



CHAPTER 5

Configuration and Management

This module describes how to configure and manage the SM.

- [Information About SM Configuration and Management Methods, page 5-1](#)
- [How to Configure a Subscriber Management Solution, page 5-3](#)
- [How to Use the CLU, page 5-13](#)

Information About SM Configuration and Management Methods

Configure and manage the Subscriber Manager using:

- [Configuration File](#)—Used for configuring the parameters that define the system behavior.
- [Command-Line Utilities](#)—Used mainly for viewing and for subscriber management.

The configuration file and Command-Line Utilities (CLU) give you complete control over the SM; including subscriber management, database management, and SCE network configuration and management.

Configuration File

The SM uses a configuration file, `p3sm.cfg`, located in `~pcube/sm/server/root/config/`. For a detailed description of the configuration file parameters, see [Configuration File Options, page A-1](#).

The configuration file, together with the [Command-Line Utilities](#), is used for configuring all the parameters that define the behavior of the SM application.

The configuration file is comprised of sections with each section identified by a unique name. The name of the section appears in square brackets. For example,

```
[SM General]
```

Each section contains several parameters with each parameter defined as a **key=value** pair. For example,

```
[SM General]
introduction_mode=push
```

Note: The equal sign '=' is a key-value separator used by the configuration file. To use it as part of the value, it must be preceded by a backslash '\'. For example,

```
[Sample Section]
key=value1\=value2
```

The configuration file contains the following types of parameters:

- General, system-wide parameters, such as subscriber state saving, persistency, subscriber introduction mode (Pull mode or Push mode), and topology
- Parameters for handling SM-LEG connection failure
- Parameters for handling SM-SCE connection failure
- Parameters for SCE platform configuration
- Parameters for domain configuration
 - Associating domains and SCE platforms
 - Specifying domain aliases
 - Specifying domain properties
- Auto-logout parameters, for controlling automatic logout of subscribers after timeout
- Parameters for RADIUS Listener configuration
 - Specifying NAS configuration
 - Specifying properties configuration
- Parameters for FTP, HTTP, and PRPC server configuration
- Parameters for Cable Adapter configuration
- Parameters for configuring SM operation with the TimesTen database

Usually, the parameters in the configuration file are specified once when setting up the system, and are valid throughout the system lifetime. To modify the configuration file parameters, edit the file using any text editor and reload it using the CLU (see [Reloading the SM Configuration \(p3sm\), page 5-15](#)). The configuration file can be loaded on starting or restarting the SM and by explicitly running the CLU command.

The configuration file is designed so that the same configuration file can be used in multiple SM applications of a high availability setup. This enables the user to replicate the configuration by simply copying the file from one machine to another.

Command-Line Utilities

The SM provides a set of Command-Line Utilities (CLU), which you use, together with the configuration file, to configure the parameters that might change during the operation of the SM.

The CLU enables the user to configure the SM using shells installed on the machine. CLU commands are executable only when the user is logged in to the machine using the **pcube** user account, which is always installed (see [Installation and Upgrading, page 4-1](#)). The CLU is used mainly for viewing and for subscriber management.

In high availability setups, you cannot use the CLU to perform subscriber management operations on the standby SM. Moreover, the standby SM refreshes the database before performing subscriber display operations, so the operation takes longer (than for the active SM). Therefore, it is recommended to perform all subscriber operations on the active SM.

This module explains how to perform various tasks using the appropriate CLU, but it does not describe the CLU in detail. For a complete, detailed description of the CLU, see [Command-Line Utilities, page 5-3](#).

How to Configure a Subscriber Management Solution

This section explains the procedure for configuring a Cisco Service Control deployment consisting of several SCE platforms and Subscriber Manager (SM) systems in order to make it ready for subscriber integration.

This section uses the terminology and tools explained in previous chapters and, when needed, terms and configuration tools explained in the SCE 1000 and SCE 2000 User Guides.

- [Configuring the Subscriber Management Solution, page 5-3](#)
- [System Configuration Examples, page 5-8](#)

Configuring the Subscriber Management Solution

This configuration procedure applies to a single group, consisting of the following:

- A Subscriber Manager application
- A set of LEG applications or components that connect to this SM
- The SCE platforms that this SM serves

Every subscriber management solution can be divided into such groups, and this procedure can be applied to each of these groups.

Prerequisites

Before configuring any of the components in your subscriber management solution, verify that all the items on the following checklist have been successfully completed:

- The SCE platforms in your network are installed and configured as explained in the SCE 1000 and SCE 2000 User Guides.
- The SM applications in your network are installed as explained in [Installation and Upgrading, page 4-1](#).
- The Cisco Service Control Application for Broadband (SCA BB) is installed on all SCE platforms and SM systems in your network. See the *Cisco Service Control Application for Broadband User Guide* for an explanation of how to install the Service Control Application on the SCE platforms and SM systems.
- The subscriber integration concept has been determined, and an appropriate solution was designed for driving subscriber mappings and policy information into the SM. This can be implemented automatically using a LEG, or manually using the CLU.
- The subscriber introduction mode (push or pull) has been determined for each SM system, based on the number of subscribers that the relevant SCE platforms should be serving.
- The association between SCE platforms and the relevant SM systems has been determined.
- For each SM system, the association between the SCE platforms that it serves and the subscriber domains has been designed.

Step 1 Edit the SM configuration file **p3sm.cfg** according to your system definition, and reload it using the **p3sm --load-config** command.

Step 2 Configure the SCE platform repository

Use the **p3net** CLU command to verify the connection state of each SCE Platform that should be provisioned by the SM.

After the physical installation of an SCE platform (by being connected to the management network), it must be explicitly added to the SM list, or repository, of existing SCE platforms before the SM will recognize it. Conversely, after the removal of an SCE platform from that list, the SM will no longer recognize it, even though it is still physically connected.

Each SCE.XXX section defines the following configuration parameters that represent a single SCE platform, where XXX represents the SCE logical name:

- **ip**
Defines the IP address of a standalone SCE device or the two IP addresses of a cascade SCE pair.
- **port**
Defines the port through which to connect to the SCE platform. The default is 14374.

To view the SCE platforms, use the **p3net** CLU. See [Information About the p3net Utility, page B-15](#).

For further information, see [SCE.XXX Section, page A-15](#).

- a. Configure the SCE.XXX sections to add the SCE Platform to the repository.
- b. Load the SCE configuration to the SM using the **p3sm** CLU.

```
p3sm --load-config
```

- c. Verify that the SCE platform was successfully connected.

```
p3net --show
```

- d. Verify your configuration when you are finished.

```
p3net --show-all
```

Step 3 Configure the domains

Use the **p3domains** command to verify the domain configuration and that the SCE platforms are set to these domains.

When a system has more than one SCE platform, they can be configured into groups, or domains. A subscriber domain is one or more SCE platforms that share a specified group of subscribers. Before adding an SCE platform to a domain, you must add the SCE platform to the SCE platform repository.



Note

The SM is preconfigured with a single subscriber domain called *subscribers*.

Each Domain.XXX section specifies the elements (SCE platforms), aliases, and properties for one domain. It contains the following parameters:

- `elements=<logical_name1[,logical_name2,...]>`

Specifies the names of the SCE platforms that are part of the domain.

- `aliases=alias_name1[,alias_name2,...]`

Defines domain aliases. When subscriber information is received from the LEG with one of the aliases (for example, **alias1**), the information is distributed to the domain that matches this alias (for example, **domain_name1**). A typical alias could be a network device IP address, where, for example, each string in the values can be the IP address of a NAS or a CMTS.



Note

Each alias (for example, `alias_name1`) can only appear in *one* [Domain.XXX] section.

- The specification **aliases=*** means that every subscriber that does not have a domain will be put in this domain.



Note

Only one domain at any given time may specify this option (**aliases=***).

- `property.<name1>=<value1>[,property.<name2>=<value2>,...]`

Defines the default policy property values for a domain. Unless the LEG/API overrides these defaults when it introduces the subscriber to the SM, the subscriber policy is set according to the default policy property values of its domain. Property values must be integers.

To view the domains, use the **p3domains** CLU. See [Information About the p3domains Utility, page B-9](#).

For further information, see [Domain.XXX Section, page A-6](#).

Step 4 Configure the SM General section

This section of the configuration file is relevant to any deployment topology. It addresses the following system-wide parameters:

- `introduction_mode`
Defines whether the SM introduces the subscribers to the SCE platforms immediately after a login operation (Push mode), or only when the SCE requests the subscriber specifically (Pull mode).
- `application_subscriber_lock`
Defines whether to lock subscriber-related operations (login, logout, etc.) at the application level. Set this flag to true in the cases when several LEG components can update subscribers simultaneously.
- `force_subscriber_on_one_sce`
Defines whether the SM supports the solution where a Cisco 7600/6500 is used for load-balancing among several SCE platforms. In this solution, when one SCE platform fails, subscriber traffic is redistributed to a different SCE platform. The SM must remove these subscribers from the failed SCE platform and send the relevant subscriber information to the new SCE platform. This parameter is relevant only in the Pull mode.
- `logon_logging_enabled`
Defines whether to enable the logging of subscriber logon events.

To view the SM settings, use the `p3sm` CLU. See [Information About the p3sm Utility, page B-19](#).

**Note**

Setting `logon_logging_enabled` to `true` will cause performance degradation. For additional information, see [SM General Section, page A-2](#).

Step 5 Configure the Data Repository section

The Data Repository section defines the SM operation with the TimesTen In-Memory Database, via the following parameters:

- `support_ip_ranges`
Defines whether the SM supports IP-Ranges.

**Note**

Disabling this support provides better performance.

- `checkpoint_interval_in_seconds`
Defines the interval, in seconds, for calling the TimesTen checkpoints. Reducing the value affects performance, increasing the value increases vulnerability to power-down.
- `max_range_size`
Determines the maximum IP range size used in the system. This parameter is used for improving performance of the SM in Pull mode when the **[Data Repository]** section is configured with `support_ip_ranges=yes`.

**Note**

Defining this parameter with too large a value may cause performance degradation in handling pull requests.

For further information, see [Data Repository Section, page A-18](#).

Step 6 Configure the **High Availability** section

The **High Availability** section defines in what kind of topology the SM should work, via the parameter:

- topology

Defines in what kind of topology the SM should work (cluster or standalone).

For further information, see [SM High Availability Setup Section, page A-4](#).

Step 7 Import subscribers to the SM from a CSV file.

This step should be performed only when using manual integration, or when performing a setup prior to the beginning of the automatic integration.

A csv file is a simple text file where each line consists of comma-separated values. Because each line may contain subscriber properties, which are application dependant, the documentation of the application that you installed on your system describes the format of a csv import file.

In most cases, when importing csv files, you should use the **p3subsdB --import** CLU command. When integrating with a cable AAA system and working in the CPE as Subscriber mode (see [CPE as Subscriber in Cable Environment, page C-1](#)), importing cable modems requires the **p3cable --import-cm** CLU command.

Step 8 Configure the SCE platforms

This step should be performed only when using the Pull mode to introduce subscribers, or when performing a special operation on SM-SCE connection failure. Use the SCE platform Command-Line Interface (CLI) to configure several configuration parameters, as discussed below.

Configuring these parameters ensures that the SCE platform correctly applies appropriate defaults to subscribers in the period between subscriber detection and pull response (for unmapped subscribers). For additional details, see the SCE 1000 or SCE 2000 User Guides.

- Anonymous groups and subscriber templates

When the SCE platform encounters network traffic that is not classified to any introduced subscriber, it checks whether the mapping of the unfamiliar subscriber belongs to one of the anonymous groups. If the subscriber belongs to an anonymous group, a new anonymous subscriber is created, and a request for an updated subscriber record is sent to the SM. The properties of the anonymous subscriber are taken from the subscriber template that is assigned to the newly created subscriber anonymous group.

- Anonymous subscriber groups

An anonymous group is a specified IP range, possibly assigned a subscriber template (defined in the next section). If a subscriber template has been assigned to the group, the anonymous subscribers generated have subscriber properties as defined by that template. If no subscriber template has been assigned, the default template is used.

Use the appropriate CLI commands to import anonymous group information from a csv file, or to create or edit these groups explicitly.

- Subscriber templates

Values for various subscriber properties for unmapped or anonymous subscriber groups are assigned in the system based on subscriber templates. A number from 0 to 199 identifies subscriber templates. CSV formatted subscriber template files define the subscriber templates 1 to 199. However, template 0 cannot change; it always contains the default values. If a template is not explicitly assigned to an anonymous group, the group uses template 0.

Use the appropriate CLI commands to import subscriber templates from a csv file, or edit these templates from the command line. Additionally, use the appropriate CLI commands to assign subscriber templates to the anonymous groups.

- Subscriber aging parameters

To prevent SCE capacity problems in Pull mode, configure the aging of introduced subscribers. The aging parameter defines a timeout, and any subscriber that does not generate traffic during this timeout interval will be automatically logged out from the SCE.

- SM-SCE connection failure

To prevent incorrect classification of a subscriber's traffic during a lengthy connection failure between the SM and the SCE, configure the SM connection failure parameters.

The SCE has several alternatives for connection failures handling:

- The SCE can clear the mappings of all of the subscribers
 - The SCE can put the line in cut-off mode
 - The SCE does nothing
- The timeout between the connection detection and actually performing the operation is also configurable.
-

System Configuration Examples

This section presents and explains common subscriber management scenarios, including the correct configuration parameters for these scenarios. The following scenarios are described:

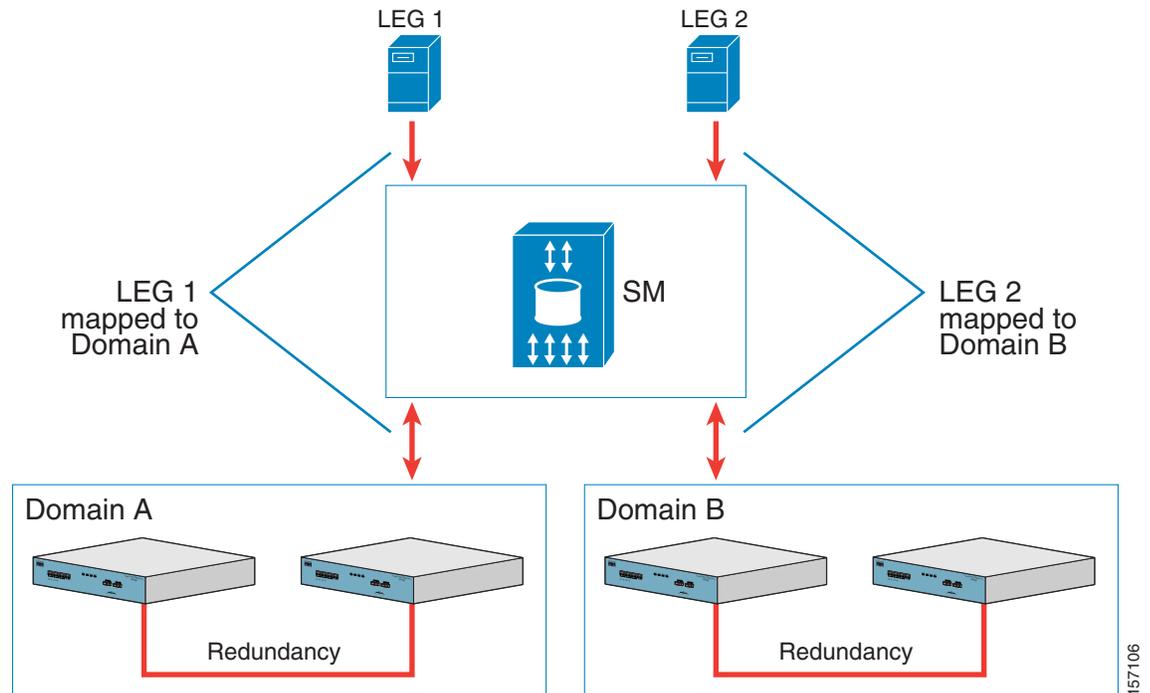
- Automatic introduction of subscribers, with Push mode and fail-over of SCE platforms
- Manual introduction of subscribers with Pull mode
- SM fail-over scenario

Automatic Introduction of Subscribers, with Push Mode and Fail-Over of SCE Platforms: Example

This example assumes the following:

- Automatic introduction of subscribers, that is, a provisioning system of an AAA system introduces the subscribers. This example assumes that integration with a DHCP server allows automatic introduction of subscribers to the SM.
- The SM is operating in Push mode.
- The application that is used includes states that should be preserved such as volume quotas states in the Service Control Application for Broadband (SCA BB).

Figure 5-1 Cable Topology with Automatic Integration with a DHCP Server, Push Mode, and Fail-Over of SCE Platforms



Note

Ensure that everything is properly installed before proceeding with configuring the SM.

The following general steps describe how to configure the SM for this scenario:

1. Edit the SM configuration file to add the SCE devices to the SCE device repository and group the SCE devices to domains as depicted in [Figure 5-1](#)
2. Edit the SM configuration file as displayed in [Table 5-1](#).
3. Reload the SM configuration file using the **p3sm** CLU.
4. Import the cable modems to the SM database using the **p3cable** CLU.

This scenario does not need an SCE platform configuration.

Table 5-1 Configuration File Parameters for Automatic Integration with Push Mode in a Cable Environment

Section and Parameter	Value and Description
SM General	
introduction_mode	push
High Availability Setup	
topology	standalone The value should be set to standalone because the described scenario has just one SM.
SM-LEG Failure Handling	
timeout	300 seconds (more tolerance may be advisable for SM-LEG failures in actual configurations)
clear_all_mappings	true The value should be set to true because under the scenario conditions (automatic integration in cable environment), subscribers are likely to change their state or to logout from the SCE during an SM-LEG connection failure. You would therefore like to clean their mappings when the SM and LEG are connected again.
LEG-Domain Association	
<LEG name>	Define associations between LEGs and domains LEG-Domain associations should be defined in order that all subscriber mappings will be cleared on SM-LEG disconnection. If no association is defined, subscriber mappings will not be cleared (the clear_all_mappings value will be ignored).
Default Domains Configuration	
property	None Configure the policy here if all domains in the system have the same policy.
Domain.XXX	
aliases	Define aliases, to facilitate working in cable environment Define aliases if working with LEGs that are not aware of system domains. Alternatively, you can define domains with names that match values produced by LEGs.
property	None Configure the policy here only if you want it to be applied to all subscribers in the domain.
allow_dynamic_CM	no The value should be set to no in order to prevent uninstalled CMs from using the network.

Table 5-1 Configuration File Parameters for Automatic Integration with Push Mode in a Cable Environment (continued)

Section and Parameter	Value and Description
Auto Logout	
auto_logout_interval	60 minutes Auto-logout should be activated assuming that the AAA system cannot provide logout events, which is true in cable environments. The value defined here should be smaller than the CPE lease time in this cable environment.
grace_period	10 seconds You should define a relatively high value to eliminate mistakes because of management network delays.
max_rate	100 logouts per second You should define a value similar to the max-login rate to the SM.

Manual Introduction of Subscribers with Pull Mode: Example

This example assumes the following:

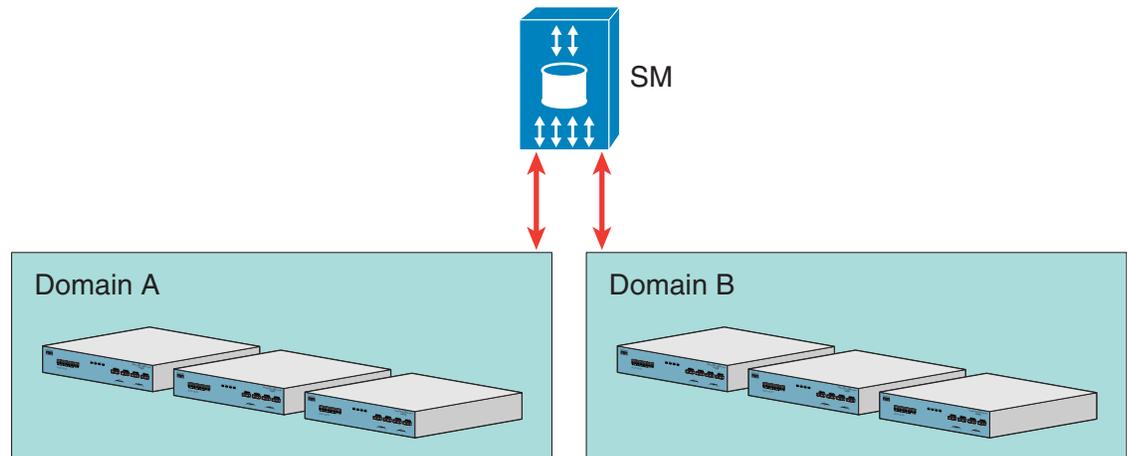
- Manual introduction of subscribers
- Pull mode
- Application that does not require preserving state



Note

Ensure everything is properly installed before proceeding with configuring the SM.

Figure 5-2 Topology with Manual Introduction of Subscribers and Pull Mode



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The following general steps describe how to configure the SM for this scenario:

1. Edit the SM configuration file to add the SCE devices to the SCE device repository and group the SCE devices to domains as depicted in [Figure 5-2](#)
2. Edit the SM configuration file as displayed in [Table 5-2](#).
3. Reload the SM configuration file using the **p3sm** CLU.
4. Import the subscribers to the SM database using the **p3subsdb** CLU (required for manual integration; there is no other way to bring subscribers into the SM.)
5. Use the SCE platform CLI to configure the system for Pull mode:
 - Subscriber templates—In accordance with application
 - Anonymous groups—In accordance with your network and subscribers
 - Introduced subscriber aging—In accordance with your network and IP address allocation scheme

Table 5-2 Configuration File Parameters for Manual Integration with Pull Mode

Section and Parameter	Value and Description
SM General	
<code>introduction_mode</code>	pull
High Availability Setup	
<code>topology</code>	standalone The value should be set to standalone because the described scenario has just one SM.
SM-LEG Failure Handling	
<code>timeout</code>	Not applicable—No LEGs are involved in the scenario (use default—60 seconds)
<code>clear_all_mappings</code>	Not applicable—No LEGs are involved in the scenario (use default—no action)
LEG-Domain Association	
<LEG name>	Not applicable—No LEGs are involved in the scenario (Use default—no mappings)
Default Domains Configuration	
<code>Default policy (property.XXX)</code>	None Configure the policy here if all domains in the system have the same policy.
Domain.XXX	
<code>aliases</code>	Not applicable (use default—none)
<code>property.XXX</code>	None Configure the policy here only if you want it to be applied to all subscribers in the domain.
<code>allow_dynamic_CM</code>	Not applicable—valid for cable environment only (use default – no)
Auto Logout	

Table 5-2 Configuration File Parameters for Manual Integration with Pull Mode (continued)

Section and Parameter	Value and Description
auto_logout_interval	Not applicable (use default—0)
grace_period	Not applicable (use default—10)
max_rate	Not applicable (use default—50)

SM Fail-over Configuration (General): Example

When using a set-up with SM fail-over (based on two SM nodes connected in a cluster), the configuration is identical to the regular configuration, with one exception:

- The topology parameter in the [SM High Availability Setup Section](#) should be set to cluster for both SM machines.

Other than that, SM fail-over configuration is performed normally via the `p3sm.cfg` configuration file. Manually copy the configuration file from the active SM to the standby SM.

For additional information of how to configure the VCS, see [Veritas Cluster Server, page E-1](#).

How to Use the CLU

This section introduces the Command-Line Utilities (CLU), and describes how to use the CLU for viewing, subscriber management, and other tasks when working with the SM.



Note

Some of the CLU operations and options can be specified by abbreviations. For this and additional information about the CLU, see [Command-Line Utilities, page B-1](#).

The procedures explained in the following sections invoke the following CLU commands:

```
p3batch
p3cable
p3clu
p3cluster
p3db
p3domains
p3inst
p3log
p3net
p3radius
p3rpc
p3sm
p3subs
p3subsdb
p3vpn
```

- [Informative Output](#), page 5-14
- [Parsing CLU Operations and Options](#), page 5-14
- [Reloading the SM Configuration \(p3sm\)](#), page 5-15
- [Managing the SM \(p3sm\)](#), page 5-16
- [How to Manage Subscribers, Mappings, and Properties \(p3subs\)](#), page 5-16
- [Managing VPN Entities \(p3vpn\)](#), page 5-18
- [Managing the Subscriber Database \(p3subsdB\)](#), page 5-19
- [Viewing and Connecting Network Elements \(p3net\)](#), page 5-19
- [Viewing Subscriber Domains \(p3domains\)](#), page 5-20
- [Managing the Cable Support Module \(p3cable\)](#), page 5-20
- [Installing an Application \(p3inst\)](#), page 5-21
- [Viewing Information of the PRPC Interface Server \(p3rpc\)](#), page 5-22
- [Managing a Cluster of Two SM Nodes \(p3cluster\)](#), page 5-22
- [Managing the User Log \(p3log\)](#), page 5-22
- [Viewing Statistics of the RADIUS Listener \(p3radius\)](#), page 5-23
- [Utilities](#), page 5-23

Informative Output

All CLU commands support the following operations for informative output:

Operation	Description
<code>--help</code>	Prints the help for the specified CLU command, then exits.
<code>--version</code>	Prints the SM program version number, then exits.

Parsing CLU Operations and Options

Place in quotation marks a command operation or option containing any of the following characters:

- A space character
- A separation sign (comma “,”; ampersand “&”; colon “:”)
- An escape character (backslash “\”)

A command operation or option that contains any of the following characters must have that character preceded by an escape character:

- An equal sign (=)
- A quotation mark (“ or ”)
- An escape character (backslash “\”)

The following table shows several examples of the above rules:

Operation/option contains the character	Example of how operation/option should be written
Space character	--property="file name"
Escape character (backslash "\")	--property="good\\bad"
Equal sign (=)	--property="x=y"
Quotation marks (" or ")	--name="\myQuotedName\" (in the above example, inner quotation marks are escaped)
Separation characters	
comma (,)	--names="x,y"
ampersand (&)	--names="x&y"
colon (:)	--names="myHost:myDomain"

One-letter abbreviations are available for some of the operations and options. For example, **-d** is an abbreviation for **--domain**. Note that only one hyphen (-), not two, precedes the letter for an abbreviation, and that if the operation or option takes a parameter, there is a space and not an equal sign before the parameter.

Example of using full name	--domain=subscribers
Example of using abbreviated name	-d subscribers

The abbreviations are useful if you want to specify an expression to be expanded by the UNIX shell, for example:

<code>p3subsdB --import -f ~pcube/file.csv</code>	~pcube will be expanded by the UNIX shell
---	---

Reloading the SM Configuration (p3sm)

Use the **p3sm** utility to configure the SM by reloading the SM configuration file **p3sm.cfg**. Use any standard text editor to edit the configuration file.

Step 1 From the shell prompt, type:

```
p3sm --load-config [ --ignore-warnings ] [ --remote=OTHER_SM_IP[:port] ]
```

The configuration file is loaded, and the SM configuration updated accordingly.

The **--remote** option loads the configuration first to the local SM, and afterward to the remote SM (in High Availability setups).

Managing the SM (p3sm)

Use the `p3sm` utility to manage the SM on an ongoing basis. The `p3sm` utility enables you to start, stop, and resynchronize the SM.

-
- Step 1** From the shell prompt, enter a command of the format `p3sm operation [--ne-name=SCE NAME]`
For a full list of `p3sm` operations and options, see [Information About the p3sm Utility, page B-19](#).
-

Examples for Managing the SM

- [Stopping and Restarting the Server: Example, page 5-16](#)
- [Resynchronizing an SCE: Example, page 5-16](#)
- [Extracting Support Information: Example, page 5-16](#)

Stopping and Restarting the Server: Example

This example shows how to stop the server operation and then restart it.

```
p3sm --restart
```

Resynchronizing an SCE: Example

This example shows how to resynchronize an SCE whose logical name is `SCE_1000A`.

```
p3sm --resync --ne-name=SCE_1000A
```

Extracting Support Information: Example

This example shows how to extract the SM support information to a file named `support.zip`.

```
p3sm --extract-support-file --output=support.zip
```

How to Manage Subscribers, Mappings, and Properties (p3subs)

Use the `p3subs` utility to manage specific subscribers. You can add or remove subscribers. You can also manage subscriber properties and mappings with this utility.

- [Managing Subscribers, Mappings, and Properties \(p3subs\), page 5-17](#)
- [Examples for Managing Subscribers, Mappings, and Properties, page 5-17](#)

Managing Subscribers, Mappings, and Properties (p3subs)

Step 1 From the shell prompt run the **p3subs** CLU command.

The command should be in the following general format:

```
p3subs operation --subscriber=Subscriber-Name [--ip=IP-address@VPN-NAME]
[--vpn=VPN-NAMES-LIST] [--community=AS:value@VPN-NAME] [--property=property-name=value]
[--domain=domain-name] [--overwrite]
```

The subscriber on whom the operation is to be performed is specified by using the format **--subscriber=subscriber-name**. A mapping (IP address), property, or domain, if specified, uses the format displayed.



Note

If a domain is not specified, the subscriber is added to the default *subscribers* domain.

For a full list of **p3subs** operations and options, see [Information About the p3subs Utility, page B-23](#).

Examples for Managing Subscribers, Mappings, and Properties

Managing Subscribers

The following examples show how to manage subscribers.

Example 1:

The following example shows how to add a subscriber with the specified IP address.

```
p3subs --add --subscriber=jerry --ip=96.142.12.7
```

Example 2:

The following example shows how to overwrite subscriber information. Because the subscriber named “jerry” already exists, the add operation would fail; however, the overwrite option allows the IP address to be overwritten.

```
p3subs --add --subscriber=jerry --ip=96.128.128.42 --overwrite
```

Managing Mappings

This example shows how to remove all the mappings for a specified subscriber.

```
p3subs --remove-all-mappings --subscriber=jerry
```

Mappings Specification

You can specify the following mapping types for each subscriber:

- IP address or range—Use the **--ip-address** option. For an IP address, use the dotted notation. A range is used to specify several consecutive mappings, for example, the notation 1.1.1.0/30 is used to specify the IP addresses 1.1.1.0 to 1.1.1.3. You can specify multiple mappings by using a comma.



Note

You cannot specify different types of mappings for the same subscriber.

Managing Properties

The application property names depend on the application running on your system. To find descriptions of the application property names and values, see the documentation provided with the application installed on your system.

This example shows how to set a property value for a specified subscriber.

```
p3subs --set --property=packageId=1 --subscriber=jerry
```

Clearing the Subscriber Applicative State

This example shows how to clear the applicative state of the specified subscriber. Note that this command clears only the backup copy at the SM. It does not clear the applicative state record in the SCE platform.

```
p3subs --clear-state --subscriber=jerry
```

Managing VPN Entities (p3vpn)

Use the **p3vpn** utility to manage VPNs. You can add or remove VPNs.

Step 1 From the shell prompt run the **p3vpn** CLU command.

The command should be in the following general format:

```
p3vpn operation [--vpn=VPN-NAME] [--mpls-vpn=RT@PE,...] [--vlan=VLAN-ID]
[--domain=domain-name]
```

For a full list of **p3vpn** operations and options, see [Information About the p3vpn Utility, page B-30](#).

Examples for Managing VPN Entities

Insertion of a VPN Using a VLAN-ID: Example

This example shows how to add a VPN with the specified VLAN.

```
p3vpn --add -vpn=myVpn --vlan-id=10
```

Insertion of a VPN Using MPLS/VPN: Example

This example shows how to add a VPN with the specified MPLS/VPN mappings.

```
p3vpn --add --vpn=myVpn --mpls-vpn=1:100@96.142.12.7
```

Managing the Subscriber Database (p3subsdB)

Use the **p3subsdB** utility to manage the SM database. You can import subscriber information for a group of subscribers from a CSV file into the SM database. You can also export subscriber information from the SM database to a CSV file.

**Note**

The format of the CSV file depends on the application. The documentation of a specific application specifies the CSV file format for that application.

For a full list of **p3subsdB** operations and options, see [Information About the p3subsdB Utility, page B-27](#).

Step 1

From the shell prompt, enter a command of the format **p3subsdB operation** [--domain=*domain-name*] [*filename*]

Examples for Managing the Subscriber Database

List all Subscribers: Example

This example shows how to list all subscribers in a specified domain.

```
p3subsdB --show-domain --domain=mainDomain
```

Importing Subscribers from a CSV File: Example

This example shows how to import subscribers from the specified CSV file.

```
p3subsdB --import --file=goldSubscriberFile.csv
```

Exporting Subscribers to a CSV File: Example

This example shows how to export subscribers with filtering options to a specified CSV file.

```
p3subsdB --export --prefix=a --output=silverSubscriberFile.csv
```

Viewing and Connecting Network Elements (p3net)

Use the **p3net** utility for viewing the connection status of network elements and trying to reconnect disconnected elements.

For a full list of **p3net** operations and options, see [Information About the p3net Utility, page B-15](#).

Step 1

From the shell prompt, enter a command of the format **p3net operation** [--ne-name=*logical-name*]

Example:

The following example shows how to display a network element's connection status.

```
p3net --show --ne-name=mainNE
```

Viewing Subscriber Domains (p3domains)

Use the **p3domains** utility for viewing the subscriber domains. As explained in [Introducing the Subscriber Manager](#), subscriber domains are groups of SCE devices that serve the same subscribers.

For a full list of **p3domains** operations and options, see [Information About the p3domains Utility](#), page B-9.

Step 1 From the shell prompt, enter a command of the format **p3domains operation** [--domain=*domain-name*]

Managing the Cable Support Module (p3cable)

Managing the Cable Support Module

In the cable environment, the SM supports two modes of operation: CM as Subscriber and CPE as Subscriber, as described in [CPE as Subscriber in Cable Environment](#), page C-1.

This section only discusses the support of the *CPE as Subscriber* mode. In this mode, the CPE is modeled as the subscriber, and it inherits its policy and domain from the cable modem (CM) through which it connects to the network. Each cable modem is linked with one or more CPEs. (For background information about special characteristics of the *CPE as Subscriber* mode in the cable environment, see [CPE as Subscriber in Cable Environment](#), page C-1).

Use the **p3cable** utility commands to import cable modem information from a CSV file to the SM, and to export the cable modem information from the SM to a CSV file. You can also use this utility to clear the repository of all cable modems, and to show whether to allow or deny the login of CPEs that belong to unfamiliar cable modems; i.e., cable modems that do not exist in the SM database. However, for specifying whether to allow or deny such a login, use the [Cable Adapter Section](#) section of the **p3sm.cfg** configuration file.

For a full list of **p3cable** operations and options, see [Information About the p3cable Utility](#), page B-5.

Step 1 From the shell prompt, enter a command of the format **p3cable operation** [--cm=*CM-name*]
[*filename*] [*other CM options*]

Examples for Managing the Cable Support Module

Importing Cable Modems from a CSV File: Example

This example shows how to import cable modems from a CSV file.

```
p3cable --import-cm --file=CMFile.csv
```

Clearing the Repository: Example

This example shows how to clear the repository of all cable modems:

```
p3cable --clear-all-cm
```

Displaying the Login Status of CPEs: Example

This example shows how to display login status (allow/deny) of CPEs that belong to cable modems that do not exist in the SM database:

```
p3cable --show-dynamic-mode
```

Installing an Application (p3inst)

Use the **p3inst** utility to install or uninstall an application (pqi file). You can install an application on the SM to customize the components. You can also upgrade an existing application to a new version, or uninstall a previously installed application.

For a full list of **p3inst** operations and options, see [Information About the p3inst Utility, page B-12](#).

Step 1 From the shell prompt, enter a command of the format **p3inst operation [file options]**
[installation/upgrade parameters]

Examples for Installing an Application

Installing a File: Example

This example shows how to install the specified installation file.

```
p3inst --install --file=myInstallation.pqi
```

Uninstalling a File: Example

This example shows how to uninstall the specified installation file.

```
p3inst --uninstall --file=oldInstallation.pqi
```

Viewing Information of the PRPC Interface Server (p3rpc)

Cisco provides a proprietary RPC (Remote Procedure Call) interface to the SM. Use the **p3rpc** utility to view the configuration and statistics of the PRPC server.

For a full list of **p3rpc** operations and options, see [Information About the p3rpc Utility, page B-17](#).

Step 1 From the shell prompt, enter a command of the format **p3rpc operation**

Examples for Viewing Information of the PRPC Interface Server

This example displays the statistics of the PRPC server.

```
p3rpc --show-statistics
```

Managing a Cluster of Two SM Nodes (p3cluster)

Use the **p3cluster** utility to view the redundancy state of the SM and its components. This utility also supports operations that alter the redundancy state of the SM. These operations are used by the SM Cluster Agent and for administrative tasks.

For a full list of **p3cluster** operations and options, see [Information About the p3cluster Utility, page B-7](#).

Step 1 From the shell prompt, enter a command of the format **p3cluster operation**

Examples for Managing a Cluster of Two SM Nodes

This example displays the redundancy status of the SM and its components.

```
p3cluster --show
```

Managing the User Log (p3log)

Use the **p3log** utility to configure and manage the user log. All user-related events and errors are directed to the SM user log. You can extract the contents of the user log to a specified file in order to read and save its contents. You can also clear the user log.

For a full list of **p3log** operations and options, see [Information About the p3log Utility, page B-14](#).

Step 1 From the shell prompt, enter a command of the format **p3log operation**

Examples for Managing the User Log

This following example displays how to extract the user log to a specified file.

```
p3log --extract --output=myfile
```

Viewing Statistics of the RADIUS Listener (p3radius)

Use the **p3radius** utility to view the statistics of the RADIUS Listener LEG. For information about this CLU, see the *Cisco SCMS SM RADIUS Listener LEG Reference Guide*.

Step 1 From the shell prompt, enter a command of the format **p3radius operation**

Utilities

This section describes the following:

- [Running a Batch File \(p3batch\)](#), page 5-23
- [Printing General Help About CLU Commands \(p3clu\)](#), page 5-23
- [Database Operations](#), page 5-24

Running a Batch File (p3batch)

Use the **p3batch** utility to run a batch file and execute its commands. Using any text editor, you can create a batch file that contains a series of CLU commands, one command per line. This operation (**p3batch**) enables you to run multiple operations on a single connection to the SM.

For a full list of **p3batch** operations and options, see [Information About the p3batch Utility](#), page B-4.

Step 1 From the shell prompt, enter a command of the format **p3batch [file-options] [error-options]**

Examples for Running a Batch File

Running a Batch File (Halt on Error): Example

This example shows how to run a batch file that will halt if an error occurs.

```
p3batch --file=mainBatchFile.txt
```

Running a Batch File (No Halt on Error): Example

This example shows how to run a batch file that will not halt if an error occurs.

```
p3batch --file=mainBatchFile.txt --skip-errors
```

Printing General Help About CLU Commands (p3clu)

Use the **p3clu** utility to print a list of all supported CLU utilities and operations.

Step 1 From the shell prompt, type **p3clu --help**
All CLU commands will be printed.

Database Operations

Use the **p3db** utility to manage and monitor the TimesTen database. The CLU exposes capabilities of the some of TimesTen CLUs with respect to specific needs of the SM.

For a full list of **p3db** operations and options, see [Information About the p3db Utility, page B-7](#).

Step 1 From the shell prompt, enter a command of the format **p3db operation [options]**

Examples for Database Operations

This example shows how to request the status of the replication agent, and also lists a typical response:

```
p3db --rep-status
Peer name          Host name          Port    State  Proto
-----
PCUBE_SM_REPOSITORY SM_REP1           Auto    Start   11
Last Msg Sent Last Msg Recv Latency TPS      RecordsPS Logs
-----
00:00:02      00:00:00          1.15   2723    5447   1
the subscriber DB is ok
Command terminated successfully
```