Subscribers and Subscription Management
Table of Contents

About the Documentation ................................................. xi
  Documentation and Release Notes ................................... xi
  Documentation Conventions .......................................... xi
  Documentation Conventions ........................................... xii
  Documentation Feedback ............................................. xiv
  Requesting Technical Support ...................................... xv
    Self-Help Online Tools and Resources ............................ xv
    Opening a Case with JTAC .......................................... xv

Part 1  Overview

Chapter 1  Overview of Subscribers and Subscriptions ................. 3
  Subscribers Overview .................................................. 3
  Subscriptions Overview ................................................. 4
  Enterprise Subscriber and Subscription Hierarchy ................. 4
    Enterprise Subscription Hierarchy ................................ 6
  Managers Overview ...................................................... 6
    Read Privileges ........................................................ 6
    Management Privileges ................................................ 6
    Managers That Control All Retailers ............................... 7

Chapter 2  Overview of Subscriber Logins and Service Activation .... 9
  Login Events and Processes Overview ................................ 9
  Login Events .................................................................. 10
  Summary of the Login Process ......................................... 11
  Residential Subscriber Login and Processes ....................... 11
  PPP Subscriber Login and Service Activation ..................... 13
    Web Login for PPP Subscribers ..................................... 13
    PPP Login Interactions ................................................. 14
    PPP Logout Interactions .............................................. 15
  DHCP Subscriber Login and Service Activation .................... 17
    Interface Startup ....................................................... 17
    Initial Login ............................................................. 17
    Initial DHCP Login Interactions ..................................... 18
    DHCP Login to Subscriber Account Interactions ................. 19
    Persistent DHCP Subscriber Login Interactions ................ 21
    DHCP Subscriber Logout Interactions .............................. 22
  Static IP Subscribers .................................................... 24
    Single PC, IP Address Known ........................................ 24
    Subscriber IP Address Not Known .................................. 25
Subscribers and Subscription Management

Part 2 Configuration

Chapter 3 Configuration Tasks for Subscribers and Subscriptions

Enterprise Subscriber Login Process ........................................ 26
Interface Startup ................................................................. 26
Subscriptions and Activations .................................................. 27
Subscription Activation Interactions ........................................ 29
Subscription Deactivation Interactions ..................................... 31
Automatic Activation at Login .................................................. 32
Enterprise-Specific Remote Session Activation .......................... 33

Configuring Subscribers and Subscriptions Overview ............... 38
Specifying the Activation Order for Subscriptions .................... 38
Inheritance of Properties and Subscriptions ............................. 38
Enabling the Subscriber and Subscription Configuration (SRC CLI) ........................................ 39
Enabling the Subscriber and Subscription Configuration (C-Web Interface) ................................. 39
Adding Subscribers (SRC CLI) ................................................. 40
Adding Subscribers (C-Web Interface) ..................................... 40
Adding Retailers (SRC CLI) ..................................................... 41
Adding Retailers (C-Web Interface) ........................................ 43
Configuring Administrative Information for Retailers (SRC CLI) ........................................ 43
Configuring Administrative Information for Retailers (C-Web Interface) ........................................ 44
Adding Subscriber Folders (SRC CLI) ...................................... 45
Adding Subscriber Folders (C-Web Interface) .......................... 46
Adding Residential Subscribers (SRC CLI) ................................ 47
Adding Residential Subscribers (C-Web Interface) ................... 50
Configuring Administrative Information for Residential Subscribers (SRC CLI) ........................................ 50
Configuring Administrative Information for Residential Subscribers (C-Web Interface) ................................. 52
Adding Enterprises (SRC CLI) ............................................... 53
Adding Enterprises (C-Web Interface) .................................... 54
Configuring Administrative Information for Enterprise Subscribers (SRC CLI) ........................................ 55
Configuring Administrative Information for Enterprise Subscribers (C-Web Interface) ................................. 56
Adding Sites (SRC CLI) ....................................................... 57
Adding Sites (C-Web Interface) ............................................. 58
Adding Devices as Subscribers (SRC CLI) ............................... 58
Adding Devices as Subscribers (C-Web Interface) .................... 60
Adding Managers (SRC CLI) ............................................... 61
Adding Managers (C-Web Interface) ..................................... 63
Configuring Subscriptions (SRC CLI) ...................................... 63
Configuring Subscriptions (C-Web Interface) .......................... 66
Configuring Accesses (SRC CLI) .......................................... 67
Configuring Accesses (C-Web Interface) ............................... 70
Chapter 4

Configuration Tasks for Subscriber-Related Properties on the SAE

Configuring the Length of Time MAC Addresses Remain in SAE Cache (SRC CLI) ........................................ 73
Configuring the Length of Time That MAC Addresses Remain in SAE Cache (C-Web Interface) ......................... 75
Identifying a Profile for Unauthenticated Subscribers (SRC CLI) .......................................................... 75
Identifying a Profile for Unauthenticated Subscribers (C-Web Interface) .................................................... 76
Configuring Interim Accounting for Services and Subscribers (SRC CLI) .................................................. 77
Configuring Interim Accounting for Services and Subscribers (C-Web Interface) ......................................... 78
Avoiding Overcharges for Sessions That Time Out (SRC CLI) .......................................................... 79
Avoiding Overcharges for Sessions That Time Out (C-Web Interface) .................................................... 79
Allowing Multiple Logins from the Same IP Address (SRC CLI) .......................................................... 80
Allowing Multiple Logins from the Same IP Address (C-Web Interface) ................................................ 81
Authenticating Registered Username/Password Pairs (SRC CLI) .......................................................... 82
Authenticating Registered Username/Password Pairs (C-Web Interface) ................................................ 82
Configuring Timers for Session Reactivation (SRC CLI) .......................................................... 83
Configuring Timers for Session Reactivation (C-Web Interface) .......................................................... 84

Part 3

Administration

Chapter 5

Monitoring Subscriber Sessions ................................................. 87
Viewing Login Registrations (SRC CLI) ........................................... 87
Viewing Login Registrations (C-Web Interface) ............................ 88
Viewing General Information About Subscriber Sessions (SRC CLI) .................................................. 89
Viewing Information About Subscriber Sessions by DN (SRC CLI) .................................................. 90
Viewing Information About Subscriber Sessions by DN (C-Web Interface) ............................................. 92
Viewing Information About Subscriber Sessions by IP Address, VPN Identifier, or both (SRC CLI) ........................................... 93
Viewing Information About Subscriber Sessions by IP Address (C-Web Interface) ........................................... 94
Viewing Information About Subscriber Sessions by Login Name (SRC CLI) ............................................. 95
Viewing Information About Subscriber Sessions by Login Name (C-Web Interface) ............................................. 97
Viewing Information About Subscriber Sessions by Service Name (SRC CLI) ............................................ 98
Viewing Information About Subscriber Sessions by Service Name (C-Web Interface) ............................................ 99
Viewing Information About Subscriber Sessions by Session ID (SRC CLI) ................................................ 100
Viewing Information About Subscriber Sessions by Session ID (C-Web Interface) ........................................... 101
Viewing Information About Subscriber Sessions by Accounting User Identifier (SRC CLI) ........................................... 103

Chapter 6

Simulating Subscribers for Testing ........................................... 105
Simulated Subscribers Overview ........................................... 105
Logging In Simulated Subscribers (SRC CLI) ........................................... 105
Logging In Authenticated DHCP Subscribers ........................................... 105
Logging In Authenticated Interface Subscribers ........................................... 106
Logging In Unauthenticated DHCP Subscribers ........................................... 107
# List of Figures

## Part 1 Overview

### Chapter 1 Overview of Subscribers and Subscriptions

- Figure 1: Enterprise Hierarchy [5]

### Chapter 2 Overview of Subscriber Logins and Service Activation

- Figure 2: Components Involved in Subscription Activation [12]
- Figure 3: PPP Login Interactions [14]
- Figure 4: PPP Logout [16]
- Figure 5: DHCP Interface Startup [17]
- Figure 6: DHCP Subscriber Initial Login [18]
- Figure 7: DHCP Subscriber Login [20]
- Figure 8: Persistent DHCP Subscriber Login [21]
- Figure 9: DHCP Subscriber Logout [23]
- Figure 10: Static IP Subscriber Login [25]
- Figure 11: Subscriber IP Address Not Known [26]
- Figure 12: Enterprise Subscriber Session Activation [27]
- Figure 13: Service Activation Page [28]
- Figure 14: Subscription Activation Page [29]
- Figure 15: Subscription Activation [30]
- Figure 16: Subscription Deactivation [31]
- Figure 17: Remote Session Activation Sequence [34]

## Part 3 Administration

### Chapter 5 Monitoring Subscriber Sessions

- Figure 18: C-Web Interface for Monitoring Login Registrations [88]
- Figure 19: C-Web Interface for Monitoring SAE Subscriber Sessions by DN [92]
- Figure 20: C-Web Interface for Monitoring SAE Subscriber Sessions by IP Address [95]
- Figure 21: C-Web Interface for Monitoring SAE Subscriber Sessions by Login Name [97]
- Figure 22: C-Web Interface for Monitoring SAE Subscriber Sessions by Service Name [99]
- Figure 23: C-Web Interface for Monitoring SAE Subscriber Sessions by Session ID [102]
List of Tables

About the Documentation .................................................. xi
Table 1: Notice Icons ......................................................... xii
Table 2: Notice Icons ........................................................ xiii
Table 3: Text Conventions .................................................... xiii

Part 1  Overview

Chapter 1  Overview of Subscribers and Subscriptions .................... 3
Table 4: Types of Subscribers ................................................ 3
Table 5: Privilege Levels and Associated Tasks ............................. 7

Chapter 2  Overview of Subscriber Logins and Service Activation ....... 9
Table 6: Login Events .......................................................... 10
About the Documentation

- Documentation and Release Notes on page xi
- Documentation Conventions on page xi
- Documentation Feedback on page xiv
- Requesting Technical Support on page xv

Documentation and Release Notes

To obtain the most current version of all Juniper Networks® technical documentation, see the product documentation page on the Juniper Networks website at https://www.juniper.net/documentation/.

If the information in the latest release notes differs from the information in the documentation, follow the product Release Notes.

Juniper Networks Books publishes books by Juniper Networks engineers and subject matter experts. These books go beyond the technical documentation to explore the nuances of network architecture, deployment, and administration. The current list can be viewed at https://www.juniper.net/books.

Documentation Conventions

Table 1 on page xii defines notice icons used in this guide.
Table 1: Notice Icons

<table>
<thead>
<tr>
<th>Icon</th>
<th>Meaning</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>🔄</td>
<td>Informational note</td>
<td>Indicates important features or instructions.</td>
</tr>
<tr>
<td>⚠️</td>
<td>Caution</td>
<td>Indicates a situation that might result in loss of data or hardware damage.</td>
</tr>
<tr>
<td>⚠️ ⚡</td>
<td>Warning</td>
<td>Alerts you to the risk of personal injury or death.</td>
</tr>
<tr>
<td>⚠️ ⚡</td>
<td>Laser warning</td>
<td>Alerts you to the risk of personal injury from a laser.</td>
</tr>
<tr>
<td>🔭</td>
<td>Tip</td>
<td>Indicates helpful information.</td>
</tr>
<tr>
<td>🌟</td>
<td>Best practice</td>
<td>Alerts you to a recommended use or implementation.</td>
</tr>
</tbody>
</table>

Documentation Conventions

Table 1 on page xii defines the notice icons used in this guide. Table 3 on page xiii defines text conventions used throughout this documentation.
### Table 2: Notice Icons

<table>
<thead>
<tr>
<th>Icon</th>
<th>Meaning</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>![i]</td>
<td>Informational note</td>
<td>Indicates important features or instructions.</td>
</tr>
<tr>
<td>![!]</td>
<td>Caution</td>
<td>Indicates a situation that might result in loss of data or hardware damage.</td>
</tr>
<tr>
<td>![⚠️]</td>
<td>Warning</td>
<td>Alerts you to the risk of personal injury or death.</td>
</tr>
<tr>
<td>![⚠️💡]</td>
<td>Laser warning</td>
<td>Alerts you to the risk of personal injury from a laser.</td>
</tr>
<tr>
<td>![💡]</td>
<td>Tip</td>
<td>Indicates helpful information.</td>
</tr>
<tr>
<td>![💡_best]</td>
<td>Best practice</td>
<td>Alerts you to a recommended use or implementation.</td>
</tr>
</tbody>
</table>

### Table 3: Text Conventions

<table>
<thead>
<tr>
<th>Convention</th>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bold text like this</strong></td>
<td>Represents keywords, scripts, and tools in text. Represents a GUI element that the user selects, clicks, checks, or clears.</td>
<td>• Specify the keyword <code>exp-msg</code>. • Run the <code>install.sh</code> script. • Use the <code>pkgadd</code> tool. • To cancel the configuration, click <strong>Cancel</strong>.</td>
</tr>
<tr>
<td><strong>Bold text like this</strong></td>
<td>Represents text that the user must type.</td>
<td><code>user@host# set cache-entry-age</code> <code>cache-entry-age</code></td>
</tr>
<tr>
<td><strong>Fixed-width text like this</strong></td>
<td>Represents information as displayed on your terminal’s screen, such as CLI commands in output displays.</td>
<td><code>nic-locators {</code> <code>  login {</code> <code>    resolution {</code> <code>      resolver-name /realms/</code> <code>      login/A1;</code> <code>    }</code> <code>    key-type LoginName;</code> <code>    value-type SaeId;</code> <code>  }</code> <code>}</code></td>
</tr>
</tbody>
</table>
Table 3: Text Conventions (continued)

<table>
<thead>
<tr>
<th>Regular sans serif typeface</th>
<th>Represents configuration statements.</th>
<th>Indicates SRC CLI commands and options in text.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Represents examples in procedures.</td>
<td>Represents URLs.</td>
</tr>
<tr>
<td></td>
<td>system ldap server{</td>
<td>stand-alone;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Use the request sae modify device failover command with the force option</td>
</tr>
<tr>
<td></td>
<td>user@host# . . .</td>
<td><a href="https://www.juniper.net/techpubs/software/management/sdx/api-index.html">https://www.juniper.net/techpubs/software/management/sdx/api-index.html</a></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Italic sans serif typeface</th>
<th>Represents variables in SRC CLI commands.</th>
</tr>
</thead>
<tbody>
<tr>
<td>user@host# set local-address local-address</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle brackets</th>
<th>In text descriptions, indicate optional keywords or variables.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Another runtime variable is &lt;gfwif&gt;.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Key name</th>
<th>Indicates the name of a key on the keyboard.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Press Enter.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Key names linked with a plus sign (+)</th>
<th>Indicates that you must press two or more keys simultaneously.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Press Ctrl + b.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Italic typeface</th>
<th>Emphasizes words.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Identifies book names.</td>
</tr>
<tr>
<td></td>
<td>Identifies distinguished names.</td>
</tr>
<tr>
<td></td>
<td>Identifies files, directories, and paths in text but not in command examples.</td>
</tr>
<tr>
<td></td>
<td>There are two levels of access: user and privileged.</td>
</tr>
<tr>
<td></td>
<td>SRC-PE Getting Started Guide.</td>
</tr>
<tr>
<td></td>
<td>o=Users, o=UMC</td>
</tr>
<tr>
<td></td>
<td>The /etc/default.properties file.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Backslash</th>
<th>At the end of a line, indicates that the text wraps to the next line.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Plugin.radiusAcct-1.class=\ net.juniper.smgt.sae.plugin\ RadiusTrackingPluginEvent</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Words separated by the</th>
<th>symbol</th>
<th>Represent a choice to select one keyword or variable to the left or right of this symbol. (The keyword or variable may be either optional or required.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>diagnostic</td>
</tr>
</tbody>
</table>

Documentation Feedback

We encourage you to provide feedback so that we can improve our documentation. You can use either of the following methods:

- Online feedback system—Click TechLibrary Feedback, on the lower right of any page on the Juniper Networks TechLibrary site, and do one of the following:

  ![TechLibrary Feedback](image)

  - Click the thumbs-up icon if the information on the page was helpful to you.
Click the thumbs-down icon if the information on the page was not helpful to you or if you have suggestions for improvement, and use the pop-up form to provide feedback.

E-mail—Send your comments to techpubs-comments@juniper.net. Include the document or topic name, URL or page number, and software version (if applicable).

### Requesting Technical Support

Technical product support is available through the Juniper Networks Technical Assistance Center (JTAC). If you are a customer with an active J-Care or Partner Support Service support contract, or are covered under warranty, and need post-sales technical support, you can access our tools and resources online or open a case with JTAC.

- **Product warranties**—For product warranty information, visit https://www.juniper.net/support/warranty/.
- **JTAC hours of operation**—The JTAC centers have resources available 24 hours a day, 7 days a week, 365 days a year.

### Self-Help Online Tools and Resources

For quick and easy problem resolution, Juniper Networks has designed an online self-service portal called the Customer Support Center (CSC) that provides you with the following features:

- **Find CSC offerings**—https://www.juniper.net/customers/support/
- **Search for known bugs**—https://prsearch.juniper.net/
- **Find product documentation**—https://www.juniper.net/documentation/
- **Find solutions and answer questions using our Knowledge Base**—https://kb.juniper.net/
- **Download the latest versions of software and review release notes**—https://www.juniper.net/customers/csc/software/
- **Search technical bulletins for relevant hardware and software notifications**—https://kb.juniper.net/InfoCenter/
- **Join and participate in the Juniper Networks Community Forum**—https://www.juniper.net/company/communities/
- **Open a case online in the CSC Case Management tool**—https://www.juniper.net/cm/

To verify service entitlement by product serial number, use our Serial Number Entitlement (SNE) Tool: https://entitlementsearch.juniper.net/entitlementsearch/

### Opening a Case with JTAC

You can open a case with JTAC on the Web or by telephone.
- Use the Case Management tool in the CSC at https://www.juniper.net/cm/.
- Call 1-888-314-JTAC (1-888-314-5822 toll-free in the USA, Canada, and Mexico).

For international or direct-dial options in countries without toll-free numbers, see https://www.juniper.net/support/requesting-support.html.
PART 1

Overview

- Overview of Subscribers and Subscriptions on page 3
- Overview of Subscriber Logins and Service Activation on page 9
CHAPTER 1

Overview of Subscribers and Subscriptions

- Subscribers Overview on page 3
- Subscriptions Overview on page 4
- Enterprise Subscriber and Subscription Hierarchy on page 4
- Managers Overview on page 6

Subscribers Overview

A subscriber is an object in the directory for which you can configure subscriptions to services. The SRC software distinguishes between types of subscribers, as described in Table 4 on page 3.

Table 4: Types of Subscribers

<table>
<thead>
<tr>
<th>Subscriber</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retailers</td>
<td>Internet service providers who either manage their own subscribers or outsource the management of subscribers to a service provider who deploys the SRC software. The SRC software uses retailer objects to group subscribers who belong to an administrative domain.</td>
</tr>
<tr>
<td>Residential</td>
<td>Individual subscribers or households—multiple subscribers who use one or more computers and share the same connection. In a household, subscribers can share the same service subscription or can have their own individualized service profiles.</td>
</tr>
<tr>
<td>Enterprise</td>
<td>An organization, such as a corporation. An enterprise subscriber can contain site subscribers that represent physical locations or groups within the organization. Enterprises and sites contain access subscribers; an access represents a layer 2 connection between a device at a customer’s physical location and a router that gives the enterprise subscribers access to the Internet and, in some cases, a virtual private network (VPN).</td>
</tr>
<tr>
<td>Sites</td>
<td>One or more locations—physical or virtual—within an enterprise that share service subscriptions and physical access to services and that are each managed as a unique entity. For example, the XYM Corporation might have a site in Boston and a site in Toronto. Each of these sites can have its own set of subscribed services.</td>
</tr>
</tbody>
</table>
Table 4: Types of Subscribers (continued)

<table>
<thead>
<tr>
<th>Subscriber</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Device</td>
<td>An SRC-managed device that is used to activate services on nonsubscriber interfaces. It is used primarily to provide integration with applications that use traffic mirroring on devices running Junos OS.</td>
</tr>
<tr>
<td>Subscriber folders</td>
<td>Objects that group subscribers.</td>
</tr>
</tbody>
</table>

**Subscriptions Overview**

A subscription is an object that represents an enrollment to a service. Each subscription provides access to a particular service for that subscriber. A subscriber can have multiple subscriptions to a service.

If the service provider uses the SRC directory to hold all their subscriber data, residential subscribers must subscribe to primary services—such as Broadband Remote Access Server (B-RAS) through Point-to-Point protocol (PPP) or B-RAS through Dynamic Host Configuration Protocol (DHCP)—before subscribing to a service.

Enterprise subscribers must subscribe to an access (that is, a leased line), either directly or in a site or subscriber folder that is subordinate to the enterprise. Without an access subscription, a service session cannot run in the network.

**Enterprise Subscriber and Subscription Hierarchy**

In the enterprise model, a subscriber is an individual physical access line managed through the enterprise service portal over which services are delivered by the service provider. In
the enterprise, the SRC software supports the organization of the enterprise in the following hierarchy (Figure 1 on page 5):

- **Enterprise**—The business itself as a customer of the service provider; for example, the XYM Corporation. An enterprise can have its own set of subscriptions over a physical access line.

- **Site**—One or more locations, physical or virtual, within the enterprise that share service subscriptions and physical access to services and that are each managed as a unique entity. For example, the XYM Corporation might have a site in Boston and a site in Toronto. Each of these sites can have its own set of subscribed services.

- **Access line**—A physical access line (usually within a site) from the customer to the service provider’s router; the router is configured to access the SRC environment and the Internet and/or the customer’s network-based VPN. An access line can have its own set of subscribed services.

Enterprise IT managers can use the enterprise service portal to manage interfaces connecting enterprise sites to the network. These interfaces can be leased-line connections or authenticated PPP and DHCP connections.

Figure 1 on page 5 shows an enterprise hierarchy.

*Figure 1: Enterprise Hierarchy*

Sites and access lines are subordinate to an enterprise; the enterprise sometimes contains sites and access lines. Access lines are subordinate to a site; the site contains access lines.

In Figure 1 on page 5, the XYM Corporation enterprise contains two subordinate sites, Boston and Toronto. The Boston site contains a single subordinate access line, whereas the Toronto site contains two subordinate access lines. All three access lines connect to a router in the service provider network. An individual access line, for example, might be a T1 line running PPP or a T3 line running Frame Relay.
Enterprise Subscription Hierarchy

The organizational levels of the enterprise receive subscribed services in a hierarchical manner. The availability of a subscription to a higher level affects its availability to a lower level.

- Enterprise—Subscriptions apply to all sites and all access lines across the enterprise.
- Site—Subscriptions apply to all access lines grouped within a site.
- Access line—Subscriptions apply to a given access line that connects the enterprise to the service provider’s network.

Related Documentation

- Subscribers Overview on page 3
- Subscriptions Overview on page 4
- Enterprise Subscriber Login Process on page 26
- Configuring Subscribers and Subscriptions Overview on page 38
- Enabling the Subscriber and Subscription Configuration (SRC CLI) on page 39

Managers Overview

In relation to subscribers and subscriptions, a manager is an object that represents an IT manager in an organization. Retailers, subscriber folders, enterprises, sites, and accesses can support one or more managers.

Read Privileges

Managers have privileges to read:

- The objects they control
- Parent subscribers, up to the retailer
- Subscriptions of parent subscribers, up to the retailer
- All objects that represent services, service scopes, policies, and global variables that are defined for the subscriber to which the manager is added

Management Privileges

You can specify one or more management privileges for managers. If you do not specify privileges for a manager, the manager has only read privileges. Table 5 on page 7 shows the privilege levels and the privileges associated with the levels.
Table 5: Privilege Levels and Associated Tasks

<table>
<thead>
<tr>
<th>Privilege Level</th>
<th>Tasks That Managers with This Privilege Can Perform</th>
</tr>
</thead>
</table>
| Administrator   | • Add, delete and modify managers  
| | • Add, delete, and modify subscriptions  
| | • Modify subscribers, including the ability to add, delete, and modify substitutions for subscribers  
| | • Manually activate and deactivate subscription sessions  |
| Subscription    | • Add, delete, and modify subscriptions  
| | • Manually activate and deactivate subscription sessions  |
| Substitution    | Add, delete, and modify substitutions in subscribers and subscriptions  |
| Activation      | • Configure automatic activation of services  
| | • Manually activate and deactivate subscription sessions  |
| VPNS            | Modify, export, and cancel the export of VPNS  |

A manager has management privileges for its associated subscriber and for that subscriber’s subordinate objects:

- Managers in an enterprise have control over the enterprise and all sites and accesses in the enterprise.

- Managers in a site have control over the site and all accesses it contains. In addition they have read access to the enterprise, subscriber folder, and retailer that are configured above the site.

- Managers in an access have control over only that access.

Managers That Control All Retailers

You can add managers that have control over all retailers and their subordinate enterprises. To do so, configure the manager at the **edit subscribers retailer name manager** hierarchy.

Related Documentation

- Subscriptions Overview on page 4
- Subscribers Overview on page 3
- Configuring Subscribers and Subscriptions Overview on page 38
- Adding Managers (SRC CLI) on page 61
CHAPTER 2

Overview of Subscriber Logins and Service Activation

- Login Events and Processes Overview on page 9
- Login Events on page 10
- Summary of the Login Process on page 11
- Residential Subscriber Login and Processes on page 11
- PPP Subscriber Login and Service Activation on page 13
- DHCP Subscriber Login and Service Activation on page 17
- Static IP Subscribers on page 24
- Enterprise Subscriber Login Process on page 26
- Subscriptions and Activations on page 27
- Automatic Activation at Login on page 32

Login Events and Processes Overview

Because of the different ways that residential and enterprise subscribers connect, the login interactions between the components differ according to the type of subscriber. Because residential customers can connect by Point-to-Point Protocol (PPP), Dynamic Host Configuration Protocol (DHCP), or static IP addresses, the interactions between the SRC components differ according to the method of connection that a residential subscriber uses. However, there is only one type of login interaction—the subscriber interface login interaction—for enterprise subscribers.

Logins to plug-ins can occur during the login to the service activation engine (SAE) or during the activation of subscriptions. For these processes, many of the interactions between the SRC components are the same regardless of the type of subscriber and the type of connection.

Related Documentation
- Summary of the Login Process on page 11
- Allowing Multiple Logins from the Same IP Address (SRC CLI) on page 80
- Automatic Activation at Login on page 32
- Login Events on page 10
Login Events

Each login process begins with a login event, as described in Table 6 on page 10.

Table 6: Login Events

<table>
<thead>
<tr>
<th>Login Event</th>
<th>Event Is Triggered When</th>
<th>SAE Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTHINTF</td>
<td>An interface responds to authentication, such as authentication for a PPP session. (Supported on JunosE routers.)</td>
<td>Invokes subscriber classification script, creates subscriber session.</td>
</tr>
<tr>
<td>INTF</td>
<td>An interface comes up and the interface classifier script determines that the SAE should manage the interface, unless the interface comes up as a result of an authenticated PPP session. (Supported on device running Junos OS and JunosE routers.)</td>
<td>Invokes subscriber classification script, creates subscriber session.</td>
</tr>
<tr>
<td>ADDR</td>
<td>A subscriber obtains an unauthenticated IP address from the router through DHCP. (Supported on JunosE routers.)</td>
<td>Invokes subscriber classification script, creates subscriber session.</td>
</tr>
<tr>
<td>AUTHADDR</td>
<td>A subscriber obtains an authenticated IP address from the router through DHCP. (Supported on JunosE routers.)</td>
<td>Invokes subscriber classification script, creates subscriber session.</td>
</tr>
<tr>
<td>PORTAL</td>
<td>The portal API is invoked by a JSP webpage to log in a subscriber. (Supported on device running Junos OS and JunosE routers.)</td>
<td>Authenticate subscriber, invokes subscriber classification script, creates subscriber session.</td>
</tr>
<tr>
<td>ASSIGNEDIP</td>
<td>An application accesses a subscriber object for an assigned IP subscriber that is not currently loaded into memory.</td>
<td>Invoke subscriber classification script, creates subscriber session.</td>
</tr>
</tbody>
</table>

Related Documentation

- Login Events and Processes Overview on page 9
- Summary of the Login Process on page 11
- Allowing Multiple Logins from the Same IP Address (SRC CLI) on page 80
- Automatic Activation at Login on page 32
Summary of the Login Process

The SAE login process is summarized in the steps below. If any of the steps fail, the login process stops, and no subscriber session is created.

1. A login event occurs (see Table 6 on page 10) and triggers the login process.
2. In case of a portal login, the SAE invokes the authentication plug-ins to authenticate the request.
3. The SAE invokes the subscriber classification script and provides to the script details about the login event (for example, interface name, subscriber IP address if available, login name if available, and login event type).
4. The script sends an LDAP query that uniquely identifies a subscriber entry in the directory to the SAE.
5. The SAE loads the subscriber entry from the directory and uses the entry to create a subscriber session in memory.
6. The SAE queries all configured authorization plug-ins about whether it should allow the login.
7. The SAE completes the login process by activating the subscriber’s activate-on-login subscriptions.

Related Documentation
- Login Events and Processes Overview on page 9
- Residential Subscriber Login and Processes on page 11
- Login Events on page 10
- Enterprise Subscriber Login Process on page 26
- Adding Residential Subscribers (SRC CLI) on page 47

Residential Subscriber Login and Processes

This section focuses on residential subscriber configurations involving authenticated PPP, DHCP, and static IP. The PPP, DHCP, and static IP cases are distinguished by the type and configuration of the networking software on the network device used to access the router. Figure 2 on page 12 shows how residential subscribers connect to SRC components.
The residential subscriber's network device (such as a computer, cellular telephone, or set-top box) connects through a layer 2 connection to the router. The network device is configured for network access with PPP or DHCP.

The router and the SAE use a RADIUS server for authentication, accounting, and optionally IP address allocation. The router can also locally manage the allocation of IP addresses to residential subscribers' PCs. A directory supporting LDAP holds the database of subscriber, service, and subscription information. Both the SAE and the RADIUS server use the directory.

Once connected to the network, the subscriber's network device exchanges IP data packets with resources in a service-controlled area. From the service provider's perspective, the resource to which access is controlled may be the network itself or content servers in the network.

The SAE manages the subscriber's IP interface on the router to control the level of access that the subscriber gets to the service-controlled area. The level of access can be anything from viewing a portal page that allows the subscriber to select a service to varying the network access speed. The subscriber can actively and instantly request access to the service-controlled area by selecting items on webpages generated by the SAE. Selecting these items triggers the SAE to instantly reconfigure the subscriber's IP interface on the router.

The SAE communicates with JunosE routers through COPS messages.

The SAE communicates with devices running Junos OS through BEEP messages.
PPP Subscriber Login and Service Activation

PPP subscribers access the network by using either special PPP or PPP over Ethernet software on their network access device. PPP access provides a means to configure the subscriber's network access device with several network parameters, including an IP address and a channel for transporting IP packets between the subscriber’s network device and the router.

For subscribers with PPP access, logging into the network consists of starting the PPP client, and logging out consists of stopping it. On PPP login, the router authenticates the subscriber as normal with a message to a RADIUS server. The router then notifies the SAE that there is a new IP interface on the router. The message to the SAE includes information such as the subscriber's IP address (if assigned by the router or RADIUS server), PPP login ID, and router interface ID. Using this information, the SAE retrieves the information to construct the default policies. The SAE then activates subscription policies, which are downloaded to the router and applied to the subscriber’s network interface.

Subscribers can log in to the system with different accounts to different retail Internet service providers (ISPs). Subscribers use a different login ID for each account.

PPP requires special software on a network access device. The PPP software must be installed and maintained by the subscriber. The software can interfere with other applications.

Web Login for PPP Subscribers

In a PPP session, an IP address and a subscriber profile are authenticated at the same time. However, for some applications a split of subscriber profile and PPP session is useful; for example:

- Generic PPP account—An ISP could offer generic PPP login names and passwords for everybody and use Web-based login to identify subscribers.

- Device-based PPP—A PPP login may be used between a digital subscriber line (DSL) access device and a router. In this case a PPP login does not correspond to a subscriber session.

- Subaccounts with different services.

As a consequence, the Service Selection Portal (SSP) API allows creation of a Web application that:

- Allows PPP subscribers to log out—When the PPP subscriber logs out, the current subscriber session is closed, all active services are deactivated, and accounting records
are generated. The unauthenticated subscriber entry is then associated with the IP address of the subscriber. This process is similar to a DHCP logout.

- Forces an unauthenticated PPP subscriber (that is, a PPP subscriber account that is bound to the unauthenticated subscriber entry or to an anonymous subscriber entry) to log in—The subscriber provides a username, realm (domain), and password. Authentication is processed in the same way as a DHCP login.

**PPP Login Interactions**

*Figure 3 on page 14* shows the interactions that take place during a PPP login.

*Figure 3: PPP Login Interactions*

The login sequence is as follows:

1. The subscribers initiate a PPP login by starting a PPP client on their network devices.
2. The router sends an authentication request to the RADIUS server.
3. The RADIUS server sends a user ID query to the directory.
4. The directory responds with the data (IP address for the subscriber’s network device) needed to authenticate the login, and then completes the configurations of the interface on the router and on the subscriber’s network device.
5. If the authentication succeeds, the RADIUS server responds to the router with a grant message, including the network configuration parameters.
6. The configurations of the PPP and IP interfaces on the router and subscriber’s network device are completed. For dual-stack interfaces, see *SAE Support for Dual-Stack Configuration*. 
7. The router sends an accounting start message to the RADIUS server, indicating that a subscriber session has started.

8. The RADIUS server acknowledges the accounting start message.

9. The router sends a COPS or BEEP request message to the SAE. The message includes the user ID and the IP address assigned to the IP interface on the subscriber's network device. The SAE associates the subscriber's IP address with the subscriber session so that it can associate later requests from the subscriber with this session by looking at the source IP address of the request.

10. The SAE uses the subscriber ID to look up the subscriber's data in the directory.

11. The directory responds with data about the subscriber and the associated subscriptions. This data specifies which subscriptions should be automatically activated.

12. The SAE sends a series of decision (DEC) messages to the router. These messages tell the router to attach default policies and policies for automatically activated subscriptions to the subscriber's interface. They also tell the router to store subscriber and service sessions so that if the SAE fails, the subscribers can continue using their active subscriptions. If the SAE fails, the router connects to a backup SAE that synchronizes all session information and then takes over management of active subscribers on the router. During the synchronization process, active sessions are not affected.

13. The router acknowledges the decision messages with a report (RPT) message.

14. If interim accounting is enabled, the router periodically sends an accounting request to the RADIUS server to store an interim accounting record.

15. The RADIUS server sends an acknowledge message to the router, acknowledging the receipt of the interim accounting record.

**PPP Logout Interactions**

Figure 4 on page 16 shows the interactions that take place when a subscriber logs out of a PPP session.
Figure 4: PPP Logout

The logout sequence is as follows:

1. The subscribers trigger their PPP software to close the PPP session with the router.
2. The router sends a COPS or BEEP delete request (DRQ) message, informing the SAE that the subscriber's IP interface is being shut down.
3. The SAE responds with decision (DEC) messages, requesting the router to remove the default and active subscription policies and sessions for the subscriber.
4. The router responds with a report (RPT) message that includes the usage data for the subscriptions that were just deactivated.
5. The SAE sends an accounting stop message to the RADIUS server, indicating that a service session has stopped. The stop message includes the usage data. (For information about service sessions, see “Subscriptions and Activations” on page 27.)
6. The RADIUS server acknowledges the accounting stop request.
7. The router sends an accounting stop message to the RADIUS server, indicating that a subscriber session has stopped.
8. The RADIUS server acknowledges the accounting stop request.

Related Documentation

- Login Events and Processes Overview on page 9
- Automatic Activation at Login on page 32
- DHCP Subscriber Login and Service Activation on page 17
- Example: Managing Interfaces for Premium and Basic PPP and DHCP Subscribers
DHCP Subscriber Login and Service Activation

The DHCP system uses Ethernet to send data between a network device and the router. The DHCP client is built into the operating system. DHCP subscribers log in to the SAE to identify themselves, get personalized services, and select the retail ISP they want to use. Anonymous subscribers can log in to the SAE to view their account and subscription information.

Like a subscriber with PPP access, a subscriber with DHCP access can have several accounts. The subscriber logs in to the different accounts at different times. This setup allows subscribers access to different sets of subscriptions. It supports a household in which different members share the same computer but subscribe to different services. Members of the household can get different bills for the services they use.

Subscribers can create a persistent login. In this case, the SAE stores the MAC address of the network device, along with the subscriber ID and password. This way, the network device is logged in to the subscriber account every time the device is started. Using the SAE core API, one can provide a check box on the portal page that allows the subscriber to create a persistent login.

Interface Startup

An IP interface for DHCP subscribers can come up on the router without subscribers explicitly triggering its creation by logging in. When an interface comes up, the SAE runs an interface classifier script to determine whether it should manage the interface and, if so, which default policies to apply to the interface. Thus, for DHCP subscribers, default policies are applied as soon as the IP interface on the router comes up independently of any subscriber login. Figure 5 on page 17 shows this interaction.

Initial Login

When a DHCP subscriber starts a network device for the first time, the SAE has no information about who the subscriber is and what subscriptions the subscriber has. The SAE assigns default policies and an unauthenticated subscriber profile to the subscriber. The unauthenticated subscriber profile gives the subscriber access to services that are available without authentication.
The first time a subscriber’s network device starts, the router assigns an IP address to it. This address allows the subscriber access only to the SAE. The router provides this IP address for a short period of time called the lease time. After the lease time is over, the router provides a permanent IP address.

The system builds SAE applications to allow subscribers to register with the network if they are first-time subscribers of the network.

**Initial DHCP Login Interactions**

Figure 6 on page 18 shows the interactions that take place when a DHCP subscriber starts a network device.

**Figure 6: DHCP Subscriber Initial Login**

1. The DHCP client in the subscriber’s network device broadcasts a discover message to the router.
2. The router acts on the discover message by sending a COPS request (REQ) message to the SAE, indicating that an IP address is about to be assigned by the local DHCP server on the local router. This request includes the MAC address of the subscriber’s network device and the DHCP options sent by the client.
3. The SAE queries the directory to detect any persistent DHCP address assignments associated with the subscriber’s network device. Persistent DHCP address assignments are indexed by the MAC address of the device from which they originate.
4. The directory responds with an indication that there are no persistent DHCP address assignments associated with the subscriber’s network device.
5. The SAE responds to the router with a COPS decision (DEC) message, requesting the router to assign an unauthenticated address to the subscriber device.
6. The router acknowledges the address assignment decision message with a COPS report (RPT) message.
7. The router allocates and offers an IP address to the subscriber’s network device.
8. The network device sends a request for the address that the router offered.
9. The router acknowledges the address request.
10. The router sends a COPS request message that includes the subscriber’s interface and the assigned IP address.
11. The SAE looks up persistent logins or runs the subscriber classification script and creates a subscriber session based on the loaded subscriber profile.
12. The SAE downloads sessions for the newly logged in unauthenticated subscriber and the policies for the subscriptions that this subscriber account has configured for automatic activation. (Identification of which unauthenticated subscriber account to use is configurable in the SAE and is a function of attributes found in the original COPS request message.)
13. The router stores the sessions, applies the policies to the subscriber’s IP interface, and then acknowledges the decision with a COPS report.
14. If accounting is configured for the subscriptions, the SAE sends an accounting start message to the RADIUS server.
15. The RADIUS server acknowledges the accounting message.
16. The DHCP server on the router acknowledges the DHCP renew request.

**DHCP Login to Subscriber Account Interactions**

Figure 7 on page 20 shows the interactions that take place when a DHCP subscriber logs in to a subscriber account. The account changes from an anonymous subscriber to an authenticated subscriber with personalized subscriptions.
Figure 7: DHCP Subscriber Login

The sequence is as follows:

1. The subscriber’s network device sends a request to the SAE to log in to the subscriber account with the subscriber ID and password (PW).
2. The SAE authenticates the request using the configured authentication plug-in.
3. If authentication is successful, SAE loads a subscriber profile from the directory.
4. If this is a persistent login, the SAE creates an entry in the directory in the userProfileCache object. The entry is keyed to the network device’s MAC address and associates the MAC address with the subscriber ID and password. The next time the subscriber starts the device, the system automatically logs in the subscriber’s account.
5. The SAE sends a COPS decision (DEC) message, instructing the router to deactivate the policies and sessions associated with the active subscriptions.
6. The router acknowledges the COPS decision message with a COPS report (RPT) message that includes usage information for the active subscriptions.
7. The SAE sends a COPS decision message to load sessions and policies for the automatically activated subscriptions for the new subscriber account.
8. The router acknowledges these decisions with COPS report messages.
9. The SAE sends the RADIUS server accounting stop messages for the subscriptions that were deactivated, and accounting start messages for the subscriptions that were activated.
10. The RADIUS server acknowledges the accounting messages.

11. The SAE responds to the subscriber’s original request with a login successful message. A typical application would return a webpage that gives the subscriber the ability to activate and deactivate subscriptions.

**Persistent DHCP Subscriber Login Interactions**

Figure 8 on page 21 shows the interactions that take place when a DHCP subscriber starts a device on the network after having previously been logged in as a persistent subscriber.

**Figure 8: Persistent DHCP Subscriber Login**

The login sequence is as follows:

1. The DHCP client in the subscriber’s network device sends a discover message to the router.

2. The router sends a COPS request (REQ) message to the SAE, informing the SAE that the router has received a DHCP discover request. The message includes the MAC address of the subscriber’s network device and the DHCP options sent with the discover request.

3. The SAE queries the directory for a DHCP profile associated with the MAC address of the subscriber’s network device.

4. The SAE sends the router a COPS decision (DEC) message, instructing the router to assign an IP address to the subscriber’s network access device based on the information stored in the DHCP profile.

5. The router acknowledges the address assignment decision message with a COPS report (RPT) message.
6. The router allocates and offers an IP address to the subscriber’s network access device.

7. The subscriber’s network access device sends a request message to the router, requesting the address that was offered.

8. The router acknowledges the address request.

9. The router sends a COPS request message to the SAE that includes the subscriber’s interface and the assigned IP address.

10. The SAE queries the directory for persistent logins, and the directory responds with the subscriber account information for the persistent login, including the subscriptions that are to be automatically activated.

11. The SAE starts the subscriber session and downloads session data for the subscriber account and the policies for the subscriptions that this subscriber account has configured for automatic activation.

12. The router stores the session data and applies the policies to the subscriber’s IP interface. The router then acknowledges the decision message with a COPS report message.

13. If accounting is configured for the automatically activated subscriptions, then the SAE sends an accounting start message to the RADIUS server.

14. The RADIUS server acknowledges the accounting start message.

15. The router acknowledges the DHCP request messages with a DHCP acknowledge message.

**DHCP Subscriber Logout Interactions**

Figure 9 on page 23 shows the interactions that take place when a DHCP subscriber logs out of a subscriber account. The account changes from an authenticated subscriber to an anonymous subscriber with generic subscriptions and limited access.
The logout sequence is as follows:

1. The subscriber’s network device sends a request to the SAE to log out of its current subscriber session.

2. The subscriber may request to deactivate persistent login. If the subscriber deactivates persistent login, the SAE deletes the entry in the directory. If the subscriber does not deactivate the persistent login, then the account is automatically logged in the next time the same network device is started.

3. The SAE sends a COPS decision (DEC) message to the router, instructing the router to remove the sessions and policies associated with the active subscriptions.

4. The router responds with a COPS report (RPT) message that includes the usage information for the deactivated subscriptions.

5. The SAE sends a COPS decision message to add sessions and policies for the automatically activated subscriptions for the anonymous account to which the subscriber has switched.

6. The router acknowledges the COPS decision message by sending a COPS report message to the SAE.

7. The SAE sends the RADIUS server accounting stop messages for the subscriptions that were deactivated, and accounting start messages for the subscriptions that were activated.

8. The RADIUS server acknowledges these accounting messages.

9. The SAE responds to the subscriber’s logout request, showing that the logout is complete.
Static IP Subscribers

The SAE supports residential subscribers who use statically assigned IP addresses. Statically assigned means that the network does not create events that contain information about the IP address of the subscriber. The SAE can handle the case in which a router interface is dedicated to one subscriber. This subscriber can be a single PC or multiple PCs that are managed by the same household.

Single PC, IP Address Known

See Figure 10 on page 25.

1. When the interface dedicated to the subscriber comes up, the router sends a COPS or BEEP request (REQ) message to the SAE. The SAE calls the interface classification script to determine whether the interface is being managed and which default policies are applied.

2. The SAE sends a decision (DEC) message to the router, requesting that the router attach the selected default policies.

3. The router acknowledges the decision message with a report message.

4. The SAE calls the subscriber classification script to determine whether a subscriber session needs to be started. The subscriber classification script responds with an LDAP query.

5. The SAE uses the LDAP query to look up a subscriber entry in the directory.

6. The directory responds with data about the subscriber and the associated subscriptions. The IP address assigned to the subscriber can be part of the data returned from the directory. If the IP address cannot be stored in the directory, it is also possible to integrate the SAE with an external data source (for example, a database maintained by an existing provisioning system), to look up the IP address of the subscriber.

As in the PPP case, the SAE associates the subscriber session with the IP address so it can handle later requests by looking up the source IP address of the HTTP request.

7. The SAE sends decision messages that install policies for automatically activated subscriptions.
1. When the interface dedicated to the subscriber comes up, the router sends a BEEP or COPS request (REQ) message to the SAE. The SAE calls the interface classification script to determine whether the interface is being managed and which default policies are applied.

2. The SAE sends a decision (DEC) message to the router, requesting that the router attach the selected default policies.

3. The router acknowledges the decision message with a report (RPT) message.

4. The SAE invokes the subscriber classification script to determine whether a subscriber session needs to be started. The subscriber classification script responds with an LDAP query.

5. The SAE uses the LDAP query to look up a subscriber entry in the directory.

6. The directory responds with data about the subscriber and the associated subscriptions.

   The SAE associates the subscriber session with the DN of the subscriber entry so that later requests can be handled. One consequence of associating the subscriber entry with the DN is that it is not possible to have more than one subscriber session for a single DN active at the same time.

7. The SAE sends decision messages that install policies for automatically activated subscriptions.

8. The subscriber connects to the portal. Because the IP address of the subscriber is not associated with a subscriber session, a login page is displayed instead.

9. The subscriber provides a username and password.

10. The SAE authenticates the request (for example, by using the RADIUS authentication plug-in) and calls the subscriber classification script.

11. The subscriber classification script returns an LDAP query. The SAE uses the query to look up the DN of the subscriber entry in the directory.
12. The SAE uses the DN returned from the directory to find a subscriber session and associates it with the IP address of the HTTP request. The SAE handles subsequent accesses to the portal by looking up the IP address of the HTTP request.

13. The subscriber logs out from the SAE. The SAE does not change the subscriber session associated with the DN of the subscriber, but removes the association of the subscriber IP address with the subscriber session.

**Figure 11: Subscriber IP Address Not Known**

![Diagram of Subscriber Login Process]

**Related Documentation**
- Subscribers Overview on page 3
- Classification Scripts Overview
- Classifying Interfaces (SRC CLI)
- Allowing Multiple Logins from the Same IP Address (SRC CLI) on page 80

**Enterprise Subscriber Login Process**

Enterprise subscribers may connect through any access method. For a list of the events that can initiate an enterprise login, see “Login Events” on page 10.

**Interface Startup**

When a router interface comes up, the router sends a message to the SAE with information about that interface.

The SAE classifies the subscriber to determine the default interface policies. An SAE subscriber classification rule matches the attributes of the interface and describes how
to formulate an LDAP query that retrieves the access entry in the directory that corresponds to the router interface.

Based on the response from the directory, the SAE creates a subscriber session and associates it with the DN of the access entry in the directory. The SAE then sends the router a message to install all the policies for subscriptions for the access line that are set to administratively active.

Figure 12 on page 27 shows the stages involved in activating an enterprise subscriber session.

Figure 12: Enterprise Subscriber Session Activation

### Related Documentation
- Summary of the Login Process on page 11
- Residential Subscriber Login and Processes on page 11
- Automatic Activation at Login on page 32
- Adding Enterprises (SRC CLI) on page 53
- Configuring Administrative Information for Enterprise Subscribers (SRC CLI) on page 55

### Subscriptions and Activations

Each subscriber purchases a set of services; this purchase is known as a subscription. Information about the subscriptions is stored in the directory and is used by a residential service selection portal application to generate controls that enable the subscriber to:

- Activate and deactivate subscriptions.
- Subscribe to services.
- Configure subscriptions to be automatically activated.

The service selection application can be either a Web application or an API. When the service selection application is a Web application, the controls are webpages with buttons and links to click on (see Figure 13 on page 28 and Figure 14 on page 29). However, the service selection application provides an open API that makes it possible to build applications that are controlled by mechanisms other than webpages. For instance, customers can build service selection applications that are controlled by applications.
running in the system tray area of the Windows task bar. This deployment consolidates the control of subscribers’ active network services and the speed of their Internet connection, along with their control of other aspects of their PC, such as the clock settings and audio volumes.

Figure 13: Service Activation Page

You can start or stop a service by clicking on the circle in the "Status" column. A green circle (✓) means the service is currently on. A red circle (✗) means the service is currently off.

You can persistently activate a service by clicking on the check box in the "Persistent" column. Persistently activated services are automatically activated when you login to the portal.
Many of the activation and deactivation interactions work in the same way, whether the subscriber is a residential subscriber or an enterprise subscriber. However, some interactions apply only to enterprise subscribers.

**Subscription Activation Interactions**

Clicking a button on the webpage to activate a service session causes the SAE to download the policies associated with the service to the subscriber’s IP interface on the router. Figure 15 on page 30 shows the interactions among the components shown in “Residential Subscriber Login and Processes” on page 11 during the activation process. This scenario assumes that the subscriber has already logged in.
The activation sequence is as follows:

1. Before the subscription is activated, the subscriber makes a request to the corresponding subscription resource in the service-controlled area.

2. A default policy that matches the request on the router causes the router to redirect the request to the SAE.

3. The SAE responds to the request with a help desk webpage, requesting that the subscriber activate the subscription before trying to access the resource.

4. The subscriber clicks a button on the service selection portal webpage, requesting the activation of the subscription.

5. The SAE sends a COPS or BEEP decision (DEC) message to the router, requesting the installation of policies for the subscription on the subscriber’s IP interface on the router, as well as service session information.

At start time, the SAE loads all services and policy templates from the directory. At activation time, the policy templates for the service are instantiated with values that are determined at activation, such as the subscriber’s IP address. The router stores session information so that if the SAE fails, the subscribers can continue using their active subscriptions. If the SAE fails, the router connects to a backup SAE. The backup SAE synchronizes all session information and then takes over management of all active subscribers on the router.

6. The router responds with a report (RPT) message acknowledging the decision message.

7. The SAE sends an accounting start message to the RADIUS server.
8. The RADIUS server acknowledges the accounting start message.
9. The SAE responds to the subscriber’s activation request, indicating that the subscription is active.
10. The subscriber may now retry the request for access to the controlled resource.
11. This time, the request to the controlled resource matches the policy from the newly activated subscription, so the router allows the request to be routed normally. Depending on the policy, the router may also apply QoS processing.
12. If interim accounting is enabled, the SAE periodically sends a decision message requesting usage data.
13. The router responds with a report message that contains usage data for the subscription. The usage data consists of the number of bytes and packets that the policies processed for the subscription.
14. The SAE stores the usage data in interim accounting records in the RADIUS server.
15. The RADIUS server acknowledges the interim accounting record.

Subscription Deactivation Interactions

Clicking a button on the webpage to deactivate a service causes the SAE to request that the router remove the policies for the service from the subscriber’s IP interface on the router.

Figure 16 on page 31 shows the interactions among the components shown in “Residential Subscriber Login and Processes” on page 11 during the subscription deactivation process. This scenario assumes that the subscriber has already logged in.

Figure 16: Subscription Deactivation
The deactivation sequence is as follows:

1. The subscriber sends a request to deactivate a subscription to a resource in the service-controlled area.
2. The request matches a policy that allows the request to be forwarded to the resource in the service-controlled area.
3. The subscriber clicks on a field on a webpage to request that the SAE deactivate the subscription.
4. As a result, the SAE sends a COPS or BEEP decision (DEC) message to the router to remove policies for the subscription from the subscriber interface and the service session from memory.
5. The router acknowledges the decision message with a report (RPT) message that contains service usage. The usage is the number of bytes and packets that the policies processed for the subscription.
6. An accounting stop record that includes the subscription usage information is written in the RADIUS server.
7. The RADIUS server acknowledges the accounting message.
8. The SAE sends a message to the subscriber, informing the subscriber that the subscription has been deactivated.
9. Because the policy for the subscription was removed from the subscriber interface on the router, any request for access is directed to the SAE.
10. The subscriber may now retry to request access to the controlled resource.
11. As was the case before the subscription was activated, the SAE generates a help desk webpage response that is relayed to the subscriber.

### Related Documentation

- **Subscriptions Overview** on page 4
- **Automatic Activation at Login** on page 32
- **Residential Subscriber Login and Processes** on page 11
- **Configuring Subscriptions (SRC CLI)** on page 63
- **Configuring Accesses (SRC CLI)** on page 67

### Automatic Activation at Login

An activate-on-login subscription is a subscription that is configured to start every time the subscriber logs in.

A manual subscription is a subscription that is configured to start only by an action from the subscriber.

For example, residential subscriber Elizabeth has designated her high-speed subscription to automatically activate every time she logs in. On the other hand, her video subscription is not activated unless she activates it by clicking a button on a portal page. It is possible
to integrate the SAE with a video-on-demand server so that the video service is automatically activated when Elizabeth logs in. This type of configuration ensures access to the server and to QoS for the video stream. When the video stream is finished, the video-on-demand server triggers the SAE to stop the video service.

Residential subscriber Robert is interested in streaming audio. He sets his subscriptions so that regular-speed service, along with his subscription to an audio service, is automatically activated every time he logs in.

**Enterprise-Specific Remote Session Activation**

When a subscription is set for automatic activation through the Web interface, a service session request message is sent from the manager's PC to the Enterprise Manager Portal. The Enterprise Manager Portal writes this request to the directory, and the directory eventing system (DES) notifies the SAE affected by this request of the directory event. The SAE then sends a COPS or BEEP decision message to the router to download the policies for the activated subscription.

The enterprise manager must explicitly request feedback to see whether the session succeeded and what the operational values for the service parameters actually are. To do this, the enterprise manager sends a feedback request to the Enterprise Manager Portal. To process this request, the Enterprise Manager Portal sends a feedback request to the remote SAE managing the access through CORBA and returns the response to the enterprise manager's browser.

*Figure 17 on page 34* shows the sequence of messaging events that occur between the manager PC, the Enterprise Manager Portal, the master and shadow directories, the remote SAE, and the router.
Related Documentation

- Login Events and Processes Overview on page 9
- Summary of the Login Process on page 11
- Subscriptions and Activations on page 27
- Residential Subscriber Login and Processes on page 11
- Managers Overview on page 6
PART 2

Configuration

- Configuration Tasks for Subscribers and Subscriptions on page 37
- Configuration Tasks for Subscriber-Related Properties on the SAE on page 73
CHAPTER 3

Configuration Tasks for Subscribers and Subscriptions

- Configuring Subscribers and Subscriptions Overview on page 38
- Enabling the Subscriber and Subscription Configuration (SRC CLI) on page 39
- Enabling the Subscriber and Subscription Configuration (C-Web Interface) on page 39
- Adding Subscribers (SRC CLI) on page 40
- Adding Subscribers (C-Web Interface) on page 40
- Adding Retailers (SRC CLI) on page 41
- Adding Retailers (C-Web Interface) on page 43
- Configuring Administrative Information for Retailers (SRC CLI) on page 43
- Configuring Administrative Information for Retailers (C-Web Interface) on page 44
- Adding Subscriber Folders (SRC CLI) on page 45
- Adding Subscriber Folders (C-Web Interface) on page 46
- Adding Residential Subscribers (SRC CLI) on page 47
- Adding Residential Subscribers (C-Web Interface) on page 50
- Configuring Administrative Information for Residential Subscribers (SRC CLI) on page 50
- Configuring Administrative Information for Residential Subscribers (C-Web Interface) on page 52
- Adding Enterprises (SRC CLI) on page 53
- Adding Enterprises (C-Web Interface) on page 54
- Configuring Administrative Information for Enterprise Subscribers (SRC CLI) on page 55
- Configuring Administrative Information for Enterprise Subscribers (C-Web Interface) on page 56
- Adding Sites (SRC CLI) on page 57
- Adding Sites (C-Web Interface) on page 58
- Adding Devices as Subscribers (SRC CLI) on page 58
- Adding Devices as Subscribers (C-Web Interface) on page 60
- Adding Managers (SRC CLI) on page 61
- Adding Managers (C-Web Interface) on page 63
Configuring Subscribers and Subscriptions Overview

This topic explains how you can specify the order in which the service activation engine (SAE) activates subscriptions. It also describes how subordinate subscribers inherit properties and subscriptions from their parent subscribers.

- Specifying the Activation Order for Subscriptions on page 38
- Inheritance of Properties and Subscriptions on page 38

Specifying the Activation Order for Subscriptions

You can specify the order in which the SAE activates subscriptions that are set up to activate on login for a particular subscriber. To specify the order, you define a precedence for the activation of each subscription. The SAE activates services in ascending order of precedence; if multiple services have the same precedence, the SAE activates them in an unspecified order.

You can configure the activation order by setting the `activation-order` option when you configure a subscription to a service with the SRC CLI. The value range is 0–2,147,483,647. By default, the activation order is set as 10,000. The enterprise manager portal automatically sets the activation order of some subscriptions to ensure that they are activated before other subscriptions that depend on them.

When a subscriber logs out, the SAE deactivates the associated active service sessions in descending order of precedence. This ensures that the associated active service sessions are deactivated in the reverse order from which they were previously activated.

Inheritance of Properties and Subscriptions

Subordinate subscribers inherit properties and SAE subscriptions from their parent subscribers, unless you specify a different value for the subordinate. Properties that a subscriber can inherit include the maximum number of concurrent logins and the session timeout value. For example, if you configure a subscription to a video service for an enterprise and configure a different subscription to the same video service for a site within that enterprise, the site uses its own subscription rather than the inherited subscription.
Enabling the Subscriber and Subscription Configuration (SRC CLI)

Before you can configure subscribers and subscriptions with the SRC CLI, you must enable the policy, service, and subscriber editor on the SRC CLI. To do so:

- In operational mode, enter the following command:

  user@host> enable component editor

If you are using multiple C Series Controllers, we recommend that you enable the policy, service, and subscriber editor on only one C Series Controller on your network. If you enable the editor on multiple platforms, there is a risk that configuration changes will conflict. In this case, the second edit that is committed to the platform is lost.

Related Documentation
- Enabling the Subscriber and Subscription Configuration (C-Web Interface) on page 39
- Configuring Subscriptions (SRC CLI) on page 63
- Configuring Subscribers and Subscriptions Overview on page 38
- Enterprise Subscriber and Subscription Hierarchy on page 4

Enabling the Subscriber and Subscription Configuration (C-Web Interface)

Before you can configure subscribers and subscriptions with the C-Web interface, you must enable the policy, service, and subscriber editor on the C-Web interface. To do so:

1. Click Manage>Enable.
   
   The Enable pane appears.

2. From the Component list, select Editor, and click OK.

If you are using multiple C Series Controllers, we recommend that you enable the policy, service, and subscriber editor on only one C Series Controller on your network.

CAUTION: If you enable the editor on multiple platforms, there is a risk that configuration changes will conflict. In this case, the second edit that is committed to the platform is lost.

Related Documentation
- Enabling the Subscriber and Subscription Configuration (SRC CLI) on page 39
- Configuring Subscriptions (C-Web Interface) on page 66
- Configuring Subscribers and Subscriptions Overview on page 38
- Enterprise Subscriber and Subscription Hierarchy on page 4
Adding Subscribers (SRC CLI)

The tasks to configure subscribers are:

- Adding Retailers (SRC CLI) on page 41
- Configuring Administrative Information for Retailers (SRC CLI) on page 43
- Adding Subscriber Folders (SRC CLI) on page 45

The subscriber hierarchy requires that the objects immediately subordinate to retailers be subscriber folders. You can, however, use subscriber folders subordinate to other subscriber objects to organize groups of subscribers.

- Adding Residential Subscribers (SRC CLI) on page 47
- Adding Enterprises (SRC CLI) on page 53
- Configuring Administrative Information for Enterprise Subscribers (SRC CLI) on page 55
- Adding Sites (SRC CLI) on page 57
- Adding Devices as Subscribers (SRC CLI) on page 58

After you add subscribers, you can add managers and configure subscriptions.

Related Documentation

- Adding Managers (SRC CLI) on page 61
- Configuring Subscriptions (SRC CLI) on page 63
- Adding Subscribers (C-Web Interface) on page 40
- Creating and Tracking Subscriber Sessions
- Subscribers Overview on page 3
- Configuring Subscribers and Subscriptions Overview on page 38

Adding Subscribers (C-Web Interface)

This section describes how to add and configure subscribers with the C-Web interface.

The tasks to configure subscribers are:

- Add retailers.
  
  See “Adding Retailers (C-Web Interface)” on page 43.

- Add subscriber folders.
  
  See “Adding Subscriber Folders (C-Web Interface)” on page 46.

The subscriber hierarchy requires that the objects immediately subordinate to retailers be subscriber folders. You can, however, use subscriber folders subordinate to other subscriber objects to organize groups of subscribers.

- Add residential subscribers.
See “Adding Residential Subscribers (C-Web Interface)” on page 50.

- Add enterprises.
  See “Adding Enterprises (C-Web Interface)” on page 54.

- Add sites.
  See “Adding Sites (C-Web Interface)” on page 58.

- Add devices as subscribers.
  See “Adding Devices as Subscribers (C-Web Interface)” on page 60.

Related Documentation
- Adding Managers (C-Web Interface) on page 63
- Configuring Subscriptions (C-Web Interface) on page 66

Adding Retailers (SRC CLI)

If you customize the SRC software for only one Internet service provider (ISP), use the retailer called default that is provided in the sample data. If the SRC software will manage multiple ISPs, add a retailer for each ISP.

Use the following configuration statements to add a retailer:

```
subscribers retailer name {
    domain-name [ domain-name... ];
    authentication-plug-in [ authentication-plug-in... ];
    dhcp-authentication-plug-in [ dhcp-authentication-plug-in... ];
    tracking-plug-in [ tracking-plug-in... ];
    maximum-login maximum-login;
    session-timeout session-timeout;
    scope [ scope... ];
    substitution [ substitution... ];
}
```

To add a retailer:

1. From configuration mode, enter the retailer configuration. In this procedure, retailer-one is the name of the retailer.

   ```
   user@host# edit subscribers retailer retailer-one
   ```

2. Configure the domain name(s) associated with the retailer.

   ```
   [edit subscribers retailer retailer-one]
   user@host# set domain-name [ domain-name... ]
   ```

3. (Optional) Configure the plug-in(s) used to authenticate subscribers who log in to the domains specified for this retailer.
4. (Optional) Configure the DHCP authorization plug-in(s) used to authenticate DHCP discover requests for subscribers who log in to the domains specified for this retailer.

[edit subscribers retailer retailer-one]
user@host# set dhcp-authentication-plug-in [ dhcp-authentication-plug-in... ]

5. (Optional) Configure the plug-in(s) used for accounting or tracking subscriber sessions.

[edit subscribers retailер retailer-one]
user@host# set tracking-plug-in [ tracking-plug-in... ]

6. (Optional) Configure the maximum number of concurrent logins for subscribers associated with this retailer.

[edit subscribers retailer retailer-one]
user@host# set maximum-login maximum-login

7. (Optional) Configure the timeout for subscriber sessions.

[edit subscribers retailer retailer-one]
user@host# set session-timeout session-timeout

8. (Optional) Assign service scopes to the retailer.

[edit subscribers retailer retailer-one]
user@host# set scope [ scope... ]

9. (Optional) Configure the actual values for parameters associated with this retailer.

[edit subscribers retailer retailer-one]
user@host# set substitution [ substitution... ]

10. (Optional) Verify your configuration.

[edit subscribers retailer retailer-one]
user@host# show
domain-name abc.com;
authentication-plug-in flexRadiusAuth;
tracking-plug-in fileAcct;
maximum-login 8;
session-timeout 6000;
Adding Retailers (C-Web Interface)

If you customize the SRC module for only one Internet service provider (ISP), use the retailer called default that is provided in the sample data. If the SRC module will manage multiple ISPs, add a retailer for each ISP.

To add a retailer:

1. Click Configure > Subscribers.
   The Subscribers pane appears.
2. From the Create new list, select Retailer.
3. In the dialog box, type a name for the new Retailer (for example, retailer-one), and click OK.
   The Retailer: <name> pane appears.
4. Enter information as described in the Help text in the main pane, and click Apply.

Configuring Administrative Information for Retailers (SRC CLI)

Use the following configuration statements to configure administrative information about the retailer:

```
subscribers retailer name info {
    contact contact ;
    e-mail e-mail ;
    url url ;
}
```

To add administrative information about retailers:
1. From configuration mode, enter the retailer subscriber info configuration. In this procedure, retailer-one is the name of the retailer.

   ```
   user@host# edit subscribers retailer retailer-one info
   ```

2. (Optional) Configure a contact name for the retailer.

   ```
   [edit subscribers retailer retailer-one info]
   user@host# set contact contact
   ```

3. (Optional) Configure an e-mail address for the retailer.

   ```
   [edit subscribers retailer retailer-one info]
   user@host# set e-mail e-mail
   ```

4. (Optional) Configure a URL for the retailer.

   ```
   [edit subscribers retailer retailer-one info]
   user@host# set url url
   ```

5. (Optional) Verify your configuration.

   ```
   [edit subscribers retailer retailer-one info]
   user@host# show
   contact "Mary Smith";
   e-mail msmith@abc.com;
   url www.abc.com;
   ```

**Related Documentation**

- Configuring Administrative Information for Retailers (C-Web Interface) on page 44
- Configuring Administrative Information for Enterprise Subscribers (SRC CLI) on page 55
- Adding Retailers (SRC CLI) on page 41
- Subscribers Overview on page 3

### Configuring Administrative Information for Retailers (C-Web Interface)

To add administrative information about retailers:

1. Click **Configure**, and expand **Subscribers**.
2. Expand the specified retailer, and click **Info**.
   
   The Info pane appears.
3. Click the **Create** button.
The Info pane reappears.

4. Enter information as described in the Help text in the main pane, and click **Apply**.

### Related Documentation

- Adding Retailers (C-Web Interface) on page 43
- Configuring Administrative Information for Enterprise Subscribers (C-Web Interface) on page 56
- Configuring Administrative Information for Retailers (SRC CLI) on page 43
- Subscribers Overview on page 3

### Adding Subscriber Folders (SRC CLI)

You can create subscriber folders for retailers, existing subscriber folders, enterprises, and sites. You must create a subscriber folder in a retailer object before you can add other types of subscribers.

Use the following configuration statements to configure subscriber folders:

```
subscribers retailer name subscriber-folder folder-name {
  maximum-login maximum-login ;
  session-timeout session-timeout ;
  scope [ scope .. ];
  substitution [ substitution ... ];
}
```

To create a subscriber folder:

1. From configuration mode, enter the subscriber folder configuration. In this procedure, retailer-one is the name of the retailer and local is the name of the subscriber folder.

   ```
   user@host# edit subscribers retailer retailer-one subscriber-folder local
   ```

2. (Optional) Configure the maximum number of concurrent logins for subscribers associated with this folder.

   ```
   [edit subscribers retailer retailer-one subscriber-folder local]
   user@host# set maximum-login maximum-login
   ```

3. (Optional) Configure the timeout for subscriber sessions associated with this folder.

   ```
   [edit subscribers retailer retailer-one subscriber-folder local]
   user@host# set session-timeout session-timeout
   ```

4. (Optional) Assign service scopes to the folder.
5. (Optional) Configure the actual values for parameters associated with this folder.

```bash
[edit subscribers retailer retailer-one subscriber-folder local]
user@host# set scope [ scope... ]
```

6. (Optional) Verify your configuration.

```bash
[edit subscribers retailer retailer-one subscriber-folder local]
user@host# show
   session-timeout 9000;
   scope POP-Boston;
```

### Related Documentation
- Adding Subscriber Folders (C-Web Interface) on page 46
- Adding Subscribers (SRC CLI) on page 40
- Adding Retailers (SRC CLI) on page 41
- Subscribers Overview on page 3
- Configuring Subscribers and Subscriptions Overview on page 38

### Adding Subscriber Folders (C-Web Interface)

You can create subscriber folders for retailers, existing subscriber folders, enterprises, and sites. You must create a subscriber folder in a retailer object before you can add other types of subscribers.

To create a subscriber folder:

1. Click **Configure**, and expand **Subscribers**.
2. Click the specified retailer.
3. From the Create new list, select **Subscriber Folder**.
4. In the dialog box, enter a name for the new Subscriber Folder, and click **OK**.
   
   The Subscriber Folder: `<name>` pane appears.
5. Enter information as described in the Help text in the main pane, and click **Apply**.

### Related Documentation
- Adding Subscribers (SRC CLI) on page 40
- Adding Retailers (C-Web Interface) on page 43
- Adding Subscriber Folders (SRC CLI) on page 45

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Subscribers and Subscription Management

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46

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Adding Residential Subscribers (SRC CLI)

Use the following configuration statements to configure residential subscribers:

```plaintext
subscribers retailer name subscriber-folder folder-name subscriber name {  
  common-name common-name  
  surname surname  
  given-name given-name  
  initials initials  
  anonymous;  
  ip-address ip-address  
  interface-name interface-name  
  maximum-login-group maximum-login-group  
  display-name display-name  
  encrypted-password encrypted-password  
  plain-text-password;  
  maximum-login maximum-login  
  session-timeout session-timeout;  
  accounting-user-id accounting-user-id;  
  substitution [ substitution... ];  
}
```

To add a residential subscriber:

1. From configuration mode, enter the residential subscriber configuration. In this procedure, peter is the name of the subscriber record.

   ```plaintext
   user@host# edit subscribers retailer default subscriber-folder local subscriber peter
   ```

2. Configure the name that defines the subscriber in the directory.

   ```plaintext
   [edit subscribers retailer default subscriber-folder local subscriber peter]
   user@host# set common-name common-name
   ```

3. Configure the subscriber's last name.

   ```plaintext
   [edit subscribers retailer default subscriber-folder local subscriber peter]
   user@host# set surname surname
   ```

4. (Optional) Configure the subscriber's first name.

   ```plaintext
   [edit subscribers retailer default subscriber-folder local subscriber peter]
   user@host# set given-name given-name
   ```
5. (Optional) Configure the subscriber’s middle initial(s)

```
[edit subscribers retailer default subscriber-folder local subscriber peter] user@host# set initials initials
```

6. (Optional) Specify whether the subscriber profile created with this subscriber definition is a shared profile. Subscribers cannot modify shared profiles.

```
[edit subscribers retailer default subscriber-folder local subscriber peter] user@host# set anonymous
```

7. (Optional) Configure the IP address for subscribers who have fixed IP addresses, and for whom the SRC does not learn addresses through its management of routers or through calls to its notification API.

```
[edit subscribers retailer default subscriber-folder local subscriber peter] user@host# set ip-address ip-address
```

8. (Optional) Configure the type and specifier of the router interface and virtual router that manage this subscriber.

```
[edit subscribers retailer default subscriber-folder local subscriber peter] user@host# set interface-name interface-name
```

9. (Optional) Configure the maximum number of concurrent logins for this subscriber and all subordinate objects.

```
[edit subscribers retailer default subscriber-folder local subscriber peter] user@host# set maximum-login-group maximum-login-group
```

10. (Optional) Configure the subscriber’s name as it appears in login screens.

```
[edit subscribers retailer default subscriber-folder local subscriber peter] user@host# set display-name display-name
```

11. (Optional) Configure the login password and type of encryption.

```
[edit subscribers retailer default subscriber-folder local subscriber peter] user@host# set encrypted-password encrypted-password
```

12. (Optional) Configure the plain text password.

```
[edit subscribers retailer default subscriber-folder local subscriber peter] user@host# set plain-text-password
```
13. (Optional) Configure the maximum number of concurrent logins for subscribers associated with this subscriber definition.

```
[edit subscribers retailer default subscriber-folder local subscriber peter]
user@host# set maximum-login maximum-login
```

14. (Optional) Configure the timeout for subscriber sessions associated with this subscriber.

```
[edit subscribers retailer default subscriber-folder local subscriber peter]
user@host# set session-timeout session-timeout
```

15. (Optional) Configure the value that identifies the subscriber in accounting records; for a household subscriber, all subordinate subscribers generally use the same ID.

```
[edit subscribers retailer default subscriber-folder local subscriber peter]
user@host# set accounting-user-id accounting-user-id
```

16. (Optional) Assign service scopes to the subscriber.

```
[edit subscribers retailer default subscriber-folder local subscriber peter]
user@host# set scope [ scope... ]
```

17. (Optional) Configure the actual values for parameters associated with this subscriber.

```
[edit subscribers retailer default subscriber-folder local subscriber peter]
user@host# set substitution [ substitution... ]
```

18. (Optional) Verify your configuration.

```
[edit subscribers retailer default subscriber-folder local subscriber peter]
user@host# show
  common-name psmith;
  surname smith;
  initials A;
  anonymous;
  ip-address 10.10.62.3;
  interface-name fastethernet6/0.1@vrName@routerName;
  encrypted-password abcdefh;
  session-timeout 9000;
```

Related Documentation

- Adding Residential Subscribers (C-Web Interface) on page 50
- Configuring Administrative Information for Residential Subscribers (SRC CLI) on page 50
- Subscribers Overview on page 3
Adding Residential Subscribers (C-Web Interface)

To add a residential subscriber:

1. Click **Configure**, and expand **Subscribers**.
2. Expand the specified retailer, and the specified subscriber folder.
3. Click the specified subscriber.
   - The Subscriber: <name> pane appears.
4. From the Create new list, select **Subscriber**.
5. In the dialog box enter a name for the new Subscriber, and click **OK**.
   - The Subscriber: <name> pane appears.
6. Enter information as described in the Help text in the main pane, and click **Apply**.

Related Documentation
- Configuring Administrative Information for Residential Subscribers (C-Web Interface) on page 52
- Adding Residential Subscribers (SRC CLI) on page 47
- Subscribers Overview on page 3
- Configuring Subscribers and Subscriptions Overview on page 38
- Residential Subscriber Login and Processes on page 11

Configuring Administrative Information for Residential Subscribers (SRC CLI)

Use the following configuration statements to configure administrative information about the subscriber:

```bash
subscribers retailer name subscriber-folder folder-name subscriber name info {
  home-phone home-phone ;
  additional-phone additional-phone ;
  fax fax ;
  e-mail e-mail ;
  city city ;
  street street ;
  postal-code postal-code ;
  language language ;
  job job ;
  description description ;
}
```

To add administrative information about residential subscribers:
1. From configuration mode, enter the residential subscriber info configuration. In this procedure, peter is the name of the subscriber.

   ```bash
   user@host# edit subscribers retailer default subscriber-folder local subscriber peter info
   ```

2. (Optional) Configure a home phone number for the subscriber.

   ```bash
   [edit subscribers retailer default subscriber-folder local subscriber peter info]
   user@host# set home-phone home-phone
   ```

3. (Optional) Configure a second phone number for the subscriber.

   ```bash
   [edit subscribers retailer default subscriber-folder local subscriber peter info]
   user@host# set additional-phone additional-phone
   ```

4. (Optional) Configure a fax number for the subscriber.

   ```bash
   [edit subscribers retailer default subscriber-folder local subscriber peter info]
   user@host# set fax fax
   ```

5. (Optional) Configure an e-mail address for the subscriber.

   ```bash
   [edit subscribers retailer default subscriber-folder local subscriber peter info]
   user@host# set e-mail e-mail
   ```

6. (Optional) Configure the city for the subscriber.

   ```bash
   [edit subscribers retailer default subscriber-folder local subscriber peter info]
   user@host# set city city
   ```

7. (Optional) Configure the street address for the subscriber.

   ```bash
   [edit subscribers retailer default subscriber-folder local subscriber peter info]
   user@host# set street street
   ```

8. (Optional) Configure the postal code for the subscriber.

   ```bash
   [edit subscribers retailer default subscriber-folder local subscriber peter info]
   user@host# set postal-code postal-code
   ```

9. (Optional) Configure the language of the subscriber.
10. (Optional) Configure the job description of the subscriber.

```
[edit subscribers retailer default subscriber-folder local subscriber peter info]
user@host# set job job
```

11. (Optional) Configure a description for the subscriber.

```
[edit subscribers retailer default subscriber-folder local subscriber peter info]
user@host# set description description
```

### Related Documentation
- Adding Residential Subscribers (SRC CLI) on page 47
- Configuring Administrative Information for Residential Subscribers (C-Web Interface) on page 52
- Subscribers Overview on page 3
- Configuring Subscribers and Subscriptions Overview on page 38
- Residential Subscriber Login and Processes on page 11

### Configuring Administrative Information for Residential Subscribers (C-Web Interface)

To add administrative information about residential subscribers:

1. Click **Configure**, and expand **Subscribers**.
2. Expand the specified retailer and the specified subscriber folder.
3. Expand the specified subscriber, and click **Info**.
   The Info pane appears.
4. Click the **Create** button.
5. Enter information as described in the Help text in the main pane, and click **Apply**.
Adding Enterprises (SRC CLI)

Use the following configuration statements to add an enterprise subscriber:

```
subscribers retailer name subscriber-folder folder-name enterprise name {
  display-name display-name;
  accounting-user-id accounting-user-id;
  description description;
  scope [scope...];
  substitution [substitution...];
}
```

To add an enterprise subscriber:

1. From configuration mode, enter the enterprise subscriber configuration. In this procedure, ABCInc is the name of the enterprise subscriber.

   ```
   user@host# edit subscribers retailer default subscriber-folder local enterprise ABCInc
   ```

2. (Optional) Configure the name that is displayed in enterprise management portals, if different from the enterprise name.

   ```
   [edit subscribers retailer default subscriber-folder local enterprise ABCInc]
   user@host# set display-name display-name
   ```

3. (Optional) Configure the name that identifies the enterprise in accounting records.

   ```
   [edit subscribers retailer default subscriber-folder local enterprise ABCInc]
   user@host# set accounting-user-id accounting-user-id
   ```

4. (Optional) Enter a description of the enterprise.

   ```
   [edit subscribers retailer default subscriber-folder local enterprise ABCInc]
   user@host# set description description
   ```

5. (Optional) Assign service scopes to the enterprise.

   ```
   [edit subscribers retailer default subscriber-folder local enterprise ABCInc]
   user@host# set scope [scope...]
   ```

6. (Optional) Configure the actual values for parameters associated with this enterprise.

   ```
   [edit subscribers retailer default subscriber-folder local enterprise ABCInc]
   user@host# set substitution [substitution...]
   ```
7. (Optional) Verify your configuration.

[edit subscribers retailer default subscriber-folder local enterprise ABCInc]
user@host# show
display-name ABCInc;
description "This enterprise is sample data for use with JunosE routers. The attached EntJunose scope contains enterprise services that are designed to work with JunosE. scope [ EntJunose POP-Ottawa POP-Boca POP-Boston POP-Montreal ]; substitution [ "acct : network = 208.93.36.80 / 28" "eng : network = 208.93.36.64 / 28" ];

8. Configure an access subscription for the enterprise. (See “Configuring Accesses (SRC CLI)” on page 67.)

Related Documentation
- Adding Enterprises (C-Web Interface) on page 54
- Configuring Administrative Information for Enterprise Subscribers (SRC CLI) on page 55
- Enterprise Subscriber and Subscription Hierarchy on page 4
- Enterprise Subscriber Login Process on page 26
- Automatic Activation at Login on page 32

Adding Enterprises (C-Web Interface)

To add an enterprise subscriber:

1. Click Configure, and expand Subscribers.
2. Expand the specified retailer, and then click the specified subscriber folder.
   The Subscriber Folder: <name> pane appears.
3. From the Create new list, select Enterprise.
4. In the dialog box, enter a name for the new Enterprise, and click OK.
   The Enterprise: <name> pane appears.
5. Enter information as described in the Help text in the main pane, and click Apply.
6. Configure an access subscription for the enterprise. (See “Configuring Accesses (C-Web Interface)” on page 70.)

Related Documentation
- Configuring Administrative Information for Enterprise Subscribers (C-Web Interface) on page 56
- Adding Enterprises (SRC CLI) on page 53
- Enterprise Subscriber and Subscription Hierarchy on page 4
- Enterprise Subscriber Login Process on page 26
Configuring Administrative Information for Enterprise Subscribers (SRC CLI)

Use the following configuration statements to configure administrative information about the enterprise subscriber:

```plaintext
subscribers retailer \name subscriber-folder \folder-name enterprise \name info {
    phone phone;
    fax fax;
    po-box po-box;
    city city;
    street street;
    state state;
    postal-code postal-code;
}
```

To add administrative information about enterprise subscribers:

1. From configuration mode, enter the enterprise subscriber info configuration. For example:
   ```plaintext
   user@host# edit subscribers retailer default subscriber-folder local enterprise ABCInc info
   ```

2. (Optional) Configure a phone number for the subscriber.
   ```plaintext
   user@host# set phone phone
   ```

3. (Optional) Configure a fax number for the subscriber.
   ```plaintext
   user@host# set fax fax
   ```

4. (Optional) Configure a post office box for the subscriber.
   ```plaintext
   user@host# set po-box po-box
   ```

5. (Optional) Configure the city for the subscriber.
   ```plaintext
   user@host# set city city
   ```

6. (Optional) Configure the street address for the subscriber.
7. (Optional) Configure a state for the subscriber.

```
[edit subscribers retailer default subscriber-folder local enterprise ABCInc info]
user@host# set state state
```

8. (Optional) Configure the postal code for the subscriber.

```
[edit subscribers retailer default subscriber-folder local enterprise ABCInc info]
user@host# set postal-code postal-code
```

---

**Configuring Administrative Information for Enterprise Subscribers (C-Web Interface)**

To add administrative information about enterprise subscribers:

1. Click **Configure**, and expand **Subscribers**.
2. Expand the specified retailer and subscriber folder.
3. Expand the specified enterprise, and click **Info**.
   
The Info pane appears.
4. Click the **Create** button.
   
The Info pane reappears.
5. Enter information as described in the Help text in the main pane, and then click **Apply**.

---

**Related Documentation**

- [Adding Enterprises (C-Web Interface) on page 54](#)
- [Configuring Administrative Information for Retailers (C-Web Interface) on page 44](#)
- [Configuring Administrative Information for Enterprise Subscribers (SRC CLI) on page 55](#)
- [Subscribers Overview on page 3](#)
- [Enterprise Subscriber Login Process on page 26](#)
Adding Sites (SRC CLI)

Use the following configuration statements to add a site:

```
subscribers retailer name subscriber-folder folder-name enterprise name site name {
    network [ network... ];
    display-name display-name;
    accounting-user-id accounting-user-id;
    description description;
}
```

To add a site:

1. From configuration mode, enter the site configuration. In this procedure, ABCInc is the name of the enterprise, and Montreal is the name of the site.

   ```
   user@host# edit subscribers retailer default subscriber-folder local enterprise ABCInc site Montreal
   ```

2. (Optional) Record networks used at the site. If you build a custom enterprise manager application, you can access this information through the enterprise portal APIs.

   ```
   [edit subscribers retailer default subscriber-folder local enterprise ABCInc site Montreal]
   user@host# set network [ network... ]
   ```

3. (Optional) Configure the name that is displayed in enterprise management portals, if different from the site name.

   ```
   [edit subscribers retailer default subscriber-folder local enterprise ABCInc site Montreal]
   user@host# set display-name display-name
   ```

4. (Optional) Configure the name that identifies the site in accounting records.

   ```
   [edit subscribers retailer default subscriber-folder local enterprise ABCInc site Montreal]
   user@host# set accounting-user-id accounting-user-id
   ```

5. (Optional) Enter a description of the site.

   ```
   [edit subscribers retailer default subscriber-folder local enterprise ABCInc site Montreal]
   user@host# set description description
   ```

6. (Optional) Verify your configuration.

   ```
   [edit subscribers retailer default subscriber-folder local enterprise ABCInc site Montreal]
   ```
7. Configure an access for the site. (See “Configuring Accesses (SRC CLI)” on page 67.)

Related Documentation

- Adding Sites (C-Web Interface) on page 58
- Adding Retailers (SRC CLI) on page 41
- Adding Subscriber Folders (SRC CLI) on page 45
- Configuring Subscribers and Subscriptions Overview on page 38

Adding Sites (C-Web Interface)

To add a site:

1. Click Configure, and expand Subscribers.
2. Expand the specified retailer and the subscriber folder.
3. Click the specified enterprise.
   The Enterprise: <name> pane appears.
4. From the Create new list, select Site.
5. In the dialog box, enter a name for the new Site, and click OK.
   The Site: <name> pane appears.
6. Enter information as described in the Help text in the main pane, and click Apply.
7. Configure an access for the site. (See “Configuring Accesses (C-Web Interface)” on page 70.)

Related Documentation

- Adding Retailers (C-Web Interface) on page 43
- Adding Subscriber Folders (C-Web Interface) on page 46
- Adding Sites (SRC CLI) on page 57
- Configuring Subscribers and Subscriptions Overview on page 38

Adding Devices as Subscribers (SRC CLI)

Configure a device subscriber for subscriber sessions that manage the forwarding interface on devices running Junos OS and the router pseudo-subscriber on JunosE routers.

You can add devices as subscribers to subscriber folders, enterprises, and sites. Use the following configuration statements to add a device as a subscriber:
subscribers retailer name subscriber-folder folder-name device device-name [ 
  display-name display-name ;
  maximum-login maximum-login ;
  accounting-user-id accounting-user-id ;
  substitution [ substitution... ];
]
subscribers retailer name subscriber-folder folder-name enterprise name device device-name [ 
  display-name display-name ;
  maximum-login maximum-login ;
  accounting-user-id accounting-user-id ;
  substitution [ substitution... ];
]
subscribers retailer name subscriber-folder folder-name enterprise name site name device device-name [ 
  display-name display-name ;
  maximum-login maximum-login ;
  accounting-user-id accounting-user-id ;
  substitution [ substitution... ];
]

To add a device as a subscriber:

1. From configuration mode, enter the device subscriber configuration. In this procedure, default@TMJunosA is the name of the device.

   user@host# edit subscribers retailer SP-TM subscriber-folder devices device default@TMJunosA

2. (Optional) Configure the name of the device as you want it to appear in SRC applications, such as portals.

   [edit subscribers retailer SP-TM subscriber-folder devices device default@TMJunosA]
   user@host# set display-name display-name

3. (Optional) Configure the maximum number of concurrent logins for subscribers associated with this device.

   [edit subscribers retailer SP-TM subscriber-folder devices device default@TMJunosA]
   user@host# set maximum-login maximum-login

4. (Optional) Configure the name that identifies the device in accounting records.

   [edit subscribers retailer SP-TM subscriber-folder devices device default@TMJunosA]
   user@host# set accounting-user-id accounting-user-id

5. (Optional) Configure the actual values for parameters associated with this device.
[edit subscribers retailer SP-TM subscriber-folder devices device default@TMJunosA]
user@host# set substitution [substitution...]

6. (Optional) Verify your configuration.

[edit subscribers retailer SP-TM subscriber-folder devices device default@TMJunosA]
user@host# show
display-name "Profile for router running Junos OS";
accounting-user-id JunosRouter

Related Documentation
- Adding Devices as Subscribers (C-Web Interface) on page 60
- Adding Subscriber Folders (SRC CLI) on page 45
- Adding Enterprises (SRC CLI) on page 53
- Configuring Subscribers and Subscriptions Overview on page 38

Adding Devices as Subscribers (C-Web Interface)

You can configure a device subscriber for subscriber sessions that manage the forwarding interface on devices running Junos OS and the router pseudo-subscriber on JunosE routers.

You can add devices as subscribers to subscriber folders, enterprises, and sites.

To add a device as a subscriber:

1. Click Configure, and expand Subscribers and the specified retailer.
2. Click the specified subscriber folder.
   The Subscriber Folder: <name> pane appears.
3. From the Create new list, select Device.
4. In the dialog box, enter a name for the new Device, and click OK.
   The Device: <name> pane appears.
5. Enter information as described in the Help text in the main pane, and click Apply.

Related Documentation
- Adding Subscriber Folders (C-Web Interface) on page 46
- Adding Enterprises (C-Web Interface) on page 54
- Adding Devices as Subscribers (SRC CLI) on page 58
- Configuring Subscribers and Subscriptions Overview on page 38
Adding Managers (SRC CLI)

Use the following configuration statements to configure a manager:

```plaintext
subscribers retailer name manager name [ 
  role [(administrator | subscription | substitution | activation | vpn)...]; 
  encrypted-password encrypted-password ; 
  plain-text-password; 
  description description ; 
] 
subscribers retailer name subscriber-folder folder-name manager name [ 
  role [(administrator | subscription | substitution | activation | vpn)...]; 
  encrypted-password encrypted-password ; 
  plain-text-password; 
  description description ; 
] 
subscribers retailer name subscriber-folder folder-name enterprise name manager name [ 
  role [(administrator | subscription | substitution | activation | vpn)...]; 
  encrypted-password encrypted-password ; 
  plain-text-password; 
  description description ; 
] 
subscribers retailer name subscriber-folder folder-name enterprise name site name manager name [ 
  role [(administrator | subscription | substitution | activation | vpn)...]; 
  encrypted-password encrypted-password ; 
  plain-text-password; 
  description description ; 
] 
subscribers retailer name subscriber-folder folder-name enterprise name access name manager name [ 
  role [(administrator | subscription | substitution | activation | vpn)...]; 
  encrypted-password encrypted-password ; 
  plain-text-password; 
  description description ; 
] 
subscribers retailer name subscriber-folder folder-name enterprise name site name access name manager name [ 
  role [(administrator | subscription | substitution | activation | vpn)...]; 
  encrypted-password encrypted-password ; 
  plain-text-password; 
  description description ; 
] 
subscribers retailer name subscriber-folder folder-name device device-name manager name [ 
  role [(administrator | subscription | substitution | activation | vpn)...]; 
  encrypted-password encrypted-password ; 
  plain-text-password; 
  description description ; 
] 
subscribers retailer name subscriber-folder folder-name enterprise name device device-name manager name [ 
  role [(administrator | subscription | substitution | activation | vpn)...]; 
  encrypted-password encrypted-password ; 
  plain-text-password; 
  description description ; 
] 
```
To add a manager:

1. From configuration mode, enter the manager configuration. In this procedure, we are creating a manager called abcmgr in the ABCInc enterprise.

   ```
   user@host# edit subscribers retailer default subscriber-folder local enterprise ABCInc manager abcmgr
   ```

2. (Optional) Configure the privilege level (role) for the manager.

   ```
   [edit subscribers retailer default subscriber-folder local enterprise ABCInc manager abcmgr]
   user@host# set role [(administrator | subscription | substitution | activation | vpn)...] 
   ```

3. (Optional) Configure an encrypted password for the manager:

   ```
   [edit subscribers retailer default subscriber-folder local enterprise ABCInc manager abcmgr]
   user@host# set encrypted-password encrypted-password
   ```

4. (Optional) Configure a plain text password for the manager.

   ```
   [edit subscribers retailer default subscriber-folder local enterprise ABCInc manager abcmgr]
   user@host# set plain-text-password plain-text-password
   ```

5. (Optional) Enter a description for the manager.

   ```
   [edit subscribers retailer default subscriber-folder local enterprise ABCInc manager abcmgr]
   user@host# set description description
   ```

6. (Optional) Verify your configuration.
Adding Managers (C-Web Interface)

To add a manager:

1. Click Configure, and expand Subscribers.
2. Expand the specified retailer and subscriber folder.
3. Click the specified enterprise.
   The Enterprise: <name> pane appears.
4. From the Create new List, select Manager.
5. In the dialog box, enter a name for the new Manager, and click OK.
   The Manager: <name> pane appears.
6. Enter information as described in the Help text in the main pane, and click Apply.

Configuring Subscriptions (SRC CLI)

After you add subscribers, you configure subscriptions for the subscribers. Residential or enterprise subscribers may also be able to configure subscriptions through the portal, and managers assigned to a subscriber object may be able to configure subscriptions for that object.

You must add a service to the directory before you can specify that service for subscribers. See Services for the SRC Software Overview.

After you configure a subscription to a service, the service is available to the subscriber through the portal. Depending on the configuration, the subscriber may need to activate the service. You can configure schedules to define when services are available to subscribers. See Service Schedules Overview.
To allow a subscriber to have a number of subscriptions to a service at the same time, each subscription:

- Must have its own parameter substitutions.
- Can be activated or deactivated independently.

An object for each subscription is created in the directory. The name of the object has the following format:

\[ <\text{ServiceName}>%<\text{SubscriptionId}> \]

- <ServiceName>—Name of the service
- <SubscriptionId>—Name of the subscription

Other than the naming convention, multiple subscriptions are identical to regular subscriptions.
To configure a subscription to a service:

1. From configuration mode, enter the subscription configuration. In this procedure, peter is the name of the subscriber and Video-Gold is the name of the subscription.

   ```
   user@host# edit subscribers retailer default subscriber-folder local subscriber peter subscription Video-Gold
   ```

2. (Optional) Configure the status of the service subscription.

   ```
   [edit subscribers retailer default subscriber-folder local subscriber peter subscription Video-Gold]
   user@host# set status (active | suspended | hidden)
   ```

3. (Optional) Specify how the service is activated.

   ```
   [edit subscribers retailer default subscriber-folder local subscriber peter subscription Video-Gold]
   user@host# set activation (manual | automatically-on-login)
   ```
4. (Optional) Specify when the SAE should activate this subscription relative to the subscriber's other subscriptions that are configured to activate on login. The value range is 0–2,147,483,647. By default, the activation order is set as 10,000.

   ```
   [edit subscribers retailer default subscriber-folder local subscriber peter subscription Video-Gold]
   user@host# set activation-order activation-order
   ```

   **NOTE:** When a subscriber logs out, the SAE deactivates the associated active service sessions in the reverse order in which they were previously activated.

5. (Optional) Configure the actual values for parameters associated with this subscription.

   ```
   [edit subscribers retailer default subscriber-folder local subscriber peter subscription Video-Gold]
   user@host# set substitution [ substitution... ]
   ```

6. (Optional) Verify your configuration.

   ```
   [edit subscribers retailer default subscriber-folder local subscriber peter subscription Video-Gold]
   user@host# show
   status active;
   activation manual;
   activation-order 2;
   ```

**Related Documentation**

- Configuring Subscriptions (C-Web Interface) on page 66
- Enabling the Subscriber and Subscription Configuration (SRC CLI) on page 39
- Subscriptions Overview on page 4
- Configuring Subscribers and Subscriptions Overview on page 38
- Enterprise Subscriber and Subscription Hierarchy on page 4

**Configuring Subscriptions (C-Web Interface)**

After you add subscribers, you configure subscriptions for the subscribers. Residential or enterprise subscribers may also be able to configure subscriptions through the portal, and managers assigned to a subscriber object may be able to configure subscriptions for that object.

You must add a service to the directory before you can specify that service for subscribers.
After you configure a subscription to a service, the service is available to the subscriber through the portal. Depending on the configuration, the subscriber may need to activate the service. You can configure schedules to define when services are available to subscribers.

To allow a subscriber to have multiple subscriptions to the same service, each subscription:

- Must have its own parameter substitutions.
- Can be activated or deactivated independently.

An object for each subscription is created in the directory. The name of the object has the following format:

\(<ServiceName>%<SubscriptionId>\)

- \(<ServiceName>\)—Name of the service
- \(<SubscriptionId>\)—Name of the subscription

Other than the naming convention, multiple subscriptions are identical to regular subscriptions.

To configure a subscription to a service:

1. Click **Configure**, and expand **Subscribers** and the specified retailer.
2. Click the specified subscriber folder.
   - The Subscriber Folder: \(<name>\) pane appears.
3. From the Create new list, select the type of subscription that you want to configure.
   - The Subscription: \(<name>\) pane appears.
4. Enter information as described in the Help text in the main pane, and click **Apply**.

**Related Documentation**

- Configuring Subscriptions (SRC CLI) on page 63
- Enabling the Subscriber and Subscription Configuration (C-Web Interface) on page 39
- Subscriptions Overview on page 4
- Configuring Subscribers and Subscriptions Overview on page 38
- Services for the SRC Software Overview
- Service Schedules Overview

**Configuring Accesses (SRC CLI)**

You must configure an access for an enterprise or a site. An access determines the way that the enterprise or site accesses Internet services, and specifies a set of services that are available to the particular access.
Subscriber classification scripts can use access subscription properties to match the interface in the network with an access in the directory. Typically, the interface alias, interface description, interface name, unique ID, NAS port ID, and router name are used to match an interface to an access.

You can specify multiple accesses; for example, you might want to specify primary and secondary services for Internet access.

To configure a subscription to an access service:

1. From configuration mode, enter the subscription configuration. In this procedure, Acme is the name of the enterprise and AcmeAccess is the name of the access.

   ```
   user@host# edit subscribers retailer SP-TM subscriber-folder subscribers enterprise Acme access AcmeAccess
   ```

2. (Optional) Record routing protocols used at the enterprise or site. If you build a custom enterprise manager application, you can access this information through the enterprise portal APIs.

   ```
   [edit subscribers retailer SP-TM subscriber-folder subscribers enterprise Acme access AcmeAccess]
   user@host# set routing-protocol routing-protocol
   ```

3. (Optional) Configure the description of a router interface.
Chapter 3: Configuration Tasks for Subscribers and Subscriptions

[edit subscribers retailer SP-TM subscriber-folder subscribers enterprise Acme access AcmeAccess]
user@host# set interface-alias interface-alias

4. (Optional) Configure the alternate name of the interface that SNMP uses.

[edit subscribers retailer SP-TM subscriber-folder subscribers enterprise Acme access AcmeAccess]
user@host# set interface-description interface-description

5. (Optional) Configure the name of the interface using your router CLI syntax

[edit subscribers retailer SP-TM subscriber-folder subscribers enterprise Acme access AcmeAccess]
user@host# set interface-name interface-name

6. (Optional) Configure the router’s unique ID, which is the index of the router in the SNMP table for all interfaces.

[edit subscribers retailer SP-TM subscriber-folder subscribers enterprise Acme access AcmeAccess]
user@host# set unique-id unique-id

7. (Optional) Configure the network access server (NAS) port ID reported by the JunosE router through the Common Open Policy Service (COPS).

[edit subscribers retailer SP-TM subscriber-folder subscribers enterprise Acme access AcmeAccess]
user@host# set port-id port-id

8. (Optional) Configure the name of the router to which this access connects.

[edit subscribers retailer SP-TM subscriber-folder subscribers enterprise Acme access AcmeAccess]
user@host# set router-name router-name

9. (Optional) Configure the name that is displayed in enterprise management portals, if different from the service name.

[edit subscribers retailer SP-TM subscriber-folder subscribers enterprise Acme access AcmeAccess]
user@host# set display-name display-name

10. (Optional) Configure the value that identifies the service in accounting records.
11. (Optional) Configure the actual values for parameters associated with this subscription.

```
[edit subscribers retailer SP-TM subscriber-folder subscribers enterprise Acme access AcmeAccess]
user@host# set accounting-user-id accounting-user-id
```

12. (Optional) Verify your configuration.

```
[edit subscribers retailer SP-TM subscriber-folder subscribers enterprise Acme access AcmeAccess]
user@host# show
interface-alias cust123-456;
interface-name fastethernet6/0.1;
```

**Related Documentation**
- Configuring Accesses (C-Web Interface) on page 70
- Adding Enterprises (SRC CLI) on page 53
- Adding Sites (SRC CLI) on page 57
- Configuring Subscribers and Subscriptions Overview on page 38
- Configuring Classification Scripts Overview

**Configuring Accesses (C-Web Interface)**

You must configure an access for an enterprise or a site. An access determines the way that the enterprise or site accesses Internet services, and specifies a set of services that are available to the particular access.

Subscriber classification scripts can use access subscription properties to match the interface in the network with an access in the directory. Typically, the interface alias, interface description, interface name, unique ID, NAS port ID, and router name are used to match an interface to an access.

You can specify multiple accesses; for example, you might want to specify primary and backup services for Internet access.

To configure a subscription to an access service:

1. Click Configure, and expand Subscribers.
2. Expand the specified retailer and the subscriber folder.
3. Click the specified enterprise.
   The Enterprise: <name> pane appears.

4. From the Create new list, select Access.

5. In the dialog box, enter a name for the new Access, and click OK.
   The Access: <name> pane appears.

6. Enter information as described in the Help text in the main pane, and click Apply.

Related Documentation
- Adding Enterprises (C-Web Interface) on page 54
- Adding Sites (C-Web Interface) on page 58
- Configuring Accesses (SRC CLI) on page 67
- Configuring Subscribers and Subscriptions Overview on page 38
- Configuring Classification Scripts Overview
CHAPTER 4

Configuration Tasks for Subscriber-Related Properties on the SAE

- Configuring the Length of Time MAC Addresses Remain in SAE Cache (SRC CLI) on page 73
- Configuring the Length of Time That MAC Addresses Remain in SAE Cache (C-Web Interface) on page 75
- Identifying a Profile for Unauthenticated Subscribers (SRC CLI) on page 75
- Identifying a Profile for Unauthenticated Subscribers (C-Web Interface) on page 76
- Configuring Interim Accounting for Services and Subscribers (SRC CLI) on page 77
- Configuring Interim Accounting for Services and Subscribers (C-Web Interface) on page 78
- Avoiding Overcharges for Sessions That Time Out (SRC CLI) on page 79
- Avoiding Overcharges for Sessions That Time Out (C-Web Interface) on page 79
- Allowing Multiple Logins from the Same IP Address (SRC CLI) on page 80
- Allowing Multiple Logins from the Same IP Address (C-Web Interface) on page 81
- Authenticating Registered Username/Password Pairs (SRC CLI) on page 82
- Authenticating Registered Username/Password Pairs (C-Web Interface) on page 82
- Configuring Timers for Session Reactivation (SRC CLI) on page 83
- Configuring Timers for Session Reactivation (C-Web Interface) on page 84

Configuring the Length of Time MAC Addresses Remain in SAE Cache (SRC CLI)

When a DHCP subscriber transitions from an authenticated IP address to an unauthenticated IP address or vice versa, the SAE:

1. Logs out the subscriber associated with the original IP address.
2. Caches the subscriber profile in the in-memory cache, indexed by the DHCP subscriber's MAC address.
3. Waits until the DHCP subscriber with the cached MAC address obtains its new IP address, and then logs in the subscriber and associates it with the new IP address.
The period during which the subscriber profile remains in the in-memory cache can last until the DHCP lease time for the original address. If something happens during this period—for example, the subscriber turns off the client computer—the subscriber profile remains in the SAE’s in-memory cache forever. When a new IP address is assigned to the same DHCP client, problems can occur. To avoid such problems, entries in the in-memory cache are removed after a configurable amount of time.

Configure the amount of time that entries remain in cache to be greater than the time required for a DHCP subscriber to transition from an unauthenticated IP address to an authenticated IP address or vice versa. The time required for a DHCP subscriber to transition from one IP address to another depends on the lease times configured on the JunosE router and the instructions given to the subscriber on the Web portal, such as reboot your PC now.

Use the following configuration statement to configure the length of time that a subscriber profile remains in the SAE’s in-memory cache:

```plaintext
class driver {
    mac-cache-expiration mac-cache-expiration;
}
```

To configure the amount of time that subscriber profiles remain in the SAE’s in-memory cache:

1. From configuration mode, access the SAE driver configuration statement.

   ```plaintext
   user@host# edit shared sae configuration driver
   ```

2. Specify the amount of time that subscriber profiles remain in the SAE’s cache.

   ```plaintext
   [edit shared sae configuration driver]
   user@host# set mac-cache-expiration mac-cache-expiration
   ```

3. (Optional) Verify your configuration.

   ```plaintext
   [edit shared sae configuration driver]
   user@host# show mac-cache-expiration
   mac-cache-expiration 1800;
   ```

Related Documentation

- Configuring the Length of Time That MAC Addresses Remain in SAE Cache (C-Web Interface) on page 75
- DHCP Subscriber Login and Service Activation on page 17
When a DHCP subscriber transitions from an authenticated IP address to an unauthenticated IP address or vice-versa, the SAE:

1. Logs out the subscriber associated with the original IP address.
2. Caches the subscriber profile in the in-memory cache, indexed by the DHCP subscriber’s MAC address.
3. Waits until the DHCP subscriber with the cached MAC address obtains its new IP address, and then logs in the subscriber and associates it with the new IP address.

The period during which the subscriber profile remains in the in-memory cache can last until the DHCP lease time for the original address. If something happens during this period—for example, the subscriber turns off the client computer—the subscriber profile remains in the SAE’s in-memory cache forever. When a new IP address is assigned to the same DHCP client, problems can occur. To avoid such problems, entries in the in-memory cache are removed after a configurable amount of time.

Configure the amount of time that entries remain in cache to be greater than the time required for a DHCP subscriber to transition from an unauthenticated IP address to an authenticated IP address or vice versa. The time required for a DHCP subscriber to transition from one IP address to another depends on the lease times configured on the JunosE router and the instructions given to the subscriber on the Web portal, such as reboot your PC now.

To configure the amount of time that subscriber profiles remain in the SAE’s in-memory cache:

1. Click Configure, expand Shared>SAE, and then click Driver.

   The Driver pane appears.

2. Click Create, specify the amount of time that subscriber profiles remain in the SAE’s cache as described in the Help text in the Main pane, and then click Apply.

---

**Related Documentation**
- Configuring the Length of Time MAC Addresses Remain in SAE Cache (SRC CLI) on page 73
- DHCP Subscriber Login and Service Activation on page 17

---

**Identifying a Profile for Unauthenticated Subscribers (SRC CLI)**

The SAE uses an unauthenticated subscriber profile as a transitional profile for subscribers who are not logged in to the SAE. For example, if a subscriber logs out of the SAE using the API method Subscriber.logout(), an unauthenticated subscriber session is created. The unauthenticated subscriber profile must exist and can be subscribed to services...
available for unauthenticated subscribers. The portal implementation determines whether unauthenticated (anonymous) subscribers can access the portal.

Use the following configuration statement to specify an unauthenticated subscriber profile.

```
shared sae configuration driver {
    unauthenticated-subscriber-dn unauthenticated-subscriber-dn
}
```

To specify an unauthenticated subscriber profile:

1. From configuration mode, access the SAE driver configuration statement.
   ```
   user@host# edit shared sae configuration driver
   ```

2. Specify a subscriber profile for unauthenticated access to the portal.
   ```
   [edit shared sae configuration driver]
   user@host# set unauthenticated-subscriber-dn unauthenticated-subscriber-dn
   ```

3. (Optional) Verify your configuration.
   ```
   [edit shared sae configuration driver]
   user@host# show unauthenticated-subscriber-dn
   unauthenticated-subscriber-dn
   uniqueID=unauthentication,ou=local,RetailerName=default,o=Users,<base>
   ```

Related Documentation
- Identifying a Profile for Unauthenticated Subscribers (C-Web Interface) on page 76
- Authenticating Registered Username/Password Pairs (SRC CLI) on page 82
- Subscribers Overview on page 3

**Identifying a Profile for Unauthenticated Subscribers (C-Web Interface)**

The SAE uses an unauthenticated subscriber profile as a transitional profile for subscribers who are not logged in to the SAE. For example, if a subscriber logs out of the SAE using the API method Subscriber.logout(), an unauthenticated subscriber session is created. The unauthenticated subscriber profile must exist and can be subscribed to services available for unauthenticated subscribers. The portal implementation determines whether unauthenticated (anonymous) subscribers can access the portal.

To specify an unauthenticated subscriber profile:

1. Click **Configure**, expand **Shared>SAE**, and then click **Driver**.
   The Driver pane appears.
2. Click **Create**, specify a subscriber profile for unauthenticated access to the portal as described in the Help text, and then click **Apply**.

### Related Documentation
- Identifying a Profile for Unauthenticated Subscribers (SRC CLI) on page 75
- Authenticating Registered Username/Password Pairs (C-Web Interface) on page 82
- Subscribers Overview on page 3

## Configuring Interim Accounting for Services and Subscribers (SRC CLI)

You can enable and disable interim accounting and set intervals between interim accounting messages for services and subscribers. These settings apply to all subscriber sessions and service sessions unless you override these settings for specific services by configuring an accounting interim interval in the value-added service configuration.

Use the following configuration statements to configure interim accounting.

```plaintext
shared sae configuration interim-accounting {
    service-interim-accounting;
    service-interim-interval service-interim-interval ;
    subscriber-interim-accounting;
    subscriber-interim-interval subscriber-interim-interval ;
}
```

To set up interim accounting:

1. From configuration mode, access the configuration statement for interim accounting.

   ```plaintext
   user@host# edit shared sae configuration interim-accounting
   ```

2. (Optional) Enable service interim accounting.

   ```plaintext
   [edit shared sae configuration interim-accounting]
   user@host# set service-interim-accounting
   ```

3. Specify the interval between service interim accounting messages.

   ```plaintext
   [edit shared sae configuration interim-accounting]
   user@host# set service-interim-interval service-interim-interval
   ```

4. (Optional) Enable interim accounting for subscribers.

   ```plaintext
   [edit shared sae configuration interim-accounting]
   user@host# set subscriber-interim-accounting
   ```

5. Specify the interval between subscriber interim accounting messages.
6. Verify your configuration.

You can enable and disable interim accounting and set intervals between interim accounting messages for services and subscribers. These settings apply to all subscriber sessions and service sessions unless you override these settings for specific services by configuring an accounting interim interval in the value-added service configuration.

To set up interim accounting:

1. Click **Configure**, expand **Shared>SAE**, and then click **Interim Accounting**.
   The Interim Accounting pane appears.
2. Click **Create**.
3. (Optional) Enable service interim accounting as described in the Help text.
4. Specify the interval between service interim accounting messages as described in the Help text.
5. (Optional) Enable interim accounting for subscribers as described in the Help text.
6. Specify the interval between subscriber interim accounting messages as described in the Help text.
7. Click **Apply**.

Related Documentation

- Configuring Interim Accounting for Services and Subscribers (C-Web Interface) on page 78
- SAE Accounting
- Configuring Subscribers and Subscriptions Overview on page 38
Avoiding Overcharges for Sessions That Time Out (SRC CLI)

When an idle timeout terminates a session, you can set up the SAE to reduce the session time reported in the accounting stop message by the idle time. This way the session time is accurately reported to avoid overcharges for the session.

Use the following configuration statement to configure the length of time that a subscriber profile remains in the SAE’s in-memory cache:

```
shared sae configuration idle-timeout {
  adjust-session-time;
}
```

To adjust the session time:

1. From configuration mode, access the SAE idle timeout configuration statement.

   ```
   user@host# edit shared sae configuration idle-timeout
   ```

2. Enable when an idle timeout terminates a session, the session time reported in the accounting stop message is reduced by the idle time.

   ```
   [edit shared sae configuration idle-timeout]
   user@host# set adjust-session-time
   ```

3. (Optional) Verify your configuration.

   ```
   [edit shared sae configuration idle-timeout]
   user@host# show adjust-session-time;
   ```

Related Documentation
- Avoiding Overcharges for Sessions That Time Out (C-Web Interface) on page 79
- Configuring Timers for Session Reactivation (SRC CLI) on page 83
- Tracking and Controlling Subscriber and Service Sessions with SAE APIs

Avoiding Overcharges for Sessions That Time Out (C-Web Interface)

When an idle timeout terminates a session, you can set up the SAE to reduce the session time reported in the accounting stop message by the idle time. This way the session time is accurately reported; the report avoids overcharges for the session.

To adjust the session time:

1. Click **Configure**, expand **Shared>SAE**, and then click **Idle Timeout**.
The Idle Timeout pane appears.

2. Enable when an idle timeout terminates a session as described in the Help text.
   The session time reported in the accounting stop message is reduced by the idle time.

3. Click Apply.

Related Documentation
- Avoiding Overcharges for Sessions That Time Out (SRC CLI) on page 79
- Configuring Timers for Session Reactivation (C-Web Interface) on page 84
- Tracking and Controlling Subscriber and Service Sessions with SAE APIs

Allowing Multiple Logins from the Same IP Address (SRC CLI)

You can specify whether the service activation engine (SAE) allows a login from the same IP address, provided that the previous session logs out first.

- If you enable this setting, the SAE logs in the new subscriber session and automatically logs out the previous session.
- If you disable this setting, the SAE denies login requests if a subscriber session for an IP address is active.

Use the following configuration statement to specify whether or not the SAE allows multiple logins from the same IP address:

```
shared sae configuration subscriber-sessions {
  allow-same-ip-login;
}
```

To specify whether the SAE allows a login from the same IP address, provided that the previous session logs out first:

1. From configuration mode, access the subscriber sessions statement.

   ```
   user@host# edit shared sae configuration subscriber-sessions
   ```

2. (Optional) Enable the SAE to allow a login from the same IP address, provided that the previous session logs out first.

   ```
   [edit shared sae configuration subscriber-sessions]
   user@host# set allow-same-ip-login
   ```

3. (Optional) Verify your configuration.

   ```
   [edit shared sae configuration subscriber-sessions]
   user@host# show
   ```
allow-same-ip-login;
assigned-ip-idle-timeout 900;

### Related Documentation
- Allowing Multiple Logins from the Same IP Address (C-Web Interface) on page 81
- Static IP Subscribers on page 24
- Setting Timeouts for Assigned IP Subscriber Sessions

### Allowing Multiple Logins from the Same IP Address (C-Web Interface)

You can specify whether the service activation engine (SAE) allows a login from the same IP address, provided that the previous session logs out first.

- If you enable this setting, the SAE logs in the new subscriber session and automatically logs out the previous session.
- If you disable this setting, the SAE denies login requests if a subscriber session for an IP address is active.

Using C-Web interface, to specify whether the SAE allows a login from the same IP address, provided that the previous session logs out first:

1. Click **Configure** and expand **Shared > SAE > Configuration > Subscriber Sessions**.
   The Subscriber Sessions page appears.
2. Right-click **Subscriber Sessions** and select **Create**.
3. On the Subscriber Sessions page, select the **Allow Same IP Login** check box for the SAE to allow login from the same IP address, provided that the previous session logs out first.

   **NOTE:** For the SAE to deny login requests if a subscriber session for an IP address is active, you must clear the **Allow Same IP Login** check box.

4. In the **Assigned IP Idle Timeout** text box, enter the interval after which the assigned IP subscriber sessions are deactivated if no service session is active. The value range is 0–99,999,999,999 seconds. By default, the value is set to 900 seconds.
5. Click **Apply**.
6. On the left pane, click **Commit**.
   The SAE logs in the new subscriber session and automatically logs out the previous session.
Authenticating Registered Username/Password Pairs (SRC CLI)

You can specify whether the application programming interface (API) method registerLoginCredentials authenticates the registered username/password or creates the registration without authentication. You should enable this setting if your authentication server does not allow authentication while a session for the authenticated username is active.

Use the following configuration statement to specify whether or not registered username/password pairs are authenticated:

```
shared sae configuration login-registration {
    registration-authentication;
}
```

To specify whether or not registered username/password pairs are authenticated:

1. From configuration mode, access the subscriber sessions statement.

   ```
   user@host# edit shared sae configuration login-registration
   ```

2. Enable or disable whether registered username/password pairs are authenticated.

   ```
   [edit shared sae configuration login-registration]
   user@host# set registration-authentication
   ```

3. (Optional) Verify your configuration.

   ```
   [edit shared sae configuration login-registration]
   user@host# show registration-authentication;
   ```

Related Documentation

- Authenticating Registered Username/Password Pairs (C-Web Interface) on page 82
- Identifying a Profile for Unauthenticated Subscribers (SRC CLI) on page 75
- Tracking and Controlling Subscriber and Service Sessions with SAE APIs

Authenticating Registered Username/Password Pairs (C-Web Interface)

You can specify whether the application programming interface (API) method registerLoginCredentials authenticates the registered username/password or creates the registration without authentication. Enable this setting if your authentication server does not allow authentication while a session for the authenticated username is active.

To specify whether or not registered username/password pairs are authenticated:
1. Click **Configure**, expand **Shared>SAE**, and then click **Login Registration**.
   The Login Registration pane appears.

2. Enable or disable whether registered username/password pairs are authenticated, as described in the Help text.

3. Click **Apply**.

**Related Documentation**
- Authenticating Registered Username/Password Pairs (SRC CLI) on page 82
- Identifying a Profile for Unauthenticated Subscribers (C-Web Interface) on page 76
- Tracking and Controlling Subscriber and Service Sessions with SAE APIs

### Configuring Timers for Session Reactivation (SRC CLI)

If a service session fails unexpectedly, the SAE tries to start the session again in the background. You can change how many times the SAE tries to activate the session and the interval between these attempts. In most instances, you do not need to change the default values.

Use the following configuration statements to configure background session reactivation behavior

```
shared sae configuration service-activation {
  retry-time retry-time;
  retry-limit retry-limit;
}
```

To configure session reactivation behavior:

1. From configuration mode, access the service activation statements.
   ```
   user@host# edit shared sae configuration service-activation
   ```

2. Configure the number of times the SAE tries to activate a service session if activation fails or to deactivate a service session if deactivation fails.
   ```
   [edit shared sae configuration service-activation]
   user@host# set retry-limit retry-limit
   ```

3. Configure the time between attempts to activate a service session if activation fails or to deactivate a service session if deactivation fails.
   ```
   [edit shared sae configuration service-activation]
   user@host# set retry-time retry-time
   ```

4. (Optional) Verify your configuration.
[edit shared sae configuration service-activation]
user@host# show
retry-time 60;
retry-limit -1;

---

Related Documentation
- Configuring Timers for Session Reactivation (C-Web Interface) on page 84
- Avoiding Overcharges for Sessions That Time Out (SRC CLI) on page 79
- Subscriptions and Activations on page 27
- Automatic Activation at Login on page 32

Configuring Timers for Session Reactivation (C-Web Interface)

If a service session fails unexpectedly, the SAE tries to start the session again in the background. You can change how many times the SAE tries to activate the session and the interval between these attempts. In most instances, you do not need to change the default values.

To configure session reactivation behavior:

1. Click **Configure**, expand **Shared>SAE**, and then click **Service Activation**. The Service Activation pane appears.
2. Configure the number of times the SAE tries to activate a service session if activation fails or to deactivate a service session if deactivation fails, as described in the Help text.
3. Configure the time between attempts to activate a service session if activation fails or to deactivate a service session if deactivation fails, as described in the Help text.
4. Click **Apply**.
PART 3

Administration

- Monitoring Subscriber Sessions on page 87
- Simulating Subscribers for Testing on page 105
- Monitoring Commands on page 113
CHAPTER 5

Monitoring Subscriber Sessions

- Viewing Login Registrations (SRC CLI) on page 87
- Viewing Login Registrations (C-Web Interface) on page 88
- Viewing General Information About Subscriber Sessions (SRC CLI) on page 89
- Viewing Information About Subscriber Sessions by DN (SRC CLI) on page 90
- Viewing Information About Subscriber Sessions by DN (C-Web Interface) on page 92
- Viewing Information About Subscriber Sessions by IP Address, VPN Identifier, or both (SRC CLI) on page 93
- Viewing Information About Subscriber Sessions by IP Address (C-Web Interface) on page 94
- Viewing Information About Subscriber Sessions by Login Name (SRC CLI) on page 95
- Viewing Information About Subscriber Sessions by Login Name (C-Web Interface) on page 97
- Viewing Information About Subscriber Sessions by Service Name (SRC CLI) on page 98
- Viewing Information About Subscriber Sessions by Service Name (C-Web Interface) on page 99
- Viewing Information About Subscriber Sessions by Session ID (SRC CLI) on page 100
- Viewing Information About Subscriber Sessions by Session ID (C-Web Interface) on page 101
- Viewing Information About Subscriber Sessions by Accounting User Identifier (SRC CLI) on page 103

**Viewing Login Registrations (SRC CLI)**

**Purpose**
View information about registered logins. You can view all login registrations, or you can view a specific registration.

**Action**
To view information about all login registrations:

```
user@host> show sae registered login
```
To view a specific registration, specify the media access control (MAC) address for the registration that you want to display:

```
user@host> show sae registered login mac-address mac-address
```

To view only the MAC address of the registrations:

```
user@host> show sae registered login brief
```

To restrict the number of displayed results:

```
user@host> show sae registered login maximum-results maximum-results
```

For information about login registrations, see the SRC PE Sample Applications Guide.

**Related Documentation**
- Removing Login Registrations (SRC CLI)
- Viewing Login Registrations (C-Web Interface) on page 88

**Viewing Login Registrations (C-Web Interface)**

**Purpose**  You can view all login registrations, or you can view a specific registration.

**Action**  To view information about login registrations:

1. Click Monitor > SAE > Registered > Login.  
   The Registered/Login pane appears.

2. In the MAC Address box, enter a MAC address that specifies the login registrations that you want to display.
Use the format:

```
```

3. In the Maximum Results box, enter the maximum number of results that you want to receive.

4. In the Slot box, enter the number of the slot for which you want to display login registration information.

5. Select an output style from the Style list.

6. Click OK.

The Registered/Login pane displays information about the login registrations.

For information about login and equipment registrations, see the *SRC PE Sample Applications Guide*.

**Related Documentation**

- Removing Login Registrations (C-Web Interface)
- Removing Equipment Registrations (C-Web Interface)
- Viewing Login Registrations (SRC CLI) on page 87
- Viewing Equipment Registrations (C-Web Interface)

**Viewing General Information About Subscriber Sessions (SRC CLI)**

**Purpose**

View general information about subscriber sessions. You can view all or restricted information about all subscriber sessions.

**Action**

To view information about all subscriber sessions:

```
user@host> show sae subscribers
```

To view the subscriptions and service sessions from hidden services:

```
user@host> show sae subscribers secret
```

To view only the subscriber session information without service sessions:

```
user@host> show sae subscribers brief
```

```
user@host> show sae subscribers brief
User Session
User IPv4            192.167.0.0/32
User IPv6            2001:db8:85a3:0:8a2e:370:1c17/128
User DN              uniqueId=jane,ou=local,retailerName=default,o=Users,o=UMC
```
<table>
<thead>
<tr>
<th>MAC Address</th>
<th>41:42:43:44:45:46</th>
</tr>
</thead>
<tbody>
<tr>
<td>Device Name</td>
<td>default:vr00@simJunos</td>
</tr>
<tr>
<td>Login Name</td>
<td><a href="mailto:jane1@virneo.net">jane1@virneo.net</a></td>
</tr>
<tr>
<td>Interface Name</td>
<td>ip/192.167.0.0</td>
</tr>
<tr>
<td>RADIUS session ID</td>
<td>wnNbqRW/b0/KM Ao</td>
</tr>
<tr>
<td>Login time</td>
<td>Thu May 11 10:15:27 UTC 2017</td>
</tr>
<tr>
<td>Session Timeout</td>
<td>-1</td>
</tr>
<tr>
<td>Active Services</td>
<td>[Internet-Bronze]</td>
</tr>
<tr>
<td>Available Services</td>
<td>[News, Internet-Bronze]</td>
</tr>
</tbody>
</table>

To view the subscriber session ID, login name, and IP address:

```
user@host> show sae subscribers terse
```

To restrict the number of displayed results:

```
user@host> show sae subscribers maximum-results maximum-results
```

**Related Documentation**

- Configuring Access to Subscriber Data (SRC CLI)
- Viewing Information About Subscriber Sessions by DN (SRC CLI) on page 90
- Viewing Information About Subscriber Sessions by IP Address, VPN Identifier, or both (SRC CLI) on page 93
- Viewing Information About Subscriber Sessions by Service Name (SRC CLI) on page 98
- Viewing Information About Subscriber Sessions by Session ID (SRC CLI) on page 100
- Viewing Information About Subscriber Sessions by Accounting User Identifier (SRC CLI) on page 103

**Viewing Information About Subscriber Sessions by DN (SRC CLI)**

**Purpose**: View information about subscriber sessions by the DN associated with the subscriber session. You can view all or restricted information about all associated subscriber sessions.

**Action**: To view information about subscriber sessions accessible by DN:

```
user@host> show sae subscribers dn
```
To view information about specific subscriber sessions, use all or part of the DN:

```
user@host> show sae subscribers dn filter filter
```

To view information about subscriber sessions only by the exact match of the DN:

```
user@host> show sae subscribers dn filter filter exact
```

**NOTE:** You must configure the `exact` option along with the `filter` option, else all the subscriber sessions information accessible by DN is displayed.

To view the subscriptions and service sessions from hidden services:

```
user@host> show sae subscribers dn secret
user@host> show sae subscribers dn filter filter secret
```

To view only the subscriber session information without service sessions:

```
user@host> show sae subscribers dn brief
user@host> show sae subscribers dn filter filter brief
```

To view the subscriber session ID, login name, and IP address:

```
user@host> show sae subscribers dn terse
user@host> show sae subscribers dn filter filter terse
```

To restrict the number of displayed results:

```
user@host> show sae subscribers dn maximum-results maximum-results
user@host> show sae subscribers dn filter filter maximum-results maximum-results
```

**Related Documentation**

- Configuring Access to Subscriber Data (SRC CLI)
- Viewing General Information About Subscriber Sessions (SRC CLI) on page 89
- Viewing Information About Subscriber Sessions by IP Address, VPN Identifier, or both (SRC CLI) on page 93
- Viewing Information About Subscriber Sessions by Service Name (SRC CLI) on page 98
- Viewing Information About Subscriber Sessions by Session ID (SRC CLI) on page 100
Viewing Information About Subscriber Sessions by Accounting User Identifier (SRC CLI) on page 103

Viewing Information About Subscriber Sessions by DN (C-Web Interface)

Purpose
View information about subscriber sessions by DN.

Action
1. Click Monitor > SAE > Subscribers > DN.

   The Subscribers/DN pane appears.

   Figure 19: C-Web Interface for Monitoring SAE Subscriber Sessions by DN

2. In the Subscriber DN box, enter a full or partial subscriber DN for which you want to display information, or leave the box blank to display all subscriber sessions.

3. In the Maximum Results box, enter the maximum number of results that you want to receive.

4. Select the Secret check box to set a flag indicating that subscriptions and service sessions from hidden services are displayed.

5. In the Slot box, enter the number of the slot for which you want to display subscriber session information.

6. Select an output style from the Style list.

7. Click OK.

   The Subscribers/DN pane displays information about subscriber sessions.

Related Documentation

- Configuring Access to Subscriber Data (SRC CLI)
- Viewing Information About Subscriber Sessions by IP Address (C-Web Interface) on page 94
- Viewing Information About Subscriber Sessions by Login Name (C-Web Interface) on page 97
Viewing Information About Subscriber Sessions by Service Name (C-Web Interface) on page 99

Viewing Information About Subscriber Sessions by Session ID (C-Web Interface) on page 101

**Viewing Information About Subscriber Sessions by IP Address, VPN Identifier, or both (SRC CLI)**

**Purpose**
View information about subscriber sessions by the IP address, VPN identifier, or both associated with the subscriber session.

You can list subscriber sessions by IP address, VPN identifier, or both for Dynamic Host Configuration Protocol (DHCP) subscribers, authenticated Point-to-Point Protocol (PPP) subscribers, and static IP subscribers who have logged in to the portal.

**Action**
To view information about subscriber sessions that are accessible by IP address:

```
user@host> show sae subscribers ip
```

To view information about a particular subscriber session that is accessible by IP address:

```
user@host> show sae subscribers ip address address
```

To view information about subscriber sessions only by the exact match of the IP address:

```
user@host> show sae subscribers ip address address exact
```

**NOTE:** You must configure the exact option along with the address option, else the information about all the subscriber sessions that are accessible by IP address is displayed.

To view information about subscriber sessions that are accessible by VPN identifier:

```
user@host> show sae subscribers ip vpnid vpnid
```

To view information about a particular subscriber session that is accessible by both IP address and VPN identifier:

```
user@host> show sae subscribers ip address address vpnid vpnid
```

To view information about particular subscriber sessions, specify the IP address:

```
user@host> show sae subscribers ip filter filter
```
To view the subscriptions and service sessions from hidden services:

```
user@host> show sae subscribers ip secret
user@host> show sae subscribers ip filter filter secret
```

To view only the subscriber session information without service sessions:

```
user@host> show sae subscribers ip brief
user@host> show sae subscribers ip filter filter brief
```

To view the subscriber session ID, login name, and IP address:

```
user@host> show sae subscribers ip terse
user@host> show sae subscribers ip filter filter terse
```

To restrict the number of displayed results:

```
user@host> show sae subscribers ip maximum-results maximum-results
user@host> show sae subscribers ip filter filter maximum-results maximum-results
```

**Related Documentation**

- Configuring Access to Subscriber Data (SRC CLI)
- Viewing General Information About Subscriber Sessions (SRC CLI) on page 89
- Viewing Information About Subscriber Sessions by DN (SRC CLI) on page 90
- Viewing Information About Subscriber Sessions by Service Name (SRC CLI) on page 98
- Viewing Information About Subscriber Sessions by Session ID (SRC CLI) on page 100
- Viewing Information About Subscriber Sessions by Accounting User Identifier (SRC CLI) on page 103

**Viewing Information About Subscriber Sessions by IP Address (C-Web Interface)**

**Purpose**
View information about subscriber sessions by IP address.
Action

1. Click Monitor > SAE > Subscribers > IP.

The Subscribers/IP pane appears.

Figure 20: C-Web Interface for Monitoring SAE Subscriber Sessions by IP Address

2. In the IPAddress box, enter a full or partial IP address for which you want to display information, or leave the box blank to display all subscriber sessions.

3. In the Maximum Results box, enter the maximum number of results that you want to receive.

4. Select the Secret check box to set a flag indicating that subscriptions and service sessions from hidden services are displayed.

5. In the Slot box, enter the number of the slot for which you want to display subscriber session information.

6. Select an output style from the Style list.

7. Click OK.

The Subscribers/IP pane displays information about subscriber sessions.

Related Documentation

- Configuring Access to Subscriber Data (SRC CLI)
- Viewing Information About Subscriber Sessions by DN (C-Web Interface) on page 92
- Viewing Information About Subscriber Sessions by Login Name (C-Web Interface) on page 97
- Viewing Information About Subscriber Sessions by Service Name (C-Web Interface) on page 99
- Viewing Information About Subscriber Sessions by Session ID (C-Web Interface) on page 101

Viewing Information About Subscriber Sessions by Login Name (SRC CLI)

Purpose

View information about subscriber sessions by the subscriber login name. You can view all or restricted information about all associated subscriber sessions.
Action  To view information about subscriber sessions accessible by login name:

user@host> show sae subscribers login-name

To view information about specific subscriber sessions, use all or part of the login name:

user@host> show sae subscribers login-name filter filter

To view information about subscriber sessions only by the exact match of the login name:

user@host> show sae subscribers login-name filter filter exact

---

**NOTE:** You must configure the exact option along with the filter filter option, else all the subscriber sessions information accessible by the subscriber login name is displayed.

---

To view the subscriptions and service sessions from hidden services:

user@host> show sae subscribers login-name secret
user@host> show sae subscribers login-name filter filter secret

To view only the subscriber session information without service sessions:

user@host> show sae subscribers login-name brief
user@host> show sae subscribers login-name filter filter brief

To view the subscriber session ID, login name, and IP address:

user@host> show sae subscribers login-name terse
user@host> show sae subscribers login-name filter filter terse

To restrict the number of displayed results:

user@host> show sae subscribers login-name maximum-results maximum-results
user@host> show sae subscribers login-name filter filter maximum-results maximum-results

---

**Related Documentation**  
- *Configuring Access to Subscriber Data (SRC CLI)*  
- Viewing General Information About Subscriber Sessions (SRC CLI) on page 89  
- Viewing Information About Subscriber Sessions by DN (SRC CLI) on page 90  
- Viewing Information About Subscriber Sessions by IP Address, VPN Identifier, or both (SRC CLI) on page 93
- Viewing Information About Subscriber Sessions by Session ID (SRC CLI) on page 100
- Viewing Information About Subscriber Sessions by Accounting User Identifier (SRC CLI) on page 103

Viewing Information About Subscriber Sessions by Login Name (C-Web Interface)

**Purpose**
View information about subscriber sessions by login name.

**Action**
1. Click **Monitor > SAE > Subscribers > Login Name**.
   The Subscribers/Login Name pane appears.

   **Figure 21: C-Web Interface for Monitoring SAE Subscriber Sessions by Login Name**

   - In the Login Name box, enter a full or partial login name for which you want to display information, or leave the box blank to display all subscriber sessions.
   - In the Maximum Results box, enter the maximum number of results that you want to receive.
   - Select the **Secret** check box to set a flag indicating that subscriptions and service sessions from hidden services are displayed.
   - In the Slot box, enter the number of the slot for which you want to display subscriber session information.
   - Select an output style from the Style list.
   - Click **OK**.
   The Subscribers/Login Name pane displays information about subscriber sessions.

**Related Documentation**
- **Configuring Access to Subscriber Data (SRC CLI)**
- Viewing Information About Subscriber Sessions by DN (C-Web Interface) on page 92
- Viewing Information About Subscriber Sessions by IP Address (C-Web Interface) on page 94
Viewing Information About Subscriber Sessions by Service Name ( SRC CLI)

**Purpose**
View information about subscriber sessions that are associated with a specified service. You can view all or restricted information about all associated subscriber sessions.

**Action**
To view information about subscriber sessions activated by a subscription to an active service session:

```
user@host> show sae subscribers service-name
```

To view information about specific subscriber sessions, use all or part of the service name:

```
user@host> show sae subscribers service-name filter filter
```

To view information about subscriber sessions only by the exact match of the service name:

```
user@host> show sae subscribers service-name filter filter exact
```

**NOTE:** You must configure the `exact` option along with the `filter` `filter` option, else information about all the subscriber sessions activated by a subscription to an active service session is displayed.

To view the subscriptions and service sessions from hidden services:

```
user@host> show sae subscribers service-name secret
user@host> show sae subscribers service-name filter filter secret
```

To view only the subscriber session information without service sessions:

```
user@host> show sae subscribers service-name brief
user@host> show sae subscribers service-name filter filter brief
```

To view the subscriber session ID, login name, and IP address:

```
user@host> show sae subscribers service-name terse
user@host> show sae subscribers service-name filter filter terse
```
To restrict the number of displayed results:

```
user@host> show sae subscribers service-name maximum-results maximum-results
user@host> show sae subscribers service-name filter filter maximum-results
```

### Related Documentation
- Configuring Access to Subscriber Data (SRC CLI)
- Viewing General Information About Subscriber Sessions (SRC CLI) on page 89
- Viewing Information About Subscriber Sessions by DN (SRC CLI) on page 90
- Viewing Information About Subscriber Sessions by IP Address, VPN Identifier, or both (SRC CLI) on page 93
- Viewing Information About Subscriber Sessions by Session ID (SRC CLI) on page 100

### Viewing Information About Subscriber Sessions by Service Name (C-Web Interface)

**Purpose**
View information about subscriber sessions by service name.

**Action**
1. Click **Monitor > SAE > Subscribers > Service Name**.
   
   The Subscribers/Service Name pane appears.

   ![Figure 22: C-Web Interface for Monitoring SAE Subscriber Sessions by Service Name](image)

2. In the Service Name box, enter a full or partial service name for which you want to display information, or leave the box blank to display all subscriber sessions.

3. In the Maximum Results box, enter the maximum number of results that you want to receive.

4. Select the **Secret** check box to set a flag indicating that subscriptions and service sessions from hidden services are displayed.
5. In the Slot box, enter the number of the slot for which you want to display subscriber session information.
6. Select an output style from the Style list.
7. Click OK.

The Subscribers/Service Name pane displays information about subscriber sessions.

**Related Documentation**

- Configuring Access to Subscriber Data (SRC CLI)
- Viewing Information About Subscriber Sessions by DN (C-Web Interface) on page 92
- Viewing Information About Subscriber Sessions by IP Address (C-Web Interface) on page 94
- Viewing Information About Subscriber Sessions by Login Name (C-Web Interface) on page 97
- Viewing Information About Subscriber Sessions by Session ID (C-Web Interface) on page 101

**Viewing Information About Subscriber Sessions by Session ID (SRC CLI)**

**Purpose**

View information about subscriber sessions by the session ID associated with the subscriber session. You can view all or restricted information about all associated subscriber sessions.

**Action**

To view information about subscriber sessions by session ID:

```
user@host> show sae subscribers session-id
```

To view information about specific subscriber sessions, use all or part of the subscriber session ID:

```
user@host> show sae subscribers session-id filter filter
```

To view information about subscriber sessions only by the exact match of the subscriber session ID:

```
user@host> show sae subscribers session-id filter filter exact
```

**NOTE:** You must configure the exact option along with the filter `filter` option, else all the subscriber sessions information by the session ID is displayed.
To view the subscriptions and service sessions from hidden services:

```
user@host> show sae subscribers session-id secret
user@host> show sae subscribers session-id filter filter secret
```

To view only the subscriber session information without service sessions:

```
user@host> show sae subscribers session-id brief
user@host> show sae subscribers session-id filter filter brief
```

To view the subscriber session ID, login name, and IP address:

```
user@host> show sae subscribers session-id terse
user@host> show sae subscribers session-id filter filter terse
```

To restrict the number of displayed results:

```
user@host> show sae subscribers session-id maximum-results maximum-results
user@host> show sae subscribers session-id filter filter maximum-results maximum-results
```

### Related Documentation
- Configuring Access to Subscriber Data (SRC CLI)
- Viewing General Information About Subscriber Sessions (SRC CLI) on page 89
- Viewing Information About Subscriber Sessions by DN (SRC CLI) on page 90
- Viewing Information About Subscriber Sessions by IP Address, VPN Identifier, or both (SRC CLI) on page 93
- Viewing Information About Subscriber Sessions by Service Name (SRC CLI) on page 98
- Viewing Information About Subscriber Sessions by Accounting User Identifier (SRC CLI) on page 103

### Viewing Information About Subscriber Sessions by Session ID (C-Web Interface)

**Purpose**  View information about subscriber sessions by session ID.
Action

1. Click **Monitor > SAE > Subscribers > Session ID.**

   The Subscribers/Session ID pane appears.

   **Figure 23: C-Web Interface for Monitoring SAE Subscriber Sessions by Session ID**

2. In the Session ID box, enter a full or partial session ID name for which you want to display information, or leave the box blank to display all subscriber sessions.

3. In the Maximum Results box, enter the maximum number of results that you want to receive.

4. Select the **Secret** check box to set a flag indicating that subscriptions and service sessions from hidden services are displayed.

5. In the Slot box, enter the number of the slot for which you want to display subscriber session information.

6. Select an output style from the Style list.

7. Click **OK.**

   The Subscribers/Session ID pane displays information about subscriber sessions.

---

**Related Documentation**

- **Configuring Access to Subscriber Data (SRC CLI)**
  - Viewing Information About Subscriber Sessions by DN (C-Web Interface) on page 92
  - Viewing Information About Subscriber Sessions by IP Address (C-Web Interface) on page 94
  - Viewing Information About Subscriber Sessions by Login Name (C-Web Interface) on page 97
  - Viewing Information About Subscriber Sessions by Service Name (C-Web Interface) on page 99
Viewing Information About Subscriber Sessions by Accounting User Identifier (SRC CLI)

**Purpose**
View information about subscriber sessions by the accounting user identifier associated with the subscriber session. You can view all or specific information about all associated subscriber sessions.

**Action**
To view information about subscriber sessions accessible by accounting user identifier:

```bash
user@host> show sae subscribers accounting-user-id
```

To view information about specific subscriber sessions, use all or part of the accounting user identifier:

```bash
user@host> show sae subscribers accounting-user-id filter
```

To view information about subscriber sessions only by the exact match of accounting user identifier:

```bash
user@host> show sae subscribers accounting-user-id filter exact
```

**NOTE:** You must configure the `exact` option along with the `filter` option, else the information about all the subscriber sessions accessible by the accounting user identifier is displayed.

To view the subscriptions and service sessions from hidden services:

```bash
user@host> show sae subscribers accounting-user-id secret
user@host> show sae subscribers accounting-user-id filter filter secret
```

To view only the subscriber session information without service sessions:

```bash
user@host> show sae subscribers accounting-user-id brief
user@host> show sae subscribers accounting-user-id filter filter brief
```

To view the subscriber session ID, login name, and IP address:

```bash
user@host> show sae subscribers accounting-user-id terse
user@host> show sae subscribers accounting-user-id filter filter terse
```

To restrict the number of displayed results:

```bash
user@host> show sae subscribers accounting-user-id maximum-results maximum-results
user@host> show sae subscribers accounting-user-id filter filter maximum-results
```
Related Documentation

- Viewing General Information About Subscriber Sessions (SRC CLI) on page 89
- Viewing Information About Subscriber Sessions by Login Name (SRC CLI) on page 95
- Viewing Information About Subscriber Sessions by DN (SRC CLI) on page 90
- Viewing Information About Subscriber Sessions by IP Address, VPN Identifier, or both (SRC CLI) on page 93
- Viewing Information About Subscriber Sessions by Session ID (SRC CLI) on page 100
Simulating Subscribers for Testing

• Simulated Subscribers Overview on page 105
• Logging In Simulated Subscribers (SRC CLI) on page 105
• Viewing Subscriber Sessions (SRC CLI) on page 109
• Logging Out Simulated Subscribers (SRC CLI) on page 109

Simulated Subscribers Overview

Simulated subscribers allow you to create subscriber sessions without connecting to a router or other device. When developing an application, you can log in as a simulated subscriber to test a portal without a router or a client PC. You can log out from the simulated subscriber session in the same way that you log out from other subscriber sessions.

Related Documentation
• Logging In Simulated Subscribers (SRC CLI) on page 105
• Logging Out Simulated Subscribers (SRC CLI) on page 109
• Viewing Subscriber Sessions (SRC CLI) on page 109
• Commands to Manage Simulated Subscribers on page 113

Logging In Simulated Subscribers (SRC CLI)

You can log in IPv4 subscribers in the following ways:

• Logging In Authenticated DHCP Subscribers on page 105
• Logging In Authenticated Interface Subscribers on page 106
• Logging In Unauthenticated DHCP Subscribers on page 107
• Logging In Unauthenticated Interface Subscribers on page 108

Logging In Authenticated DHCP Subscribers

Use the following command to log in simulated IPv4 authenticated DHCP subscribers:

request sae login ipv4 authenticated-dhcp virtual-router virtual-router address address
login-name login-name mac-address mac-address <service-bundle service-bundle>
To log in a simulated IPv4 authenticated DHCP subscriber:

1. Issue the `request sae login ipv4 authenticated-dhcp` command. Specify the `virtual-router`, `address`, `login-name`, and `mac-address` options.

   ```
   user@host> request sae login ipv4 authenticated-dhcp virtual-router virtual-router address address login-name login-name mac-address mac-address
   ```

2. (Optional) To specify the service bundle used when logging in the simulated subscriber, use the `service-bundle` option.

3. (Optional) To specify the RADIUS class used when logging in the simulated subscriber, use the `radius-class` option.

4. (Optional) To specify the virtual interface used when logging in the simulated subscriber, use the `interface-name` option.

5. (Optional) To specify the interface description used when logging in the simulated subscriber, use the `interface-alias` option.

   If you are simulating Junos E routers, the interface alias is the description that is configured on Junos E routers with the `interface description` command.

6. (Optional) To specify the alternate interface name used when logging in the simulated subscriber, use the `interface-description` option.

7. (Optional) To specify the port identifier of an interface used when logging in the simulated subscriber, use the `nas-port-id` option.

Logging In Authenticated Interface Subscribers

Use the following command to log in simulated IPv4 authenticated interface subscribers:

```
request sae login ipv4 authenticated-interface virtual-router virtual-router address address login-name login-name <service-bundle service-bundle> <radius-class radius-class> <interface-name interface-name> <interface-alias interface-alias> <interface-description interface-description> <nas-port-id nas-port-id>
```
3. (Optional) To specify the RADIUS class used when logging in the simulated subscriber, use the `radius-class` option.

4. (Optional) To specify the virtual interface used when logging in the simulated subscriber, use the `interface-name` option.

5. (Optional) To specify the interface description used when logging in the simulated subscriber, use the `interface-alias` option.
   
   If you are simulating JunosE routers, the interface alias is the description that is configured on JunosE routers with the `interface description` command.

6. (Optional) To specify the alternate interface name used when logging in the simulated subscriber, use the `interface-description` option.

7. (Optional) To specify the port identifier of an interface used when logging in the simulated subscriber, use the `nas-port-id` option.

 Logging In Unauthenticated DHCP Subscribers

Use the following command to log in simulated IPv4 unauthenticated DHCP subscribers:

```
request sae login ipv4 unauthenticated-dhcp virtual-router address mac-address mac-address <login-name login-name > <service-bundle service-bundle > <radius-class radius-class > <interface-name interface-name > <interface-alias interface-alias > <interface-description interface-description > <nas-port-id nas-port-id >
```

To log in a simulated IPv4 unauthenticated DHCP subscriber:

1. Issue the `request sae login ipv4 unauthenticated-dhcp virtual-router address mac-address` command. Specify the `virtual-router`, `address`, and `mac-address` options.

2. (Optional) To specify the fully-qualified name used to log in the simulated subscriber, use the `login-name` option.

3. (Optional) To specify the service bundle used when logging in the simulated subscriber, use the `service-bundle` option.

4. (Optional) To specify the RADIUS class used when logging in the simulated subscriber, use the `radius-class` option.

5. (Optional) To specify the virtual interface used when logging in the simulated subscriber, use the `interface-name` option.

6. (Optional) To specify the interface description used when logging in the simulated subscriber, use the `interface-alias` option.
   
   If you are simulating JunosE routers, the interface alias is the description that is configured on JunosE routers with the `interface description` command.
7. (Optional) To specify the alternate interface name used when logging in the simulated subscriber, use the *interface-description* option.

8. (Optional) To specify the port identifier of an interface used when logging in the simulated subscriber, use the *nas-port-id* option.

### Logging In Unauthenticated Interface Subscribers

Use the following command to log in simulated IPv4 unauthenticated interface subscribers:

```
request sae login ipv4 unauthenticated-interface virtual-router <virtual-router> interface-name <interface-name> <address address> <login-name login-name> <service-bundle service-bundle> <radius-class radius-class> <interface-alias interface-alias> <interface-description interface-description> <nas-port-id nas-port-id>
```

To log in a simulated IPv4 authenticated interface subscriber:

1. Issue the `request sae login ipv4 authenticated-interface` command. Specify the *virtual-router* and *interface-name* options.

   ```
   user@host> request sae login ipv4 authenticated-interface virtual-router virtual-router interface-name interface-name
   ```

2. (Optional) To specify the IP address from which you log in the simulated subscriber, use the *address* option.

3. (Optional) To specify the fully-qualified name used to log in the simulated subscriber, use the *login-name* option.

4. (Optional) To specify the service bundle used when logging in the simulated subscriber, use the *service-bundle* option.

5. (Optional) To specify the RADIUS class used when logging in the simulated subscriber, use the *radius-class* option.

6. (Optional) To specify the interface description used when logging in the simulated subscriber, use the *interface-alias* option.

   If you are simulating JunosE routers, the interface alias is the description that is configured on JunosE routers with the `interface description` command.

7. (Optional) To specify the alternate interface name used when logging in the simulated subscriber, use the *interface-description* option.

8. (Optional) To specify the port identifier of an interface used when logging in the simulated subscriber, use the *nas-port-id* option.
**Viewing Subscriber Sessions (SRC CLI)**

**Purpose**
View all subscriber sessions.

**Action**
```
user@host> show sae subscribers
```

**Related Documentation**
- Logging Out Simulated Subscribers (SRC CLI) on page 109
- Logging In Simulated Subscribers (SRC CLI) on page 105

---

**Logging Out Simulated Subscribers (SRC CLI)**

You can view subscribers who are logged in and then log out subscribers who are accessible:

- Logging Out Subscribers by DN on page 109
- Logging Out Subscribers by IP Address on page 109
- Logging Out Subscribers by Login Name on page 110
- Logging Out Subscribers by Session ID on page 110

**Logging Out Subscribers by DN**

To log out subscribers who are accessible by DN:

1. Issue the `show sae subscribers dn` command to view the subscribers who are accessible by DN.
2. Issue the `request sae logout dn` command to log out all subscribers who are accessible by DN.
3. To log out specific subscribers, use the `filter` option and specify all or part of the DN for the subscribers that you want to log out.
   ```
   user@host> request sae logout dn filter filter
   ```
4. To specify that no confirmation is requested before the software logs out the subscribers, use the `force` option.
   ```
   user@host> request sae logout dn force
   user@host> request sae logout dn filter filter force
   ```

**Logging Out Subscribers by IP Address**

To log out subscribers who are accessible by IP address:
1. Issue the `show sae subscribers ip` command to view the subscribers who are accessible by IP address.

2. Issue the `request sae logout ip command` to log out all subscribers who are accessible by IP address.

3. To log out specific subscribers, use the `filter` option and specify the IP address for the subscribers that you want to log out.

   ```
   user@host> request sae logout ip filter filter
   ```

4. To specify that no confirmation is requested before the software logs out the subscribers, use the `force` option.

   ```
   user@host> request sae logout ip force
   user@host> request sae logout ip filter filter force
   ```

Logging Out Subscribers by Login Name

To log out subscribers who are accessible by login name:

1. Issue the `show sae subscribers login-name` command to view the subscribers accessible by login name.

2. Issue the `request sae logout login-name command` to log out all subscribers accessible by login name.

3. To log out specific subscribers, use the `filter` option and specify all or part of the login name for the subscribers that you want to log out.

   ```
   user@host> request sae logout login-name filter filter
   ```

4. To specify that no confirmation is requested before the software logs out the subscribers, use the `force` option.

   ```
   user@host> request sae logout login-name force
   user@host> request sae logout login-name filter filter force
   ```

Logging Out Subscribers by Session ID

To log out subscribers who are accessible by session ID:

1. Issue the `show sae subscribers session-id` command to view the subscribers accessible by session ID.

2. Issue the `request sae logout session-id command` to log out all subscribers accessible by session ID.

3. To log out specific subscribers, use the `filter` option and specify all or part of the session ID for the subscribers that you want to log out.

   ```
   user@host> request sae logout session-id filter filter
   ```
4. To specify that no confirmation is requested before the software logs out the subscribers, use the `force` option.

```
user@host> request sae logout session-id force
user@host> request sae logout session-id filter filter force
```

**Related Documentation**
- Logging In Simulated Subscribers (SRC CLI) on page 105
- Viewing Subscriber Sessions (SRC CLI) on page 109
- Commands to Manage Simulated Subscribers on page 113
- Simulated Subscribers Overview on page 105
CHAPTER 7

Monitoring Commands

- Commands to Manage Simulated Subscribers on page 113

**Commands to Manage Simulated Subscribers**

You can use the following operational mode commands to manage simulated subscribers.

- `request sae login ipv4 authenticated-dhcp`
- `request sae login ipv4 authenticated-interface`
- `request sae login ipv4 unauthenticated-dhcp`
- `request sae login ipv4 unauthenticated-interface`
- `request sae logout dn`
- `request sae logout ip`
- `request sae logout login-name`
- `request sae logout session-id`
- `show sae subscribers`
- `show sae subscribers accounting-user-id`
- `show sae subscribers dn`
- `show sae subscribers ip`
- `show sae subscribers login-name`
- `show sae subscribers session-id`

For detailed information about each command, see the *SRC PE CLI Command Reference*.

**Related Documentation**

- Simulated Subscribers Overview on page 105
- Logging In Simulated Subscribers (SRC CLI) on page 105
- Logging Out Simulated Subscribers (SRC CLI) on page 109
- Viewing Subscriber Sessions (SRC CLI) on page 109