid 5 advertisement
Command: create vlan vlanid 5 advertisement

Success

DAS-3600:5#
```

delete vlan	
Purpose	Used to delete a previously configured VLAN on the Switch.
Syntax	**delete vlan <vlan_name 32>**
Description	This command is used to delete a previously configured VLAN on the Switch.
Parameters	*<vlan_name 32>* – The VLAN name of the VLAN to delete.

delete vlan	
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To remove the VLAN “v1”:

```
DAS-3626:admin#delete vlan v1
Command: delete vlan v1

Success.

DAS-3626:admin#
```

delete vlan vlanid

Purpose	Used to delete multiple VLANs by VLAN ID on the switch.
Syntax	**delete vlan vlanid <vidlist>**
Description	This command is used to delete previously configured multiple VLANs on the switch.
Parameters	*<vidlist>* – Specifies a range of multiple VLAN IDs to be deleted.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To delete VLAN ID on the switch:

```
DAS-3626:admin#delete vlan vlanid 5
Command: delete vlan vlanid 5

Success

DAS-3626:admin#
```

config vlan

Purpose	Used to add additional ports to a previously configured VLAN.
Syntax	**config vlan <vlan_name 32> { [add [tagged | untagged | forbidden] | delete] <portlist> | advertisement [enable | disable]}**
Description	This command allows the user to add ports to the port list of a previously configured VLAN. The user can specify the additional ports as tagging, untagging, or forbidden. The default is to assign the ports as untagging.
Parameters	*<vlan_name 32>* – The name of the VLAN to which to add ports. *add* – Entering the add parameter will add ports to the VLAN. There are three types of ports to add: • *tagged* – Specifies the additional ports as tagged. • *untagged* – Specifies the additional ports as untagged. • *forbidden* – Specifies the additional ports as forbidden. *delete* – Deletes ports from the specified VLAN. *<portlist>* – A port or range of ports to add to, or delete from the specified VLAN. *advertisement [enable | disable]* – Enables or disables GVRP on the specified VLAN.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To add 4 through 8 as tagged ports to the VLAN v1:

```
DAS-3626:admin#config vlan v1 add tagged 4-8
Command: config vlan v1 add tagged 4-8

Success.

DAS-3626:admin#
```

To delete ports from a VLAN:

```
DAS-3626:admin#config vlan v1 delete 6-8
Command: config vlan v1 delete 6-8

Success.

DAS-3626:admin#
```

config vlan vlanid

Purpose	Used to add additional ports to a previously configured VLAN.
Syntax	**config vlan vlanid <vidlist> {add [tagged | untagged | forbidden] | delete <portlist> | advertisement [enable | disable] | name <name>}**
Description	This command allows you to add or delete ports of the port list of previously configured VLAN(s). You can specify the additional ports as being tagged, untagged or forbidden. The same port is allowed to be an untagged member port of multiple VLAN's. You can also specify if the ports will join GVRP or not with the *advertisement* parameter. The *name* parameter allows you to specify the name of the VLAN that needs to be modified.
Parameters	*<vidlist>* – Specifies a range of multiple VLAN IDs to be configured. *tagged* – Specifies the additional ports as tagged. *untagged* – Specifies the additional ports as untagged. *forbidden* – Specifies the additional ports as forbidden. *<portlist>* – A range of ports to add to the VLAN. *advertisement* – Entering the advertisement parameter specifies if the port should join GVRP or not. There are two parameters: ▪ *enable* – Specifies that the port should join GVRP. ▪ *Disable* – Specifies that the port should not join GVRP. *name* – Entering the name parameter specifies the name of the VLAN to be modified. *<name>* – Enter a name for the VLAN
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To config vlan vlanid on the switch:

```
DAS-3626:admin#config vlan vlanid 5 add tagged 7 advertisement enable name RG
Command: config vlan vlanid 5 add tagged 7 advertisement enable name RG

Success.

DAS-3626:admin#
```

Purpose	Used to configure GVRP on the Switch.
Syntax	**config port_vlan [<portlist> | all] { gvrp_state [enable | disable]|ingress_checking [enable | disable] |acceptable_frame[tagged_only | admit_all]pvid<vlanid 1-4094>}**
Description	This command is used to configure the Group VLAN Registration Protocol on the Switch. Ingress checking, the sending and receiving of GVRP information, and the Port VLAN ID (PVID) can be configured.
Parameters	*<portlist>* – A port or range of ports for which users want to enable GVRP for. *all* – Specifies all of the ports on the Switch. *state [enable* | *disable]* – Enables or disables GVRP for the ports specified in the port list. *ingress_checking [enable* | *disable]* – Enables or disables ingress checking for the specified port list. *acceptable_frame [tagged_only* | *admit_all]* – This parameter states the frame type that will be accepted by the Switch for this function. *tagged_only* implies that only VLAN tagged frames will be accepted, while *admit_all* implies tagged and untagged frames will be accepted by the Switch. *pvid <vlanid 1-4094>* – Specifies the default VLAN associated with the port.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To set the ingress checking status, the sending and receiving GVRP information:

```
DAS-3626:admin#config port_vlan 1-4 gvrp_state enable ingress_checking enable
acceptable_frame tagged_only pvid 2
Command: config port_vlan 1-4 gvrp_state enable ingress_checking enable
acceptable_frame tagged_only pvid 2

Success.

DAS-3626:admin#
```

Purpose	Used to enable the Generic VLAN Registration Protocol (GVRP).
Syntax	**enable gvrp**
Description	This command, along with **disable gvrp** below, is used to enable and disable GVRP on the Switch, without changing the GVRP configuration on the Switch.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To enable the generic VLAN Registration Protocol (GVRP):

```
DAS-3626:admin#enable gvrp
Command: enable gvrp

Success.

DAS-3626:admin#
```

disable gvrp

Purpose	Used to disable the Generic VLAN Registration Protocol (GVRP).
Syntax	**disable gvrp**
Description	This command, along with **enable gvrp**, is used to enable and disable GVRP on the Switch, without changing the GVRP configuration on the Switch.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To disable the Generic VLAN Registration Protocol (GVRP):

```
DAS-3626:admin#disable gvrp
Command: disable gvrp

Success.

DAS-3626:admin#
```

show vlan

Purpose	Used to display the current VLAN configuration on the Switch
Syntax	**show vlan { <vlan_name 32> | vlanid <vidlist> | ports <portlist>}**
Description	This command displays summary information about each VLAN including the VLAN ID, VLAN name, the Tagging/Untagging status, and the Member/Non-member/Forbidden status of each port that is a member of the VLAN.
Parameters	*<vlan_name 32>* – The VLAN name of the VLAN for which to display a summary of settings.
Restrictions	None.

Example usage:

To display the Switch’s current VLAN settings:

```
DAS-3626:admin#show vlan
Command: show vlan

VID              : 1          VLAN Name     : default
VLAN Type        : Static     Advertisement : Enabled
Member Ports     : 1-12
Static Ports     : 1-12
Current Tagged Ports  :
Current Untagged Ports: 1-12
Static Tagged Ports   :
Static Untagged Ports : 1-12
Forbidden Ports       :

VID              : 2          VLAN Name     : v1
VLAN Type        : Static     Advertisement : Disabled
Member Ports     :
Static Ports     :
Current Tagged Ports  :
Current Untagged Ports:
Static Tagged Ports   :
Static Untagged Ports :
Forbidden Ports       :

 Total Entries: 2
DAS-3626:admin#
```

```
DAS-3626:admin# show vlan ports 1-4
Command: show vlan ports 1-4

Port    VID   Untagged  Tagged  Dynamic  Forbidden
-----   ----  --------  ------  -------  ---------
 1      1       X         -       -        -
 2      1       X         -       -        -
 3      1       X         -       -        -
 4      1       X         -       -        -

DAS-3626:admin#
```

show port_vlan

Purpose	Used to display the GVRP status for a port list on the Switch.
Syntax	**show port_vlan <portlist>**
Description	This command displays the GVRP status for a port list on the Switch
Parameters	*<portlist>* – Specifies a port or range of ports for which the GVRP status is to be displayed.
Restrictions	None.

Example usage:

To display GVRP port status:

```
DAS-3626:admin#show port_vlan 1-10
Command: show port_vlan 1-10

Global GVRP : Disabled

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
4           1        Disabled       Enabled               All Frames
5           1        Disabled       Enabled               All Frames
6           1        Disabled       Enabled               All Frames
7           1        Disabled       Enabled               All Frames
8           1        Disabled       Enabled               All Frames
9           1        Disabled       Enabled               All Frames
10          1        Disabled       Enabled               All Frames

Total Entries : 10
```

create dot1v_protocol_group

Purpose	Create a protocol group for protocol VLAN function.
Syntax	**create dot1v_protocol_group group_id <id 1-16> {group_name <name 32>}**
Description	This command is used to create a protocol group for protocol VLAN function.
Parameters	*group_id* – The id of a protocol group which is used to identify a set of protocols. *group_name* – The name of the protocol group. The maximum length is 32 characters.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To create a protocol group:

```
DAS-3626:admin#create dot1v_protocol_group group_id 1 group_name General_Group
Command: create dot1v_protocol_group group_id 1 group_name General_Group

Success.

DAS-3626:admin#
```

config dot1v_protocol_group add protocol

Purpose	Add a protocol to a protocol group.
Syntax	**config dot1v_protocol_group [group_id <id 1-16>| group_name <name>] add protocol [ethernet_2| ieee802.3_snap|ieee802.3_llc] < protocol_value>**
Description	This command adds a protocol to a protocol group.The selection of a protocol can be a pre-defined protocol type or a user defined protocol.
Parameters	*group_id* – The id of protocol group which is used to identify a set of protocols. *group_name* – The name of the protocol group. The maximum length is 32 characters. *protocol_value* – The protoocl vlaue is used to identify a protocol of the frame type specified. Depending on the frame type, the octet string will have one of the following values: The form of the input is 0x0 to 0xffff. For 'ethernet'II, this is a 16-bit (2-octet) hex value. Example: Ipv4 is 800, ipv6 is 86dd, ARP is 806,.. and so on. For ' IEEE802.3 SNAP ',this is this is a 16-bit (2-octet) hex value. Example: Ipv4 is 800, ipv6 is 86dd, ARP is 806,. and so on. For 'IEEE802.3 LLC', this is the 2-octet IEEE 802.2 Link Service Access Point (LSAP) pair: first octet is for Destination Service Access Point (DSAP), and second octet is for Source.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To add a protocol IPv6 to protocol group 1:

```
DAS-3626:admin#config dot1v_protocol_group group_id 1 add protocol  ethernet_2  86DD
Command: config dot1v_protocol_group group_id 1 add protocol  ethernet_2  86DD

Success.

DAS-3626:admin#
```

config dot1v_protocol_group delete protocol

Purpose	Used to delete a protocol from protocol group.
Syntax	**config dot1v_protocol_group [group_id < id>| group_name <name>] delete protocol [ethernet_2| ieee802.3_snap| ieee802.3_llc] < protocol_value.>**
Description	This command is used to delete a protocol from a protocol group.
Parameters	*group_id* – The id of protocol group which is used to identify a set of protocols. *group_name* – The name of the protocol group. The maximum length is 32 characters. *protocol_value* – The protoocl vlaue is used to identify a protocol of the frame type specified. Depending on the frame type, the octet string will have one of the following values: The form of the input is 0x0 to 0xffff. For 'ethernet'II, this is a 16-bit (2-octet) hex value. Example: Ipv4 is 800, ipv6 is 86dd, ARP is 806,. and so on. For ' IEEE802.3 SNAP ',this is this is a 16-bit (2-octet) hex value. Example: Ipv4 is 800, ipv6 is 86dd, ARP is 806,. and so on. For 'IEEE802.3 LLC', this is the 2-octet IEEE 802.2 Link Service Access Point (LSAP) pair: first octet is for Destination Service Access Point (DSAP), and second octet is for Source.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To delete protocol ipv6 from a protocol group 1:

```
DAS-3626:admin#config dot1v_protocol_group group_id 1 delete protocol  ethernet_2
86DD
Command: config dot1v_protocol_group group_id 1 delete protocol  ethernet_2  86DD

Success.

DAS-3626:admin#
```

delete dot1v_protocol_group

Purpose	Delete a protocol group.
Syntax	**delete dot1v_protocol_group [group_id <id 1-16>| group_name <name 32>| all]**
Description	This command deletes a protocol group.
Parameters	*group_id* – The id of protocol group which is used to identify a set of protocols. *group_name* – The name of the protocol group. The maximum length is 32 characters.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To delete protocol group 1:

```
DAS-3626:admin#delete dot1v_protocol_group group_id 1
Command: delete dot1v_protocol_group group_id 1

Success.

DAS-3626:admin#
```

show dot1v_protocol_group

Purpose	Display the protocols defined in a protocol group.
Syntax	**show dot1v_protocol_group {group_id <id 1-16> | group_name <name 32>}**
Description	This command is used to display the protocols defined in protocol groups.
Parameters	*group_id* – The id of protocol group which is used to identify a set of protocols. *group_name* – The name of the protocol group. The maximum length is 32 characters.
Restrictions	None.

Example usage:

To display the protocol group ID 1:

```
DAS-3626:admin#show dot1v_protocol_group group_id 1
Command: show dot1v_protocol_group group_id 1

Protocol Group ID    Protocol Group Name    Frame Type     Protocol Value
-----------------    --------------------   -----------    ---------------
1                    General Group          EthernetII        86DD

Total Entries: 1
DAS-3626:admin#
```

config port dot1v

Purpose	Assign the VLAN for untagged packets ingress from the portlist based on the protocol group configured.
Syntax	**config port dot1v ports [<portlist> | all] [add protocol_group [group_id <id>| group_name <name 32>] [vlan < vlan_name 32> | vlanid <id 1-16>] {priority <value 0-7>} | delete protocol_group [group_id <id 1-16>|all]]**
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 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.
Parameters	*<portlist>* – Specifies a range of ports to apply this command. *group_id* – The id of protocol group which is used to identify a set of protocols. *group_name* – The name of the protocol group. The maximum length is 32 characters. *vlan* – Vlan that is to be associated with this protocol group on this port. *vlan_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.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

The example is to assign VLAN marketing-1 for untaged IPv6 packet ingress from port 3

To configure the group ID 1 on port 3 to be associated with VLAN marketing-1:

```
DAS-3626:admin#config port dot1v ports 3 add protocol_group group_id 1 vlan
marketing_1
Command: config port dot1v ports 3 add protocol_group group_id 1 vlan marketing_1

Success.

DAS-3626:admin#
```

show port dot1v

Purpose	Display the VLAN to be associated with untagged packet ingressed from a port based on the protocol group.
Syntax	**show port dot1v{ ports <portlist>}**
Description	This command is used to display the VLAN to be associated with untagged packet ingressed from a port based on the protocol group.
Parameters	*portlist* – Specifies a range of ports to apply this command.
Restrictions	None.

Example usage:

The example display the protocol VLAN information for ports 1-2:

```
DAS-3626: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                  -
2                      vlan_2                   -
3                      vlan_3                   -
4                      vlan_4                   -

Port : 2
Protocol Group ID     VLAN Name          Protocol Priority
-----------------     ------------       -----------------
1                       vlan_2                  -
2                       vlan_3                  -
3                       vlan_4                  -
4                       vlan_5                  -

Total Entries: 2
DAS-3626:admin#
```

enable pvid auto_assign

Purpose	Enable/disable auto assignment of pvid.
Syntax	**enable|disable pvid auto_assign**
Description	The command enables the auto-assign of PVID. If “auto-assign PVID” is disabled, PVID only be changed by PVID configuration (user changes explicitly). The VLAN configuration will not automatically change PVID. If “Auto-assign PVID” is enabled, PVID will be possibly changed by PVID or VLAN configuration. When user configures a port to VLAN *X*’s untagged membership, this port’s PVID will be updated with VLAN X. In the form of VLAN list command, PVID is updated with last item of VLAN list. When user removes a port from the untagged membership of the PVID’s VLAN, the port’s PVID will be assigned with “default VLAN”. The default setting is enabled.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To enable the auto-assign PVID:

```
DAS-3626:admin#enable pvid auto_assign
Command: enable pvid auto_assign

Success.

DAS-3626:admin#
```

show pvid auto_assign

Purpose	Show PVID auto-assigment state.
Syntax	**show pvid auto_assign**
Description	This command is used to display PVID auto-assignment state.
Parameters	None.
Restrictions	None.

Example usage:

To display PVID auto-assignment state:

```
DAS-3626:admin#show pvid auto_assign
Command: show pvid auto_assign

PVID Auto-assignment: Enabled

DAS-3626:admin#
```

config gvrp timer

Purpose	Used to configure the timer’s value of GVRP and MAC address of GVRP’s PDU of NNI port in Q-in-Q mode.
Syntax	**config gvrp [timer [join | leave | leaveall] < value 100-100000> | nni_bpdu_addr [dot1d | dot1ad]]**
Description	This command is used to set the GVRP timer’s value and GVRP’s PDU MAC address of NNI port in Q-in-Q mode. The default value for Join time is *200* milliseconds; for Leave time is *600* milliseconds; for LeaveAll time is *10000* milliseconds. The GVRP’s PDU MAC address can be set to which is defined in 802.1d or 802.1ad.
Parameters	*timer* – Specifies GVRP timer will be set. *join* – Specifies the Join time will be set *leave* – Specifies the Leave time will be set *leaveall* – Specifies the LeaveAll time will be set *value* – The time value will be set. 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* – Specifies GVRP’s PDU MAC address of NNI port in Q-in-Q mode will be set. *dot1d* – Specifies GVRP’s PDU MAC address of NNI port using 802.1d’s definement. *dot1ad* – Specifies GVRP’s PDU MAC address of NNI port using 802.1ad’s definement.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To set the Join time to 200 milliseconds:

```
DAS-3626:admin#config gvrp timer join 200
Command: config gvrp timer join 200

Success.

DAS-3626:admin#
```

show gvrp

Purpose	Used to display the timer’s value and NNI BPDU address of GVRP.
Syntax	**show gvrp**
Description	This command is used to display the timer’s value of GVRP.
Parameters	None.
Restrictions	None.

Example usage:

To display the timer’s value of GVRP:

```
DAS-3626:admin#show gvrp
Command: show gvrp

 Join Time:      200 Milliseconds
 Leave Time:     600 Milliseconds
 LeaveAll Time: 10000 Milliseconds
 NNI BPDU Address: dot1ad

DAS-3626:admin#
```

18

Q-IN-Q COMMANDS

The Q-in-Q commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
enable qinq	
disable qinq	
show qinq	
create qinq	<vlan_name 32> spvid <vlanid 1-4094> {tpid <hex 0x0-0xffff>}
delete qinq	<vlan_name>
config qinq	<vlan_name> {[add [uplink|access] | delete] <portlist> | tpid <hex 0x0-0xffff> | 802.1p [<priority 0-7> | none] }(1)

Each command is listed, in detail, in the following sections.

enable qinq

Purpose	Used to enable Q-in-Q mode.
Syntax	**enable qinq**
Description	This command enables Q-in-Q mode.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To enable Q-in-Q:

```
DAS-3626:admin#enable qinq
Command: enable qinq

Success.

DAS-3626:admin#
```

disable qinq

Purpose	Used to disable the Q-in-Q mode.
Syntax	**disable qinq**
Description	This command is used to disable the Q-in-Q mode.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To disable Q-in-Q:

```
DAS-3626:admin#disable qinq
Command: disable qinq

Success.

DAS-3626:admin#
```

show qinq

Purpose	Used to show global Q-in-Q.
Syntax	**show qinq**
Description	This command is used to show the global Q-in-Q status.
Parameters	None.
Restrictions	None.

Example usage:

To show global Q-in-Q status:

```
DAS-3626:admin#sh qinq
Command: show qinq

 QinQ Status : Enabled
=====================================================
SPVID           : 1
VLAN Name       : default
TPID            : 0x8100
Uplink ports    :
Access ports    : 1-18
Priority        : None
-----------------------------------------------------
SPVID           : 2
VLAN Name       : v2
TPID            : 0x88a8
Uplink ports    : 17-18
Access ports    : 1
Priority        : None
-----------------------------------------------------

 Total Entries: 2

DAS-3626:admin#
```

create qinq

Purpose	Used to create Q-in-Q.
Syntax	**create qinq <vlan_name 32> spvid <vlanid 1-4094> {tpid <hex 0x0-0xffff>}**
Description	This command is used to create the Q-in-Q configuration for a vlan, include: SPVID and TPID.
Parameters	<vlan_name 32> – Specifies a VLAN name. <vlanid 1-4094> – Specifies a VLAN ID. {tpid <hex 0x0-0xffff>} – Specifies a TPID. If no parameter specified, TPID is 0x88A8. information.
Restrictions	None.

Example usage:

To create Q-in-Q:

```
DAS-3626:admin#create qinq v2 spvid 2 tpid 0x88A8
Command: create qinq v2 spvid 2 tpid 0x88A8

Success.
DAS-3626:admin#
```

delete qinq

Purpose	Used to remove Q-in-Q.
Syntax	**delete qinq <vlan_name >**
Description	This command is used to remove a previously created Q-in-Q configuration.
Parameters	<vlan_name > – Specifies the VLAN name of the Q-in-Q configuration.
Restrictions	None.

Example usage:

To delete Q-in-Q named “v2”:

```
DAS-3626:admin#delete qinq v2
Command: delete qinq v2
Success.
DAS-3626:admin#
```

configure qinq

Purpose	Used to configure Q-in-Q.
Syntax	**config qinq <vlan_name> {[add [uplink|access] | delete] <portlist> | tpid <hex 0x0-0xffff> | 802.1p [<priority 0-7> | none] }(1)**
Description	This command is used to configure the Q-in-Q VLAN mode for ports, include: port role in double tag VLAN mode, 802.1P and port outer TPID.
Parameters	*<vlan_name>– vlan name* *add* – Port role in Q-in-Q mode, it can be either access port or uplink port. *access –* *uplink –* *tpid* – Allows the interoperation with devices on a public network by specifying ports. *802.1p* – Specify whether to use the priority in the SP-VLAN tag.
Restrictions	Only Administrator and Operator-level users can issue this command. You must be in the Q-in-Q mode.

Example usage:

To configure Q-in-Q:

```
DAS-3626:admin#config qinq v2 add uplink 25-26
Command: config qinq v2 add uplink 25-26

Success.

DAS-3626:admin#
```

19

Link Aggregation Commands

The link aggregation commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
create link_aggregation	group_id <value 1-6> {type [lacp | static]}
delete link_aggregation	group_id <value 1-6>
config link_aggregation	group_id <value 1-6> {master_port <port> | ports <portlist> | state [enable | disable]}
config link_aggregation algorithm	[mac_source | mac_destination | mac_source_dest | ip_source | ip_destination | ip_source_dest]
show link_aggregation	{group_id <value 1-6> | algorithm}
config lacp_port	<portlist> mode [active | passive]
show lacp_port	{<portlist>}

Each command is listed, in detail, in the following sections.

create link_aggregation	
Purpose	Used to create a link aggregation group on the Switch.
Syntax	**create link_aggregation group_id <value 1-6> {type[lacp | static]}**
Description	This command will create a link aggregation group with a unique identifier.
Parameters	*<value>* – Specifies the group ID. The Switch allows up to six link aggregation groups to be configured. The group number identifies each of the groups. *type* – Specify the type of link aggregation used for the group. If the type is not specified the default type is *static*. • *lacp* – This designates the port group as LACP compliant. LACP allows dynamic adjustment to the aggregated port group. LACP compliant ports may be further configured (see config lacp_ports). LACP compliant must be connected to LACP compliant devices. • *static* – This designates the aggregated port group as static. Static port groups can not be changed as easily as LACP compliant port groups since both linked devices must be manually configured if the configuration of the trunked group is changed. If static link aggregation is used, be sure that both ends of the connection are properly configured and that all ports have the same speed/duplex settings.
Restrictions	Only Administrator and Operator-level users can issue this command. VDSL ports cannot be used in a link aggregation group.

Example usage:

To create a link aggregation group:

```
DAS-3626:admin#create link_aggregation group_id 2
Command: create link_aggregation group_id 2

Success.

DAS-3626:admin#
```

delete link_aggregation

Purpose	Used to delete a previously configured link aggregation group.
Syntax	**delete link_aggregation group_id <value 1-6>**
Description	This command is used to delete a previously configured link aggregation group.
Parameters	*<value 1-6>* – Specifies the group ID. The Switch allows up to six link aggregation groups to be configured. The group number identifies each of the groups.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To delete link aggregation group:

```
DAS-3626:admin#delete link_aggregation group_id 2
Command: delete link_aggregation group_id 2

Success.

DAS-3626:admin#
```

config link_aggregation

Purpose	Used to configure a previously created link aggregation group.
Syntax	**config link_aggregation group_id <value 1-6> {master_port <port> | ports <portlist> | state [enable | disable] }**
Description	This command allows users to configure a link aggregation group that was created with the **create link_aggregation** command above.
Parameters	*group _id <value 1-6>* – Specifies the group ID. The Switch allows up to 6 link aggregation groups to be configured. The group number identifies each of the groups. *master_port <port>* – Master port ID. 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. *ports <portlist>* – Specifies a port or range of ports that will belong to the link aggregation group. *state [enable* | *disable]* – Allows users to enable or disable the specified link aggregation group.
Restrictions	Only Administrator and Operator-level users can issue this command. Link aggregation groups may not overlap. VDSL ports cannot be used for link aggreagation.

Example usage:

To define a load-sharing group of ports, group-id 1,master port 5 with group members ports 5-7, 9:

```
DAS-3626:admin#config link_aggregation group_id 1 master_port 5 ports 5-7, 9
Command: config link_aggregation group_id 1 master_port 5 ports 5-7, 9

Success.

DAS-3626:admin#
```

config link_aggregation algorithm

Purpose	Used to configure the link aggregation algorithm.
Syntax	**config link_aggregation algorithm [mac_source | mac_destination | mac_source_dest | ip_source | ip_destination | ip_source_dest]**
Description	This command configures the part of the packet examined by the Switch when selecting the egress port for transmitting load-sharing data. This feature is only available using the address-based load-sharing algorithm.
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 addresses. *ip_source* – Indicates that the Switch should examine the IP source address. *ip_destination* – Indicates that the Switch should examine the IP destination address. *ip_source_dest* – Indicates that the Switch should examine the IP source address and the destination address.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure link aggregation algorithm for mac-source-dest:

```
DAS-3626:admin#config link_aggregation algorithm mac_source_dest
Command: config link_aggregation algorithm mac_source_dest

Success.

DAS-3626:admin#
```

show link_aggregation

Purpose	Used to display the current link aggregation configuration on the Switch.
Syntax	**show link_aggregation {group_id <value 1-6> | algorithm}**
Description	This command will display the current link aggregation configuration of the Switch.
Parameters	*<value 1-6>* – Specifies the group ID. The Switch allows up to 6 link aggregation groups to be configured. The group number identifies each of the groups. *algorithm* – Allows users to specify the display of link aggregation by the algorithm in use by that group.
Restrictions	None.

Example usage:

To display Link Aggregation configuration:

```
DAS-3626:admin#show link_aggregation
Command: show link_aggregation

Link Aggregation Algorithm = MAC-Source-Dest

Group ID        : 3
Type            : TRUNK
Master Port     :
Member Port     :
Active Port     :
Status          : Disabled
Flooding Port   :

Total Entries : 1

DAS-3626:admin#
```

config lacp_port

Purpose	Used to configure settings for LACP compliant ports.
Syntax	**config lacp_port <portlist> mode [active | passive]**
Description	This command is used to configure ports that have been previously designated as LACP ports (see **create link_aggregation**).
Parameters	*<portlist>* – Specifies a port or range of ports to be configured. *mode* – Select the mode to determine if LACP ports will process LACP control frames. • *active* – Active LACP ports are capable of processing and sending LACP control frames. This allows LACP compliant devices to negotiate the aggregated link so the group may be changed dynamically as needs require. In order to utilize the ability to change an aggregated port group, that is, to add or subtract ports from the group, at least one of the participating devices must designate LACP ports as active. Both devices must support LACP. • *passive* – LACP ports that are designated as passive cannot process LACP control frames. In order to allow the linked port group to negotiate adjustments and make changes dynamically, at one end of the connection must have “active” LACP ports (see above).
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure LACP port mode settings:

```
DAS-3626:admin#config lacp_port 1-12 mode active
Command: config lacp_port 1-12 mode active

Success.

DAS-3626:admin#
```

show lacp_port

Purpose	Used to display current LACP port mode settings.
Syntax	**show lacp_port {<portlist>}**
Description	This command will display the LACP mode settings as they are currently configured.
Parameters	*<portlist>* – Specifies a port or range of ports to be configured. If no parameter is specified, the system will display the current LACP status for all ports.
Restrictions	None.

Example usage:

To display LACP port mode settings:

```
DAS-3626:admin#show lacp_port 1-10
Command: show lacp_port 1-10

Port      Activity
------     --------
1          Active
2          Active
3          Active
4          Active
5          Active
6          Active
7          Active
8          Active
9          Active
10         Active


DAS-3626:admin#
```

20

IGMP Snooping Commands

The IGMP Snooping commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
config igmp_snooping	[vlan <vlan_name 32> | vlanid <vidlist> |all] { state [enable|disable] | fast_leave [enable|disable] | report_suppression [enable | disable]}
config igmp_snooping querier	[vlan <vlan_name 32> | vlanid <vidlist> |all] {query_interval <sec 1-65535> | max_response_time <sec 1-25> | robustness_variable <value 1-255> |last_member_query_interval <sec 1-25> | state [enable|disable] | version <value 1-3>}
enable igmp_snooping	
show igmp_snooping	{[vlan <vlan_name 32> | vlanid <vidlist>]}
disable igmp_snooping	
show igmp_snooping group	{[vlan <vlan_name 32> | vlanid <vidlist> | ports <portlist>] {<ipaddr>}} {data_driven}
show igmp_snooping rate_limit	[ports <portlist>|vlanid <vlanid_list>]
config igmp_snooping rate_limit	[ports <portlist>|vlanid <vlanid_list>] [<value 1-1000> | no_limit]
show igmp_snooping forwarding	{[vlan <vlan_name 32> | vlanid <vlanid_list>]}
show igmp_snooping static_group	{[vlan <vlan_name 32>| vlanid <vlanid_list>] < ipaddr >}
create igmp_snooping static_group	[vlan <vlan_name 32> | vlanid <vlanid_list>] <ipaddr>
delete 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>
show igmp_snooping statistic counter	[vlan <vlan_name 32> | vlanid <vlanid_list> | ports <portlist>]
clear igmp_snooping statistic counter	
config router_ports	[vlan <vlan_name 32> | vlanid <vlanid_list>] [add |delete] <portlist>
config router_ports_forbidden	[vlan <vlan_name 32> | vlanid <vlanid_list>] [add |delete] <portlist>
show router ports	[vlan <vlan_name 32> | vlanid <vlanid_list> |all] {[static |dynamic| forbidden]}

Each command is listed, in detail, in the following sections.

config igmp_snooping

Purpose	Used to configure IGMP snooping on the Switch.
Syntax	**config igmp_snooping [vlan <vlan_name 32> | vlanid <vidlist> |all] { state [enable| disable] | fast_leave [enable|disable] | report_suppression [enable | disable]}**
Description	This command allows the user to configure IGMP snooping on the Switch.
Parameters	*<vlan_name 32>* – The name of the VLAN for which IGMP snooping is to be configured. *<vidlist>* – The VIDs of the VLAN for which IGMP snooping is to be configured. *state [enable | disable]* – Allows users to enable or disable IGMP snooping for the specified VLAN. *fast_leave [enable|disable]* – Allows users to enable or disable IGMP snooping fast leave for the specified VLAN. *report_suppression [enable|disable]* – Allows users to enable or disable IGMP snooping report suppression for the specified VLAN.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure IGMP snooping:

```
DAS-3626:admin#config igmp_snooping vlan default state enable fast_leave enable
report_suppression disable
Command: config igmp_snooping vlan default state enable fast_leave enable
report_suppression disable


Success.


DAS-3626:admin#
```

config igmp_snooping querier

Purpose

Used to configure the the time in seconds between general query transmissions, the maximum time in seconds to wait for reports from members and the permitted packet loss that guarantees IGMP snooping.

Syntax

config igmp_snooping querier [vlan <vlan_name 32> | vlanid <vidlist> |all] {query_interval <sec 1-65535> | max_response_time <sec 1-25> | robustness_variable <value 1-255> |last_member_query_interval <sec 1-25> | state [enable|disable] |version <value 1-3>}

Description

This command is used to configure IGMP snooping querier.

Parameters

vlan_name – The name of the VLAN for which IGMP snooping querier is to be configured.

<*vidlist*> – The VIDs of the VLAN for which IGMP snooping is to be configured.

query_interval – Specifies the amount of time in seconds between general query transmissions. the default setting is *125* seconds.

max_response_time – 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:

- 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).
- 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).
- 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.
- By default, the robustness variable is set to *2*. You might want to increase this value if you expect a subnet to be lossy.

last_member_query_interval – 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.

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 provide only the IGMP proxy function but not provide the mutlicast 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.

version – The version of the IGMP Query sent by the switch.

config igmp_snooping querier

Restrictions	Only Administrator or Operator-level users can issue this command.

Example usage:

To configure the IGMP snooping querier:

```
DAS-3626:admin#config igmp_snooping querier vlan default query_interval 125 state enable
Command: config igmp_snooping querier vlan default query_interval 125 state enable

Success.

DAS-3626:admin#
```

config router_ports

Purpose	Used to configure ports as router ports.
Syntax	**config router_ports [vlan <vlan_name 32> | vlanid <vidlist>]**
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, etc.
Parameters	*<vlan_name 32>* – The name of the VLAN on which the router port resides. *<vid_list>* – The VIDs of the VLAN on which the router port resides. *[add|delete]* – Specifies whether to add or delete router ports of the specified VLAN. *<portlist>* – Specifies a port or range of ports that will be configured as router ports.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To set up static router ports:

```
DAS-3626:admin#config router_ports vlan default add 1-10
Command: config router_ports vlan default add 1-10

Success.

DAS-3626:admin#
```

config router_ports_forbidden

Purpose	Used to configure ports as forbidden multicast router ports.
Syntax	**config router_ports_forbidden [vlan <vlan_name 32> | vlanid <vidlist>] [add|delete] <portlist>**
Description	This command allows designation of a port or range of ports as being forbidden to multicast-enabled routers. This will ensure that multicast packets will not be forwarded to this port – regardless of protocol, etc.
Parameters	*<vlan_name 32>* – The name of the VLAN on which the router port resides. *<vid_list>* – The VIDs of the VLAN on which the forbidden router port resides. *[add | delete]* – Specifies whether to add or delete forbidden router ports of the specified VLAN. *<portlist>* – Specifies a range of ports that will be configured as forbidden router ports.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To set up forbidden router ports:

```
DAS-3626:admin#config router_ports_forbidden vlan default add 2-10
Command: config router_ports_forbidden vlan default add 2-10

Success.

DAS-3626:admin#
```

enable igmp_snooping

Purpose	Used to enable IGMP snooping on the Switch.
Syntax	**enable igmp_snooping**
Description	This command allows users to enable IGMP snooping on the Switch.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To enable IGMP snooping on the Switch:

```
DAS-3626:admin#enable igmp_snooping
Command: enable igmp_snooping

Success.

DAS-3626:admin#
```

disable igmp_snooping

Purpose	Used to enable IGMP snooping on the Switch.
Syntax	**disable igmp_snooping**
Description	This command disables IGMP snooping on the Switch.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To disable IGMP snooping on the Switch:

```
DAS-3626:admin#disable igmp_snooping
Command: disable igmp_snooping

Success.

DAS-3626:admin#
```

show igmp_snooping

Purpose	Used to show the current status of IGMP snooping on the Switch.
Syntax	**show igmp_snooping {[vlan <vlan_name 32>** **| vlanid <vlanid_list>] }**
Description	This command will display the current IGMP snooping configuration on the Switch.
Parameters	*<vlan_name 32>* – The name of the VLAN for which to view the IGMP snooping

show igmp_snooping	
	configuration. *<vlanid_list>* – The VIDs of the VLAN for which to view the IGMP snooping configuration.
Restrictions	None.

Example usage:

To show IGMP snooping:

```
DAS-3626:admin#show igmp_snooping
Command: show igmp_snooping

 IGMP Snooping Global State              : Enabled
 Data Driven Learning Max Entries        : 128

 VLAN Name                     : default
 Query Interval                : 125
 Max Response Time             : 10
 Robustness Value              : 2
 Last Member Query Interval    : 1
 Querier State                 : Disable
 Querier Role                  : Non-Querier
 Querier IP                    : 0.0.0.0
 Querier Expiry Time           : 0 secs
 State                         : Disable
 Fast Leave                    : Disable
 Report Suppression            : Enable
 Rate Limit                    : No Limitation
 Version                       : 3
 Data Driven Learning State    : Enable
 Data Driven Learning Aged Out : Disable
 Data Driven Group Expiry Time : 260

Total Entries: 1


DAS-3626:admin#
```

show router_ports

Purpose	Used to display the currently configured router ports on the Switch.
Syntax	**show router_ports [vlan <vlan_name 32>| vlanid <vidlist>|all] {[static | dynamic | forbidden]}**
Description	This command will display the router ports currently configured on the Switch.
Parameters	*<vlan_name 32>* – The name of the VLAN on which the router port resides. *<vid_list>* – The VIDs of the VLAN on which the router port resides. *all* – All the IGMP router ports will be displayed. *static* – Displays router ports that have been statically configured. *dynamic* – Displays router ports that have been dynamically configured. *forbidden* – Displays router ports that are forbidden.
Restrictions	None.

Example usage:

To display the router ports.

```
DAS-3626:admin#show router_ports all
Command: show router_ports all

VLAN Name                 : default
Static router port        :
Dynamic router port       :
  Router IP               :
Forbidden router port     :

VLAN Name                 : v1
Static router port        :
Dynamic router port       :
  Router IP               :
Forbidden router port     :

VLAN Name                 : RG
Static router port        :
Dynamic router port       :
  Router IP               :
Forbidden router port     :

Total Entries: 3

DAS-3626:admin#
```

show igmp_snooping group	
Purpose	Used to display the current IGMP snooping configuration on the Switch.
Syntax	**show igmp_snooping group {[vlan <vlan_name 32> | vlanid <vidlist> | ports <portlist>] {<ipaddr>}} {data_driven}**
Description	This command will display the current IGMP setup currently configured on the Switch.
Parameters	*<vlan_name 32>* – The name of the VLAN for which to view IGMP snooping group information. *<vlanid_list>* – The VIDs of the VLAN for which to view IGMP snooping group information. *<portlist>* – The list of ports for which to view IGMP snooping group information. *<ipaddr>* – To view the information of this specified group. *data_driven* – To view the groups learnt by data driven only. If no parameter is specified, the system will display all current IGMP snooping groups.
Restrictions	None.

Example usage:

To view the current IGMP snooping group:

```
DAS-3626:admin#show igmp_snooping group
Command: show igmp_snooping group

Source/Group      : NULL/224.1.1.1
VLAN Name/VID     : default/1
Member Ports      : 12
Up Time           : 62
Expiry Time       : 198
Filter Mode       : EXCLUDE

Source/Group      : NULL/224.1.1.2
VLAN Name/VID     : default/1
Member Ports      : 11
Up Time           : 72
Expiry Time       : 188
Filter Mode       : EXCLUDE

Source/Group      : 29.1.1.1/229.1.1.1
VLAN Name/VID     : default/1
Member Ports      : 12
Up Time           : 3
Expiry Time       : 257
Filter Mode       : INCLUDE

Source/Group      : 29.1.1.2/229.1.1.1
VLAN Name/VID     : default/1
Member Ports      : 12
Up Time           : 3
Expiry Time       : 257
Filter Mode       : INCLUDE

Source/Group      : 29.1.1.3/229.1.1.1
VLAN Name/VID     : default/1
Member Ports      : 12
Up Time           : 3
Expiry Time       : 257
Filter Mode       : INCLUDE

Source/Group      : 29.1.1.4/229.1.1.1
VLAN Name/VID     : default/1
Member Ports      : 12
Up Time           : 3
Expiry Time       : 257
Filter Mode       : INCLUDE

Total Entries : 6


DAS-3626:admin#
```

show igmp_snooping rate_limit

Purpose	Used to show rate limitation.
Syntax	**show igmp_snooping rate_limit [ports <portlist>|vlanid <vlanid_list>]**
Description	This command is used to display the rate of IGMP control packet that is allowed per port or VLAN.
Parameters	*<portlist>* – Specifies a port or range of ports that will be displayed. *<vlanid_list>* – Specifies a VLAN or range of VLANs that will be displayed.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To show rate limitation:

```
DAS-3626:admin#show igmp_snooping rate_limit ports 1
Command: show igmp_snooping rate_limit ports 1

 Port      Rate Limitation
 --------  ---------------
 1         No Limitation

Total Entries: 1

DAS-3626:admin#
```

config igmp_snooping rate_limit

Purpose	Used to show rate limitation.
Syntax	**config igmp_snooping rate_limit [ports <portlist>|vlanid <vlanid_list>] [<value 1-1000> | no_limit]**
Description	This command is used to configure the rate of IGMP control packets that are allowed per port or VLAN.
Parameters	*<portlist>* – Specifies a port or range of ports that will be displayed. *<vlanid_list>* – Specifies a VLAN or range of VLANs that will be displayed. *<value 1-1000>* – Specifies the rate of IGMP control packet that the switch can process on a specific port. The rate is specified in packets per second. The packets that exceeds the limited rate will be dropped. The default setting is no_limit. *no_limit* – Allows users to configure the rate limitation to no limit.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure rate limitation:

```
DAS-3626:admin#config igmp_snooping rate_limit ports 1 100
Command: config igmp_snooping rate_limit ports 1 100

Success.

DAS-3626:admin#
```

show igmp_snooping forwarding

Purpose	Used to display the current IGMP snooping forwarding information on the Switch.
Syntax	**show igmp_snooping forwarding {[vlan <vlan_name 32> | vlanid <vlanid_list>]}**
Description	This command will display the current IGMP forwarding information on the Switch.
Parameters	*<vlan_name 32>* – The name of the VLAN for which to view IGMP snooping forwarding information. If not specified, all VLAN's IGMP snooping forwarding information will be displayed. *<vlanid_list>* – The list of the VLAN IDs for which to view IGMP snooping forwarding information. If not specified, all VLAN's IGMP snooping forwarding information will be displayed.
Restrictions	None.

Example usage:

To view the current IGMP snooping forwarding information:

```
DAS-3626:admin#show igmp_snooping forwarding
Command: show igmp_snooping forwarding



 VLAN Name                : default
 Source IP                : *
 Multicast Group          : 225.1.1.1
 Port Member              : 3

 Total Entries : 1
```

show igmp_snooping static_group

Purpose	Used to display the current IGMP snooping static group information on the Switch.
Syntax	**show igmp_snooping static_group {[vlan <vlan_name 32>| vlanid <vlanid_list>] < ipaddr >}**
Description	This command is used to display the current IGMP snooping static group information on the Switch.
Parameters	*<vlan_name 32>* – The name of the VLAN for which to view IGMP snooping static group information, if not specified, all static groups will be displayed. *<vlanid_list>* – The list of the VLAN IDs for which to view IGMP snooping static group information, if not specified, all static groups will be displayed. < *ipaddr* > – The static group address for which to view IGMP snooping static group information.
Restrictions	None.

Example usage:

To view the current IGMP snooping static group information:

```
DAS-3626:admin#show igmp_snooping static_group
Command: show igmp_snooping static_group

VLAN ID/Name                       IP Address       Static Member Ports
---------------------------------  ---------------  --------------------
1/default                          225.1.1.1        1-3

 Total Entries : 1

DAS-3626:admin#
```

create igmp_snooping static_group

Purpose	Used to display the current IGMP snooping static group information on the Switch.
Syntax	**create igmp_snooping static_group [vlan <vlan_name 32> | vlanid <vlanid_list>] <ipaddr>**
Description	This command allows you 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.
Parameters	<*vlan_name 32*> – The name of the VLAN for which to create IGMP snooping static group information. <*vlanid_list*> – The list of the VLAN IDs for which to create IGMP snooping static group information. < *ipaddr* > – The static group address for which to create IGMP snooping static group information.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To create a static group 226.1.1.1 for VID 1:

```
DAS-3626:admin#create igmp_snooping static_group vlanid 1 226.1.1.1
Command: create igmp_snooping static_group vlanid 1 226.1.1.1

Success.

DAS-3626:admin#
```

delete igmp_snooping static_group

Purpose	Used to delete the current IGMP snooping static group on the Switch.
Syntax	**delete igmp_snooping static_group [vlan <vlan_name 32> | vlanid < *vlanid_list* >] <ipaddr>**
Description	This command is used to delete an IGMP snooping static group will not affect the IGMP snooping dynamic member ports of a group.
Parameters	*<vlan_name 32>* – The name of the VLAN for which to delete IGMP snooping static group information. *<vlanid_list>* – The list of the VLAN IDs for which to delete IGMP snooping static group information. *< ipaddr >* – The static group address for which to delete IGMP snooping static group information.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To delete a static group 226.1.1.1 on VID 1:

```
DAS-3626:admin#delete igmp_snooping static_group vlanid 1 226.1.1.1
Command: delete igmp_snooping static_group vlanid 1 226.1.1.1

Success.

DAS-3626:admin#
```

config igmp_snooping static_group

Purpose	Used to configure the current IGMP snooping static group on the Switch.
Syntax	**config igmp_snooping static_group [vlan <vlan_name 32> | vlanid <vlanid_list>] <ipaddr> [add | delete] <portlist>**
Description	This command is used to add or delete ports to/from the given static group.
Parameters	*<vlan_name 32>* – The name of the VLAN for which to configure IGMP snooping static group information. *<vlanid_list>* – The list of the VLAN IDs for which to configure IGMP snooping static group information. *< ipaddr >* – The static group address for which to configure IGMP snooping static group information. *[add | delete] <portlist>* – Portlist to add or delete.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To add port 5 to static group 226.1.1.1 on VID 1:

```
DAS-3626:admin#config igmp_snooping static_group vlanid 1 226.1.1.1 add 5
Command: config igmp_snooping static_group vlanid 1 226.1.1.1 add 5

Success.

DAS-3626:admin#
```

clear igmp_snooping statistic counter

Purpose	Used to clear the current IGMP snooping statistic on the Switch.
Syntax	**clear igmp_snooping statistic counter**
Description	This command is used to clear all IGMP snooping statistic counters.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To clear IGMP snooping statistic counter:

```
DAS-3626:admin#clear igmp_snooping statistic counter
Command: clear igmp_snooping statistic counter

Success.

DAS-3626:admin#
```

show igmp_snooping statistic counter

Purpose	Used to view the current IGMP snooping statistics on the Switch.
Syntax	**show igmp_snooping statistic counter [vlan <vlan_name 32> | vlanid <vlanid_list> | ports <portlist>]**
Description	This command is used to view this information, snooping must be enabled first.
Parameters	*<vlan_name 32>* – The name of the VLAN for which to view IGMP snooping statistic counter. *<vlanid_list>* – The list of the VLAN IDs for which to view IGMP snooping statistic counter. *<portlist>* – The list of the ports for which to view IGMP snooping statistic counter.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To view IGMP snooping statistic on VID 1:

```
DAS-3626:admin#show igmp_snooping statistic counter vlanid 1
Command: show igmp_snooping statistic counter vlanid 1


VLAN Name         : default
--------------------------------------------------
Group Number      : 1

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                     : 14
      Total                             : 14

    Report & Leave
      IGMP v1 Report                    : 0
      IGMP v2 Report                    : 0
      IGMP v3 Report                    : 0
      IGMP v2 Leave                     : 0
      Total                             : 0

 Total Entries : 1


DAS-3626:admin#
```

21

IGMP Multicast VLAN Commands

The IGMP Multicast VLAN commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
create igmp_snooping multicast_vlan	<vlan_name 32> <vlanid 2-4094>
config igmp_snooping multicast_vlan	<vlan_name 32> {[add|delete] [member_port <portlist> | tag_member_port <portlist> | source_port <portlist>] |state [enable | disable] | replace_source_ip <ipaddr>}
config igmp_snooping multicast_vlan_group	<vlan_name 32> [add | delete] profile_name <profile_name 1-32> <vlan_name 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>}
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 forward_unmatched	[disable | enable]

Each command is listed, in detail, in the following sections.

create igmp_snooping multicast_vlan

Purpose	Used to create an IGMP multicast VLAN
Syntax	**create igmp_snooping multicast_vlan <vlan_name 32> <vlanid 2-4094>.**
Description	This command is used to create an IGMP multicast_vlan. Multiple multicast VLAN can be configured. The IGMP multicast VLAN being created can not exist in the 1Q VLAN database. Multiple IGMP multicast VLAN can be created. The IGMP multicast VLAN snooping function co-exist with the 1Q VLAN snooping function.
Parameters	*<vlan_name>* – The name of the VLAN to be created. Each multicast VLAN is given a name that can be up to 32 characters. *vlanid* – The VLAN ID of the multicast VLAN to be create. The range is 2-4094
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To create IGMP multicast VLAN RG 11:

```
DAS-3626:admin# create igmp_snooping multicast_vlan RG 11
Command: create igmp_snooping multicast_vlan RG 11

Success.
DAS-3626:admin#
```

config igmp_snooping multicast_vlan

Purpose	Used to configure the parameter of the specific IGMP multicast VLAN.
Syntax	**config igmp_snooping multicast_vlan <vlan_name 32> {[add|delete] [member_port <portlist>| tag_member_port <portlist> | source_port <portlist>] | state [enable | disable] | replace_source_ip <ipaddr>}**
Description	This command allows you to add a member port, add a tag member port, and add a source port to the port list. The member port will automatically become the untagged member of the IGMP multicast VLAN, the tag member port and the source port will automatically become the tagged member of the IGMP multicast VLAN. To change the port list, the new port list will replace the previous port list if the add or delete is not specified. The member port list and source port list can not overlap. However, the member port of one IGMP multicast VLAN can overlap with another IGMP multicast VLAN. The IGMP multicast VLAN must be created first before configuration.
Parameters	*<vlan_name>* – The name of the VLAN to be created. Each multicast VLAN is given a name that can be up to 32 characters. *Member_port* – A range of member ports to add to the multicast VLAN. They will become the untagged member port of the IGMP multicast VLAN. *tag_member_port* – Specifies the tagged member port of the IGMP multicast VLAN. *source_port* – A range of source ports to add to the multicast VLAN. *state* – enable or 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 replaced by this IP address.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure an IGMP multicast VLAN:

```
DAS-3626: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.

DAS-3626:admin#
```

config igmp_snooping multicast_vlan_group

Purpose	Used to configure the multicast group which will be learned with the specific IGMP multicast VLAN.
Syntax	**<vlan_name 32> [add | delete] profile_name <profile_name 1- 32**
Description	This command is used to configure the multicast group which will be learned by the specific IGMP multicast VLAN. There are two cases that need to be considered. The join packet will be learned with the IGMP multicast VLAN that contains the destination multicast group. If the destination multicast group of the join packet can not be classified into any IGMP multicast VLAN that this port belongs to, then the join packet will be learned with the natural VLAN of the packet. When an IGMP packet is received, first, it will check whether to be processed by the IGMP snooping. If the IGMP snooping for the classified VLAN of this IGMP packet is enabled, it will be processed based on IGMP snooping function. If the IGMP snooping for the classified VLAN of this IGMP packet is disabled, then it will be checked whether to be processed by the IGMP Multicast VLAN function. There are some cases when an IGMP packet can be processed by IGMP Multicast VLAN. If there are no profiles systemwise, and there is only one IGMP Multicast VLAN, then this IGMP packet will be associated with this only IGMP Multicast VLAN. If the packet is a tagged packet, the packet will be matched against the profile on this VLAN. If matched, the packet will be associated with this VLAN. Otherwise, the packet is an unmatched packet. If the packet is an untagged packet, the packet will be matched against profiles on all IGMP Multicast VLANs. If it matches profiles on one of the IGMP Multicast VLAN, the packet will be associated with this VLAN. If it does not match profiles on any VLANs, then the packet is an umatched packet. If the packet is an unmatched packet, it will not be processed by the IGMP Multicast VLAN. Instead, it will be processed based on the forwarding mode for unmatched packets and the classified VLAN of this packet. **Note:** The same profile can not be overlapped in different IGMP Multicast VLANs if these IGMP Multicast VLANs have an overlapping portlist. Multiple profiles can be added to a multicast VLAN.
Parameters	*<vlan_name 32>* – The name of the multicast VLAN to be configured, each multicast VLAN is given a name that can be up to 32 characters. *add* – Used to associate a profile to a multicast VLAN. *delete* – Used to remove a profile from a multicast VLAN. *<profile_name 32>* – The name of the IPv4 multicast VLAN group profile to be associated the specified multicast VLAN.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To add a group to an IGMP Multicast VLAN:

```
DAS-3626:admin#config igmp_snooping multicast_vlan_group mv1 add profile_name RG
Command: config igmp_snooping multicast_vlan_group mv1 add profile_name RG

Success.

DAS-3626:admin#
```

show igmp_snooping multicast_vlan_group

Purpose	Used to display the multicast groups configured for the specified IGMP Multicast VLAN.
Syntax	**show igmp_snooping multicast_vlan_group {< vlan_name 32> }**
Description	This command is used to display the multicast groups configured for the specified IGMP Multicast VLAN.
Parameters	*vlan_name* – The name of the multicast VLAN to be configured, each multicast VLAN is given a name that can be up to 32 characters.
Restrictions	None.

Example usage:

To display the multicast groups configured for an IGMP Multicast VLAN.

```
DAS-3626:admin#show igmp_snooping multicast_vlan_group RG
Command: show igmp_snooping multicast_vlan_group RG

VLAN Name             VLAN ID  Multicast Group Profiles
--------------------  -------  ---------------------------------
RG                     11

DAS-3626:admin#
```

delete igmp_snooping multicast_vlan

Purpose	Used to delete an IGMP Muticast VLAN.
Syntax	**delete igmp_snooping multicast_vlan <vlan_name 32>**
Description	This command allows you to delete an IGMP Multicast VLAN.
Parameters	*vlan_name* – The name of the multicast VLAN to be deleted.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To delete an IGMP Multicast VLAN:

```
DAS-3626:admin#delete igmp_snooping multicast_vlan v1
Command: delete igmp_snooping multicast_vlan v1

Success.

DAS-3626:admin#
```

enable/disable igmp_snooping multicast_vlan

Purpose	Used to enable/disable the IGMP Multicast VLAN function.
Syntax	**enable igmp_snooping multicast_vlan** **disable igmp_snooping multicast_vlan**
Description	This command controls the IGMP Multicast VLAN function. The IGMP Multicast VLAN will take effect when igmp snooping multicast vlan is enabled. By default, the IGMP Multicast VLAN is in a disabled state.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To enable IGMP Multicast VLAN:

```
DAS-3626:admin#enable igmp_snooping multicast_vlan
Command: enable igmp_snooping multicast_vlan

Success.

DAS-3626:admin#
```

show igmp_snooping multicast_vlan

Purpose	Used to show the information of IGMP Multicast VLAN.
Syntax	**show igmp_snooping multicast_vlan {<vlan_name 32>}**
Description	This command allows you to show the information of IGMP Multicast VLAN.
Parameters	*<vlan_name>* – The name of the multicast VLAN to be shown.
Restrictions	None.

Example usage:

To display IGMP Multicast VLAN:

```
DAS-3626:admin#show igmp_snooping multicast_vlan
Command: show igmp_snooping multicast_vlan

IGMP Multicast VLAN Global State    : Enabled

VLAN Name                 : RG
VID                       : 11

Member(Untagged) Ports    : 4-5
Tagged Member Ports       :
Source Ports              :
Status                    : Enabled
Replace Source IP         : 0.0.0.0

Total Entry: 1

DAS-3626:admin#
```

create igmp_snooping multicast_vlan_group_profile

Purpose	Used to create an IGMP Multicast VLAN group profile on the switch.
Syntax	**create igmp_snooping multicast_vlan_group_profile <profile_name 1-32>**
Description	This command is used to create an IGMP Multicast VLAN group profile. The profile name cannot be used for IGMP snooping or MLD snooping.
Parameters	*<profile_name 32>* – Specifies the IPv4 multicast VLAN group profile name, max length is 32. If not specified, all IPv4 multicast VLAN group profiles will be displayed.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To create an IGMP multicast VLAN group profile “p1”:

```
DAS-3626:admin#create igmp_snooping multicast_vlan_group_profile p1
Command: create igmp_snooping multicast_vlan_group_profile p1

Success.

DAS-3626:admin#
```

config igmp_snooping multicast_vlan_group_profile

Purpose	Used to configure an IGMP Multicast VLAN group profile on the switch, to add or delete multicast address on the profile.
Syntax	**config igmp_snooping multicast_vlan_group_profile <profile_name 1-32> [add | delete] <mcast_address_list>**
Description	This command configures an IGMP Multicast VLAN group profile on the switch, to add or delete multicast address for the profile.
Parameters	*<profile_name 32>* – Specifies the IGMP Multicast VLAN group profile name, max length is 32. *[add | delete]* – Add or delete IGMP Multicast address list to or from this multicast VLAN group profile *<mcast_address_list>* – Specifies the IGMP Multicast addresses to be configured. It can be continuous single multicast addresses, such as 225.1.1.1, 225.1.1.3, 225.1.1.8, or a multicast address range, such as 225.1.1.1-225.2.2.2, or both of them, such as 225.1.1.1, 225.1.1.18-225.1.1.20
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To add 233.1.1.1 to 266.1.1.1 to IGMP multicast VLAN group profile “p1”:

```
DAS-3626:admin#config igmp_snooping multicast_vlan_group_profile p1 add 225.1.1.1-
226.1.1.1
Command: config igmp_snooping multicast_vlan_group_profile p1 add 225.1.1.1-
226.1.1.1

Success.

DAS-3626:admin#
```

delete igmp_snooping multicast_vlan_group_profile

Purpose	Used to delete an IGMP Multicast VLAN group profile on the switch.
Syntax	**delete igmp_snooping multicast_vlan_group_profile [profile_name <profile_name 1-32> |all]**
Description	This command deletes an IGMP Multicast VLAN group profile on the switch.
Parameters	*<profile_name 32>* – Specifies the IGMP Multicast VLAN profile name, max length is 32. *all* – All IGMP Multicast VLAN group profiles will be deleted.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To delete the IGMP multicast VLAN group profile “p1”:

```
DAS-3626:admin#delete igmp_snooping multicast_vlan_group_profile profile_name p1
Command: delete igmp_snooping multicast_vlan_group_profile profile_name p1

Success.

DAS-3626:admin#
```

show igmp_snooping multicast_vlan_group_profile

Purpose	Used to view an IGMP Multicast VLAN group profile on the switch.
Syntax	**show igmp_snooping multicast_vlan_group_profile {<profile_name 1-32>}**
Description	This command displays an IGMP Multicast VLAN group profile on the switch.
Parameters	*{<profile_name 32>}* – Specifies the IGMP Multicast VLAN profile name, max length is 32. If not specifies, all IGMP Multicast VLAN group profile will be displayed.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To display the IGMP Multicast VLAN group profile “p1”:

```
DAS-3626:admin#show igmp_snooping multicast_vlan_group_profile p1
Command: show igmp_snooping multicast_vlan_group_profile p1

Profile Name                     Multicast Addresses
-------------------------------- -------------------------------
p1                               225.1.1.1-226.1.1.1

DAS-3626:admin#
```

config igmp_snooping multicast_vlan forward_unmatched

Purpose	Used to configure forwarding mode for IGMP Multicast VLAN unmatched packets.
Syntax	**config igmp_snooping multicast_vlan forward_unmatched [disable | enable]**
Description	When the switch receives an IGMP packet, it will match the packet against the multicast profile to determine the multicast VLAN to be associated with. If the packet does not match any profiles, the packet will be forwarded or dropped based on the the setting. By default, the packet will be dropped.
Parameters	*enable* – The unmatched packet will be flooded on the VLAN. *disable* – The unmatched packet will be dropped.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To set unmatched packets to be flooded on the VLAN:

```
DAS-3626:admin#config igmp_snooping multicast_vlan forward_unmatched enable
Command: config igmp_snooping multicast_vlan forward_unmatched enable

Success.

DAS-3626:admin#
```

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MLD MULTICAST VLAN COMMANDS

The MLD Multicast VLAN commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
create mld_snooping multicast_vlan	<vlan_name 32> <vlanid 2-4094>
config mld_snooping multicast_vlan	<vlan_name 32> {[add|delete] [member_port <portlist> | tag_member_port <portlist> | source_port <portlist>] |state [enable | disable] | replace_source_ip <ipv6addr>}
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 multicat_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]

Each command is listed, in detail, in the following sections.

create mld_snooping multicast_vlan

Purpose	Used to create an MLD multicast VLAN
Syntax	**create mld_snooping multicast_vlan <vlan_name 32> <vlanid 2-4094>.**
Description	This command is used to create a MLD multicast_vlan. Multiple multicast VLANs can be configured. The MLD multicast VLAN being created can not exist in the 1Q VLAN database. Multiple MLD multicast VLANs can be created. The MLD Multicast VLAN snooping function co-exists with the 1Q VLAN snooping function.
Parameters	*<vlan_name>* – The name of the VLAN to be created. Each multicast VLAN is given a name that can be up to 32 characters. *vlanid* – The VLAN ID of the multicast VLAN to be create. The range is 2-4094.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To create MLD multicast VLAN mv1:

```
DAS-3626:admin#create mld_snoop multicast_vlan mv1 2
Command: create mld_snooping multicast_vlan mv1 2

Success.

DAS-3626:admin#
```

config mld_snooping multicast_vlan

Purpose	Used to configure the parameter of the specific MLD multicast VLAN.
Syntax	**config mld_snooping multicast_vlan <vlan_name 32> {[add|delete] [member_port <portlist>| tag_member_port <portlist> | source_port <portlist>] | state [enable | disable] | replace_source_ip <ipv6addr>}**
Description	This command allows you to add member ports, add tag_member ports and add source ports to the port list. The member port will automatically become the untagged member of the MLD multicast VLAN, the tag_member_port and the source port will automatically become the tagged member of the MLD multicast VLAN. To change the port-list, the new port-list will replace the previous port-list if add or delete is not specified. The member port list and source port list can not overlap. However, the member port of one MLD multicast VLAN can overlap with another MLD multicast VLAN. The MLD multicast VLAN must be created first before configuration.
Parameters	*<vlan_name>* – The name of the VLAN to be created. Each multicast VLAN is given a name that can be up to 32 characters. *Member_port* – A range of member ports to add to the multicast VLAN. They will become the untagged member port of the MLD multicast VLAN. *tag_member_port* – Specifies the tagged member port of the MLD multicast VLAN. *source_port* – A range of source ports to add to the multicast VLAN. State – enable or disable multicast VLAN for the chosen VLAN. *replace_source_ip* – With the MLD snooping function, the MLD report packet sent by the host will be forwarded to the source port. Before the forwarding of the packet, the source IP address in the join packet needs to be replaced by this IPv6 address.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To config MLD multicast VLAN mv1:

```
DAS-3626:admin#config mld_snooping multicast_vlan mv1 add member_port
1,3 state enable
Command: config mld_snooping multicast_vlan mv1 add member_port 1,3
state enable

Success.

DAS-3626:admin#
```

create mld_snooping multicast_vlan_group_profile

Purpose	Used to create an MLD multicast VLAN group profile on the switch.
Syntax	**create mld_snooping multicast_vlan_group_profile <profile_name 1-32>**
Description	This command is used to create an MLD multicast VLAN group profile. The profile name used for mld snooping must be unique.
Parameters	*<profile_name 32>* – Specifies the MLD multicast VLAN group profile name, max length is 32
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To create an MLD multicast VLAN group profile "g1":

```
DAS-3626:admin#create mld_snooping multicast_vlan_group_profile g1
Command: create mld_snooping multicast_vlan_group_profile g1

Success.

DAS-3626:admin#
```

config mld_snooping multicast_vlan_group_profile

Purpose	Used to configure an MLD multicast VLAN group profile on the switch, to add or delete multicast address for the profile.
Syntax	**config mld_snooping multicast_vlan_group_profile <profile_name 1-32> [add | delete] <mcast v6_address_list>**
Description	This command configures an MLD multicast VLAN group profile on the switch, and can add or delete multicast addresses for the profile.
Parameters	*<profile_name 32>* – Specifies the MLD multicast VLAN group profile name, max length is 32. *[add | delete]* – Add or delete MLD multicast address list to or from this multicast VLAN group profile *<mcastv6_address_list>* – Specifies the MLD multicast addresses to be configured. It can be a continuous single multicast addresses, such as FF12::1, FF12::3, FF12::8, or a multicast address range, such as FF12::1- FF12::12, or both of them, such as FF12::1, FF12::18-FF12::20.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To add 225.1.1.1 to 226.1.1.1 to MLD multicast VLAN group profile "g1":

```
DAS-3626:admin#config mld_snooping multicast_vlan_group_profile g1
add FF12::1-FF12::2
Command: config mld_snooping multicast_vlan_group_profile g1 add
FF12::1-FF12::2

Success.

DAS-3626:admin#
```

delete mld_snooping multicast_vlan_group_profile

Purpose	Used to delete an MLD multicast VLAN group profile on the switch.
Syntax	**delete mld_snooping multicast_vlan_group_profile [profile_name <profile_name 1-32> |all]**
Description	This command deletes an MLD multicast VLAN group profile on the switch.
Parameters	*<profile_name 32>* – Specifies the MLD multicast VLAN profile name, max length is 32. *all* – All MLD multicast VLAN group profile will be deleted.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To delete the MLD multicast VLAN group profile "g1":

```
DAS-3626:admin#delete mld_snooping multicast_vlan_group_profile profile_name g1
Command: delete mld_snooping multicast_vlan_group_profile profile_name g1

Success.

DAS-3626:admin#
```

show mld_snooping multicast_vlan_group_profile

Purpose	Used to view an MLD multicast VLAN group profile on the switch.
Syntax	**show mld_snooping multicast_vlan_group_profile {<profile_name 1-32>}**
Description	This command displays an MLD multicast VLAN group profile on the switch.
Parameters	*{<profile_name 32>}* – Specifies the MLD multicast VLAN profile name, max length is 32. If not specified, all MLD multicast VLAN group profiles will be displayed.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To display the MLD multicast VLAN group profile:

```
DAS-3626:admin#show mld_snooping multicast_vlan_group_profile
Command: show mld_snooping multicast_vlan_group_profile

Profile Name                     Multicast Addresses
-------------------------------- -------------------------------
g1                               FF12::1-FF12::2


Total Entry: 1


DAS-3626:admin#
```

config mld_snooping multicast_vlan multicast_group

Purpose	Used to configure the multicast group which will be learned with the specific MLD multicast VLAN.
Syntax	**config mld_snooping multicast_vlan_group <vlan_name 32> [add | delete] profile_name <profile_name 1-32>**
Description	When a MLD packet is received, first, it will be checked whether to be processed by MLD snooping. If MLD snooping for the classified VLAN of this MLD packet is enabled, it will be processed, based on the MLD snooping function. If the MLD snooping for the classified VLAN of this MLD packet is disabled, then it will check whether to be processed by the MLD multicast VLAN function. There are some cases when an MLD packet can be processed by the MLD multicast VLAN. If there are no profiles system wide, and there is only one MLD multicast VLAN, then this MLD packet will be associated with only this MLD multicast VLAN. However if the packet is a tagged packet, the packet will be matched against the profile on this VLAN. If matched, the packet will be associated with this VLAN. Otherwise, the packet is an unmatched packet. Otherwise if the packet is an untagged packet, the packet will be matched against profiles on all MLD multicast VLANs. If it matches profiles on one of the MLD multicast VLANs, the packets will be associated with this VLAN. If it does not match profiles on any VLANs, then the packet is an umatched packet. If the packet is an unmatched packet, it will not be processed by the MLD Multicast VLAN. Instead, it will be processed based on the forwarding mode for unmatched packets and the classified VLAN of this packet. **Note:** The same profile can not be overlapped in different multicast VLANs if these multicast VLANs have an overlapping portlist. Multiple profiles can be added to a multicast VLAN.
Parameters	*<vlan_name 32>* – The name of the multicast VLAN to be configured, each multicast VLAN is given a name that can be up to 32 characters. *add* – Used to associate a profile to a multicast VLAN. *delete* – Used to de-associate a profile from a multicast VLAN. *<profile_name 32>* – The name of the MLD multicast VLAN group profile to be associated or de- associated to the specified multicast VLAN.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To associate an MLD multicast VLAN group profile “g1” to MLD multicast VLAN “mv1”:

```
DAS-3626:admin#config mld_snooping multicast_vlan_group mv1 add profile_name g1
Command: config mld_snooping multicast_vlan_group mv1 add profile_name g1

Success.

DAS-3626:admin#
```

show mld_snooping multicast_vlan_group

Purpose	Used to display the multicast groups configured for the specified MLD multicast VLAN.
Syntax	**show mld_snooping multicast_vlan_group {< vlan_name 32> }**
Description	This command is used to display the multicast groups configured for the specified MLD multicast VLAN.
Parameters	*vlan_name* – The name of the multicast VLAN to be configured, each multicast VLAN is given a name that can be up to 32 characters. If not specified, all IPv6 multicast VLAN groups will be displayed.
Restrictions	None.

Example usage:

To display the multicast groups configured for an MLD multicast VLAN.

```
DAS-3626:admin#show mld_snooping multicast_vlan_group
Command: show mld_snooping multicast_vlan_group

VLAN Name                        VLAN ID  Multicast Group Profiles
-------------------------------  -------  --------------------------
mv1                              2         g1

DAS-3626:admin#
```

delete mld_snooping multicast_vlan

Purpose	Used to delete an MLD muticast VLAN.
Syntax	**delete mld_snooping multicat_vlan <vlan_name 32>**
Description	This command is used to delete an MLD multicast VLAN.
Parameters	*vlan_name* – The name of the multicast VLAN to be deleted.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To delete an MLD multicast VLAN:

```
DAS-3626:admin#delete mld_snooping multicast_vlan mv1
Command: delete mld_snooping multicast_vlan mv1

Success.

DAS-3626:admin#
```

enable/disable mld_snooping multicast_vlan

Purpose	Used to enable/disable the MLD Multicast VLAN function.
Syntax	**enable mld_snooping multicast_vlan** **disable mld_snooping multicast_vlan**
Description	This command controls the MLD Multicast VLAN function. The MLD Multicast VLAN will take effect when MLD snooping multicast VLAN is enabled. By default, the MLD Multicast VLAN is in a disabled state.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To enable MLD Multicast VLAN:

```
DAS-3626:admin#enable mld_snooping multicast_vlan
Command: enable mld_snooping multicast_vlan

Success.

DAS-3626:admin#
```

show mld_snooping multicast_vlan

Purpose	Used to show the information of MLD multicast VLAN.
Syntax	**show mld_snooping multicast_vlan {<vlan_name 32>}**
Description	This command is used to show the information of an MLD multicast VLAN.
Parameters	*<vlan_name>* – The name of the multicast VLAN to be shown. If not specified, all MLD multicast VLANs will be displayed.
Restrictions	None.

Example usage:

To show MLD multicast VLAN:

```
DAS-3626:admin#show mld_snooping multicast_vlan mv1
Command: show mld_snooping multicast_vlan mv1

MLD Multicast VLAN Global State    : Disabled

VLAN Name                 : mv1
VID                       : 23

Member(Untagged) Ports    :
Tagged Member Ports       :
Source Ports              :
Status                    : Disabled
Replace Source IP         : ::

Total Entry: 1

DAS-3626:admin#
```

config mld_snooping multicast_vlan forward_unmatched

Purpose	Used to configure forwarding mode for MLD Multicast VLAN unmatched packet.
Syntax	**config mld_snooping multicast_vlan forward_unmatched [disable | enable]**
Description	When the switch receives an MLD packet, it will match the packet against the multicast profile to determine the MLD multicast VLAN to be associated with. If the packet does not match any profiles, the packet will be forwarded or dropped based on the setting. By default, the packet will be dropped.
Parameters	*enable* – The unmatched packet will be flooded on the VLAN. *disable* – The unmatched packet will be dropped.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To set unmatched packet to be flooded on the VLAN:

```
DAS-3626:admin#config mld_snooping multicast_vlan forward_unmatched enable
Command: config mld_snooping multicast_vlan forward_unmatched enable

Success.

DAS-3626:admin#
```

23

MLD SNOOPING COMMAND LIST

The MLD Snooping Commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
config mld_snooping	[vlan <vlan_name 32> | vlanid <vidlist> |all] { state [enable|disable] | fast_done [enable|disable] | report_suppression [enable | disable]}
config mld_snooping querier	[vlan <vlan_name 32> | vlanid <vidlist> |all] { query_interval <sec 1-65535> | max_response_time <sec 1-25> | robustness_variable <value 1-255> | last_listener_query_interval <sec 1-25> | state [enable|disable] |version <value 1-2>}
config mld_snooping mrouter_ports	[vlan <vlan_name 32> | vlanid <vidlist>] [add|delete] <portlist>
config mld_snooping mrouter_ports_forbidden	[vlan <vlan_name 32> | vlanid <vidlist>] [add|delete]<portlist>
enable mld_snooping	
disable mld_snooping	
show mld_snooping	{[vlan <vlan_name 32> | vlanid <vidlist>]}
show mld_snooping group	{[vlan <vlan_name 32> | vlanid <vidlist> | ports <portlist>] {<ipv6addr>}} {data_driven}
show mld_snooping mrouter_ports	[vlan <vlan_name 32> | vlanid <vidlist> |all] { [static|dynamic|forbidden]}
show mld_snooping rate_limit	[ports <portlist>|vlanid <vlanid_list>]
config mld_snooping rate_limit	[ports <portlist>|vlanid <vlanid_list>] [<value 1-1000> | no_limit]
show mld_snooping forwarding	{[vlan <vlan_name 32> | vlanid <vlanid_list>]}
show mld_snooping static_group	{[vlan <vlan_name 32>| vlanid <vlanid_list>] < ipv6addr >}
create mld_snooping static_group	[vlan <vlan_name 32> | vlanid <vlanid_list>] < ipv6addr >
delete 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>
show mld_snooping statistic counter	[vlan <vlan_name 32> | vlanid <vlanid_list> | ports <portlist>]
clear mld_snooping statistic counter	

Each command is listed, in detail, in the following sections.

config mld_snooping

Purpose	Used to configure MLD snooping on the switch.
Syntax	**config mld_snooping [vlan <vlan_name 32> | vlanid <vidlist> |all] { state [enable| disable] | fast_done [enable|disable] | report_suppression [enable | disable]}**
Description	This command is used to configure MLD snooping on the switch. If the MLD version is configured with a lower version, the higher version's MLD Report/Leave messages will be ignored.
Parameters	*vlan_name* – The name of the VLAN for which MLD snooping is to be configured. *vidlist* – The VIDs of the VLAN for which MLD snooping is to be configured. *all* – Specifies that all VLANs configured on the switch will be configured. *state* – Allows the user to enable or disable the MLD snooping function for the chosed VLAN. *fast_done* – enable or disable MLD snooping fast_done function.If enable, the membership is immediately removed when the system receive the MLD done message. *report suppression* – Enables or Disables MLD snooping report suppression function. If enabled, multiple MLD reports are done for a specific (S,G) and will be intregrated into one report only before sending to the router port.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure the MLD snooping to the default vlan with noted_timeout 250 sec and state enable:

```
DAS-3626:admin#config mld_snooping vlan default state enable
Command: config mld_snooping vlan default state enable

Success.

DAS-3626:admin#
```

config mld_snooping querier

Purpose	Used to configure the timers and the attributes of the MLD snooping.querier.
Syntax	**config mld_snooping querier [vlan <vlan_name 32> | vlanid <vidlist> |all] { query_interval <sec 1-65535> | max_response_time <sec 1-25> | robustness_variable <value 1-255> | last_listener_query_interval <sec 1-25> | state [enable|disable] |version <value 1-2>}**
Description	This command is used to configure the timer in seconds between general query transmissions, the maximum time in seconds to wait for reports from listeners, and the permitted packet loss that guarantees MLD snooping.
Parameters	*vlan_name* – The name of the VLAN for which MLD snooping is to be configured. *vidlist* – The VIDs of the VLAN for which MLD snooping querier is to be configured. *query_interval* – Specifies the amount of time in seconds between general query transmissions. The default setting is *125* seconds. *max_reponse_time* – The maximum time in seconds to wait for reports from listeners. 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: • *group listener interval* – Amount of time that must pass before a multicast router decides there are no more listeners of a group on a network. This interval is calculated as follows: (robustness variable * query interval) + (1 * query response interval). • *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 * query interval) + (0.5 * query response interval). • *last listener query count* – Number of group-specific queries sent before the router assumes there are no local listeners of a group. The default number is the value of the robustness variable. • By default, the robustness variable is set to *2*. You might want to increase this value if you expect a subnet to be lossy. *last_listener_query_interval* – The maximum amount of time between group-specific query messages, including those sent in response to done-group messages. You might lower this interval to reduce the amount of time it takes a router to detect the loss of the last listener of a group. *state* – Allows you to enable or disable the MLD snooping function for the chosen VLAN. *version* – The version of MLD Query sent by the switch.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure the MLD snooping querier query interval to 125 secs and state enable:

```
DAS-3626:admin#config mld_snooping querier vlan default query_interval 125 state
enable
Command: config mld_snooping querier vlan default query_interval 125 state enable

Success.

DAS-3626:admin#
```

config mld_snooping mrouter_ports

Purpose	Used to configure ports as router ports.
Syntax	**config mld_snooping mrouter_ports [vlan <vlan_name 32> | vlanid <vidlist>] [add| delete] <portlist>**
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, etc.
Parameters	*vlan_name* – The name of the VLAN for which MLD snooping is to be configured. *vlanid list* – The VIDs of the VLAN for which MLD snooping is to be configured. *add* | *delete* – Specifies to add or delete the router ports. *portlist* – Specifies a range of ports to be configured.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To set up port range 1-10 to be static router ports:

```
DAS-3626:admin#config mld_snooping mrouter_ports vlan default add 1-10
Command: config mld_snooping mrouter_ports vlan default add 1-10

Success.

DAS-3626:admin#
```

config mld_snooping mrouter_ports_forbidden

Purpose	Used to configure ports as forbidden router ports.
Syntax	**config mld_snooping mrouter_ports_forbidden [vlan <vlan_name 32> | vlanid <vidlist>] [add|delete] <portlist>**
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.
Parameters	*vlan_name* – The name of the VLAN for which MLD snooping is to be configured. *vlanid list* – The VIDs of the VLAN for which MLD snooping is to be configured. *add* | *delete* – Specifies to add or delete the router ports. *portlist* – Specifies a range of ports to be configured as forbidden router ports.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To set up port range 1-10 to static router ports:

```
DAS-3626: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.

DAS-3626:admin#
```

enable mld_snooping

Purpose	Used to enable MLD snooping on the switch.
Syntax	**enable mld_snooping**
Description	This command is used to enable MLD snooping on the switch.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To enable MLD snooping on the switch:

```
DAS-3626:admin#enable mld_snooping
Command: enable mld_snooping

Success.

DAS-3626:admin#
```

disable mld_snooping

Purpose	Used to disable MLD snooping on the switch.
Syntax	**disable mld_snooping**
Description	This command is used to disable MLD snooping on the switch. Disabling MLD snooping allows all MLD and IPv6 multicast traffic to flood within a given IPv6 interface.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To disable MLD snooping on the switch:

```
DAS-3626:admin#disable mld_snooping
Command: disable mld_snooping

Success.

DAS-3626:admin#
```

show mld_snooping

Purpose	Used to the current status of MLD snooping on the switch.
Syntax	**show mld_snooping {[vlan <vlan_name 32> | vlanid <vidlist>]}**
Description	This command is used to display the current MLD snooping configuration on the switch.
Parameters	*vlan_name* – The name of the VLAN for which you want to view the MLD snooping configuration. *vlanid list* – The VIDs of the VLAN for which you want to view the MLD snooping configuration. If no parameter specified, the system will display all current MLD snooping configurations.
Restrictions	None.

Example usage:

To show MLD snooping on the switch:

```
DAS-3626:admin#show mld_snooping
Command: show mld_snooping

MLD Snooping Global State               : Disabled
Data Driven Learning Max Entries        : 128

 VLAN Name                      : default
 Query Interval                 : 125
 Max Response Time              : 10
 Robustness Value               : 2
 Last Listener Query Interval   : 1
 Querier State                  : Disable
 Querier Role                   : Non-Querier
 Querier IP                     :
 Querier Expiry Time            : 0 secs
 State                          : Disable
 Fast Done                      : Disable
 Report Suppression             : Enable
 Rate Limit                     : No Limitation
 Version                        : 2
 Data Driven Learning State     : Enable
 Data Driven Learning Aged Out  : Disable
 Data Driven Group Expiry Time  : 260

Total Entries: 1
DAS-3626:admin#
```

show mld_snooping group	
Purpose	Used to display the current MLD snooping group configuration on the switch.
Syntax	**show mld_snooping group {[vlan <vlan_name 32> | vlanid <vidlist> | ports <portlist>] {<ipv6addr>}} {data_driven}**
Description	This command is used to display the current MLD snooping group configuration on the switch.
Parameters	*vlan_name* – The name of the VLAN for which you want to view the MLD snooping configuration. *vlanid_list* – The VIDs of the VLAN for which you want to view the MLD snooping group configuration. *portlist* – The list of the ports for which you want to view the MLD snooping group configuration. *<ipv6addr>* – To view the information of this specified group. *data_driven* – To view the groups learnt by data driven only. If no parameter is specified, the system will display all current MLD snooping groups.
Restrictions	None.

Example usage:

To show MLD snooping group on the switch:

```
DAS-3626:admin#show mld_snooping group
Command: show mld_snooping group

Source/Group      : 2001::2/FF1E::1
VLAN Name/VID     : default/1
Member Ports      : 12
UP Time           : 2
Expiry Time       : 258
Filter Mode       : INCLUDE

Total Entries : 1

DAS-3626:admin#
```

show mld_snooping mrouter_ports

Purpose	Used to display the currently configured router ports on the switch.
Syntax	**show mld_snooping mrouter_ports [vlan <vlan_name 32> | vlanid <vidlist> |all] {[static|dynamic|forbidden]}**
Description	This command is used to display the currently configured router ports on the switch.
Parameters	*vlan_name* – The name of the VLAN for which you want to view the MLD snooping configuration. *vid list* – The VIDs of the VLAN for which you want to view the MLD snooping configuration. *all* – All the MLD router ports will be displayed. *static* – Displays router ports that have been statically configured. *dynamic* – Displays router ports that have been dynamically configured. *forbidden* – Displays forbidden router ports that have been statically configured. If no parameter specified, the system will display all currently configured router ports on the switch.
Restrictions	None.

Example usage:

To display the router ports on the switch:

```
DAS-3626: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

DAS-3626:admin#
```

show mld_snooping rate_limit

Purpose	Used to show rate limitation.

show mld_snooping rate_limit

Syntax	**show mld_snooping rate_limit [ports <portlist>|vlanid <vlanid_list>]**
Description	This command shows the rate of MLD control packets that are allowed per port or VLAN.
Parameters	*<portlist>* – Specifies a port or range of ports that will be displayed. *<vlanid_list>* – Specifies a VLAN or range of VLANs that will be displayed.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To show rate limitation:

```
DAS-3626:admin#show mld_snooping rate_limit ports 1
Command: show mld_snooping rate_limit ports 1

 Port      Rate Limitation
 --------  ---------------
 1         No Limitation

Total Entries: 1

DAS-3626:admin#
```

config mld_snooping rate_limit

Purpose	Used to show MLD snooping rate limitation.
Syntax	**config mld_snooping rate_limit [ports <portlist>|vlanid <vlanid_list>] [<value 1-1000> | no_limit]**
Description	This command configures the rate of MLD control packets that are allowed per port or VLAN.
Parameters	*<portlist>* – Specifies a port or range of ports that will be configured. *<vlanid_list>* – Specifies a VLAN or range of VLANs that will be configured. *<value 1-1000>* – Specifies the rate of MLD control packets that the switch can process on a specific port. The rate is specified in packets per second. The packet that exceeds the limited rate will be dropped. The default setting is no_limit. *no_limit* – Allows user to configure the rate limitation to no limit.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure rate limitation:

```
DAS-3626:admin#config mld_snooping rate_limit ports 1 100
Command: config mld_snooping rate_limit ports 1 100

Success.

DAS-3626:admin#
```

show mld_snooping forwarding

Purpose	Used to display the current MLD snooping forwarding information on the Switch.
Syntax	**show mld_snooping forwarding {[vlan <vlan_name 32> | vlanid <vlanid_list>]}**
Description	This command will display the current MLD forwarding information on the Switch.
Parameters	*<vlan_name 32>* – The name of the VLAN for which to view MLD snooping forwarding information. If not specified, all VLAN's MLD snooping forwarding information will be displayed. *<vlanid_list>* – The list of the VLAN IDs for which to view MLD snooping forwarding information. If not specified, all VLAN's MLD snooping forwarding information will be displayed.
Restrictions	None.

Example usage:

To view the current MLD snooping forwarding information:

```
DAS-3626:admin#show mld_snooping forwarding
Command: show mld_snooping forwarding

 VLAN Name                     : default
 Source IP                     : *
 Multicast Group               : FF12::1
 Port Member                   : 3

 VLAN Name                     : default
 Source IP                     : *
 Multicast Group               : FF12::2
 Port Member                   : 3

 Total Entries : 2

DAS-3626:admin#
```

show mld_snooping static_group

Purpose	Used to display the current MLD snooping static group information on the Switch.
Syntax	**show mld_snooping static_group {[vlan <vlan_name 32>| vlanid <vlanid_list>] < ipv6addr >}**
Description	This command is used to display the current MLD snooping static group information on the Switch.
Parameters	*<vlan_name 32>* – The name of the VLAN for which to view MLD snooping static group information, if not specified, all static group will be displayed. *<vlanid_list>* – The list of the VLAN IDs for which to view MLD snooping static group information, if not specified, all static group will be displayed. *< ipv6addr >* – The static group IPv6 address for which to view MLD snooping static group information.
Restrictions	None.

Example usage:

To view the current MLD snooping static group information:

```
DAS-3626:admin#show mld_snooping static_group
Command: show mld_snooping static_group

VLAN ID/Name                 IP Address           Static Member Ports
--------------------------   -------------------  ----------------
1   /default                 FF12::1               3
1   /default                 FF12::2               3

 Total Entries : 2


DAS-3626:admin#
```

create mld_snooping static_group

Purpose	Used to display the current MLD snooping static group information on the Switch.
Syntax	**create mld_snooping static_group [vlan <vlan_name 32> | vlanid <vlanid_list>] <ipv6addr>**
Description	This command is used to create a mld 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 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 address FF0E::X must be excluded from the configured group. The VLAN must be created first before a static group can be created.
Parameters	*<vlan_name 32>* – The name of the VLAN for which to create MLD snooping static group information. *<vlanid_list>* – The list of the VLAN IDs for which to create MLD snooping static group information. *< ipv6addr >* – The static group IPv6 address for which to create MLD snooping static group information.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To create a static group FF12::1 for VID 1:

```
DAS-3626:admin#create mld_snooping static_group vlanid 1 FF12::1
Command: create mld_snooping static_group vlanid 1 FF12::1

Success.

DAS-3626:admin#
```

delete mld_snooping static_group

Purpose	Used to delete the current MLD snooping static group on the Switch.
Syntax	**delete mld_snooping static_group [vlan <vlan_name 32> | vlanid < *vlanid_list* >] <ipv6addr>**
Description	This command is used to delete an MLD snooping static group will not affect the MLD snooping dynamic member ports of a group.
Parameters	*<vlan_name 32>* – The name of the VLAN for which MLD snooping static group information will be deleted. *<vlanid_list>* – The list of the VLAN IDs for which MLD snooping static group information will be deleted. *< ipv6addr >* – The static group IPv6 address for which MLD snooping static group information will be deleted.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To delete a static group FF12::1 on VID 1:

```
DAS-3626:admin#delete mld_snooping static_group vlanid 1  FF12::1
Command: delete mld_snooping static_group vlanid 1  FF12::1

Success.

DAS-3626:admin#
```

config mld_snooping static_group

Purpose	Used to configure the current MLD snooping static group on the Switch.
Syntax	**config mld_snooping static_group [vlan <vlan_name 32> | vlanid <vlanid_list>] <ipv6addr> [add | delete] <portlist>**
Description	This command is used to add or delete ports to/from the given static group.
Parameters	*<vlan_name 32>* – The name of the VLAN for which to configure MLD snooping static group information. *<vlanid_list>* – The list of the VLAN IDs for which to configure MLD snooping static group information. *< ipv6addr >* – The static group IPv6 address for which to configure MLD snooping static group information. *[add | delete] <portlist>* – Portlist to add or delete.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To add port 5 to static group FF12::1 on VID 1:

```
DAS-3626:admin#config mld_snooping static_group vlanid 1  FF12::1 add 5
Command: config mld_snooping static_group vlanid 1  FF12::1 add 5

Success.

DAS-3626:admin#
```

show mld_snooping statistic counter

Purpose	Used to view the current MLD snooping statistic on the Switch.
Syntax	**show mld_snooping statistic counter [vlan <vlan_name 32> | vlanid <vlanid_list> | ports <portlist>]**
Description	This command is used to view this information, MLD snooping must be enabled first.
Parameters	*<vlan_name 32>* – The name of the VLAN for which to view MLD snooping statistic counter. *<vlanid_list>* – The list of the VLAN ID for which to view MLD snooping statistic counter. *<portlist>* – The list of the ports for which to view MLD snooping statistic counter.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To view MLD snooping statistic on VID 1:

```
DAS-3626:admin#show mld_snooping statistic counter vlanid 1
Command: show mld_snooping statistic counter vlanid 1

VLAN Name         : default
--------------------------------------------------
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

DAS-3626:admin#
```

clear mld_snooping statistic counter

Purpose	Used to clear the current MLD snooping statistic on the Switch.
Syntax	**clear mld_snooping statistic counter**
Description	This command is used to clear all MLD snooping statistic counters.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To clear MLD snooping statistic counter:

```
DAS-3626:admin#clear mld_snooping statistic counter
Command: clear mld_snooping statistic counter

Success.

DAS-3626:admin#
```

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PORT MIRRORING COMMANDS

The port mirroring commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
config mirror port	<port> {[add | delete] source ports <portlist> [rx | tx | both]}
enable mirror	
disable mirror	
show mirror	

Each command is listed, in detail, in the following sections.

config mirror port	
Purpose	Used to configure a mirror port – source port pair on the Switch. Traffic from any source port to a target port can be mirrored for real-time analysis. A logic analyzer or an RMON probe can then be attached to study the traffic crossing the source port in a completely obtrusive manner.
Syntax	**config mirror port <port> {[add | delete] source ports <portlist> [rx | tx | both]}**
Description	This command allows 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, users can specify that only traffic received by or sent by one or both is mirrored to the Target port.
Parameters	*<port>* – This specifies the Target port (the port where mirrored packets will be received). The target port must be configured in the same VLAN and must be operating at the same speed as the source port. If the target port is operating at a lower speed, the source port will be forced to drop its operating speed to match that of the target port. *[add | delete]* – Specifies if the user wishes to add or delete ports to be mirrored that are specified in the *source ports* parameter. *source ports* – The port or ports being mirrored. This cannot include the Target port. *<portlist>* – This specifies a port or range of ports that will be mirrored. That is, the range of ports in which all traffic will be copied and sent to the Target port. *rx* – Allows the mirroring of only packets received by (flowing into) the port or ports in the port list. *tx* – Allows the mirroring of only packets sent to (flowing out of) the port or ports in the port list. *both* – Mirrors all the packets received or sent by the port or ports in the port list.
Restrictions	The Target port cannot be listed as a source port. Only Administrator and Operator-level users can issue this command.

Example usage:

To add the mirroring ports:

```
DAS-3626:admin#config mirror port 1 add source ports 2-5 both
Command: config mirror port 1 add source ports 2-5 both

Success.

DAS-3626:admin#
```

Example usage:

To delete the mirroring ports:

```
DAS-3626:admin#config mirror port 1 delete source port 2-4
Command: config mirror 1 delete source 2-4

Success.

DAS-3626:admin#
```

enable mirror

Purpose	Used to enable a previously entered port mirroring configuration.
Syntax	**enable mirror**
Description	This command, combined with the **disable mirror** command below, allows the user to enter a port mirroring configuration into the Switch, and then turn the port mirroring on and off without having to modify the port mirroring configuration.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To enable mirroring configurations:

```
DAS-3626:admin#enable mirror
Command: enable mirror

Success.

DAS-3626:admin#
```

disable mirror

Purpose	Used to disable a previously entered port mirroring configuration.
Syntax	**disable mirror**
Description	This command, combined with the **enable mirror** command above, allows the user to enter a port mirroring configuration into the Switch, and then turn the port mirroring on and off without having to modify the port mirroring configuration.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To disable mirroring configurations:

```
DAS-3626:admin#disable mirror
Command: disable mirror

Success.

DAS-3626:admin#
```

show mirror

Purpose	Used to show the current port mirroring configuration on the Switch.
Syntax	**show mirror**
Description	This command displays the current port mirroring configuration on the Switch.
Parameters	None.
Restrictions	None.

Example usage:

To display mirroring configuration:

```
DAS-3626:admin#show mirror
Command: show mirror

Current Settings
Mirror Status : Enabled
Target Port   : 1
Mirrored Port
           RX :
           TX : 5-7

DAS-3626:admin#
```

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LOOP-BACK DETECTION COMMANDS

The Loop-back Detection commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
config loopdetect	{recover_timer [value 0| <value 60-1000000>] | interval <1-32767>] }
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]

Each command is listed, in detail, in the following sections.

config loopdetect

Purpose	Used to configure loop-back detection on the switch.
Syntax	**config loopdetect {recover_timer [value 0| <value 60-1000000>] | interval <1-32767> }**
Description	This command is used to configure loop-back detection on the switch.
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 valid range is *60* to *1000000*. Zero is a special value which means to disable the auto-recovery mechanism. The default value is *60*. *interval* – The time interval (inseconds) at which the remote device transmits all the CTP packets to detect the loop-back event. The default value is *10*, with a valid range of *1* to *32767*.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To set the recover time to 0, and interval to 20, and VLAN-based mode:

```
DAS-3626:admin#config loopdetect recover_timer 0 interval 20 mode vlan-based
Command: config loopdetect recover_timer 0 interval 20 mode vlan-based

Success

DAS-3626:admin#
```

config loopdetect ports

Purpose	Used to configure loop-back detection state of ports.
Syntax	**config loopdetect ports [<portlist> | all] | state [enabled | disabled]**
Description	This command is used to configure loop-back detection state of ports.
Parameters	*<portlist>* – Specifies a range of ports for the loop-back detection *state [enabled* | *disabled]* – Allows the loop-back detection to be disabled and enabled.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To set the loop-detect state to enable:

```
DAS-3626:admin#config loopdetect ports 1-5 state enabled
Command: config loopdetect ports 1-5 state enabled

Success

DAS-3626:admin#
```

enable loopdetect

Purpose	Used to globally enable loop-back detection on the switch.
Syntax	**enable loopdetect**
Description	This command is used to globally enable loop-back detection on the switch.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To enable loop-back detection on the switch:

```
DAS-3626:admin#enable loopdetect
Command: enable loopdetect

Success

DAS-3626:admin#
```

disable loopdetect

Purpose	Used to globally disable loop-back detection on the switch.
Syntax	**disable loopdetect**
Description	This command is used to globally disable loop-back detection on the switch.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To disable loop-back detection on the switch:

```
DAS-3626:admin#disable loopdetect
Command: disable loopdetect

Success

DAS-3626:admin#
```

show loopdetect

Purpose	Used to display the current loop-back detection settings on the switch.
Syntax	**show loopdetect**
Description	This command is used to display the current loop-back detection settings on the switch.
Parameters	None.
Restrictions	None.

Example usage:

To show loop-detect:

```
DAS-3626: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

DAS-3626:admin#
```

show loopdetect ports

Purpose	Used to display the current per-port loop-back detection settings on the switch.
Syntax	**show loopdetect ports [all | <portlist>]**
Description	This command is used to display the current per-port loop-back detection settings on the switch.
Parameters	*<portlist>* – Specifies a range of ports for the loop-back detection *all* – Specifies all ports for the loop-back detection.
Restrictions	None.

Example usage:

To show loop-detect ports:

```
DAS-3626:admin#show loopdetect ports 1-3
Command: show loopdetect ports 1-3

Port   Loopdetect State    Loop Status
------ ------------------ ----------
1      Enabled             Normal
2      Enabled             Normal
3      Enabled             Normal

DAS-3626:admin#
```

config loopdetect trap

Purpose		This command is used to config trap modes.
	Syntax	**config loopdetect trap [none | loop_detected | loop_cleared | both]**
	Description	The loop-detect trap is sent when the loop condition is detected. The loop-detect will be cleared when the trap is sent and the loop condition is cleared.
	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 Administrator and Operator-level users can issue this command.

Example usage:

To config loop trap both:

```
DAS-3626:admin#config loopdetect trap both
Command: config loopdetect trap both

Success.

DAS-3626:admin#
```

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MULTIPLE SPANNING TREE PROTOCOL (MSTP) COMMANDS

This Switch supports three versions of the Spanning Tree Protocol: 802.1D-2004 STP-compatible, 802.1D-2004 Rapid STP and 802.1Q-2005 MSTP. Multiple Spanning Tree Protocol, or MSTP, is a standard defined by the IEEE community that allows multiple VLANs to be mapped to a single spanning tree instance, which will provide multiple pathways across the network. Therefore, these MSTP configurations will balance the traffic load, preventing wide scale disruptions when a single spanning tree instance fails. This will allow for faster convergences of new topologies for the failed instance. Frames designated for these VLANs will be processed quickly and completely throughout interconnected bridges utilizing either of the three spanning tree protocols (STP, RSTP or MSTP). This protocol will also tag BDPU packets so receiving devices can distinguish spanning tree instances, spanning tree regions and the VLANs associated with them. These instances will be classified by an *instance_id*. MSTP will connect multiple spanning trees with a Common and Internal Spanning Tree (CIST). The CIST will automatically determine each MSTP region, its maximum possible extent and will appear as one virtual bridge that runs a single spanning tree. Consequentially, frames assigned to different VLANs will follow different data routes within administratively established regions on the network, continuing to allow simple and full processing of frames, regardless of administrative errors in defining VLANs and their respective spanning trees. Each switch utilizing the MSTP on a network will have a single MSTP configuration that will have the following three attributes:

a) A configuration name defined by an alphanumeric string of up to 32 characters (defined in **the config stp mst_config_id** command as *name <string>*).

b) A configuration revision number (named here as a *revision_level*) and;

c) A 4096 element table (defined here as a *vid_range*) which will associate each of the possible 4096 VLANs supported by the Switch for a given instance.

To utilize the MSTP function on the Switch, three steps need to be taken:

a) The Switch must be set to the MSTP setting (*config stp version*)

b) The correct spanning tree priority for the MSTP instance must be entered (*config stp priority*).

c) VLANs that will be shared must be added to the MSTP Instance ID (*config stp instance_id*).

The Multiple Spanning Tree Protocol commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
enable stp	
disable stp	
config stp version	[mstp | rstp | stp]
config stp	{maxage <value 6-40> | maxhops <value 1-20> | hellotime <value 1-2> | forwarddelay <value 4-30>| txholdcount <value 1-10> | fbpdu [enable | disable] |nni_bpdu_addr [dot1d | dot1ad]}
config stp ports	<portlist> {externalCost [auto |<value 1-200000000>] | hellotime <value 1-2> | migrate [yes | no] | edge [true | false | auto] | restricted_tcn [true | false] | restricted_role [true | false] | p2p [true | false | auto] | state [enable | disable] | fbpdu [enable |disable]}
create stp instance_id	<value 1-15>
config stp instance_id	<value 1-15> [add_vlan | remove_vlan] <vidlist>
delete stp instance_id	<value 1-15>
config stp priority	<value 0-61440> instance_id <value 0-15>
config stp mst_config_id	{revision_level <int 0-65535> | name <string>}
config stp mst_ports	<portlist> instance_id <value 0-15> {internalCost [auto | value 1-200000000] | priority <value 0-240>}
show stp	
show stp ports	{<portlist>}
show stp instance	{<value 0-15>}

Command	Parameters
show stp mst_config_id	

Each command is listed, in detail, in the following sections.

enable stp

Purpose	Used to globally enable STP on the Switch.
Syntax	**enable stp**
Description	This command allows the Spanning Tree Protocol to be globally enabled on the Switch.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To enable STP, globally, on the Switch:

```
DAS-3626:admin#enable stp
Command: enable stp

Success.

DAS-3626:admin#
```

disable stp

Purpose	Used to globally disable STP on the Switch.
Syntax	**disable stp**
Description	This command allows the Spanning Tree Protocol to be globally disabled on the Switch.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To disable STP on the Switch:

```
DAS-3626:admin#disable stp
Command: disable stp

Success.

DAS-3626:admin#
```

config stp version	
Purpose	Used to globally set the version of STP on the Switch.
Syntax	**config stp version [mstp | rstp | stp]**
Description	This command allows the user to choose the version of the spanning tree to be implemented on the Switch.
Parameters	*mstp* – Selecting this parameter will set the Multiple Spanning Tree Protocol (MSTP) globally on the Switch. *rstp* – Selecting this parameter will set the Rapid Spanning Tree Protocol (RSTP) globally on the Switch. *stp* – Selecting this parameter will set the Spanning Tree Protocol (STP) globally on the Switch.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To set the Switch globally for the Multiple Spanning Tree Protocol (MSTP):

```
DAS-3626:admin#config stp version mstp
Command: config stp version mstp

Success

DAS-3626:admin#
```

config stp

Purpose	Used to setup STP, RSTP and MSTP on the Switch.
Syntax	**{maxage <value 6-40> | maxhops <value 1-20> | hellotime <value 1-2> | forwarddelay <value 4-30>| txholdcount <value 1-10> | fbpdu [enable | disable] |nni_bpdu_addr [dot1d | dot1ad]}**
Description	This command is used to setup the Spanning Tree Protocol (STP) for the entire Switch. All commands here will be implemented for the STP version that is currently set on the Switch.
Parameters	*maxage <value 6-40>* – This value may be set to ensure that old information does not endlessly circulate through redundant paths in the network, preventing the effective propagation of the new information. Set by the Root Bridge, this value will aid in determining that the Switch has spanning tree configuration values consistent with other devices on the bridged LAN. If the value ages out and a BPDU has still not been received from the Root Bridge, the Switch will start sending its own BPDU to all other switches for permission to become the Root Bridge. If it turns out that your switch has the lowest Bridge Identifier, it will become the Root Bridge. The user may choose a time between *6* and *40* seconds. The default value is *20*. *maxhops <value 1-20>* – The number of hops between devices in a spanning tree region before the BPDU (bridge protocol data unit) packet sent by the Switch will be discarded. Each switch on the hop count will reduce the hop count by one until the value reaches zero. The Switch will then discard the BDPU packet and the information held for the port will age out. The user may set a hop count from *1* to *20*. The default is *20*. *hellotime <value 1-2>* – The user may set the time interval between transmission of configuration messages by the root device, thus stating that the Switch is still functioning. A time between *1* and *2* seconds may be chosen, with a default setting of *2* seconds. **NOTE:** In MSTP, the spanning tree is configured by port and therefore, the *hellotime* must be set using the *configure stp ports* command for switches utilizing the Multiple Spanning Tree Protocol. *forwarddelay <value 4-30>* – The maximum amount of time (in seconds) that the root device will wait before changing states. The user may choose a time between *4* and *30* seconds. The default is *15* seconds. *txholdcount <value 1-10>* – The maximum number of BPDU Hello packets transmitted per interval. Default value is *6*. *fbpdu [enable* | *disable]* – Allows the forwarding of STP BPDU packets from other network devices when STP is disabled on the Switch. The default is *enable*. *nni_bpdu_addr [dot1d* | *dot1ad]* – Configure NNI port address.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure STP with maxage 18 and maxhops of 15:

```
DAS-3626:admin#config stp maxage 18 maxhops 15
Command: config stp maxage 18 maxhops 15

Success.

DAS-3626:admin#
```

config stp ports

Purpose	Used to setup STP on the port level.
Syntax	**config stp ports <portlist> {externalCost [auto | <value 1-200000000>] | hellotime <value 1-2> | migrate [yes | no] | edge [true | false | auto] | restricted_tcn [true | false] | restricted_role [true | false] | p2p [true | false | auto] | state [enable | disable] | fbpdu [enable |disable]}**

config stp ports

Description

This command is used to create and configure STP for a group of ports.

Parameters

<portlist> – Specifies a range of ports to be configured.

externalCost – This defines a metric that indicates the relative cost of forwarding packets to the specified port list. Port cost can be set automatically or as a metric value. The default value is *auto*.

auto – Setting this parameter for the external cost will automatically set the speed for forwarding packets to the specified port(s) in the list for optimal efficiency. Default port cost: 100Mbps port = 200000. Gigabit port = 20000.

<value 1-200000000> – Define a value between 1 and 200000000 to determine the external cost. The lower the number, the greater the probability the port will be chosen to forward packets.

hellotime <value 1-2> – The time interval between transmission of configuration messages by the designated port, to other devices on the bridged LAN, thus stating that the Switch is still functioning. The user may choose a time between 1 and *2* seconds. The default is 2 seconds.

migrate [yes | no] – Setting this parameter as "*yes*" will set the ports to send out BDPU packets to other bridges, requesting information on their STP setting If the Switch is configured for RSTP, the port will be capable to migrate from 802.1D STP-compatible to 802.1D RSTP. If the Switch is configured for MSTP, the port is capable of migrating from 802.1D STP-compatible to 802.1Q MSTP. RSTP and MSTP can coexist with standard STP, however the benefits of RSTP and MSTP are not realized on a port where an 802.1D network connects to an 802.1D-2004 or 802.1Q enabled network. Migration should be set as *yes* on ports connected to network stations or segments that are capable of being upgraded to 802.1D-2004 RSTP or 802.1Q MSTP on all or some portion of the segment.

edge [true | false | auto] – *true* designates the port as an edge port. Edge ports cannot create loops, however an edge port can lose edge port status if a topology change creates a potential for a loop. An edge port normally should not receive BPDU packets. If a BPDU packet is received it automatically loses edge port status. *false* indicates that the port does not have edge port status.

Auto – Will indicate that the port will be able to automatically enable edge port status if needed.

restricted_role [true | false] – If *true* causes the Port not to be selected as Root Port for the CIST or any MSTI, even it has the best spanning tree priority vector. Such a Port will be selected as an Alternate Port after the Root Port has been selected. This parameter should be *false* by default. If set, it can cause lack of spanning tree connectivity. It is set by a network administrator to prevent bridges external to a core region of the network influencing the spanning tree active topology, possibly because those bridges are not under the full control of the administrator.

restricted_tcn [true | false] – If *true* causes the Port not to propagate received topology change notifications and topology changes to other Ports. This parameter should be *false* by default. If set it can cause temporary loss of connectivity after changes in a spanning trees active topology as a result of persistent incorrectly learned station location information. It is set by a network administrator to prevent bridges external to a core region of the network, causing address flushing in that region, possibly because those bridges are not under the full control of the administrator or MAC_Operational for the attached LANs transitions frequently.

p2p [true | false | auto] – *true* indicates a point-to-point (P2P) shared link. P2P ports are similar to edge ports however they are restricted in that a P2P port must operate in full-duplex. Like edge ports, P2P ports transition to a forwarding state rapidly thus benefiting from RSTP. A p2p value of false indicates that the port cannot have p2p status. *Auto* allows the port to have p2p status whenever possible and operate as if the p2p status were *true*. If the port cannot maintain this status (for example if the port is forced to half-duplex operation) the p2p status changes to operate as if the p2p value were *false*. The default setting for this parameter is *auto*.

state [enable | disable] – Allows STP to be enabled or disabled for the ports specified in the port list. The default is *enable*.

fbpdu [enable | disable] – When enabled, this allows the forwarding of STP BPDU packets from other network devices when STP is disabled in the specified ports. If users want to enable Forwarding BPDU on a per port basis, the following settings must first be in effect: 1.

config stp ports

	STP must be globally disabled and 2. Forwarding BPDU must be globally enabled. To globally disable STP, use the **disable stp** command, to globally enable fbpdu, use the **config stp** command. The default is *enable.*
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure STP with path cost 19, hellotime set to 2 seconds, migration enabled, and state enabled for ports 1-5:

```
DAS-3626:admin#config stp ports 1-5 externalCost 19 hellotime 2 migrate yes state
enable
Command: config stp ports 1-5 externalCost 19 hellotime 2 migrate yes state enable


Success.


DAS-3626:admin#
```

create stp instance_id

Purpose	Used to create a STP instance ID for MSTP.
Syntax	**create stp instance_id <value 1-15>**
Description	This command allows the user to create a STP instance ID for the Multiple Spanning Tree Protocol. There are 16 STP instances on the Switch (one internal CIST, unchangeable) and the user may create up to 15 instance IDs for the Switch.
Parameters	<*value 1-15*> – Enter a value between 1 and 15 to identify the Spanning Tree instance on the Switch.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To create a spanning tree instance 2:

```
DAS-3626:admin#create stp instance_id 2
Command: create stp instance_id 2

Warning:There is no VLAN mapping to this instance_id!
Success.

DAS-3626:admin#
```

config stp instance_id	
Purpose	Used to add or delete VID to/from an STP instance.
Syntax	**config stp instance_id <value 1-15> [add_vlan | remove_vlan] <vidlist>**
Description	This command is used to map VIDs (VLAN IDs) to previously configured STP instances on the Switch by creating an *instance_id*. A STP instance may have multiple members with the same MSTP configuration. There is no limit to the number of STP regions in a network but each region only supports a maximum of 16 spanning tree instances (one unchangeable default entry). VIDs can belong to only one spanning tree instance at a time.
Parameters	*<value 1-15>* – Enter a number between 1 and 15 to define the *instance_id*. The Switch supports 16 STP instances with one unchangeable default instance ID set as *0*. *add_vlan* – Along with the *vid_range <vidlist>* parameter, this command will add VIDs to the previously configured STP *instance_id.* *remove_vlan* – Along with the *vid_range <vidlist>* parameter, this command will remove VIDs to the previously configured STP *instance_id.* *<vidlist>* – Specify the VID range from configured VLANs set on the Switch. Supported VIDs on the Switch range from ID number 1 to 4094.

config stp instance_id	
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure instance ID 2 to add VID 10:

```
DAS-3626:admin#config stp instance_id 2 add_vlan 10
Command : config stp instance_id 2 add_vlan 10

Success.

DAS-3626:admin#
```

Example usage:

To remove VID 10 from instance ID 2:

```
DAS-3626:admin#config stp instance_id 2 remove_vlan 10
Command : config stp instance_id 2 remove_vlan 10

Success.

DAS-3626:admin#
```

delete stp instance_id	
Purpose	Used to delete a STP instance ID from the Switch.
Syntax	**delete stp instance_id <value 1-15>**
Description	This command allows the user to delete a previously configured STP instance ID from the Switch.
Parameters	*<value 1-15>* – Enter a value between 1 and 15 to identify the Spanning Tree instance on the Switch.

delete stp instance_id	
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To delete STP instance ID 2 from the Switch.

```
DAS-3626:admin#delete stp instance_id 2
Command: delete stp instance_id 2

Success.

DAS-3626:admin#
```

config stp priority	
Purpose	Used to configure the bridge priority.
Syntax	**config stp priority <value 0-61440> instance_id <value 0-15>**
Description	This command is used to update the STP instance configuration settings on the Switch. The MSTP will utilize the priority in selecting the root bridge, root port and designated port. Assigning higher priorities to STP regions will instruct the Switch to give precedence to the selected *instance_id* for forwarding packets. The lower the priority value set, the higher the priority.
Parameters	*priority <value 0-61440>* – Select a value between 0 and 61440 to specify the priority for a specified instance ID for forwarding packets. The lower the value, the higher the priority. This value must be divisible by 4096. *instance_id <value 0-15>* – Enter the value corresponding to the previously configured instance ID of which the user wishes to set the priority value. An instance id of *0* denotes the default *instance_id* (CIST) internally set on the Switch.

config stp priority	
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To set the priority value for *instance_id* 2 as 4096.

```
DAS-3626:admin#config stp priority 4096 instance_id 2
Command : config stp priority 4096 instance_id 2

Success.

DAS-3626:admin#
```

config stp mst_config_id	
Purpose	Used to update the MSTP configuration identification.
Syntax	**config stp mst_config_id {revision_level <int 0-65535> | name <string 32>}**
Description	This command will uniquely identify the MSTP configuration currently configured on the Switch. Information entered here will be attached to BPDU packets as an identifier for the MSTP region to which it belongs. Switches having the same *revision_level* and *name* will be considered as part of the same MSTP region.
Parameters	*revision_level <int 0-65535>*– Enter a number between 0 and 65535 to identify the MSTP region. This value, along with the name will identify the MSTP region configured on the Switch. The default setting is *0*. *name <string>* – Enter an alphanumeric string of up to 32 characters to uniquely identify the MSTP region on the Switch. This *name*, along with the *revision_level* value will identify the MSTP region configured on the Switch. If no *name* is entered, the default name will be the MAC address of the device.

config stp mst_config_id	
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure the MSTP region of the Switch with *revision_level* 10 and the *name* “Trinity”:

```
DAS-3626:admin#config stp mst_config_id revision_level 10 name Trinity
Command : config stp mst_config_id revision_level 10 name Trinity

Success.

DAS-3626:admin#
```

config stp mst_ports

Purpose

Used to update the port configuration for a MSTP instance.

Syntax

config stp mst_ports <portlist> instance_id <value 0-15> {internalCost [auto | <value 1-200000000>] priority <value 0-240>

Description

This command will update the port configuration for a STP *instance_id*. If a loop occurs, the MSTP function will use the port priority to select an interface to put into the forwarding state. Set a higher priority value for interfaces to be selected for forwarding first. In instances where the priority value is identical, the MSTP function will implement the lowest MAC address into the forwarding state and other interfaces will be blocked. Remember that lower priority values mean higher priorities for forwarding packets.

Parameters

<portlist> – Specifies a port or range of ports to be configured.

instance_id <value 0-15> – Enter a numerical value between 0 and 15 to identify the *instance_id* previously configured on the Switch. An entry of 0 will denote the CIST (Common and Internal Spanning Tree.

internalCost – This parameter is set to represent the relative cost of forwarding packets to specified ports when an interface is selected within a STP instance. The default setting is *auto*. There are two options:

- *auto* – Selecting this parameter for the internalCost will set quickest route automatically and optimally for an interface. The default value is derived from the media speed of the interface.
- *value 1-200000000* – Selecting this parameter with a value in the range of 1-200000000 will set the quickest route when a loop occurs. A lower *internalCost* represents a quicker transmission.

priority <value 0-240> – Enter a value between 0 and 240 to set the priority for the port interface. A higher priority will designate the interface to forward packets first. A lower number denotes a higher priority. This value must be divisible by 16.

config stp mst_ports

Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To designate ports 1 through 5, with instance id 2, to have an auto internalCost and a priority of 16:

```
DAS-3626:admin#config stp mst_ports 1-5 instance_id 2 internalCost auto priority 16
Command : config stp mst_ports 1-5 instance_id 2 internalCost auto priority 16

Success.

DAS-3626:admin#
```

show stp

Purpose	Used to display the Switch's current STP configuration.
Syntax	**show stp**
Description	This command displays the Switch's current STP configuration.
Parameters	None.
Restrictions	None.

Example usage:

To display the status of STP on the Switch:

Status 1: STP enabled with STP compatible version

```
DAS-3626:admin#show stp
Command: show stp

 STP Bridge Global Settings
 ---------------------------
 STP Status          : Enabled
 STP Version         : STP compatible
 Max Age             : 18
 Hello Time          : 2
 Forward Delay       : 15
 Max Hops            : 15
 TX Hold Count       : 6
 Forwarding BPDU     : Disabled
 NNI BPDU Address    : dot1d

DAS-3626:admin#
```

Status 2 : STP enabled for RSTP

```
DAS-3626:admin#show stp
Command: show stp

 STP Bridge Global Settings
 ---------------------------
 STP Status          : Enabled
 STP Version         : RSTP
 Max Age             : 20
 Hello Time          : 2
 Forward Delay       : 15
 Max Hops           : 20
 TX Hold Count      : 6
 Forwarding BPDU    : Disabled
 NNI BPDU Address   : dot1d

DAS-3626:admin#
```

Status 3 : STP enabled for MSTP

```
DAS-3626:admin#show stp
Command: show stp

 STP Bridge Global Settings
 ---------------------------
 STP Status          : Enabled
 STP Version         : MSTP
 Max Age             : 18
 Forward Delay       : 15
 Max Hops            : 15
 TX Hold Count       : 6
 Forwarding BPDU     : Disabled
 NNI BPDU Address    : dot1d

DAS-3626:admin#
```

Purpose	Used to display the Switch's current STP ports configuration.
Syntax	**show stp ports <portlist>**
Description	This command displays the STP ports settings for a specified port or group of ports (one port at a time).
Parameters	*<portlist>* – Specifies a port or range of ports to be viewed. Information for a single port is displayed. If no ports are specified the STP information for port 1 will be displayed. Users may use the Space bar, p and n keys to view information for the remaining ports.
Restrictions	None.

Example usage:

To show STP ports information for port 1 (STP enabled on Switch):

```
DAS-3626:admin#show stp ports
Command: show stp ports

MSTP Port Information
 -----------------------
 Port Index     : 1     , Hello Time: 2 /2 , Port STP : Enabled  ,
 External PathCost : 1            , Edge Port : False/No , P2P : Auto /Yes
 Port RestrictedRole : False,  Port RestrictedTCN : False
 Port Forward BPDU : Enabled
 MSTI  Designated Bridge  Internal PathCost Prio Status     Role
 ----- ------------------ ----------------- ---- --------- ----------
 0      N/A                 20000           128  Disabled  Disabled
 1      N/A                 200000          128  Disabled  Disabled
 2      N/A                 200000          128  Disabled  Disabled

DAS-3626:admin#
```

Purpose	Used to display the Switch's STP instance configuration
Syntax	**show stp instance_id <value 0-15>**
Description	This command displays the Switch's current STP Instance Settings and the STP Instance Operational Status.
Parameters	*<value 0-15>* – Enter a value defining the previously configured *instance_id* on the Switch. An entry of *0* will display the STP configuration for the CIST internally set on the Switch.
Restrictions	None.

Example usage:

To display the STP instance configuration for instance 0 (the internal CIST) on the Switch:

```
DAS-3626:admin#show stp instance 0
Command: show stp instance 0

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 : 4096 /00-11-95-AA-41-00
 External Root Cost     : 200004
 Regional Root Bridge   : 32768/00-01-02-03-04-00
 Internal Root Cost     : 0
 Designated Bridge      : 32768/00-50-BA-97-D9-56
 Root Port              : 7
 Max Age                : 20
 Forward Delay          : 15
 Last Topology Change   : 0
 Topology Changes Count : 21

DAS-3626:admin#
```

show stp mst_config_id

Purpose	Used to display the MSTP configuration identification.
Syntax	**show stp mst_config_id**
Description	This command displays the Switch's current MSTP configuration identification.
Parameters	None.
Restrictions	None.

Example usage:

To show the MSTP configuration identification currently set on the Switch:

```
DAS-3626:admin#show stp mst_config_id
Command: show stp mst_config_id

Current MST Configuration Identification
----------------------------------------------------------

Configuration Name : 00:53:13:1A:33:24     Revision Level :0
MSTI ID     Vid list
-------    -----------
CIST        2-4094
1           1

DAS-3626:admin#
```

27

Forwarding Database Commands

The layer 2 forwarding database commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
create fdb	<vlan_name 32> <macaddr> port <port>
create multicast_fdb	<vlan_name 32> <macaddr>
config multicast_fdb	<vlan_name 32> <macaddr> [add | delete] <portlist>
config fdb aging_time	<sec 10-1000000>
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}
config multicast vlan_filtering_mode	[vlanid <vidlist>|vlan <vlan_name 32>| all] [forward_all_groups | forward_unregistered_groups | filter_unregistered_groups]
show multicast vlan_filtering_mode	{[vlanid <vidlist>|vlan <vlan_name 32>]}

Each command is listed, in detail, in the following sections.

create fdb

Purpose	Used to create a static entry to the unicast MAC address forwarding table (database).
Syntax	**create fdb <vlan_name 32> <macaddr> port <port>**
Description	This command will make an entry into the Switch's unicast MAC address forwarding database.
Parameters	*<vlan_name 32>* – The name of the VLAN on which the MAC address resides. *<macaddr>* – The MAC address that will be added to the forwarding table. *port <port>* – The port number corresponding to the MAC destination address. The Switch will always forward traffic to the specified device through this port.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To create a unicast MAC FDB entry**:**

```
DAS-3626: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.

DAS-3626:admin#
```

create multicast_fdb

Purpose	Used to create a static entry to the multicast MAC address forwarding table (database)
Syntax	**create multicast_fdb <vlan_name 32> <macaddr>**
Description	This command will make an entry into the Switch's multicast MAC address forwarding database.
Parameters	*<vlan_name 32>* – The name of the VLAN on which the MAC address resides. *<macaddr>* – The MAC address that will be added to the forwarding table.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To create multicast MAC forwarding**:**

```
DAS-3626:admin#create multicast_fdb default 01-00-00-00-00-01
Command: create multicast_fdb default 01-00-00-00-00-01

Success.

DAS-3626:admin#
```

config multicast_fdb

Purpose	Used to configure the Switch's multicast MAC address forwarding database.
Syntax	**config multicast_fdb <vlan_name 32> <macaddr> [add | delete] <portlist>**
Description	This command configures the multicast MAC address forwarding table.
Parameters	*<vlan_name 32>* – The name of the VLAN on which the MAC address resides. *<macaddr>* – The MAC address that will be added to the multicast forwarding table. *[add | delete]* – *add* will add ports to the forwarding table. *delete* will remove ports from the multicast forwarding table. *<portlist>* – Specifies a port or range of ports to be configured.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To add multicast MAC forwarding:

```
DAS-3626:admin#config multicast_fdb default 01-00-00-00-00-01 add 1-5
Command: config multicast_fdb default 01-00-00-00-00-01 add 1-5

Success.

DAS-3626:admin#
```

config fdb aging_time

Purpose	Used to set the aging time of the forwarding database.
Syntax	**config fdb aging_time <sec 10-1000000>**
Description	This command affects the learning process of the Switch. Dynamic forwarding table entries, which are made up of the source MAC addresses and their associated port numbers, are deleted from the table if they are not accessed within the aging time. The aging time can be from 10 to 1000000 seconds with a default value of 300 seconds. A very long aging time can result in dynamic forwarding table entries that are out-of-date or no longer exist. This may cause incorrect packet forwarding decisions by the Switch. If the aging time is too short however, many entries may be aged out too soon. This will result in a high percentage of received packets whose source addresses cannot be found in the forwarding table, in which case the Switch will broadcast the packet to all ports, negating many of the benefits of having a switch.
Parameters	*<sec 10-1000000>* – The aging time for the MAC address forwarding database value. The value in seconds may be between 10 and 1000000 seconds.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To set the FDB aging time:

```
DAS-3626:admin#config fdb aging_time 300
Command: config fdb aging_time 300

Success.

DAS-3626:admin#
```

delete fdb

Purpose	Used to delete an entry to the Switch's forwarding database.
Syntax	**delete fdb <vlan_name 32> <macaddr>**
Description	This command is used to delete a previous entry to the Switch's MAC address forwarding database.
Parameters	*<vlan_name 32>* – The name of the VLAN on which the MAC address resides. *<macaddr>* – The MAC address that will be added to the forwarding table.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To delete a permanent FDB entry:

```
DAS-3626:admin#delete fdb default 00-00-00-00-01-02
Command: delete fdb default 00-00-00-00-01-02

Success.

DAS-3626:admin#
```

To delete a multicast FDB entry:

```
DAS-3626:admin#delete fdb default 01-00-00-00-01-02
Command: delete fdb default 01-00-00-00-01-02

Success.

DAS-3626:admin#
```

clear fdb

Purpose	Used to clear the Switch's forwarding database of all dynamically learned MAC addresses.
Syntax	**clear fdb [vlan <vlan_name 32> | port <port> | all]**
Description	This command is used to clear dynamically learned entries to the Switch's forwarding database.
Parameters	*<vlan_name 32>* – The name of the VLAN on which the MAC address resides. *port <port>* – The port number corresponding to the MAC destination address. The Switch will always forward traffic to the specified device through this port. *all* – Clears all dynamic entries to the Switch's forwarding database.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To clear all FDB dynamic entries**:**

```
DAS-3626:admin#clear fdb all
Command: clear fdb all

Success.

DAS-3626:admin#
```

show multicast_fdb

Purpose	Used to display the contents of the Switch's multicast forwarding database.
Syntax	**show multicast_fdb [vlan <vlan_name 32> | mac_address <macaddr>]**
Description	This command is used to display the current contents of the Switch's multicast MAC address forwarding database.
Parameters	*<vlan_name 32>* – The name of the VLAN on which the MAC address resides. *<macaddr>* – The MAC address that is present in the forwarding database table.
Restrictions	None.

Example usage:

To display multicast MAC address table:

```
DAS-3626:admin#show multicast_fdb vlan default
Command: show multicast_fdb vlan default

 VLAN Name       : default
 MAC Address     : 01-00-00-00-00-01
 Egress Ports    : 1-5
 Mode            : Static

Total Entries: 1

DAS-3626:admin#
```

show fdb

Purpose	Used to display the current unicast MAC address forwarding database.
Syntax	**show fdb {port <port> | vlan <vlan_name 32> | mac_address <macaddr> | static | aging_time}**
Description	This command will display the current contents of the Switch's forwarding database.
Parameters	*port <port>* – The port number corresponding to the MAC destination address. The Switch will always forward traffic to the specified device through this port. *<vlan_name 32>* – The name of the VLAN on which the MAC address resides. *<macaddr>* – The MAC address that is present in the forwarding database table. *static* – Displays the static MAC address entries. *aging_time* – Displays the aging time for the MAC address forwarding database.
Restrictions	None.

Example usage:

To display unicast MAC address table:

```
DAS-3626:admin#show fdb
Command: show fdb

   Unicast MAC Address Aging Time  = 300

    VID  VLAN Name          MAC Address       Port  Type
    ---- ----------------- ----------------- ----- -----------------
    1    default           00-00-00-1B-FC-02 7     Dynamic
    1    default           00-00-00-E0-06-09 7     Dynamic
    1    default           00-00-48-CD-25-3A 7     Dynamic
    1    default           00-00-5E-00-01-01 7     Dynamic
    1    default           00-00-5E-00-01-5F 7     Dynamic
    1    default           00-00-81-00-00-01 7     Dynamic
    1    default           00-00-81-9A-F2-F4 7     Dynamic
    1    default           00-00-C8-CD-25-3A 7     Dynamic
    1    default           00-00-E2-2F-44-EC 7     Dynamic
    1    default           00-00-EB-A4-50-5A 7     Dynamic
    1    default           00-00-F0-78-EB-00 7     Dynamic
    1    default           00-00-FC-0E-34-3E 7     Dynamic
    1    default           00-01-02-03-04-00 CPU   Self
    1    default           0-01-06-30-00-00 7      Dynamic
    1    default           00-01-10-FE-0D-14 7     Dynamic
```

config multicast vlan_filtering_mode

Purpose	Used to configure the the multicast packet filtering mode for VLANs.
Syntax	**config multicast vlan_filtering_mode [vlanid <vidlist>|vlan <vlan_name 32>| all] [forward_all_groups | forward_unregistered_groups | filter_unregistered_groups]**
Description	This command is used to configure the multicast packet filtering mode for VLANs. Port filtering mode and VLAN filtering mode are mutual exclusive.
Parameters	*vlanid_list* – Specifies a range of VLANs to be configured. *vlan_name* – Specifies the name of the VLANs to be configured. The filtering mode can be any of the following: *forward_all_groups* *forward_unregistered_groups* *filter_unregistered_groups*
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure the multicast packet filtering mode for VLANs:

```
DAS-3626:admin#config multicast vlan_filtering_mode vlanid 200-300
forward_all_groups
Command: config multicast vlan_filtering_mode vlanid 200-300 forward_all_groups

Success.

DAS-3626:admin#
```

show multicast vlan_filtering_mode

Purpose	Used to show the multicast packet filtering mode for VLANs.
Syntax	**show multicast vlan_filtering_mode {[vlanid < vidlist > | vlan <vlan_name 32>]}**
Description	This command is used to display the multicast packet filtering mode for VLAN.
Parameters	*vlanid_list* – Specifies a range of vlans to be configured. If no parameter specified , the deivce will show all multicast filtering settings in the device.
Restrictions	None.

Example usage:

To display multicast VLAN filtering mode for VLANs:

```
DAS-3626:admin#show multicast vlan_filtering_mode
Command: show multicast vlan_filtering_mode

VLAN ID/VLAN Name                            Multicast Filter Mode
----------------------------------------     -----------------------------
1   /default                                 forward_unregistered_groups
3   /RG                                      forward_unregistered_groups

DAS-3626:admin#
```

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CONNECTIVITY FAULT MANAGEMENT COMMANDS

The Connectivity Fault Management commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
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]}
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>}
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 <centiseconds 250 -1000> | alarm_reset_time <centiseconds 250-1000>}
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 remote_mep	[mepname <string 32> | md <string 22> ma <string 22> mepid <int 1-8191>] remote_mepid <int 1-8191>
show cfm fault	{md <string 22> {ma <string 22>}}
show cfm port	<port> {level <int 0-7> | direction [inward | outward] | vlanid <vlanid 1-4094>}
show cfm mipccm	
show cfm pkt_cnt	{[ports <portlist>{rx | tx}] | rx | tx | ccm}
clear cfm pkt_cnt	{[ports <portlist>{rx | tx}] | rx | tx | ccm}
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 ccm_fwd	[software | hardware]
show cfm ccm_fwd	
config cfm mp_ltr_all	[enable | disable]

Command	Parameters
show cfm mp_ltr_all	

Each command is listed, in detail, in the following sections.

create cfm md

Purpose	Used to create a maintenance domain.
Syntax	**create cfm md <string 22> level <int 0-7>**
Description	Different maintenance domains should have different names.
Parameters	*md* – Specifies the maintenance domain name. *level* – Specifies the maintenance domain level.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To create a CFM maintenance domain.

```
DAS-3626:admin#create cfm md op_domain level 2
Command: create cfm md op_domain level 2

Success.

DAS-3626:admin#
```

config cfm md

Purpose	Used to configure parameters of a maintenance domain.
Syntax	**config cfm md <string 22> {mip [none | auto | explicit] | sender_id [none | chassis | manage | chassis_manage]}**
Description	Creation of MIPs on a MA is useful for tracing the link MIP by MIP. It also allows the user to perform loop-back from MEP to an MIP.
Parameters	*md* – Specifies the maintenance domain name. *mip* – Specifies and controls the creation of MIPs. *none* – Specifies that MIPs will not be created. This is the default value. *auto* – MIPs can always be created on any ports in this MD, if that port is not configured with a MEP of this MD. For the intermediate switch in a MA, the setting must be auto in order for the MIPs to be created on this device. *explicit* – MIPs can be created on any ports in this MD, only if the existing lower level has an MEP configured on that port, and that port is not configured with an MEP of this MD.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure CFM on a maintenance domain:

```
DAS-3626:admin#config cfm md op_domain mip explicit
Command: config cfm md op_domain mip explicit

Success.

DAS-3626:admin#
```

create cfm ma

Purpose	Used to create a maintenance association.
Syntax	**create cfm ma <string 22> md <string 22>**
Description	Different MAs in a MD must have different MA Names. Different MAs in different MDs may have the same MA Name.
Parameters	*md* – Specifies the maintenance domain name. *ma* – Specifies the maintenance association name.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To create a CFM maintenance association:

```
DAS-3626:admin#create cfm ma op1 md op_domain
Command: create cfm ma op1 md op_domain

Success.

DAS-3626:admin#
```

config cfm ma

Purpose	Used to configure a maintenance association.
Syntax	**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>}**
Description	The MEP list specified for a MA can be located in different devices. MEPs must be created on ports of these devices explicitly. An MEP will transmit CCM packets periodically across the MA. The receiving MEP will verify these received CCM packets from other MEPs against this MEP list for the configuration integrity check.
Parameters	*md* – Specifies the maintenance domain name. *ma* – Specifies the maintenance association name. *vlanid* – Specifies the VLAN Identifier. Different MAs must be associated with different VLANs. *mip* – Specifies the control creation of MIPs. *none* – No MIPs will be created. *auto* – MIPs can always be created on any ports in this MA, if that port is not configured with an MEP of that MA. *explicit* – MIP can be created on any ports in this MA, only if the next existent lower level has a MEP configured on that port, and that port is not configured with a MEP of this MA. *defer* – Inherit the settings configured for the maintenance domain that this MA is associated with. This is the default value. *ccm_interval* – Specifies the CCM interval. *10ms* – 10 milliseconds. Not recommended. For test purposes. *100ms* – 100 milliseconds. Not recommended. For test purposes. *1sec* – One second. *10sec* – Ten seconds. This is the default value. *1min* – One minute. *10min* – Ten minutes. *mepid* – Specify the MEPIDs contained in the maintenance association. The range of MEPID is 1-8191. *add* – Add MEPID(s). *delete* – Specifies to delete MEPID(s). By default, there's no MEPID in a newly created maintenance association.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure CFM maintenance association:

```
DAS-3626:admin#config cfm ma op1 md op_domain vlanid 1 ccm_interval 1sec
Command: config cfm ma op1 md op_domain vlanid 1 ccm_interval 1sec

Success.

DAS-3626:admin#
```

create cfm mep

Purpose	Used to create a cfm MEP.
Syntax	**create cfm mep <string 32> mepid <int 1-8191> md <string 22> ma <string 22> direction [inward | outward] port <port>**
Description	Different MEP in the same MA must have different MEP ID. MD name, MA name, and MEP ID together can identify a MEP. Different MEP on the same device must have a different MEP name. Before an MEP is created, its MEPID should be configured in MA's MEPID list.
Parameters	*mep* – Specifies the MEP name. It's unique among all MEPs configured on the device. *mepid* – Specifies the MEP MEPID. It should be configured in MA's MEPID list. *md* – Specifies the maintenance domain name. *ma* – Specifies the maintenance association name. *direction* – Specifies the MEP direction. *inward* – Specifies the inward facing (up) MEP. *outware* – Specifies the outward facing (down) MEP. *port* – Specifies the port number. This port should be a member of the MA's associated VLAN.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To create a CFM MEP.

```
DAS-3626: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.

DAS-3626:admin#
```

config cfm mep	
Purpose	Used to configure parameters of a MEP.
Syntax	**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 <centiseconds 250 -1000> | alarm_reset_time <centiseconds 250-1000>}**
Description	An MEP may generate 5 types of Fault Alarms, as shown below by their priorities from high to low: Cross-connect CCM Received: priority 5 Error CCM Received: priority 4 Some Remote MEP Down: priority 3 Some Remote MEP MAC Status Error: priority 2 Some Remote MEP Defect Indication: priority 1 If multiple types of faults occurr on a MEP, only the fault of the highest priority will be alarmed.
Parameters	*mepname* – Specifies the MEP name. It's unique among all MEPs configured on the device. *mepid* – Specifies the MEP MEPID. It should be configured in MA's MEPID list. *md* – Specifies the maintenance domain name. *ma* – Specifies the maintenance association name. *state* – Specifies the MEP administrative state. *enable* – MEP is enabled. *disable* – MEP is disabled. This is the default value. *ccm* – Specifies the CCM transmission state. *enable* – CCM transmission enabled. *disable* – CCM transmission disabled. This is the default value. *pdu_priority* – Specifies the 802.1p priority to be set in CCMs and LTMs messages transmitted by the MEP. The default value is 7. *fault_alarm* – Control types of fault alarms sent by the MEP. *all* – Specifies that all types of fault alarms will be sent. *mac_status* – Only Fault Alarms whose priority is equal to or higher than "Some Remote MEP MAC Status Error" will be sent. *remote_ccm* – Only Fault Alarms whose priority is equal to or higher than "Some Remote MEP Down" will be sent. *error_ccm* – Only Fault Alarms whose priority is equal to or higher than "Error CCM Received" will be sent. *xcon_ccm* – Only Fault Alarms whose priority is equal to or higher than "Cross-connect CCM Received" will be sent. *none* – No fault alarm is sent. This is the default value. *alarm_time* – The time that a defect must last before the fault alarm can be sent. The default value is 2 seconds. *alarm_reset_time* – The timer must be clear of any alarm defects before the fault can be re-alarmed. The default value is 10 seconds
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure the CFM mep:

```
GS-3700-12:5#config cfm mep mepid 1 md 1 ma 1 state enable ccm enable
Command: config cfm mep mepid 1 md 1 ma 1 state enable ccm enable

Success.

DAS-3626:admin#
```

delete cfm mep

Purpose	Used to delete a created MEP.
Syntax	**delete cfm mep [mepname <string 32> | mepid <int 1-8191> md <string 22> ma <string 22>]**
Description	This command is used to delete a created MEP.
Parameters	*mepname* – Specifies the MEP name. It’s unique among all MEPs configured on the device. *mepid* – Specifies the MEP MEPID. It should be configured in MA’s MEPID list. *md* – Specifies the maintenance domain name. *ma* – Specifies the maintenance association name.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To delete CFM mep:

```
DAS-3626:admin#delete cfm mep mepname mep1
Command: delete cfm mep mepname mep1

Success.

DAS-3626:admin#
```

delete cfm ma

Purpose	Used to delete a created maintenance association.
Syntax	**delete cfm ma <string 22> md <string 22>**
Description	All MEPs created in the maintenance association will be deleted automatically.
Parameters	*md* – Specifies the maintenance domain name. *ma* – Specifies the maintenance association name.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To delete a CFM ma:

```
DAS-3626:admin#delete cfm ma op1 md 3
Command: delete cfm ma op1 md 3

Success.

DAS-3626:admin#
```

delete cfm md

Purpose	Used to delete a created maintenance domain.
Syntax	**delete cfm md <string 22>**
Description	All MEPs and maintenance associations created in the maintenance domain will be deleted automatically.
Parameters	md – Specifies the maintenance domain name.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To delete a CFM md:

```
DAS-3626:admin#delete cfm md 3
Command: delete cfm md 3

Success.

DAS-3600-12:4#
```

enable cfm

Purpose	This command is used to enable CFM globally.
Syntax	**enable cfm**
Description	This command is used to enable CFM globally.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To enable CFM:

```
DAS-3626:admin#enable cfm
Command: enable cfm

Success.

DAS-3626:admin#
```

disable cfm

Purpose	Used to disable CFM globally.
Syntax	**disable cfm**
Description	This command is used to disable CFM globally.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To disable CFM:

```
DAS-3600-12:4# disable cfm
Command: disable cfm

Success.

DAS-3600-12:4#
```

config cfm ports

Purpose	Used to enable or disable CFM function on per-port basis.
Syntax	**config cfm ports <portlist> state [enable | disable]**
Description	By default, CFM function is disabled on all ports. If CFM is disabled on a port: • MIPs are never created on that port. • MEPs can still be created on that port, and the configuration can be saved. • MEPs created on that port can never generate or process CFM PDUs. If the user issues a Loop-back or Linktrace test on those MEPs, it will prompt user that CFM function is disabled on that port.
Parameters	*ports* – Specifies the logical port list. *state* – Is used to enable or disable CFM function.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure CFM ports:

```
DAS-3626:admin#config cfm ports 2-5 state enable
Command: config cfm ports 2-5 state enable

Success.

DAS-3626:admin#
```

show cfm ports

Purpose	This command is used to show cfm state of specified ports.
Syntax	**show cfm ports <portlist>**
Description	This command is used to display CFM state of speicified ports.
Parameters	*ports* – Specifies the logical port list.
Restrictions	None.

Example usage:

To display CFM ports:

```
DAS-3626:admin#show cfm ports 3-6
Command: show cfm ports 3-6

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

DAS-3626:admin#
```

show cfm

Purpose	This command is used to show CFM information.
Syntax	**show cfm {[md <string 22> {ma <string 22> {mepid <int 1-8191>}} | mepname <string 32>]}**
Description	This command is used to show CFM information.
Parameters	*md* – Specifies the maintenance domain name. *ma* – Specifies the maintenance domain name. *mepid* – Specifies the MEP MEPID. *mepname* – Specifies the MEP name.
Restrictions	None.

Example usage:

To display CFM:

```
DAS-3626:admin#show cfm
Command: show cfm

CFM State: Enabled

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

DAS-3626:admin#
```

Example usage:

To display CFM md:

```
DAS-3626:admin#show cfm md op_domain
Command: show cfm md op_domain

MD Level    : 2
MIP Creation: Explicit
SenderID TLV: None
VID   MA Name
----  ----------
1     op1

DAS-3626:admin#
```

Example usage:

To display CFM mepname:

```
DAS-3626:admin#show cfm mepname mep1
Command: show cfm mepname mep1
Name                     : mep1
MEPID                    : 1
Port                     : 1
Direction                : inward
CFM Port State           : enabled
MAC Address              : XX-XX-XX-XX-XX-XX
MEP State                : enabled
CCM State                : enabled
PDU Priority             : 7
Fault Alarm              : mac_status
Alarm Time               : 2 second(s)
Alarm Reset Time         : 10 second(s)
Highest Fault            : Remote CCM
Next LTM Trans ID        : 27
RX Out-of-Sequence CCMs: 0
RX Cross-connect CCMs    : 0
RX Error CCMs            : 0
RX Port Status CCMs      : 0
RX If Status CCMs        : 0
RX In-order LBRs         : 0
TX CCMs                  : 1234
TX LBMs                  : 0

Remote MEP Status
MEPID  MAC Address Status RDI PortSt IfSt    Detect Time
------ ----------- ------ --- ------- -------- -------------------
2      XX-..-XX-XX OK     Yes Blocked Up       2008-01-01 12:00:00
3      XX-..-XX-XX IDLE   No  No      No       2008-01-01 12:00:00
4      XX-..-XX-XX OK     No  Up      Down     2008-01-01 12:00:00
8      XX-..-XX-XX START  No  Up      Up       2008-01-01 12:00:00
12     XX-..-XX-XX FAILED No  Up      Up       2008-01-01 12:00:00
8      XX-..-XX-XX OK     No  Up      Up       2008-01-01 12:00:00
DAS-3626:admin#
```

show cfm fault

Purpose	This command is used to show fault MEPs.
Syntax	**show cfm fault {md <string 22> {ma <string 22>}}**
Description	This command is used to display all the fault conditions detected by the MEPs contained in the specified MA or MD. This display provides the overview of fault status by MEPs.
Parameters	*md* – Specifies the maintenance domain name. *ma* – Specifies the maintenance domain name.
Restrictions	None.

Example usage:

To display CFM fault:

```
DAS-3600-12:4#show cfm mep fault
Command: show cfm mep fault

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

DAS-3600-12:4#
```

show cfm port

Purpose	This command is used to show MEPs and MIPs created on a port.
Syntax	**show cfm port <port> {level <int 0-7> | direction [inward | outward] | vlanid <vlanid 1-4094>}**
Description	This command is used to show MEPs and MIPs created on a port.
Parameters	*port* – Specifies the port number. *level* – Specifies the MD Level. If not specified, all levels are shown. *direction* – Specifies the MEP direction. *inward* – Inward facing MEP. *outward* – Outward facing MEP. If not specified, both directions and MIPs are shown. *Vlanid* – VLAN identifier. If not specified, all VLANs are shown.
Restrictions	None.

Example usage:

To display CFM ports:

```
DAS-3600-12:4#show cfm port 1
Command: show cfm port 1

MAC Address: 10:10:90:08:8g:12

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

DAS-3600-12:4#
```

show cfm mipccm

Purpose	This command is used to show MIPCCM database entries.
Syntax	**show cfm mipccm**
Description	This command is used to display all entries in the MIPCCM. The MIPCCM entry is simlar to FDB which keeps the forwarding port information for a MAC entry.
Parameters	None.
Restrictions	None.

Example usage:

To display the MIPCCM database entries:

```
DAS-3626:admin#show cfm mipccm
Command: show cfm mipccm

MA          VID   MAC Address        Port
----------  ----  -----------------  -----
opma        1     00-01-02-03-04-05  2
opma        1     00-01-02-03-04-05  3

Total: 2

DAS-3626:admin#
```

cfm linktrace

Purpose	This command is used to issue a CFM linktrack message.
Syntax	**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>}**
Description	This command is used to issue a CFM linktrack message.
Parameters	*<macaddr>* – Specifies the destination MAC address. *mepname* – Specifies the MEP name. *mepid* – Specifies the MEP MEPID. *md* – Specifies the maintenance domain name. *ma* – Specifies the maintenance association name. *ttl* – Specifies the linktrace message TTL value. The default value is 64. *pdu_priority* – The 802.1p priority to be set in the transmitted LTM. If not specified, it uses the same priority as CCMs sent by the MA.
Restrictions	None.

Example usage:

To create a CFM linktrace:

```
DAS-3600-12:4#cfm linktrace 00-01-02-03-04-05 mep mep1
Command: cfm linktrace 00-01-02-03-04-05 mep mep1

Transaction ID: 26
Success.

DAS-3600-12:4#
```

show cfm linktrace

Purpose	Used to show linktrace responses.
Syntax	**show cfm linktrace [mepname <string 32> | mepid <int 1-8191> md <string 22> ma <string 22>] {trans_id <uint>}**
Description	The maximum linktrace responses a device can hold is 64.
Parameters	*<macaddr>* – Specifies the destination MAC address. *mepname* – Specifies the MEP name. *mepid* – MEP MEPID. *md* – Specifies the maintenance domain name. *ma* – Specifies the maintenance association name. *trans_id* – Specifies the identifier of the transaction to show.
Restrictions	None.

Example usage:

To display the CFM linktrace:

```
DAS-3626:admin#show cfm linktrace mepname 3 trans_id 1
Command: show cfm linktrace mepname 3 trans_id 1

Transaction ID: 1
From MEP 3 to 00-50-BA-50-11-51
Start Time    : 2009-08-11 03:18:15
          MAC Address       Last Egress ID    Reply Ingress MAC Port Action
Hop Relay Forwarded         Next Egress ID    Reply Egress MAC  Port Action
--- ----- ----------------- ----------------- ----------------- ---- --------
1   FDB   00-80-C8-37-18-F1 00-80-C8-37-18-F0 -                 -    -
          Yes               00-80-C8-37-18-F0 00-80-C8-37-18-F1 1    Ok
2   Hit   00-50-BA-50-11-51 00-80-C8-37-18-F0 00-50-BA-50-11-51 wan  Ok
          No                -                 -                 -    -
DAS-3626:admin#
```

delete cfm linktrace

Purpose	This command is used to delete received linktrace responses.
Syntax	**delete cfm linktrace {[md <string 22> {ma <string 22> {mepid <int 1-8191>}} | mepname <string 32>]}**
Description	This command deletes the stored link trace response data that is initiated by the specified MEP.
Parameters	*mepname* – Specifies the MEP name. *mepid* – Specifies the MEP MEPID. *md* – Specifies the maintenance domain name. *ma* – Specifies the maintenance association name.
Restrictions	None.

Example usage:

To delete a CFM linktrace:

```
DAS-3626:admin#delete cfm linktrace mep mep1
Command: delete cfm linktrace mep mep1

Success.

DAS-3626:admin#
```

config cfm ccm_fwd

Purpose	This command is used to configure CCM PDUs forwarding mode.
Syntax	**config cfm ccm_fwd [software | hardware]**
Description	This coommand is for test purposes. For ordinary user, it is not suggested to use this command. By default, the CCM message is handled and forwarded by software. The software can handle the packet based on behaviour defined by the standard. Under a strict environment, there may be substantial amount of CCM packets, and it will consume substantial amount of CPU resource. To meet the performance requirement, the handling of CCM can be changed to hardware mode. This function is especially useful for domain's intermediate device since they only have MIPS. Note that this command can only be used under assistance of technical personnel.
Parameters	*software* – Specifies to forward by software. *hardware* – Specifies to forward by hardware.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure the CFM ccm forwarding mode:

```
DAS-3626:admin#config cfm ccm_fwd_mode hardware
Command: config cfm ccm_fwd_mode hardware

Success.

DAS-3626:admin#
```

cfm loopback

Purpose	Used to show MEPs and MIPs created on a port.
Syntax	**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>}**
Description	The MAC address represents that the destination MEP or MIP which can be reached by this MAC address. The MEP represents the source MEP to initiate the loop-back message. You can press Ctrl+C to exit loop-back test.
Parameters	*<macaddr>* –Specifies the destination MAC address. *mepname* – Specifies the MEP name. *mepid* – Specifies the MEP MEPID. *md* – Specifies the maintenance domain name. *ma* – Specifies the maintenance association name. *num* – Specifies the number of LBMs to be sent. The default value is 4. *length* – Specifies the payload length of LBM to be sent. The default is 0. *pattern* – Specifies an arbitrary amount of data to be included in a Data TLV, along with an indication of whether the Data TLV is to be included. *pdu_priority* – 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.
Restrictions	None.

Example usage:

To configure CFM loop-back:

```
DAS-3600-12:4#cfm loopback 00-01-02-03-04-05 mep mep1
Command: cfm loopback 00-01-02-03-04-05 mep 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).

DAS-3600-12:4#
```

show cfm pkt_cnt

Purpose	Used to show CFM packet RX/TX counters.
Syntax	**show cfm pkt_cnt {[ports <portlist>{rx | tx}] | rx | tx | ccm}**
Description	This command is used to display CFM packet counters.
Parameters	*ports* – Specifies which ports’ counter to show. If not specified, all ports will be shown. *{rx | tx}* – Shows RX or TX packet counter. If none is specified, both of them are shown. *ccm* - Shows the CCM transmission state.
Restrictions	None.

Example usage:

The following example displays the statistics for CFM packets.

VidDrop: The packets dropped due to invalid VID.

OpcoDrop: The packets dropped due to unrecognized CFM opcode.

```
DAS-3626:admin#show cfm counter packet
Command: show cfm counter packet

CFM RX Statistics
---------------------
Port  CCM      LBR      LBM     LTR      LTM      VidDrop OpcoDrop  Sum
----- -------- -------- -------- -------- -------- -------- -------- -----
1     0        0        0        0        0        0        0       0
2     254      0        0        0        0        0        0       254
3     0        0        0        0        0        0        0       0
4     0        0        0        0        0        0        0       0
5     0        0        0        0        0        0        0       0
6     0        0        0        0        0        0        0       0
7     0        0        0        0        0        0        0       0
8     0        0        0        0        0        0        0       0
9     0        3        0        0        0        0        0       3
10    0        0        0        0        0        0        0       0
11    0        0        0        0        0        0        0       0
12    0        0        0        0        0        0        0       0
Total 254      3        0        0        0        0        0       257


CFM TX Statistics
---------------------
Port    CCM      LBR      LBM      LTR      LTM      Sum
-----  -------- -------- -------- -------- --------  ------
1       0        0        0        0        0        0
2       284      0        0        0        4        292
3       578      0        0        0        0        578
4       578      0        0        0        0        578
5       578      0        0        0        0        578
6       578      0        0        0        0        578
```

clear cfm pkt_cnt

Purpose	Used to clear the CFM packet RX/TX counters.
Syntax	**clear cfm pkt_cnt {[ports <portlist>{rx | tx}] | rx | tx | ccm}**
Description	This command clears CFM packet counters.
Parameters	*ports* – Specifies which ports' counter to show. If not specified, all ports will be shown. *{rx | tx}* – Shows RX or TX packet counter. If none is specified, both of them are shown. *ccm* - Shows the CCM transmission state.
Restrictions	None.

Example usage:

To clear the CFM packet RX/TX counters:

```
DAS-3626:admin#clear cfm pkt_cnt ports 2 rx
Command: clear cfm pkt_cnt ports 2 rx

Success.

DAS-3600-12:4#
```

config cfm mp_ltr_all

Purpose	To configure the CFM mp linktrace on the switch.
Syntax	**config cfm mp_ltr_all [enable | disable]**
Description	This command is used to configure the CFM mp linktrace on the switch.
Parameters	*enable* – Used to enable the CFM mp linktrace. *disable* – Used to disable the CFM mp linktrace.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure CFM mp linktrace:

```
DAS-3626:admin#config cfm mp_ltr_all enable
Command: config cfm mp_ltr_all enable

Success.

DAS-3600-12:4#
```

show cfm mp_ltr_all

Purpose	To display the CFM mp linktrace settings on the switch.
Syntax	**show cfm mp_ltr_all**
Description	This command is used to display the CFM mp linktrace settings on the switch.
Parameters	None.
Restrictions	None.

Example usage:

To show the CFM mp linktrace on the Switch:

```
DAS-3600-12:4#show cfm mp_ltr_all
Command: show cfm mp_ltr_all

All MPs reply LTRs: Enabled

DAS-3600-12:4#
```

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VLAN Counter Commands

The VLAN counter commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
create vlan_counter	[vlan <vlan_name> | vlanid < vidlist >]
delete vlan_counter	[all | [vlan <vlan_name> | vlanid < vidlist >]
clear vlan_counter statistics	
show vlan_counter	{ [vlan <vlan_name>] }
show vlan_counter statistics	{ [vlan <vlan_name>]

Each command is listed, in detail, in the following sections.

create vlan_counter

Purpose	This command creates the control entry for VLAN traffic flow statistics.
Syntax	**create vlan_counter [vlan <vlan_name> | vlanid < vidlist >]**
Description	This command is used to create control entries to count statistics for specific VLANs, or to count statistics for specific ports on specific VLANs. The statistics can be either byte count or packet count. The statistics can be counted for different frame types.
Parameters	*vlan_name* – Specifies the VLAN name. *vidlist* – Specifies a list of VLANs by VLAN ID.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To begin counting packet levels for broadcast packets on VLAN 1:

```
DAS-3626:admin#create vlan_counter vlanid 25
Command: create vlan_counter vlanid 25

Success.

DAS-3626:admin#
```

delete vlan_counter

Purpose	This command deletes the control entry for VLAN traffic flow statistics.
Syntax	**delete vlan_counter [all | [vlan <vlan_name> | vlanid < vidlist >]**
Description	This command deletes the control entry for VLAN traffic flow statistics.
Parameters	*all* – Specifies to delete all VLAN statistic control entries. *vlan_name* – Specifies the VLAN name. *vidlist* – Specifies a list of VLANs by VLAN ID.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To stop counting packet levels for broadcast packets on VLAN 1:

```
DAS-3626:admin#delete vlan_counter vlanid 1
Command: delete vlan_counter vlanid 1

Success.

DAS-3626:admin#
```

clear vlan_counter statistics

Purpose	Used to clear statistics gathered by the VLAN counter.
Syntax	**clear vlan_counter statistics**
Description	This command is used to clear statistic gathered by the VLAN counter.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To clear statistics for VLAN 1-10:

```
DAS-3626:admin#clear vlan_counter statistics
Command: clear vlan_counter statistics

Success.

DAS-3626:admin#
```

show vlan_counter utilization

Purpose	This commands displays the statistic control entries created for VLANs.
Syntax	**show vlan_counter utilization { [vlan <vlan_name>] }**
Description	This commands displays the statistic control entries created for VLANs.
Parameters	*vlan_name* – Specifies the VLAN name.
Restrictions	None.

Example usage:

To display the statistic control entries:

```
DAS-3626:admin#show vlan_counter utilization
Command: show vlan_counter utilization

VLAN Counter Utilization

Port VLAN ID RX(BYTES/SEC)          TX(BYTES/SEC)
---- ------- ---------------------- ----------------------
25   1       0                      6400
26   1       6400                   0
```

show vlan_counter statistics

Purpose	Displays the VLAN level receives packets or receive byte statistics.
Syntax	**show vlan_counter statistics {[vlan <vlan_name> | vlanid < vidlist >] {port <portlist>}}**
Description	This command displays the VLAN level receives packet or receive byte statistics.
Parameters	*vlan_name* – Specifies the VLAN name.
Restrictions	None.

Example usage:

To display the VLAN counter statistic entries:

```
DAS-3626:admin#show vlan_counter statistics
Command: show vlan_counter statistics

VLAN Counter

Port VLAN ID RX         TX         RX(BYTES)             TX(BYTES)
---- ------- ---------- ---------- --------------------- ---------------------
25   1       0          1722       0                      110208
26   1       1722       0          110208                 0
```

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QoS Commands

The Switch supports 802.1p priority queuing. The Switch has 8 priority queues. These priority queues are numbered from 7 (Class 7) — the highest priority queue — to 0 (Class 0) — the lowest priority queue. The eight priority tags specified in IEEE 802.1p (p0 to p7) are mapped to the Switch's priority queues as follows:

- Priority 0 is assigned to the Switch's Q2 queue.
- Priority 1 is assigned to the Switch's Q0 queue.
- Priority 2 is assigned to the Switch's Q1 queue.
- Priority 3 is assigned to the Switch's Q3 queue.
- Priority 4 is assigned to the Switch's Q4 queue.
- Priority 5 is assigned to the Switch's Q5 queue.
- Priority 6 is assigned to the Switch's Q6 queue.
- Priority 7 is assigned to the Switch's Q7 queue.

Priority scheduling is implemented by the priority queues stated above. The Switch will empty the eight hardware priority queues in order, beginning with the highest priority queue, 7, to the lowest priority queue, 0. Each hardware queue will transmit all of the packets in its buffer before permitting the next lower priority to transmit its packets. When the lowest hardware priority queue has finished transmitting all of its packets, the highest hardware priority queue will begin transmitting any packets it may have received.

The mapping of DSCP to COS will be used to determine the priority of the packet (which will be then used to determine the scheduling queue) when the Switch is in DSCP trust state.

The commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
config scheduling	<class_id 0-7> *weight* <value 1-255>
config scheduling_mechanism	[strict | wrr]
show scheduling	
show scheduling_mechanism	
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>}
config dscp trust	state [enable|disable]
show dscp trust	
config dscp map	dscp_priority <dscp > to <priority 0-7>
show dscp map	dscp_priotity

Each command is listed, in detail, in the following sections.

config scheduling

Purpose	Used to configure the traffic scheduling mechanism for each COS queue.
Syntax	**config scheduling <class_id 0-7> weight <value 1-127>**
Description	The Switch contains eight hardware priority queues. Incoming packets must be mapped to one of these eight queues. This command is used to specify the rotation by which these eight hardware priority queues are emptied. The Priority scheduling implement on this Switch is Shaped Deficit Weighted Round Robin (SDWRR) queue scheduling. The *weight* parameter allows the user to specify the available bandwidth for each queue. In shaped WDRR, if two or more queues have traffic eligible for transmission (i.e. the deficit counter is greater than the packet size to be transmitted), a round-robin scheme among the queues is used, while still preserving the overall weight ratios between the queues.. A value between 1 and 255 can be specified. For example, to evenly divide up the available bandwidth among the queues in the SDWRR, set the weight of each of the queues to 1, and the bandwidth of each queue are 12.5%. If the desired bandwidth division is 40%, 20%, 10%, 10%, 5%, 5%, 5% and 5%, the weight asignment to each queue is set to 8, 4, 2, 2, 1, 1, 1 and 1 respectively.
Parameters	*<class_id 0-7>* – This specifies which of the eight hardware priority queues the **config scheduling** command will apply to. The eight hardware priority queues are identified by number – from 0 to 7 – with the 0 queue being the lowest priority. *weight <value 1-255>* – Using weighted fair algorithm to handle packets in priority queues. Means each queue will operate based on its setting of max_packet.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure the traffic scheduling mechanism for each queue:

```
DAS-3626:admin#config scheduling 3 strict
Command: config scheduling 3 strict

Success.

DAS-3626:admin#
```

config scheduling mechanism

Purpose	Used to configure the traffic scheduling mechanism for each COS queue.
Syntax	**config scheduling_mechanism [strict | wrr]**
Description	This command is used to specify how the switch handles packets in priority queues.
Parameters	*strict* – The highest queue first process.That is,the highest queue should be finished at first. *wrr* – Using weighted roundrobin algorithm to handle packets in priority queues.
Restrictions	Only Administrator and Operation-level users can issue this command.

Example usage:

To configure the traffic scheduling mechanism for each COS queue:

```
DAS-3626:admin#config scheduling_mechanism strict
Command: config scheduling_mechanism strict

Success.

DAS-3626:admin#
```

show scheduling

Purpose	Used to display the currently configured traffic scheduling on the Switch.
Syntax	**show scheduling**
Description	This command is used to display the current traffic scheduling parameters in use on the Switch.
Parameters	None.
Restrictions	None.

Example usage:

To display the current scheduling configuration:

```
DAS-3626:admin#show scheduling
Command: show scheduling

QOS Output Scheduling

Class ID  Weight
--------  --------
Class-0   1
Class-1   2
Class-2   3
Class-3   4
Class-4   5
Class-5   6
Class-6   7
Class-7   8


DAS-3626:admin#
```

show scheduling_mechanism

Purpose	Used to show the traffic scheduling mechanism.
Syntax	**show scheduling_mechanism**
Description	This command is used to display the current traffic scheduling mechanism in use on the Switch.
Parameters	None.
Restrictions	None.

Example usage:

To display the scheduling mechanism:

```
DAS-3626:admin#show scheduling_mechanism
Command: show scheduling_mechanism

QOS scheduling_mechanism
CLASS ID  Mechanism
--------  -----------
Class-0   Strict
Class-1   Strict
Class-2   Strict
Class-3   Strict
Class-4   Strict
Class-5   Strict
Class-6   Strict
Class-7   Strict

DAS-3626:admin#
```

config 802.1p user_priority

Purpose

Used to map the 802.1p user priority of an incoming packet to one of the eight hardware queues available on the Switch.

Syntax

config 802.1p user_priority <priority 0-7> <class_id 0-7>

Description

This command allows users to configure the way 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:

802.1p	Hardware Queue	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	Mid-high
7	7	Highest

This mapping scheme is based upon recommendations contained in IEEE 802.1D.

Change this mapping by specifying the 802.1p user priority users want to map to the *<class_id 0-7>* (the number of the hardware queue).

Parameters

<priority 0-7> – The 802.1p user priority you want to associate with the *<class_id 0-7>* (the number of the hardware queue) with.

<class_id 0-7> – 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 Administrator and Operator-level users can issue this command.

Example usage:

To configure 802.1p user priority on the Switch:

```
DAS-3626:admin#config 802.1p user_priority 1 3
Command: config 802.1p user_priority 1 3

Success.

DAS-3626:admin#
```

show 802.1p user_priority

Purpose	Used to display the current mapping between an incoming packet's 802.1p priority value and one of the Switch's eight hardware priority queues.
Syntax	**show 802.1p user_priority**
Description	This command is used to display the current mapping of an incoming packet's 802.1p priority value to one of the Switch's eight hardware priority queues.
Parameters	None.
Restrictions	None.

Example usage:

To show 802.1p user priority:

```
DAS-3626: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>

DAS-3626:admin#
```

config 802.1p default_priority

Purpose	Used to configure the 802.1p default priority settings on the Switch. If an untagged packet is received by the Switch, the priority configured with this command will be written to the packet's priority field.
Syntax	**config 802.1p default_priority [<portlist> | all] <priority 0-7>**
Description	This command allows the user to specify default priority handling of untagged packets received by the Switch. The priority value entered with this command will be used to determine which of the eight hardware priority queues the packet is forwarded to.
Parameters	*<portlist>* – Specifies a port or range of ports to be configured. *all* – Specifies that the command applies to all ports on the Switch. *<priority 0-7>* – The priority value to assign to untagged packets received by the Switch or a range of ports on the Switch.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure 802.1p default priority on the Switch:

```
DAS-3626:admin#config 802.1p default_priority all 5
Command: config 802.1p default_priority all 5

Success.

DAS-3626:admin#
```

show 802.1 default_priority	
Purpose	Used to display the currently configured 802.1p priority value that will be assigned to an incoming, untagged packet before being forwarded to its destination.
Syntax	**show 802.1p default_priority {<portlist>}**
Description	This command is used to display the currently configured 802.1p priority value that will be assigned to an incoming, untagged packet before being forwarded to its destination.
Parameters	*<portlist>* – Specifies a port or range of ports to be configured.
Restrictions	None.

Example usage:

To display the current 802.1p default priority configuration on the Switch:

```
DAS-3626:admin#show 802.1p default_priority
Command: show 802.1p default_priority

Port         Priority         Effective Priority
----         -----------      ------------------
1              0                       0
2              0                       0
3              0                       0
4              0                       0
5              0                       0
6              0                       0
7              0                       0
8              0                       0
9              0                       0
10             0                       0
11             0                       0
12             0                       0

DAS-3626:admin#
```

config dscp trust

Purpose	Enable/Disable DSCP trust state.
Syntax	**config dscp trust state [enable|disable]**
Description	This command is used to onfigure the port DSCP trust state. When DSCP is not trusted, 1p is trusted.
Parameters	*state* – Enable/disable to trust DSCP. By default, DSCP trust is disabled.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure DSCP trust state enable:

```
DAS-3626:admin#config dscp trust state enable
Command: config dscp trust state enable

Success.

DAS-3626:admin#
```

show dscp trust

Purpose	Used to display DSCP trust state.
Syntax	**show dscp trust**
Description	This command is used to display DSCP trsut state.
Parameters	None.
Restrictions	None.

Example usage:

To display the DSCP trust state:

```
DAS-3626:admin#show dscp trust
Command: show dscp trust

DSCP-Trust : Enabled

DAS-3626:admin#
```

config dscp map

<table>
<tr><td><b>Purpose</b></td><td>config mapping of DSCP to priority and packet’s initial color .</td></tr>
<tr><td><b>Syntax</b></td><td><b>config dscp map [dscp_priority <dscp 0-63> to <priority 0-7&gt;]</b></td></tr>
<tr><td><b>Description</b></td><td>The mapping of DSCP to COS will be used to determine the priority of the packet (which will be then used to determine the scheduling queue) when the port is in DSCP trust state.</td></tr>
<tr><td><b>Parameters</b></td><td><i>dscp_priority</i> – Specifies a list of DSCP value to be mapped to a specific priority
<i>priority</i> – Specifies the result priority of mapping.
The default mapping are:
<table>
<tr><td>DSCP</td><td>0-7</td><td>8-15</td><td>16-23</td><td>24-31</td><td>32-39</td><td>40-47</td><td>48-55</td><td>56-63</td></tr>
<tr><td>priority</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr>
</table></td></tr>
<tr><td><b>Restrictions</b></td><td>Only Administrator and Operator-level users can issue this command.</td></tr>
</table>

Example usage:

To configure DSCP map on the Switch:

```
DAS-3626:admin#config dscp map dscp_priority 0 to 7
Command: config dscp map dscp_priority 0 to 7

Success.

DAS-3626:admin#
```

show dscp map

Purpose	Used to display the DSCP map configure parameter.
Syntax	**show dscp map [dscp_priotity]**
Description	This command is used to show DSCP trusted portlist and mapped color, priority and DSCP.
Parameters	*dscp* – Specifies DSCP value that will be mapped.
Restrictions	None.

Example usage:

To display the current DSCP map configuration on the Switch:

```
DAS-3626:admin#show dscp map dscp_priotity
Command: show dscp map dscp_priotity

DSCP    Priority
------  --------
0       0
1       0
2       0
3       0
4       0
5       0
6       0
7       0
8       1
9       1
10      1
11      1
```

```
12      1
13      1
14      1
15      1
16      2
17      2
18      2
19      2
CTRL+C ESC q Quit SPACE n Next Page ENTER Next Entry a All
```

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TRAFFIC CONTROL COMMANDS

On a computer network, packets such as Multicast packets and Broadcast packets continually flood the network as normal procedure. At times, this traffic may increase do to a malicious endstation on the network or a malfunctioning device, such as a faulty network card. Thus, switch throughput problems will arise and consequently affect the overall performance of the switch network. To help rectify this packet storm, the Switch will monitor and control the situation.

The packet storm is monitored to determine if too many packets are flooding the network, based on the threshold level provided by the user. Once a packet storm has been detected, the Switch will drop packets coming into the Switch until the storm has subsided. This method can be utilized by selecting the **Drop** option of the **Action** field in the window below.

The Switch will also scan and monitor packets coming into the Switch by monitoring the Switch's chip counter. This method is only viable for Broadcast and Multicast storms because the chip only has counters for these two types of packets. Once a storm has been detected (that is, once the packet threshold set below has been exceeded), the Switch will shutdown the port to all incoming traffic with the exception of STP BPDU packets, for a time period specified using the *countdown* field. If this field times out and the packet storm continues, the port will be placed in a Shutdown Forever mode which will produce a warning message to be sent to the Trap Receiver. Once in Shutdown Forever mode, one method of recovering this port is to manually recoup it using the **Port Configuration** window in the **Administration** folder and selecting the disabled port and returning it to an Enabled status. To utilize this method of Storm Control, choose the **Shutdown** option of the **Action** field in the window below.

The broadcast storm control commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
config traffic control	[<portlist> | all] {broadcast [enable | disable] | multicast [enable | disable] | unicast [enable | disable] | action [drop | shutdown] | threshold <value 0-255000> | time_interval <value 5-30> | countdown [value 0 | <value 5-30>]}
show traffic control	{<portlist>}
config traffic trap	[none | storm_occurred | storm_cleared | both]

Each command is listed, in detail, in the following sections.

Purpose	Used to configure broadcast/multicast/unicast packet storm control. The software mechanism is provided to monitor the traffic rate in addition to the hardware storm control mechanism previously provided.
Syntax	**config traffic control [<portlist> | all] {broadcast [enable | disable] | multicast [enable | disable] | unicast [enable | disable] | action [drop | shutdown] | threshold <value 0-255000> | time_interval <value 5-30> | countdown [value 0 | <value 5-30>]}**
Description	This command is used to configure broadcast/multicast/unicast storm control. By adding the new software traffic control mechanism, the user can now use both a hardware and software mechanism, the latter of which will now provide shutdown, recovery and trap notification functions for the Switch.
Parameters	*<portlist>* – Used to specify a group list of ports to be configured for traffic control, as defined below: *all* – Specifies all portlists are to be configured for traffic control on the Switch. *broadcast [enable* | *disable]* – Enables or disables broadcast storm control. *multicast [enable* | *disable]* – Enables or disables multicast storm control. *unicast [enable* | *disable]* – Enables or disables unicast traffic control. *action* – Used to configure the action taken when a storm control has been detected on the Switch. The user has two options: • *drop* – Utilizes the hardware Traffic Control mechanism, which means the Switch's hardware will determine the Packet Storm based on the Threshold value stated and drop packets until the issue is resolved. • *shutdown* – Utilizes the Switch's software Traffic Control mechanism to determine the Packet Storm occurring. Once detected, the port will deny all incoming traffic to the port except STP BPDU packets, which are essential in keeping the Spanning Tree operational on the Switch. If the countdown timer has expired and yet the Packet Storm continues, the port will be placed in Shutdown Forever mode and is no longer operational until the user manually resets the port using the **config ports enable** command. Choosing this option obligates the user to configure the *time_interval* field as well, which will provide packet count samplings from the Switch's chip to determine if a Packet Storm is occurring. *threshold <value 0-255000>* – The upper threshold at which the specified traffic control is switched on. The *<value>* is the number of broadcast/multicast/unicast packets, in packets per second (pps), received by the Switch that will trigger the storm traffic control measures. The default setting is *131072*. *time_interval* – The Interval will set the time between Multicast and Broadcast packet counts sent from the Switch's chip to the Traffic Control function. These packet counts are the determining factor in deciding when incoming packets exceed the Threshold value. *value 5-30* – The Interval may be set between *5* and *30* seconds with the default setting of 5 seconds. *countdown* – The countdown timer is set to determine the amount of time, in minutes, that the Switch will wait before shutting down the port that is experiencing a traffic storm. The switch will shutdown the port only if the traffic level exceeds the configured threshold all the time during this countdown period. This parameter is only useful for ports configured as **shutdown** in the **action** field of this command and therefore will not operate for Hardware based Traffic Control implementations. • *value 0* – 0 is the default setting for this field and *0* will denote that the port will never shutdown forever. • *value 5-30* – Select a time from *5* to *30* minutes that the Switch will wait before shutting down. Once this time expires and the port is still experiencing packet storms, the port will be placed in shutdown forever mode and can only be manually recovered using the config ports command mentioned previously in this manual.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure traffic control and enable broadcast storm control for ports 1-12:

```
DAS-3626:admin#config traffic control 1-12 broadcast enable action shutdown threshold
1 countdown 10 time_interval 10
Command: config traffic control 1-12 broadcast enable action shutdown threshold 1
countdown 10 time_interval 10

Success.

DAS-3626:admin#
```

show traffic control

Purpose	Used to display current traffic control settings.
Syntax	**show traffic control { <portlist> }**
Description	This command displays the current storm traffic control configuration on the Switch.
Parameters	*<portlist>* – Used to specify port or list of ports for which to display traffic control settings. The beginning and end of the port list range are separated by a dash.
Restrictions	None.

Example usage:

To display traffic control settings:

```
DAS-3626:admin#show traffic control
Command: show traffic control

Traffic Storm Control Trap :[None]

Port Thres   Broadcast Multicast Unicast  Action   Count     Time
     hold    Storm     Storm     Storm             Down      Interval
---- ----- --------- --------- -------- -------- -----     --------
1    131072 Disabled  Disabled  Disabled drop     0         5
2    131072 Disabled  Disabled  Disabled drop     0         5
3    131072 Disabled  Disabled  Disabled drop     0         5
4    131072 Disabled  Disabled  Disabled drop     0         5
5    131072 Disabled  Disabled  Disabled drop     0         5
6    131072 Disabled  Disabled  Disabled drop     0         5
7    131072 Disabled  Disabled  Disabled drop     0         5
8    131072 Disabled  Disabled  Disabled drop     0         5
9    131072 Disabled  Disabled  Disabled drop     0         5
10   131072 Disabled  Disabled  Disabled drop     0         5
11   131072 Disabled  Disabled  Disabled drop     0         5
12   131072 Disabled  Disabled  Disabled drop     0         5

Note: For unicast storm traffic, the violated action is always 'drop'.
DAS-3626:admin#
```

config traffic trap

Purpose	Used to configure the trap settings for the packet storm control mechanism.
Syntax	**config traffic trap [none | storm_occurred | storm_cleared | both]**
Description	This command will configure how packet storm control trap messages will be used when a packet storm is detected by the Switch. This function can only be used for the software traffic storm control mechanism (when the **action** field in the **config traffic storm_control** command is set as **shutdown**).
Parameters	*none* – No notification will be generated or sent when a packet storm control is detected by the Switch. *storm _occurred* – A notification will be generated and sent when a packet storm has been detected by the Switch. *storm_cleared* – A notification will be generated and sent when a packet storm has been cleared by the Switch. *both* – A notification will be generated and sent when a packet storm has been detected and cleared by the Switch.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure notifications to be sent when a packet storm control has been detected and cleared by the Switch.

```
DAS-3626:admin# config traffic trap both
Command: config traffic trap both

Success.

DAS-3626:admin#
```

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Safeguard Engine Commands

Periodically, malicious hosts on the network will attack the Switch by utilizing packet flooding (ARP Storm) or other methods. These attacks may increase the CPU utilization beyond its capability. To alleviate this problem, the Safeguard Engine function was added to the Switch's software.

The Safeguard Engine can help the overall operability of the Switch by minimizing the workload of the Switch while the attack is ongoing, thus making it capable to forward essential packets over its network in a limited bandwidth. When the Switch either (a) receives too many packets to process or (b) exerts too much memory, it will enter an **Exhausted** mode. When in this mode, the Switch will perform the following tasks to minimize the CPU usage:

a. It will limit bandwidth of receiving ARP packets.

b. It will limit the bandwidth of IP packets received by the Switch.

IP packets may also be limited by the Switch by configuring only certain IP addresses to be accepted. This method can be accomplished through the CPU Interface Filtering mechanism explained in the previous section. Once the user configures these acceptable IP addresses, other packets containing different IP addresses will be dropped by the Switch, thus limiting the bandwidth of IP packets. To keep the process moving fast, be sure not to add many conditions on which to accept these acceptable IP addresses and their packets, this limiting the CPU utilization.

Once in Exhausted mode, the packet flow will decrease by half of the level that caused the Switch to enter Exhausted mode. After the packet flow has stabilized, the rate will initially increase by 25% and then return to a normal packet flow.

NOTICE: When the Safeguard Engine is enabled, the Switch will allot bandwidth to various traffic flows (ARP, IP) using the FFP (Fast Filter Processor) metering table to control the CPU utilization and limit traffic. This may limit the speed of routing traffic over the network.

The Safeguard Engine commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

<table>
<tr><th>Command</th><th>Parameters</th></tr>
<tr><td>config safeguard_engine</td><td>{ state [enable|disable] |utilization { rising <value 20-100> | falling <value 20-100>} | trap_log [enable|disable] | mode [strict | fuzzy] }</td></tr>
<tr><td>show safeguard_engine</td><td></td></tr>
</table>

Each command is listed, in detail, in the following sections.

config safeguard_engine	
Purpose	To configure ARP storm control for system.
Syntax	**config safeguard_engine { state [enable|disable] |utilization { rising <value 20-100> | falling <value 20-100>} | trap_log [enable|disable] | mode [strict | fuzzy] }**
Description	This command is used to configure Safeguard Engine to minimize the effects of an ARP storm.
Parameters	*state [enable* | *disable]* – Select the running state of the Safeguard Engine function as enable or disable. *utilization* – Select this option to trigger the Safeguard Engine function to enable based on the following determinates: *rising <value 20-100>* – The user can set a percentage value of the rising CPU utilization which will trigger the Safeguard Engine function. Once the CPU utilization rises to this percentage, the Safeguard Engine mechanism will initiate. *falling <value 20-100>* – The user can set a percentage value of the falling CPU utilization which will trigger the Safeguard Engine function to cease. Once the CPU utilization falls to this percentage, the Safeguard Engine mechanism will shut down. *trap_log [enable* | *disable]* – Choose whether to enable or disable the sending of messages to the device's SNMP agent and switch log once the Safeguard Engine has been activated by a high CPU utilization rate. *mode [strict* | *fuzzy]* – Used to select the type of Safeguard Engine to be activated by the Switch when the CPU utilization reaches a high rate. The user may select: *strict* – If selected, this function will instruct the Switch to minimize the IP and ARP traffic flow to the CPU by dynamically allotting an even bandwidth to all traffic flows. *fuzzy* – If selected, this function will stop accepting all ARP packets not intended for the Switch, and will stop receiving all unnecessary broadcast IP packets, until the storm has subsided.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure the safeguard engine for the Switch:

```
DAS-3626:admin#config safeguard_engine state enable utilization rising 45
Command: config safeguard_engine state enable utilization rising 45

Success.

DAS-3626:admin#
```

show safeguard_engine

Purpose	Used to display current Safeguard Engine settings.
Syntax	**show safeguard_engine**
Description	This command is used to list the current status and type of the Safeguard Engine settings currently configured.
Parameters	None.
Restrictions	None.

Example usage:

To display the safeguard engine status:

```
DAS-3626: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    :  Enabled
Mode              :  Strict

DAS-3626:admin#
```

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PORT SECURITY COMMANDS

The Switch's port security commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
config port_security ports	[<portlist>| all] [{admin_state [enable | disable] | max_learning_addr <max_lock_no 0-512> | lock_address_mode [Permanent | Deleteontimeout | Deleteonreset] }]
delete port_security_entry	vlan name <vlan_name 32> mac_address <macaddr> port <port>
clear port_security_entry	port [<portlist>
show port_security	port [<portlist>
enable port_security trap_log	
disable port_security trap_log	

Each command is listed, in detail, in the following sections.

config port_security ports

Purpose	Used to configure port security settings.
Syntax	**config port_security ports [<portlist>| all] [{ admin_state [enable | disable] | max_learning_addr <max_lock_no 0-512> | lock_address_mode [Permanent | Deleteontimeout | Deleteonreset] }]**
Description	This command allows for the configuration of the port security feature. Only the ports listed in the *<portlist>* are affected.
Parameters	*portlist* – Specifies a port or range of ports to be configured. *all* – Configure port security for all ports on the Switch. *admin_state [enable* | *disable]* – Enable or disable port security for the listed ports. *max_learning_addr <max_lock_no 0-512>* – Use this to limit the number of MAC addresses dynamically listed in the FDB for the ports. *lock_address_mode [Permanent* | *DeleteOnTimout* | *DeleteOnReset]* – Indicates the method of locking addresses. The user has three choices: *permanent* – The locked addresses will not age out after the aging timer expires. *DeleteOnTimeout* – The locked addresses will age out after the aging timer expires. *DeleteOnReset* – The locked addresses will not age out until the Switch has been restarted.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure the port security:

```
DAS-3626:admin#config port_security ports 1-5 admin_state enable max_learning_addr 5
lock_address_mode deleteonreset
Command: config port_security ports 1-5 admin_state enable max_learning_addr 5
lock_address_mode deleteonreset

Success.

DAS-3626:admin#
```

delete port_security_entry

Purpose	Used to delete a port security entry by MAC address and VLAN ID.
Syntax	**delete port_security_entry vlan_name <vlan_name 32> mac_address <macaddr> port <port>**
Description	This command is used to delete a single, previously learned port security entry, VLAN name, and MAC address.
Parameters	*Vlan_name <vlan_name 32>* – Enter the corresponding VLAN name of the port to delete. *mac_address <macaddr>* – Enter the corresponding MAC address, previously learned by the port, to delete. *port <port>*– Enter the corresponding port number.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To delete a port security entry:

```
DAS-3626:admin#delete port_security_entry vlan name rg mac_address 00-01-30-10-2C-C7
Command: delete port_security_entry vlan name rg mac_address 00-01-30-10-2C-C7

Success.

DAS-3626:admin#
```

clear port_security_entry

Purpose	Used to clear MAC address entries learned from a specified port for the port security function.
Syntax	**clear port_security_entry ports <portlist>**
Description	This command is used to clear MAC address entries which were learned by the Switch by a specified port. This command only relates to the port security function.
Parameters	*<portlist>* – Specifies a port or port range to clear.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To clear a port security entry by port:

```
DAS-3626:admin#clear port_security_entry port 6
Command: clear port_security_entry port 6

Success.

DAS-3626:admin#
```

show port_security

Purpose	Used to display the current port security configuration.
Syntax	**show port_security_entry { ports <portlist>}**
Description	This command is used to display port security information of the Switch's ports. The information displayed includes port security, admin state, maximum number of learning address and lock mode.
Parameters	*<portlist>* – Specifies a port or range of ports to be viewed.
Restrictions	None.

Example usage:

To display the port security configuration:

```
DAS-3626:admin#show port_security ports 1-5
Command: show port_security ports 1-5

Port Configuration:
 Port   State     Lock Address Mode  Max. Learning Addr.
 -----  --------  -----------------  -------------------
 1      Disabled  DeleteOnReset      1
 2      Disabled  DeleteOnReset      1
 3      Disabled  DeleteOnReset      1
 4      Disabled  DeleteOnReset      1
 5      Disabled  DeleteOnReset      1

DAS-3626:admin#
```

enable port_security trap_log

Purpose	Used to enable the trap/log for port security.
Syntax	**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 informationt and the relevant information will be logged.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To enable the port security trap/log setting:

```
DAS-3626:admin#enable port_security trap_log
Command: enable port_security trap_log

Success.

DAS-3626:admin#
```

disable port_security trap_log

Purpose	Used to disable the trap/log for port security.
Syntax	**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.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To disable the port security trap/log setting:

```
DAS-3626:admin#disable port_security trap_log
Command: disable port_security trap_log

Success.

DAS-3626:admin#
```

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SSL COMMANDS

Secure Sockets Layer or SSL is a security feature that will provide a secure communication path between a host and client through the use of authentication, digital signatures and encryption. These security functions are implemented through the use of a *ciphersuite*, which is a security string that determines the exact cryptographic parameters, specific encryption algorithms and key sizes to be used for an authentication session and consists of three levels:

1. **Key Exchange:** The first part of the cyphersuite string specifies the public key algorithm to be used. This Switch utilizes the Rivest Shamir Adleman (RSA) public key algorithm and the Digital Signature Algorithm (DSA), specified here as the *DHE_DSS* Diffie-Hellman (DHE) public key algorithm. This is the first authentication process between client and host as they “exchange keys” in looking for a match and therefore authentication to be accepted to negotiate encryptions on the following level.
2. **Encryption:** The second part of the ciphersuite that includes the encryption used for encrypting the messages sent between client and host. The Switch supports two types of cryptology algorithms:

- **Stream Ciphers** – There are two types of stream ciphers on the Switch, RC4 with 40-bit keys and RC4 with 128-bit keys. These keys are used to encrypt messages and need to be consistent between client and host for optimal use.
- **CBC Block Ciphers** – CBC refers to Cipher Block Chaining, which means that a portion of the previously encrypted block of encrypted text is used in the encryption of the current block. The Switch supports the 3DES_EDE encryption code defined by the Data Encryption Standard (DES) to create the encrypted text.

3. **Hash Algorithm**: This part of the ciphersuite allows the user to choose a message digest function which will determine a Message Authentication Code. This Message Authentication Code will be encrypted with a sent message to provide integrity and prevent against replay attacks. The Switch supports two hash algorithms, *MD5* (Message Digest 5) and *SHA* (Secure Hash Algorithm).

These three parameters are uniquely assembled in four choices on the Switch to create a three layered encryption code for secure communication between the server and the host. The user may implement any one or combination of the ciphersuites available, yet different ciphersuites will affect the security level and the performance of the secured connection. The information included in the ciphersuites is not included with the Switch and requires downloading from a third source in a file form called a *certificate*. This function of the Switch cannot be executed without the presence and implementation of the certificate file and can be downloaded to the Switch by utilizing a TFTP server. The Switch supports SSLv3 and TLSv1. Other versions of SSL may not be compatible with this Switch and may cause problems upon authentication and transfer of messages from client to host.

Command	Parameters
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}}
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}}
config ssl cachetimeout	<value 60-86400>
show ssl	
show ssl certificate	
show ssl cachetimeout	
download ssl certificate	<ipaddr> certfilename <path_filename 64> keyfilename <path_filename 64>

Each command is listed, in detail, in the following sections.

enable ssl

Purpose	To enable the SSL function on the Switch.
Syntax	**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}}**
Description	This command will enable SSL on the Switch by implementing any one or combination of listed ciphersuites on the Switch. Entering this command without a parameter will enable the SSL status on the Switch. Enabling SSL will disable the web-manager on the Switch.
Parameters	*ciphersuite* – A security string that determines the exact cryptographic parameters, specific encryption algorithms and key sizes to be used for an authentication session. The user may choose any combination of the following: *RSA_with_RC4_128_MD5* – This ciphersuite combines the RSA key exchange, stream cipher RC4 encryption with 128-bit keys and the MD5 Hash Algorithm. *RSA_with_3DES_EDE_CBC_SHA* – This ciphersuite combines the RSA key exchange, CBC Block Cipher 3DES_EDE encryption and the SHA Hash Algorithm. *DHE_DSS_with_3DES_EDE_CBC_SHA* – This ciphersuite combines the DSA Diffie Hellman key exchange, CBC Block Cipher 3DES_EDE encryption and SHA Hash Algorithm. *RSA_EXPORT_with_RC4_40_MD5* – This ciphersuite combines the RSA Export key exchange, stream cipher RC4 encryption with 40-bit keys. The ciphersuites are enabled by default on the Switch, yet the SSL status is disabled by default. Enabling SSL with a ciphersuite will not enable the SSL status on the Switch.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To enable SSL on the Switch for all ciphersuites:

```
DAS-3626:admin#enable ssl
Command: enable ssl

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

DAS-3626:admin#
```

NOTE: Enabling SSL on the Switch will enable all ciphersuites. To utilize a particular ciphersuite, the user must eliminate other ciphersuites by using the **disable ssl** command along with the appropriate ciphersuites.

NOTE: Enabling the SSL function on the Switch will disable the port for the web manager (port 80). To log on to the web based manager, the entry of the URL must begin with *https://*. (ex. https://10.90.90.90)

disable ssl

Purpose	To disable the SSL function on the Switch.
Syntax	**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}}**
Description	This command will disable SSL on the Switch and can be used to disable any one or combination of listed ciphersuites on the Switch.
Parameters	*ciphersuite* – A security string that determines the exact cryptographic parameters, specific encryption algorithms and key sizes to be used for an authentication session. The user may choose any combination of the following: *RSA_with_RC4_128_MD5* – This ciphersuite combines the RSA key exchange, stream cipher RC4 encryption with 128-bit keys and the MD5 Hash Algorithm. *RSA_with_3DES_EDE_CBC_SHA* –This ciphersuite combines the RSA key exchange, CBC Block Cipher 3DES_EDE encryption and the SHA Hash Algorithm. *DHE_DSS_with_3DES_EDE_CBC_SHA* – This ciphersuite combines the DSA Diffie Hellman key exchange, CBC Block Cipher 3DES_EDE encryption and SHA Hash Algorithm. *RSA_EXPORT_with_RC4_40_MD5* – This ciphersuite combines the RSA Export key exchange, stream cipher RC4 encryption with 40-bit keys.

disable ssl

Restrictions	Only Administrator-level users can issue this command.

Example usage:

To disable the SSL status on the Switch:

```
DAS-3626:admin#disable ssl
Command: disable ssl

Success.

DAS-3626:admin#
```

To disable ciphersuite RSA_EXPORT_with_RC4_40_MD5 only:

```
DAS-3626:admin#disable ssl ciphersuite RSA_EXPORT_with_RC4_40_MD5
Command: disable ssl ciphersuite RSA_EXPORT_with_RC4_40_MD5

Success.

DAS-3626:admin#
```

config ssl cachetimeout

Purpose	Used to configure the SSL cache timeout.
Syntax	**config ssl cachetimeout timeout <value 60-86400>**
Description	This command will set the time between a new key exchange between a client and a host using the SSL function. A new SSL session is established every time the client and host go through a key exchange. Specifying a longer timeout will allow the SSL session to reuse the master key on future connections with that particular host, therefore speeding up the negotiation process.
Parameters	*timeout <value 60-86400>* – Enter a timeout value between *60* and *86400* seconds to specify the total time an SSL key exchange ID stays valid before the SSL module will require a new, full SSL negotiation for connection. The default cache timeout is *600* seconds
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To set the SSL cachetimeout for 7200 seconds:

```
DAS-3626:admin#config ssl cachetimeout 7200
Command: config ssl cachetimeout 7200

Success.

DAS-3626:admin#
```

show ssl cachetimeout

Purpose	Used to show the SSL cache timeout.
Syntax	**show ssl cachetimeout**
Description	This command is used to view the SSL cache timeout currently implemented on the Switch.
Parameters	None.
Restrictions	None.

Example usage:

To view the SSL cache timeout on the Switch:

```
DAS-3626:admin#show ssl cachetimeout
Command: show ssl cachetimeout

Cache timeout is 600 second(s).

DAS-3626:admin#
```

show ssl

Purpose	Used to view the SSL status and the certificate file status on the Switch.
Syntax	**show ssl**
Description	This command is used to view the SSL status on the Switch.
Parameters	None.
Restrictions	None.

Example usage:

To view the SSL status on the Switch:

```
DAS-3626:admin#show ssl
Command: show ssl

SSL status                     Enabled
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

DAS-3626:admin#
```

show ssl certificate

Purpose	Used to view the SSL certificate file status on the Switch.
Syntax	**show ssl certificate**
Description	This command is used to view the SSL certificate file information currently implemented on the Switch.
Parameters	None.
Restrictions	None.

Example usage:

To view certificate file information on the Switch:

```
DAS-3626:admin#show ssl certificate
Command: show ssl certificate

Loaded with RSA Certificate!

DAS-3626:admin#
```

download ssl certificate

Purpose	Used to download a certificate file for the SSL function on the Switch.
Syntax	**download ssl certificate <ipaddr> certfilename <path_filename 64> keyfilename <path_filename 64>**
Description	This command is used to download a certificate file for the SSL function on the Switch from a TFTP server. The certificate file is a data record used for authenticating devices on the network. It contains information on the owner, keys for authentication and digital signatures. Both the server and the client must have consistent certificate files for optimal use of the SSL function. The Switch only supports certificate files with .der file extensions.
Parameters	*<ipaddr>* – Enter the IP address of the TFTP server. *certfilename <path_filename 64>* – Enter the path and the filename of the certificate file users wish to download. *keyfilename <path_filename 64>* – Enter the path and the filename of the key exchange file users wish to download. *path_filename* – Private key file path respect to tftp server root path, and input characters max to 64 octets.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To download a certificate file and key file to the Switch:

```
DAS-3626:admin# DAS-3626: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.

DAS-3626:admin#
```

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SSH COMMANDS

The steps required to use the Secure Shell (SSH) protocol for secure communication between a remote PC (the SSH Client) and the Switch (the SSH Server), are as follows:

Create a user account with admin-level access using the **create account admin <username> <password>** command. This is identical to creating any other admin-lever user account on the Switch, including specifying a password. This password is used to login to the Switch, once secure communication has been established using the SSH protocol.

Configure the user account to use a specified authorization method to identify users that are allowed to establish SSH connections with the Switch using the **config ssh authmode** command. There are three choices as to the method SSH will use to authorize the user, and they are password, publickey and hostbased.

Configure the encryption algorithm that SSH will use to encrypt and decrypt messages sent between the SSH Client and the SSH Server.

Finally, enable SSH on the Switch using the **enable ssh** command.

After following the above steps, users can configure an SSH Client on the remote PC and manage the Switch using secure, in-band communication.

The Secure Shell (SSH) commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
enable ssh	
disable ssh	
config ssh authmode	[password | publickey | hostbased] [enable | disable]
show ssh authmode	
config ssh server	{maxsession <int 1-8> | contimeout <sec 120-600> | authfail <int 2-20> | rekey [10min | 30min | 60min | never]
show ssh server	
config ssh user	<username 15> authmode [hostbased [hostname <domain_name 32> | hostname_IP <domain_name 32> <ipaddr>] | password | publickey]
show ssh user authmode	
config ssh algorithm	[3DES | AES128 | AES192 | AES256 | arcfour | blowfish | cast128 | twofish128 | twofish192 | twofish256 | MD5 | SHA1 | RSA | DSA] [enable | disable]

Command	Parameters
show ssh algorithm	

Each command is listed, in detail, in the following sections.

enable ssh	
Purpose	Used to enable SSH.
Syntax	**enable ssh**
Description	This command allows users to enable SSH on the Switch.
Parameters	None.

enable ssh	
Restrictions	Only Administrator and Operator-level users can issue this command.

Usage example:

To enable SSH:

```
DAS-3626:admin#enable ssh
Command: enable ssh

Success.

DAS-3626:admin#
```

disable ssh	
Purpose	Used to disable SSH.
Syntax	**disable ssh**
Description	This command allows users to disable SSH on the Switch.
Parameters	None.

disable ssh	
Restrictions	Only Administrator and Operator-level users can issue this command.

Usage example:

To disable SSH:

```
DAS-3626:admin#disable ssh
Command: disable ssh

Success.

DAS-3626:admin#
```

config ssh authmode	
Purpose	Used to configure the SSH authentication mode setting.
Syntax	**config ssh authmode [password | publickey | hostbased] [enable | disable]**
Description	This command is used to configure the SSH authentication mode for users attempting to access the Switch.
Parameters	*password* – This parameter may be chosen if the administrator wishes to use a locally configured password for authentication on the Switch. *publickey* – This parameter may be chosen if the administrator wishes to use a publickey configuration set on a SSH server, for authentication. *hostbased* – This parameter may be chosen if the administrator wishes to use a host computer for authentication. This parameter is intended for Linux users requiring SSH authentication techniques and the host computer is running the Linux operating system with a SSH program previously installed. *[enable | disable]* – This allows users to enable or disable SSH authentication on the Switch.

config ssh authmode	
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To enable the SSH authentication mode by password:

```
DAS-3626:admin#config ssh authmode password enable
Command: config ssh authmode password enable

Success.

DAS-3626:admin#
```

show ssh authmode

Purpose	Used to display the SSH authentication mode settings.
Syntax	**show ssh authmode**
Description	This command is used to display the current SSH authentication set on the Switch.
Parameters	None.
Restrictions	None.

Example usage:

To view the current authentication mode set on the Switch:

```
DAS-3626:admin#show ssh authmode
Command: show ssh authmode

The SSH Authmode:
-------------------------------------------------
Password    : Enabled
Publickey   : Enabled
Hostbased   : Enabled

DAS-3626:admin#
```

config ssh server

Purpose	Used to configure the SSH server.
Syntax	**config ssh server {maxsession <int 1-8> | contimeout <sec 120-600> | authfail <int 2-20> | rekey [10min | 30min | 60min | never]}**
Description	This command is used to configure the SSH server.
Parameters	*maxsession <int 1-8>* – Allows the user to set the number of users that may simultaneously access the Switch. The default setting is *8*. *contimeout <sec 120-600>* – Allows the user to set the connection timeout. The user may set a time between *120* and *600* seconds. The default is *120* seconds. *authfail <int 2-20>* – Allows the administrator to set the maximum number of attempts that a user may try to logon utilizing SSH authentication. After the maximum number of attempts is exceeded, the Switch will be disconnected and the user must reconnect to the Switch to attempt another login. *rekey [10min | 30min | 60min | never]* – Sets the time period that the Switch will change the security shell encryptions.
Restrictions	Only Administrator and Operator-level users can issue this command.

Usage example:

To configure the SSH server:

```
DAS-3626:admin#config ssh server maxsession 2 contimeout 300 authfail 2
Command: config ssh server maxsession 2 contimeout 300 authfail 2

Success.

DAS-3626:admin#
```

show ssh server

Purpose	Used to display the SSH server setting.
Syntax	**show ssh server**
Description	This command is used to display the current SSH server setting.
Parameters	None.
Restrictions	None.

Usage example:

To display the SSH server:

```
DAS-3626:admin#show ssh server
Command: show ssh server

The SSH Server Configuration
Max Session              : 8
Connection Timeout       : 120
Authfail Attempts        : 2
Rekey Timeout            : Never

DAS-3626:admin#
```

config ssh user

Purpose

Used to configure the SSH user.

Syntax

config ssh user <username 15> authmode [hostbased [hostname <domain_name 32> | hostname_IP <domain_name 32> <ipaddr >] | password | publickey]

Description

This command is used to configure the SSH user authentication method.

Parameters

<username 15> – Enter a username of no more than 15 characters to identify the SSH user.

authmode – Specifies the authentication mode of the SSH user wishing to log on to the Switch. The administrator may choose between:

hostbased – This parameter should be chosen if the user wishes to use a remote SSH server for authentication purposes. Choosing this parameter requires the user to input the following information to identify the SSH user.

- *hostname <domain_name 32>* – Enter an alphanumeric string of up to 32 characters identifying the remote SSH user.
- *hostname_IP <domain_name 32> <ipaddr>* – Enter the hostname and the corresponding IP address of the SSH user.

password – This parameter should be chosen to use an administrator defined password for authentication.

publickey – This parameter should be chosen to use the publickey on a SSH server for authentication.

Restrictions

Only Administrator-level users can issue this command.

Example usage:

To configure the SSH user:

```
DAS-3626:admin#config ssh user Trinity authmode password
Command: config ssh user Trinity authmode password


Success.

DAS-3626:admin#
```

show ssh user authmode

Purpose	Used to display the SSH user setting.
Syntax	**show ssh user authmode**
Description	This command is used to display the current SSH user setting.
Parameters	None.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To display the SSH user:

```
DAS-3626:admin#show ssh user authmode
Command: show ssh user authmode

Current Accounts:
Username     AuthMode   HostName        HostIP
---------   ---------  -------------   -----------
123          Password

Total Entries : 1


DAS-3626:admin#
```

Note: To configure the SSH user, the administrator must create a user account on the Switch. For information concerning configuring a user account, please see the section of this manual entitled Basic Switch Commands and then the command, **create account**.

config ssh algorithm

Purpose	Used to configure the SSH algorithm.
Syntax	**config ssh algorithm [3DES | AES128 | AES192 | AES256 | arcfour | blowfish | cast128 | twofish128 | twofish192 | twofish256 | MD5 | SHA1 | RSA | DSA] [enable | disable]**
Description	This command is used to configure the desired type of SSH algorithm used for authentication encryption.
Parameters	*3DES* – This parameter will enable or disable the Triple_Data Encryption Standard encryption algorithm. *AES128* – This parameter will enable or disable the Advanced Encryption Standard AES128 encryption algorithm. *AES192* – This parameter will enable or disable the Advanced Encryption Standard AES192 encryption algorithm. *AES256* – This parameter will enable or disable the Advanced Encryption Standard AES256 encryption algorithm. *arcfour* – This parameter will enable or disable the Arcfour encryption algorithm. *blowfish* – This parameter will enable or disable the Blowfish encryption algorithm. *cast128* – This parameter will enable or disable the Cast128 encryption algorithm. *twofish128* – This parameter will enable or disable the twofish128 encryption algorithm. *twofish192* – This parameter will enable or disable the twofish192 encryption algorithm. *MD5* – This parameter will enable or disable the MD5 Message Digest encryption algorithm. *SHA1* – This parameter will enable or disable the Secure Hash Algorithm encryption. *RSA* – This parameter will enable or disable the RSA encryption algorithm. *DSA* – This parameter will enable or disable the Digital Signature Algorithm encryption. *[enable* | *disable]* – This allows the user to enable or disable algorithms entered in this command, on the Switch.
Restrictions	Only Administrator and Operator-level users can issue this command.

Usage example:

To configure SSH algorithm:

```
DAS-3626:admin#config ssh algorithm blowfish enable
Command: config ssh algorithm blowfish enable

Success.

DAS-3626:admin#
```

show ssh algorithm

Purpose	Used to display the SSH algorithm setting.
Syntax	**show ssh algorithm**
Description	This command is used to display the current SSH algorithm setting status.
Parameters	None.
Restrictions	None.

Usage Example:

To display SSH algorithms currently set on the Switch:

```
DAS-3626: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

CTRL+C ESC q Quit SPACE n Next Page ENTER Next Entry a All
```

36

ACCESS AUTHENTICATION CONTROL COMMANDS

The TACACS / XTACACS / TACACS+ / RADIUS commands allows secure access to the Switch using the TACACS / XTACACS / TACACS+ / RADIUS protocols. When a user logs in to the Switch or tries to access the administrator level privilege, he or she is prompted for a password. If TACACS / XTACACS / TACACS+ / RADIUS authentication is enabled on the Switch, it will contact a TACACS / XTACACS / TACACS+ / RADIUS server to verify the user. If the user is verified, he or she is granted access to the Switch.

There are currently three versions of the TACACS security protocol, each a separate entity. The Switch's software supports the following versions of TACACS:

- TACACS (Terminal Access Controller Access Control System) —Provides password checking and authentication, and notification of user actions for security purposes utilizing via one or more centralized TACACS servers, utilizing the UDP protocol for packet transmission.
- Extended TACACS (XTACACS) — An extension of the TACACS protocol with the ability to provide more types of authentication requests and more types of response codes than TACACS. This protocol also uses UDP to transmit packets.
- TACACS+ (Terminal Access Controller Access Control System plus) — Provides detailed access control for authentication for network devices. TACACS+ is facilitated through Authentication commands via one or more centralized servers. The TACACS+ protocol encrypts all traffic between the Switch and the TACACS+ daemon, using the TCP protocol to ensure reliable delivery.

The Switch also supports the RADIUS protocol for authentication using the Access Authentication Control commands. RADIUS or Remote Authentication Dial In User Server also uses a remote server for authentication and can be responsible for receiving user connection requests, authenticating the user and returning all configuration information necessary for the client to deliver service through the user. RADIUS may be facilitated on this Switch using the commands listed in this section.

In order for the TACACS / XTACACS / TACACS+ / RADIUS security function to work properly, a TACACS / XTACACS / TACACS+ / RADIUS server must be configured on a device other than the Switch, called a server host and it must include usernames and passwords for authentication. When the user is prompted by the Switch to enter usernames and passwords for authentication, the Switch contacts the TACACS / XTACACS / TACACS+ / RADIUS server to verify, and the server will respond with one of three messages:

A) The server verifies the username and password, and the user is granted normal user privileges on the Switch.

B) The server will not accept the username and password and the user is denied access to the Switch.

C) The server doesn't respond to the verification query. At this point, the Switch receives the timeout from the server and then moves to the next method of verification configured in the method list.

The Switch has four built-in server groups, one for each of the TACACS, XTACACS, TACACS+ and RADIUS protocols. These built-in server groups are used to authenticate users trying to access the Switch. The users will set server hosts in a preferable order in the built-in server group and when a user tries to gain access to the Switch, the Switch will ask the first server host for authentication. If no authentication is made, the second server host in the list will be queried, and so on. The built-in server group can only have hosts that are running the specified protocol. For example, the TACACS server group can only have TACACS server hosts.

The administrator for the Switch may set up five different authentication techniques per user-defined method list (TACACS / XTACACS / TACACS+ / RADIUS / local / none) for authentication. These techniques will be listed in an order preferable, and defined by the user for normal user authentication on the Switch, and may contain up to eight authentication techniques. When a user attempts to access the Switch, the Switch will select the first technique listed for authentication. If the first technique goes through its *server hosts* and no authentication is returned, the Switch will then go to the next technique listed in the server group for authentication, until the authentication has been verified or denied, or the list is exhausted.

Please note that user granted access to the Switch will be granted normal user privileges on the Switch. To gain access to admin level privileges, the user must enter the **enable admin** command, which is only available for logining in the Switch from the three versions of the TACACS server, and then enter a password, which was previously configured by the administrator of the Switch.

NOTE: TACACS, XTACACS and TACACS+ are separate entities and are not compatible. The Switch and the server must be configured exactly the same, using the same protocol. (For example, if the Switch is set up for TACACS authentication, so must be the host server.)

The Access Authentication Control commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
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}
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}
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 1-255>}
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 1-255>}
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	

Command	Parameters
config admin local_enable	

Each command is listed, in detail, in the following sections.

enable authen_policy	
Purpose	Used to enable system access authentication policy.
Syntax	**enable authen_policy**
Description	This command will enable an administrator-defined authentication policy for users trying to access the Switch. When enabled, the device will check the method list and choose a technique for user authentication upon login.
Parameters	None.

enable authen_policy	
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To enable the system access authentication policy:

```
DAS-3626:admin#enable authen_policy
Command: enable authen_policy

Success.

DAS-3626:admin#
```

Purpose	Used to disable system access authentication policy.
Syntax	**disable authen_policy**
Description	This command will disable the administrator-defined authentication policy for users trying to access the Switch. When disabled, the Switch will access the local user account database for username and password verification. In addition, the Switch will now accept the local enable password as the authentication for normal users attempting to access administrator level privileges.
Parameters	None.

Restrictions	Only Administrator-level users can issue this command.

Example usage:

To disable the system access authentication policy:

```
DAS-3626:admin#disable authen_policy
Command: disable authen_policy

Success.

DAS-3626:admin#
```

Purpose	Used to display the system access authentication policy status on the Switch.
Syntax	**show authen_policy**
Description	This command will show the current status of the access authentication policy on the Switch.
Parameters	None.

Restrictions	Only Administrator-level users can issue this command.

Example usage:

To display the system access authentication policy:

```
DAS-3626:admin#show authen_policy
Command: show authen_policy

Authentication Policy: Enabled

DAS-3626:admin#
```

create authen_login method_list_name	
Purpose	Used to create a user defined method list of authentication methods for users logging on to the Switch.
Syntax	**create authen_login method_list_name <string 15>**
Description	This command is used to create a list for authentication techniques for user login. The Switch can support up to eight method lists, but one is reserved as a default and cannot be deleted. Multiple method lists must be created and configured separately.
Parameters	*<string 15>* – Enter an alphanumeric string of up to 15 characters to define the given *method list*.

create authen_login method_list_name	
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To create the method list “Trinity.”:

```
DAS-3626:admin#create authen_login method_list_name Trinity
Command: create authen_login method_list_name Trinity

Success.

DAS-3626:admin#
```

config authen_login

Purpose

Used to configure a user-defined or default method list of authentication methods for user login.

Syntax

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

Description

This command is used to configure a user-defined or default method list of authentication methods for users logging on to the Switch. The sequence of methods implemented in this command will affect the authentication result. For example, if a user enters a sequence of methods like *tacacs – xtacacs – local,* the Switch will send an authentication request to the first *tacacs* host in the server group. If no response comes from the server host, the Switch will send an authentication request to the second *tacacs* host in the server group and so on, until the list is exhausted. At that point, the Switch will restart the same sequence with the following protocol listed, *xtacacs*. If no authentication takes place using the *xtacacs* list, the *local* account database set in the Switch is used to authenticate the user. When the local method is used, the privilege level will be dependant on the local account privilege configured on the Switch.

Successful login using any of these methods will give the user a “user” privilege only. If the user wishes to upgrade his or her status to the administrator level, the user must implement the **enable admin** command, followed by a previously configured password. (*See the* ***enable admin*** *part of this section for more detailed information, concerning the* ***enable admin*** *command.)*

Parameters

default – The default method list for access authentication, as defined by the user. The user may choose one or a combination of up to four of the following authentication methods:

- *tacacs* – Adding this parameter will require the user to be authenticated using the *TACACS* protocol from the remote TACACS *server hosts* of the TACACS *server group* list.
- *xtacacs* – Adding this parameter will require the user to be authenticated using the *XTACACS* protocol from the remote XTACACS *server hosts* of the XTACACS *server group* list.
- *tacacs+* – Adding this parameter will require the user to be authenticated using the *TACACS+* protocol from the remote TACACS+ *server hosts* of the TACACS+ *server group* list.
- *radius* – Adding this parameter will require the user to be authenticated using the *RADIUS* protocol from the remote RADIUS *server hosts* of the RADIUS *server group* list.
- *server_group <string 15>* – Adding this parameter will require the user to be authenticated using a user-defined server group previously configured on the Switch.
- *local* – Adding this parameter will require the user to be authenticated using the local *user account* database on the Switch.
- *none* – Adding this parameter will require no authentication to access the Switch.

method_list_name – Enter a previously implemented method list name defined by the user. The user may add one, or a combination of up to four of the following authentication methods to this method list:

- *tacacs* – Adding this parameter will require the user to be authenticated using the *TACACS* protocol from a remote TACACS server.
- *xtacacs* – Adding this parameter will require the user to be authenticated using the *XTACACS* protocol from a remote XTACACS server.
- *tacacs+* – Adding this parameter will require the user to be authenticated using the *TACACS+* protocol from a remote TACACS+ server.
- *radius* – Adding this parameter will require the user to be authenticated using the *RADIUS* protocol from a remote RADIUS server.
- *server_group <string 15>* – Adding this parameter will require the user to be authenticated using a user-defined server group previously configured on the Switch.
- *local* – Adding this parameter will require the user to be authenticated using the local *user account* database on the Switch.
- *none* – Adding this parameter will require no authentication to access the Switch.

config authen_login

Restrictions	Only Administrator-level users can issue this command.

Example usage:

To configure the user defined method list "Trinity" with authentication methods TACACS, XTACACS and local, in that order.

```
DAS-3626:admin#config authen_login method_list_name Trinity method tacacs xtacacs
local
Command: config authen_login method_list_name Trinity method tacacs xtacacs local

Success.

DAS-3626:admin#
```

Example usage:

To configure the default method list with authentication methods XTACACS, TACACS+ and local, in that order:

```
DAS-3626:admin#config authen_login default method xtacacs tacacs+ local
Command: config authen_login default method xtacacs tacacs+ local

Success.

DAS-3626:admin#
```

delete authen_login method_list_name

Purpose	Used to delete a previously configured user defined method list of authentication methods for users logging on to the Switch.
Syntax	**delete authen_login method_list_name <string 15>**
Description	This command is used to delete a list for authentication methods for user login.
Parameters	*<string 15>* – Enter an alphanumeric string of up to 15 characters to define the given *method list* the user wishes to delete.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To delete the method list name "Trinity":

```
DAS-3626:admin#delete authen_login method_list_name Trinity
Command: delete authen_login method_list_name Trinity

Success.

DAS-3626:admin#
```

Purpose	Used to display a previously configured user defined method list of authentication methods for users logging on to the Switch.
Syntax	**show authen_login [default | method_list_name <string 15> | all]**
Description	This command is used to show a list of authentication methods for user login.
Parameters	*default* – Entering this parameter will display the default method list for users logging on to the Switch. *method_list_name <string 15>* – Enter an alphanumeric string of up to 15 characters to define the given method list to view. *all* – Entering this parameter will display all the authentication login methods currently configured on the Switch. The window will display the following parameters: • *Method List Name* – The name of a previously configured method list name. • *Priority* – Defines which order the method list protocols will be queried for authentication when a user attempts to log on to the Switch. Priority ranges from 1(highest) to 4 (lowest). • *Method Name* – Defines which security protocols are implemented, per method list name. • *Comment* – Defines the type of Method. *User-defined Group* refers to server group defined by the user. *Built-in Group* refers to the TACACS, XTACACS, TACACS+ and RADIUS security protocols which are permanently set in the Switch. *Keyword* refers to authentication using a technique INSTEAD of TACACS / XTACACS / TACACS+ / RADIUS which are local (authentication through the user account on the Switch) and none (no authentication necessary to access any function on the Switch).
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To view the authentication login method list named Trinity:

```
DAS-3626:admin#show authen_login method_list_name Trinity
Command: show authen_login method_list_name Trinity

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

DAS-3626:admin#
```

Purpose	Used to create a user-defined method list of authentication methods for promoting normal user level privileges to Administrator level privileges on the Switch.
Syntax	**create authen_enable method_list_name <string 15>**
Description	This command is used to promote users with normal level privileges to Administrator level privileges using authentication methods on the Switch. Once a user acquires normal user level privileges on the Switch, he or she must be authenticated by a method on the Switch to gain administrator privileges on the Switch, which is defined by the Administrator. A maximum of eight enable method lists can be implemented on the Switch.
Parameters	*<string 15>* – Enter an alphanumeric string of up to 15 characters to define the given *enable method list* to create.

Restrictions	Only Administrator-level users can issue this command.

Example usage:

To create a user-defined method list, named “Permit” for promoting user privileges to Administrator privileges:

```
DAS-3626:admin#create authen_enable method_list_name Permit
Command: create authen_enable method_list_name Permit

Success.

DAS-3626:admin#
```

config authen_enable	
Purpose	Used to configure a user-defined method list of authentication methods for promoting normal user level privileges to Administrator level privileges on the Switch.
Syntax	**config authen_enable [default | method_list_name <string 15>] method {tacacs | xtacacs | tacacs+ | radius | server_group <string 15> | local_enable | none}**
Description	This command is used to promote users with normal level privileges to Administrator level privileges using authentication methods on the Switch. Once a user acquires normal user level privileges on the Switch, he or she must be authenticated by a method on the Switch to gain administrator privileges on the Switch, which is defined by the Administrator. A maximum of eight enable method lists can be implemented simultaneously on the Switch. The sequence of methods implemented in this command will affect the authentication result. For example, if a user enters a sequence of methods like *tacacs – xtacacs – local_enable,* the Switch will send an authentication request to the first *TACACS* host in the server group. If no verification is found, the Switch will send an authentication request to the second *TACACS* host in the server group and so on, until the list is exhausted. At that point, the Switch will restart the same sequence with the following protocol listed, *xtacacs*. If no authentication takes place using the *xtacacs* list, the *local_enable* password set in the Switch is used to authenticate the user. Successful authentication using any of these methods will give the user an "Admin" level privilege.

config authen_enable

Parameters

default – The default method list for administration rights authentication, as defined by the user. The user may choose one or a combination of up to four (4) of the following authentication methods:

- *tacacs* – Adding this parameter will require the user to be authenticated using the *TACACS* protocol from the remote TACACS *server hosts* of the TACACS *server group* list.
- *xtacacs* – Adding this parameter will require the user to be authenticated using the *XTACACS* protocol from the remote XTACACS *server hosts* of the XTACACS *server group* list.
- *tacacs+* – Adding this parameter will require the user to be authenticated using the *TACACS+* protocol from the remote TACACS+ *server hosts* of the TACACS+ *server group* list.
- *radius* – Adding this parameter will require the user to be authenticated using the *RADIUS* protocol from the remote RADIUS *server hosts* of the RADIUS *server group* list.
- *server_group <string 15>* – Adding this parameter will require the user to be authenticated using a user-defined server group previously configured on the Switch.
- *local_enable* – Adding this parameter will require the user to be authenticated using the local *user account* database on the Switch.
- *none* – Adding this parameter will require no authentication to access the Switch.

method_list_name – Enter a previously implemented method list name defined by the user (**create authen_enable**). The user may add one, or a combination of up to four (4) of the following authentication methods to this method list:

- *tacacs* – Adding this parameter will require the user to be authenticated using the *TACACS* protocol from a remote TACACS server.
- *xtacacs* – Adding this parameter will require the user to be authenticated using the XTACACS protocol from a remote XTACACS server.
- *tacacs+* – Adding this parameter will require the user to be authenticated using the *TACACS+* protocol from a remote TACACS+ server.
- *radius* – Adding this parameter will require the user to be authenticated using the *RADIUS* protocol from a remote RADIUS server.
- *server_group <string 15>* – Adding this parameter will require the user to be authenticated using a user-defined server group previously configured on the Switch.
- *local_enable* – Adding this parameter will require the user to be authenticated using the local *user account* database on the Switch. The local enable password of the device can be configured using the "**config admin local_password**" command.
- *none* – Adding this parameter will require no authentication to access the administration level privileges on the Switch.

Restrictions

Only Administrator-level users can issue this command.

Example usage:

To configure the user defined method list “Permit” with authentication methods TACACS, XTACACS and local, in that order.

```
DAS-3626:admin#config authen_enable method_list_name Trinity method tacacs xtacacs
local
Command: config authen_enable method_list_name Trinity method tacacs xtacacs local


Success.


DAS-3626:admin#
```

Example usage:

To configure the default method list with authentication methods XTACACS, TACACS+ and local, in that order:

```
DAS-3626:admin#config authen_enable default method xtacacs tacacs+ local
Command: config authen_enable default method xtacacs tacacs+ local

Success.

DAS-3626:admin#
```

delete authen_enable method_list_name	
Purpose	Used to delete a user-defined method list of authentication methods for promoting normal user level privileges to Administrator level privileges on the Switch.
Syntax	**delete authen_enable method_list_name <string 15>**
Description	This command is used to delete a user-defined method list of authentication methods for promoting user level privileges to Administrator level privileges.
Parameters	*<string 15>* – Enter an alphanumeric string of up to 15 characters to define the given *enable method list* to delete.

delete authen_enable method_list_name	
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To delete the user-defined method list “Permit”

```
DAS-3626:admin#delete authen_enable method_list_name Permit
Command: delete authen_enable method_list_name Permit

Success.

DAS-3626:admin#
```

show authen_enable

Purpose	Used to display the method list of authentication methods for promoting normal user level privileges to Administrator level privileges on the Switch.
Syntax	**show authen_enable [default | method_list_name <string 15> | all]**
Description	This command is used to delete a user-defined method list of authentication methods for promoting user level privileges to Administrator level privileges.
Parameters	*default* – Entering this parameter will display the default method list for users attempting to gain access to Administrator level privileges on the Switch. *method_list_name <string 15>* – Enter an alphanumeric string of up to 15 characters to define the given *method list* the user wishes to view. *all* – Entering this parameter will display all the authentication login methods currently configured on the Switch. The window will display the following parameters: • *Method List Name* – The name of a previously configured method list name. • *Priority* – Defines which order the method list protocols will be queried for authentication when a user attempts to log on to the Switch. Priority ranges from 1(highest) to 4 (lowest). • *Method Name* – Defines which security protocols are implemented, per method list name. • *Comment* – Defines the type of Method. *User-defined Group* refers to *server groups* defined by the user. *Built-in Group* refers to the TACACS, XTACACS, TACACS+ and RADIUS security protocols which are permanently set in the Switch. *Keyword* refers to authentication using a technique INSTEAD of TACACS/XTACACS/TACACS+/RADIUS which are local (authentication through the *local_enable* password on the Switch) and none (no authentication necessary to access any function on the Switch).
Restrictions	None.

Example usage:

To display all method lists for promoting user level privileges to administrator level privileges.

```
DAS-3626:admin#show authen_enable all
Command: show authen_enable all

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

default               1       tacacs+           Built-in Group
                      2       local             Keyword

Total Entries : 2

DAS-3626:admin#
```

config authen application

Purpose	Used to configure various applications on the Switch for authentication using a previously

config authen application

	configured method list.
Syntax	**config authen application [console | telnet | ssh | http | all] [login | enable] [default | method_list_name <string 15>]**
Description	This command is used to configure Switch configuration applications (console, telnet, ssh, web) for login at the user level and at the administration level (*authen_enable*) utilizing a previously configured method list.
Parameters	*application* – Choose the application to configure. The user may choose one of the following five options to configure. • *console* – Choose this parameter to configure the command line interface login method. • *telnet* – Choose this parameter to configure the telnet login method. • *ssh* – Choose this parameter to configure the Secure Shell login method. • *http* – Choose this parameter to configure the web interface login method. • *all* – Choose this parameter to configure all applications (console, telnet, ssh, web) login method. *login* – Use this parameter to configure an application for normal login on the user level, using a previously configured method list. *enable* – Use this parameter to configure an application for upgrading a normal user level to administrator privileges, using a previously configured method list. *default* – Use this parameter to configure an application for user authentication using the default method list. *method_list_name <string 15>* – Use this parameter to configure an application for user authentication using a previously configured method list. Enter a alphanumeric string of up to 15 characters to define a previously configured method list.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To configure the default method list for the web interface:

```
DAS-3626:admin#config authen application http login default
Command: config authen application http login default

Success.

DAS-3626:admin#
```

show authen application

Purpose	Used to display authentication methods for the various applications on the Switch.
Syntax	**show authen application**
Description	This command will display all of the authentication method lists (login, enable administrator privileges) for Switch configuration applications (console, telnet, SSH, web) currently configured on the Switch.
Parameters	None.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

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

```
DAS-3626:admin#show authen application
Command: show authen application

```

```
Application    Login Method List   Enable Method List
-------------- ----------------    -----------------------
Console         default                  default
Telnet          Trinity                  default
SSH             default                  default
HTTP            default                  default

DAS-3626:admin#
```

Purpose	Used to create an authentication server host.
Syntax	**create authen server_host <ipaddr> protocol [tacacs | xtacacs | tacacs+ | radius] {port <int 1-65535> | key [<key_string 254> | none] | timeout <int 1-255> | retransmit < 1-255>}**
Description	This command will create an authentication server host for the TACACS/XTACACS/TACACS+/RADIUS security protocols on the Switch. When a user attempts to access the Switch with authentication protocol enabled, the Switch will send authentication packets to a remote TACACS/XTACACS/TACACS+/RADIUS server host on a remote host. The TACACS/XTACACS/TACACS+/RADIUS server host will then verify or deny the request and return the appropriate message to the Switch. More than one authentication protocol can be run on the same physical server host but, remember that TACACS/XTACACS/TACACS+/RADIUS are separate entities and are not compatible with each other. The maximum supported number of server hosts is 16.
Parameters	*server_host <ipaddr>* – The IP address of the remote server host to add. *protocol* – The protocol used by the server host. The user may choose one of the following: • *tacacs* – Enter this parameter if the server host utilizes the TACACS protocol. • *xtacacs* – Enter this parameter if the server host utilizes the XTACACS protocol. • *tacacs+* – Enter this parameter if the server host utilizes the TACACS+ protocol. • *radius* – Enter this parameter if the server host utilizes the RADIUS protocol. *port <int 1-65535>* – Enter a number between *1* and *65535* to define the virtual port number of the authentication protocol on a server host. The default port number is *49* for TACACS/XTACACS/TACACS+ servers and *1812* and *1813* for RADIUS servers but the user may set a unique port number for higher security. *key <key_string 254>* – Authentication key to be shared with a configured TACACS+ or RADIUS server only. Specify an alphanumeric string up to 254 characters. *timeout <int 1-255>* – Enter the time in seconds the Switch will wait for the server host to reply to an authentication request. The default value is *5* seconds. *retransmit <int 1-255>* – Enter the value in the retransmit field to change how many times the device will resend an authentication request when the server does not respond.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To create a TACACS+ authentication server host, with port number 1234, a timeout value of 10 seconds and a retransmit count of 5.

```
DAS-3626:admin#create authen server_host 10.1.1.121 protocol tacacs+ port 1234
timeout 10 retransmit 5
Command: create authen server_host 10.1.1.121 protocol tacacs+ port 1234 timeout 10
retransmit 5

Success.

DAS-3626:admin#
```

config authen server_host

Purpose	Used to configure a user-defined authentication server host.
Syntax	**config authen server_host <ipaddr> protocol [tacacs | xtacacs | tacacs+ | radius] {port <int 1-65535> | key [<key_string 254> | none] | timeout <int 1-255> | retransmit < 1-255>}**
Description	This command will configure a user-defined authentication server host for the TACACS/XTACACS/TACACS+/RADIUS security protocols on the Switch. When a user attempts to access the Switch with the authentication protocol enabled, the Switch will send authentication packets to a remote TACACS/XTACACS/TACACS+/RADIUS server host on a remote host. The TACACS/XTACACS/TACACS+/RADIUS server host will then verify or deny the request and return the appropriate message to the Switch. More than one authentication protocol can be run on the same physical server host but, remember that TACACS/XTACACS/TACACS+/RADIUS are separate entities and are not compatible with each other. The maximum supported number of server hosts is 16.
Parameters	*server_host <ipaddr>* – The IP address of the remote server host the user wishes to alter. *protocol* – The protocol used by the server host. The user may choose one of the following: • *tacacs* – Enter this parameter if the server host utilizes the TACACS protocol. • *xtacacs* – Enter this parameter if the server host utilizes the XTACACS protocol. • *tacacs+* – Enter this parameter if the server host utilizes the TACACS+ protocol. • radius – Enter this parameter if the server host utilizes the RADIUS protocol. *port <int 1-65535>* – Enter a number between *1* and *65535* to define the virtual port number of the authentication protocol on a server host. The default port number is *49* for TACACS/XTACACS/TACACS+ servers and *1812* and *1813* for RADIUS servers but the user may set a unique port number for higher security. *key <key_string 254>* – Authentication key to be shared with a configured TACACS+ or RADIUS server only. Specify an alphanumeric string up to 254 characters or choose none. *timeout <int 1-255>* – Enter the time in seconds the Switch will wait for the server host to reply to an authentication request. The default value is *5* seconds. *retransmit <int 1-255>* – Enter the value in the retransmit field to change how many times the device will resend an authentication request when the server does not respond. This field is inoperable for the TACACS+ protocol.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To configure a TACACS+ authentication server host, with port number 4321, a timeout value of 12 seconds and a retransmit count of 4.

```
DAS-3626:admin#config authen server_host 10.1.1.121 protocol tacacs+ port 4321
timeout 12 retransmit 4
Command: config authen server_host 10.1.1.121 protocol tacacs+ port 4321 timeout 12
retransmit 4

Success.

DAS-3626:admin#
```

Purpose	Used to delete a user-defined authentication server host.
Syntax	**delete authen server_host <ipaddr> protocol [tacacs | xtacacs | tacacs+ | radius]**
Description	This command is used to delete a user-defined authentication server host previously created on the Switch.
Parameters	*server_host <ipaddr>* – The IP address of the remote server host to be deleted. *protocol* – The protocol used by the server host the user wishes to delete. The user may choose one of the following: • *tacacs* – Enter this parameter if the server host utilizes the TACACS protocol. • *xtacacs* – Enter this parameter if the server host utilizes the XTACACS protocol. • *tacacs+* – Enter this parameter if the server host utilizes the TACACS+ protocol. • *radius* – Enter this parameter if the server host utilizes the RADIUS protocol.

Restrictions	Only Administrator-level users can issue this command.

Example usage:

To delete a user-defined TACACS+ authentication server host:

```
DAS-3626:admin#delete authen server_host 10.1.1.121 protocol tacacs+
Command: delete authen server_host 10.1.1.121 protocol tacacs+

Success.

DAS-3626:admin#
```

Purpose	Used to view a user-defined authentication server host.
Syntax	**show authen server_host**
Description	This command is used to view user-defined authentication server hosts previously created on the Switch. The following parameters are displayed: *IP Address* – The IP address of the authentication server host. *Protocol* – The protocol used by the server host. Possible results will include TACACS, XTACACS, TACACS+ or RADIUS. *Port* – The virtual port number on the server host. The default value is *49*. *Timeout* – The time in seconds the Switch will wait for the server host to reply to an authentication request. *Retransmit* – The value in the retransmit field denotes how many times the device will resend an authentication request when the TACACS server does not respond. This field is inoperable for the tacacs+ protocol. *Key* – Authentication key to be shared with a configured TACACS+ server only.
Parameters	None.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To view authentication server hosts currently set on the Switch:

```
DAS-3626:admin#show authen server_host
Command: show authen server_host

IP Address    Protocol    Port  Timeout  Retransmit  Key
-----------   --------    ----- -------  ----------  -----
10.53.13.94    TACACS     49       5         2       No Use

Total Entries : 1

DAS-3626:admin#
```

create authen server_group

Purpose	Used to create a user-defined authentication server group.
Syntax	**create authen server_group {<string 15>}**
Description	This command will create an authentication server group. A server group is a technique used to group TACACS/XTACACS/TACACS+/RADIUS server hosts into user defined categories for authentication using method lists. The user may add up to eight authentication server hosts to this group using the **config authen server_group** command.
Parameters	*<string 15>* – Enter an alphanumeric string of up to 15 characters to define the newly created server group.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To create the server group “group_1”:

```
DAS-3626:admin#create authen server_group group_1
Command: create authen server_group group_1

Success.

DAS-3626:admin#
```

Purpose	Used to configure a user-defined authentication server group.
Syntax	**config authen server_group [tacacs | xtacacs | tacacs+ | radius | <string 15>] [add | delete] server_host <ipaddr> protocol [tacacs | xtacacs | tacacs+ | radius]**
Description	This command will configure an authentication server group. A server group is a technique used to group TACACS/XTACACS/TACACS+/RADIUS server hosts into user defined categories for authentication using method lists. The user may define the type of server group by protocol or by previously defined server group. Up to eight authentication server hosts may be added to any particular group
Parameters	*server_group* – The user may define the group by protocol groups built into the Switch (TACACS/XTACACS/TACACS+/RADIUS), or by a user-defined group previously created using the **create authen server_group** command. • *tacacs* – Use this parameter to utilize the built-in TACACS server protocol on the Switch. Only server hosts utilizing the TACACS protocol may be added to this group. • *xtacacs* – Use this parameter to utilize the built-in XTACACS server protocol on the Switch. Only server hosts utilizing the XTACACS protocol may be added to this group. • *tacacs+* – Use this parameter to utilize the built-in TACACS+ server protocol on the Switch. Only server hosts utilizing the TACACS+ protocol may be added to this group. • *radius* – Use this parameter to utilize the built-in RADIUS server protocol on the Switch. Only server hosts utilizing the RADIUS protocol may be added to this group. • *<string 15>* – Enter an alphanumeric string of up to 15 characters to define the previously created server group. This group may add any combination of server hosts to it, regardless of protocol. *add/delete* – Enter the correct parameter to add or delete a server host from a server group. *server_host <ipaddr>* – Enter the IP address of the previously configured server host to add or delete. *protocol* – Enter the protocol utilized by the server host. There are three options: • *tacacs* – Use this parameter to define the protocol if the server host is using the TACACS authentication protocol. • *xtacacs* – Use this parameter to define the protocol if the server host is using the XTACACS authentication protocol. • *tacacs+* – Use this parameter to define the protocol if the server host is using the TACACS+ authentication protocol. • *radius* – Use this parameter to define the protocol if the server host is using the RADIUS authentication protocol.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To add an authentication host to server group “group_1”:

```
DAS-3626:admin# config authen server_group group_1 add server_host 10.1.1.121
protocol tacacs+
Command: config authen server_group group_1 add server_host 10.1.1.121 protocol
tacacs+

Success.

DAS-3626:admin#
```

Purpose	Used to delete a user-defined authentication server group.
Syntax	**delete authen server_group <string 15>**
Description	This command will delete an authentication server group.
Parameters	*<string 15>* – Enter an alphanumeric string of up to 15 characters to define the previously created server group to be deleted.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To delete the server group “group_1”:

```
DAS-3626:admin#delete server_group group_1
Command: delete server_group group_1

Success.

DAS-3626:admin#
```

show authen server_group

Purpose	Used to view authentication server groups on the Switch.
Syntax	**show authen server_group {<string 15>}**
Description	This command will display authentication server groups currently configured on the Switch. This command will display the following fields: Group Name: The name of the server group currently configured on the Switch, including built in groups and user defined groups. IP Address: The IP address of the server host. Protocol: The authentication protocol used by the server host.
Parameters	*<string 15>* – Enter an alphanumeric string of up to 15 characters to define the previously created server group to be viewed. Entering this command without the *<string>* parameter will display all authentication server groups on the Switch.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To view authentication server groups currently set on the Switch.

```
DAS-3626:admin#show authen server_group
Command: show authen server_group
Server Group : mix_1
Group Name       IP Address      Protocol
---------------  --------------  --------
mix_1             10.1.1.222     TACACS+
                  10.1.1.223     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

DAS-3626:admin#
```

Purpose	Used to configure the amount of time the Switch will wait for a user to enter authentication before timing out.
Syntax	**config authen parameter response_timeout <int 0-255>**
Description	This command will set the time the Switch will wait for a response of authentication from the user.
Parameters	*response_timeout <int 0-255>* – Set the time, in seconds, the Switch will wait for a response of authentication from the user attempting to log in from the command line interface or telnet interface. Zero means there won't be a time-out. The default value is *0* seconds.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To configure the response timeout for 60 seconds:

```
DAS-3626:admin# config authen parameter response_timeout 60
Command: config authen parameter response_timeout 60

Success.

DAS-3626:admin#
```

Purpose	Used to configure the maximum number of times the Switch will accept authentication attempts.
Syntax	**config authen parameter attempt <int 1-255>**
Description	This command will configure the maximum number of times the Switch will accept authentication attempts. Users failing to be authenticated after the set amount of attempts will be denied access to the Switch and will be locked out of further authentication attempts. Command line interface users will have to wait 60 seconds before another authentication attempt. Telnet users will be disconnected from the Switch.
Parameters	*parameter attempt <int 1-255>* – Set the maximum number of attempts the user may try to become authenticated by the Switch, before being locked out. The default setting is *3.*
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To set the maximum number of authentication attempts at 5:

```
DAS-3626:admin# config authen parameter attempt 5
Command: config authen parameter attempt 5

Success.

DAS-3626:admin#
```

Purpose	Used to display the authentication parameters currently configured on the Switch.
Syntax	**show authen parameter**
Description	This command will display the authentication parameters currently configured on the Switch, including the response timeout and user authentication attempts. This command will display the following fields: Response timeout – The configured time allotted for the Switch to wait for a response of authentication from the user attempting to log in from the command line interface or telnet interface. User attempts: The maximum number of attempts the user may try to become authenticated by the Switch, before being locked out.
Parameters	None.

Restrictions	Only Administrator-level users can issue this command.

Example usage:

To view the authentication parameters currently set on the Switch:

```
DAS-3626:admin#show authen parameter
Command: show authen parameter

Response Timeout : 30 seconds
User Attempts    : 3

DAS-3626:admin#
```

enable admin	
Purpose	Used to promote user level privileges to administrator level privileges.
Syntax	**enable admin**
Description	This command is for users who have logged on to the Switch on the normal user level, to become promoted to the administrator level. After logging on to the Switch users will have only user level privileges. To gain access to administrator level privileges, the user will enter this command and will have to enter an authentication password. Possible authentication methods for this function include TACACS, XTACACS, TACACS+, RADIUS, user defined server groups, local enable (local account on the Switch), or no authentication (*none*). Because XTACACS and TACACS do not support the enable function, the user must create a special account on the server host which has the username "enable", and a password configured by the administrator that will support the "enable" function. This function becomes inoperable when the authentication policy is disabled.
Parameters	None.
Restrictions	None.

Example usage:

To enable administrator privileges on the Switch:

```
DAS-3626:admin#enable admin
Password: ******

DAS-3626:admin#
```

Purpose	Used to configure the local enable password for administrator level privileges.
Syntax	**config admin local_enable**
Description	This command will configure the locally enabled password for the **enable admin** command. When a user chooses the **local_enable** method to promote user level privileges to administrator privileges, he or she will be prompted to enter the password configured here that is set locally on the Switch.
Parameters	*<password 15>* – After entering this command, the user will be prompted to enter the old password, then a new password in an alphanumeric string of no more than 15 characters, and finally prompted to enter the new password again for confirmation. See the example below.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To configure the password for the "local_enable" authentication method.

```
DAS-3626:admin#config admin local_enable
Command: config admin local_enable

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

DAS-3626:admin#
```

37

FILTER COMMANDS (DHCP SERVER/NETBIOS)

DHCP Server Screening Settings

This function allows you not only to restrict all DHCP Server packets but also to receive any specified DHCP server packets by any specified DHCP client, it is useful when one or more than one DHCP servers are present on the network and both provide DHCP services to different distinct groups of clients. Enabling the DHCP filter for the first time will create both an access profile and access rule per port, following this other access rules can be created. These rules are used to block all DHCP server packets. Similarly, the addition of a permit DHCP entry will create one access profile and one access rule the first time the DHCP client MAC address is the client MAC address, and the Source IP address is the same as the DHCP server's IP address (UDP port number 67). These rules are used to permit the DHCP server packets with specific fileds, which the user configures.

When the DHCP Server filter function is enabled, all DHCP Server packets will be filtered from a specific port. Also, you are allowed to create entries for specific port-based Server IP address and Client MAC address binding entries. Be aware that the DHCP Server filter function must be enabled first. Once all settings are complete, all DHCP Server packets will be filtered from a specific port except those that meet the Server IP Address and Client MAC Address binding.

NetBIOS Filtering Setting

When the NetBIOS filter is enabled, all NetBIOS packets will be filtered from the specified port. Enabling the NetBIOS filter will create one access profile and create three access rules per port (UDP port numbers 137 and 138 and TCP port number 139).

For Extensive NetBIOS Filter, when it is enabled, all NetBIOS packets over 802.3 frames will be filtered from the specified port. This command is used to configure the state of the NetBIOS filter. Enabling the Extensive NetBIOS filter will create one access profile and create one access rule per port (DSAP (Destination Service Access Point) =F0, and SASP (Source Service Access Point) =F0).

The DHCP Server/NetBIOS Filter commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
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]]
show filter dhcp_server	
config filter netbios	[<portlist> | all] state [enable|disable]
show filter netbios	
config filter extensive_netbios	[<portlist> | all] state [enable|disable]
show filter extensive_netbios	

Each command is listed, in detail, in the following sections.

config filter dhcp_server

Purpose	DHCP server packets except those that have been IP/client MAC bound will be filtered. This command is used to configure the state of the function for filtering of DHCP server packet and to add/delete the DHCP server/client binding entry.
Syntax	**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]]**
Description	This command has two purposes: to filter all DHCP server packets on the specified port(s) and to allow some DHCP server packets to be forwarded if they are on the pre-defined server IP address/MAC address binding list. Thus the DHCP server can be restricted to service a specified DHCP client. This is useful when there are two or more DHCP servers present on a network.
Parameters	*ippaddr* – The IP address of the DHCP server to be filtered *macaddr* – The MAC address of the DHCP client. *state* – Enable/Disable the DHCP filter state *ports <portlist>* – The port number to which the DHCP filter will be applied.
Restrictions	Only Administrator-level users can issue this command. Enabling the DHCP filter will create one access profile and create one access rule per port (UDP port 67). Addition of a DHCP filter permit entry will create one access profile and create one access rule (DA = client MAC address, SA = source IP address and UDP port 67).

Example usage:

To add an entry from the DHCP server/client filter list in the switch's database:

```
DAS-3626:admin#config filter dhcp_server add permit server_ip 10.1.1.1 client_mac 00-
00-00-00-00-01 port 1-12
Command: config filter dhcp_server add permit server_ip 10.1.1.1 client_mac 00-00-00-
00-00-01 port 1-12

Success

DAS-3626:admin#
```

To configure the DHCP filter state:

```
DAS-3626:admin#config filter dhcp_server ports 1-10 state enable
Command: config filter dhcp_server ports 1-10 state enable

Success

DAS-3626:admin#
```

show filter dhcp_server

Purpose	Used to display current DHCP server/client filter list created on the switch.
Syntax	**show filter dhcp_server**
Description	This command is used to display DHCP server/client filter list created on the switch.
Parameters	None.
Restrictions	Only Administrator users can issue this command.

Example usage:

To display the DHCP server filter list created on the switch:

```
DAS-3626:admin#show filter dhcp_server
Command: show filter dhcp_server

Enabled Ports: 1-3

Filter DHCP Server/Client Table
Server IP Address   Client MAC Address   Port
-----------------   ------------------   -------------
10.255.255.254      00-00-00-00-00-01    1-12

 Total Entries: 1

DAS-3626:admin#
```

config filter netbios

Purpose	Used to configure the switch to filter NetBIOS packets from specified ports.
Syntax	**config filter netbios [<portlist> | all] state [enable|disable]**
Description	This command will configure the switch to filter NetBIOS packets from the specified ports.
Parameters	*[<portlist>|all]* – The list of port numbers to which the NetBIOS filter will be applied. *state [enable|disable]* – Used to enable/disable the NetBIOS filter on the switch.
Restrictions	Only Administrator-level users can issue this command. Enabling the NetBIOS filter will create one access profile and three access rules per port (UDP port number 137 and 138, and TCP port 139).

Example usage:

To configure the NetBIOS state:

```
DAS-3626:admin#config filter netbios 1-10 state enable
Command: config filter netbios 1-10 state enable

Success.

DAS-3626:admin#
```

show filter netbios

Purpose	Used to display the switch settings to filter NetBIOS packets from specified ports.
Syntax	**show filter netbios**
Description	This command will display the switch settings to filter NetBIOS packets from the specified ports.
Parameters	None.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To display the extensive NetBIOS filter status:

```
DAS-3626:admin#show filter netbios
Command: show filter netbios

Enabled Ports: 1-3

DAS-3626:admin#
```

config filter extensive_netbios

Purpose	Used to configure the switch to filter 802.3 frame NetBIOS packets from specified ports.
Syntax	**config filter extensive_netbios [<portlist>|all] state [enable|disable]**
Description	This command will configure the switch to filter 802.3 frame NetBIOS packets from the specified ports.
Parameters	*[<portlist>|all]* – The list of port numbers to which the NetBIOS filter will be applied. *state [enable|disable]* – Used to enable/disable the NetBIOS filter on the switch.
Restrictions	Only Administrator-level users can issue this command. Enabling the NetBIOS filter will create one access profile and one access rules per port (DSAP=F0, SASP=F0).

Example usage:

To configure the extensive NetBIOS state::

```
DAS-3626:admin#config filter extensive_netbios 1-10 state enable
Command: config filter extensive_netbios 1-10 state enable

Success.

DAS-3626:admin#
```

show filter extensive_netbios

Purpose	Used to display the switch settings to filter NetBIOS packets from specified ports.
Syntax	**show filter extensive_netbios**
Description	This command will display the switch settings to filter NetBIOS packets from the specified ports.
Parameters	None.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To display the extensive NetBIOS filter status:

```
DAS-3626:admin#show filter extensive_netbios
Command: show filter extensive_netbios

Enabled Ports: 1-3

DAS-3626:admin#
```

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ACCESS CONTROL LIST (ACL) COMMANDS

The Switch implements Access Control Lists that enable the Switch to deny network access to specific devices or device groups based on IP settings and MAC address.

The access profile commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Note: The ACL command set has been changed for the Release III firmware. In particular, note the different role of the *profile_id* and *access_id* parameters. The new treatment has changed some of the command parameters as well.

Command	Parameters
create access_profile	profile_id <value 1-1024> profile_name <name 1-32>[ethernet{ vlan {mask <hex 0x0-0x0fff>} | source_mac <macmask 000000000000-ffffffffffff> | destination_mac <macmask 000000000000-ffffffffffff> | 802.1p | ethernet_type} (1) | ipv4 { vlan {mask <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> | all | profile_name <name 1-32 >]

Command	Parameters
config access_profile	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>|vlan_id <value 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)|ipv4{[vlan <vlan_name 32>|vlan_id <value 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>}|urg|ack|psh|rst|syn|fin}|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] | vlanbased [vlan_name <vlan_name> | vlan_id <value 1-4094>]] [permit {priority <value 0-7> {replace_priority} |rx_rate [no_limit|<value 1-15624>] |replace_dscp_with <value 0-63>} |mirror |deny] {time_range <range_name 32>}|delete access_id <value 1-1024>]
show access_profile	{profile_id <value 1-12>| profile_name <name 1-32 >}
show time_range	
show current_config access_profile	

Access profiles allow users to establish criteria to determine whether or not the Switch will forward packets based on the information contained in each packet's header.

Creating an access profile is divided into two basic parts. First, an access profile must be created using the **create access_profile** command. For example, if users want to deny all traffic to the subnet 10.42.73.0 to 10.42.73.255, users must first **create** an access profile that instructs the Switch to examine all of the relevant fields of each frame.

First create an access profile that uses IP addresses as the criteria for examination:

create access_profile profile_id 1 profile_name 1 ip source_ip_mask 255.255.255.0

Here we have created an access profile that will examine the IP field of each frame received by the Switch. Each source IP address the Switch finds will be combined with the **source_ip_mask** with a logical AND operation. The **profile_id** parameter is used to give the access profile an identifying number – in this case, 1 – and it is used to assign a priority in case a conflict occurs. The **profile_id** establishes a priority within the list of profiles. A lower **profile_id** gives the rule a higher priority. In case of a conflict in the rules entered for different profiles, the rule with the highest priority (lowest profile_id) will take precedence. *See below for information regarding limitations on access profiles and access rules.*

The **deny** parameter instructs the Switch to filter any frames that meet the criteria – in this case, when a logical AND operation between an IP address specified in the next step and the **ip_source_mask** match.

The default for an access profile on the Switch is to **permit** traffic flow. If users want to restrict traffic, users must use the **deny** parameter.

Now that an access profile has been created, users must add the criteria the Switch will use to decide if a given frame should be forwarded or filtered. We will use the **config access_profile** command to create a new rule that defines the criteria we want. Let's further specify in the new rule to deny access to a range of IP addresses through an individual port: Here, we want to filter any packets that have an IP source address between 10.42.73.0 and 10.42.73.255, and specify the port that will not be allowed:

```
config access_profile profile_id 1 add access_id 1 ip source_ip 10.42.73.1 port 7 deny
```

We use the **profile_id 1** which was specified when the access profile was created. The **add** parameter instructs the Switch to add the criteria that follows to the list of rules that are associated with access profile 1. For each rule entered into the access profile, users can assign an access_id that identifies the rule within the list of rules. The access_id is an index number and does not effect priority within the **profile_id**. This access_id may be used later if users want to remove the individual rule from the profile.

The **ip** parameter instructs the Switch that this new rule will be applied to the IP addresses contained within each frame's header. **source_ip** tells the Switch that this rule will apply to the source IP addresses in each frame's header. The IP address **10.42.73.1** will be combined with the **source_ip_mask 255.255.255.0** to give the IP address 10.42.73.0 for any source IP address between 10.42.73.0 to 10.42.73.255. Finally the restricted port - port number 7 - is specified.

Due to a chipset limitation, the Switch supports a maximum of twelve access profiles. The rules used to define the access profiles are limited to a total of 1536 rules for the Switch.

<table>
<tr><th colspan="2">create access_profile</th></tr>
<tr><td><b>Purpose</b></td><td>Used to create an access profile on the Switch and to define which parts of each incoming frame's header the Switch will examine. Masks can be entered that will be combined with the values the Switch finds in the specified frame header fields. Specific values for the rules are entered using the <b>create access_profile</b> command, below.</td></tr>
<tr><td><b>Syntax</b></td><td><b>create access_profile profile_id <value 1-1024> profile_name <name 1-32> [ethernet{ vlan {mask <hex 0x0-0x0fff>} | source_mac <macmask 000000000000-ffffffffffff> | destination_mac <macmask 000000000000-ffffffffffff> | 802.1p | ethernet_type}(1)|ipv4 { vlan {mask <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)]</b></td></tr>
<tr><td><b>Description</b></td><td>This command is used to create an access profile on the Switch and to define which parts of each incoming frame's header the Switch will examine. Masks can be entered that will be combined with the values the Switch finds in the specified frame header fields. Specific values for the rules are entered using the <b>config access_profile</b> command, below.</td></tr>
</table>

create access_profile

Parameters

profile_id <value 1-1024> – Sets the relative priority for the profile. Priority is set relative to other profiles where the lowest profile ID has the highest priority. The user may enter a profile ID number between 1 - 1024, yet, remember only 1024 access profiles can be created on the Switch.

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

ethernet – Specifies that the Switch will examine the layer 2 part of each packet header.

- *vlan* – Specifies that the Switch will examine the VLAN part of each packet header.

source_mac <macmask 000000000000-ffffffffffff > – Specifies a MAC address mask for the source MAC address. This mask is entered in a hexadecimal format.

- *destination_mac <macmask 000000000000-ffffffffffff >* – Specifies a MAC address mask for the destination MAC address.
- *802.1p* – Specifies that the Switch will examine the 802.1p priority value in the frame's header.

ethernet_type – Specifies that the Switch will examine the Ethernet type value in each frame's header.

Ipv4 – Specifies that the Switch will examine the IP address in each frame's header.

vlan – Specifies a VLAN mask.

source_ip_mask <netmask> – Specifies an IP address mask for the source IP address.

destination_ip_mask <netmask> – Specifies an IP address mask for the destination IP address.

dscp – Specifies that the Switch will examine the DiffServ Code Point (DSCP) field in each frame's header.

icmp – Specifies that the Switch will examine the Internet Control Message Protocol (ICMP) field in each frame's header.

type – Specifies that the Switch will examine each frame's ICMP Type field.

code – Specifies that the Switch will examine each frame's ICMP Code field.

igmp – Specifies that the Switch will examine each frame's Internet Group Management Protocol (IGMP) field.

type – Specifies that the Switch will examine each frame's IGMP Type field.

tcp – Specifies that the Switch will examine each frame's Transmission Control Protocol (TCP) field.

src_port_mask <hex 0x0-0xffff> – Specifies a TCP port mask for the source port.

dst_port_mask <hex 0x0-0xffff> – Specifies a TCP port mask for the destination port.

flag_mask – Enter the appropriate flag_mask parameter. All incoming packets have TCP port numbers contained in them as the forwarding criterion. These numbers have flag bits associated with them which are parts of a packet that determine what to do with the packet. The user may deny packets by denying certain flag bits within the packets. The user may choose between *all, urg* (urgent), *ack* (acknowledgement), *psh* (push), *rst* (reset), *syn* (synchronize) and *fin* (finish).

udp – Specifies that the Switch will examine each frame's User Datagram Protocol (UDP) field.

src_port_mask <hex 0x0-0xffff> – Specifies a UDP port mask for the source port.

dst_port_mask <hex 0x0-0xffff> – Specifies a UDP port mask for the destination port.

protocol_id <value 0-255> – Specifies that the Switch will examine the protocol field in each packet and if this field contains the value entered here, apply the following rules.

user_define_mask <hex 0x0-0xffffffff> – Specifies that the rule applies to the IP protocol ID and the mask options behind the IP header.

packet_content_mask – Allows users to examine up to 4 specified offset_chunk within a packet at one time and specifies that the Switch will mask the packet header beginning with the offset value specified as follows:

create access_profile

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> }

With this advanced unique Packet Content Mask (also known as Packet Content Access Control List - ACL), D-Link switches can effectively mitigate some network attacks like the common ARP Spoofing attack that is wide spread today. This is the reason why Packet Content ACL is able to inspect any specified content of a packet in different protocol layers.

IPV6 – Denotes that IPv6 packets will be examined by the Switch for forwarding or filtering based on the rules configured in the config access_profile command for IPv6.

- *class* – Entering this parameter will instruct the Switch to examine the *class* field of the IPv6 header. This class field is a part of the packet header that is similar to the Type of Service (ToS) or Precedence bits field in IPv4.
- *flowlabel* – Entering this parameter will instruct the Switch to examine the *flow label* field of the IPv6 header. This flow label field is used by a source to label sequences of packets such as non-default quality of service or real time service packets.
- *tcp* – Specifies that the Switch will examine each frame’s Transmission Control Protocol (TCP) field.
- *udp* – Specifies that the Switch will examine each frame’s User Datagram Protocol (UDP) field.
- *source_ipv6_mask <ipv6mask>* – Specifies an IP address mask for the source IPv6 address.

destination_ipv6_mask <ipv6mask> – Specifies an IP address mask for the destination IPv6 address.

Restrictions Only Administrator and Operator-level users can issue this command.

Example usage:

To create an access list rules:

```
DAS-3626:admin#create access_profile profile_id 5 profile_name 5 ethernet vlan
source_mac 00-00-00-00-00-01 destination_mac 00-00-00-00-00-02 802.1p ethernet_type
Command: create access_profile profile_id 5 profile_name 5 ethernet vlan source_mac
00-00-00-00-00-01 destination_mac 00-00-00-00-00-02 802.1p ethernet_type


Success.


DAS-3626:admin#
```

delete access_profile

Purpose	Used to delete a previously created access profile.
Syntax	**delete access_profile [profile_id <value 1-12> | all | profile_name <name 1-32 >]**
Description	This command is used to delete a previously created access profile on the Switch.
Parameters	*profile_id <value 1-12>* – Enter an integer between 1 and 12 that is used to identify the access profile that will be deleted with this command. This value is assigned to the access profile when it is created with the **create access_profile** command. The user may enter a profile ID number between 1 and 12, yet, remember only 12 access profiles can be created on the Switch. *profile_name <name 1-32>* – Specifies the name of the profile. The maximum length is 32 characters. *all* – Entering this parameter will delete all access profiles currently configured on the Switch.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To delete the access profile with a profile ID of 1:

```
DAS-3626:admin#delete access_profile profile_id 1
Command: delete access_profile profile_id 1

Success.

DAS-3626:admin#
```

<table>
<tr><th colspan="2">config access_profile</th></tr>
<tr><td><b>Purpose</b></td><td>Used to configure an access profile on the Switch and to define specific values that will be used to by the Switch to determine if a given packet should be forwarded or filtered. Masks entered using the <b>create access_profile</b> command will be combined, using a logical AND operational method, with the values the Switch finds in the specified frame header fields. Specific values for the rules are entered using the <b>config access_profile</b> command, below.</td></tr>
<tr><td><b>Syntax</b></td><td><b>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>| vlan_id <value 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)|ipv4{[vlan <vlan_name 32>| vlan_id <value 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>}|urg|ack|psh|rst|syn|fin}|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] | vlanbased [vlan_name <vlan_name>
 | vlan_id <value 1-4094>]] [permit {priority <value 0-7> {replace_priority} |rx_rate [no_limit|<value 1-15624>]
|replace_dscp_with <value 0-63>} |mirror |deny] {time_range <range_name 32>}|delete access_id <value 1-1024>]</b></td></tr>
<tr><td><b>Description</b></td><td>This command is used to configure an access profile on the Switch and to enter specific values that will be combined, using a logical AND operational method, with masks entered with the <b>create access_profile</b> command, above.</td></tr>
</table>

config access_profile	
Parameters	*profile_id <value 1-12>* – Enter an integer used to identify the access profile that will be configured with this command. This value is assigned to the access profile when it is created with the **create access_profile** command. The profile ID sets the relative priority for the profile and specifies an index number that will identify the access profile being created with this command. Priority is set relative to other profiles where the lowest profile ID has the highest priority. The user may enter a profile ID number between 1 and 12, yet, remember only 12 access profiles can be created on the Switch. *profile_name<name 1-32>* – Specifies the name of the profile. The maximum length is 32 characters. *add access_id <value 1-1024>* – Adds an additional rule to the above specified access profile. The value is used to index the rule created. For information on number of rules that can be created for a given port, lease see the introduction to this chapter. *ethernet* – Specifies that the Switch will look only into the layer 2 part of each packet. *vlan <vlan_name 32>*|*vlan_id <value 1-4094>* – Specifies that the access profile will apply to only to this VLAN. *source_mac <macaddr >* – Specifies that the access profile will apply to only packets with this source MAC address. *destination_mac <macaddr >* – Specifies that the access profile will apply to only packets with this destination MAC address. *802.1p <value 0-7>* – Specifies that the access profile will apply only to packets with this 802.1p priority value. *ethernet_type <hex 0x0-0xffff>* – Specifies that the access profile will apply only to packets with this hexadecimal 802.1Q Ethernet type value in the packet header.

config access_profile

Parameters

ip v4– Specifies that the Switch will look into the IP fields in each packet.

vlan <vlan_name 32>|*vlan_id<value 1-4094>* – Specifies that the access profile will apply to only this VLAN.

source_ip <ipaddr> – Specifies that the access profile will apply to only packets with this source IP address.

destination_ip <ipaddr> – Specifies that the access profile will apply to only packets with this destination IP address.

dscp <value 0-63> – Specifies that the access profile will apply only to packets that have this value in their Type-of-Service (DiffServ code point, DSCP) field in their IP packet header

icmp – Specifies that the Switch will examine the Internet Control Message Protocol (ICMP) field within each packet.

> *type <value 0-65535>* – Specifies that the access profile will apply to this ICMP type value.
>
> *code <value 0-255>* – Specifies that the access profile will apply to this ICMP code.

igmp – Specifies that the Switch will examine the Internet Group Management Protocol (IGMP) field within each packet.

> *type <value 0-255>* – Specifies that the access profile will apply to packets that have
>
> this IGMP type value.

tcp – Specifies that the Switch will examine the Transmission Control Protocol (TCP) field within each packet.

- *src_port <value 0-65535>* – Specifies that the access profile will apply only to packets that have this TCP source port in their TCP header.
- *dst_port <value 0-65535>* – Specifies that the access profile will apply only to packets that have this TCP destination port in their TCP header.

> *urg*: TCP control flag (urgent)
>
> *ack*: TCP control flag (acknowledgement)
>
> *psh*: TCP control flag (push)
>
> *rst*: TCP control flag (reset)
>
> *syn*: TCP control flag (synchronize)
>
> *fin*: TCP control flag (finish)

udp – Specifies that the Switch will examine the User Datagram Protocol (UDP) field in each packet.

src_port <value 0-65535> – Specifies that the access profile will apply only to packets that have this UDP source port in their UDP header.

dst_port <value 0-65535> – Specifies that the access profile will apply only to packets that have this UDP destination port in their UDP header.

protocol_id <value 0-255> – Specifies that the Switch will examine the protocol field in each packet and if this field contains the value entered here, apply the following rules.

user_define <hex 0x0-0xfffffff> – Specifies a mask to be combined with the value found in the frame header and if this field contains the value entered here, apply the following rules.

packet_content_mask – Allows users to examine any up to four specified offset_chunk within a packet at one time and specifies that the Switch will mask the packet header beginning with the offset value specified as follows:

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>}}

With this advanced unique Packet Content Mask (also known as Packet Content Access Control List - ACL), D-Link switches can effectively mitigate some network attacks like the common ARP Spoofing attack that is wide spread today. This is the reason that Packet Content ACL is able to inspect any specified content of a packet in different protocol layers.

IPV6 - Denotes that IPv6 packets will be examined by the Switch for forwarding or filtering

config access_profile	
Parameters	*port <portlist>* – Specifies the port number on the Switch to permit or deny access for the rule. *vlanbased [vlan <vlan_name>* | *vlan_id <value 1-4094>]* – Specifies that the access profile will apply to only to this VLAN. *permit* – Specifies the rule permit access for incoming packets on the previously specified port. *priority <value 0-7>* – Specifies that the access profile will apply to packets that contain this value in their 802.1p priority field of their header for incoming packets on the previously specified port. *{replace_priority}* – Allows users to specify a new value to be written to the priority field of an incoming packet on the previously specified port. *replace_dscp_with <value 0-63>* – Allows users to specify a new value to be written to the DSCP field of an incoming packet on the previously specified port. *replace_tos_precedence_with <value 0-7>* – Specifies the packets that match the access profile and that tos-precedence values will be changed by the switch. *rx_rate* – Specifies that one of the parameters below (*no_limit* or *<value 1-15624>*) will be applied to the rate at which the above specified ports will be allowed to receive packets • *no_limit* – Specifies that there will be no limit on the rate of packets received by the above specified ports. • *<value 1-15624>* – Specifies the packet limit, in 64Kbps, that the above ports will be allowed to receive. *deny* – Specifies the rule will deny access for incoming packets on the previously specified port. *mirror* – Specifies the packets that match the access profile, copies it and sends the copied one to the mirror port. *time_range* – Specifies the time_range profile that has been associated with the ACL entries. *delete access_id <value 1-1024>* – Use this to remove a previously created access rule of a profile ID. For information on number of rules that can be created for a given port, lease see the introduction to this chapter.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure the access profile with the profile ID of 1 to filter frames on port 7 that have IP addresses in the range between 10.42.73.0 to 10.42.73.255:

```
DAS-3626:admin#config access_profile profile_id 1 add access_id 1 ip source_ip
10.42.73.1 port 7 deny
Command: config access_profile profile_id 1 add access_id 1 ip source_ip 10.42.73.1
port 7 deny

Success.

DAS-3626:admin#
```

NOTE: Address Resolution Protocol (ARP) is the standard for finding a host's hardware address (MAC Address). However, ARP is vulnerable as it can be easily spoofed and utilized to attack a LAN (known as ARP spoofing attack). For a more detailed explaination on how ARP protocol works and how to employ D-Link's advanced unique Packet Content ACL to prevent an ARP spoofing attack, please see Appendix B, at the end of this manual.

show access_profile	
Purpose	Used to display the currently configured access profiles on the Switch.

show access_profile

Syntax	**show access_profile {profile_id <value 1-12>| profile_name <name 1-32 >}**
Description	This command is used to display the currently configured access profiles.
Parameters	*profile_id <value 1-12>* – Specify the profile id to display only the access rules configuration for a single profile ID. The user may enter a profile ID number between 1 and 12, yet, remember only 12 access profiles can be created on the Switch *profile_name <name 1-32>* – Specifies the name of the profile. The maximum length is 32 characters.
Restrictions	None.

Example usage:

To display all of the currently configured access profiles on the Switch:

```
DAS-3626:admin#show access_profile
Command: show access_profile

Access Profile Table

Total Unused Rule Entries: 1023
Total Used Rule Entries  :1


Access Profile ID: 5                                      Type : Ethernet
================================================================================
Profile Name:5
Owner       : ACL
MASK Option :
VLAN         Source MAC         Destination MAC   802.1P  Ethernet Type
             00-00-00-00-00-01  00-00-00-00-00-02
-----------  -----------------  ----------------- ------  -------------
================================================================================
Unused Entries: 1023


DAS-3626:admin#
```

config time_range

Purpose	Used to configure the range of time to activate a function on the switch.
Syntax	**config time_range <range_name 32> [hours start_time < time hh:mm:ss > end_time< time hh:mm:ss > weekdays <daylist> | delete]**
Description	This command defines 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.
Parameters	*range_name* – Specifies the name of the time range settings. *start_time* – Specifies the starting time in a day. (24-hr time) For example, 19:00 means 7PM. 19 is also acceptable. start_time must be smaller than end_time. *end_time* – Specifies the ending time in a day. (24-hr time) *weekdays* – Specify 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) *delete* – Deletes a time range profile. When a time_range profile has been associated with ACL entries, the delete of this time_range profile will fail.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To config time range:

```
DAS-3626:admin#config time_range 1-3_new hours start_time 11:21:20 end_time 11:44:40
weekdays mon-fri
Command: config time_range 1-3_new hours start_time 11:21:20 end_time 11:44:40
weekdays mon-fri

Success.

DAS-3626:admin#
```

show time_range

Purpose	Used to display current access list table.
Syntax	**show time_range**
Description	This command is used to display current time range setting.
Parameters	None.
Restrictions	None.

Example usage:

To show the time range on the Switch:

```
DAS-3626:admin#show time_range
Command: show time_range

Time Range Information
-------------------------
Range Name   :  1-3_new
Weekdays     :  Mon,Tue,Wed,Thu,Fri
Start Time   :  11:21:20
End Time     :  11:44:40

Total Entries :1

DAS-3626:admin#
```

show current_config access_profile

Purpose	This command displays the ACL part of current configuration.
Syntax	**show current_config access_profile**
Description	This command displays the ACL privilege of the 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.
Parameters	None.
Restrictions	None.

Example usage:

To show the current configuration access profile on the Switch:

```
DAS-3626:admin#show current_config access_profile
Command: show current_config access_profile

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

# ACL

create access_profile profile_id 1 profile_name RG ethernet vlan ethernet_type

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

DAS-3626:admin#
```

39

VDSL COMMANDS

The VDSL switch commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
show vdsl brief_status	[alarms | attenuation | line_state | profiles | rate | snrmargin | txpower]
config vdsl line	[<vdsl_portlist> | all] [state [use(1) | no_use(0)] | name <name> | retrain | reset | loopback [co_side(0) | eoc(1) | cpe_side(2)] times <int 1-400> size <int 64-1518> | loop_diagnostic]
show vdsl line	[<vdsl_portlist> | all] [bit_map | snr_margin_map | psd_map | attenuation_map | status {brief} | loop_diagnostic | pm_counters [15mins | 1day]]
config vdsl pm_threshold	[15min(0) | 1day(1) | both(2)] [near_end(0) | far_end(1) | both_ends(2)] {es(0) <threshold> | ses(1) <threshold> | uas(2) <threshold> | crc_error(3) <threshold>}
show vdsl pm_threshold	
create vdsl profile	<profile_name 32>

Command	Parameters

config vdsl profile	[<profile_id 1-60> | name <profile_name 32>] [attach [<vdsl_portlist> | all] |
	profile_name <name> |
	Vdsl2Profile [8a | 8b | 8c | 8d | 12a | 12b | 17a | 30a | autoprofile | autoprofile1] |
	UPBO [disable | g.993.2 | custom [<k_value> <k_value> <k_value> <k_value>
	<k_value> <k_value> <k_value> <k_value> <k_value> <k_value> <k_value> <k_value>]] |
	DPBO [disable | enable)] |
	DPBOValues [DPBOESEL <int 0-511> | DPBOESCMA <int 0-640> | DPBOESCMB
	<int 0-640> | DPBOESCMC <int 0-640> | DPBOMUS <int 0-255> | DPBOFMIN
	<int 0-2048> | DPBOFMAX <int 32-6956> | DPBOEPSD [numpsd <int 0-32> {frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>}{frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>}{frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>}{frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>}{frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>}{frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}]] |
	TrellisCoding [disable | enable] |
	RateAdaptive [fix | rate-adaptive] |
	RaMode [decrease | increase-decrease] | [MaxTxRate | MaxRxRate | MinTxRate | MinRxRate] <vdsl_speed 32-104960> |
	[SnrMarginTx | SnrMarginRx] max <vdsl_snr_max 0-62> min <vdsl_snr_min 0-62> target <vdsl_snr_target 0-62> |
	[InterleaveDelayDn | InterleaveDelayUp] <vdsl_inter_delay 0-62> |
	[MinInpDn | MinInpUp] <vdsl_inp_min 0-32> |
	PSDMask [M2Cab(1) | M1Cab(0)] |
	LimitPSDMask(21) [nus0(0) | eu32(1) | eu64(2)] |
	BitSwap(22) [disable(0) | enable(1)] |
	RFI(23) [G.993.2(1) | disable(0)] |
	ReducedPSD(24) [ds1(0) | us1(1) | both(2)] [disable(0) | enable(1)] |
	[PSDBreakPointTx | PSDBreakPointRx] [numpsd <int 0-32>
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}

Command	Parameters
delete vdsl profile	[<profile_id 1-60> | name <profile_name 32>]
show vdsl profile	[<profile_id 1-60> | name <profile_name 32> | all] [temp | run]
clear vdsl_counter	[<vdsl_portlist> | all]

Each command is listed, in detail, in the following sections.

show vdsl brief_status

Purpose	Used to show VDSL brief status.
Syntax	show vdsl brief_status [alarms|attenuation|line_state|profiles|rate|snrmargin|txpower]
Description	This command is used to show VDSL brief status,such as VDSL counter alarm , VDSL attenuation , VDSL line state,VDSL SNR margin,VDSL Transmission power
Parameters	*alarms* –display VDSL alarm counter including CRC,RS,ES *attenuation* –display VDSL downstream /upstream attenuation line_state –display VDSL line link status,profile setting , uptime. profiles –display VDSL line brief profile. rate –display VDSL line downstream /upstream data rate. snrmargin –display VDSL line downstream /upstream SNR margin. txpower –display VDSL line downstream /upstream Transmission power.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To show vdsl .line downstream /upstream Transmission powe

```
DAS-3626:admin#show vdsl brief_status txpower
Command: show vdsl brief_status txpower
GET VDSL TXPOWER

VDSL(   1):txpower (down/up) = 0.0 / 0.0 dbm
VDSL(   2):txpower (down/up) = 0.0 / 0.0 dbm
VDSL(   3):txpower (down/up) = 0.0 / 0.0 dbm
VDSL(   4):txpower (down/up) =      12.4 /       7.7 dbm
VDSL(   5):txpower (down/up) = 0.0 / 0.0 dbm
VDSL(   6):txpower (down/up) = 0.0 / 0.0 dbm
VDSL(   7):txpower (down/up) = 0.0 / 0.0 dbm
VDSL(   8):txpower (down/up) = 0.0 / 0.0 dbm
VDSL(   9):txpower (down/up) = 0.0 / 0.0 dbm
VDSL(  10):txpower (down/up) = 0.0 / 0.0 dbm
VDSL(  11):txpower (down/up) = 0.0 / 0.0 dbm
VDSL(  12):txpower (down/up) = 0.0 / 0.0 dbm
VDSL(  13):txpower (down/up) = 0.0 / 0.0 dbm
VDSL(  14):txpower (down/up) = 0.0 / 0.0 dbm
VDSL(  15):txpower (down/up) = 0.0 / 0.0 dbm
VDSL(  16):txpower (down/up) = 0.0 / 0.0 dbm
VDSL(  17):txpower (down/up) = 0.0 / 0.0 dbm
VDSL(  18):txpower (down/up) = 0.0 / 0.0 dbm
VDSL(  19):txpower (down/up) = 0.0 / 0.0 dbm
VDSL(  20):txpower (down/up) = 0.0 / 0.0 dbm
VDSL(  21):txpower (down/up) = 0.0 / 0.0 dbm
VDSL(  22):txpower (down/up) = 0.0 / 0.0 dbm
VDSL(  23):txpower (down/up) = 0.0 / 0.0 dbm
VDSL(  24):txpower (down/up) = 0.0 / 0.0 dbm
DAS-3626:admin#
```

config vdsl line

Purpose	Used to configure vdsl line configuration
Syntax	**config vdsl line [<portlist>|all] [state [use(1)|no_use(0)]|name <name> | retrain | reset | loopback [co_side(0)|eoc(1)|cpe_side(2)] times <int 1-400> size <int 64-1518> | loop_diagnostic]**
Description	This command will configure the VDSL line state,name,re-train,reset,loopback test,loop_diagnostic
Parameters	*[<portlist>|all]* – The list of port numbers to config *state*– Used to use/no_use the VDSL line. *name* –config vdsl line as assigned name. *retrain* – re-train vdsl line . *reset* – reset vdsl line . *loopback* – Used to run loopback test *co side* –Specifies that loop back test is internal . *eoc* –Specifies that loop back test is external via VDSL EOC channel. *cpe side*–Specifies that loop back test is external via VDSL DATA channel.. *times* – How many times to run loop back test. *size* –Specifies pcket size *loop_diagnostic* – run loop diagnostic on vdsl line.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To config vdsl .line use or no_use

```
DAS-3626:admin#config vdsl line 1 state no_use
config vdsl line 1 state no_use
Success.
DAS-3626:admin#
```

Example usage:

config vdsl line loopback test.

```
DAS-3626:admin#config vdsl line 4 loopback  eoc times 3 size 64
Command: config vdsl line 4 loopback  eoc times 3 size 64

[Loopback Test],mode=eoc,port=4,time=3,size=64

Test performed:   3, success:   3, fail:     0
Error Ratio : 0.0 %
Loopback Time Statistics (10 ms):
Max : <10 ms
Min : <10 ms
avr_time : <10 ms
Line 4 loopback test completed.

DAS-3626:admin#
```

show vdsl line	
Purpose	Used to show VDSL line status.
Syntax	**show vdsl line [<portlist>|all] [bit_map | snr_margin_map | psd_map | attenuation_map | status {brief} | loop_diagnostic | pm_counters [15mins|1day]]**
Description	This command is used to show VDSL line status,such as bit map , SNR margin map , PSD map , attenuation map ,line status ,loop diagnostic result
Parameters	*[<portlist>|all]* – The list of port numbers to config *bit_map* –display VDSL line per-tone bit map *snr_margin_map* –display VDSL line per-tone SNR Margin map. *psd_map* –display VDSL line per-tone PSD map . *attenuation_map* –display VDSL line per-tone attenuation map. *status* –display VDSL line status *loop_diagnostic*–display VDSL line loop diagnostic result. *pm_counters*–[15mins | 1day] –display VDSL 15 minute or 1 day performance counter.

show vdsl line	
Restrictions	Only Administrator-level users or Operation-level can issue this command.

Example usage:

```
Show vdsl line bit map
```

```
DAS-3626:admin#show vdsl line 24 bit_map
show vdsl line 24 bit_map
--- Bitmap ---
Line24
(    0 )  0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0
(   16 )  0, 0, 0, 3, 4, 4, 4, 4, 4, 4, 5, 5, 5, 5, 6, 5
(   32 )  6, 6, 6, 0, 6, 6, 6, 6, 6, 6, 6, 6, 6, 7, 7, 7
(   48 )  8, 7, 7, 7, 7, 7, 8, 7, 8, 7, 8, 7, 8, 7, 8, 7
(   64 )  8, 7, 8, 7, 8, 7, 8, 7, 8, 7, 8, 7, 8, 8, 8, 7
(   80 )  8, 7, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8
(   96 )  8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 8, 9, 8, 8, 8
(  112 )  8, 8, 9, 8, 9, 8, 9, 8, 9, 8, 9, 8, 9, 8, 9, 7
(  128 )  0, 0, 7, 8, 9, 8, 9, 8, 9, 9, 9, 8, 9, 8, 9, 8
(  144 )  9, 8, 9, 9, 9, 8, 9, 9, 9, 9, 8, 9, 9, 9, 9, 8
(  160 )  8, 9, 9, 9, 9, 9, 9, 9, 9, 8, 9, 9, 9, 9, 9, 9
(  176 )  9, 9, 9, 8, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 6, 0
(  192 )  0, 6, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9
(  208 )  9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9
(  224 )  9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9, 9
(  240 )  9, 9, 9, 9, 9,10, 9, 9, 9, 9, 9, 9, 9, 9, 6, 0
(  256 )  0, 6, 9, 9, 9, 9, 9,10, 9, 9,10, 9, 9, 9, 9, 9
(  272 )  9, 9,10, 9,10, 9, 9, 9, 9, 9, 9, 9, 9, 9,10, 9
(  288 ) 10, 9, 9, 9, 9, 9, 9, 9,10, 9,10, 9, 9, 9, 9, 9
(  304 )  9, 9,10, 9,10, 9, 9, 9, 9, 9,10, 9,10, 9, 8, 0
DAS-3626:admin#
```

Example usage:

Show vdsl line status

```
DAS-3626:admin#show vdsl line 24 status
show vdsl line 24 status
Line24       : vdsl24
Link State    : Showtime
Line TYPE     : Interleaved
Line Uptime   : 0 days 20 hours 25 minutes 24 seconds
Band Plan     : ITU ANNEX A EU32
VDSL2 Profile : 30a
                       |   Downstream |     Upstream
------------------------------------------------------------------
Line Rate                  |   118.252Mbps|   115.972Mbps
Payload Rate                 |   103.984Mbps|   101.992Mbps
Attainable Payload Rate        |   104.960Mbps|   104.960Mbps
SNR Margin            US0     |          N/A|          N/A
               DS1/US1    |       20.2dB|       10.4db
               DS2/US2    |       20.5dB|       11.0db
               DS3/US3    |       20.4dB|        9.5db
Average SNR Margin             |       20.3dB|        9.5dB
Interleave Delay              |        7.7ms|        7.7ms
INP (in DMT symbols)           |          1.4|          1.4
Transmit power                |      12.4dBm|       7.7dBm
Line Attenuation        US0    |          N/A|          N/A
               DS1/US1    |        0.1dB|        0.0db
               DS2/US2    |        0.1dB|        1.7db
CTRL+C ESC q Quit SPACE n Next Page ENTER Next Entry a All
DAS-3626:admin#
```

Example usage:

Show vdsl line performance counter

```
DAS-3626:admin#show vdsl line 24 pm_conters 15 mins
show vdsl line 24 pm_conters 15 mins
==================Performance Management Data For 15 Mins=====================
Line : vdsl24

    |              Downstream |                Upstream
Num |  ES  SES  UAS   CRC LOSS LOFS |  ES  SES  UAS      CRC LOSS LOFS
-------------------------------------------------------------------------------
 1 |   0    0    0      0    0    0 |   0    0    0       0    0    0
 2 |   0    0    0      0    0    0 |   0    0    0       0    0    0
 3 |   0    0    0      0    0    0 |   0    0    0       0    0    0
 4 |   0    0    0      0    0    0 |   0    0    0       0    0    0
 5 |   0    0    0      0    0    0 |   0    0    0       0    0    0
 6 |   0    0    0      0    0    0 |   0    0    0       0    0    0
 7 |   0    0    0      0    0    0 |   0    0    0       0    0    0
 8 |   0    0    0      0    0    0 |   0    0    0       0    0    0
 9 |   0    0    0      0    0    0 |   0    0    0       0    0    0
10 |   0    0    0      0    0    0 |   0    0    0       0    0    0
11 |   0    0    0      0    0    0 |   0    0    0       0    0    0
12 |   0    0    0      0    0    0 |   0    0    0       0    0    0
13 |   0    0    0      0    0    0 |   0    0    0       0    0    0
14 |   0    0    0      0    0    0 |   0    0    0       0    0    0
15 |   0    0    0      0    0    0 |   0    0    0       0    0    0
16 |   0    0    0      0    0    0 |   0    0    0       0    0    0
DAS-3626:admin#
```

config vdsl pm_threshold

Purpose	Used to config vdsl performance counter threshold.
Syntax	**config vdsl pm_threshold [15min|1day|both] [near_end|far_end|both_ends] {es <threshold> |ses <threshold> |uas <threshold> |crc_error <threshold>}**
Description	This command is used to config VDSL near_end and far_end performance counter threshold including ES(Errored Second) , SES(Severely Errored Second) , UAS(Unavailable Second) , CRC(Cyclic Redundancy Check)
Parameters	*[15min|1day|both]* – config 15 minute ,one day performance counter threshold *[near_end|far_end|both_ends]* – config VDSL near_end or far_end performance counter threshold *{es <threshold> |ses <threshold> |uas <threshold> |crc_error <threshold>}*– config ES,SES,UAS or CRC counter threshold
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To config vdsl performance counter threshold

```
DAS-3626:admin#config vdsl pm_threshold 15min near_end es 100
Command: config vdsl pm_threshold 15min near_end es 100
Success.
DAS-3626:admin#
```

show vdsl pm_threshold

Purpose	Used to show vdsl performance counter threshold.
Syntax	**show vdsl pm_threshold**
Description	This command is used to shwo VDSL performance counter threshold.
Parameters	
Restrictions	Only Administrator-level users or Operation-level can issue this command.

Example usage:

To config vdsl performance counter threshold

```
DAS-3626:admin#show vdsl pm_threshold
Command: show vdsl pm_threshold
15 min. PM counters' threshold values
              |     Near end |        Far end
----------------------------------------------------------
ES            |          100|            10
SES           |           10|            10
UAS           |            0|             0
CRC           |           10|            10

1 day PM counters' threshold values
              |     Near end |        Far end
----------------------------------------------------------
ES            |           10|            10
SES           |           10|            10
UAS           |            0|             0
CRC           |           10|            10
DAS-3626:admin#
```

create vdsl profile

Purpose	Used to create vdsl profile.
Syntax	**create vdsl profile <profile_name 32>**
Description	This command is used to create VDSL profile.
Parameters	**<profile_name 32>**–The name of the profile to be created
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To create vdsl profile

```
DAS-3626:admin#create vdsl profile profile_1
Command: create vdsl profile profile_1
Success.
DAS-3626:admin#
```

config vdsl profile attach

Purpose	Used to config vdsl profile.
Syntax	config vdsl profile [<profile_id 1-60>|name <profile_name 32>] attach [<portlist>|all]
Description	This command is used to config VDSL profile to attach vdsl line.
Parameters	*<profile_id 1-60>*–The profile ID of the profile to be configed *name <profile_name 32>*–The name of the profile to be configed *attach* –attached assigned profile to VDSL line *<portlist>* – A port or range of ports to be attach
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To config vdsl profile to attach VDSL line 1

```
DAS-3626:admin#config vdsl profile name default1 attach 1
Command: config vdsl profile name default1 attach 1
Success.
DAS-3626:admin#
```

config vdsl profile profile_nam

Purpose	Used to config vdsl profile.
Syntax	config vdsl profile [<profile_id 1-60>|name <profile_name 32>] profile_name <name>
Description	This command is used to rename VDSL profile .
Parameters	*<profile_id 1-60>*–The profile ID of the profile to be configed *name <profile_name 32>*–The name of the profile to be configed *profile_name*–rename VDSL profile *<name>* – The name of the VDSL profile to rename
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To rename vdsl profile

```
DAS-3626:admin#config vdsl profile name default1 profile_name default
Command: config vdsl profile name default1 profile_name default
Success.
DAS-3626:admin#
```

config vdsl profile Vdsl2Profile

Purpose	Used to config vdsl profile.
Syntax	config vdsl profile [<profile_id 1-60>|name <profile_name 32>] Vdsl2Profile [8a|8b|8c|8d|12a|12b|17a|30a|autoprofile|autoprofile1]
Description	This command is used to config VDSL profile parameter .
Parameters	*<profile_id 1-60>*–The profile ID of the profile to be configed *name <profile_name 32>*–The name of the profile to be configed Vdsl2Profile–*G*993.2 VDSL profile , such as *8a,8b,8c,12a,12b,17a,30a and autoprofile*
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To config g993.2 vdsl profile parameter

```
DAS-3626:admin#config vdsl profile name default Vdsl2Profile autoprofile
Command: config vdsl profile name default Vdsl2Profile autoprofile
Success.
DAS-3626:admin#
```

config vdsl profile UPBO

Purpose	Used to config vdsl profile UPBO.
Syntax	config vdsl profile [<profile_id 1-60>|name <profile_name 32>] UPBO [disable|g.993.2|custom [<k_value> <k_value> <k_value> <k_value> <k_value> <k_value> <k_value> <k_value> <k_value> <k_value> <k_value> <k_value>]]
Description	This command is used to rename VDSL UPBO .
Parameters	*<profile_id 1-60>*–The profile ID of the profile to be configed *name <profile_name 32>*–The name of the profile to be configed UPBO–config UPBO(Upstream Power Back-Off) ● *disable*–disable UPBO ● *g.993.2*–enable UPBO follow g.993.2 ● *custom*–
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To config vdsl UPBOr

```
DAS-3626:admin#config vdsl profile name default UPBO g.993.2
Command: config vdsl profile name default UPBO g.993.2
Success.
DAS-3626:admin#
```

config vdsl profile DPBO

Purpose	Used to config vdsl profile DPBO.
Syntax	config vdsl profile [name <profile_id 1-60>|<profile_name 32>] DPBO [disable|enable]
Description	This command is used to rename VDSL DPBO .
Parameters	*<profile_id 1-60>*–The profile ID of the profile to be configed *name <profile_name 32>*–The name of the profile to be configed DPBO–config DPBO(Downstream Power Back-Off) ● *disable*–disable DPBO ● enable–enable DPBO
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To config vdsl DPBO

```
DAS-3626:admin#config vdsl profile name default DPBO disable
Command: config vdsl profile name default DPBO disable
Success.
DAS-3626:admin#
```

config vdsl profile DPBOValues

Purpose	Used to config vdsl profile DPBO value.

Syntax	config vdsl profile [<profile_id 1-60>|name <profile_name 32>] DPBOValues [DPBOESEL <int 0-511>|DPBOESCMA <int 0-640>|DPBOESCMB
	<int 0-640>|DPBOESCMC <int 0-640>|DPBOMUS <int 0-255> |DPBOFMIN
	<int 0-2048>|DPBOFMAX <int 32-6956> | DPBOEPSD [numpsd <int 0-32>
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>}{frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>}{frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>}{frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>}{frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>}{frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}
	{frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}]]

Description	This command is used to config VDSL DPBO value .
Parameters	*<profile_id 1-60>*–The profile ID of the profile to be configed *name <profile_name 32>*–The name of the profile to be configed DPBOValues–config DPBO(Downstream Power Back-Off) value ● *DPBOESEL*–Downstream Power Back-Off E-side Electrical Length ● *DPBOESCMA*–Downstream Power Back-Off E-side Cable Model A ● *DPBOESCMB*–Downstream Power Back-Off E-side Cable Model B ● *DPBOESCMC*–Downstream Power Back-Off E-side Cable Model C ● *DPBOMUS*–Downstream Power Back-Off Minimum Usable Signal ● *DPBOFMIN*–Downstream Power Back-Off span Minimum Frequency ● *DPBOFMAX*–Downstream Power Back-Off span maximum frequency ● *DPBOEPSD*–Downstream Power Back-Off assumed Exchange PSD mask
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To config vdsl DPBO value

```
DAS-3626:admin#config vdsl profile name default DPBOValues DPBOESEL 30
Command: config vdsl profile name default DPBOValues DPBOESEL 30
Success.
DAS-3626:admin#
```

config vdsl profile TrellisCoding

Purpose	Used to config vdsl profile TrellisCoding
Syntax	config vdsl profile [<profile_id 1-60>|name <profile_name 32>] TrellisCoding [disable|enable]
Description	This command is used to enable/disable VDSL trellis coding.
Parameters	*<profile_id 1-60>*–The profile ID of the profile to be configed *name <profile_name 32>*–The name of the profile to be configed *TrellisCoding*–To config VDSL trellis coding ● *enable*–enable VDSL trellis coding ● *disable*–disable VDSL trellis coding
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To config vdsl trellis coding

```
DAS-3626:admin#config vdsl profile name default TrellisCoding enable
Command: config vdsl profile name default TrellisCoding enable
Success.
DAS-3626:admin#
```

config vdsl profile RateAdaptive

Purpose	Used to config vdsl profile rate adaptive method
Syntax	config vdsl profile [<profile_id 1-60>|name <profile_name 32>] RateAdaptive [fix|rate-adaptive]
Description	This command is used to config VDSL rate adaptive.
Parameters	*<profile_id 1-60>*–The profile ID of the profile to be configed *name <profile_name 32>*–The name of the profile to be configed *RateAdaptive*–To config VDSL profile rate adaptive method ● *fix*–The vdsl line will only train at the maximum data rate specified. If synchronization fails, the channel will keep attempting to train at the fixed rate indefinitely. ● *rate-adaptive*–Synchronization will occur within the margin between maximum and minimum data rates specified. Depend online condition.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To config vdsl profile rate adaptive method

```
DAS-3626:admin#config vdsl profile name default RateAdaptive fix
Command: config vdsl profile name default RateAdaptive fix
Success.
DAS-3626:admin#
```

config vdsl profile RaMode

Purpose	Used to config vdsl profile rate adaptive mode
Syntax	config vdsl profile [<profile_id 1-60>|name <profile_name 32>] RaMode [decrease|increase-decrease]
Description	This command is used to rate adaptive mode.
Parameters	*<profile_id 1-60>*–The profile ID of the profile to be configed *name <profile_name 32>*–The name of the profile to be configed RaMode–To config VDSL profile rate adaptive mode ● *decrease*–The vdsl line will retrain if line condition is below minimum SNR. ● *increase-decrease*– The vdsl line will retrain if line condition is above maximum SNR or below minimum SNR.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To config vdsl profile rate adaptive mode

```
DAS-3626:admin#config vdsl profile name default RaMode decrease
Command: config vdsl profile name default RaMode decrease
Success.
DAS-3626:admin#
```

config vdsl profile [MaxTxRate|MaxRxRate|MinTxRate|MinRxRate]

Purpose	Used to config vdsl profile maximum and minimum RX/TX rate
Syntax	config vdsl profile [<profile_id 1-60>|name <profile_name 32>] [MaxTxRate|MaxRxRate|MinTxRate|MinRxRate] <vdsl_speed 32-104960>
Description	This command is used to rate adaptive mode.
Parameters	*<profile_id 1-60>*–The profile ID of the profile to be configed *name <profile_name 32>*–The name of the profile to be configed [MaxTxRate|MaxRxRate|MinTxRate|MinRxRate]–To config VDSL profile maximum and minimum RX/TX rate ● <vdsl_speed 32-104960>*–vdsl speed minimum is 32kbps,maximum is 104960kbps.The scale is 1 kbps*
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To config vdsl profile maximum and minimum RX/TX rate

```
DAS-3626:admin#config vdsl profile name default MaxTxRate 50000
Command: config vdsl profile name default MaxTxRate 50000
Success.
DAS-3626:admin#
```

config vdsl profile [SnrMarginTx|SnrMarginRx]

Purpose	Used to config vdsl profile TX/RX SNR margin
Syntax	config vdsl profile [<profile_id 1-60>|name <profile_name 32>] [SnrMarginTx|SnrMarginRx] max <vdsl_snr_max 0-62> min <vdsl_snr_min 0-62> target <vdsl_snr_target 0-62>
Description	This command is used to config vdsl profile TX/RX SNR margin.
Parameters	*<profile_id 1-60>*–The profile ID of the profile to be configed *name <profile_name 32>*–The name of the profile to be configed [SnrMarginTx|SnrMarginRx]–To config VDSL profile TX/RX SNR margin ● *max*–maximum SNR margin , increments of 0.5dB.It mean 1 as 0.5dB, 62 as 31dB ● *min*–minimum SNR margin , increments of 0.5dB.It mean 1 as 0.5dB, 62 as 31dB ● *target*–target SNR margin , increments of 0.5dB.It mean 1 as 0.5dB, 62 as 31 dB ■ <vdsl_snr_target 0-62>–increments of 0.5dB.It mean 1 as 0.5dB, 62 as 31 dB
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To config vdsl profile TX/RX SNR margin

```
DAS-3626:admin#config vdsl profile name default SnrMarginTx max 20 min 10 target 15
Command: config vdsl profile name default SnrMarginTx max 20 min 10 target 15
Success.
DAS-3626:admin#
```

config vdsl profile [InterleaveDelayDn|InterleaveDelayUp]

Purpose	Used to config vdsl profile Downstream/Upstream interleave delay
Syntax	config vdsl profile [<profile_id 1-60>|name <profile_name 32>] [InterleaveDelayDn|InterleaveDelayUp] <vdsl_inter_delay 0-62>
Description	This command is used to config vdsl profile Downstream/Upstream interleave delay.
Parameters	*<profile_id 1-60>*–The profile ID of the profile to be configed *name <profile_name 32>*–The name of the profile to be configed [InterleaveDelayDn|InterleaveDelayUp]–To config VDSL profile Downstream/Upstream interleave delay *<vdsl_inter_delay 0-62>*–interleave delay. Provisioned in steps of 0.5 ms..It mean 1 as 0.5ms, 62 as 31ms
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To config vdsl profile Downstream/Upstream interleave delay

```
DAS-3626:admin#config vdsl profile name default InterleaveDelayDn 10
Command: config vdsl profile name default InterleaveDelayDn 10
Success.
DAS-3626:admin#
```

config vdsl profile [MinInpDn|MinInpUp]

Purpose	Used to config vdsl profile Downstream/Upstream minimum INP(Impulse Noise Protection)
Syntax	config vdsl profile [<profile_id 1-60>|name <profile_name 32>] [MinInpDn|MinInpUp] <vdsl_inp_min 0-32>
Description	This command is used to config vdsl profile Downstream/Upstream minimum INP(Impulse Noise Protection).
Parameters	*<profile_id 1-60>*–The profile ID of the profile to be configed *name <profile_name 32>*–The name of the profile to be configed [MinInpDn|MinInpUp]–To config VDSL profile Downstream/Upstream minimum INP(Impulse Noise Protection). *< vdsl_inp_min 0-32>*–interleave delay. Provisioned in steps of 125usec..It mean 1 as 125usec, 2 as 250 usec.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To config vdsl profile Downstream/Upstream minimum INP

```
DAS-3626:admin#config vdsl profile name default MinInpDn 10
Command: config vdsl profile name default MinInpDn 10
Success.
DAS-3626:admin#
```

config vdsl profile PSDMask

Purpose	Used to config vdsl profile PSD mask
Syntax	config vdsl profile [<profile_id 1-60>|name <profile_name 32>] PSDMask [M2Cab|M1Cab]
Description	This command is used to config vdsl profile PSD mask.
Parameters	*<profile_id 1-60>*–The profile ID of the profile to be configed *name <profile_name 32>*–The name of the profile to be configed *PSDMask*–To config VDSL profile PSD mask. *[M2Cab|M1Cab]*–support M1 CAB or M2 CAB
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To config vdsl profile vdsl profile PSD mask

```
DAS-3626:admin#config vdsl profile name default PSDMask M1Cab
Command: config vdsl profile name default PSDMask M1Cab
Success.
DAS-3626:admin#
```

config vdsl profile LimitPSDMask

Purpose	Used to config vdsl profile limit PSD mask
Syntax	config vdsl profile [<profile_id 1-60>|name <profile_name 32>] LimitPSDMask [nus0|eu32|eu64]
Description	This command is used to config vdsl profile limit PSD mask.
Parameters	*<profile_id 1-60>*–The profile ID of the profile to be configed *<profile_name 32>*–The name of the profile to be configed *LimitPSDMask*–To config VDSL profile limit PSD mask. *nus0*–limit psd mask to AnnexA NUS0_D-32 *eu32*–limit psd mask to AnnexA EU-32_D-32 *eu64*–limit psd mask to AnnexB EU-64_D-64
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To config vdsl profile vdsl profile limit PSD mask

```
DAS-3626:admin#config vdsl profile name default LimitPSDMask eu32
Command: config vdsl profile name default LimitPSDMask eu32
Success.
DAS-3626:admin#
```

config vdsl profile BitSwap

Purpose	Used to config vdsl profile bit swap
Syntax	config vdsl profile [<profile_id 1-60>|name <profile_name 32>] BitSwap [disable|enable]
Description	This command is used to config vdsl profile bit swap.
Parameters	*<profile_id 1-60>*–The profile ID of the profile to be configed *name <profile_name 32>*–The name of the profile to be configed *BitSwap*–To config VDSL profile bit swap. *enable*–enable bit swp *disable*–disable bit swap
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To config vdsl profile vdsl profile bit swap

```
DAS-3626:admin#config vdsl profile name default bit swap enable
Command: config vdsl profile name default bit swap enable
Success.
DAS-3626:admin#
```

config vdsl profile RFI

Purpose	Used to config vdsl profile RFI
Syntax	config vdsl profile [<profile_id 1-60>|name <profile_name 32>] RFI [G.993.2|disable]
Description	This command is used to config vdsl profile bit swap.
Parameters	*<profile_id 1-60>*–The profile ID of the profile to be configed *name <profile_name 32>*–The name of the profile to be configed *RFI*–To config VDSL profile RFI. *G.993.2*–enable G.993.2 RFI band *disable*–disable RFI band
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To config vdsl profile vdsl profile RFI

```
DAS-3626:admin#config vdsl profile name default RFI G.993.2
Command: config vdsl profile name default RFI G.993.2
Success.
DAS-3626:admin#
```

config vdsl profile ReducedPSD

Purpose	Used to config vdsl profile reduce PSDI
Syntax	config vdsl profile [<profile_id 1-60>|name <profile_name 32>] ReducedPSD [ds1|us1|both] [disable(0)|enable(1)]
Description	This command is used to config vdsl profile reduce PSD.
Parameters	*<profile_id 1-60>*–The profile ID of the profile to be configed *name <profile_name 32>*–The name of the profile to be configed *ReducedPSD*–To config VDSL profile reduce PSD. *ds1*–downstream band 1 *us1*–upstream band 1 *both*–upstream band 1 and downstream band 1 *[disable|enable]* –enable/disable upstream band 1 and downstream band 1 reduce PSD
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To config vdsl profile vdsl profile reduce PSD

```
DAS-3626:admin#config vdsl profile name default ReducedPSD ds1 disable
Command: config vdsl profile name default ReducedPSD ds1 disable
Success.
DAS-3626:admin#
```

config vdsl profile [PSDBreakPointTx|PSDBreakPointRx]	
Purpose	Used to config vdsl profile Downstream/Upstream PSD breakpoint.
Syntax	config vdsl profile [<profile_id 1-60>|name <profile_name 32>] [PSDBreakPointTx| PSDBreakPointRx] [numpsd <int 0-32> {frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>} {frq <frq> psd_value <psd_value>}]
Description	This command is used to config vdsl profile Downstream/Upstream PSD breakpoint.
Parameters	*<profile_id 1-60>*–The profile ID of the profile to be configed *name <profile_name 32>*–The name of the profile to be configed *[PSDBreakPointTx|PSDBreakPointRx]*–To config VDSL profile Downstream/Upstream PSD breakpoint. *numpsd*–Number of breakpoints *frq*–Specifies the Downstream/Upstream Tone Index for which we need to change the PSD value *psd_value*–PSD value is in terms of (-140 + X*dBStep)dBm/Hz) with 0.5 dB Step
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To config vdsl profile vdsl profile Downstream/Upstream PSD breakpoint

```
DAS-3626:admin#config vdsl profile name default PSDBreakPointTx 1 2 5
Command: config vdsl profile name default PSDBreakPointTx 1 2 5
Success.
DAS-3626:admin#
```

config vdsl profile VirtualNoise

Purpose	Used to config vdsl profile virtual noise.
Syntax	config vdsl profile [<profile_id 1-60>|name <profile_name 32>] VirtualNoise [level <psd_level 60-140> <psd_level 60-140> <psd_level 60-140> <psd_level 60-140> <psd_level 60-140> <psd_level 60-140> <psd_level 60-140> | state [disable|enable] [disable|enable] [disable|enable] [disable|enable] [disable|enable] [disable|enable] [disable|enable]]
Description	This command is used to config vdsl profile virtual noise.
Parameters	*<profile_id 1-60>*–The profile ID of the profile to be configed *name <profile_name 32>*–The name of the profile to be configed *VirtualNoise*–To config VDSL profile virtual noise. *level*–support 7 level (US0,US1,DS1,US2,DS2,US3,DS3)to set virtulal noise *<psd_level 60-140>*–The range is 60-140 (in unit of -dBm/Hz) *state*–enable/disable virtual noise on 7 level *[disable|enable]* –enable/disable virtual noise on specific level
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To config vdsl profile vdsl profile virtual noise

```
DAS-3626:admin#config vdsl profile name default VirtualNoise level 60 60 60 60 60 60 60 state enable disable
disable disable disable disable disable

Command: config vdsl profile name default VirtualNoise level 60 60 60 60 60 60 60 state enable disable disable
disable disable disable disable

Success.

DAS-3626:admin#
```

config vdsl profile [SRADn|SRAUp]

Purpose	Used to config vdsl profile Downstream/Upstream SRA.
Syntax	config vdsl profile [<profile_id 1-60>|name <profile_name 32>] [SRADn|SRAUp] [state [disable|enable]|downshiftSnr <int 0-310>|upshiftSnr <int 0-310> | downshiftDuration <int 0-16383>|upshiftDuration <int 0-16383>]
Description	This command is used to config vdsl profile Downstream/Upstream SRA.
Parameters	*<profile_id 1-60>*–The profile ID of the profile to be configed *name <profile_name 32>*–The name of the profile to be configed *[SRADn|SRAUp]*–To config VDSL profile Downstream/Upstream SRA. *state [disable|enable]*–enable/disable Downstream/Upstream SRA *downshiftSnr <int 0-310>*–Downstream/Upstream down-shift noise margin.The range is 0-310 (in unit of 0.1 dB) upshiftSnr *<int 0-310>*–Downstream/Upstream up-shift noise margin.The range is 0-310 (in unit of 0.1 dB) *downshiftDuration <int 0-16383>*–Downstream/Upstream down-shift minimum time interval.The range is 0-16383 (in unit of 1sec). *upshiftDuration <int 0-16383>*–Downstream/Upstream up-shift minimum time interval.The range is 0-16383 (in unit of 1sec).
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To config vdsl profile vdsl profile Downstream/Upstream SRA

```
DAS-3626:admin#config vdsl profile name default SRADn state enable
Command: config vdsl profile name default SRADn state enable
Success.
DAS-3626:admin#
```

config vdsl profile [robustEocRateDn|robustEocRateUp]

Purpose	Used to config vdsl profile Downstream/Upstream robust EOC rate.
Syntax	config vdsl profile [<profile_id 1-60>|name <profile_name 32>] [robustEocRateDn|robustEocRateUp] [rate <int 0-4>]
Description	This command is used to config vdsl profile Downstream/Upstream robust EOC rate.
Parameters	*<profile_id 1-60>*–The profile ID of the profile to be configed *name <profile_name 32>*–The name of the profile to be configed *[robustEocRateDn|robustEocRateUp]*–To config VDSL profile Downstream/Upstream robust EOC rate. *rate <int 0-4>*–The range is 0-4 (in unit of 32 kbps)
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To config vdsl profile vdsl profile Downstream/Upstream robust EOC rate

```
DAS-3626:admin#config vdsl profile name default robustEocRateDn rate 1
Command: config vdsl profile name default robustEocRateDn rate 1
Success.
DAS-3626:admin#
```

config vdsl profile reset

Purpose	Used to reset vdsl profile
Syntax	config vdsl profile [<profile_id 1-60>|name <profile_name 32>] reset
Description	This command is used to reset vdsl profile.
Parameters	*<profile_id 1-60>*–The profile ID of the profile to be configed *name <profile_name 32>*–The name of the profile to be configed *reset*–reset the specific profile to default.
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To reset vdsl profile to default

```
DAS-3626:admin#config vdsl profile name default reset
Command: config vdsl profile name default reset
Success.
DAS-3626:admin#
```

delete vdsl profile

Purpose	Used to delete vdsl profile
Syntax	delete vdsl profile [<profile_id 1-60>|name <profile_name 32>]
Description	This command is used to delete vdsl profile.
Parameters	*<profile_id 1-60>*–The profile ID of the profile to be delete *name <profile_name 32>*–The name of the profile to be delete
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To delete vdsl profile

```
DAS-3626:admin#delete vdsl profile name vdsl_line1
Command: delete vdsl profile name vdsl_line1
Success.
DAS-3626:admin#
```

show vdsl profile

Purpose	Used to show vdsl profile
Syntax	show vdsl profile [<profile_id 1-60>|name <profile_name 32> |all] [temp|run]
Description	This command is used to show vdsl profile.
Parameters	*<profile_id 1-60>*–The profile ID of the profile to be show *name <profile_name 32>*–The name of the profile to be show *[temp|run]* – temporary profile settings, use attatch command to apply or currently running profile settings
Restrictions	Only Administrator-level users can issue this command.

Example usage:

To reset vdsl profile to show

```
DAS-3626:admin#shwo vdsl profile name default
Command: delete vdsl profile name default
Success.
DAS-3626:admin#
```

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NETWORK MONITORING COMMANDS

The network monitoring commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
show packet ports	<portlist>
show error ports	<portlist>
show utilization	[cpu | ports {<portlist>}]
show utilization dram	
show utilization flash	
clear counters	{ports <portlist>}
clear log	
show log	{index <value_list> }
enable syslog	
disable syslog	
show syslog	
create syslog host	<index 1-4> ipaddress <ipaddr> {severity [informational | warning | all] | facility [local0 | local1 | local2 | local3 | local4 | local5 | local6 | local7] | udp_port <udp_port_number>| state [enable | disable]
config syslog host	[all | <index 1-4>] {severity [informational | warning | all] | facility [local0 | local1 | local2 | local3 | local4 | local5 | local6 | local7] | udp_port <udp_port_number> | ipaddress <ipaddr> | state [enable | disable]}
delete syslog host	[<index 1-4> | all]
show syslog host	{<index 1-4>}
config log_save_timing	[time_interval <min 1-65535> | on_demand | log_trigger]
show log_save_timing	
show attack_log	{index <value_list>}
clear attack_log	
upload attack_log_toTFTP	[<ipaddr>|<ipv6addr>] <path_filename 64>
config system_severity	[trap | log | all] [critical | warning | information]
show system_severity	

Each command is listed, in detail, in the following sections.

show packet ports	
Purpose	Used to display statistics about the packets sent and received by the Switch.
Syntax	**show packet ports <portlist>**
Description	This command is used to display statistics about packets sent and received by ports specified in the *<portlist>*.
Parameters	*<portlist>* – Specifies a port or range of ports to be displayed.

show packet ports	
Restrictions	None.

Example usage:

To display the packets analysis for port 2:

```
DAS-3626:admin#show packet port 2
Command: show packet port 2

Port Number : 2
 ==================================================================
 Frame Size/Type       Frame Counts                  Frames/sec
 ---------------       ----------------------        -----------
 64                    0                             0
 65-127                0                             0
 128-255               0                             0
 256-511               0                             0
 512-1023              0                             0
 1024-1518             0                             0
 Unicast RX            0                             0
 Multicast RX          0                             0
 Broadcast RX          0                             0

 Frame Type            Total                         Total/sec
 ---------------       ----------------------        -----------
 RX Bytes              0                             0
 RX Frames             0                             0
 TX Bytes              0                             0
 TX Frames             0                             0

DAS-3626:admin#
```

show error ports	
Purpose	Used to display the error statistics for a range of ports.
Syntax	**show error ports <portlist>**
Description	This command will display all of the packet error statistics collected and logged by the Switch for a given port list.
Parameters	<*portlist*> – Specifies a port or range of ports to be displayed.

show error ports	
Restrictions	None.

Example usage:

To display the errors of the port 3:

```
DAS-3626:admin#show error ports 3
Command: show error ports 3

Port Number : 3
                 RX Frames                                  TX Frames
                 ---------                               ---------
 CRC Error       0                    Excessive Deferral    0
 Undersize       0                    CRC Error             0
 Oversize        0                    Late Collision        0
 Fragment        0                    Excessive Collision   0
 Jabber          0                    Single Collision      0
 Drop Pkts       0                    Collision             0
 Symbol Error    0

DAS-3626:admin#
```

show utilization

Purpose	Used to display real-time port and CPU utilization statistics.
Syntax	**show utilization [cpu | ports {<portlist>}]**
Description	This command will display the real-time port and CPU utilization statistics for the Switch.
Parameters	*cpu* – Entering this parameter will display the current cpu utilization of the Switch. *ports* – Entering this parameter will display the current port utilization of the Switch. • *<portlist>* – Specifies a port or range of ports to be displayed.
Restrictions	None.

Example usage:

To display the port utilization statistics:

```
DAS-3626:admin#show utilization ports
Command: show utilization ports

Port     TX/sec     RX/sec   Util
 -----  ---------- ---------- ----
 1      0          0          0
 2      0          0          0
 3      31         0          1
 4      0          0          0
 5      0          0          0
 6      0          0          0
 7      2          32         1
 8      0          0          0
 9      0          0          0
 10     0          0          0
 11     0          0          0
 12     0          0          0

DAS-3626:admin#
```

To display the current CPU utilization:

```
DAS-3626:admin#show utilization cpu
Command: show utilization cpu

CPU Utilization
-----------------------------------------------------------------
Five seconds -   9 %   One minute -  10 %    Five minutes -  10 %

DAS-3626:admin#
```

show utilization dram

Purpose	Used to display real-time utilization statistics for the DRAM.
Syntax	**show utilization dram**
Description	This command will display the real-time utilization statistics for the DRAM on the Switch.
Parameters	None.
Restrictions	None.

To display the current utilization of DRAM:

```
DAS-3626:admin#show utilization dram
Command: show utilization dram

DRAM utilization :
        Total DRAM      : 131072    KB
        Used DRAM       : 123879    KB
        Utilization     : 94 %

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

show utilization flash

Purpose	Used to display real-time utilization statistics for the flash memory.
Syntax	**show utilization flash**
Description	This command will display the real-time utilization statistics for the flash memory on the Switch.
Parameters	None.
Restrictions	None.

To display the current utilization of flash:

```
DAS-3626:admin#show utilization flash
Command: show utilization flash

FLASH Memory Utilization :
        Total FLASH     : 32768     KB
        Used FLASH      : 8688      KB
        Utilization     : 26 %

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

clear counters	
Purpose	Used to clear the Switch's statistics counters.
Syntax	**clear counters {ports <portlist>}**
Description	This command will clear the counters used by the Switch to compile statistics.
Parameters	*<portlist>* – Specifies a port or range of ports to be displayed.

clear counters	
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To clear the counters:

```
DAS-3626:admin#clear counters ports 2-9
Command: clear counters ports 2-9

Success.

DAS-3626:admin#
```

clear log

Purpose	Used to clear the Switch's history log.
Syntax	**clear log**
Description	This command is used to clear the Switch's history log.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To clear the log information:

```
DAS-3626:admin#clear log
Command: clear log

Success.

DAS-3626:admin#
```

show log

Purpose	Used to display the switch history log.
Syntax	**show log {index <value_list>}**
Description	This command is used to display the contents of the Switch's history log.
Parameters	*index <value_list>* – This parameter specifies the range of log index to show. For example, show log index 1-5 will display the history log from 1 to 5. If no parameter is specified, all history log entries will be displayed.
Restrictions	None.

Example usage:

To display the switch history log**:**

```
DAS-3626:admin#show log index 1-5
Command: show log index 1-5

Index Date       Time     Log Text
----- ---------- -------- ------------------------------------------------------
5     2000-01-03 18:53:06 Logout through Console (Username: Anonymous)
4     2000-01-03 18:47:22 Successful login through Console (Username: Anonymous)
3     2000-01-03 18:47:18 Port 3 link up, 1000Mbps FULL duplex
2     2000-01-03 18:47:18 Port 7 link up, 100Mbps FULL duplex
1     2000-01-03 18:47:18 System started up

DAS-3626:admin#
```

NOTE: For detailed information regarding Log entries that will appear in this window, please refer to Appendix C at the back of the ***DAS-3600-12 Layer 2 Gigabit Ethernet Managed Switch User Manual.***

enable syslog

Purpose	Used to enable the system log to be sent to a remote host.
Syntax	**enable syslog**
Description	This command is used to enable the system log to be sent to a remote host.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To the Syslog function on the Switch:

```
DAS-3626:admin#enable syslog
Command: enable syslog

Success.

DAS-3626:admin#
```

disable syslog

Purpose	Used to disable the system log to be sent to a remote host.
Syntax	**disable syslog**
Description	This command is used to disable the system log to be sent to a remote host.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To disable the syslog function on the Switch:

```
DAS-3626:admin#disable syslog
Command: disable syslog

Success.

DAS-3626:admin#
```

show syslog

Purpose	Used to display the syslog protocol status as enabled or disabled.
Syntax	**show syslog**
Description	This command is used to display the syslog status as enabled or disabled.
Parameters	None.
Restrictions	None.

Example usage:

To display the current status of the syslog function:

```
DAS-3626:admin#show syslog
Command: show syslog

Syslog Global State: Enabled

DAS-3626:admin#
```

create syslog host

Purpose	Used to create a new syslog host.
Syntax	**create syslog host <index 1-4> ipaddress <ipaddr> {severity [informational | warning | all] | facility [local0 | local1 | local2 | local3 | local4 | local5 | local6 | local7] | udp_port <udp_port_number> | state [enable | disable]**
Description	This command is used to create a new syslog host.
Parameters	*<index 1-4>* – Specifies that the command will be applied to an index of hosts. There are four available indexes, numbered 1 through 4. *ipaddress <ipaddr>* – Specifies the IP address of the remote host where syslog messages will be sent. *severity* – Severity level indicator. These are described in the following: Bold font indicates that the corresponding severity level is currently supported on the Switch.

Numerical Code	**Severity**
0	Emergency: system is unusable
1	Alert: action must be taken immediately
2	Critical: critical conditions
3	Error: error conditions
4	**Warning: warning conditions**
5	Notice: normal but significant condition
6	**Informational: informational messages**
7	Debug: debug-level messages

Numerical Code	**Facility**

create syslog host

0	kernel messages
1	user-level messages
2	mail system
3	system daemons
4	security/authorization messages
5	messages generated internally by syslog
6	line printer subsystem
7	network news subsystem
8	UUCP subsystem
9	clock daemon
10	security/authorization messages
11	FTP daemon
12	NTP subsystem
13	log audit
14	log alert
15	clock daemon
16	**local use 0 (local0)**
17	**local use 1 (local1)**
18	**local use 2 (local2)**
19	**local use 3 (local3)**
20	**local use 4 (local4)**
21	**local use 5 (local5)**
22	**local use 6 (local6)**
23	**local use 7 (local7)**

local0 – Specifies that local use 0 messages will be sent to the remote host. This corresponds to number 16 from the list above.

local1 – Specifies that local use 1 messages will be sent to the remote host. This corresponds to number 17 from the list above.

local2 – Specifies that local use 2 messages will be sent to the remote host. This corresponds to number 18 from the list above.

local3 – Specifies that local use 3 messages will be sent to the remote host. This corresponds to number 19 from the list above.

local4 – Specifies that local use 4 messages will be sent to the remote host. This corresponds to number 20 from the list above.

local5 – Specifies that local use 5 messages will be sent to the remote host. This corresponds to number 21 from the list above.

local6 – Specifies that local use 6 messages will be sent to the remote host. This corresponds to number 22 from the list above.

local7 – Specifies that local use 7 messages will be sent to the remote host. This corresponds to number 23 from the list above.

udp_port <udp_port_number> – Specifies the UDP port number that the syslog protocol will use to send messages to the remote host.

state [enable | *disable]* – Allows the sending of syslog messages to the remote host, specified above, to be enabled and disabled.

Restrictions Only Administrator and Operator-level users can issue this command.

Example usage:

To create a Syslog host:

```
DAS-3626:admin#create syslog host 1 severity all facility local0 ipaddress 1.1.1.1

Command: create syslog host 1 severity all facility local0 ipaddress 1.1.1.1

Success.

DAS-3626:admin#
```

config syslog host

Purpose	Used to configure the syslog protocol to send system log data to a remote host.
Syntax	**config syslog host [all | <index 1-4>] {severity [informational | warning | all] | facility [local0 | local1 | local2 | local3 | local4 | local5 | local6 | local7] | udp_port <udp_port_number> | ipaddress <ipaddr> | state [enable | disable]**
Description	This command is used to configure the syslog protocol to send system log information to a remote host.
Parameters	*<index 1-4>* – Specifies that the command will be applied to an index of hosts. There are four available indexes, numbered 1 through 4. *ipaddress <ipaddr>* – Specifies the IP address of the remote host where syslog messages will be sent. *severity* – Severity level indicator. These are described in the following: **Bold** font indicates that the corresponding severity level is currently supported on the Switch. **Numerical Code** **Severity** 0 Emergency: system is unusable 1 Alert: action must be taken immediately 2 Critical: critical conditions 3 Error: error conditions **4 Warning: warning conditions** 5 Notice: normal but significant condition **6 Informational: informational messages** 7 Debug: debug-level messages *informational* – Specifies that informational messages will be sent to the remote host. This corresponds to number 6 from the list above. *warning* – Specifies that warning messages will be sent to the remote host. This corresponds to number 4 from the list above. *all* – Specifies that all of the currently supported syslog messages that are generated by the Switch will be sent to the remote host. *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: Bold font indicates the facility values the Switch currently supports.
Parameters	**Numerical Code** **Facility**

config syslog host

0	kernel messages
1	user-level messages
2	mail system
3	system daemons
4	security/authorization messages
5	messages generated internally by syslog
6	line printer subsystem
7	network news subsystem
8	UUCP subsystem
9	clock daemon
10	security/authorization messages
11	FTP daemon
12	NTP subsystem
13	log audit
14	log alert
15	clock daemon
16	**local use 0 (local0)**
17	**local use 1 (local1)**
18	**local use 2 (local2)**
19	**local use 3 (local3)**
20	**local use 4 (local4)**
21	**local use 5 (local5)**
22	**local use 6 (local6)**
23	**local use 7 (local7)**

local0 – Specifies that local use 0 messages will be sent to the remote host. This corresponds to number 16 from the list above.

local1 – Specifies that local use 1 messages will be sent to the remote host. This corresponds to number 17 from the list above.

local2 – Specifies that local use 2 messages will be sent to the remote host. This corresponds to number 18 from the list above.

local3 – Specifies that local use 3 messages will be sent to the remote host. This corresponds to number 19 from the list above.

local4 – Specifies that local use 4 messages will be sent to the remote host. This corresponds to number 20 from the list above.

local5 – Specifies that local use 5 messages will be sent to the remote host. This corresponds to number 21 from the list above.

local6 – Specifies that local use 6 messages will be sent to the remote host. This corresponds to number 22 from the list above.

local7 – Specifies that local use 7 messages will be sent to the remote host. This corresponds to number 23 from the list above.

udp_port <udp_port_number> – Specifies the UDP port number that the syslog protocol will use to send messages to the remote host.

state [enable | *disable]* – Allows the sending of syslog messages to the remote host, specified above, to be enabled and disabled.

Restrictions Only Administrator and Operator-level users can issue this command.

Example usage:

To configure a Syslog host:

```
DAS-3626:admin#config syslog host 1 severity all
Command: config syslog host 1 severity all
Success.

DAS-3626:admin#
```

Example usage:

To configure a syslog host for all hosts:

```
DAS-3626:admin#config syslog host all severity all
Command: config syslog host all severity all
Success.

DAS-3626:admin#
```

delete syslog host

Purpose	Used to remove a syslog host that has been previously configured, from the Switch.
Syntax	**delete syslog host [<index 1-4> | all]**
Description	This command is used to remove a syslog host that has been previously configured from the Switch.
Parameters	*<index 1-4>* – Specifies that the command will be applied to an index of hosts. There are four available indexes, numbered 1 through 4. *all* – Specifies that the command will be applied to all hosts.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To delete a previously configured syslog host:

```
DAS-3626:admin#delete syslog host 4
Command: delete syslog host 4

Success.

DAS-3626:admin#
```

show syslog host

Purpose	Used to display the syslog hosts currently configured on the Switch.
Syntax	**show syslog host {<index 1-4>}**
Description	This command is used to display the syslog hosts that are currently configured on the Switch.
Parameters	*<index 1-4>* – Specifies that the command will be applied to an index of hosts. There are four available indexes, numbered 1 through 4.
Restrictions	None.

Example usage:

To show Syslog host information:

```
DAS-3626:admin#show syslog host
Command: show syslog host

Syslog Global State: Disabled

Host Id  Host IP Address Severity   Facility   UDP port  Status
-------  --------------- ---------- --------   --------  --------
1         10.1.1.2           All     Local0    514       Disabled
2         10.40.2.3          All     Local0    514       Disabled
3         10.21.13.1         All     Local0    514       Disabled

Total Entries : 3

DAS-3626:admin#
```

config log_save_timing

Purpose	Used to configure the method to save log.
Syntax	**config log_save_timing [time_interval <min 1-65535> | on_demand | log_trigger]**
Description	This command is used to set the method to save log.
Parameters	*time_interval* – save log to flash every xxx minutes. (if no log happen in this period, don't save) *on_demand* – save log to flash whenever user type "save log" or "save all" This is also the default. *log_trigger* – save log to flash whenever log arrives
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure log_save_timing:

```
DAS-3626:admin#config log_save_timing on_demand
Command: config log_save_timing on_demand

Success.

DAS-3626:admin#
```

show log_save_timing

Purpose	Used to show the timing method to save log.
Syntax	**show log_save_timing**
Description	This command is used to show method to save log.
Parameters	None.
Restrictions	None.

Example usage:

To show log_save_timing:

```
DAS-3626:admin#show log_save_timing
Command: show log_save_timing

Saving Log Method: On_demand


DAS-3626:admin#
```

show attack_log

Purpose	Used to show dangerous log messages.
Syntax	**show attack_log {index <value_list>}**
Description	This command is used to show content of dangerous log messages.
Parameters	*value_list X-Y* – The show log command will display the dangerous log messages between the log number of X and Y. For example, show dangerous log index 1-5 will display the dangerous log messages from 1 to 5. If no parameter specified, all dangerous log entries will be displayed.
Restrictions	None.

Example usage:

To show dangerous messages on master:

```
DAS-3626:admin#show attack_log
Command: show attack_log

Index  Time                 Log Text
----  ---------------      -----------------------
2     00000 days 01:25:43  Possible spoofing attack from 000d01002301 port 6
1     00000 days 01:25:43  Possible spoofing attack from 000d01002301 port 6

DAS-3626:admin#
```

clear attack_log

Purpose	Used to clear the switch's dangerous log.
Syntax	**clear attack_log**
Description	This command is used to clear the switch's dangerous log.
Parameters	None.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To clear the master's dangerous log:

```
DAS-3626:admin#clear attack_log
Command: clear attack_log

Success.

DAS-3626:admin#
```

upload attack_log_to TFTP

Purpose	Used to upload the switch's dangerous log.
Syntax	**upload attack_log_toTFTP [<ipaddr>|<ipv6addr> <path_filename 64>**
Description	This command is used to upload the switch's dangerous log.
Parameters	*<ipaddr>* – The IP address of the TFTP server. The TFTP server must be on the same IP subnet as the switch. *<path_filename 64>* – Specifies the location of the file on the TFTP server. The uploaded file from the switch will replace this file.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To upload the master's dangerous log:

```
DAS-3626:admin#upload attack_log_toTFTP 10.90.90.1 C:\alert.txt
Command: upload attack_log_toTFTP 10.90.90.1 C:\alert.txt

Success.

DAS-3626:admin#
```

config system_severity

Purpose	To configure system_severity level of an alert required for log entry or trap message.
Syntax	**config system_severity [trap | log | all] [critical | warning | information]**
Description	This command is used to configure the system_severity levels on the Switch. When an event occurs on the Switch, a message will be sent to the SNMP agent (trap), the Switch's log or both. Events occurring on the Switch are separated into three main categories, these categories are NOT precisely the same as the parameters of the same name (see below). • Information – Events classified as information are basic events occurring on the Switch that are not deemed as problematic, such as enabling or disabling various functions on the Switch. • Warning – Events classified as warning are problematic events that are not critical to the overall function of the Switch but do require attention, such as unsuccessful downloads or uploads and failed logins. • Critical – Events classified as critical are fatal exceptions occurring on the Switch, such as hardware failures or spoofing attacks.
Parameters	Choose one of the following to identify where severity messages are to be sent. • *trap* – Entering this parameter will define which events occurring on the Switch will be sent to a SNMP agent for analysis. • *log* – Entering this parameter will define which events occurring on the Switch will be sent to the Switch's log for analysis. • *all* – Entering this parameter will define which events occurring on the Switch will be sent to a SNMP agent and the Switch's log for analysis. Choose one of the following to identify what level of severity warnings are to be sent to the destination entered above. *critical* – Entering this parameter along with the proper destination, stated above, will instruct the Switch to send only critical events to the Switch's log or SNMP agent. *warning* – Entering this parameter along with the proper destination, stated above, will instruct the Switch to send critical and warning events to the Switch's log or SNMP agent. *information* – Entering this parameter along with the proper destination, stated above, will instruct the switch to send informational, warning and critical events to the Switch's log or SNMP agent.
Restrictions	Only Administrator and Operator-level users can issue this command.

Example usage:

To configure the system severity settings:

```
DAS-3626:admin#config system_severity trap critical
Command: config system_severity trap critical

Success.

DAS-3626:admin#
```

show system_severity

Purpose	To display system_severity level of an alert required for log entry or trap message.
Syntax	**show system_severity**
Description	This command is used to display system_severity level of an alert required for log entry or trap message.
Parameters	None.
Restrictions	None.

Example usage:

To display the system severity settings for critical traps and log:

```
DAS-3626:admin#show system_severity
Command: show system_severity

System Severity Trap : information
System Severity Log : information

DAS-3626:admin#
```

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PASSWORD RECOVERY COMMAND LIST

The switch password recovery commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
reset config	{force_agree}
reboot	{force_agree}
reset account	
reset password	{<username>}
show account	

Each command is listed, in detail, in the following sections.

NOTE: All Password revovery commands can be executed in password revovery mode. If you wish to enter the Switch into password recovery mode, simply press “ ^ ”after the system has booted up successfully and loaded the runtime image to 100%.

```
Boot Procedure                                          V1.00.B006
---------------------------------------------------------------------
Power On Self Test.................................100%
MAC Address : 00-80-C2-11-22-00
H/W Version : A1
Please wait, loading V1.00.B035 Runtime image......100%

Password Recovery Mode
>_
```

reset config

Purpose	Used to reset the configuration .
Syntax	**reset config { force_agree }**
Description	This command is used to reset the configuration parameters. The configuration is reset but not saved.
Parameters	*force_agree*: if this parameter is specified, there will not be the prompt message to ask for user's confirmation.
Restrictions	None.

Example usage:

To reset the configuration:

```
>reset config
Command: reset config

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

reboot

Purpose	Used to exit Reset Configuration Mode and restart the switch.
Syntax	**reboot { force_agree }**
Description	This command is used to exit the Reset Configuration Mode and restarts the switch. And it pops out a confirmation message to save the current setting.
Parameters	*force_agree* – If this parameter is specified, there will not be the prompt message to ask for user's confirmation.
Restrictions	None.

Example usage:

To reboot:

```
>reboot
Command: reboot

Save current setting before system restart?(y/n)y

Please wait, the switch is rebooting...
```

reset account

Purpose	Used to delete the created account.
Syntax	**reset account**
Description	This command is used to delete all of the created user accounts. The banner messages for password recover mode is: Password Recovery Mode
Parameters	None.
Restrictions	This command is only available in password recovery mode.

Example usage:

To reset or delete an account:

```
>reset account
Command: reset account

Success
```

reset password

Purpose	Used to reset the password for user account
Syntax	**reset password {<username>}**
Description	This command is used to reset the password of the specified user to empty. If username is not specified, password of all users will be reset.
Parameters	None.
Restrictions	This command is only available in password recovery mode.

Example usage:

To reset the password:

```
>reset password
Command: reset password

Success
```

show account

Purpose	Used to show the created account.
Syntax	**show account**
Description	This command is used to display all already created accounts.
Parameters	None.
Restrictions	None.

Example usage:

To view the created account:

```
>show account
Command: show account

Current Accounts:
Username         Password        Access Level
---------------  --------        ------------
admin            (Empty)         Admin
user1            (Empty)         user

Total Entries : 2
```

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COMMAND HISTORY LIST

The switch history commands in the Command Line Interface (CLI) are listed (along with the appropriate parameters) in the following table.

Command	Parameters
?	
config command_history	<value 1-40>
show command_history	

Each command is listed, in detail, in the following sections.

?	
Purpose	Used to display all commands in the Command Line Interface (CLI).
Syntax	**? {<command>}**
Description	This command will display all of the commands available through the Command Line Interface (CLI).
Parameters	*{<command>}* – Entering the question mark with an appropriate command will list all the corresponding parameters for the specified command, along with a brief description of the commands function and similar commands having the same words in the command.
Restrictions	None.

Example usage:

To display all of the commands in the CLI:

```
DAS-3626:admin#?
Command: ?
..
?
cable_diag ports
cfm linktrace
cfm loopback
clear
clear address_binding dhcp_snoop binding_entry ports
clear arptable
clear attack_log
clear cfm pkt_cnt
clear counters
clear ethernet_oam ports
clear fdb
clear historical_counters ports
clear igmp_snooping data_driven_group
clear igmp_snooping statistic counter
clear log
clear mac_based_access_control auth_mac
clear mld_snooping data_driven_group
clear mld_snooping statistic counter
clear port_security_entry
clear vlan_counter statistics

CTRL+C ESC q Quit SPACE n Next Page ENTER Next Entry a All
```

To display the parameters for a specific command:

```
DAS-3626:admin#? config stp
Command: ? config stp

Command: config stp
Usage:  {maxage <value 6-40>|maxhops <value 1-20> |hellotime <value 1-2>|
forwarddelay <value 4-30>|txholdcount <value 1-10>|fbpdu [enable|disable]|
nni_bpdu_addr [dot1d | dot1ad]}
Description: Used to update the STP Global Configuration.
config stp instance_id
config stp mst_config_id
config stp mst_ports
config stp ports
config stp priority
config stp version

DAS-3626:admin#
```

config command_history

Purpose	Used to configure the command history.
Syntax	**config command_history <value 1-40>**
Description	This command is used to configure number of the executed command to be recorded in CLI.
Parameters	*<value 1-40>* – The number of previously executed commands maintained in the buffer. Up to 40 of the latest executed commands may be viewed.
Restrictions	None.

Example usage:

To configure the command history:

```
DAS-3626:admin#config command_history 20
Command: config command_history 20

Success.

DAS-3626:admin#
```

show command_history

Purpose	Used to display the command history.
Syntax	**show command_history**
Description	This command is used to display currently used command history.
Parameters	None.
Restrictions	None.

Example usage:

To display the command history:

```
DAS-3626:admin#show command_history
Command: show command_history

config command_history 20
? config stp
?

DAS-3626:admin#
```

Appendix A

Password Recovery Procedure

This section 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 section will explain 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:

1. 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.
2. Power on the switch. After the runtime image is 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.

```
Boot Procedure                                                    V1.00.B06
----------------------------------------------------------------------------

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

  MAC Address   : 00-19-5B-EC-32-15
  H/W Version   : A1

  Please wait, loading V1.00.B035 Runtime image............. 00 %

The switch is now entering Password Recovery Mode:_


The switch is currently in Password Recovery Mode.
>
```

3. In the “Password Recovery Mode” only the following commands can be used.

Command	**Parameters**
reset config	This command resets the whole configuration will be back to the default value
reboot	This 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.
reset account	This command deletes all the previously created accounts.
reset password {<username>}	This command resets the password of the specified user. If a username is not specified, the password of all users will be reset.
show account	This command displays all previously created accounts.