3 The User Interface

The User Interface (UI) provides a means of configuring parameters and viewing real-time statistics from a terminal, such as a PC or UNIX workstation, using terminal emulation software. The UI is part of the OmniStack's MPM executable image. When a switch boots up, the boot monitor handles the loading of this executable image and system startup. Once the image is loaded and initialized, the UI starts.

You access the UI through a connection with the switch. This connection can be made directly through the serial port, through a modem, or over a network via Telnet. You can have up to four simultaneous connections to an OmniStack. (Please see *Multiple User Sessions* on page 3-18 for further details.) For Telnet access, you must first set up an IP address for the switch. See the *Getting Started Guide* that came with your switch for information on setting up an IP address and logging in. Once you login, the following main menu displays.

```
********************************************************************************

Alcatel OmniStack
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OmniStack is a trademark of Alcatel Internetworking, Inc.
        System Name: no_name
Command         Main Menu
--------------  ------------------------------------------------------------------------------------------
File            Manage system files
Summary         Display summary info for VLANs, bridge, interfaces, etc.
VLAN            VLAN management
Networking      Configure/view network parameters such as routing, etc.
Interface       View or configure the physical interface parameters
Security        Configure system security parameters
System          View/set system-specific parameters1
Services        View/set service parameters
Switch          Enter Any to Any Switching menu
Help            Help on specific commands
Diag            Display diagnostic level commands
Exit/Logout     Log out of this session
?               Display the current menu contents
```

This menu provides a top-level view of all UI menus. The commands are grouped together in the form of sub-menus. Within each sub-menu there is a set of commands and/or another sub-menu.

♦ Note ♦

Although the commands are grouped in a sub-menu structure, any command may be entered from any sub-menu. You are not restricted to the commands listed in the current sub-menu.

Main Menu Summary

These menus, their sub-menus, and sub-options are described in this manual. The following provides a brief overview of each item on this main menu.

File. Contains options for downloading system software, listing software files, copying files, editing files, and deleting files. This menu is fully described in Chapter 5, "Managing Files."

Summary. Provides very basic information on the physical switch, such as its name, MAC address, and resets. It also provides options for viewing the virtual interface and information on the MIB. This menu is described in Chapter 7, " Configuring Switch-Wide Parameters."

VLAN. The main menu for configuring Groups, virtual ports, and AutoTracker VLANs. This menu also contains a sub-menu for configuring bridging parameters, such as Spanning Tree and Source Routing. Groups and ports are described in Chapter 17, "Managing Groups and Ports." VLANs are described in Chapter 20, "Managing AutoTracker VLANs" and Chapter 21, "Multicast VLANS." Bridging parameters are described in Chapter 15, "Configuring Bridging Parameters."

Networking. Contains menu options for managing internetworking protocols, such as SNMP and RMON (described in Chapters 11 and 12, respectively), IP (described in Chapter 23, "IP Routing,"), and IPX (described in Chapter 25, "IPX Routing").

Interface. This menu allows you to manage ATM and Fast Ethernet switching uplink modules. In addition it includes a sub-option for configuring SLIP. The Fast Ethernet menu is described in Chapter 13, "Managing Ethernet Ports." The ATM menu options are described in Chapter 26, "Managing OSASM Access Ports." The command for configuring SLIP is described in Chapter 7, "Configuring Switch-Wide Parameters."

Security. This menu contains options for changing a password and rebooting the system. It is described in Chapter 6 "Switch Security."

System. Contains a wide array of options for configuring and viewing information on a variety of switch functions. Options include displays of switch contents, configuring serial ports, and viewing CAM information. Commands used to configure User Interface display options are described in *User Interface Display Options* on page 3-15. Other System menu commands are described in Chapter 7, "Configuring Switch-Wide Parameters."

Services. Provides options for creating, modifying, viewing, and deleting ATM services. This menu is described in Chapter 28, "Configuring ATM Services."

Switch. Provides options to precisely define frame translations. A MAC-layer type may have more than one type of frame format, such as Ethernet or 802.3. But, by default, each MAC-layer type defaults to certain frame format upon translation. This menu allows you to define translations for each frame format. This menu is described in Chapter 16, "Configuring LAN Switch Translations."

Help. Provides textual help on how to use the UI and on each menu or sub-menu. For the item of interest, enter

help <sub-menu name>

Diag. This menu, fully available to the **diag** login account, contains commands to run diagnostic tests. It is described in Chapter 40, "Running Hardware Diagnostics."

Exit. Logs you out of the UI. You can also enter **logout** to exit.

? Displays the options for current menu.

General User Interface Guidelines

Monitoring Your Switch

You can monitor and configure your OmniStack in the following various ways:

- The User Interface (UI): The UI is the original method of switch configuration. It is a text-based and menu-driven interface to which you can connect through the serial port, through a modem, or over a network via Telnet. You can have up to three simultaneous UI connections to an OmniStack
- X-Vision: This purchasable network management software program consists of several powerful sub-applications that help you manage and monitor your network. X-Vision allows you to connect and configure multiple switches simultaneously. For more information, refer to X-Vision's on-line help.
- The Command Line Interface (CLI): The CLI is a new feature included with Release 4.1 that allows you to configure OmniStacks using single-line text-based commands that are entered through the local console. Improved readability, easy text editing of the configuration files, and simple cloning of switch configurations are among some of the advantages of the CLI. To access the CLI, enter **cli** at the system prompt. For more information, refer to *CLI Command Reference Guide*.

Entering Command Names

The UI is case insensitive for commands, meaning that you may enter upper or lower case as you desire. However, command line assignments, configuration input, and logins are case sensitive.

Except for the **logout** and **exit** commands, you only need to enter as much of the command that is unique. For example, if you want to execute the **switch** command you need only enter **swi**. If you enter only **sw**, the system will respond with a choice of the following:

switch swch swchmac swap

If you are in verbose mode (which is described in *Enabling and Disabling Verbose Mode for the User Interface* on page 3-8), you will be provided with some additional information, as shown below.

Non-unique command match, possible commands:

switch	**Enter Any to Any Switching Menu**
swch	**Configure Any To Any Switching Port Translations**
swchmac	**View Per Mac Translation Options**
swap	**Change swap status of chassis**
swlogc	**Configure Switch Logging source/destination mapping and priority levels**

Quitting a Command

Many of the commands give you a list of parameters to change. With most commands you can enter in **Quit** if you want to exit the command without making changes. If the Quit parameter is not available, press **Ctrl-d** to abort the command without making changes.

Scrolling

If the screen scrolls up too far to read you can stop the incoming data by pressing **Ctrl-s**. The screen will stop and allow you to read the data. Press **Ctrl-q** to continue the data transmission.

The UI Configuration Menu

The User Interface (UI) Configuration menu is among the new features included with Release 4.1. It consolidates the following UI commands into a single, easy-to-use menu:

- **chpr**
- **more**
- **ver**
- **ter**
- **timeout**

♦ Note ♦

The switch's *prompt*, *more*, *verbose/terse*, and *timeout* functions remain fully supported. However, if you enter any of the commands listed above, you will be redirected to the UI Configuration menu.

To access the UI Configuration menu, type

uic

at the system prompt and press **<Enter>**. The following screen will be displayed:

```
                    UI Configuration

1)  Prompt    :  '$Menu-Path% '
2) More       :  on
  21) Lines      :   22 lines
3) Verbose    :  off
4) Timeout    :  5 minutes

Command {Item=Value/?/Help?Quit?Redraw?Save} (Redraw)   :
```

Refer to the following sections for information on using the UI Configuration menu.

Configuring the System Prompt

The **uic** submenu allows you to change the system prompt. The prompt can be made up of literal information, system variable information, or a combination of the two.

Literal information means that the prompt will reflect exactly what you type at the **uic** submenu. For example, **Marketing 1** or **Enter command:**.

System variable information means that the prompt will reflect the switch's variable information, such as the current menu-path or the system name. Use **$Menu-Path** (case sensitive) to have the system prompt display the current menu-path name. Use **$SysName** to have the system prompt display the system name.

You can also mix variables and literals such as **$Menu-Path ->** or **$SysName Enter command:**.

♦ Note ♦

The default system prompt is **$Menu-Path %**.

To change the system prompt, type **uic** at the user prompt and press **<Enter>**.

A screen similar to the following will be displayed.

```
                    UI Configuration

1)  Prompt    :  '$Menu-Path% '
2) More       :  on
  21) Lines   :    22 lines
3) Verbose    :  off
4) Timeout    :  5 minutes

Command {Item=Value/?/Help?Quit?Redraw?Save} (Redraw)   :
```

Next, type **1=**, followed by the desired prompt information, and press **<Enter>**. For example:

```
1=$SysName ->
```

After you press **<Enter>**, the screen will be redrawn. Note that the prompt information at line 1 of the **uic** submenu has been changed.

```
                    UI Configuration

1)  Prompt    :  '$SysName -> '
2) More       :  on
  21) Lines   :    22 lines
3) Verbose    :  off
4) Timeout    :  5 minutes

Command {Item=Value/?/Help?Quit?Redraw?Save} (Redraw)   :
```

Type **save** at the submenu prompt and press **<Enter>**. The system prompt has been successfully changed.

Configuring More Mode for the User Interface

Enabling More Mode

More mode allows you to specify the maximum number of lines that will be scrolled to your workstation's display. However, before you can specify the maximum number of lines that can be displayed, you must first verify that more mode is enabled.

♦ Note ♦

In order to use the switch's table filtering feature, more mode must be enabled. For more information on UI table filtering, refer to *UI Table Filtering (Using Search and Filter Commands)* on page 3-23.

To enable more mode, type **uic** at the user prompt and press **<Enter>**.

A screen similar to the following will be displayed.

```
                    UI Configuration

1)  Prompt    :  '$Menu-Path% '
2) More       :  off
  21) Lines   :    22 lines
3) Verbose    :  off
4) Timeout    :  5 minutes

Command {Item=Value/?/Help?Quit?Redraw?Save} (Redraw)   :
```

Next, type **2=on** at the submenu prompt and press **<Enter>**. The screen will be redrawn. Note that more mode is now set to **on**.

```
                    UI Configuration

1)  Prompt   :  '$Menu-Path% '
2) More      :  on
  21) Lines      :   22 lines
3) Verbose   :  off
4) Timeout   :  5 minutes

Command {Item=Value/?/Help?Quit?Redraw?Save} (Redraw)   :
```

The switch's default output display is 22 lines. If you want to change this value now, type **21=**, followed by the maximum number of lines to be displayed, and press **<Enter>**. For example:

```
21=50.
```

After you press **<Enter>**, the screen will be redrawn. Note that the output display value at line 21 of the **uic** submenu has been changed.

```
                    UI Configuration

1)  Prompt   :  '$Menu-Path% '
2) More      :  on
  21) Lines      :   50 lines
3) Verbose   :  off
4) Timeout   :  5 minutes

Command {Item=Value/?/Help?Quit?Redraw?Save} (Redraw)   :
```

Be sure to type **save** at the submenu prompt and press **<Enter>**. More mode is now enabled.

Changing the More Mode Line Value

If the switch's more mode has already been enabled and you want to change the maximum number of lines to be displayed on your workstation, type **uic** at the user prompt and press **<Enter>**.

A screen similar to the following will be displayed.

```
                    UI Configuration

1)  Prompt   :  '$Menu-Path% '
2) More      :  on
  21) Lines      :   22 lines
3) Verbose   :  off
4) Timeout   :  5 minutes

Command {Item=Value/?/Help?Quit?Redraw?Save} (Redraw)   :
```

Type **21=**, followed by the maximum number of lines to be displayed, and press **<Enter>**. (The value may range from 0 to 2147483647.) For example:

```
21=2000.
```

After you press **<Enter>**, the screen will be redrawn. Note that the output display value at line 21 of the **uic** submenu has been changed.

```
                    UI Configuration

1)  Prompt   :  '$Menu-Path% '
2) More      :  on
  21) Lines      :   2000 lines
3) Verbose   :  off
4) Timeout   :  5 minutes

Command {Item=Value/?/Help?Quit?Redraw?Save} (Redraw)   :
```

Type **save** at the submenu prompt and press **<Enter>**. The more mode line value has been successfully changed.

Disabling More Mode

To disable more mode, type **uic** at the user prompt and press **<Enter>**.

A screen similar to the following will be displayed.

```
                    UI Configuration

1)  Prompt   :  '$Menu-Path% '
2) More      :  on
  21) Lines      :   22 lines
3) Verbose   :  off
4) Timeout   :  5 minutes

Command {Item=Value/?/Help?Quit?Redraw?Save} (Redraw)   :
```

Next, type **2=off** at the submenu prompt and press **<Enter>**. The screen will be redrawn. Note that more mode is now set to **off**.

```
                    UI Configuration

1)  Prompt   :  '$Menu-Path% '
2) More      :  off
  21) Lines      :   22 lines
3) Verbose   :  off
4) Timeout   :  5 minutes

Command {Item=Value/?/Help?Quit?Redraw?Save} (Redraw)   :
```

Type **save** at the submenu prompt and press **<Enter>**. More mode is now disabled.

♦ Reminder ♦

The switch's table filtering feature *cannot* be used when more mode is disabled. For more information on UI table filtering, refer to *UI Table Filtering (Using Search and Filter Commands)* on page 3-23.

Enabling and Disabling Verbose Mode for the User Interface

Enabling Verbose Mode

When verbose mode is enabled, you are not required to enter a question mark in order to view the switch's configuration menus. Instead, menus are displayed automatically. For example, if verbose mode is enabled and you enter

```
summary
```

at the user prompt, the Summary menu will be displayed automatically, as shown below:

```
Command      Summary Menu
ss           Display MIB-II System group variables
sc           OmniStack chassis summary
si           Current interface status

   Main       File       Summary  VLAN       Networking
   Interface  Security   System   Services   Help
```

The switch's default verbose mode setting is **off**, or disabled. To enable verbose mode, type **uic** at the user prompt and press **<Enter>**.

A screen similar to the following will be displayed.

```
                    UI Configuration

1)  Prompt    :  '$Menu-Path% '
2) More       :  on
  21) Lines   :    22 lines
3) Verbose    :  off
4) Timeout    :  5 minutes

Command {Item=Value/?/Help?Quit?Redraw?Save} (Redraw)   :
```

Next, type **3=on** at the submenu prompt and press **<Enter>**. The screen will be redrawn. Note that verbose mode is now set to **on**.

```
                    UI Configuration

1)  Prompt    :  '$Menu-Path% '
2) More       :  on
  21) Lines   :    22 lines
3) Verbose    :  on
4) Timeout    :  5 minutes

Command {Item=Value/?/Help?Quit?Redraw?Save} (Redraw)   :
```

Type **save** at the submenu prompt and press **<Enter>**. You will be returned to the user prompt. Verbose mode is now enabled.

Disabling Verbose Mode

Although the **terse** command is no longer supported as of Release 4.1, disabling verbose mode via the **uic** submenu is the command equivalent. When verbose mode is disabled, configuration menus *will not* be displayed automatically. To display a current menu when verbose mode is disabled, you must type a question mark (**?**) and then press **<Enter>**.

To disable verbose mode, type **uic** at the user prompt and press **<Enter>**.

A screen similar to the following will be displayed.

```
                    UI Configuration

1)  Prompt    :  '$Menu-Path% '
2) More       :  on
  21) Lines   :    22 lines
3) Verbose    :  on
4) Timeout    :  5 minutes

Command {Item=Value/?/Help?Quit?Redraw?Save} (Redraw)   :
```

Next, type **3=off** at the submenu prompt and press **<Enter>**. The screen will be redrawn. Note that verbose mode is now set to **off**.

```
                    UI Configuration

1)  Prompt    :  '$Menu-Path% '
2) More       :  on
  21) Lines   :    22 lines
3) Verbose    :  off
4) Timeout    :  5 minutes

Command {Item=Value/?/Help?Quit?Redraw?Save} (Redraw)   :
```

Type **save** at the submenu prompt and press **<Enter>**. Verbose mode is now disabled.

Configuring the Auto Logout Time

When the switch detects no user activity on the UI for a certain period of time, it automatically logs the user out of the system. By default, this automatic logout occurs after 4 minutes of console inactivity. You can configure the automatic logout to range from 1 minute to 3,5791,394 minutes.

To set a new automatic logout time, type **uic** at the user prompt and press **<Enter>**.

A screen similar to the following will be displayed.

```
                    UI Configuration

1)  Prompt    :  '$Menu-Path% '
2) More       :  off
  21) Lines   :    22 lines
3) Verbose    :  off
4) Timeout    :  5 minutes

Command {Item=Value/?/Help?Quit?Redraw?Save} (Redraw)   :
```

Next, type **4=on**, followed by the desired automatic logout time, and press **<Enter>**. For example:

```
4=15.
```

After you press **<Enter>**, the screen will be redrawn. Note that the automatic logout time at line 4 of the **uic** submenu has been changed.

```
                    UI Configuration

1)  Prompt    :  '$Menu-Path% '
2) More       :  on
  21) Lines       :   22 lines
3) Verbose    :  off
4) Timeout    :  15 minutes

Command {Item=Value/?/Help?Quit?Redraw?Save} (Redraw)   :
```

Be sure to type **save** at the submenu prompt and press **<Enter>**. The automatic logout time has been successfully changed.

♦ Note ♦

The automatic logout value you enter takes effect immediately; you do not have to reboot the switch. In addition, the timeout parameter you enter is saved. Later sessions using this account will have the same automatic logout parameter until you change it.

Viewing Commands

If at any time you are not sure of the commands available, enter **?** and you will be given a list of the commands in the current sub-menu. Following each list of commands is a list of sub-menus. You can go directly to any sub-menu in the list.

You can specify whether the full menu will be displayed when you enter a command for a menu or sub-menu and the amount of information you receive when you run the help command. (Refer to *The UI Configuration Menu* on page 3-4 for more information.) Additionally, there is a lookup facility to assist with administrative tasks. You can look up any command name or prefix as follows:

```
lookup vlans
```

or to see all commands starting with **v** use:

```
lookup v*
```

To see all commands available, enter:

```
lookup *
```

Changing Passwords

The **pw** command is used to change passwords and is described in Chapter 6, "Switch Security."

Command History and Re-Executing Commands

The **history** command displays up to 50 commands numbered in order with the most recently executed command listed last. The following is a typical example of the **history** command.

```
1: timeout 15
2: vlan
3: at
4: atvl
5: vimcvl
6: mcvl
7: vivl
8: fwtvl
9: xlat
10: history
```

In the example above, the **history** command is listed last because it is the one that was executed most recently. If you want to re-execute the last command, enter two exclamation points (**!!**). In the example above, you could re-execute the **history** command by entering

```
!!
```

at the system prompt.

You can also display a specific number of commands by entering **history** followed by a number less than or equal to the number of commands in the history buffer. For example, if you entered

```
history 5
```

in the example above you would see the following:

```
7: vivl
8: fwtvl
9: xlat
10: history
11:history 5
```

The UI also provides several other ways to re-execute earlier commands. For example, you can re-execute a specific command shown in the **history** list by entering an exclamation point (**!**) followed by the number to the left of that command shown in the **history** list. In the example at the beginning of this section, entering

```
!2
```

would re-execute the **vlan** command.

You can also re-execute a command a set number of commands back by entering an exclamation point and a minus sign (**!-**) followed by that set number of commands back. In the example at the beginning of this section, entering

```
!-3
```

would re-execute the **fwtvl** command.

In addition, you can re-execute a command by entering an exclamation point (**!**) followed by the first character(s) of the most recently executed command. In the example at the beginning of this section, entering

```
!vim
```

would re-execute the **vimcvl** command. Entering

```
!vi
```

however, would re-execute the **vivl** command because it is the most recently executed command beginning with **vi**.

You can also re-execute the most recently executed command containing a string of characters by entering an exclamation point and a question mark (**!?**), followed by the string of characters, and an optional question mark (**?**) which acts as a "wild card." In the example at the beginning of this section, entering

```
!?lan?
```

at the system prompt would re-execute the **vlan** command. Entering

```
!?la?
```

however, would re-execute the **xlat** command because it is the most recently executed command containing **la**.

Commands in the history buffer can be modified by adding a parameter, when it is applicable. For example, if you entered

```
!7 3/1
```

in the example at the beginning of this section you would execute the command **vivl 3/1**.

Abbreviating IP Addresses

The OmniStack software provides the user with a more concise way to enter the dotted decimal format of a 32-bit IP address. The new syntax conforms to the traditional Internet interpretation. Several examples of abbreviated IP addresses are shown in the table below. The first column of the table lists examples of abbreviated IP addresses, and the second column shows how the system interprets the abbreviated address.

Abbreviated IP Address Formats

Sample User Entry	IP Address
198	0.0.0.198
198.	198.0.0.0
198..	198.0.0.0
198...	198.0.0.0
198.206	198.0.0.206
198..206	198.0.0.206
198..206.	198.0.206.0
198...206	198.0.0.206
198.206.	198.206.0.0
198.206..	198.206.0.0
198.206.182	198.206.0.182
198..206.182	198.0.206.182
198.206..182	198.206.0.182
198.206.182.	198.206.182.0
198.206.182.158	198.206.182.158

As shown in the table above, the system performs two important steps to ensure that the IP address is valid. First, it puts zeroes when you do not specify the number. Second, the system will insert as many zeroes as needed to the right of a period.

This abbreviated IP address format can be used with the **ftp**, **telnet**, **crgp**, **modvl**, **ping**, **snmpc**, and **xlat** commands. For example, to ping the IP address 198.0.0.2, you can abbreviate this IP address by entering

```
ping 198.2
```

at the system prompt. After you answer a few prompts (see Chapter 23, "IP Routing" for more information on the **ping** command), something similar to the following will be displayed.

```
Ping starting, hit <Enter> to stop
PING 198.0.0.2: 64 data bytes

   [0     ]  T

----198.0.0.2 PING Statistics----
1 packets transmitted, 0 packets received, 100% packet loss
```

In addition, the IP subnet mask 255.255.0.0 can be abbreviated in the following ways:

- 255.255.
- 255.255..

User Interface Display Options

The System menu several commands to configure help information, character display, and the system prompt for the UI. Enter

system

at the system prompt to enter the System menu. Press the question mark (**?**) to see the System menu commands, as shown below.

Command	System Menu
info	Basic info on this system
dt	Set system date and time
ser	View or configure the DTE or DCE port
mpm	Configure a Management Processor Module
slot	View Slot Table information
systat	View system stats related to system, power and environment
taskstat	View task utilization stats
memstat	View memory use statistics
fsck	Perform a file system check on the flash file system
newfs	Erase all file from /flash and create a new file system
syscfg	Configure info related to this system
uic	UI configuration; change - prompt, timeout, more, verbose.
camstat	View CAM info and usage
camcfg	Configure CAM info and usage
ver/ter	Enables/disables automatic display of menus on entry
echo/noecho	Enable/disable character echo
chpr	Change the prompt for the system
logging	View system logs.
health	Set health parameters or view health statistics
cli	Enter command line interface

Main Interface | File Security | Summary System | VLAN Services | Networking Help

For information on the **info**, **dt**, **ser**, **slot**, **systat**, **taskstat**, **memstat**, **fsck**, **newfs**, **syscfg**, and **camstat** commands, refer to Chapter 7, " Configuring Switch-Wide Parameters." The **camcfg** command is no longer supported on the OmniStack. The **ver/ter** and **chpr** commands are described earlier in *The UI Configuration Menu* on page 3-4. The **echo/noecho** command is described in the following section. The **cli** command is described earlier in *Monitoring Your Switch* on page 3-3. The **logging** command is described in Chapter 8, "Switch Logging."

The **mpm** command returns the message "Slot 1 holds the MPM."

♦ Note ♦

The **ver**/**ter**, and **chpr** commands now appear as items in the UI Configuration menu (displayed through the **uic** command). If you enter the **ver**/**ter** and **chpr** commands, a message will advise you to use the **uic** command, and the UI Configuration menu will automatically display. For more information on the UI Configuration menu, refer *The UI Configuration Menu* on page 3-4.

Setting Echo/NoEcho for User Entry

You can determine whether your entries will appear by enabling the echo for user entries. The default is to echo all characters.

To enable the echo, enter

```
echo
```

at the system prompt. Everything you enter will be displayed. For example, if you enter

```
history
```

at the system prompt, it will be displayed on your terminal, as shown in the example below.

```
/ %history
```

If your terminal echoes characters locally it is a good idea to set the UI to **noecho** to avoid repeated characters. To disable the echo, enter

```
noecho
```

at the system prompt. For example, if your terminal echoes characters locally, you would see something like the following if you entered **history**.

```
/ %history
```

If your terminal does not echo characters locally, nothing you enter will be displayed. For example, if you enter

```
history
```

at the system prompt, it will *not* be displayed on your terminal, as shown in the example below.

```
/ %
```

Login Accounts

The UI provides three types of login accounts—Administrator, Diagnostics, and User. The Administrator login provides full access to all functions. The initial login name for an Administrator account is **admin** and the password is **switch**. The Diagnostics login also has full access to all functions plus a special sub-menu with a set of diagnostic tests. The initial login name for Diagnostics is **diag** and the password is **switch**.

The User login is restricted and is used primarily for read-only functions. The initial login name for the User account is **user** and the password is **switch**. Commands that are limited or not available to the **user** login account include:

addvp
aisr
crgp
dt (limited)
fc
kill
modvl
modvp
pw (limited)
reboot
risr
rmgp
rmvp
ser
slipc
snmpc (limited)
stc
stpc
syscfg (limited)

Multiple User Sessions

You can have up to three simultaneous connections to an OmniStack. One connection can be made to the console port, and two can be made through Telnet.

The first user who logged on as either **admin** or **diag** will be the only user with the write privilege. Subsequent users who log on as either **admin** or **diag** will not have the write privilege and will be unable to perform any functions that change switch parameters such as creating groups, creating services, and rebooting. These users will also see a message that informs them they do not have the write privilege when they log on. For example, a user who logs on as **admin** when another user already has the write privilege will see the following message:

The first user who logged on as either **admin** or **diag** will be the only user with the write privilege. Subsequent users who log on as either **admin** or **diag** will not have the write privilege and will be unable to perform any functions that change switch parameters such as creating groups, creating services, and rebooting. These users will also see a message that informs them they do not have the write privilege when they log on. For example, a user who logs on as **admin** when another user already has the write privilege will see the following message:

```
You are logged in as 'admin' without the WRITE privilege.

The WRITE privilege is currently in use by another user.
```

However, users who log on as either **admin** or **diag** without the write privilege can “kill” the session of the user with the write privilege and gain that privilege for themselves. This is described in *Deleting Other Sessions* on page 3-21.

If you try to log on when the limit of user has been reached (e.g., you attempt a Telnet connection when there are two users currently connected through Telnet), you will see the following message:

```
Sorry, reached maximum number of sessions.
```

Listing Other Users

To display all the users currently logged on, type

who

at the system prompt. The following is a typical example:

```
SESSION     USER        PRIVS       TTY
  0         admin       [A/W/R]     console
  2         user        [ / /R]     /pty/telnetC     (198.206.187.132)
  3         admin       [A/ /R]     /pty/telnetD     (198.206.187.113)
```

You can also display information about just your session by typing

who am i

at the system prompt. The following is a typical example of the output:

```
SESSION     USER        PRIVS       TTY
  3         admin       [A/ /R]     /pty/telnetC     (198.206.187.113)
```

The following sections describe the parameters shown by the **who** command.

SESSION. The session number of the user. A **0** indicates that the user is connected through the console port, a **2** or **3** indicates that the user is connected through Telnet. The session number is used with the **write** and **kill** commands described in*Communicating with Other Users* on page 3-20 and *Deleting Other Sessions* on page 3-21, respectively.

USER. The administrative level of the user. This will be **user**, **admin**, or **diag**.

PRIVS. The privilege level of the user. An **A** indicates that the user has administrative privilege, a **W** indicates that the user has write privilege, and an **R** indicates that the user has read privileges. The first user who logged on as either **admin** or **diag** will be the only user with the write privilege. However, other users who logged on as either **admin** or **diag** can kill the session of the user with the write privilege and gain that privilege for themselves. This is done with the **kill** command which is described in *Deleting Other Sessions* on page 3-21.

If you are logged on as **admin** or **diag** you will also have administrative and read privileges. If you are logged on as **user** you will only have the read privilege. If you have the administrative privilege you can execute the **kill** command. However, if you just have the read privilege you cannot execute the **kill** command.

TTY. Type of connection. This shows whether the user is connected by Telnet or the console port.

Communicating with Other Users

If you want to send a message to another user, enter **write** followed by the user's session number. If you wanted to send a message to a user connected on the console port (session 0), you would enter

```
write 0
```

at the system prompt. The switch would then display

```
Enter message.  (End with CTRL-D or 'exit')
```

Everything you type now will by sent to the user connected on the console port until you press **CTRL-D** or enter **exit** on a line by itself. The following is an example of the **write** command:

```
write 0
I need the write privilege
exit
```

The user receiving the message would see the following:

```
Message from user 'admin' on session 3.
I need the write privilege
End of message.
```

If you enter an invalid session number, the switch will display an error message. For example, if you entered

```
write 2
```

at the system prompt and no user was connected through the modem port (session 1), the switch would display

```
ERROR: Session 2 is an invalid session number.
```

♦ Note ♦

After you have received a message or after you have written a message you must press the **<Enter>** key to regain the system prompt.

Deleting Other Sessions

If you are logged on as **admin** or **diag**, you can kill the session of another user. For example, if you want the write privilege and you are logged on as **diag** or **admin**, you must end the session of the user who currently has the write privilege with the **kill** command. The syntax for the **kill** command is as follows:

```
kill [[-t <timeout>] -f] <session_number>
```

The **session_number** is assigned by the switch and can be displayed with the **who** command, which is described in *Listing Other Users* on page 3-19. If you do not use the **-f** option, then the system will wait until the other user presses **<Return>** or finishes his current command. If you do use this option, then the other user's session will be terminated immediately.

The **-t** option can be used with the **-f** option to set the amount of time before the other user's session is terminated. See *Advanced Kill Command Options* on page 3-22 for descriptions of the **-f** and **-t** options.

For example, to end the session of the user connected to the console port (session 0) and let him finish his current command, you would enter

```
kill 0
```

at the system prompt. The system would then display something similar to the following:

```
Press <RETURN> to cancel.
Trying.....
```

The user losing the write privilege would see something similar to the following:

```
Your session will be killed by user 'admin' on session 3
as soon as you finish this command or press return.
```

After the user with the session being killed has finished his work, he will be logged off. If the user who was logged off had the write privilege, you will gain the write privilege and a message similar to the following will be displayed.

```
Done.
You have gained the WRITE privilege
```

You can use the **who** command to confirm that you now have the write privilege.

Remember, only a user who has logged on as **admin** or **diag** can execute the **kill** command. If you are logged on as **user** and you enter

```
kill 0
```

at the system prompt, you will see the following message:

```
kill not permitted for "user" without required privileges
```

In addition, the session number used in the **kill** command must be valid. If, for example, you entered

```
kill 1
```

and no user was connected to the modem port (session 1), the system would display the following:

```
ERROR: Session 1 is an invalid session number.
```

Also, you cannot use the **kill** command to end your own session. For example, if your session number is **3** and you entered

```
kill 3
```

the system would display the following:

```
ERROR: You cannot kill your own session.
```

Instead, use the **exit** or **logout** command if you want to log out.

Advanced Kill Command Options

You can also kill the session of a user immediately by adding the parameter **-f** followed by the session number of the user. This option will kill the user's session before he can finish his current command. In addition, this option will end the user's sessions without waiting for him to press **<Return>**. This option can be used to log off a user with the write privilege who forgot to log out and then gain the write privilege for yourself.

If you wanted to kill the session of the user with a session number of 2 immediately, you would enter

```
kill -f 2
```

at the system prompt.

The default timeout for the **kill** command is 2 seconds. You can modify the duration of the timeout by using **-t** option in conjunction with the **-f** option. To use the timeout option, enter **kill**, followed by **-t**, the number of seconds for the timeout, **-f**, and the session number of the user. For example, if you wanted to kill the session of the user with a session number of 2 in 15 seconds, you would enter

```
kill -t15 -f 2
```

at the system prompt. The valid range for the timeout is 1 to 240 seconds.

♦ Note ♦

You *cannot* use the timeout option (**-t**) unless you also use the -f option.

UI Table Filtering (Using Search and Filter Commands)

The amount of information displayed in UI tables can be extensive, especially with larger networks. Common UI commands, such as **ipr**, **vivl**, **macinfo**, and **fwt**, often return multi-page tables. The user can locate specific information in these large tables through the **More?** UI prompt.

The **More?** prompt appears whenever the maximum number of table entries designated by the **more** command has been reached (the **more** command's default is 22 lines). Note that if a table exceeds 22 lines, and the **more** mode has been configured to display *more than* 100 lines, the following message appears:

Screen Size larger than 100 Lines, Displaying with 22 Lines (Press Any Key)

After pressing any key, only the page of the table is displayed, followed by the **More?** prompt.

♦ Important Note ♦

The switch's **more** mode is active by default. If the **more** mode is turned off, the Search and Filter commands cannot be used. For more information on the **more** command, see *Configuring More Mode for the User Interface* on page 3-5.

A typical **More?** UI prompt will look like this:

```
1 4/6  Brg/  1/ na  0020da:030995 Tns DFLT Enabld Inactv Disabl AutoSw
1 4/7  Brg/  1/ na  0020da:030996 Tns DFLT Enabld Inactv Disabl AutoSw
1 4/8  Brg/  1/ na  0020da:030997 Tns DFLT Enabld Inactv Disabl AutoSw
1 5/1  Brg/  1/ na  0020da:854050 Tns DFLT Enabld Inactv Disabl AutoSw
More? [<SP>,<CR>,/,F,N,Q,?]
```

At the **More?** prompt, the user is given a list of options, which includes the Search (*/*) and Filter (**F**) commands:

<SP> Press **<SP>** (space bar) to display the next page of information.

<CR> Press **<CR>** (character return) to display the next line of information.

/ Press **/** to enter the Search mode.

F Press **F** to enter the Filter mode.

N Press **N** to renew the search, starting from the next line in the UI table.

Q Press **Q** to exit the **More?** prompt.

? Press **?** to enter the **More?** command Help Menu.

These commands are available for **admin**, **diag**, and **user** login sessions. Please refer to the following sections for more information on the Search and Filter commands, as well as renewing a search, combining Search and Filter commands, and using wildcards.

The Search Command

Starting from the page being displayed, the Search command (*/*) searches all lines of a UI table for a specified text pattern (up to 80 characters). The first line containing the pattern is brought to the top of the page, followed by any remaining lines in the table.

Searches *cannot* be limited to a specific column or heading.

To use the Search command, type **/** at the **More?** prompt, followed by the text pattern you are looking for, then press **<Enter>**.

♦ Important Note ♦

The Search command is case sensitive. When using this command, be sure to type the text pattern exactly as it would appear in the UI table.

Real World Example

The following example uses the Search command to locate a specific MAC address in the **macinfo** table. (Before using this example, be sure that the **more** mode is enabled and the default is set at 22 lines. For more information, refer to page 3-23.)

1. Type **macinfo** and press **<Enter>**. The following screen will be displayed:

   Enter MAC address ([XXYYZZ:AABBCC] or return for none) :

   Press **<Enter>** again. A screen similar to the following will be displayed:

   Enter Slot Number (1-5) :

   Type the slot number for the module containing the relevant MAC address information (e.g. **3**), then press **<Enter>**. A table similar to the following will be displayed:

Total number of MAC addresses learned for this slot: 58

Sl/ If/ Service/ In	MAC Address	Non-Canonical MAC Address	T	Group ID	CAM Indx	S	Last Seen	Exp Timer
3/ 1/ Brg/ 1	00A0C9:064D04	000593:60B220	E	1	7024	T	134	300
3/ 1/ Brg/ 1	006008:C1D7C2	000610:83EB43	E	1	7030	T	115	300
3/ 1/ Brg/ 1	0020DA:88F110	00045B:118F08	E	1	70E6	T	46	300
3/ 1/ Brg/ 1	0020DA:B6FF12	00045B:6DFF48	E	1	7094	T	66	300
3/ 1/ Brg/ 1	0020DA:8A7DC0	00045B:51BE03	E	1	705A	T	83	300
3/ 1/ Brg/ 1	0020DA:A67FA2	00045B:65FE45	E	1	7120	T	27	300
3/ 1/ Brg/ 1	0020DA:024F75	00045B:40F2AE	E	1	710C	T	34	300
3/ 1/ Brg/ 1	0020DA:9B88E4	00045B:D91127	E	1	70EE	T	45	300
3/ 1/ Brg/ 1	0020DA:9C062B	00045B:3960D4	E	1	7074	T	76	300
3/ 1/ Brg/ 1	0020DA:79F062	00045B:9E0F46	E	1	70D2	T	52	300
3/ 1/ Brg/ 1	006008:991CA7	000610:9938E5	E	1	701C	T	117	300
3/ 1/ Brg/ 1	0020DA:936A8F	00045B:C956F1	E	1	712A	T	23	300
3/ 1/ Brg/ 1	0020DA:9CEAC5	00045B:3957A3	E	1	70CC	T	53	300
3/ 1/ Brg/ 1	0020DA:9B9B54	00045B:D9D92A	E	1	70D6	T	50	300
3/ 1/ Brg/ 1	0020DA:7AAE24	00045B:5E7524	E	1	70B8	T	58	300
3/ 1/ Brg/ 1	0020DA:A9EEB3	00045B:9577CD	E	1	710A	T	34	300
3/ 1/ Brg/ 1	0020DA:8DB20B	00045B:B14DD0	E	1	7080	T	72	300
3/ 1/ Brg/ 1	0020DA:9F6B82	00045B:F9D641	E	1	70F4	T	42	300
3/ 1/ Brg/ 1	0020DA:8762A3	00045B:E146C5	E	1	7126	T	24	300
3/ 1/ Brg/ 1	006008:C1D7C2	000610:83EB43	E	1	7030	T	115	300

More? [<SP>,<CR>,/,F,N,Q,?]

Note that, because the information in the table exceeds the **more** command's default page size of 22 lines, the **More?** prompt appears at the bottom of the screen.

2. Type **/** at the **More?** prompt. The Search prompt (*/*) will appear automatically. At the Search prompt, enter the text pattern for the desired MAC address. For example:

   /0020DA:9E479D

   Press **<Enter>**. A screen similar to the following will be displayed:

```
Searching .....

3/  1/   Brg/  1   0020DA:9E479D   00045B:79E2B9   E     1   702C   T    138     300
3/  1/   Brg/  1   0020DA:9D0D1B   00045B:B9B0D8   E     1   7030   T     67     300
3/  1/   Brg/  1   0020DA:97CDE0   00045B:E9B307   E     1   70E6   T    122     300
3/  1/   Brg/  1   00A0C9:8DED5B   000593:B1B7DA   E     1   7094   T    114     300
3/  1/   Brg/  1   0020DA:92A152   00045B:49854A   E     1   705A   T     97     300
3/  1/   Brg/  1   0020DA:8528D5   00045B:A114AB   E     1   7120   T    102     300
3/  1/   Brg/  1   0020DA:93BF73   00045B:C9FDCE   E     1   710C   T    130     300
3/  1/   Brg/  1   0020DA:B956B5   00045B:9D6AAD   E     1   70EE   T     56     300
3/  1/   Brg/  1   0020DA:730F03   00045B:CEF0C0   E     1   7074   T     68     300
3/  1/   Brg/  1   0020DA:8BA710   00045B:D1E508   E     1   70D2   T     99     300
```

Note that the line containing information for the specified MAC address (**0020DA:9E479D**) now appears at the top of the screen, followed by any remaining lines in the UI table. (In this case, the last line of the **macinfo** UI table contains MAC address **0020DA:8BA710**, as shown).

Renewing a Search

If you execute the Search command and the resulting page still exceeds the maximum number of table entries designated by the **more** command, you can renew the Search. Do this by typing **n** at the **More?** prompt. The Search command will scan the remainder of the table and display the next line containing the desired text pattern at the top of the screen.

The Filter Command

The Filter command filters unwanted information from a UI table by displaying only those lines containing a specified text pattern (up to 80 characters). Once the Filter command has been executed, the Filter mode remains active until the end of the UI table has been reached, or until the user exits the current UI table.

Like the Search command, the Filter command *cannot* be limited to a specific column or heading.

To use the Filter command, type **f** at the **More?** prompt, followed by the text pattern you want displayed in the UI table, then press **<Enter>**.

♦ Important Note ♦

The Filter command is case sensitive. When using this command, be sure to type the text pattern exactly as it would appear in the UI table.

Real World Example

The following example uses the Filter command to display only those lines containing Lane services in the **vivl** table. (Before using this example, be sure that the **more** mode is enabled and the default is set at 22 lines. For more information, refer to page 3-23.)

1. Type **vivl** and press **<Enter>**. A table similar to the following will be displayed:

```
                                Virtual Interface VLAN Membership
Slot / Intf / Service / Instance    Group      Member of VLAN#
-------------------------------------------    ---------      --------------------------
1    /1    /Rtr       /1             1          1
1    /1    /Rtr       /2            33          1
1    /1    /Rtr       /3           111          1
1    /1    /Rtr       /4            33          2
1    /1    /Rtr       /5             1          3
1    /1    /Rtr       /6             1          4
1    /1    /Rtr       /7            33          7
1    /1    /Rtr       /8            33          3
1    /1    /Rtr       /9             1          5
1    /1    /Rtr       /10            1          6
1    /1    /Rtr       /11           33          5
1    /1    /Rtr       /12           33          6
1    /1    /Rtr       /13          999          1
2    /1    /Lne       /1             1          1
2    /1    /Lne       /2           111          1
3    /1    /Brg       /1            33          1 4
3    /2    /Brg       /1             1          1
3    /3    /Brg       /1             1          1
3    /4    /Brg       /1             1          1
More? [<SP>,<CR>,/,F,N,Q,?]
```

Note that, because the information in the table exceeds the **more** command's default of 22 lines, the **More?** prompt appears at the bottom of the screen.

2. Type **f** at the **More?** prompt. The Filter prompt (**f/**) will appear automatically. At the Filter prompt, enter the desired text pattern (remember to type the text pattern exactly as it would appear in the UI table):

   f/Lne

   Press **<Enter>**. A screen similar to the following will be displayed:

```
Filtering .....

 2    /1    /Lne       /1            1          1
 2    /1    /Lne       /2          111          1
/ %
```

   Note that only those lines containing Lane services are now displayed on the screen. All other table entries have been filtered from the UI.

Combining Search and Filter Commands

If you receive a **More?** prompt after using the Filter command, the filtered information still exceeds the maximum number of table entries designated by the **more** command. To further refine your results, you can combine the Search and Filter commands.

To combine the Search and Filter commands, type **/** at the Filter mode's **More?** prompt, followed by a revised text pattern of up to 80 characters. Note that you can combine the Search and Filter commands only after you have executed a Filter command *and* received a **More?** prompt at the bottom of the resulting page.

♦ Reminder ♦

Both the Search and Filter commands are case sensitive. When using these commands, be sure to type the text pattern exactly as it would appear in the text UI table.

Real World Example

The following example combines the Search and Filter commands to find specific IP address information in the **ipr** table. (Before using this example, be sure that the **more** mode is enabled and the default is set at 22 lines. For more information, refer to page 3-23.)

1. Type **ipr** and press **<Enter>**. A table similar to the following will be displayed:

```
                    IP ROUTING TABLE
                    ----------------

128 routes in routing table

                                                          Group:VLAN
Network         Mask            Gateway          Metric      Id      Protocol
-------------------------------------------------------------------------------------------------
155.5.0.0       255.255.0.0     155.5.4.33           1       1:5     DIRECT
155.6.0.0       255.255.0.0     155.6.4.33           1       1:6     DIRECT
155.155.0.0     255.255.0.0     155.155.4.33         1       1:1     DIRECT
172.17.0.0      255.255.0.0     172.17.6.122         1     999:1     DIRECT
172.31.0.0      255.255.0.0     172.31.4.33          1      33:3     DIRECT
172.32.0.0      255.255.0.0     172.32.4.33          1      33:2     DIRECT
172.33.0.0      255.255.0.0     172.33.4.33          1      33:1     DIRECT
172.35.0.0      255.255.0.0     172.35.4.33          1      33:5     DIRECT
172.36.0.0      255.255.0.0     172.36.4.33          1      33:6     DIRECT
172.37.0.0      255.255.0.0     172.37.4.33          1      33:7     DIRECT
172.111.0.0     255.255.0.0     172.111.4.33         1     111:1     DIRECT
198.168.12.0    255.255.0.0     192.168.12.1         1       1:1     DIRECT
198.168.13.0    255.255.0.0     192.168.13.1         1       1:1     DIRECT
More? [<SP>,<CR>,/,F,N,Q,?]
```

Note that, because the information in the table exceeds the **more** command's default of 22 lines, the **More?** prompt appears at the bottom of the screen.

2. Use the Filter command to display all IP network addresses within the **IP Routing** table that contain **198**. To do this, type **f** at the **More?** prompt, followed by the specified text pattern:

   f/198

   Press **<Enter>**. A screen similar to the following is displayed:

```
Filtering .....

198.168.12.0    255.255.0.0     198.168.12.1      1     1:1     DIRECT
198.168.13.0    255.255.0.0     198.168.13.1      1     1:1     DIRECT
198.168.236.0   255.255.0.0     172.16.255.254    4     1:1     DIRECT
198.168.237.0   255.255.0.0     172.16.255.254    4     1:1     DIRECT
198.168.238.0   255.255.0.0     172.16.255.254    4     1:1     DIRECT
198.168.239.0   255.255.0.0     172.16.255.254    4     1:1     DIRECT
198.168.240.0   255.255.0.0     172.16.255.254    4     1:1     DIRECT
198.168.241.0   255.255.0.0     172.16.255.254    4     1:1     DIRECT
198.168.242.0   255.255.0.0     172.16.255.254    4     1:1     DIRECT
198.206.181.0   255.255.255.0   172.16.255.254    2     1:1     DIRECT
198.206.183.0   255.255.255.0   172.16.255.254    3     1:1     DIRECT
198.206.184.0   255.255.255.0   172.16.255.254    3     1:1     DIRECT
198.206.185.0   255.255.255.0   172.16.255.254    3     1:1     DIRECT
198.206.186.0   255.255.255.0   172.16.255.254    2     1:1     DIRECT
198.206.187.0   255.255.255.0   172.16.255.254    2     1:1     DIRECT
198.206.188.0   255.255.255.0   172.16.255.254    2     1:1     DIRECT
198.206.189.0   255.255.255.0   172.16.255.254    3     1:1     DIRECT
198.206.190.0   255.255.255.0   172.16.255.254    2     1:1     DIRECT
198.206.191.0   255.255.255.0   172.16.255.254    2     1:1     DIRECT
198.206.192.0   255.255.255.0   172.16.255.254    2     1:1     DIRECT
198.206.193.0   255.255.255.0   172.16.255.254    2     1:1     DIRECT
198.206.194.0   255.255.255.0   172.16.255.254    2     1:1     DIRECT
More? [<SP>,<CR>,/,F,N,Q,?]
```

   Because the filtered information in the table still exceeds the **more** command's default of 22 lines, the **More?** prompt appears at the bottom of the screen.

3. In order to further refine your results, you can now combine the Search and Filter commands. In this example, you will search for IP addresses beginning **198.206.2**. To do this, enter **/** at the Filter mode's **More?** prompt, followed by the specified text pattern:

   /198.206.2

   Press **<Enter>**. A screen similar to the following is displayed:

```
Filtering and Searching ...

198.206.200.0   255.255.255.0   172.16.255.254    2     1:1     DIRECT
198.206.201.0   255.255.255.0   172.16.255.254    2     1:1     DIRECT
198.206.202.0   255.255.255.0   172.16.255.254    2     1:1     DIRECT
198.206.203.0   255.255.255.0   172.16.255.254    2     1:1     DIRECT
/Networking/IP %
```

   Note that the IP address, **198.206.200.0**, now appears at the top of the screen, followed by any remaining lines in the table. (In this case, the last line of the **ipr** table contains information for IP address **198.206.203.0**, as shown).

Using Wildcards with Search and Filter Commands

Wildcards allow users to substitute symbols (***** or **?**) for text patterns while using the Search and Filter commands.

Any number of wildcards can be used within a single search string. In addition, multiple character (*****) and single character (**?**) wildcards can be combined within a single search string.

Wildcard Command Options

Multiple Characters

An asterisk (*****) is used as a wildcard for multiple characters in a text pattern. For example, the Filter pattern

/*.img

will filter out all lines from the UI table except those containing any text followed by **.img**.

This wildcard can also be used *within* a specific text pattern. For example, the Filter pattern

/1*6

will filter out all lines from the UI table except those containing **1**, followed by any number of characters, then **6**. For example:

1:3/6

or

33:3/1 Virtual port (#66)

or

16.

Single Characters

A question mark (**?**) is used as a wildcard for a single character in a text pattern. For example, the Search pattern

f/127.?.0.1

will locate the first line in a UI table containing **127.** followed by *any single character*, and then the remaining text pattern **.0.1**. For example:

127.0.0.1.

♦ Note ♦

If you use a wildcard at the Search command and the resulting page still exceeds the maximum number of table entries designated by the **more** command, you can renew the search, starting from the next line containing the text pattern. Do this by typing **n** at the **More?** prompt. Note that you can renew a search only while in Search and Search/Filter modes.