CHAPTER 5

Understanding the Command Line Interface

The LightStream 1010 Asynchronous Transfer Mode (ATM) switch command line interface (CLI) provides access to several different command modes. Each of the six different command modes provide a different group of related commands. Users familiar with the Cisco Internetwork Operating System (Cisco IOS) user interface will find the commands very similar. This chapter describes how to access and list the commands available in each command mode and explains the primary uses for each command mode.

For security purposes, the user interface provides two levels of access to commands: *user* and *privileged*. The unprivileged user mode is called user EXEC mode. The privileged mode is called privileged EXEC mode, and requires a password. The commands available in user EXEC mode are a subset of the commands available in privileged EXEC mode.

From the privileged level, you can access global configuration mode and three specific configuration modes: terminal, memory, and network configuration. In addition, if your switch does not find a valid system image, or if its configuration file is corrupted at startup, the system might enter read-only memory (ROM) monitor mode. Entering a question mark (**?**) at the system prompt allows you to obtain a list of commands available for each command mode.

Almost every switch configuration command also has a **no** form. In general, use the **no** form to disable a feature or function. Use the command without the keyword **no** to reenable a disabled feature or to enable a feature that is disabled by default. For example, terminal history is enabled by default. Specify the command **no history** to disable terminal history and specify **terminal history** to reenable it. The *LightStream 1010 ATM Switch Command Reference* publication provides the complete syntax for every switch configuration command and describes what the **no** form of a command does.

The user interface also provides context-sensitive help on command syntax. This chapter describes how to use the help system. It also describes the command editing and command history features that enable you to recall previous command entries and easily edit command entries.

For a complete description of the commands mentioned in this chapter, refer to the *LightStream 1010 ATM Switch Command Reference* publication.

User Interface Task List

You can perform the tasks in the following sections to become familiar with the LightStream 1010 ATM switch user interface:

- Accessing Each Command Mode
- Getting Context-Sensitive Help
- Description of Additional User Interface Features
- Ending a Session

Accessing Each Command Mode

This section describes how to access each of the LightStream 1010 ATM switch command modes:

- User EXEC Mode
- ROM Monitor Mode
- Privileged EXEC Mode
- Global Configuration Mode
- Interface Configuration Mode
- Subinterface Configuration Mode
- Line Configuration Mode
- Map-List Configuration Mode
- Map-Class Configuration Mode

- ATM Router Configuration Mode
- ATM Router Node Configuration Mode

Table 5-1 lists the command modes, how to access each mode, the prompt you will see while you are in that mode, the main uses for each configuration mode, and the method to exit that mode. The prompts listed assume the default switch name "Switch." Table 5-1 might not include all the possible ways to access or exit each command mode.

Table 5-1 Summary of Command Modes

Command Mode	Access Method	Prompt	Exit Method
User EXEC	Log in to the switch	`Switch>`	Use the **logout** command
Privileged EXEC	From user EXEC mode, use the **enable** EXEC command.	`Switch#`	To exit back to user EXEC mode, use the **disable** command. To enter global configuration mode, use the **configure** privileged EXEC command
ROM Monitor	From privileged EXEC mode, use the **reload** EXEC command: press **Break** during the first 60 seconds while the system is booting	`>`	To exit to user EXEC mode, type **continue**
Global Configuration	From privileged EXEC mode, use the **configure** privileged EXEC command.	`Switch(config)#`	To exit to privileged EXEC mode, use the **exit** or **end** command or press **Ctrl-Z** To enter interface configuration mode, enter **interface** configuration command

Command Mode	Access Method	Prompt	Exit Method
Interface Configuration	From global configuration mode, enter by specifying an interface with an **interface** command.	`Switch(config-if)#`	To exit to global configuration mode, use the **exit** command. To exit to privileged EXEC mode, use the exit command or press **Ctrl-Z** To enter subinterface configuration mode, specify a subinterface with an **interface** command.
Subinterface Configuration	From interface configuration mode, specify a subinterface with an **interface** an command	`Switch(config-subif)#`	To exit to global configuration mode, use the **exit** command To enter privileged EXEC mode, use the **end** command or press **Ctrl-Z**
Map-list Configuration	From global configuration mode, define a map list with the **map-list** command	`Switch(config-map-list)#`	To exit to map-class configuration mode, use the **map-class** command To enter privileged EXEC mode, use the **end** command or press **Ctrl-Z**
Map-class Configuration	From global configuration mode, configure a map class with the **map-class** command	`Switch(config-map-class)#`	To exit to global configuration mode, use the **exit** command To enter privileged EXEC mode, press **Ctrl-Z**
ATM Router Configuration	From global configuration mode, configure the PNNI routing protocol with the **atm router pnni** command	`Switch(config-atm-router)#`	To exit to global configuration mode, use the **exit** command To enter privileged EXEC mode use the **end** command or press **Ctrl-Z**
ATM Router Node Configuration	From ATM router configuration mode, configure the PNNI routing node with the **node** command	`Switch(config-pnni-node)#`	To exit to global configuration mode, use the **exit** command. To enter privileged EXEC mode use the **end** command or press **Ctrl-Z**

Command Mode	Access Method	Prompt	Exit Method
Line Configuration	From global configuration mode, enter by specifying a line with a **line** command	`Switch(config-line)#`	To exit to global configuration mode, use the **exit** command. To enter privileged EXEC mode use the **end** command or press **Ctrl-Z**

User EXEC Mode

After you log in to the switch, you are automatically in user EXEC command mode. The EXEC commands available at the user level are a subset of those available at the privileged level. In general, the user EXEC commands allow you to connect to remote switches, change terminal settings on a temporary basis, perform basic tests, and list system information.

The user-level prompt consists of the switch's host name followed by the angle bracket (>):

```
Switch>
```

The default host name is `Switch` unless it has been changed during initial configuration using the **setup** command. (Refer to the *LightStream 1010 ATM Switch Software Configuration Guide* for information on the **setup** facility.) You can also change the switch name using the **hostname** global configuration command described in the "System Management Commands" chapter in the *LightStream 1010 ATM Switch Software Configuration Guide* publication.

To list the commands available in user EXEC mode, enter a question mark (**?**) as shown in the following example:

```
Switch>?
Exec commands:
  access-enable    Create a temporary Access-List entry
  atmsig           Execute Atm Signalling Commands
  cd               change current device
  clear            Reset functions
  connect          Open a terminal connection
  dir              List files on given device
  disable          Turn off privileged commands
  disconnect       Disconnect an existing network connection
  enable           Turn on privileged commands
  exit             Exit from the EXEC
  help             Description of the interactive help system
  lock             Lock the terminal
  login            Log in as a particular user
  logout           Exit from the EXEC
  name-connection  Name an existing network connection
  ping             Send echo messages
  ppp              Start IETF Point-to-Point Protocol (PPP)
  pwd              Display current device
  resume           Resume an active network connection
  show             Show running system information
  slip             Start Serial-line IP (SLIP)
  systat           Display information about terminal lines
  telnet           Open a telnet connection
  terminal         Set terminal line parameters
  traceroute       Trace route to destination
  where            List active connections

Switch>
```

The list of commands might vary slightly from this example, depending on the software feature set and configuration of your switch.

ROM Monitor Mode

If your switch does not find a valid system image, or if you interrupt the boot sequence, the system might enter ROM monitor mode. From ROM monitor mode, you can boot the switch or perform diagnostic tests.

You can also enter ROM monitor mode by entering the **reload** EXEC command and then pressing the Break key during the first 60 seconds of startup. To save changes to the configuration file, use the **copy running-config startup-config** command before issuing the **reload** command.

To access and list the ROM monitor configuration commands, complete the following tasks:

Task	Command
Enter ROM monitor mode from privileged EXEC mode	**reload**[1] Press Break key during the first 60 seconds while the system is booting
List the ROM monitor commands	**?**

1. This command is documented in the *LightStream 1010 ATM Switch Command Reference* publication.

The ROM monitor prompt is the angle bracket (>):

```
rommon 1> help
alias               set and display aliases command
boot                boot up an external process
break               set/show/clear the breakpoint
confreg             configuration register utility
cont                continue executing a downloaded image
context             display the context of a loaded image
dev                 list the device table
dir                 list files in file system
dis                 disassemble instruction stream
dnld                serial download a program module
frame               print out a selected stack frame
help                monitor builtin command help
history             monitor command history
meminfo             main memory information
repeat              repeat a monitor command
reset               system reset
set                 display the monitor variables
stack               produce a stack trace
sync                write monitor environment to NVRAM
sysret              print out info from last system return
unalias             unset an alias
unset               unset a monitor variable
rommon 3 >
```

To initialize the switch, enter the **b** command. To boot the system image file, use the **b** command (described in the chapter "Loading System Images, Software Images, and Configuration Files").

Privileged EXEC Mode

Because many of the privileged commands set operating parameters, privileged access should be password-protected to prevent unauthorized use. The privileged command set includes those commands contained in user EXEC mode, as well as the **configure** command through which you can access the remaining command modes. Privileged EXEC mode also includes high-level testing commands, such as **debug**. For details on the **debug** commands, see the *LightStream 1010 ATM Switch Software Configuration Guide* and *LightStream 1010 ATM Switch Command Reference* publications.

To access and list the privileged EXEC commands, complete the following tasks:

Task	Command
Enter the privileged EXEC mode	**enable** [*password*]
List privileged EXEC commands	**?**

If the system administrator has set a password, you are prompted to enter it before being allowed access to privileged EXEC mode. The password is not displayed on the screen and is case sensitive. If an enable password has not been set, enabled mode can be accessed only from the console. The system administrator uses the **enable password global configuration** command to set the password that restricts access to privileged mode. This command is described in the *Lightstream 1010 ATM Switch Command Reference* publication.

The privileged EXEC mode prompt consists of the switch's host name followed by the pound sign (#). (If the switch was named with the **hostname** command, that name would appear as the prompt instead of "Switch.")

```
Switch#
```

The following example shows how to access privileged EXEC mode and list privileged EXEC commands:

```
Switch> enable
Password:
Switch# ?
Exec commands:
  atmsig           Execute Atm Signalling Commands
  calendar         Manage the hardware calendar
  cd               change current device
  clear            Reset functions
  clock            Manage the system clock
  configure        Enter configuration mode
  connect          Open a terminal connection
  copy             Copy configuration or image data
  debug            Debugging functions (see also 'undebug')
  delete           Delete a file
  dir              List files on given device
  disable          Turn off privileged commands
  disconnect       Disconnect an existing network connection
  enable           Turn on privileged commands
  erase            Erase flash or configuration memory
  exit             Exit from the EXEC
  format           format a device
  help             Description of the interactive help system
  lock             Lock the terminal
  login            Log in as a particular user
  logout           Exit from the EXEC
  name-connection  Name an existing network connection
  no               Disable debugging functions
  ping             Send echo messages
  ppp              Start IETF Point-to-Point Protocol (PPP)
  pwd              Display current device
  reload           Halt and perform a cold restart
  resume           Resume an active network connection
  rsh              Execute a remote command
  send             Send a message to other tty lines
  setup            Run the SETUP command facility
  show             Show running system information
  slip             Start Serial-line IP (SLIP)
  squeeze          Squeeze a device
  start-chat       Start a chat-script on a line
  systat           Display information about terminal lines
  telnet           Open a telnet connection
  terminal         Set terminal line parameters
```

```
  test             Test subsystems, memory, and interfaces
  traceroute       Trace route to destination
  undebug          Disable debugging functions (see also 'debug')
  undelete         Undelete a file
  verify           Verify checksum of a Flash file
  where            List active connections
  write            Write running configuration to memory, network, or
terminal
```

The list of commands might vary slightly from this example, depending on the software feature set and configuration of your switch.

From the privileged level, you can access global configuration mode. For instructions, see the "Global Configuration Mode" section, which follows this section.

To return from privileged EXEC mode to user EXEC mode, perform the following task:

Task	Command
Move from privileged EXEC mode to user EXEC mode	**disable**

Global Configuration Mode

Global configuration commands apply to features that affect the system as a whole. Use the **configure** privileged EXEC command to enter global configuration mode. When you enter this command, the EXEC prompts you for the source of the configuration commands:

```
Configuring from terminal, memory, or network [terminal]?
```

You can then specify either the terminal, nonvolatile RAM (NVRAM), or a file stored on a network server as the source of configuration commands. (See the "System Image, Software Image, and Configuration File Load Commands" chapter in the *LightStream 1010 ATM Switch Software Configuration Guide* publication.) The default is to enter commands from the terminal console. Pressing the Return key begins this configuration method.

To access and list the global configuration commands, complete the following tasks:

Task	Command
At the terminal, from the privileged EXEC mode, enter global configuration mode	**configure**[1] <**CR**>
List the global configuration commands	**?**

1. This command is documented in the *LightStream 1010 ATM Switch Command Reference* publication.

The following example shows how to access global configuration mode and list global configuration commands:

```
Switch# configure
Configuring from terminal, memory, or network [terminal]? <CR>
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)# ?
Configure commands:
  aaa                         Authentication, Authorization and Accounting.
  access-list                   Add an access list entry
  alias                         Create command alias
  arp                           Set a static ARP entry
  async-bootp                   Modify system bootp parameters
  atm                           ATM Global Cofiguration Commands
  banner                        Define a login banner
  boot                          Modify system boot parameters
  buffers                       Adjust system buffer pool parameters
  cdp                           Global CDP configuration subcommands
  chat-script                   Define a modem chat script
  clock                         Configure time-of-day clock
  config-register               Define the configuration register
  default-value                 Default character-bits values
  dialer-list                   Create a dialer list entry
  dnsix-dmdp                    Provide DMDP service for DNSIX
  dnsix-nat                     Provide DNSIX service for audit trails
  downward-compatible-config    Generate a configuration compatible with
older
                                software
  enable                        Modify enable password parameters
  end                           Exit from configure mode
  exit                          Exit from configure mode
  help                          Description of the interactive help system
  hostname                      Set system's network name
  interface                     Select an interface to configure
```

```
  ip                        Global IP configuration subcommands
  line                      Configure a terminal line
  logging                   Modify message logging facilities
  map-class                 Configure static map class
  map-list                  Configure static map list
  network-clock-select      Network clock select
  no                        Negate a command or set its defaults
  ntp                       Configure NTP
  privilege                 Command privilege parameter
  route-map                     Create route-map or enter route-map
command mode
  router                    Enable a routing process
  scheduler                 Scheduler parameters
  service                   Modify use of network based services
  snmp-server               Modify SNMP parameters
  tacacs-server             Modify TACACS query parameters
  tftp-server               Provide TFTP service for netload requests
  username                  Establish User Name Authentication
```

The list of commands might vary slightly from this example, depending on the software feature set and configuration of your switch.

To exit global configuration command mode and return to privileged EXEC mode, use one of the following commands:

Task	Command
Exit global configuration mode	**exit** **end** **Ctrl-Z**

From global configuration mode, you can access 16 configuration modes containing interface, subinterface, and line configuration commands. These command modes are described in the following sections.

- Interface Configuration Mode
- Subinterface Configuration Mode
- Line Configuration Mode
- Map-List Configuration Mode

- Map-Class Configuration Mode
- ATM Router Configuration Mode
- ATM Router Node Configuration Mode

Interface Configuration Mode

Many features are enabled on a per-interface basis. Interface configuration commands modify the operation of an interface such as an ATM, Ethernet, or asynchronous port. Interface configuration commands always follow an **interface** global configuration command that defines the interface type.

To access and list the interface configuration commands, complete the following tasks:

Task	Command
From global configuration mode, enter interface configuration mode	**interface** *type card/sub_card/port*[1]
List the interface configuration commands	**?**

1. This command is documented in the *LightStream 1010 ATM Switch Command Reference* publication.

In the following example, ATM interface 1/0/0 is about to be configured. The new prompt `Switch(config-if)#` indicates interface configuration mode. In this example, the user asks for help by requesting a list of commands.

```
Switch#
Switch#config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#interface atm 1/0/0
Switch(config-if)#?
Interface configuration commands:
  arp                 Set arp type (arpa, probe, snap) or timeout
  asig                ATM Signalling Interface Subcommands
  atm                 Modify ATM parameters
  bandwidth           Set bandwidth informational parameter
  cdp                 CDP interface subcommands
  clock-source        Configure OC3 tx clock source
  custom-queue-list   Assign a custom queue list to an interface
  delay               Specify interface throughput delay
  description         Interface specific description
```

```
  exit                Exit from interface configuration mode
  help                Description of the interactive help system
  hold-queue          Set hold queue depth
  keepalive           Enable keepalive
  load-interval         Specify interval for load calculation for an
interface
  loopback            Configure internal loopback on an interface
  map-group           Configure static map group
  mtu                 Set the interface Maximum Transmission Unit (MTU)
  no                  Negate a command or set its defaults
  ntp                 Configure NTP
  priority-group      Assign a priority group to an interface
  scrambling          Configure SONET scrambling
  shutdown            Shutdown the selected interface
  snmp                Modify SNMP interface parameters
  sonet               Configure OC3 SONET mode
  transmit-interface  Assign a transmit interface to a receive-only
interface
  tx-queue-limit      Configure card level transmit queue limit

Switch(config-if)#
```

The list of commands might vary slightly from this example, depending on the software feature set and configuration of your switch.

To exit interface configuration mode and return to global configuration mode, enter the **exit** command. To exit configuration mode and return to privileged EXEC mode, use the **end** command or press **Ctrl-Z**.

Subinterface Configuration Mode

You can configure multiple logical interfaces (called subinterfaces) on a single ATM interface or ATM Switch Processor (ASP) Ethernet interface.

Subinterfaces appear to be distinct physical interfaces to the various protocols. For example, ATM networks provide multiple point-to-point links called permanent virtual circuits (PVCs). PVCs can be grouped under separate subinterfaces that in turn are configured on a single physical interface.

To access and list the subinterface configuration commands, complete the following tasks:

Task	Command
From interface configuration mode, configure a logical interface	**interface atm** *card/sub_card/port* [*.sub-inter #*][1] **interface ethernet 2/0/0** [*.sub-inter #*]
List the subinterface configuration commands	**?**

1. This command is documented in the *LightStream 1010 ATM Switch Command Reference* publication.

In the following example, an interface is configured for ATM 0/0/0. The subinterface is number 99 to indicate that it is subinterface 99 of port 0 on the port adapter module (PAM) 0 in carrier module (CAM in slot 0). The new prompt `Switch(config-subif)#` indicates subinterface configuration mode. The subinterface can be configured to support one or more ATM PVCs. To list the commands available in subinterface configuration mode, enter a question mark (**?**).

```
Switch(config)#interface atm 0/0/0.99
Switch(config-subif)#?
Interface configuration commands:
  atm          ATM Interface ILMI Config Commands
  bandwidth    Set bandwidth informational parameter
  cdp          CDP interface subcommands
  delay        Specify interface throughput delay
  description  Interface specific description
  exit         Exit from interface configuration mode
  map-group    Configure static map group
  no           Negate a command or set its defaults
  ntp          Configure NTP
  shutdown     Shutdown the selected interface

Switch(config-subif)#
```

Note The list of commands might vary slightly from this example, depending on the software feature set and configuration of your switch.

In the following example an interface is configured for Ethernet 2/0/0. The subinterface is number 100 of ASP CPU interface 2/0/0. The new prompt `Switch(config-subif)#` indicates subinterface configuration mode. The subinterface can be configured to support one or more Ethernet PVCs.

To list the commands available in subinterface configuration mode, enter a question mark (**?**).

```
Switch(config)#inter ether 2/0/0.100
Switch(config-subif)#?
Interface configuration commands:
  backup         Modify dial-backup parameters
  bandwidth      Set bandwidth informational parameter
  cdp            CDP interface subcommands
  delay          Specify interface throughput delay
  description    Interface specific description
  encapsulation  Set encapsulation type for an interface
  exit           Exit from interface configuration mode
  ip             Interface Internet Protocol config commands
  no             Negate a command or set its defaults
  shutdown       Shutdown the selected interface

Switch(config-subif)#
```

To exit subinterface configuration mode and return to global configuration mode, enter the **exit** command. To exit configuration mode and return to privileged EXEC mode, press **Ctrl-Z**.

Line Configuration Mode

Line configuration commands modify the operation of a terminal line. Line configuration commands always follow a **line** command, which defines a line number. These commands are generally used to connect to remote switches, change terminal parameter settings either on a line-by-line basis or for a range of line, and set up the auxiliary port modem configuration. For detailed line configuration instructions, see the chapter “Configuring Terminal Lines and Modem Support.”

To access and list the auxiliary port, console port, and virtual terminal line configuration commands, complete the following tasks:

Task	Command
From global configuration mode, configure an auxiliary, console, or virtual terminal line	**line** {**aux** | **con** | **vty**} *line-number* [*ending-line-number*][1]
List the line configuration commands	**?**

1. This command is documented in the *LightStream 1010 ATM Switch Command Reference* publication.

The following example shows how to enter line configuration mode for the console line and list the line configuration commands. The new prompt `Switch(config-line)#` indicates line configuration mode.

```
Switch(config)#line console 0
Switch(config-line)#?
Line configuration commands:
  access-class            Filter connections based on an IP access list
  autocommand             Automatically execute an EXEC command
  data-character-bits     Size of characters being handled
  databits                Set number of data bits per character
  editing                 Enable command line editing
  escape-character        Change the current line's escape character
  exec                    Start an EXEC process
  exec-banner             Enable the display of the EXEC banner
  exec-character-bits     Size of characters to the command exec
  exec-timeout            Set the EXEC timeout
  exit                    Exit from line configuration mode
  flowcontrol             Set the flow control
  full-help               Provide help to unprivileged user
  help                    Description of the interactive help system
  history                Enable and control the command history function
  ip                      IP options
  length                  Set number of lines on a screen
  location                Enter terminal location description
  logging                 Modify message logging facilities
  login                   Enable password checking
  modem                   Configure the Modem Control Lines
  monitor                 Copy debug output to the current terminal line
  no                      Negate a command or set its defaults
  notify                 Inform users of output from concurrent sessions
  padding                 Set padding for a specified output character
```

```
  parity                  Set terminal parity
  password                Set a password
  privilege               Change privilege level for line
  refuse-message          Define a refuse banner
  rotary                  Add line to a rotary group
  rxspeed                 Set the receive speed
  script              specify event related chat scripts to run on the line
  session-timeout         Set interval for closing connection when there
is no
                          input traffic
  special-character-bits  Size of the escape (and other special)
characters
  speed                   Set the transmit and receive speeds
  start-character         Define the start character
  stop-character          Define the stop character
  stopbits                Set async line stop bits
  terminal-type           Set the terminal type
  transport               Define transport protocols for line
  txspeed                 Set the transmit speeds
  vacant-message          Define a vacant banner
  width                   Set width of the display terminal

    Switch(config-line)#
```

Note The list of commands might vary slightly from this example, depending on the software feature set and configuration of your switch.

To exit line configuration mode and return to global configuration mode, use the **exit** command. To exit configuration mode and return to privileged EXEC mode, use the **end** command or press **Ctrl-Z**.

Map-List Configuration Mode

The LightStream 1010 ATM switch supports a static mapping scheme that identifies the ATM address of remote hosts or switches.

Map-list configuration commands configure a map list. They always follow a **map-list** global configuration command. To access and list the map list configuration commands, complete the following tasks:

Task	Command
From global configuration mode, use the **map-list** command	**map-list** *name* [1]
List the map-list configuration commands	**?**

1. This command is documented in the *LightStream 1010 ATM Switch Command Reference* publication.

The following example shows how to enter map-list configuration mode and list the map list configuration commands. In this example, the static map-list configuration commands are listed. The new prompt `Switch(config-map-list)#` indicates map-list configuration mode.

```
Switch(config)# map-list 1
Switch(config-map-list)# ?
Static maps list configuration commands:
  A.B.C.D        Protocol specific address
  arp            IP ARP
  cdp            Cisco Discovery Protocol
  compressedtcp  Compressed TCP
  exit-class     Exit from static map class configuration mode
  help           Description of the interactive help system
  ip             IP
  no             Negate or set default values of a command

Switch(config-map-list)#
```

Note The list of commands might vary slightly from this example, depending on the software feature set and configuration of your switch.

To exit map-list configuration mode and return to global configuration mode, enter the **exit** command. To exit configuration mode and return to privileged EXEC mode, use the **end** command or press **Ctrl-Z**.

Map-Class Configuration Mode

The ATM interface allows you to specify quality of service (QOS) parameters that control how much traffic the source switch will be sending over a switched virtual circuit (SVC).

To define QOS parameters that are associated with a static map for an SVC, use the **map-class** global configuration command.

Task	Command
From global configuration mode, configure an ATM map class	**map-class atm** *class-name*[1]
List the map-class configuration commands	**?**

1. This command is documented in the *LightStream 1010 ATM Switch Command Reference* publication.

In the following example, the static map-class configuration commands are listed. The prompt `Switch(config-map-class)#` indicates map-class configuration mode.

```
Switch(config)# map-class atm example
Switch(config-map-class)# ?
Static maps class configuration commands:
  atm         Configure atm static map class
  dialer      Configure dialer static map class
  exit-class  Exit from static map class configuration mode
  help        Description of the interactive help system
  no          Negate or set default values of a command

Switch(config-map-class)#
```

Note The list of commands might vary slightly from this example, depending on the software feature set and configuration of your switch.

To exit map-class configuration mode and return to global configuration mode, enter the **exit** command. To exit configuration mode and return to privileged EXEC mode, use the **end** command or press **Ctrl-Z**.

ATM Router Configuration Mode

The LightStream 1010 ATM switch supports the Private Network-Network Interface (PNNI) routing protocol. The **atm router pnni** command entered from privileged EXEC command mode allows you to change to PNNI router configuration mode.

To access and list the **atm router pnni** configuration commands, complete the following tasks:

Task	Command
From global configuration mode, use the **atm router pnni** command.	**atm router pnni** [1]
List the ATM router PNNI configuration commands.	**?**

1. This command is documented in the *LightStream 1010 ATM Switch Command Reference* publication.

The following example shows how to enter ATM router PNNI configuration mode and list the ATM router PNNI configuration commands. The new prompt `Switch(config-atm-router)#` indicates ATM router PNNI configuration mode.

```
Switch(config)#atm router pnni
Switch(config-atm-router)#?
ATM router configuration commands:
  administrative-weight        Select mode of administrative weight assignment
  background-routes            Enable or Disable Background Routes
  bg                           Background SPF Related Parameters
  exit                         Exit from ATM routing protocol configuration
                               mode
  max-admin-weight-percentage  Maximum Administrative Weight Percentage
  no                           Negate or set default values of a command
  node                         Configure PNNI node
  precedence                   Define Prefix Priorities For Routing
  rm-poll-interval             How Often To Poll Resource Manager
  statistics                   Turn on PNNI statistics

Switch(config-atm-router)#
```

Note The list of commands might vary slightly from this example, depending on the software feature set and configuration of your switch.

To exit ATM router configuration mode and return to global configuration mode, enter the **exit** command. To exit configuration mode and return to privileged EXEC mode, use the **end** command or press **Ctrl-Z**.

ATM Router Node Configuration Mode

The LightStream 1010 ATM switch supports the PNNI routing protocol. The ATM router PNNI **node** command entered from ATM router PNNI command mode allows you to change to node configuration mode.

To access and list the ATM router PNNI **node** configuration commands, complete the following tasks:

Task	Command
From ATM router PNNI configuration mode, use the **node** command.	**node** *index_number*[1]
List the ATM router PNNI node configuration commands.	**?**

1. This command is documented in the *LightStream 1010 ATM Switch Command Reference* publication.

The following example shows how to enter ATM router PNNI node configuration mode for PNNI node index number one and list the ATM router PNNI **node** configuration commands. The new prompt `Switch(config-pnni-node)#` indicates ATM router PNNI node configuration mode.

```
Switch(config-atm-router)#node 1
Switch(config-pnni-node)#?
PNNI router node configuration commands:
  auto-summary        Automatically summarize switch address prefix
  exit                Exit from PNNI router node configuration mode
  name                Configure Node's Name
  no                  Negate or set default values of a command
  ptse                PTSE generation parameters
  redistribute        Route redistribution from another routing protocol
  summary-address     Summarize reachable addresses into PNNI
  timer               PNNI timer variables
  transit-restricted  Transit calls are not allowed

Switch(config-pnni-node)#
```

Note The list of commands might vary slightly from this example, depending on the software feature set and configuration of your switch.

To exit ATM router node configuration mode and return to global configuration mode, enter the **exit** command. To exit configuration mode and return to privileged EXEC mode, use the **end** command or press **Ctrl-Z**.

Getting Context-Sensitive Help

The previous sections described the first level of help available with the user interface. Entering a question mark (**?**) at the system prompt displays a list of commands available for each command mode. You can also get a list of any command's associated keywords and arguments with the context-sensitive help feature.

To get help specific to a command mode, a command, a keyword, or arguments, perform one of the following tasks:

Task	Command
Obtain a brief description of the help system in any command mode	**help**
Configure a line or lines to receive help for the full set of user-level commands when a user presses **?**	**full-help**
Configure a line to receive help for the full set of user-level commands for this EXEC session	**terminal full-help**[1]
Obtain a list of commands that begin with a particular character string	*abbreviated-command-entry***?**
Complete a partial command name	*abbreviated-command-entry*<**Tab**>
List all commands available for a particular command mode	**?**
List a command's associated keywords	*command* **?**
List a keyword's associated arguments	*command keyword* **?**

1. This command is documented in the *LightStream 1010 ATM Switch Command Reference.*

When using context-sensitive help, the space (or lack of a space) before the question mark (**?**) is significant. To obtain a list of commands that begin with a particular character sequence, type in those characters followed immediately by the question mark (**?**). Do not include a space. This form of help is called *word help*, because it completes a word for you.

To list keywords or arguments, enter a question mark **(?**) in place of a keyword or argument. Include a space before the **?**. This form of help is called *command syntax help*, because it reminds you which keywords or arguments are applicable based on the command, keywords, and arguments you already have entered.

You can abbreviate commands and keywords to the number of characters that allow a unique abbreviation. For example, you can abbreviate the **show** command to **sh**.

Enter the **help** command (which is available in any command mode) for a brief description of the help system:

```
Switch#help
Help may be requested at any point in a command by entering
a question mark '?'. If nothing matches, the help list will
be empty and you must back up until entering a '?' shows the
available options.
Two styles of help are provided:
1. Full help is available when you are ready to enter a
   command argument (e.g. 'show ?') and describes each possible
   argument.
2. Partial help is provided when an abbreviated argument is entered
   and you want to know what arguments match the input
   (e.g. 'show pr?'.)
```

As described in the **help** command output, you can enter a partial command name and a question mark (**?**) to obtain a list of commands beginning with a particular character set. See the section "Completing a Partial Command Name" in the chapter "Understanding the User Interface" of the *LightStream 1010 ATM Switch Software Configuration Guide* publication for more detail.

The following example illustrates how the context-sensitive help feature enables you to create an access list from configuration mode. First enter the letters **co** at the system prompt followed by a question mark (**?**). Do not leave a space between the last letter and the question mark (**?**). The system provides the commands that begin with **co**.

```
Switch#co?
configure  connect  copy
```

Enter the **configure** command followed by a space and a question mark **(?**) to list the command's keywords and a brief explanation:

```
Switch#configure ?
  memory             Configure from NV memory
  network            Configure from a TFTP network host
  overwrite-network  Overwrite NV memory from TFTP network host
  terminal           Configure from the terminal
  <cr>

Switch#configure
```

Enter the **terminal** keyword to enter configuration mode from the terminal:

```
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#
```

Enter the **access-list** command followed by a space and a question mark (**?**) to list the command's keywords:

```
Switch(config)# access-list ?
  <1-99>     IP standard access list
  <100-199>  IP extended access list
```

Enter the access list number **99** and then enter another question mark (**?**) to see the arguments that apply to the keyword and brief explanations:

```
Switch(config)#access-list 99 ?
  deny    Specify packets to reject
  permit  Specify packets to forward
```

Enter the **deny** argument followed by a question mark (**?**) to list additional options:

```
Switch(config)#access-list 99 deny ?
  Hostname or A.B.C.D  Address to match
  any                  Any source host
  host                 A single host address
```

Enter the IP address followed by a question mark (**?**) to list additional options:

```
Switch(config)#access-list 99 deny 131.108.134.0 ?
  A.B.C.D  Wildcard bits
  <cr>
```

The <cr> symbol appears in the list, indicating that one of your options is to press Return to execute the command. The other option is to add a wildcard mask. Enter the wildcard mask followed by a question mark (**?**) to list further options.

```
Switch(config)#access-list 99 deny 131.108.134.0 0.0.0.255 ?
<cr>

Switch(config)#access-list 99 deny 131.108.134.0 0.0.0.255
```

The <cr> symbol by itself indicates there are no more keywords or arguments. Press Return to execute the command. The system adds an entry to access list 99 that denies access to all hosts on subnet 131.108.134.0.

Description of Additional User Interface Features

For a complete description of the user interface and configuration modes, see the following sections of the *LightStream 1010 ATM Switch Software Configuration Guide* publication:

- Check Command Syntax
- Use the Command History Features
- Use the Editing Features

Ending a Session

After using the **setup** command or other configuration commands, exit the switch and quit the session.

To end a session, perform the following steps:

Task	Command
Enter the quit EXEC command	**quit**

Refer to the *LightStream 1010 ATM Switch Software Configuration Guide* for more information on exiting sessions and closing connections.