D-Link®

DES-7000 Series
Layer 2 Switch

Command Line Interface Reference Manual

First Edition (February 2003)
6ES7000CLI01
Printed In Taiwan

RECYCLABLE

Wichtige Sicherheitshinweise

1. Bitte lesen Sie sich diese Hinweise sorgfältig durch.
2. Heben Sie diese Anleitung für den spätern Gebrauch auf.
3. Vor jedem Reinigen ist das Gerät vom Stromnetz zu trennen. Vervenden Sie keine Flüssig- oder Aerosolreiniger. Am besten dient ein angefeuchtetes Tuch zur Reinigung.
4. Um eine Beschädigung des Gerätes zu vermeiden sollten Sie nur Zubehörteile verwenden, die vom Hersteller zugelassen sind.
5. Das Gerät is vor Feuchtigkeit zu schützen.
6. Bei der Aufstellung des Gerätes ist auf sichern Stand zu achten. Ein Kippen oder Fallen könnte Verletzungen hervorrufen. Verwenden Sie nur sichere Standorte und beachten Sie die Aufstellhinweise des Herstellers.
7. Die Belüftungsöffnungen dienen zur Luftzirkulation die das Gerät vor Überhitzung schützt. Sorgen Sie dafür, daß diese Öffnungen nicht abgedeckt werden.
8. Beachten Sie beim Anschluß an das Stromnetz die Anschlußwerte.
9. Die Netzanschlußsteckdose muß aus Gründen der elektrischen Sicherheit einen Schutzleiterkontakt haben.
10. Verlegen Sie die Netzanschlußleitung so, daß niemand darüber fallen kann. Es sollete auch nichts auf der Leitung abgestellt werden.
11. Alle Hinweise und Warnungen die sich am Geräten befinden sind zu beachten.
12. Wird das Gerät über einen längeren Zeitraum nicht benutzt, sollten Sie es vom Stromnetz trennen. Somit wird im Falle einer Überspannung eine Beschädigung vermieden.
13. Durch die Lüftungsöffnungen dürfen niemals Gegenstände oder Flüssigkeiten in das Gerät gelangen. Dies könnte einen Brand bzw. Elektrischen Schlag auslösen.
14. Öffnen Sie niemals das Gerät. Das Gerät darf aus Gründen der elektrischen Sicherheit nur von authorisiertem Servicepersonal geöffnet werden.
15. Wenn folgende Situationen auftreten ist das Gerät vom Stromnetz zu trennen und von einer qualifizierten Servicestelle zu überprüfen:
    a – Netzkabel oder Netzstecker sint beschädigt.
    b – Flüssigkeit ist in das Gerät eingedrungen.
    c – Das Gerät war Feuchtigkeit ausgesetzt.
    d – Wenn das Gerät nicht der Bedienungsanleitung ensprechend funktioniert oder Sie mit Hilfe dieser Anleitung keine Verbesserung erzielen.
    e – Das Gerät ist gefallen und/oder das Gehäuse ist beschädigt.
    f – Wenn das Gerät deutliche Anzeichen eines Defektes aufweist.
16. Bei Reparaturen dürfen nur Orginalersatzteile bzw. den Orginalteilen entsprechende Teile verwendet werden. Der Einsatz von ungeeigneten Ersatzteilen kann eine weitere Beschädigung hervorrufen.
17. Wenden Sie sich mit allen Fragen die Service und Repartur betreffen an Ihren Servicepartner. Somit stellen Sie die Betriebssicherheit des Gerätes sicher.
18. Zum Netzanschluß dieses Gerätes ist eine geprüfte Leitung zu verwenden, Für einen Nennstrom bis 6A und einem Gerätegewicht größer 3kg ist eine Leitung nicht leichter als H05VV-F, 3G, 0.75mm2 einzusetzen.

WARRANTIES EXCLUSIVE

IF THE D-LINK PRODUCT DOES NOT OPERATE AS WARRANTED ABOVE, THE CUSTOMER'S SOLE REMEDY SHALL BE, AT D-LINK'S OPTION, REPAIR OR REPLACEMENT. THE FOREGOING WARRANTIES AND REMEDIES ARE EXCLUSIVE AND ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, EITHER IN FACT OR BY OPERATION OF LAW, STATUTORY OR OTHERWISE, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. D-LINK NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME FOR IT ANY OTHER LIABILITY IN CONNECTION WITH THE SALE, INSTALLATION MAINTENANCE OR USE OF D-LINK'S PRODUCTS
D-LINK SHALL NOT BE LIABLE UNDER THIS WARRANTY IF ITS TESTING AND EXAMINATION DISCLOSE THAT THE ALLEGED DEFECT IN THE PRODUCT DOES NOT EXIST OR WAS CAUSED BY THE CUSTOMER'S OR ANY THIRD PERSON'S MISUSE, NEGLECT, IMPROPER INSTALLATION OR TESTING, UNAUTHORIZED ATTEMPTS TO REPAIR, OR ANY OTHER CAUSE BEYOND THE RANGE OF THE INTENDED USE, OR BY ACCIDENT, FIRE, LIGHTNING OR OTHER HAZARD.

LIMITATION OF LIABILITY

IN NO EVENT WILL D-LINK BE LIABLE FOR ANY DAMAGES, INCLUDING LOSS OF DATA, LOSS OF PROFITS, COST OF COVER OR OTHER INCIDENTAL, CONSEQUENTIAL OR INDIRECT DAMAGES ARISING OUT THE INSTALLATION, MAINTENANCE, USE, PERFORMANCE, FAILURE OR INTERRUPTION OF A D- LINK PRODUCT, HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY. THIS LIMITATION WILL APPLY EVEN IF D-LINK HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
IF YOU PURCHASED A D-LINK PRODUCT IN THE UNITED STATES, SOME STATES DO NOT ALLOW THE LIMITATION OR EXCLUSION OF LIABILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

Limited Warranty

Hardware:

D-Link warrants each of its hardware products to be free from defects in workmanship and materials under normal use and service for a period commencing on the date of purchase from D-Link or its Authorized Reseller and extending for the length of time stipulated by the Authorized Reseller or D-Link Branch Office nearest to the place of purchase.

This Warranty applies on the condition that the product Registration Card is filled out and returned to a D-Link office within ninety (90) days of purchase. A list of D-Link offices is provided at the back of this manual, together with a copy of the Registration Card.

If the product proves defective within the applicable warranty period, D-Link will provide repair or replacement of the product. D-Link shall have the sole discretion whether to repair or replace, and replacement product may be new or reconditioned. Replacement product shall be of equivalent or better specifications, relative to the defective product, but need not be identical. Any product or part repaired by D-Link pursuant to this warranty shall have a warranty period of not less than 90 days, from date of such repair, irrespective of any earlier expiration of original warranty period. When D-Link provides replacement, then the defective product becomes the property of D-Link.

Warranty service may be obtained by contacting a D-Link office within the applicable warranty period, and requesting a Return Material Authorization (RMA) number. If a Registration Card for the product in question has not been returned to D-Link, then a proof of purchase (such as a copy of the dated purchase invoice) must be provided. If Purchaser's circumstances require special handling of warranty correction, then at the time of requesting RMA number, Purchaser may also propose special procedure as may be suitable to the case.

After an RMA number is issued, the defective product must be packaged securely in the original or other suitable shipping package to ensure that it will not be damaged in transit, and the RMA number must be prominently marked on the outside of the package. The package must be mailed or otherwise shipped to D-Link with all costs of mailing/shipping/insurance prepaid. D-Link shall never be responsible for any software, firmware, information, or memory data of Purchaser contained in, stored on, or integrated with any product returned to D-Link pursuant to this warranty.

Any package returned to D-Link without an RMA number will be rejected and shipped back to Purchaser at Purchaser's expense, and D-Link reserves the right in such a case to levy a reasonable handling charge in addition mailing or shipping costs.

Software:

Warranty service for software products may be obtained by contacting a D-Link office within the applicable warranty period. A list of D-Link offices is provided at the back of this manual, together with a copy of the Registration Card. If a Registration Card for the product in question has not been returned to a D-Link office, then a proof of purchase (such as a copy of the dated purchase invoice) must be provided when requesting warranty service. The term "purchase" in this software warranty refers to the purchase transaction and resulting license to use such software.

D-Link warrants that its software products will perform in substantial conformance with the applicable product documentation provided by D-Link with such software product, for a period of ninety (90) days from the date of purchase from D-Link or its Authorized Reseller. D-Link warrants the magnetic media, on which D-Link provides its software product, against failure during the same warranty period. This warranty applies to purchased software, and to replacement software provided by D-Link pursuant to this warranty, but shall not apply to any update or replacement which may be provided for download via the Internet, or to any update which may otherwise be provided free of charge.

D-Link's sole obligation under this software warranty shall be to replace any defective software product with product which substantially conforms to D-Link's applicable product documentation. Purchaser assumes responsibility for the selection of appropriate application and system/platform software and associated reference materials. D-Link makes no warranty that its software products will work in combination with any hardware, or any application or system/platform software product provided by any third party, excepting only such products as are expressly represented, in D-Link's applicable product documentation as being compatible. D-Link's obligation under this warranty shall be a reasonable effort to provide compatibility, but D-Link shall have no obligation to provide compatibility when there is fault in the third-party hardware or software. D-Link makes no warranty that operation of its software products will be uninterrupted or absolutely error-free, and no warranty that all defects in the software product, within or without the scope of D-Link's applicable product documentation, will be corrected.

D-Link Offices for Registration and Warranty Service

The product's Registration Card, provided at the back of this manual, must be sent to a D-Link office. To obtain an RMA number for warranty service as to a hardware product, or to obtain warranty service as to a software product, contact the D-Link office nearest you. An address/telephone/fax/e-mail/Web site list of D-Link offices is provided in the back of this manual.

Trademarks

Copyright Statement

FCC Warning

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this user's guide, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CE Mark Warning

This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

Table of Contents

1

INTRODUCTION

The switch can be managed through the switch's serial port, TELNET, or the Web-based management agent. The Command Line Interface (CLI) can be used to configure and manage the switch via the serial port or TELNET interfaces. Before using in-band system management tools such as TELNET or the Web-based management software, it is necessary to configure IP settings and setup user accounts. IP settings configuration is discussed in this chapter and user accounts setup (create accounts, config accounts) is described in Chapter 4.

This manual provides a reference for all of the commands contained in the CLI. Configuration and management of the switch via the web-based management agent is discussed in the User's Guide.

Accessing the Switch via the Serial Port

Use the RJ-45 console port on the front panel of the DES-7003 management module for the initial configuration. To use the console port, you can run terminal emulation software on a computer or use a VT100-compatible terminal. You will need the RJ-45 to DB-9 (RS-232) adapter included with you shipment to complete the console connection.

To establish a console connection to the Switch:

1. Insert the RJ-45 to DB-9 adapter into the RJ-45 console port on the front panel of the active primary master management/CPU module. The console port is labeled and is located next to the LED indicators.
2. Attach the female end of the RS-232 cable (included with shipment) to the male RS-232 connector on the adapter.
3. Connect the RS-232 cable to a standard COM port on a computer.

4. The RS-232 connection to the computer should be configured as follows:
    - § Baud rate = 9600
    - § Parity = none
    - § Data bits = 8
    - § Stop bits = 1
    - § Flow control = none

Make sure the terminal or computer you are using to make this connection is configured to match these settings.

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.

Each DES-7003 CPU management module is assigned a unique MAC address by the factory. This MAC address cannot be changed, and can be found from the initial boot console screen – shown below.

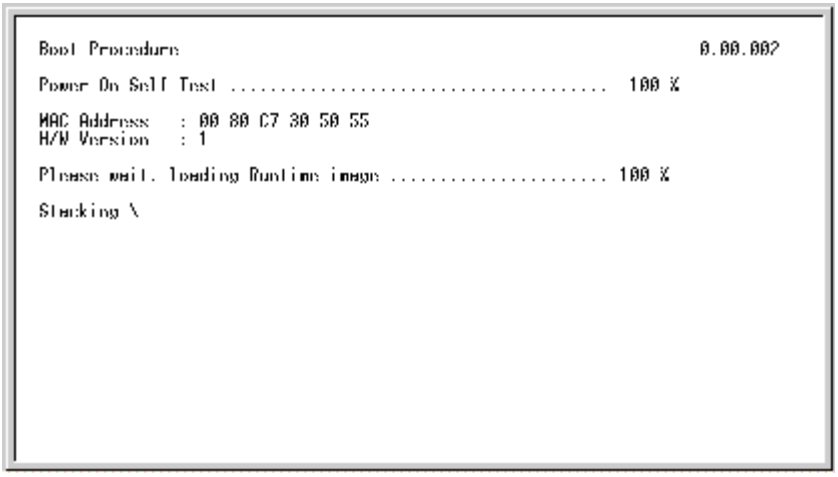

Figure 1- 1. Boot Screen

The MAC address of the CPU module can also be viewed by requesting a list of basic information about the switch (see show switch command in Chapter 4).

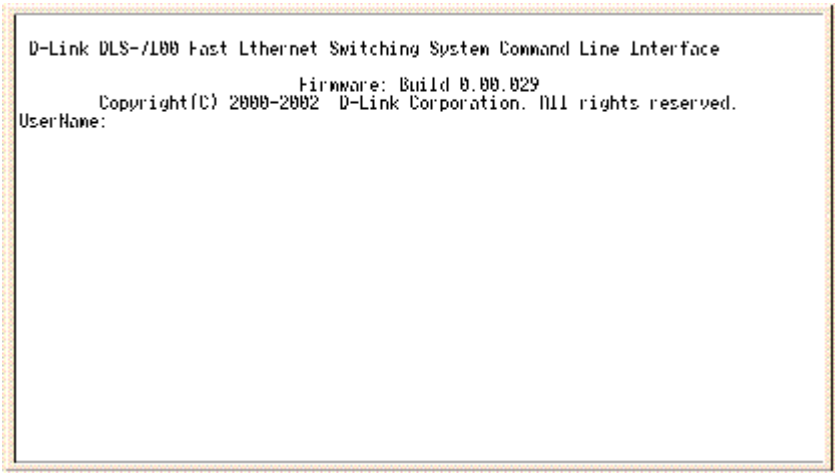

Figure 1- 2. Initial Console Screen User Name Prompt

There is no initial username or password. Just press the enter key at the User Name prompt and again at the Passwrod prompt to display the CLI input cursor – DES7000:4@# (or DES7100:4@# for the DES-7100). This is the command line where all commands are input.

Setting the Switch's IP Address

The DES-7000 series switch must have a TCP/IP address assigned to it so that a network management system (Web-based, TELNET, etc.) can find it on the network. You can use the console manager to access the system's management software to view or change it's IP settings.

The IP address for the switch must be set before it can be managed with the web-based manager or TELNET session. 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 DES7000:4@# – enter the commands config ip ipaddress xxx.xxx.xxx.xxx/yyy.yyy.yyy.yyy. Where the x's represent the IP address to be assigned to the switch and the y's represent the corresponding subnet mask.
2. Alternaltively, you can enter DES7000:4@# – enter the commands config ip ipaddress xxx.xxx.xxx.xxx/z. Where the x's represent the IP address to be assigned to the IP interface and the z represents the corresponding number of subnets in CIDR notation.

The IP interface on the switch can be assigned an IP address and subnet mask and can then be used to connect a management station to the switch's TELNET or web-based management agent.

It may be necessary to designate a default gateway to allow packets to be sent outside the switch's subnet. You can do this manually by typing the command config ip gateway xxx.xxx.xxx.xxx/yyy.yyy.yyy.yyy or config ip gateway xxx.xxx.xxx.xxx/z.

The may also be configured to obtain IP settings automatically from a BOOTP or DHCP server. In this case the switch gets its IP settings including gateway IP from a server. Please read Chapter 5, Switch IP Configuration for a complete description of the config ip command set.

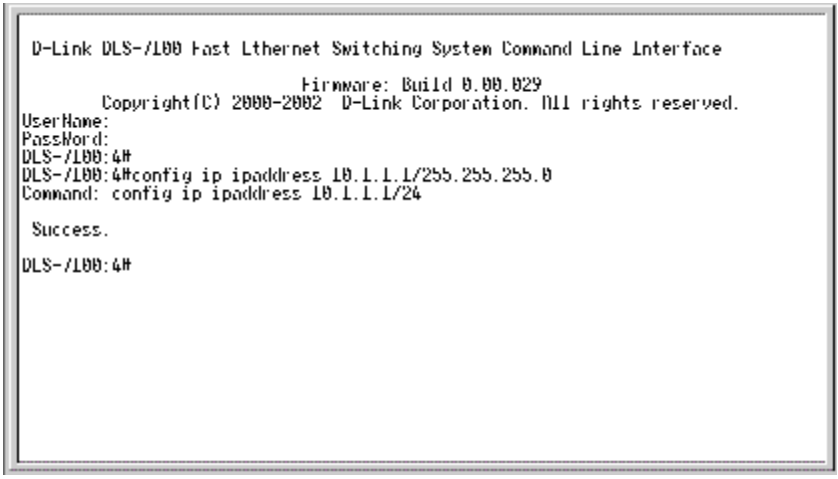

Figure 1- 3. Assigning the Switch an IP Address

In the above example, the switch was assigned an IP address of 10.1.1.1 with a subnet mask of 255.255.255.0. The system message Success indicates that the command was executed successfully. The switch can now be configured and managed via TELNET and the CLI or via the Web-based management agent using the above IP address to connect to the switch through the Management port (labeled: *Mgmt*) on the CPU module, or through the network.

2

USING THE CONSOLE CLI

The DES-7000 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 Hyper Terminal program included with the Windows operating system). You will need the RJ-45 to DB-9 (RS-232) adapter nd using an RS-232C serial cable included with you shipment to complete the console connection. Your terminal parameters will need to be set to:

- VT-100/ANSI compatible
- 9,600 baud
- 8 data bits
- No parity
- One stop bit
- No flow control

You can also access the same functions over a TELNET interface. Once you have set an IP address for your Switch, you

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 you have loged in, the console looks like this:

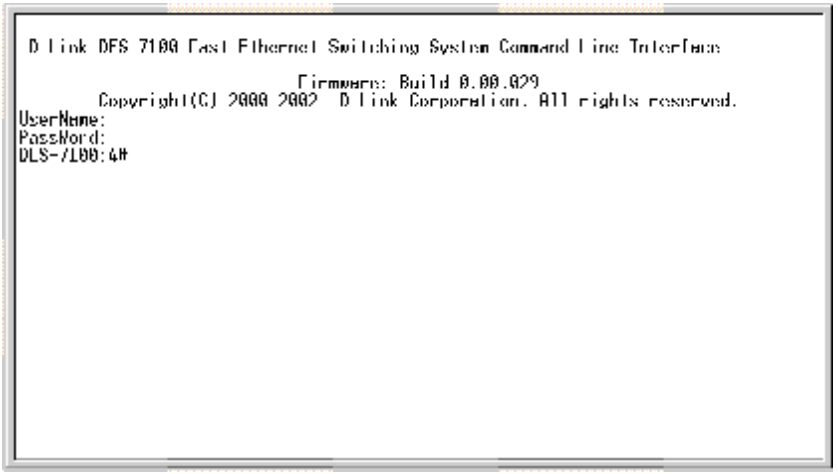

Figure 2-1. Initial Console Screen

Commands are entered at the command prompt, DES-7000:4#.

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.

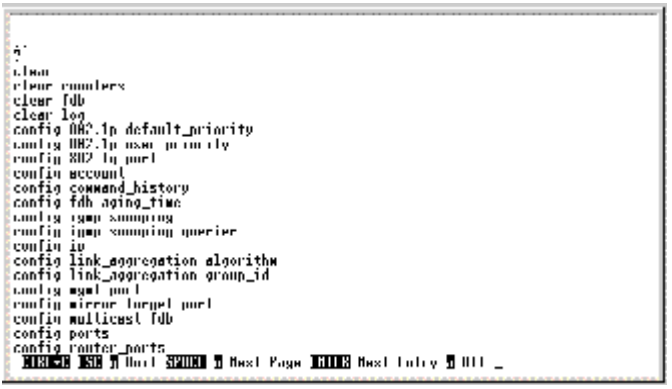

Figure 2-2. The ? Command

The dir command has the same function as the ? command.

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

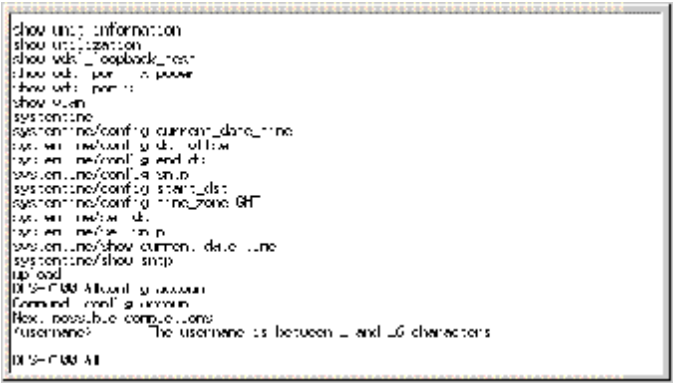

Figure 2-4. Example Command Parameter Help

In this case, the command config account was entered without the parameter <username>. The CLI will then prompt you 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.

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.

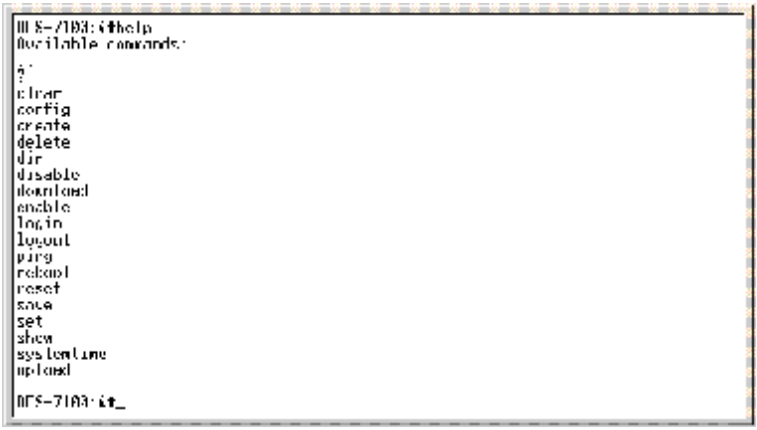

Figure 2-6. The Available Commands Prompt

The top-level commands consist of commands like 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 you enter the show command with no additional parameters, the CLI will then display all of the possible next parameters.

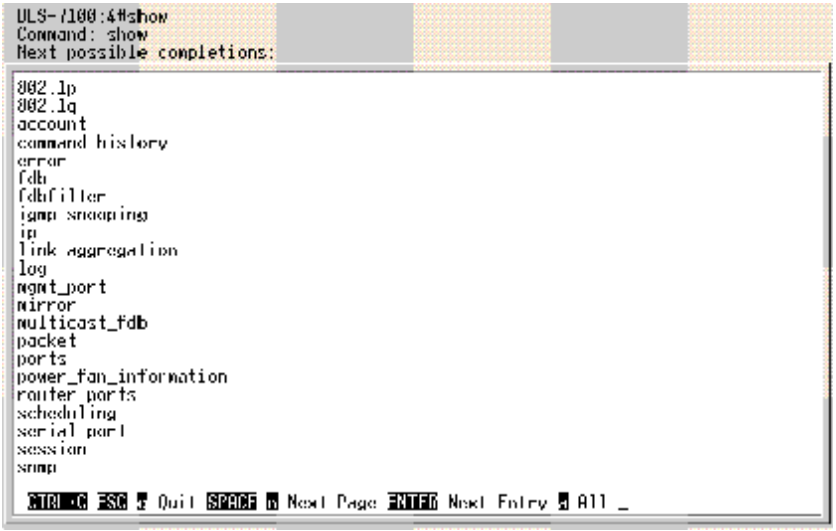

Figure 2-6. Next possible completions: Show Command

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 in this manual to describe how command entries are made and values and arguments are specified in this manual. The on-line help contained in the CLI and available through the console interface, uses the same syntax.

<angle brackets>	
Purpose	Encloses a variable or value which must be specified.
Syntax	config account <username>
Description	In the above syntax example, you must supply a previously created username in the <username> space. Do not type the angle brackets.
Example Command	config account Irvine999

[square brackets]	
Purpose	Encloses a required value or set of required arguments. One or more values or arguments can be specified.
Syntax	create account [admin/user]
Description	In the above syntax example, you must specify either an admin or a user level account to be created. Do not type the square brackets.
Example Command	create account admin

/ backslash	
Purpose	Seperates two or more mutually exclusive items in a list – one of which must be entered.
Syntax	show snmp [community/trap receiver]
Description	In the above syntax example, you must specify either community or trap receiver. Do not type the backslash.
Example Command	show snmp community

{braces}	
Purpose	Encloses an optional value or set of optional arguments.
Syntax	config igmp [<ipif_name>/all] {version <value>/query_interval <sec>/max_response_time <sec>/ robustness_variable <value>/last_member_query_interval <vlaue>/state [enabled/disabled]}
Description	In the above syntax example, you must choose to enter an IP interface name in the <ipif_name> space or all, but version <value>, query_interval <sec>, max_response_time <sec>, robustness_variable <value>, last_member_query_interval <value>, and state [enabled/disabled] are all optional arguments. You can specify any or all of the arguments contained by braces. Do not type the braces.
Example command	config igmp all version 2

Line Editing Key Usage	
Delete	Deletes characeter 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 shifts the remaining characters in the line to the left.

Line Editing Key Usage	
Insert	Can be toggled on or off. When toggled on, inserts text at the current cursor positon and shifts the remainder of the line to the left.
Left Arrow	Moves the cursor to the left.
Right Arrow	Moves the cursor to the right.
Tab	Shifts the cursor to the next field to the left.
Multiple Page Display Control Keys	
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 displaying.
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 CLI are listed (along with the appropriate parameters) in the following table.

Command	Parameters
create account	**[admin/user] <username>**
config account	**<username>**
show account	
delete account	**<username>**
show session	
show switch	
show unit_information	
show power_fan_information	
show system_temperature_state	
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_udp_port 1-65535>**
disable telnet	
enable web	**<tcp_udp_port 1-65535>**
disable web	
save	
reboot	**{ [all | unit <2-13>]}**
reset	**{all}**
login	
logout	

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

create account	
Purpose	Used to create user accounts
Syntax	create account [admin/user] <username>
Description	The create account 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 <username> User <username>
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".

```
DES7000:4@#create account admin dlink
Command: create account admin dlink

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

DES7000:4@#
```

config account	
Purpose	Used to configure user accounts
Syntax	config account <username>
Description	The config account command configures a user account that has been created using the create account command.
Parameters	<username>
Restrictions	Only Administrator-level users can issue this command. Usernames can be between 1 and 15 characters. Passwords can be between 0 15 characters.

Example Usage:

To configure the user password of “dlink” account:

```
DES7000:4@#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.

DES7000:4@#
```

show account

Purpose	Used to display user accounts
Syntax	show account
Description	Displays all user accounts created on the switch. Up to 8 user accounts can exist on the switch at one time.
Parameters	None.
Restrictions	None.

Example Usage:

To display the accounts that have been created:

```
DES7000:4@#show account
Command: show account

 Current Accounts:
   Username         Access Level
    ---------------      ------------
  System            user
  dlink             Admin
DES7000:4@#
```

delete account	
Purpose	Used to delete an existing user account
Syntax	delete account <username>
Description	The delete account command deletes a user account that has been created using the create account command.
Parameters	<username>
Restrictions	Only Administrator-level users can issue this command.

Example Usage:

To delete the user account “System”:

```
DES7000:4@#delete account System
Command: delete account System

 Success.

DES7000:4@#
```

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

Example Usage:

To display the way that the users logged in:

```
DES7000:4@#show session

ID   Live Time     From         Level   Name
---  ------------  -----------  -----   ---------
8    0:17:16.2     Serial Port  4       Anonymous
```

show switch	
Purpose	Used to display information about the switch.
Syntax	show switch
Description	This command displays information about the switch.
Parameters	None.
Restrictions	None.

Example Usage:

To display the switch information:

```
DES7000:4@#show switch
Command: show switch

Device Type   : DES7000 Fast Ethernet Switching System
Module ID      : 1
MAC Address    : 00-01-02-03-04-00
IP Address     : 10.90.90.90 (Manual)
VLAN Name      : default
Subnet Mask    : 255.0.0.0
Default Gateway  : 0.0.0.0
System Name      :
System Location   :
System Contact    :
Spanning Tree     : Disabled
IGMP Snooping   : Disabled
TELNET        : Enabled (TCP 23)
WEB           : Enabled (TCP 80)
RMON          : Disabled
DES7000:4@#
```

show unit_information	
Purpose	Used to display information about the individual module units.
Syntax	show unit_information
Description	Displays information about the installed modules.
Parameters	none
Restrictions	none

Example Usage:

To display unit information:

```
DES7000:4#show unit_information
Command: show unit_information
      Unit          Prom      Runtime    Hardware
 Slot   Type         Version   Version    Version
------- ------------- ---------- ---------- ----------
   1  DES7000 CPU   1.00.000  1.00.000    1
   2  N/A           N/A       N/A        N/A
   3  N/A           N/A       N/A        N/A
   4  DES7010 VDSL  0.00.002   0.00.008   0
   5  N/A           N/A       N/A        N/A
   6  N/A           N/A       N/A        N/A
   7  N/A           N/A       N/A        N/A
   8  N/A           N/A       N/A        N/A
   9  N/A           N/A       N/A        N/A
   10 N/A           N/A       N/A        N/A
   11 N/A           N/A       N/A        N/A
   12 N/A           N/A       N/A        N/A
   13 N/A           N/A       N/A        N/A
DES7000:4#
```

show power_fan_information	
Purpose	Used to display information about the systeem fans and RPS units.
Syntax	show power_fan_information
Description	Displays power and fan information.
Parameters	none
Restrictions	none

Example Usage:

To display power and fan information:

```
DES-7000:4#show power_fan_information
Command: show power_fan_information

 Fan ID     Status
 ------    ------------
   1       OK
   2       OK
   3       OK
   4       OK
   5       Abnormal
   6       Abnormal
   7       Abnormal
   8       Abnormal

 Power ID   Status
 --------        --------
  Left         OK
  Middle     Not exist
  Right       OK

DES-7000:4#
```

show serial_port	
Purpose	Used to display the current serial port settings.
Syntax	show serial_port
Description	This command displays the current serial port settings.
Parameters	None.
Restrictions	none

Example Usage:

To display the serial port setting:

```
DES7000:4@#show serial_port
Command: show serial_port

 Baud Rate     : 9600
 Data Bits     : 8
 Parity Bits   : None
 Stop Bits     : 1
 Auto-Logout   : 10 mins
DES7000:4@#
```

config serial_port

Purpose	Used to configure the serial port.
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 port's baud rate and auto logout settings.
Parameters	[9600/19200/38400/115200] – The serial bit rate that will be used to communicate with the management host. 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.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To configure baud rate:

```
DES7000:4@#config serial_port baud_rate 9600
Command: config serial_port baud_rate 9600

 Success.

DES7000:4@#
```

enable clipaging	
Purpose	Used to pause the scrolling of the console screen when the show command displays more than one page.
Syntax	enable clipaging
Description	This command is used when issuing the show command will cause 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-level users can issue this command.

Example Usage:

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

```
DES7100:4#enable clipaging
Command: enable clipaging

 Success.

DES7100:4#
```

disable clipaging

Purpose	Used to disable the pausing of the console screen scrolling at the end of each page when the show command would display 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 the show command would display more than one screen of information.
Parameters	None.
Restrictions	Only administrator-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:

```
DES7000:4#disable clipaging
Command: disable clipaging

 Success.

DES7000:4#
```

enable telnet	
Purpose	Used to enable communication with and management of the switch using the TELNET protocol.
Syntax	enable telnet <tcp_port_number>
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> – 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-level users can issue this command.

Example Usage:

To enable TELNET and configure port number:

```
DES7100:4#enable telnet 23
Command: enable telnet 23

 Success.

DES7100:4#
```

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-level users can issue this command.

Example Usage:

To disable the TELNET protocol on the switch:

```
DES7100:4#disable telnet
Command: disable telnet

 Success.

DES7100:4#
```

enable web	
Purpose	Used to enable the HTTP-based management software on the switch.
Syntax	enable web <tcp_port_number>
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> – 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-level users can issue this command.

Example Usage:

To enable HTTP and configure port number:

```
DES7100:4#enable web 80
Command: enable web 80

 Success.

DES7100:4#
```

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-level users can issue this command.

Example Usage:

To disable HTTP:

```
DES7100:4#disable web
Command: disable web

 Success.

DES7100:4#
```

save	
Purpose	Used to save changes in the switch's configuration to non-volitale RAM.
Syntax	save
Description	This command is used to enter the current switch configuration into non-volitale RAM. The saved swtich configuration will be loaded into the switch's memory each time the switch is restarted.
Parameters	None.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To save the switch's current configuration to non-volitale RAM:

```
DES-7000:4#save
Command: save

          **********************
          *                    *
          * Do not power off! *
          *                    *
          **********************

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

DES-7000:4#
```

reboot	
Purpose	Used to restart the switch.
Syntax	reboot { [all | unit <2-13>]}
Description	This command is used to restart the switch.
Parameters	all – Restarts all modules. unit – Restart a specified module.
Restrictions	None.

Example Usage:

To restart module 6 on the switch:

```
DES-7100:4#reboot unit 6
Command: reboot unit 6

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

DES-7100:4#
```

reset	
Purpose	Used to reset the switch to the factory default settings.
Syntax	reset {all}
Description	This command is used to restore the switch's configuration to the default settings assinged from the factory.
Parameters	all – If all is specified, all settings are restored to factory default settings. The reset all command will have the following effects: • Switch IP settings are set to 10.90.90.90/255.0.0.0 • User account information is deleted. • Switch history logis deleted. If all is not specified, the switch's current IP address and user accounts are retained. All other parameters are restored to their factory default settings and the history log is deleted
Restrictions	Only administrator-level users can issue this command.

Example Usage:

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

```
DES7000:4@#reset
Command: reset

Success.

DES7000:4@#
```

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 his Username and Password.
Parameters	None.
Restrictions	None.

Example Usage:

To initiate the login procedure:

```
DES7000:4@#login
Command: login

UserName:
```

logout	
Purpose	Used to log out a user from the swtich'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:

```
DES7000:4@#logout
```

5

SWITCH IP CONFIGURATION

Switch IP settings and management VLAN designation are listed below along with the required parameters.

Command	Parameters
config ip	**ipaddress [<IP address/subnet mask>/gateway <IP address>]** **vlan <vlan_name>** **bootp/dhcp**

Config IP commands are are described, in detail, in the following sections.

config ip [ipaddress/gateway]	
Purpose	Used to manually set switch IP address and subnet mask or Default Gateway IP address.
Syntax	config ip [ipaddress <IP address/subnet mask>/gateway <IP address>]
Description	Used to manually assign IP settings to the switch and if necessary to designate an IP address as a default gateway to different networks or subnet groups.
Parameters	ipaddress<xxx.xxx.xxx.xxx/yyy.yyy.yyy.yyy> Where the x's represent the IP address to be assigned to the switch and the y's represent the corresponding subnet mask. gateway <xxx.xxx.xxx.xxx> Where the x's represent the IP address of the default gateway device.
Restrictions	Only Administrator-level users can issue this command.

Example Usage:

To manually assign an IP address of 10.41.44.101 and subnet mask of 255.0.0.0 to the switch, and designate a default gateway of 10.1.1.254 use the following sequence of commands:

```
DES-7100:4#config ip ipaddress 10.41.44.101/255.0.0.0
Command: config ip ipaddress 10.41.44.101/8

 Success.

DES-7100:4#config ip gateway 10.1.1.254
Command: config ip gateway 10.1.1.254

 Success.

DES-7100:4#
```

config ip vlan	
Purpose	Used to designate the management VLAN.
Syntax	config ip vlan <VLAN name>
Description	This is used to designate a previously created VLAN as the VLAN from which management of the switch is allowed. By default, the VLAN named default is the management VLAN.
Parameters	VLAN name – Name of previously created VLAN (see Chapter 14, VLAN Commands).
Restrictions	Only Administrator-level users can issue this command.

Example Usage:

```
DES-7100:4#config ip vlan vlan1
Command: config ip vlan vlan1

 Success.

DES-7100:4#
```

config ip [bootp/dhcp]	
Purpose	Use this to configure the swich to obtain IP settings, including IP address, subnet mask and gateway IP address fom a BOOTP or DHCP server.
Syntax	config ip [bootp/dhcp]
Description	Used to configure the switch to be a client for a BOOTP or DHCP server.
Parameters*	bootp – Configures the switch to obtain IP settings from a BOOTP server. dhcp – Configure the switch to obtain IP settings from a DHCP server.
Restrictions	Only Administrator-level users can issue this command.

Example Usage:

To configure the switch to be a DHCP client:

```
DES-7100:4#config ip dhcp
Command: config ip dhcp

 Success.

DES-7100:4#
```

*** Important Note:** The GBIC uplink ports on the DES-7003 CPU module are currently not compatible with BOOOTP and DHCP client modes. The Switch can receive BOOTP or DHCP settings instructions through the Management Port on the Primary Master CPU module. However, since this port is not intended for routine network traffic and should not be used to uplink the Switch to the network, it should be connected directly to a non-networked DHCP or BOOTP server with the function limited to providing service only to the Switch.

6

SWITCH PORT COMMANDS

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

Command	Parameters
config ports	**<portlist> speed [auto/10_half/10_full/100_half/100_full/ 1000_half/1000_full] flow_control [enabled/disabled] learning [enabled/disabled] state [enabled/disabled]**
show ports	**<portlist>**
config mgmt_port	**{speed [auto| 10_half| 10_full| 100_half | 100_full] flow_control [enabled | disabled]}**
show mgmt_port	
config vdsl_port_loopback_test	**<portlist> type [local/line] count <1-10>**
show vdsl_loopback_test	**{[all | unit <int 2-13>]}**
config vdsl_ports	**[<portlist>/ all] {line_speed downstream [Mode_0/512K/1M/2M/3M/4M/5M/8M/10 M/15M] upstream [Mode_0/512K/1M/2M/3M/4M/5M/8M/10 M/15M] /learning [enabled / disabled] /state [enabled / disabled] /rate_adaptive_mode [disabled / default / optimum]}**
show vdsl_ports	**{<portlist>}**
show vdsl_tx_power	**{<portlist>}**

Command	Parameters
Show vdsl_port_rate_adaptive	

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

Note: Commands that use a <portlist> parameter allow you to specify a sequential range of ports or a single port on the switch. The port list is specified by listing the lowest slot number and the beginning port number on that slot, separated by a colon. Then highest slot number, and the highest port number of the range (also separeted by a colon) are specified. The beginning and end of the port list range are seperated by a dash. For example, 6:1 would specify module in slot number 6, port 1. 7:24 specifies module in slot number 7, port 24. 6:1-7:24 specifies all of the ports between module 6, port 1 and module 7, port 24 – in numerical order. For a single port, just enter the slot number and port number separated by a colon.

config ports

Purpose	Used to configure the switch's Ethernet port settings. For VDSL ports on the DES-7010 switch module, use the config_vdsl_ports command. Ports on the DES-7006 switch module have a fixed speed and duplex (100 Mbps Full) and therefore these can not be configured.
Syntax	config ports [<portlist>] {speed [auto/10_half/10_full/100_half/100_half/1000_half/1000_full] flow_control [enabled/disabled] learning [enabled/disabled] state [enabled/disabled]}
Description	This command allows for the configuration of the switch's Ethernet ports. Only the ports listed in the <portlist> will be affected.

config ports	
Parameters	portlist – specifies a range of ports to be configured. 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. [half/full] – configures the specified range of ports as either full- or half-duplex. Flow_control [enable/disable] – enables or disables flow control for the specified range of ports. learning [enable/disable] – enables or disables the MAC address learning on the specified range of ports. state [enable/disable] – enables or disables the specified range of ports.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To configure the speed of the ports 1-24 of module 3 to be 100 Mbps, full-duplex, learning and state enabled:

DES7000:4@#config ports 3:1-3:24 speed 100_full learning on state enable

Command: config ports 3:1-3:24 speed 100_full learning on state enable

Success.

show ports	
Purpose	Used to display the current configuration of a range of ports.
Syntax	show ports {<portlist>}
Description	This command is used to display the current configuration of a range of ports.
Parameters	portlist – specifies a range of ports to be configured.
Restrictions	None.

Example Usage:

To display the configuration of the ports 1-3 of module 1:

```
DES7000:4@#show ports 1:1-1:3

Port  Port       Settings            Connection          Address
      State      Speed/Duplex/FlowCtrl Speed/Duplex/FlowCtrl  Learning
----- --------- ---------------------- ---------------------- --------
1:1   Enabled    1000M/Full/Disabled    Link Down              Enabled
1:2   Enabled    1000M/Full/Disabled    Link Down              Enabled
1:3   Enabled    1000M/Full/Disabled    Link Down              Enabled
```

config mgmt_port	
Purpose	Used to configure the management port settings.
Syntax	config mgmt_port speed [auto/10_half/10_full/100_half/100_half] flow_control [enable/disable]
Description	Configure management port speed, duplex and flow control.
Parameters	auto – enables auto-negotiation for the specified range of ports. [10/100] – configures the speed in Mbps of management port. [half/full] – configures the management port as either full- or half-duplex. flow_control [enable/disable] – enables or disables flow control for management port
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To configure the speed of the management port to be 100 Mbps, full-duplex, flow control enabled:

DES7000:4@#config mgmt_port speed 100_full flow_control enable

Command: config mgmt_port speed 100_full flow_control enable

Success.

show mgmt_port	
Purpose	Used to display the current configuration of the management port.
Syntax	show mgmt_port
Description	This command is used to display the current configuration of the management port.
Parameters	None.
Restrictions	None.

Example Usage:

To display the configuration of the management port:

```
DES-7100:4#show mgmt_port
Command: show mgmt_port

Management port user setting state :
  Speed/duplex : AUTO
  Flow control : Enabled

Management port connection state   :
  Speed/duplex : 100M/FULL
  Flow control : Enabled
DES-7100:4#
```

config vdsl_port_loopback_test	
Purpose	Used to test local loop and remote loop connectivity of the VDSL line.
Syntax	config vdsl_port_loopback_test <portlist> type [local/line] count <1-10>
Description	This is a standard loopback test for testing connectivity from the switch to remote CPE and from the switch CPU to the VDSL chip (PEF22824) on the installed modules.
Parameters	portlist – Specifies a range of ports to be configured. local - Specifies type of test as local loopback test, that is, the internal packet path of the switch. line - Specifies type of test as line loopback test, that is, the packet path from the switch to the CPE. count – Specifies number of packets sent for the test.
Restrictions	This is for VDSL applications only. Requires installation of DES-7010 Ethernet over VDSL module.

Example Usage:

To configure a single port (slot 6, port 5) VDSL line loopback test for connectivity.

```
DES-7100:4#config vdsl_port_loopback_test 6:5-6:5 type line count 5
Command: config vdsl_port_loopback_test 6:5 type line count 5

 Success.

DES-7100:4#
```

show vdsl_loopback_test	
Purpose	Used to display local loop and remote loop connectivity test results of the VDSL line for the entire switch of any entire VDSL module.
Syntax	show vdsl_loopback_test [all/unit<2-13]
Description	This is a standard loopback test for testing connectivity from the switch to all remote CPE or all remote CPE connected to an individual VDSL module; and from the switch CPU to the VDSL chip(PEF22S24) on the installed modules.
Parameters	all – Display test results for all VDSL ports on the switch. unit – Display test results for specified module.
Restrictions	This is for VDSL applications only. Requires installation of DES-7010 Ethernet over VDSL module.

Example Usage:

To show VDSL loopback test results for VDSL module unit 6:

```
DES-7100:4#show vdsl_loopback_test unit 6
Command: show vdsl_loopback_test unit 6
Port   State    Count      Type      Port   State    Count      Type
              Fail/Total                         Fail/Total
-----  -------- ---------- ------    -----  -------- ---------- ------
6:1    Finish    0 / 10    Line      6:20   Finish    0 / 10    Line
6:2    Finish    0 / 10    Line      6:21   Finish    0 / 10    Line
6:3    Finish    0 / 10    Line      6:22   Finish    0 / 10    Line
6:4    Finish    0 / 10    Line      6:23   Finish    0 / 10    Line
6:5    Finish    0 / 10    Line      6:24   Finish    0 / 10    Line
6:6    Finish    0 / 10    Line
6:7    Finish    0 / 10    Line
6:8    Finish    0 / 10    Line
6:9    Finish    0 / 10    Line
6:10   Finish    0 / 10    Line
6:11   Finish    0 / 10    Line
6:12   Finish    0 / 10    Line
6:13   Finish    0 / 10    Line
6:14   Finish    0 / 10    Line
6:15   Finish    0 / 10    Line
6:16   Finish    0 / 10    Line
6:17   Finish    0 / 10    Line
6:18   Finish    0 / 10    Line
6:19   Finish    0 / 10    Line
CTRL+C ESC q Quit SPACE n Next Page p Previous Page r Refresh
```

config vdsl_ports

Purpose	Used to customize upstream and downstream data transmission rates for VDSL ports.
Syntax	config vdsl_ports [<portlist>/ all] {line_speed downstream [Mode_0/512K/1M/2M/3M/4M/5M/8M/10M/15M] upstream [Mode_0/512K/1M/2M/3M/4M/5M/8M/10M/15M] / learning [enabled / disabled] / state [enabled / disabled] / rate_adaptive_mode [disabled / default / optimum]}
Description	Use this to customize VDSL port upstream and downstream data transmission speeds or allow the switch to automatically adjust to the best possible rate.

config vdsl_ports

Parameters	downstream – Downstream data transmission speed speed, specify speed as Mode 0, 512 Kbps or from 1 – 15 Mbps. upstream – Upstream data transmission speed speed, specify speed as Mode 0, 512 Kbps or from 1 – 15 Mbps. Mode 0 – This is the default setting for VDSL ports. It specifies a downstream speed of 4Mbps and upstream speed of 1Mbps. rate adaptive mode – When the VDSL rate adaptive mode is enabled, the switch automatically senses line condition and adjusts downstream and upstream speeds if the set rate cannot be maintained. The default setting will set speed to *Mode 0* when a rate can no longer be supported. optimum – When rate adaptive mode is enabled, this sets speed to Mode 0 but then tests the downstream and upstream speed and raises each incrementally to achieve the best performance level. state – Enable or disable the listed ports. learning – When learning is enabled, MAC addresses are automatically added to the forwarding table. When disabled, any additions to the forwarding table must be entered manually.
Restrictions	This is for VDSL applications only. Requires installation of DES-7010 Ethernet over VDSL module.

Example Usage:

To enable all VDSL ports and configure them for a symmetrical upstream and downstream data transmission rate of 1 Mbps, with learning enabled

```
DES-7100:4#config vdsl_ports all line_speed downstream 1M
upstream 1M learning e
nabled state enabled
Command: config vdsl_ports all line_speed downstream 1M
upstream 1M learning ena
bled state enabled

Note! Just configure the exist port!!

Success.

DES-7100:4#
```

show vdsl_ports

Purpose	Used to display the current status of VDSL ports.
Syntax	show vdsl_ports {portlist}
Description	Use this to display current information on VDSL ports switch wide or specify a list of consecutive ports. Information displayed includes port state, upstream and downstream data transmission rates, link status and learning status.
Parameters	portlist – Ports may be specified following the standard format, if no portlist is specified all VDSL ports are displayed.
Restrictions	This is for VDSL applications only. Requires installation of DES-7010 Ethernet over VDSL module.

Example Usage:

To display a list of all VDSL ports:

```
DES-7000:4#show vdsl_ports
Command: show vdsl_ports

 Port   Port     Settings     VDSL        Ethernet Connection     Address
        State    DS/US Speed  Connection  Speed/Duplex/FlowCtrl   Learning
 -----  -------- -----------  ----------- ---------------------   --------
 2:1    Enabled   4M/1M       Link Down    Link Down              Enabled
 2:2    Enabled   4M/1M       Link Down    Link Down              Enabled
 2:3    Enabled   4M/1M       Link Down    Link Down              Enabled
 2:4    Enabled   4M/1M       Link Down    Link Down              Enabled
 2:5    Enabled   4M/1M       Link Down    Link Down              Enabled
 2:6    Enabled   4M/1M       Link Down    Link Down              Enabled
 2:7    Enabled   4M/1M       Link Down    Link Down              Enabled
 2:8    Enabled   4M/1M       Link Down    Link Down              Enabled
 2:9    Enabled   4M/1M       Link Down    Link Down              Enabled
 2:10   Enabled   4M/1M       Link Down    Link Down              Enabled
 2:11   Enabled   4M/1M       Link Down    Link Down              Enabled
 2:12   Enabled   4M/1M       Link Down    Link Down              Enabled
 2:13   Enabled   4M/1M       Link Down    Link Down              Enabled
 2:14   Enabled   4M/1M       Link Down    Link Down              Enabled
 2:15   Enabled   4M/1M       Link Down    Link Down              Enabled
 2:16   Enabled   4M/1M       Link Down    Link Down              Enabled
 2:17   Enabled   4M/1M       Link Down    Link Down              Enabled
 2:18   Enabled   4M/1M       Link Down    Link Down              Enabled
 2:19   Enabled   4M/1M       Link Down    Link Down              Enabled
 2:20   Enabled   4M/1M       Link Down    Link Down              Enabled
 CTRL+C ESC q Quit SPACE n Next Page p Previous Page r Refresh
```

show vdsl_port_tx_power

Purpose	Used to display power settings for VDSL ports.
Syntax	show vdsl_port_tx_power {portlist}
Description	Use this to display upstream and downstream power settings (listed in dBm/Hz) and signal to noise ratios (in dB) for VDSL ports.
Parameters	portlist – Ports may be specified following the standard format, if no portlist is specified all VDSL ports are displayed.
Restrictions	This is for VDSL applications only. Requires installation of DES-7010 Ethernet over VDSL module.

Example Usage:

```
DES-7000:4#show vdsl_port_tx_power 2:1-2:6
Command: show vdsl_port_tx_power 2:1-2:6

 Port   DS Tx Power    US Tx Power    DS SNR     US SNR
        (dBm/Hz)       (dBm/Hz)       (dB)       (dB)
 ----  -------------  -------------  ---------  ----------
 2:1        N/A            N/A          N/A        N/A
 2:2        N/A            N/A          N/A        N/A
 2:3        N/A            N/A          N/A        N/A
 2:4        N/A            N/A          N/A        N/A
 2:5        N/A            N/A          N/A        N/A
 2:6        N/A            N/A          N/A        N/A



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

show vdsl_port_rate_adaptive	
Purpose	Used to display rate adaptive mode status per VDSL port.
Syntax	show vdsl_port_rate_adaptive
Description	Use this to display whether that rate adaptive mode for VDSL ports is enabled or disabled.
Parameters	None.
Restrictions	This is for VDSL applications only. Requires installation of DES-7010 Ethernet over VDSL module.

Example Usage:

To list VDSL rate adaptive status per port:

```
show vdsl_port_rate_adaptive
show vdsl_port_rate_adaptive

  Port   Rate Adaptive Mode      Port   Rate Adaptive Mode
 -----  --------------          -----  --------------
  6:1    Optimum                 6:20   Optimum
  6:2    Optimum                 6:21   Optimum
  6:3    Optimum                 6:22   Optimum
  6:4    Optimum                 6:23   Optimum
  6:5    Optimum                 6:24   Optimum
  6:6    Optimum
  6:7    Optimum
  6:8    Optimum
  6:9    Optimum
  6:10   Optimum
  6:11   Optimum
  6:12   Optimum
  6:13   Optimum
  6:14   Optimum
  6:15   Optimum
  6:16   Optimum
  6:17   Optimum
  6:18   Optimum
  6:19   Optimum
CTRL+C ESC q Quit SPACE n Next Page p Previous Page r Refresh
```

7

NETWORK MANAGEMENT

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 community	**<community_string> [readonly/readwrite]**
delete snmp community	**<community_string>**
create snmp trap_receiver	**<ipaddr> <community_string>**
delete snmp trap_receiver	**<ipaddr>**
create trusted_host	**<ipaddr>**
delete trusted_host	**<ipaddr>**
config snmp community	**<community_string> [readonly / readwrite]**
config snmp trap_reciever	**<ipaddr> <community_string>**
config snmp system_name	**<sw_name>**
config snmp system_location	**<sw_location>**
config snmp system_contact	**<sw_contact>**
enable snmp traps	
disable snmp traps	
enable snmp authenticate traps	
disable snmp authenticate traps	
enable rmon	
disable rmon	
show trusted_hosts	**<ipaddr>**

Command	Parameters
show snmp	**[community/trap_receiver]**
ping	**<ipaddr>** **times <value>** **timeout <sec>**

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

create snmp community	
Purpose	Used to create an SNMP community string.
Syntax	create snmp community <community_string> [readonly/readwrite]
Description	This command is used to create an SNMP community string and to specify the string as enabling read only or read-write privileges for the SNMP management host.
Parameters	<community_string> – an alphanumeric string of up to 32 characters used to authentication of users wanting access to the switch's SNMP agent. readonly – allows the user using the above community string to have read only access to the switch's SNMP agent. The default read only community string is public. readwrite – allows the user using the above community string to have read and write acces to the switch's SNMP agent. The default read write community string is private.
Restrictions	Only administrator-level users can issue this command. A maximum of 4 community strings can be specified.

Example Usage:

To create a read-only level SNMP community "System":

DES7000:4@#create snmp community System readwrite
Command: create snmp community System readwrite
Success.
DES7000:4@#

delete snmp community	
Purpose	Used to delete an SNMP community string previously entered on the switch.
Syntax	delete snmp community <community_string>
Description	This command is used to delete an SNMP community string entered on the switch using the create snmp community command above.
Parameters	<community_string> – an alphanumeric string of up to 32 characters used to authentication of users wanting access to the switch's SNMP agent.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To delete a read-only level SNMP community "System":

```
DES7000:4@#delete snmp community System
Command: delete snmp community System

Success.

DES7000:4@#
```

create snmp trap_receiver	
Purpose	Used to specify a management station, by IP address and community string, that will receive traps generated by the switch's SNMP agent.
Syntax	create snmp trap_receiver <ipaddr> <community_string>
Description	This command is used to specify the IP address of a management station that will receive traps generated by the switch's SNMP agent and the community string that will be used to authenticate the management station's privileges.
Parameters	<ipaddr> – the IP address of a management station that will receive SNMP traps generated by the switch's SNMP agent. <community_string> – An alpha-numeric string of up to 32 characters that will be used to authenticate management stations that want to receive SNMP traps from the swtich's SNMP agent.
Restrictions	Only administrator-level users can issue this command. A maximum of 4 trap receivers can be specified.

Example Usage:

To create a trap receiver 10.1.1.1 in read-only level SNMP community:

```
DES7000:4@#create snmp trap_receiver 10.1.1.1 System
Command: create snmp trap_receiver 10.1.1.1 System
Success.
DES7000:4@#
```

delete snmp trap_receiver	
Purpose	Used to delete a trap receiver entry on the switch made using create snmp trap_reciever above.
Syntax	delete snmp trap_reciever <ipaddr>
Description	The command allows the user to delete an SNMP trap receiver specified previously using the create trap_receiver command above.
Parameters	<ipaddr> – the IP address of the management station that is currently specified to receive traps from the switch's SNMP agent. This management station will be deleted from the list of up to three that can be entered using the create snmp trap_receiver commmand above.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To delete a trap receiver 10.1.1.1:

```
DES7000:4@#delete snmp trap_receiver 10.1.1.1
Command: delete snmp trap_receiver 10.1.1.1

Success.

DES7000:4@#
```

create trusted_host	
Purpose	Used to create a trusted host entry.
Syntax	create trusted _host <ipaddr>
Description	This command is used to create a trusted host entry made. Up to three IP addresses are allowed for management of the switch in-band SNMP, TELNET or web-based management software.
Parameters	<ipaddr> – The IP address of the trusted host.
Restrictions	Only administrator-level users can issue this command. Up to 3 IP addresses. Trusted hosts must be members of the management VLAN. If no trusted host is specified the switch can be accessed from any host bay anyone who has a correct Username and Password.

Example Usage:

To create a trusted host with an IP address 10.48.74.121:

```
DES7000:4@#create trusted_host 10.48.74.121
Command: create trusted_host 10.48.74.121

Success.

DES7000:4@#
```

delete trusted_host	
Purpose	Used to delete a trusted host entry made using the create trusted_host command above.
Syntax	delete trusted _host <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-level users can issue this command.

Example Usage:

To delete a trusted host with an IP address 10.48.74.121:

```
DES7000:4@#delete trusted_host 10.48.74.121
Command: delete trusted_host 10.48.74.121

Success.

DES7000:4@#
```

config snmp community	
Purpose	Used to create an SNMP community string.
Syntax	config snmp community <community_string> [readonly/readwrite]
Description	This command is used to create an SNMP community string on the switch that will be used to authenticate management stations that want to access the switch using SNMP management software.
Parameters	<community_string> – An alpha-numeric string of up to 32 characters that will be used to authenticate management stations that want to access the switch's SNMP agent. readonly – allows the user using the above community string to have read only access to the switch's SNMP agent. The default read only community string is public. readwrite – allows the user using the above community string to have read and write acces to the switch's SNMP agent. The default read write community string is private.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To configure a SNMP community "System":

```
DES7000:4@#config snmp community System readwrite
Command: config snmp community System readwrite
Success.
DES7000:4@#
```

config snmp trap_receiver	
Purpose	Used to configure a specified trap receiver.
Syntax	config snmp trap_receiver <ipaddr> <community_string>
Description	This command is used to configure a specified trap receiver.
Parameters	<ipaddr> – the IP address of a management station that will receive SNMP traps generated by the switch's SNMP agent. <community_string> – An alpha-numeric string of up to 32 characters that will be used to authenticate management stations that want to receive SNMP traps from the swtich's SNMP agent.
Restrictions	Only administrator-level users can issue this command. A maximum of 3 trap receivers is allowed.

Example Usage:

To configure a trap receiver 10.1.1.1 in read-only level SNMP community:

```
DES7000:4@#config snmp trap_receiver 10.1.1.1 System
Command: config snmp trap_receiver 10.1.1.1 System

Success.
DES7000:4@#
```

config snmp system_name	
Purpose	Used to configure a name for the switch.
Syntax	config snmp system_name <sw_name>
Description	This command is used to give the switch an alpha-numeric name of up to 128 characters.
Parameters	<sw_name> – an alpha-numeric name for the switch of up to 128 characters.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To configure the switch name for “DES7100”:

.

```
DES7000:4@#config snmp system_name DES7100
Command: config snmp system_name DES7100

Success.

DES7000:4@#
```

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.
Parameters	<sw_location> – a description of the location of the switch. A maximum of 128 characters can be used.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To configure the switch location for “Taiwan”:

.

```
DES7000:4@#config snmp system_location Taiwan
Command: config snmp system_location Taiwan

Success.

DES7000:4@#
```

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.
Parameters	<sw_contact> – a maximum of 128 characters used to identify a contact person who is responsible for the switch.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To configure the switch contact to “dlink”:

.

```
DES7000:4@#config snmp system_contact dlink
Command: config snmp system_contact dlink

Success.

DES7000:4@#
```

show snmp	
Purpose	Used to display the SNMP configuration entered on the switch.
Syntax	show snmp [community_string/trap_receiver]
Description	This command will display the current SNMP configuration on the switch.
Parameters	community_string – Displays all of the community strings configured on the switch. A community string is an alpha-numeric string of up to 32 characters used to authenticate management stations wanting access to the switch's SNMP agent. trap_receiver – Displays all of the trap_receiver IP addresses configured on the switch. A trap receiver is a host on the same subnet as the switch that can receive SNMP trap messages.
Restrictions	None.

Example Usage:

To display snmp configurations:

```
DES7000:4@#show snmp
Command: show snmp

System Name       : DES7100
System Location    : Taiwan
System Contact     : dlink
SNMP Trap        : Enabled
Authenticate Traps  : Enabled


Community String                          Rights
---------------------------------------------- ---------------
System                                    Read/Write
public                                    Read-Only
Develop                                   Read-Only
private                                   Read/Write

 Total Entries: 4

Trap Receiver:
IP Address      Community String
---------------  ---------------------------------------- --------------------
10.1.1.1         Develop

 Total Entries: 1

DES7000:4@#
```

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
Description	This command is used to display a list of trusted hosts entered on the switch using the create trusted_host command above.
Parameters	None.
Restrictions	None.

Example Usage:

To display the list of trust hosts:

```
DES7000:4@#show trusted_host
Command: show trusted_host

 Management Station IP Addresses:
 IP Address: 10.48.74.121  Port: 23
 IP Address: 10.48.75.100  Port: 23
 IP Address: 10.48.69.23   Port: 21
DES7000:4@#
```

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-level users can issue this command.

Example Usage:

To turn on SNMP trap support:

```
DES7100:4#enable snmp traps
Command: enable snmp traps

Success.

DES7100:4#
```

disable snmp traps	
Purpose	Used to disable SNMP trap support on the switch.
Syntax	enable snmp traps
Description	This command is used to disable SNMP trap support on the switch.
Parameters	None.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To prevent SNMP traps from being sent from the switch:

```
DES7100:4#disable snmp traps
Command: disable snmp traps

Success.

DES7100:4#
```

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-level users can issue this command.

Example Usage:

To turn on SNMP authentication trap support:

```
DES7100:4#enable snmp authenticate traps
Command: enable snmp authenticate traps

 Success.

DES7100:4#
```

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-level users can issue this command.

Example Usage:

To turn off SNMP authentication trap support:

```
DES7100:4#disable snmp authenticate traps
Command: disable snmp authenticate traps

 Success.

DES7100:4#
```

enable rmon	
Purpose	Used to enable RMON on the switch.
Syntax	enable rmon
Description	This command is used, in conjunction with the disable rmon command below, to enable and disable remote monitoring (RMON) on the switch.
Parameters	None.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

```
DES7100:4#enable rmon
Command: enable rmon

 Success.

DES7100:4#
```

disable rmon	
Purpose	Used to disable RMON on the switch.
Syntax	disable rmon
Description	This command is used, in conjunction with the enable rmon command above, to enable and disable remote monitoring (RMON) on the switch.
Parameters	None.
Restrictions	Only administrator-level users can issue this command.

Example Usage

```
DES7100:4#disable rmon
Command: disable rmon

 Success.

DES7100:4#
```

ping	
Purpose	Used to test the connectivity between network devices.
Syntax	ping <ipaddr> {times <value>} {timeout <sec>}
Description	This command sends 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> – the IP address of the remote device. times <value> – 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> – 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.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To send ICMP echo message to "10.48.74.121" for 4 times:

```
DES7000:4@#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
DES7000:4@#
```

8

DOWNLOAD/UPLOAD COMMANDS

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

Command	Parameters
download	**[[firmware <ipaddr> <path_filename> {[slave {[all|<2-13>]}/ master {[primary/backup/all]}] }/ configuration <ipaddr> <path_filename> {increment}]**
upload	**configuration log <ipaddr> <path_filename>**

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	[[firmware <ipaddr> <path_filename> {[slave {[all/<2-13>]}/ master {[primary/backup/all]}] }/ configuration <ipaddr> <path_filename> {increment}]
Description	This command is used to download a new firmware or a switch configuration file from a TFTP server.
Parameters	firmware – download and install new firmware on the switch from a TFTP server. configuration – download a switch configuration file from a TFTP server. <ipaddr> – the IP 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:\3326s.had. unit [<unitid>/all] – all specifies all units (switches), <unitid> is the unit id of the switch that will receive the download. 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.
Restrictions	The TFTP server must be on the same IP subnet as the switch. Only administrator-level users can issue this command.

Example Usage:

```
DES7000:4@#download configuration 10.48.74.121
c:\cfg\setting.txt
Command: download configuration 10.48.74.121
c:\cfg\setting.txt

 Connecting to server..... Done.
 Download configuration..... Done.
DES7000:4@#
```

upload	
Purpose	Used to upload the current switch settings or the switch history log to a TFTP server.
Syntax	upload [configuration/log] <ipaddr> <path_filename>
Description	This command is used to upload either the switch's current settings or the switch's history log to a TFTP server.
Parameters	configuration – specifies that the switch's current settings will be uploaded to the TFTP server. log – specifies that the switch history 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. <path_filename> – 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-level users can issue this command.

Example Usage:

```
DES7000:4@#upload configuration 10.48.74.121
c:\cfg\log.txt
Command: upload configuration 10.48.74.121
c:\cfg\log.txt
 Connecting to server..... Done.
 Upload configuration.....Done.
DES7000:4@#
```

9

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 utilitzation	**{[all/unit <unit 1-13>]}**
clear counters	**ports <portlist>**
clear log	
show log	**index <value>**

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

Note: Commands that use a <portlist> parameter allow you to specify a sequential range of ports or a single port on the switch. The port list is specified by listing the lowest slot number and the beginning port number on that slot, separated by a colon. Then highest slot number, and the highest port number of the range (also separeted by a colon) are specified. The beginning and end of the port list range are seperated by a dash. For example, 6:1 would specify module in slot number 6, port 1. 7:24 specifies module in slot number 7, port 24. 6:1-7:24 specifies all of the ports between module 6, port 1 and module 7, port 24 – in numerical order. For a single port, just enter the slot number and port number separated by a colon.

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 port list.
Parameters	<portlist> – specifies a range of ports to be configured.
Restrictions	None.

Example Usage:

To display the packets analysis for port 6 of mudule 2:

```
DES7000:4@#show packet port 2:6
```

```
Port number : 2:6
Frame Size    Frame Counts  Frames/sec    Frame Type
Total     Total/sec
------------  ------------  ----------  ----------  -------  --------
-
64              3275          10        RX Bytes     408973    1657
65-127           755          10        RX Frames     4395      19
128-255          316           1
256-511          145           0        TX Bytes     7918       178
512-1023          15           0        TX Frames    111          2
1024-1518          0           0
Unicast RX       152           1
Multicast RX     557           2
Broadcast RX    3686          16

Broadcast RX    4495          42
```

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 swtich for a given port list.
Parameters	<portlist> – specifies a range of ports to be configured.
Restrictions	None.

Example Usage:

To display the errors of the port 3 of module 1:

```
DES7000:4@# show error ports 1:3
```

```
                    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 Collission       0
Drop Pkts       0       Collision               0
```

show utilization	
Purpose	Used to display real-time port utilization statistics.
Syntax	show utilization {[all/unit <unit 1-13>]}
Description	This command will display the real-time port utilitization statistics for the switch.
Parameters	all – Use this to view utilization for all slot modules on the switch. unit – Use this to specify a single slot module to view utilization.
Restrictions	None.

Example Usage:

To display the port utilization statistics:

```
DES7000:4@#show utilization
```

```
Port   TX/sec     RX/sec     Util   Port   TX/sec     RX/sec     Util
-----  ---------- ---------- ----   ----   ---------- ---------- ----
1:1    0          0          0
1:2    0          0          0
1:3    0          0          0
1:4    0          0          0
1:5    0          0          0
1:6    0          0          0
```

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 range of ports to be configured.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To clear the counters:

```
DES7000:4@#clear counters ports 2:7-2:9
Command: clear counters ports 2:7-2:9
Success.
DES7000:4@#
```

clear log	
Purpose	Used to clear the switch's history log.
Syntax	clear log
Description	This command will clear the switch's history log.
Parameters	None.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To clear the log information:

```
DES7000:4@#clear log
Command: clear log

 Success.

DES7000:4@#
```

show log	
Purpose	Used to display the switch history log.
Syntax	show log {index <value>}
Description	This command will display the contents of the switch's history log.
Parameters	index <value> – the show log command will display the history log until the log number reaches this value.
Restrictions	None.

Example Usage:

To display the switch history log:

```
DES7000:4@# show log
Index Time      Log Text
----- ---------- ---------------------------------------------------------------
4    000d00h50m Unit 1, Successful login through Console
(Username: Anonymous)
3    000d00h50m Unit 1, Logout through Console (Username:
Anonymous)
2    000d00h49m Unit 1, Successful login through Console
(Username: Anonymous)
1     000d00h49m Unit 1, Logout through Console (Username:
      Anonymous)
DES7000:4@#
```

10

SPANNING TREE COMMANDS

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

Command	Parameters
config stp	**maxage <value>** **hellotime <value>** **forwarddelay <value>** **priority <value>** **fdpdu [enabled/disabled]**
config stp_ports	**<portlist>** **cost <value>** **priority <value>** **state [enabled/disabled]**
enable stp	
disable stp	
show stp	
show stp_ports	**<portlist>**

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

Note: Commands that use a <portlist> parameter allow you to specify a sequential range of ports or a single port on the switch. The port list is specified by listing the lowest slot number and the beginning port number on that slot, separated by a colon. Then highest slot number, and the highest port number of the range (also separeted by a colon) are specified. The beginning and end of the port list range are seperated by a dash. For example, 6:1 would specify module in slot number 6, port 1. 7:24 specifies module in slot number 7, port 24. 6:1-7:24 specifies all of the ports between module 6, port 1 and module 7, port 24 – in numerical order. For a single port, just enter the slot number and port number separated by a colon.

config stp	
Purpose	Used to setup STP on the switch.
Syntax	config stp {maxage <value>/hellotime <value>/forwarddelay <value>/priority <value>/fbpdu [enabled/disabled]}
Description	This command is used to setup the Spanning Tree Protocol (STP) for the entire switch.
Parameters	maxage <value> – the maximum amount of time (in seconds) that the switch will wait to receive a BPDU packet before reconfiguring STP. The default is 20 seconds. hellotime <value> – the time interval between transmission of configuration messages by the root device. The default is 2 seconds. forwarddelay <value> – the maximum amount of time (in seconds) that the root device will wait before changing states. The default is 15 seconds. priority <value> – a numerical value between 0 and 65535 that is used in determining the root device, root port, and designated port. The device with the highest priority becomes the root device. The lower the numerical value, the higher the priority. The default is 32,768. fbpdu [enabled/disabled] – allows the forwarding of STP BPDU packets from other network devices when STP is disabled on the switch. The default is enabled.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To set maxage to 18 and hellotime to 4:

```
DES7000:4@#config stp maxage 18 hellotime 4
Command: config stp maxage 18 hellotime 4

 Success.

DES7000:4@#
```

config stp_ports	
Purpose	Used to setup STP on the port level.
Syntax	config stp_ports <portlist> {cost <value>/priority <value>/state [enabled/disabled]
Description	This command is used to create and configure STP for a group of ports.
Parameters	cost <value> – this defines a metric that indicates the relative cost of forwarding packets to the specified port list. The default cost for a 1000 Mbps port is 4, a 100 Mbps port is 19, and for a 10 Mbps port the default cost is 100. priority <value> – a numeric value between 0 and 31 that is used in determing the root and designated port in an STP port list. The default is 16, with 0 indicating the highest priority. <portlist> – specifies a range of ports to be configured. state [enabled/disabled] – allows STP to be enabled or disabled for the ports specified in the port list. The default is disabled.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To set the path cost 19,the priorty 15, and the state enabled of the ports 1-5 of module 1:

```
DES7000:4@#config stp_ports 1:1-1:5 cost 19 priority 15 state enabled
Command: config stp_ports 1-5 cost 19 priority 15 state enabled

 Success.

DES7000:4@#
```

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-level users can issue this command.

Example Usage:

To enable STP on the switch:

```
DES7100:4#enable stp
Command: enable stp

 Success.

DES7100:4#
```

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-level users can issue this command.

Example Usage:

To disable STP on the switch:

```
DES7100:4#disable stp
Command: disable stp

 Success.

DES7100:4#
```

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:

Status 1: STP enabled

```
DES7000:4@#show stp
Command: show stp

STP Status              : Enabled
Max Age                 : 18
Hello Time              : 4
Forward Delay           : 15
Priority                : 32768
Forwarding BPDU         : Enabled

 Designated Root Bridge: 00-00-00-12-00-00
 Root Priority          : 32768
 Cost to Root           : 19
 Root Port              : 33
 Last Topology Change   : 13sec
  Topology Changes Count: 0
```

Status 2: STP Disabled

```
DES7000:4@#show stp
Command: show stp

STP Status          : Disabled
Max Age             : 18
Hello Time          : 4
Forward Delay       : 15
Priority            : 32768
Forwarding BPDU : Enabled

DES7000:4@#
```

show stp_ports

Purpose	Used to display the switch's current per-port group STP configuration.
Syntax	show stp_ports <portlist>
Description	This command displays the switch's current per-port group STP configuration.
Parameters	<portlist> – specifies a range of ports to be configured.
Restrictions	none

Example Usage:

To display STP state of port 1-6 of slot 1:

```
DES7000:4@#show stp_ports 1:1-1:2
```

Port	Connection	State	Cost	Priority	Status	STP Name
1:1	Link Down	Enabled	19	128	Forwarding	s0
1:2	Link Down	Enabled	19	128	Forwarding	s0
1:3	Link Down	Enabled	19	128	Forwarding	s0
1:4	Link Down	Enabled	19	128	Forwarding	s0
1:5	Link Down	Enabled	19	128	Forwarding	s0
1:6	Link Down	Enabled	19	128	Forwarding	s0

11

LAYER 2 FDB 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> <macaddr> port <port>**
create multicast_fdb	**<vlan_name> <macaddr>**
create fdbfilter	**<macaddr> [src/dst/either]**
delete fdbfilter	**<macaddr>**
config multicast_fdb	**<vlan_name> <macaddr> [add/delete] <portlist>**
config fdb aging_time	**<sec>**
delete fdb_static	
delete fdb_dynamic	**vlan <vlan_name> port <port>/all mac <macaddr>**
clear fdb_static	**[vlan <vlan_name>/port <port>/all]**
show multicast_fdb	**vlan <vlan_name> mac_address <macaddr>**
show fdb	**port <port> vlan <vlan_name> mac_address <macaddr> static aging_time vid**
show fdbfilter	**<macaddr>**

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

Note: Commands that use a <portlist> parameter allow you to specify a sequential range of ports or a single port on the switch. The port list is specified by listing the lowest slot number and the beginning port number on that slot, separated by a colon. Then highest slot number, and the highest port number of the range (also separeted by a colon) are specified. The beginning and end of the port list range are seperated by a dash. For example, 6:1 would specify module in slot number 6, port 1. 7:24 specifies module in slot number 7, port 24. 6:1-7:24 specifies all of the ports between module 6, port 1 and module 7, port 24 – in numerical order. For a single port, just enter the slot number and port number separated by a colon.

create fdb

Purpose	Used to create a static entry to the unicast MAC address forwarding table (database)
Syntax	create fdb <vlan_name> <macaddr> [port <port>]
Description	This command will make an entry into the switch's unicast MAC address forwarding database.
Parameters	<vlan_name> – The name of the VLAN on which the MAC address resides. <macaddr> – The MAC address that will be added to the forwarding table. <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-level users can issue this command.

Example Usage:

To create an unicast MAC forwarding:

```
DES7000:4@#create fdb default 00-00-00-00-01-02 port
2:5
Command: create fdb default 00-00-00-00-01-02 port 2:5

Success.
```

create multicast_fdb	
Purpose	Used to create a static entry to the multicast MAC address forwarding table (database)
Syntax	create multicast_fdb <vlan_name> <macaddr>
Description	This command will make an entry into the switch's multicast MAC address forwarding database.
Parameters	<vlan_name> – 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-level users can issue this command.

Example Usage:

To create multicast MAC forwarding:

```
DES7000:4@# create multicast_fdb default 01-00-5E-00-00-00
Command: create multicast_fdb default 01-00-5E-00-00-00

  Success.

DES7000:4@#
```

create fdbfilter	
Purpose	Used to define filtering restrictions for specified MAC addresses.
Syntax	create fdbfilter <macaddr> [src/dst/either]
Description	Use this to filter a specified MAC address. Packets with this MAC address as a source, destination or either address are dropped.
Parameters	<macaddr> – The MAC address to be filtered.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To create a FDB filter:

```
DES-7100:4#create fdbfilter 00b10104e4c3 either
Command: create fdbfilter 00:B1:01:04:E4:C3 either

 Success.

DES-7100:4#
```

delete fdbfilter	
Purpose	Used to delete a previously created filtering rule for a specified MAC address.
Syntax	delete fdbfilter <macaddr>
Description	Use this to delete a previously created MAC address filter.
Parameters	<macaddr> – The filtered MAC address being removed from the filtered list.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To delete a FDB filter:

```
DES7000:4@#delete fdbfilter 00-00-00-00-01-02
Command: delete fdb 00-00-00-00-01-02

Success.

DES7000:4@#
```

config multicast_fdb	
Purpose	Used to configure the switch's multicast MAC address forwarding database.
Syntax	config multicast_fdb <vlan_name> <macaddr> [add/delete] <portlist>
Description	This command configures the multicast MAC address-forwarding table.
Parameters	<vlan_name> – The name of the VLAN on which the MAC address resides. <macaddr> – The MAC address that will be added to the forwarding table. [add/delete] – add will add the MAC address to the forwarding table, delete will remove the MAC address from the forwarding table. <portlist> – specifies a range of ports to be configured.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To add multicast MAC forwarding:

```
DES7000:4@# config multicast_fdb default 01-00-5E-00-00-00 add
1:1-1:5
Command: config multicast_fdb default 01-00-5E-00-00-00 add
1:1-1:5

Success.

DES7000:4@#
```

config fdb aging_time	
Purpose	Used to configure the switch's MAC address aging time.
Syntax	config fdb aging_time <sec>
Description	This command is used to set the age-out timer for the switch's dynamic unicast MAC address forwarding tables.
Parameters	aging_time <sec> – Specifies the time, in seconds, that a dynamically learned MAC address will remain in the switch's MAC address forwarding table, without being accessed, before being dropped from the database. The default value is 300 seconds.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To configure MAC address aging time:

```
DES7000:4@#config macentry unicast aging_time 300
Command: config macentry unicast aging_time 300

Success.

DES7000:4@#
```

delete fdb_dynamic	
Purpose	Used to delete dynamic entries to the switch's forwarding database.
Syntax	delete fdb_dynamic [vlan <vlan_name>/port <port>/mac <macaddr> /vid <vid number>/all]
Description	This command is used to delete any entry including permanent entries to the switch's MAC address forwarding database.
Parameters	<vlan_name> – Deletes dynamic MAC addess entries for the specified VLAN. <port> - Deletes dynamic entries for the port the entries are forwarded through. <macaddr> – The MAC address that will be deleted from the forwarding table. <vid> - Deletes dynamic entries for the port the entries are forwarded through. all – Clears all dynamic entries to the switch's forwarding database.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To delete a permanent FDB entry:

```
DES7000:4@#delete fdb default 00-00-00-00-01-02
Command: delete fdb default 00-00-00-00-01-02

Success.

DES7000:4@#
```

clear fdb_static	
Purpose	Used to clear the switch's forwarding database of static MAC address entries.
Syntax	clear fdb [vlan <vlan_name>/port <port>/all]
Description	This command is used to clear static entries to the switch's forwarding database.
Parameters	<vlan_name> – The name of the VLAN on being cleared of static MAC address entries. <port> – Clears the static MAC address entries for the port number through which the entries are forwarded. all – Clears all static entries to the switch's forwarding database.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To clear all FDB dynamic entries:

```
DES7000:4@#clear fdb all
Command: clear fdb all

 Success.

DES7000:4@#
```

show multicast_fdb	
Purpose	Used to display the contents of the switch's multicast forwarding database.
Syntax	show mulitcast_fdb [vlan <vlan_name>/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> – The name of the VLAN on which the MAC address resides. <macaddr> – The MAC address that will be added to the forwarding table.
Restrictions	None.

Example Usage:

To display multicast MAC address table:

```
DES7000:4@#show multicast_fdb
Command: show multicast_fdb

VLAN Name     : default
MAC Address   : 01-00-5E-00-00-00
Egress Ports  : 1:1-1:5,1:26,2:26
Mode          : Static

Total Entries : 1

DES7000:4@#
```

show fdb	
Purpose	Used to display the current unicast MAC address forwarding database.
Syntax	show fdb {port <port>/vlan <vlan_name>/mac_address <macaddr>/static/aging_time/vid <vid number>}
Description	This command will display the current contents of the switch's forwarding database.
Parameters	<port> – Displays MAC address entries in the FDB by port number. <vlan_name> – Displays MAC address entries in the FDB by VLAN. <macaddr> – Displays MAC address specified if the address is in the FDB. static – Displays the static MAC address entries. aging_time – Displays the aging time for the MAC address forwarding database. <vid number> - Displays MAC address entries according to the listed VID.
Restrictions	None.

Example Usage:

To display unicast MAC address table:

```
DES7000:4@#show fdb
Command: show fdb

 Unicast MAC Address Ageing Time  = 300

 VID   VLAN Name      MAC Address       Port    Type
 ----  ----------------  -----------------  ----  ---------
 1     default         00-00-00-00-01-01   ALL   BlackHole
 1     default         00-00-00-00-01-02   2:5   Permanent
 1     default         00-50-BA-6B-2A-29   2:9   Dynamic

 Total Entries = 3

DES7000:4@#
```

show fdbfilter	
Purpose	Used to display the current unicast MAC address forwarding database.
Syntax	show fdbfilter
Description	This command will display the current contents of the switch's forwarding database filter table.
Parameters	None.
Restrictions	None.

Example Usage:

To display FDB filter table:

```
DES-7100:4#show fdbfilter
Command: show fdbfilter

MAC Address Filtering

MAC Address       Src/Dst
----------------- -------
00:10:E2:F3:00:A1  Src.
00:B1:01:04:E4:C3  Either
10:A2:EE:B3:03:51  Dst.


Total Entries: 3

DES-7100:4#
```

12

TRAFFIC SEGMENTATION

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

Command	Parameters
config server-mac-list	**add/delete [vid<vlanid> mac <macaddr>]**
enable server-mac-check	
disable server-mac-check	
enable traffic-segmentation	
disable traffic-segmentation	
show traffic-segmentation-status	

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

config server-mac-list	
Purpose	Used to add to or delete from a list of servers or routers allowed to associate with the switch.
Syntax	config srv-mac-list [add/delete] [vid <vlan id> mac <macaddr>]
Description	Use this to create a list of servers or routers that are allowed to communicate with other ports on the switch module using VLAN ID and MAC addresses. This will limit communication between ports on a switch module to only specified servers as defined by VLAN and MAC address.
Parameters	<vlan id> - The VLAN ID number in which the added or deleted server or router resides. <macaddr> - The MAC address of the server or router being added or deleted.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To add a server to the list:

```
DES-7100:4#config server-mac-list add vid 1 mac ee0103a3f4a6
Command: config server-mac-list add vid 1 mac EE:01:03:A3:F4:A6

 Success.

DES-7100:4#
```

enable server-mac-check	
Purpose	Used to enable a previously created list of trusted servers.
Syntax	enable server-mac-check
Description	Use this to enable use of a previously created list that limits communication with other ports on the slave module to the servers listed.
Parameters	None.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To enable server MAC checking:

```
DES-7100:4#enable server-mac-check
Command: enable server-mac-check

 Success.

DES-7100:4#
```

disable server-mac-check	
Purpose	Used to disable a previously created list of trusted servers.
Syntax	disable server-mac-check
Description	Use this to disable use of a previously created list that limits communication with other ports on the slave module to the servers listed.
Parameters	None.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To disable server MAC checking:

```
DES-7100:4#disable server-mac-check
Command: disable server-mac-check

 Success.

DES-7100:4#
```

enable traffic-segmentation	
Purpose	Used to enable traffic segmetation system wide.
Syntax	enable traffic-segmentation
Description	Traffic segmentation is used to limit the broadcast domain of indivudual ports. When traffic segmentation is enabled, the ports on the switch slave blade modules have a limited broadcast domain. In effect, a separate VLAN is created for each port that includes the port plus the Master CPU and its uplink ports. This arrangement is sometimes referred to as Asymettric VLAN. When traffic segmentation is enabled, the ports on the switch slave blade modules are segmented so they are unable to communicate with ports that share the same slave blade module. Ports are not restricted from communication with ports on different modules.
Parameters	None.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To enable traffic segmentation Switch wide:

```
DES-7100:4#enable traffic-segmentation
Command: enable traffic-segmentation

Success.

DES-7100:4#
```

disable traffic-segmentation	
Purpose	Used to disabled the traffic segmentation function.
Syntax	disable traffic_segmentation
Description	Use this to disable traffic segmentation system wide.
Parameters	None.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To:

```
DES-7100:4#disable traffic-segmentation
Command: disable traffic-segmentation

 Success.

DES-7100:4#
```

show traffic-segmentation-status	
Purpose	Used to display traffic segmentation status including previously defined MAC address on the Server-MAC lists.
Syntax	show traffic-segmentation-status
Description	This is used to view the current status of traffic segemtnation for the system. The MAC-Server list of MAC addresses and corresponding VLAN ID numbers are displayed.
Parameters	None.
Restrictions	None.

Example Usage:

To

```
DES-7100:4#show traffic-segmentation-status
Command: show traffic-segmentation-status

Traffic Segmentation Status              :Disable
Blocking Traffic not Originate from Server(s)  :Enable

Current Defined Router Mac Addresses
 VID      MAC Address
 ------  ------------------
 1       00:22:33:44:55:66
 1       EE:01:03:A3:F4:A6
 1       EE:F6:D7:00:A2:6E
DES-7100:4#
```

13

BROADCAST STORM CONTROL COMMANDS

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	**unit [all-slaves / < 2-13>] { broadcast [enabled|disabled] / multicast [enabled|disabled] / dlf [enabled|disabled] / threshold <0-255>}**
show traffic control	

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

config traffic control	
Purpose	Used to configure broadcast/multicast traffic control.
Syntax	**unit [all-slaves / < 2-13>]** **{broadcast [enabled|disabled] /** **multicast [enabled|disabled] /** **dlf [enabled|disabled] /** threshold <0-255>}
Description	This command is used to configure broadcast storm control.
Parameters	unit – Use [all] to configure traffic control for entire switch. To specify a slave module use [slave <unit number>]. [enable/disable] – Use to enable or disable broadcast, multicast and DLF (Destination Lookup Fail) traffic control. When DLF is enabled, the storm control threshold is applied to ARP packets. threshold <value> – The upper threshold at which the specified traffic control is switched on. The <value> is the number (0-255) of broadcast/multicast/dlf packets, in Kbps, received by the switch that will trigger the storm traffic control measures.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To configure traffic control and state:

```
DES7000:4@#config traffic control unit 2 broadcast
enabled
Command: config traffic control unit 2 broadcast
enabled

 Success.

DES7000:4@#
```

show traffic control

Purpose	Used to display current traffic control settings.
Syntax	show traffic control
Description	This command displays the current storm traffic control configuration on the switch.
Parameters	None.
Restrictions	None.

Example Usage:

To display traffic control setting:

```
DES7000:4@#show traffic control
Command: show traffic control

Traffic Control

                Broadcast  Multicast  Destination
Module  Threshold  Storm      Storm      Lookup Fail
------  ---------  ---------  ---------  -----------
2       128        Enabled    Disabled   Disabled
3       128        Enabled    Disabled   Disabled
4       128        Enabled    Disabled   Disabled
5       128        Enabled    Disabled   Disabled
6       128        Disabled   Disabled   Disabled
7       N/A        N/A        N/A        N/A
8       N/A        N/A        N/A        N/A
9       N/A        N/A        N/A        N/A
10      N/A        N/A        N/A        N/A
11      N/A        N/A        N/A        N/A
12      N/A        N/A        N/A        N/A
13      N/A        N/A        N/A        N/A

DES-7000:4#
```

14

QOS COMMANDS

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

Command	Parameters
config 802.1p default_priority	**[<portlist>/all] <priority>**
config 802.1p user_priority	**[<portlist>/all] <priority>**
config scheduling	**<class_id> max_packet <value>**
show scheduling	
show 802.1p default_priority	**<portlist> all <priority>**
show 802.1p user_priority	**<portlist>**

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

Note: Commands that use a <portlist> parameter allow you to specify a sequential range of ports or a single port on the switch. The port list is specified by listing the lowest slot number and the beginning port number on that slot, separated by a colon. Then highest slot number, and the highest port number of the range (also separeted by a colon) are specified. The beginning and end of the port list range are seperated by a dash. For example, 6:1 would specify module in slot number 6, port 1. 7:24 specifies module in slot number 7, port 24. 6:1-7:24 specifies all of the ports between module 6, port 1 and module 7, port 24 – in numerical order. For a single port, just enter the slot number and port number separated by a colon.

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>
Description	This command allows you 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 four hardware priority queues the packet is forwarded to.
Parameters	<portlist> – This specifies a range of ports for which the default priority is to be configured. all – Specifies that the command applies to all ports on the switch. <priority> – The priority value you want to assign to untagged packets received by the switch or a range of ports on the switch.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

```
DES7100:4#config 802.1p default_priority all 5
Command: config 802.1p default_priority all 5

   Success.

DES7100:4#
```

config 802.1p user_priority

Purpose	Used to map the 802.1p user priority of an incoming packet to one of the four hardware queues available on the switch.
Syntax	config 802.1p user_priority <priority> <class_id>
Description	This command allows you to configure the way the switch will map an incoming packet, based on its 802.1p user priority, to one of the four available hardware priority queues on the switch. The switch's default is to map the following incoming 802.1p user priority values to the four hardware priority queues:

802.1p	Hardware Queue	Remark
0	0	Highest
1	0	High est
2	1	Mid -high
3	1	Mid -high
4	2	Mid -how
5	2	Mid -low
6	3	Lowest
7	3	Lowest.

This mapping scheme is based upon recommendations contained in IEEE 802.1D.

You can change this mapping by specifying the 802.1p user priority you want to go to the <class_id> (the number of the hardware queue).

config 802.1p user_priority	
	<priority> – The 802.1p user priority you want to associate with the <class_id> (the number of the hardware queue) with. <class_id> – The number of the switch's hardware priority queue. The switch has four hardware priority queues available. They are numbered between 0 (the highest priority) and 3 (the lowest priority).
Restrictions	Only administrator-level users can issue this command.

Example Usage:

```
DES7100:4# config 802.1p user_priority 1 3
Command: config 802.1p user_priority 1 3

 Success.

DES7100:4#
```

config scheduling

Purpose	Used to configure the traffic scheduling mechanism for each COS queue.
Syntax	config scheduling <class_id> [max_packet <value>]
Description	The switch contains 4 hardware priority queues. Incoming packets must be mapped to one of these four queues. This command is used to specify the rotation by which these four hardware priority queues are emptied. The switch's default (if the config scheduling command is not used, or if the config scheduling command is entered with max_packet set to 0) is to empty the 4 hardware priority queues in order – from the highest priority queue (hardware queue 0) to the lowest priority queue (hardware queue 3). Each hardware queue will transmit all of the packets in its buffer before allowing the next lower priority queue to transmit its packets. When the lowest hardware priority queue has finished transmitting all of its packets, the highest hardware priority queue can again transmit any packets it may have received.

config scheduling

Description	The max_packets parameter allows you to specify the maximum number of packets a given hardware priority queue can transmit before allowing the next lowest hardware priority queue to begin transmitting its packets. A value between 0 and 255 can be specified. For example, if a value of 3 is specified, then the highest hardware priority queue (number 0) will be allowed to transmit 3 packets – then the next lowest hardware priority queue (number 1) will be allowed to transmit 3 packets, and so on, until all of the queues have transmitted 3 packets. The process will then repeat. When the specified hardware priority queue has been waiting to transmit packets for this amount of time, the current queue will finish transmitting its current packet, and then allow the hardware priority queue whose max_latency timer has expired to begin transmitting packets.
Parameters	<class_id> – This specifies which of the four hardware priority queues the config scheduling command will apply to. The four hardware priority queues are identified by number – from 0 to 3 – with the 0 queue being the lowest priority. max_packet <value> – Specifies the maximium number of packets the above specified hardware priority queue will be allowed to transmit before allowing the next lowest priority queue to transmit its packets. A value between 0 and 255 can be specified.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

```
DES7000:4# config scheduling 0 max_packet 100
Command: config scheduling 0 max_packet 100

 Success.

DES7000:4#
```

show scheduling	
Purpose	Used to display the current traffic scheduling mechanisms in use on the switch.
Syntax	show scheduling
Description	This command will display the current traffic scheduling mechanisms in use on the switch.
Parameters	None.
Restrictions	None.

Example Usage:

```
DES7000:4# show scheduling
Command: show scheduling


QOS Output Scheduling

          MAX. Packets
          ------------
Class-0        100
Class-1        99
Class-2        91
Class-3        21

DES7000:4#
```

show 802.1p default_priority

Purpose	Used to display the current default priority settings on the switch.
Syntax	show 802.1p default_priority
Description	This command is used to display the current default priority settings on the switch.
Parameters	None.
Restrictions	None.

Example Usage:

```
DES7000:4# show 802.1p default_priority
Command: show 802.1p default_priority

Port    Priority
-------  -----------
  1:1       0
  1:2       0
  1:3       0
  1:4       0
  1:5       0
  1:6       0
  2:1       0
  2:2       0
  2:3       0
  2:4       0
  2:5       0
  2:6       0
  2:7       0
  2:8       0
  2:9       0
  2:10      0
  2:11      0
  2:12      0
DES7000:4#
```

show 802.1p user_priority	
Purpose	Used to display the current 802.1p user priority to hardware priority queue mapping in use by the switch.
Syntax	show 802.1p user_priority
Description	This command will display the current 802.1p user priority to hardware priority queue mapping in use by the switch.
Parameters	None.
Restrictions	None.

Example Usage:

```
DES7000:4# show 802.1p user_priority
Command: show 802.1p user_priority


QOS Class of Traffic

Priority-0 -> <Class-1>
Priority-1 -> <Class-3>
Priority-2 -> <Class-0>
Priority-3 -> <Class-1>
Priority-4 -> <Class-2>
Priority-5 -> <Class-2>
Priority-6 -> <Class-3>
Priority-7 -> <Class-3>
DES7000:4#
```

14

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	**target_port <port> source port <port> [rx/tx/both]**
enable mirror	
disable mirror	
show mirror	

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

config mirror

Purpose	Used to conigure a port mirroring on the switch.
Syntax	config mirror target_port <port> source_port <port> [rx/tx/both]
Description	This command allows a port to have all of their traffic also sent to a desnigated port – where a network sniffer or other device can monitor the network traffic. In addition, you can specify that only traffic received by or sent by or both is mirrored to the target port.
Parameters	target_port <port> – This specifies the target port (the port where mirrored packets will be sent). The port is specified by the module number and the port number on that module, separated by a colon. The target port must be on the same module as the source port. source_port <port> – This specifies a port that will be mirrored. That is, a port for which all traffic will be copied and sent to the target port. The port is specified by the module number and the port number on that module, separated by a colon. The source port must be on the same module as the taret port. rx – Allows the mirroring of only packets received (flowing into) the port or ports in the port list. tx – Allows the mirroring of only packets sent (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 and the source port must be on the same module. Only administrator-level users can issue this command.

Example Usage:

To add the mirroring ports:

```
DES7100:4#config mirror target_port 1:5 source_port 1:6 both
Command: config mirror target_port 1:5 source_port 1:6 both
Success.
DES7100:4#
```

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 you 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	None.

Example Usage:

To enable mirroring configurations:

```
DES7100:4#enable mirror
Command: enable mirror
 Success.
DES7100:4#
```

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 you 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-level users can issue this command.

Example Usage:

To disable mirroring configurations:

```
DES7100:4#disable mirror
Command: disalbe mirror
 Success.
DES7100:4#
```

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:

```
DES7000:4@#show mirror
Command: show mirror
 Current Settings
 Target Port: 1:1
 Mirrored Port:
        RX: 1:3
        TX: 1:3
DES7000:4@#
```

15

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> tag <vlanid>**
delete vlan	**<vlan_name>**
config vlan	**<vlan_name> {add [tagged/untagged/forbidden] /delete} <portlist>**
show vlan	**<vlan_name>**
config 802.1q port	**[<portlist>/all] [ingress_checking <enabled/disabled>/acceptable_frame <tagged_only/admit_all>]**
show 802.1q port	

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

Note: Commands that use a <portlist> parameter allow you to specify a sequential range of ports or a single port on the switch. The port list is specified by listing the lowest slot number and the beginning port number on that slot, separated by a colon. Then highest slot number, and the highest port number of the range (also separeted by a colon) are specified. The beginning and end of the port list range are seperated by a dash. For example, 6:1 would specify module in slot number 6, port 1. 7:24 specifies module in slot number 7, port 24. 6:1-7:24 specifies all of the ports between module 6, port 1 and module 7, port 24 – in numerical order. For a single port, just enter the slot number and port number separated by a colon.

create vlan	
Purpose	Used to create a VLAN on the switch.
Syntax	create vlan <vlan_name> {tag <vlanid>}
Description	This command allows you to create a VLAN on the switch.
Parameters	<vlan_name> – The name of the VLAN to be created. <vlanid> – The VLAN ID of the VLAN to be created.
Restrictions	Each VLAN name can be up to 32 characters. If the VLAN is not given a tag, it will be a port-based VLAN. Only administrator-level users can issue this command.

Example Usage:

To create a VLAN v1, tag 2:

```
DES7000:4@#create vlan v1 tag 2
Command: create vlan v1 tag 2

Success.

DES7000:4@#
```

delete vlan	
Purpose	Used to delete a previously configured VLAN on the switch.
Syntax	delete vlan <vlan_name>
Description	This command will delete a previously configured VLAN on the switch.
Parameters	<vlan_name> – The VLAN name of the VLAN you want to delete.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To remove a vlan v1:

```
DES7000:4@#delete vlan v1
Command: delete vlan v1

 Success.

DES7000:4@#
```

config vlan	
Purpose	Used to add or delete one or more ports from a previously created VLAN.
Syntax	<vlan_name> {add [tagged/untagged/forbidden] /delete} <portlist>
Description	This command allows you to delete ports from a previously configured VLAN's port list.
Parameters	<vlan_name> – The name of the VLAN you want to add or delete ports from. 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 you want to add or delete from the above specified VLAN.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To delete 4 through 8 of module 2 to the VLAN v1:

```
DES7000:4@#config vlan v1 delete 2:4-2:8
Command: config vlan v1 delete 2:4-2:8

 Success.

DES7000:4@#
```

show vlan	
Purpose	Used to display the current VLAN configuration on the switch
Syntax	show vlan {<vlan_name>}
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> – The VLAN name of the VLAN for which you want to display a summary of settings.
Restrictions	None.

Example Usage:

To display VLAN settings.

```
DES7000:4@#show vlan
Command: show vlan

VID           : 1           VLAN Name      : default
VLAN TYPE     : static      Advertisement  : Enabled
Member ports  : 1:1-1:26,2:1-2:26
  Static ports  : 1:1-1:26,2:1-2:26
Untagged ports  : 1:1-1:25,2:1-2:25
Forbidden ports :
VID           : 2           VLAN Name      : v1
VLAN TYPE     : static      Advertisement  : Disabled
Member ports  : 1:26,2:26
  Static ports  : 1:26,2:26
Untagged ports  :
Forbidden ports :

 Total Entries : 2
```

config 802.1q port	
Purpose	Used to setup IEEE 802.1Q port based VLANs.
Syntax	config 802.1q port [<portlist>/all] [ingress_checking <enabled/disabled>/acceptable_frame <tagged_only/admit_all>]
Description	Use this to configure port based VLANs. Ports can be tagged or untagged, and ingress filtering can be enabled or disabled for the listed ports. Set acceptable frame type to accept only tagged frames or to admit all frames.
Parameters	<portlist> - Port or ports that are being configured for 802.1Q VLANs. ingress_checking – Enable or disable ingress checking (ingress filtering) on the listed ports. acceptable_frame – Frames are tagged <tagged_only> or untagged <admit_all>
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To configure port based VLANs for ports 6:1 to 6:6:

```
DES-7100:4#config 802.1q port 6:1-6:6 ingress_checking disabled
acceptable_frame
 tagged_only
Command: config 802.1q port 6:1-6:6 ingress_checking disabled
acceptable_frame t
agged_only

 Success.

DES-7100:4#
```

show 802.1q port

Purpose	Used to display current 802.1Q port settings.
Syntax	show 802.1q port
Description	Use this to check the status of 802.1Q port settings. Ports are displayed with ingress checking enabled or disabled, and tagged or untagged.
Parameters	
	None.
Restrictions	None.

Example Usage:

To display 802.1Q port settings:

```
DES-7100:4#show 802.1q port
Command: show 802.1q port
 Port   PVID      Ingress Checking       Acceptable Frame Type
 ----  --------  --------------------  --------------------------
 1:1     1          Enabled          All Frames
 1:2     1          Enabled          All Frames
 1:3     1          Enabled          All Frames
 1:4     1          Enabled          All Frames
 1:5     1          Enabled          All Frames
 1:6     1          Enabled          All Frames
 6:1     1          Disabled         Only VLAN-tagged frames
 6:2     1          Disabled         Only VLAN-tagged frames
 6:3     1          Disabled         Only VLAN-tagged frames
 6:4     1          Disabled         Only VLAN-tagged frames
 6:5     1          Disabled         Only VLAN-tagged frames
 6:6     1          Disabled         Only VLAN-tagged frames
 6:7     1          Enabled          All Frames
 6:8     1          Enabled          All Frames
 6:9     1          Enabled          All Frames
 6:10    1          Enabled          All Frames
 6:11    1          Enabled          All Frames
 6:12    1          Enabled          All Frames
 6:13    1          Enabled          All Frames
 6:14    1          Enabled          All Frames
 CTRL+C ESC q Quit SPACE n Next Page p Previous Page r
Refresh
```

16

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>**
delete link_aggregation	**group_id <value>**
config link_aggregation	**group_id <value>** **master_port <port>** **ports <portlist>** **state [enabled/disabled]**
config link_aggregation algorithm	**mac_source** **mac_destination** **mac_source_dest**
show link_aggregation	**group_id <value>** **algorithm**

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

Note: Commands that use a <portlist> parameter allow you to specify a sequential range of ports or a single port on the switch. The port list is specified by listing the lowest slot number and the beginning port number on that slot, separated by a colon. Then highest slot number, and the highest port number of the range (also separeted by a colon) are specified. The beginning and end of the port list range are seperated by a dash. For example, 6:1 would specify module in slot number 6, port 1. 7:24 specifies module in slot number 7, port 24. 6:1-7:24 specifies all of the ports between module 6, port 1 and module 7, port 24 – in numerical order. For a single port, just enter the slot number and port number separated by a colon.

create link_aggregation group_id	
Purpose	Used to create a link aggregation group on the switch.
Syntax	create link_aggregation group_id <value>
Description	This command will create a link aggregation group.
Parameters	<value> – Specifies the group id. The switch allows up to 626 link aggregation groups to be configured. The group number identifies each of the groups.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To create link aggregation group:

```
DES7000:4@#create link_aggregation group_id 1
Command: create link_aggregation group_id 1

 Success.

DES7000:4@#
```

delete link_aggregation group_id	
Purpose	Used to delete a previously configured link aggregation group.
Syntax	delete link_aggregation group_id <value>
Description	This command is used to delete a previously configured link aggregation group.
Parameters	<value> – Specifies the group id. The switch allows up to 626 link aggregation groups to be configured. The group number identifies each of the groups.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To delete link aggregation group:

```
DES7000:4@#delete link_aggregation group_id 6
Command: delete link_aggregation group_id 6

 Success.

DES7000:4@#
```

config link_aggregation	
Purpose	Used to configure a previously created link aggregation group.
Syntax	config link_aggregation group_id <value> {master_port <port>/ports <portlist>/ state [enabled/disabled]}
Description	This command allows you to configure a link aggregation group that was created with the create link_aggregation command above.
Parameters	<value> – Specifies the group id. The switch allows up to 626 link aggregation groups to be configured. The group number identifies each of the groups. <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 must be on the same module and share the port configuration with the master port. <portlist> – Specifies a range of ports that will belong to the link aggregation group.
Restrictions	Only administrator-level users can issue this command. All ports in a link aggregation group must be on the same module.

Example Usage:

To define a load-sharing group of ports, group-id 1,master port 1 of module 2:

```
DES7000:4@#config link_aggregation group_id 1 master_port 2:1 ports 2:1-1:8
Command: config link_aggregation group_id 1 master_port 2:1 ports 2:1-1:8

 Success.

DES7000:4@#
```

config link_aggregation algorithm	
Purpose	Used to configurer the link aggregation algorithm.
Syntax	config link_aggregation algorithm [mac_source/mac_destination/mac_source_dest/
Description	This command configures to 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 examin the MAC destination address. mac_source_dest – Indicates that the switch should examine the MAC source and ddestination addresses
Restrictions	Only administrator-level users can issue this command.

Example Usage:

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

```
DES7000:4@#config link_aggregation algorithm
mac_source_dest
Command: config link_aggregation algorithm
mac_source_dest

 Success.

DES7000:4@#
```

show link_aggregation	
Purpose	Used to display the current link aggregation configuration on the switch.
Syntax	show link_aggregation {group_id <value>/algorithm}
Description	This command will display the current link aggregation configuration of the switch.
Parameters	<value> – Specifies the group id. The switch allows up to 626 link aggregation groups to be configured. The group number identifies each of the groups.
Restrictions	None.

Example Usage:

```
DES7100:4#show link_aggregation
Command: show link_aggregation

Link Aggregation Algorithm = MAC-source-dest
Group ID      : 1
Master Port    : 2:1
Member Port   : 2:1-2:10
Status         : Disabled
Flooding Port  : 2:1

DES7100:4#
```

17

IGMP SNOOPING 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 igmp_snooping	**<vlan_name>/all** **host_timeout <sec>** **router_timeout <sec>** **leave_timer <sec>** **robustness_variable <value>** **last_member_query_interval <sec>** **state [enabled/disabled]**
config igmp_snooping querier	**<vlan_name>/ all** **query_interval <sec>** **max_response_time <sec>** **robustness_variable <value>** **last_member_query_interval <sec>** **state [enabled/disabled]**
config router_ports	**<vlan_name> [add/delete]** **<portlist>**
enable igmp snooping	**forward_mcrouter_only/ disable**
disable igmp snooping	
show igmp snooping group	**{vlan <vlan_name>}**
show igmp snooping	**{vlan <vlan_name>/ detail}**
show router ports	**vlan <vlan_name>** **static/dynamic**

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

Note: Commands that use a <portlist> parameter allow you to specify a sequential range of ports or a single port on the switch. The port list is specified by listing the lowest slot number and the beginning port number on that slot, separated by a colon. Then highest slot number, and the highest port number of the range (also separeted by a colon) are specified. The beginning and end of the port list range are seperated by a dash. For example, 6:1 would specify module in slot number 6, port 1. 7:24 specifies module in slot number 7, port 24. 6:1-7:24 specifies all of the ports between module 6, port 1 and module 7, port 24 – in numerical order. For a single port, just enter the slot number and port number separated by a colon.

config igmp_snooping

Purpose	Used to configurer IGMP snooping on the switch.
Syntax	config igmp_snooping [<vlan_name>/all] {host_timeout <sec>/router_timeout <sec>/leave_timer <sec>/state [enabled/disabled]}
Description	This command allows you to configure IGMP snooping on the switch.
Parameters	<vlan_name> – The name of the VLAN for which IGMP snooping is to be configured. host_timeout <sec> – Specifies the maximum amount of time a host can be a member of a multicast group without the switch receiving a host membership report. The default is 260 seconds. route_timeout <sec> – Specifies the maximum amount of time a route will remain in the switch's can be a member of a multicast group without the switch receiving a host membership report. The default is 260 seconds. leave_timer <sec> – Leave timer. The default is 2 seconds. state [enabled/disabled] – Allows you to enable or disable IGMP snooping for the specified VLAN.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To configure the igmp snooping:

```
DES7000:4@#config igmp_snooping default
host_timeout 250 state enabled
Command: config igmp_snooping default host_timeout
250 state enabled

 Success.

DES7000:4@#
```

config igmp_snooping querier	
Purpose	Used to configure the time in seconds between general query transmissions, the maximum time in seconds to wait for reports from members, the permitted packet loss that guarantees IGMP snooping.
Syntax	config igmp_snooping querier [<vlan_name>/all] {query_interval <sec>/max_response_time <sec>/robustness_variable <value>/last_member_query_interval <sec>/state [enabled/disabled]
Description	This command configures IGMP snooping querier.
Parameters	<vlan_name> – The name of the VLAN for which IGMP snooping querier is to be configured. query_interval <sec> – Specifies the amount of time in seconds between general query transmissions. The default setting is 125 seconds. max_response_time <sec> – Specifies the maximum time in seconds to wait for reports from members. The default setting is 10 seconds. robustness_variable <value> – 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).

config igmp_snooping querier

Parameters	• 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 experience significant packet loss. last_member_query_interval <sec> – 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 [enabled/disabled] – Allows the switch to be specified as an IGMP Querier or Non-querier.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To configure the igmp snooping:

```
DES7000:4@#config igmp_snooping querier default
query_interval 125 state enabled

Command: config igmp_snooping querier default
query_interval 125 state enabled
 Success.

DES7000:4@#
```

config router_ports

Purpose	Used to configure ports as router ports.
Syntax	config router_ports <vlan_name> [add/delete] <portlist>
Description	This command allows you 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 on which the router port resides. <portlist> – Specifies a range of ports which will be configured as router ports.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To set up static router ports:

```
DES7000:4@#config router_ports default add 2:1-2:10
Command: config router_ports default add 2:1-2:10
Success.
DES7000:4@#
```

enable igmp_snooping	
Purpose	Used to enable IGMP snooping on the switch.
Syntax	enable igmp_snooping {forward_mcrouter_only}
Description	This command allows you to enable IGMP snooping on the switch. If forward_mcrouter_only is specified, the switch will forward all multicast traffic to the multicast router, only. Otherwise, the switch forwards all mulitcast traffic to any IP router.
Parameters	forward_mcrouter_only – Specifies that the switch should forward all multicast traffic to a multicast-enabled router only. Otherwise, the switch will forward all multicast traffic to any IP router.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To enable IGMP snooping on the switch:

```
DES7100:4#enable igmp_snooping
Command: enable igmp_snooping

 Success.
DES7100:4#
```

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. IGMP snooping can be disabled only if IP multicast routing is not being used. Disabling IGMP snooping allows all IGMP and IP multicast traffic to flood within a given IP interface.
Parameters	None.
Restrictions	Only administrator-level users can issue this command.

Example Usage:

To disable IGMP snooping on the switch:

```
DES7100:4#disable igmp_snooping
Command: disable igmp_snooping

 Success.

DES7100:4#
```

show igmp_snooping	
Purpose	Used to display IGMP snooping registration information, and a summary of all IGMP timers and states.
Syntax	show igmp_snooping {vlan <vlan_name>}
Description	This command will display the current IGMP snooping registration information, and a summary of all IGMP timers and states.
Parameters	<vlan_name> – The name of the VLAN for which you want to view the IGMP snooping configuration.
Restrictions	None.

Example Usage:

To show igmp snooping:

```
DES7000:4@#show igmp_snooping
Command: show igmp_snooping

 IGMP Snooping Global State : Disabled
 Multicast router Only      : Disabled
 VLAN  Name            : default
 Query Interval            : 125
 Max Response Time         : 10
 Robustness Value          : 2
 Last Member Query Interval : 1
 Host Timeout              : 260
 Route Timeout             : 260
 Leave Timer               : 2
 Querier State             : Disabled
 Querier Router Behavior    : Non-Querier
 State                     : Disabled

 VLAN  Name            : vlan2
 Query Interval            : 125
 Max Response Time         : 10
 Robustness Value          : 2
 Last Member Query Interval : 1
 Host Timeout              : 260
 Route Timeout             : 260
 Leave Timer               : 2
 Querier State             : Disabled
 Querier Router Behavior    : Non-Querier
 State                     : Disabled


 Total Entries: 2

DES7000:4@#
```

show igmp_snooping group	
Purpose	Used to display the current IGMP snooping group configuration on the switch.
Syntax	show igmp_snooping group {vlan <vlan_name>}
Description	This command will display the current IGMP snooping group configuration on the swtich.
Parameters	<vlan_name> – The name of the VLAN for which you want to view IGMP snooping group configuration information.
Restrictions	None.

Example Usage:

To show igmp snooping group:

```
DES7000:4@#show igmp_snooping group
Command: show igmp_snooping group

 VLAN Name      : default
 Multicast group: 224.0.0.2
 MAC address    : 01-00-5E-00-00-02
 Reports        : 1
 Port Member    : 1:26,2:7

 VLAN Name      : default
 Multicast group: 224.0.0.9
 MAC address    : 01-00-5E-00-00-09
 Reports        : 1
 Port Member    : 1:26,2:7
 VLAN Name      : default
 Multicast group: 234.5.6.7
 MAC address    : 01-00-5E-05-06-07
 Reports        : 1
 Port Member    : 1:26,2:9

 VLAN Name      : default
 Multicast group: 236.54.63.75
 MAC address    : 01-00-5E-36-3F-4B
 Reports        : 1
 Port Member    : 1:26,2:7

 VLAN Name      : default
 Multicast group: 239.255.255.250
 MAC address    : 01-00-5E-7F-FF-FA
 Reports        : 2
 Port Member    : 1:26,2:7

 VLAN Name      : default
 Multicast group: 239.255.255.254
 MAC address    : 01-00-5E-7F-FF-FE
 Reports        : 1
 Port Member    : 1:26,2:7

 Total Entries : 6
DES7000:4@#
```

show router_ports	
Purpose	Used to display the currently configured router ports on the switch.
Syntax	show router_ports {vlan <vlan_name>} {static/dynamic}
Description	This command will display the router ports currently configured on the switch.
Parameters	<vlan_name> – The name of the VLAN on which the router port resides. static – Displays router ports that have been statically configured. dynamic – Displays router ports that have been dynamically configued.
Restrictions	None.

Example Usage:

To display the router ports.

```
DES7000:4@#show router_ports
Command: show router_ports

 VLAN Name         : default
 Static router port     : 2:1-2:10
 Dynamic router port   :

 VLAN Name         : vlan2
 Static router port     :
 Dynamic router port:

 Total Entries: 2

DES7000:4@#
```

18

DATE AND TIME

Command	Parameters
systemtime	
..	
show current_date_time	
config current_date_time	**{Date [year <2000-2099> mon<1-12> day<1-31>] / Time [hour <0-23> min <0-59>]}**
config time_zone GMT	**+/- hour <0-13> min <0-59>**
config start_dst	[month<Jan/Feb/Mar/Apr/May/Jun/Jul/Aug/Sep/Oct/Nov/Dec> week <last/first/second/third/fourth> day <Sun/Mon/Tue/Wed/Thu/Fri/Sat>]
config end_dst	[month<Jan/Feb/Mar/Apr/May/Jun/Jul/Aug/Sep/Oct/Nov/Dec> week <last/first/second/third/fourth> day <Sun/Mon/Tue/Wed/Thu/Fri/Sat>]
config dst_offset	**<1-23>**
dst	**[enabled/disable] dst**
config sntp server	**<ipaddress>**
sntp	**[enable/disable] sntp**
show sntp	
config sntp polling interval	**<64-1024>**

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

Note: Date and time CLI commands must be accessed from a subdirectory within the main system command directory. To access the subdirectory named "systemtime" type **systemtime** at the CLI command prompt and press the Enter key. This will allow you to use the CLI commands in this directory. It will also change the CLI command prompt (see the example below).

The **save** command can be used within the systemtime subdirectory so it is not necessary to return to the main directory to save the date and time settings.

To exit the systemtime subdirectory, type two periods ".." and press Enter.

systemtime	
Purpose	Used to access CLI commands in subdirectory systemtime.
Syntax	systemtime
Description	Use this to change the current directory to the subdirectory systemtime in order to config date and time settings or to configure SNTP settings.
Parameters	None.
Restrictions	None.

To access CLI commands located in the systemtime subdirectory:

```
DES-7100:4#systemtime
Command: systemtime

DES-7100:4/systemtime#
```

..	
Purpose	Used to leave the subdirectory systemtime and go back to the main directory.
Syntax	systemtime
Description	Use this to go back to the main CLI directory.
Parameters	None.
Restrictions	None.

To exit the systemtime subdirectory:

```
DES-7100:4/systemtime#..
Command: ..

DES-7100:4#
```

show current_date_time	
Purpose	Used to display the current time and date information.
Syntax	show current_date_time
Description	This command will display current date and time information. Date and time must first be manually set or configure the Switch to use SNTP.
Parameters	None.
Restrictions	None.

Usage Example

To display current time and date information:

```
DES-7100:4/systemtime#show current_date_time
Command: show current_date_time

   Date      : 2002. 12. 12
   Time      : 12:38:21
DES-7100:4/systemtime#
```

config current_date_time	
Purpose	Used to configure time and date information and NTP server settings.
Syntax	config current_date_time {Date [year <2000-2099> mon<1-12> day<1-31>] / Time [hour <1-24> min <0-59>]}
Description	This command is used to configure time and date information and NTP server settings.
Parameters	Date – Expressed as year <value> mon <month> day <day of month> Time – Expressed using a 24 hour clock where the hour 12:00 AM is 0 and hours 1:00 PM – 11:00 PM are hours 13 – 23.
Restrictions	Only administrator-level users can issue this command.

Usage Example

To configure date and time:

```
DES-7100:4/systemtime#config current_date_time Date year
2002 mon 12 day 12
Command: config current_date_time Date year 2002 mon 12 day
12

 Success.

DES-7100:4/systemtime#
DES-7100:4/systemtime#config current_date_time Time hour 13
min 56
Command: config current_date_time Time hour 13 min 56

 Success.

DES-7100:4/systemtime#
```

config time_zone GMT	
Purpose	Used to configure time zone plus or minus hours from GMT.
Syntax	config time_zone GMT [+/- hour <0-13> min <0-59>]
Description	This command is used to set the time zone adjustement relative to GMT (Greenwich Mean Time).
Parameters	+/- hour – Hours must be added to or subtracted from GMT to determine the proper time zone adjustment. min – Some time zones are offset from GMT by fractions of on hour. This is expressed in minutes.
Restrictions	Only administrator-level users can issue this command.

Usage Example

To configure time zone:

```
DES-7100:4/systemtime#config time_zone GMT + hour 8 min 0
Command: config time_zone GMT + hour 8 min 0

 Success.

DES-7100:4/systemtime#
```

config start_dst	
Purpose	Used to configure the date when Daylight Savings Time (DST) goes into effect.
Syntax	config start_dst [month <Jan/Feb/Mar/Apr/May/Jun/Jul/Aug/Sep/Oct/Nov/Dec> week <last/first/second/third/fourth> day <Sun/Mon/Tue/Wed/Thu/Fri/Sat>]
Description	Use this to define the date when DST begins.
Parameters	month – Define the month in which DST begins. week – Define the week of the month in which DST begins. day – Define the day of the week in which DST begins.
Restrictions	Only administrator-level users can issue this command.

Usage Example

To configure DST start time and date:

```
DES-7100:4/systemtime#config start_dst month Oct week last
day Sun
Command: config start_dst month Oct week last day Sun

 Success.

DES-7100:4/systemtime#
```

config end_dst	
Purpose	Used to configure the date when Daylight Savings Time (DST) ends.
Syntax	config end_dst [month <Jan/Feb/Mar/Apr/May/Jun/Jul/Aug/Sep/Oct/Nov/Dec> week <last/first/second/third/fourth> day < Sun/Mon/Tue/Wed/Thu/Fri/Sat>]
Description	Use this to define the date when DST ends.
Parameters	month – Define the month in which DST emds. week – Define the week of the month in which DST ends. day – Define the day of the week in which DST ends.
Restrictions	Only administrator-level users can issue this command.

Usage Example

To configure:

```
DES-7100:4/systemtime#config end_dst month Apr week first
day Sun
Command: config end_dst month Apr week first day Sun

 Success.

DES-7100:4/systemtime#
```

config dst_offset

Purpose	Used to configure Daylight Savings Time (DST) offset.
Syntax	config dst_offset <1-23>
Description	The DST Offset is the number of hour that must be added to the current time while DST is in effect. DST must also be configure with a beginning and ending date.
Parameters	<1-23> - Hour(s) added to adjust clock ofor DST.
Restrictions	Only administrator-level users can issue this command.

```
DES-7100:4/systemtime#config dst_offset 1
Command: config dst_offset 1

 Success.

DES-7100:4/systemtime#
```

dst	
Purpose	Used to enable DST time adjustment.
Syntax	[enabled/disabled] dst
Description	The DST time adjustment can be enable or disabled where appropriate.
Parameters	enabled – Enables use of DST time adjustment. disabled – Disables use of DST time adjustment.
Restrictions	Only administrator-level users can issue this command.

```
DES-7100:4/systemtime#set dst enabled
Command: set dst enabled

 Success.

DES-7100:4/systemtime#
```

config sntp server

Purpose	Used to define the IP address of an SNTP (Simple Network Time Protocol) server.
Syntax	config sntp server <ipaddress>
Description	This establishes the IP address of an SNTP server used to update system time.
Parameters	<ipaddress> - IP address of a know SNTP server.
Restrictions	Only administrator-level users can issue this command.

```
DES-7100:4/systemtime#config sntp server 172.101.51.21
Command: config sntp server 172.101.51.21

 Success.

DES-7100:4/systemtime#
```

sntp	
Purpose	Used to enable or disable use of SNTP services.
Syntax	[enable/disable] sntp
Description	Use this to enable or disable a previously defined SNTP server for system time updates.
Parameters	enable – Enables use of SNTP.
Restrictions	Only administrator-level users can issue this command.

```
DES-7100:4/systemtime#config dst_offset 1
Command: config dst_offset 1

 Success.

DES-7100:4/systemtime#
```

show sntp

Purpose	Used to display SNTP status and other relevant time settings.
Syntax	show sntp
Description	This is used to display SNTP server information as well as DST and time zone settings.
Parameters	None.
Restrictions	Only administrator-level users can issue this command.

```
DES-7100:4/systemtime#show sntp
Command: show sntp

              SNTP : Enabled
        NTP Server IP: 172.101.51.21
   NTP polling interval : 1024 sec
          Time Zone  : + 8: 0
Daylight Saving Time(DST): Disabled
          Start DST
              Week : fourth
              Day  : Sun
              Month: Oct
           End DST
              Week : first
              Day  : Sun
              Month: Apr
          DST offset : 1 hour

DES-7100:4/systemtime#
```

config sntp polling_interval

Purpose	Used to define SNTP polling interval.
Syntax	config sntp polling_interval <64-1024>
Description	Use this to enable or disable a previously defined SNTP server for system time updates.
Parameters	<64–1024> - Time in seconds between SNTP query packets used to update system time.
Restrictions	Only administrator-level users can issue this command.

```
DES-7100:4/systemtime#config sntp polling_interval 1024
Command: config sntp polling_interval 1024

 Success.

DES-7100:4/systemtime#
```

19

COMMAND HISTORY LIST

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

Command	Parameters
?	
show command_history	
dir	
config command_history	**<value>**

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

?	
Purpose	Used to display all commands in the Command Line Interface (CLI).
Syntax	?
Description	This command will display all of the commands available through the Command Line Interface (CLI).
Parameters	None.
Restrictions	None.

Usage Example

To display all of the commands in the CLI:

```
DES7100:4#show command_history
Command: show command_history

?
? show
show vlan
config router_ports vlan2 add 1:1-1:10
config router_ports vlan2 add
config router_ports vlan2
config router_ports
show vlan
create vlan vlan2 tag 3
create vlan vlan2 tag 2
show router_ports
show router ports
login
DES7100:4#
```

show command_history	
Purpose	Used to display the command history.
Syntax	show command_history
Description	This command will display the command history.
Parameters	None.
Restrictions	None.

Usage Example

To display the command history:

```
DES7000:4@#show command_history
Command: show command_history

?
? show
show vlan
config router_ports vlan2 add 1:1-1:10
config router_ports vlan2 add
config router_ports vlan2
config router_ports
show vlan
create vlan vlan2 tag 3
create vlan vlan2 tag 2
show router_ports
show router ports
login
DES7000:4@#
```

dir	
Purpose	Used to display all commands.
Syntax	dir
Description	This command will display all commands.
Parameters	None.
Restrictions	None.

Usage Example To display all of the commands:

```
DES7000:4#dir
Command: dir
.
?
clear
clear arptable
clear counters
clear log
clear macentry unicast
config account
config auto logout
config baud rate
config bootprelay
config bootprelay add ipif
config bootprelay delete ipif
config command history
config dnsr
config dvmrp
config gvrp
config igmp
config igmp snooping
config ingress_checking
config ipif
config ipif System
 - more -
```

config command_history	
Purpose	Used to configure the command history.
Syntax	config command_history <value>
Description	This command is used to configure the command history.
Parameters	<value> –
Restrictions	None.

Usage Example

To configure the command history:

```
DES7000:4@#config command_history 20
Command: config command_history 20

 Success.

DES7000:4@#
```

A

TECHNICAL SPECIFICATIONS

	General	
Standards:	IEEE 802.3 10BASE-T Ethernet IEEE 802.3u 100BASE-TX Fast Ethernet IEEE 802.3z 1000BASE-SX/LX Gigabit Ethernet IEEE 802.1ab 1000BASE-T Gigabit Ethernet IEEE 802.1p/q IEEE 802.3x RFC 1123, RFC 2236 RFC1493, RFC 951 RFC2131, RFC1058 RFC1723, RFC 1389 RFC1253, RFC1583 RFC2178, RFCRFC 1850 RFC 1112, RFC 2236	
Protocols:	CSMA/CD	
Data Transfer Rates:	**Half-duplex**	**Full-Duplex**
Ethernet	10 Mbps	20 Mbps
Fast Ethernet	100 Mbps	200 Mbps
Gigabit Ethernet	n/a	2000 Mbps
Topology:	Star	

Performance	
Transmission Method:	Store and Forward
RAM Buffer:	2M/16M
Filtering Address Table:	Unicast 16
Packet Filtering/ Forwarding Rate:	Wire speed
MAC Address Learning:	32K/8K
Forwarding Table Age Time:	10~2200 sec.

General	
Network Cables: 10BASE-T: 100BASE-TX: Fiber Optic:	2-pair Category 3/4/5 UTP (max. 100 m) EIA/TIA-568 100-ohm STP (max. 100 m) 2-pair Category 5 UTP (max. 100 m) EIA/TIA-568 100-ohm STP (max. 100 m) 2-pair Category 5 UTP (max. 100 m) EIA/TIA-568 100-ohm STP (max. 100 m)
Number of Ports:	288

Physical and Environmental	
AC inputs:	85-264V AC, 47/63 Hz
DC input::	-48V DC; 16.6A
Power Consumption:	1500W
DC fans:	Two built-in 60 x 60 mm fans per power supply unit
Operating Temperature:	0 - 40°C

	Physical and Environmental
Storage Temperature:	-25 - 55 °C
Humidity:	5% - 95% non-condensing
Dimensions:	DES-7000 H: 70cm(27.56in) W: 44.5cm(17.52in) D: 47cm(18.50in) DES-7100 H: 35.6cm(14.02in) W: 44.5cm(17.52in) D: 29.4cm(11.57in)
Weight:	DES-7000: 40.2kg DES-7100: 24.2kg
EMI:	CE Class A
Safety:	CSA international

B

SWITCH SYSTEM MESSAGES

NO.	Message	Remark
1	“Success.”	
2	“Error applying data!”	
3	"Invalid IP address!”	
4	“Invalid subnet mask!”	
5	“Invalid gateway address!”	
7	“All changes are saved!”	
8	"Invalid MAC address!”	
9	"No more MAC-Based VLANs can be added!”	
10	"No more MAC addresses can be added!”	
11	“Invalid VLAN Description!”	
12	"The entry does not exist.”	
13	"Duplicate IP address! Enter a unique IP address.”	
14	"Invalid metrics!”	
15	"Flow Control is not Enabled!”	
16	"Spanning tree group name cannot be empty!”	
17	"The IP interface must be deleted first!”	
18	"The system interface is not in manual mode!”	
19	"The VLAN already has a IP Interface!”	
20	"The specified IGMP snooping entry cannot be modified.”	
21	"You have more than 255 IGMP snooping entries.”	
22	"IGMP state in the VLAN is disabled or current VID is invalid!”	
23	"The external module port is not exist.”	
24	"You must select at least one port member!”	
25	"Target mirror port can't be set in the trunk, please change it first!”	
26	"Invalid port or width setting!”	
27	"Untagged ports overlapped!”	
28	"Invalid VLAN name!”	
29	"Invalid duplicate VLAN ID!”	

30	"Incorrect aging time specified. The value must be from 300 to 1000000!"	
31	"The specified entry is not found!"	
32	"All changes applied BUT trunk member follows master!"	
33	"Master port can't be half-duplex mode!"	
34	"The EEPROM is full!"	
35	"The VLAN has no router ports."	
36	"IGMP snooping is disabled in the designated VLAN."	
37	"The username is invalid."	
38	"Incorrect password"	
39	"The specified user already exists. Enter a unique username."	Add user
40	"The username does not exist. Enter the name of an existing user"	Delete and Update user.
41`	"One active Admin user must exist!"	Delete or Update user.
42	"Confirmation error! Passwords do not match."	Add or Update user.
43	"No more user accounts can be added!"	Add user.
44	"Please wait, loading factory parameters....."	
45	"You need to configure a port within the range selected to view!"	
46	"Invalid port settings!"	
47	"The TFTP process was stopped!"	
48	"Cannot upload log. The switch does not have a history log!"	
49	"The maximum number of spanning tree group is twelve!"	
50	"MAC address must be unicast!"	
51	"MAC address must be multicast!"	
52	"Forwarding/Filtering Table is full!"	
53	"Multicast member must exist in the VLAN."	
54	"The member port must exist in the VLAN."	
55	"Duplicate route! Enter a unique route."	
56	"Target port can't be source port!"	
57	"This port member can't be set."	
58	"Port members must belong to the same VLAN."	
59	"The target port can't be selected as a mirror port."	
60	"Invalid or undefined VID!"	
61	"Specified vid is not in the static VLAN table."	
62	"This is the DEFAULT_VLAN, it cannot be removed."	

63	"This VLAN is used by routing interface, it cannot be removed."	
64	"Invalid VLAN name."	
65	"The VLAN name you entered is existing."	
66	"The VLAN name you entered does not exist."	Check IP Address or VLAN name.
67	"Invalid Interface name."	Check Interface Name.
68	"The interface name already exists. Enter a unique interface name."	Check Interface Name.
69	"The interface name does not exist."	Check Interface Name.
70	"VLAN table is full!"	
71	"The specified VID has no MAC addresses."	
72	"The specified port has no MAC addresses."	
73	"Port Based VLAN overlaped!"	
74	"Default VLAN can't be deleted."	
75	"VLAN name overlaped!"	
76	"You can't delete the VLAN which is used by IP subnet!"	
77	"The system IP interface can't be deleted."	
78	"Invalid IP address or invalid number of pings."	
79	"Search entry is not found!"	
80	"Membership can't be overlap!"	
81	"The default entry can't be deleted!"	
82	"Non-egress port must set to TAG!"	

Variable Name	***Maxmum Length***	***Type***
<username>	15	String
<password>	15	String
<ipaddr>	15	IP-Address
<netmask>	15	IP-Address
<gateway>	15	IP-Address
<vlan_name>	32	String
<sw_name>	128	String
<sw_location>	128	String
<sw_contact>	128	String
Password	15	String
<community_string>	32	String
<server_ip>	15	IP-Address
<path_filename>	64	String
<macaddr>	17	MAC-Address
<ipif>	12	String

Chapter 14 - System Message Text

The system shows the warning message text after applying the settings, entering an invalid value or response for other action.

NO.	*Message*	*Remark*
1	“Success.”	
2	“Fail!”	
3	"Invalid IP address!”	
4	“Invalid subnet mask!”	
5	“Invalid gateway address!”	
7	“All changes are saved!”	
8	"Invalid MAC address!”	
9	"No more MAC-Based VLANs can be added!”	
10	"No more MAC addresses can be added!”	
11	“Invalid VLAN Description!”	
12	"The entry does not exist.”	
13	"Duplicate IP address! Enter a unique IP address.”	
14	"Invalid metrics!”	
15	"Flow Control is not Enabled!”	
16	"Spanning tree group name cannot be empty!”	
17	"The IP interface must be deleted first!”	
18	"The system interface is not in manual mode!”	
19	"The VLAN already has a IP Interface!”	
20	"The specified IGMP snooping entry cannot be modified.”	
21	"You have more than 255 IGMP snooping entries.”	
22	"IGMP state in the VLAN is disabled or current VID is invalid!”	
23	"The external module port is not exist.”	
24	"You must select at least one port member!”	
25	"Target mirror port can't be set in the trunk, please change it first!”	
26	"Invalid port or width setting!”	
27	"Untagged ports overlapped!”	
28	"Invalid VLAN name!”	
29	"Invalid duplicate VLAN ID!”	
30	"Incorrect aging time specified. The value must be from 300 to 1000000!"	
31	"The specified entry is not found!”	
32	"All changes applied BUT trunk member follows master!”	

33	"Master port can't be half-duplex mode!"	
34	"The EEPROM is full!"	
35	"The VLAN has no router ports."	
36	"IGMP snooping is disabled in the designated VLAN."	
37	"The username is invalid."	
38	"Incorrect password"	
39	"The specified user already exists. Enter a unique username."	Add user
40	"The username does not exist. Enter the name of an existing user"	Delete and Update user.
41`	"One active Admin user must exist!"	Delete or Update user.
42	"Confirmation error! Passwords do not match."	Add or Update user.
43	"No more user accounts can be added!"	Add user.
44	"Please wait, loading factory parameters."	
45	"You need to configure a port within the range selected to view!"	
46	"Invalid port settings!"	
47	"The TFTP process was stopped!"	
48	"Cannot upload log. The switch does not have a history log!"	
49	"The maximum number of spanning tree group is twelve!"	
50	"MAC address must be unicast!"	
51	"MAC address must be multicast!"	
52	"Forwarding/Filtering Table is full!"	
53	"Multicast member must exist in the VLAN."	
54	"The member port must exist in the VLAN."	
55	"Duplicate route! Enter a unique route."	
56	"Target port can't be source port!"	
57	"This port member can't be set."	
58	"Port members must belong to the same VLAN."	
59	"The target port can't be selected as a mirror port."	
60	"Invalid or undefined VID!"	
61	"Specified vid is not in the static VLAN table."	
62	"This is the DEFAULT_VLAN, it cannot be removed."	
63	"This VLAN is used by routing interface, it cannot be removed."	
64	"Invalid VLAN name."	
65	"The VLAN name you entered is existing."	

66	"The VLAN name you entered does not exist."	Check IP Address or VLAN name.
67	"Invalid Interface name."	Check Interface Name.
68	"The interface name already exists. Enter a unique interface name."	Check Interface Name.
69	"The interface name does not exist."	Check Interface Name.
70	"VLAN table is full!"	
71	"The specified VID has no MAC addresses."	
72	"The specified port has no MAC addresses."	
73	"Port Based VLAN overlaped!"	
74	"Default VLAN can't be deleted."	
75	"VLAN name overlaped!"	
76	"You can't delete the VLAN which is used by IP subnet!"	
77	"The system IP interface can't be deleted."	
78	"Invalid IP address or invalid number of pings."	
79	"Search entry is not found!"	
80	"Membership can't be overlap!"	
81	"The default entry can't be deleted!"	
82	"Non-egress port must set to TAG!"	
83	"STP port settings can't be setted in trunking member port!"	
84	"Invalid key_id!"	
85	"Invalid area_id!"	
86	"Invalid ipaddr!"	
87	"Invalid host address assigned!"	
88	"Bad network mask assigned!"	
89	"Only System interface can change bootmode !"	