

Chapter 3

SRC CLI Basics

This chapter provides basic information about the SRC CLI. Topics include:

- Elements of the Command-Line Interface on page 19
- SRC CLI Messages on page 20
- Displaying Command Output on page 22
- Types of SRC Commands and Statements on page 23
- Switching Between Operational Mode and Configuration Mode on page 26
- Moving Among Hierarchy Levels in the SRC CLI on page 28
- Displaying SRC CLI Command History on page 29
- CLI Support for C-series Controllers and for SRC Software Installed on Solaris Platforms on page 29

Elements of the Command-Line Interface

Figure 4 shows elements of the command-line interface in operational mode.

Figure 4: Elements of the Command-Line Interface

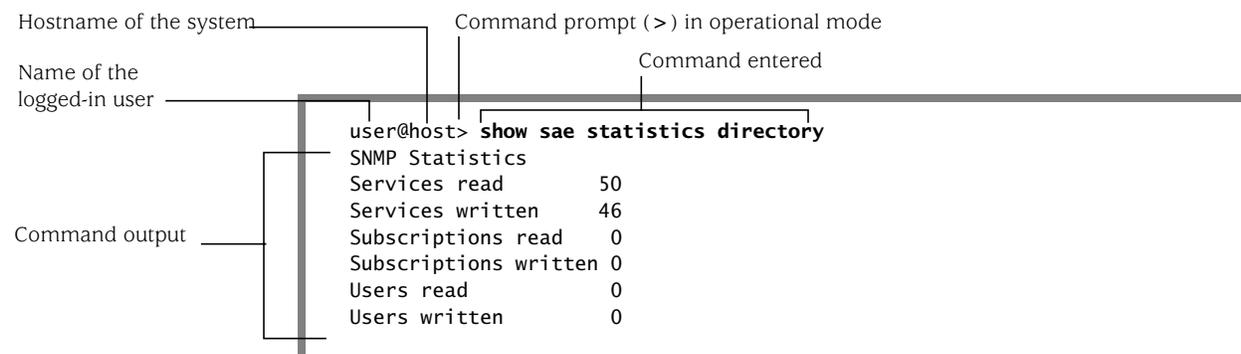


Figure 5 shows elements of the command-line interface in configuration mode. In configuration mode, the prompt changes from a > to a #.

Figure 5: Command Prompt in Configuration Mode

```

user@host> configure
Entering configuration mode.
[edit]
user@host#
  
```

Banner

Command prompt (#)

The portion of the prompt in square brackets, [edit], is a *banner*. The banner indicates that you are in configuration mode and shows your location in the statement hierarchy. When you first enter configuration mode, you are always at the top level of the hierarchy, as indicated by the [edit] banner. (See Figure 6.)

Figure 6: Hierarchy-Level Banner

```

user@host> configure
entering configuration mode
[edit]
user@host# edit shared sae configuration
[edit shared sae configuration]
user@host#
  
```

Top-level banner

Banner at the [edit shared sae configuration] hierarchy level

SRC CLI Messages

The CLI displays messages when you enter and exit from configuration and operational command modes, when you successfully complete some commands, and when you type an invalid string or value.

If you type an invalid string—for example, the name of a command or statement that does not exist—you see the message “syntax error” or “unknown command.” A caret (^) indicates where the error is. For example:

```

user@host> clear sae <Enter>
                ^
syntax error, expecting <command>.

[edit]
user@host# display
                ^
unknown command.
  
```

In configuration mode, if you do not type an option for a statement that requires one, a message indicates the type of information expected.

In this example, you need to type a slot number to complete the command:

```
user@host# edit slot
           ^
syntax error, expecting <identifier>.
```

In this example, you need to type a value for the keepalive time to complete the command:

```
user@host# set shared sae configuration aggregate-services keepalive-time
                                                    ^
syntax error, expecting <data>.
```

If you have omitted a required statement at a particular hierarchy level, when you attempt to move from that hierarchy level or when you issue the **show** command in configuration mode, a message indicates which statement is missing. For example:

```
[edit system login user phil]
user@host# up
Warning: missing mandatory statement: 'class'
[edit system login]
user@host# show
user phil {
    full-name "Phil James";
    # Warning: missing mandatory statement(s): 'class'
}
```

Displaying Command Output

If the command output is longer than the screen length, it appears one screen at a time by means of a UNIX `more`-type interface. The prompt `--MORE--` indicates that more output is available. (See Figure 7.)

Figure 7: The MORE Prompt

```

user@host> show system information
System Identification
Hostname          myC-seriesController
Manufacturer      Juniper Networks
Product Name     SDX-2000
Version          1.0
Serial Number    0207082006000001
UUID             48384441-5254-0030-4859-0030485977EE
Hostid           e30a2e07
Software version SDX-300 Release 7.0 [A.7.0.0-24]

System Time
Current time     2006-12-08 14:03:37 EST
Uptime          28 days, 15:01
Number of active users 3
Load Averages (1m/5m/15m) 0.31/0.26/0.18

Memory
Total 15G
Free 4025M

CPU Info
Number of CPU 4
-- MORE --

```

The `--More--` prompt

To continue command output:

- Press Enter.

Occasionally, if a command produces extensive output, you may wish to cancel the output.

To cancel command output:

- Press `q`. Command output stops, and the command prompt appears.

Table 4 lists common keyboard sequences you can use at the `—(more)—` prompt.

Table 4: MORE Prompt Keyboard Sequences

Category	Action	Keyboard Sequence
Scroll down	Scroll down one line.	e, Ctrl+e, j, Ctrl+n, Enter, down arrow
	Scroll down one-half screen.	d, Ctrl+d
	Scroll down one whole screen.	f, Ctrl+f, Ctrl+v, z, Space
	Scroll down to the bottom of the output and wait for more input. (To resume output, press Ctrl-C.)	F
	Jump to last line in output and exit to the CLI prompt.	G
Scroll up	Display the previous line of output.	y, Ctrl+y, k, Ctrl+k, Ctrl+p, up arrow
	Scroll up one-half screen.	u, Ctrl+u
	Scroll up one whole screen.	b, Ctrl+b, Esc+v, w
	Jump to the first line of the output.	g
Scroll up and down	Scroll up and down through the output.	-E (hyphen E)
	To exit this mode, press q.	

For more information about working with command output, see *Chapter 7, Filtering Command Output in the SRC CLI*.

Types of SRC Commands and Statements

The SRC CLI supports the following types of commands and statements:

- Operational mode commands—Commands that you enter in operational mode are used to monitor system operation.
 - For more information about using top-level CLI operational mode commands, see *Chapter 5, Using the SRC CLI Operational Commands to Monitor the SRC Software*.
 - For a complete list of CLI operational mode commands, see the *SRC-PE CLI Command Reference*.
- Environment commands—A set of operational mode commands that you can use to control the CLI environment. For example, you can specify editing level for the CLI. For more information, see *Chapter 9, Controlling the SRC CLI Environment*.

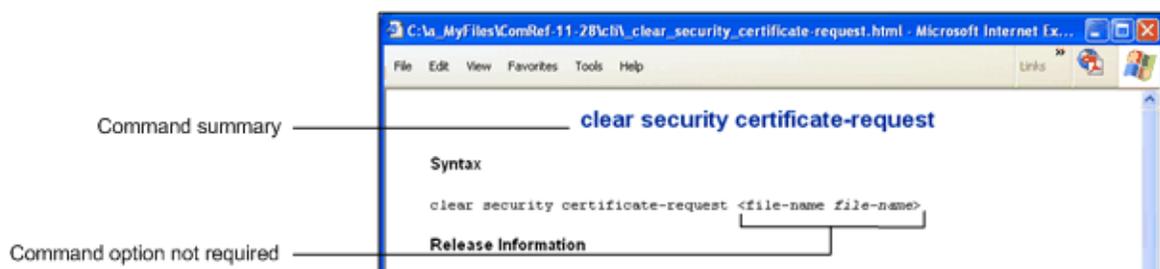
- Configuration mode commands—Commands that you enter in configuration mode are used to perform general configuration functions; for example, committing a configuration, navigating the hierarchy, and managing configuration files. For more information, see *Chapter 6, Using Commands and Statements to Configure the SRC Software*.
- Configuration statements—Used to define your SRC configuration. Your location in the configuration hierarchy determines which configuration statements are available. For example, the [edit shared sae] hierarchy level includes statements to configure the SAE.
 - For information about using SRC configuration statements, see the other SRC guides.
 - For a complete list of the SRC configuration statements, see the *SRC-PE CLI Command Reference*.

Command Options

When working on the command line, you are bound by specific CLI syntax rules. Some commands function very simply with just a single word necessary to run them. Others have required options that you must enter to complete the command. Some commands may have options that are not required, allowing you to change the way the commands run or the information they return.

The command and statement summaries in the *SRC-PE CLI Command Reference* show which options are required and which options are not. Options at the top statement level that are not required are shown with angle brackets (< >). (See Figure 8.) Dots after an option indicate that more than one value can be supplied for the option.

Figure 8: Command Options



Configuration Statements and Identifiers

You configure SRC properties by including *statements* in the configuration. A statement consists of a keyword, which is fixed text, and, optionally, an *identifier*. An identifier is an identifying name that you define, such as the name of an interface or a username, and that allows you and the CLI to discriminate among a collection of statements.

The following list shows the statements available at the top level of configuration mode:

```
[edit]
user@host# set ?
Possible completions:
> interfaces      Interfaces on the SDX platform
> policies        Policy configuration
> redirect-server  Redirect server properties
> routing-options  Protocol-independent routing option configuration
> services        Service configuration
> shared          Shared component information
> slot            Component configuration
> snmp            SNMP agent
> subscribers     Subscriber and subscription configuration
> system          System configuration
```

An angle bracket (>) before the statement name indicates that it is a container statement and that you can set values for other statements at levels below it.

The following list shows the statements available at the [edit system ntp] level of configuration mode. This level includes output that shows:

- No angle bracket (>) before the statement name—A leaf statement. You cannot define other statements at hierarchy levels below it.
- Plus sign (+) before the statement name—A statement that can contain a set of values. To specify a set, include the values in brackets.

```
[edit system ntp]
user@host# set ?
Possible completions:
> authentication-key  Configure NTP authentication keys
  boot-server         Server to query during boot sequence
> broadcast           Configure for broadcast mode
  broadcast-client    Listen for NTP broadcasts
> multicast-client    Listen for NTP multicasts
> peer               NTP peer properties
> server             NTP server properties
+ trusted-key         List of trusted authentication keys (1..INF)
```

Listings can also include:

- Asterisk (*) before a statement name—A required statement or option that is not configured.
- Asterisk and Plus (+ *) before a statement name—Required options that can contain a set of values.

When you type a statement, enclose in quotation marks (double quotes) identifiers and any strings that include the following characters: space tab () [] { } ! @ # \$ % ^ & | ' = ?

Privilege Levels for Using Commands and Statements

Each CLI command and each configuration statement has an access privilege level associated with it. Users can execute only those commands and configure and view only those statements for which they have access privileges.

For example, users with **configure** permissions can use the **configure** command to enter configuration mode, and users with **network** permissions can access the network by using the **telnet** and **ssh** commands. The root login account has superuser privileges—with access to all commands and statements.



NOTE: Although **root** has superuser privileges, the editing level for **root** is set to normal.

For information about the editing level, see *Chapter 9, Controlling the SRC CLI Environment*.

Required privilege levels are listed in command and statement summaries. For more information about setting user accounts and privileges, see the *SRC-PE Getting Started Guide, Chapter 19, Configuring User Access*.

Switching Between Operational Mode and Configuration Mode

When you monitor and configure the SRC software, you may need to switch between operational mode and configuration mode. When you change to configuration mode, the command prompt also changes. By default, the operational mode prompt is a right angle bracket (>), and the configuration mode prompt is a pound sign (#).

Switching to Configuration Mode

To enter configuration mode:

- Type the **configure** command or the **edit** command from the CLI operation mode. For example:

```
user@host> configure
Entering configuration mode.
[edit]
user@host#
```

The CLI prompt changes from **user@host>** to **user@host#** and a banner appears to indicate the hierarchy level.

Returning to Operational Mode

You can return to operational mode with or without committing configuration changes. You can enter or exit configuration mode as many times as you wish without committing your changes.

To commit the configuration and exit:

```
[edit]
user@host# commit-and-quit
commit complete
Exiting configuration mode
user@host>
```

To exit without committing:

```
[edit]
user@host# exit
Exiting configuration mode
user@host>
```

If there are changes that have not been committed, the CLI returns a message to that effect:

```
[edit]
user@host# exit
Exiting configuration mode.
The configuration has been changed but not committed.
```

To return to operational mode from any configuration hierarchy level, such as [edit system services]:

```
[edit system services]
user@host# exit configuration-mode

user@host>
```

Running Operational Mode Commands from Configuration Mode

To display the output of an operational mode command, such as `show`, while in configuration mode:

- Issue the `run` configuration mode command, then specify the operational mode command.

```
[edit]
user@host# run operational-mode-command
```

For example, to display the SAE configuration and then check whether the SAE is running:

```
[edit shared sae configuration]
user@host# show
plug-ins {
  pool rksPlugin {
    pcomm-rks {
      load-balancing-mode failover;
```

```

        failback-timer -1;
        retry-interval 3000;
        maximum-queue-length 10000;
        feid-mso-domain-name abcd.com;
        trusted-element;
        default-peer radius01;
        peer-group rksPeer {
            server-address 10.10.3.60;
            server-port 1812;
        }
    }
}
}
driver {
    . . .

```

[edit shared sae configuration]

user@host# **run show component**

Installed Components

Name	Version	Status
cli	Release: 7.0 Build: CLI.A.7.0.0.0171	running
acp	Release: 7.0 Build: ACP.A.7.0.0.0174	disabled
jdb	Release: 7.0 Build: DIRXA.A.7.0.0.0176	running
editor	Release: 7.0 Build: EDITOR.A.7.0.0.0176	disabled
redir	Release: 7.0 Build: REDIR.A.7.0.0.0176	disabled
licSvr	Release: 7.0 Build: LICSVR.A.7.0.0.0179	stopped
nic	Release: 7.0 Build: GATEWAY.A.7.0.0.0170	disabled
sae	Release: 7.0 Build: SAE.A.7.0.0.0166	running
www	Release: 7.0 Build: UMC.A.7.0.0.0169	disabled
jps	Release: 7.0 Build: JPS.A.7.0.0.0172	disabled
agent	Release: 7.0 Build: SYSMAN.A.7.0.0.0174	disabled
webadm	Release: 7.0 Build: WEBADM.A.7.0.0.0173	disabled

Moving Among Hierarchy Levels in the SRC CLI

You can use the CLI commands in Table 5 to navigate the levels of the configuration statement hierarchy.

Table 5: CLI Configuration Mode Navigation Commands

Command	Description
<code>edit hierarchy-level</code>	Moves to an existing configuration statement hierarchy or creates a hierarchy and moves to that level.
<code>exit</code>	Moves up the hierarchy to the previous level where you were working. This command is, in effect, the opposite of the <code>edit</code> command. Alternatively, you can use the <code>quit</code> command. <code>exit</code> and <code>quit</code> are interchangeable.
<code>up</code>	Moves up the hierarchy one level at a time.
<code>top</code>	Moves directly to the top level of the hierarchy.

Displaying SRC CLI Command History

To display a list of recent commands issued:

- In operational mode or configuration mode, use the `history` command.

```
user@host> history
469 show shared sae configuration ldap subscriber-data
  edit shared sae configuration ldap subscriber-data
  set subscription-loading-filter subscriberRefFilter
  set load-subscriber-schedules
  set login-cache-dn
  set session-cache-dn
  set server-address 10.10.10.3
  set dn umc=user
  set password abcde
  set directory-eventing
  set polling-interval 60
  set ldaps
  show
  set login-cache-dn o=Users,<base>
  . . .
```

You can copy a set of commands from the history and paste them into the CLI to execute the commands again.

CLI Support for C-series Controllers and for SRC Software Installed on Solaris Platforms

The CLI lets you manage and monitor a C-series Controller and configure and monitor the SRC software whether it runs on a C-series Controller or a Solaris platform. When the CLI runs on a C-series Controller, it provides system-level commands not available on a Solaris platform.

The CLI lets you perform the following system-level tasks on a C-series Controller:

- Configure and monitor:
 - Juniper Networks database
 - Platform interfaces that provide connectivity from the network to a platform
 - System log server
 - Network time Protocol (NTP)
- Configure system hostname, domain name service, security certificates, incoming SSH connections, incoming Telnet connections, RADIUS and TACACS+ authentication for users who access a C-series Controller
- Manage the system including system disks
- Install, upgrade, and uninstall system software
- View statistics for the Iptables tool

The CLI lets you perform the following tasks on a C-series Controller or for the SRC software installed on a Solaris platform:

- Configure and monitor:
 - ACP
 - JPS
 - NIC
 - Redirect server
 - SAE
 - SNMP agent
- Configure policies, services, subscribers, and subscriptions
- Manage security certificates
- Set the system date through the **set date** command
- View NTP status
- Manage files
- Discover all manageable network elements on a subnet
- Manage CLI settings
- Manage configurations
- Navigate in the CLI
- Work with files
- Configure user access