Chapter 13

Configuring Subscribers and Subscriptions with SDX Admin

This chapter shows how to use SDX Admin to add subscribers and operators to the directory and to configure subscriptions to services. You can use SDX Admin on Solaris platforms.

You can also use the SRC CLI and the C-Web interface to configure subscribers and subscriptions:

- To use the SRC CLI on a C-series Controller or on a Solaris platform, see *Chapter 12, Configuring Subscribers and Subscriptions with the SRC CLI.*

- To use the C-Web interface on a C-series Controller, see *SRC-PE C-Web Interface Configuration Guide, Chapter 29, Configuring Subscribers and Subscriptions with the C-Web Interface.*

Topics in this chapter include:

- Overview of Configuring Subscribers and Subscriptions on page 201

- Adding Subscribers on page 207

- Adding Operators on page 225

- Configuring Subscriptions on page 227

- Configuring Substitutions for Subscriptions on page 240

- Modifying and Deleting Subscribers and Subscriptions on page 242

Overview of Configuring Subscribers and Subscriptions

This section gives an overview of configuring subscribers and subscriptions for the SRC software.

LDAP Model for Subscribers

The Subscriber model provides a set of relationships between subscribers and managed services. You can view subscriber objects in the directory at *o = Users, o = umc* (o = Users, o = umc is the location for a default installation of the SRC software). If you install the sample data, you can see examples of subscriber configurations with SDX Admin.

For detailed information about the SRC LDAP schema, see the documentation in the SRC software distribution in the folder */SDK/doc/ldap* or on the Juniper Networks Web site at

> http://www.juniper.net/techpubs/software/management/sdx

Subscriber objects have the following classes:

■ Residential subscribers—A residential subscriber has the object class umcUser, a subclass of inetOrgPerson. The object class netOrgPerson is derived from the X.500 classes organizationalPerson and person.

■ Enterprise subscribers—Enterprise subscribers have the object class umcEnterprise. An enterprise subscriber can contain site subscribers that have the object class umcSite. Enterprises and sites contain access subscribers. Accesses have the object class umcAccessServiceProfile.

■ Router subscribers—Router subscribers have the object class umcRouterSubscriber.

■ Subscriber folders—A subscriber folder has the object class organizationalUnit. The object immediately subordinate to a retailer must be a subscriber folder. Subscriber folders can also be subordinate to enterprises, accesses, and sites.

■ Retailers—Retailer objects have the object class umcRetailer.

■ Auxiliary classes—The SRC software attaches the auxiliary class umcSubscriber to residential and enterprise subscribers to identify these objects as subscribers. The auxiliary class is created when the subscriber is added to the directory; this class holds general information about the subscriber, such as contact and billing information.

Subscriptions

A subscription is an object in the directory 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. Table 20 shows the type of subscriptions you can configure for each type of subscriber.

Table 20: Allowable Service Subscriptions for Different Types of Subscribers

Type of Subscriber	Service Subscriptions You Can Configure
Retailer	Outsourced service subscription
	Value-added subscription
Subscriber folder	Value-added subscription

Table 20: Allowable Service Subscriptions for Different Types of Subscribers

Type of Subscriber	Service Subscriptions You Can Configure
Enterprise	Access subscription
	Value-added subscription
Site	Access subscription
	Value-added subscription
Access	RADIUS subscription
	Value-added subscription
Residential subscriber	RADIUS subscription
	Value-added subscription

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 value-added service.

Enterprise subscribers must subscribe to an access service (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.

Retailers can subscribe to outsourced services if a service provider sources the access out through tunneling (Layer 2 Tunneling Protocol [L2TP] or PPP Terminated Aggregation [PTA]).

Specifying the Activation Order for Subscriptions

Service providers and customers 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 numerical 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 with SDX Admin (see *Value-Added Subscription Fields* on page 229*)* or the Enterprise Manager Portal.

LDAP Model for Subscriptions

The subscriber and service models provide a set of relationships between the subscribers and the managed services, including subscriptions.

When a residential or enterprise subscriber subscribes to a service, which could be either a primary service or a value-added service, a general service profile with subscriber-specific service information is assigned to the subscriber.

For example, when a residential subscriber subscribes to a primary service such as B-RAS, a RADIUS profile (umcRadiusPerson) is created and assigned to the subscriber. Value-added service profiles (sspServiceProfile) are created in case the subscriber also subscribes to a value-added service.

You can create service profiles (umcRadiusPerson, umcAccessServiceProfile, sspServiceProfile, and umcOutsourceServiceProfile) with a directory client, such as SDX Admin.

An access subscription is the same object as an access subscriber. An access has two roles:

1. A subscription to an access service. (The subscription to an access service makes it possible to trigger workflows for the service.)

2. A subscriber to value-added services.

For detailed information about the SRC LDAP schema and graphics of the object models, see the documentation in the SRC software distribution in the folder */SDK/doc/ldap* or on the Juniper Networks Web site at

> http://www.juniper.net/techpubs/software/management/sdx

Operators

This section describes operators for subscribers and subscriptions. You can also configure operators for various SRC components. For information about setting up a multilayered access control scheme for operators, see *SRC-PE Integration Guide, Chapter 8, Access Control Scheme*.

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

When you add an enterprise with SDX Admin, the software creates a default operator for that enterprise. You can add additional operators for enterprises and create operators for retailers, subscriber folders, sites, and accesses.

You can also add an operator that has control over all retailers. See *Operators That Control All Retailers* on page 206.

Read Privileges

Operators 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 operator is added

Management Privileges

You can specify one or more management privileges for operators. If you do not specify privileges for an operator, the operator has only read privileges. The default operator that SDX Admin adds to an enterprise has the highest privilege level, called administrator. Table 21 shows the privilege levels and the privileges associated with the levels.

Table 21: Privilege Levels and Associated Tasks

Privilege Level	Tasks That Operators with This Privilege Can Perform
Administrator	■ Add, delete and modify operators ■ 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

An operator has management privileges for its associated subscriber and for that subscriber's subordinate objects. For example, operators in an enterprise have control over the enterprise and all sites and accesses in the enterprise. Similarly, operators in a site have control over the site and all accesses it contains. Operators in an access have control over only that access.

For example, in the directory shown in Figure 27, the operator substitutionMgr:

■ Can manage substitutions of the site called Ottawa and its subordinate objects.

■ Has read access to all services, service scopes, policies, and global variables that are defined for the site called Ottawa.

■ Has read access to the site called Ottawa and its subordinate objects.

■ Has read access to the parent subscribers: the enterprise ABCInc, the subscriber folder local, and the retailer default.

■ Has read access to the subscriptions of the parent subscribers.

Figure 27: Sample Operator Access Privileges
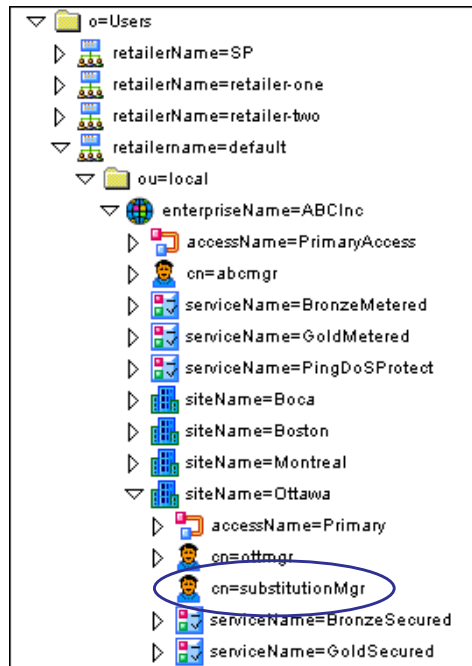
Operators That Control All Retailers

You can add operators that have control over all retailers and their subordinate enterprises. You add this type of operator in *o = Operators, o = umc*. The directory controls the operator's access to other objects in the directory.

LDAP Model for Operators

The Operator model provides a set of relationships between operators and the managed services and subscriptions. Operators have the object class umcOperator, a subclass of the object class person.

For detailed information about the SRC LDAP schema, see the documentation in the SRC software distribution in the folder */SDK/doc/ldap* or on the Juniper Networks Web site at

> http://www.juniper.net/techpubs/software/management/sdx

Tools for Adding Subscribers and Subscriptions

The way you add and manage subscribers depends on your SRC configuration. If you have a large base of subscribers, you will probably manage subscribers through your own database and map it to the SRC LDAP schema. If you are working with a small number of subscribers, you can use SDX Admin to add subscribers to the SRC directory. In practice, you can use SDX Admin to configure subscriber bases when you are:

■ Demonstrating or testing an SRC configuration with a small number of subscribers.

■ Working with retailers to whom you supply Internet services, because the number of retailers will probably be fairly small, and the retailers will manage their own subscribers.

■ Working with residential subscribers that you categorize by services purchased into a small number of groups. You add these groups of subscribers, rather than the individual subscribers, to the SRC directory.

Inheritance of Properties and Subscriptions

Subordinate subscribers inherit properties and value-added 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. 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. RADIUS and access subscriptions are not inherited.

Encryption Methods for Passwords

You can encrypt passwords for some types of subscribers and subscriptions. You must use an encryption method that your directory supports. Table 22 shows the encryption methods that different directories support.

Table 22: Encryption Methods Supported by Different Directories

| | Encryption Method | | | |
Directory Type	UNIX crypt	md5	sha	None
DirX	Yes	No	Yes	Yes
eTrust Directory	Yes	Yes	Yes	No
Oracle Internet Directory	Yes	Yes	Yes	Yes
Sun ONE	Yes	No	Yes	Yes
OpenLdap	Yes	Yes	Yes	Yes

Adding Subscribers

This section describes how to add and configure subscribers with SDX Admin. You can also add subscribers when they register through a portal. Data collected through portals is used to create profiles for the subscriber.

The tasks to configure subscribers are:

■ Adding Retailers on page 208

■ Adding Subscriber Folders on page 212

   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 on page 214

■ Adding Enterprises on page 218

■ Adding Sites on page 221

■ Adding Routers as Subscribers on page 223

An access can be both a subscriber to a value-added service and a subscription to an access service. For information about configuring access subscriptions, see *Configuring Access Subscriptions* on page 233.

After you add subscribers, you can add operators and configure subscriptions. See *Adding Operators* on page 225 and *Configuring Subscriptions* on page 227.

Adding Retailers

If you customize the SRC software to cover 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 different retailer for each ISP.

To add a retailer:

1. In the SDX Admin navigation pane, right-click **o = Users, o = umc,** and select **New > Retailer**.

    The New Retailer dialog box appears.

2. Enter the Retailer Name and the Domain Name, and click **OK**.

    ■ Retailer Name—Unique name of the retailer.

    ■ Domain Name—ISP's domain name*;* for example, isp1.com.

An object for the new retailer appears in the navigation pane, and the Retailer pane appears.
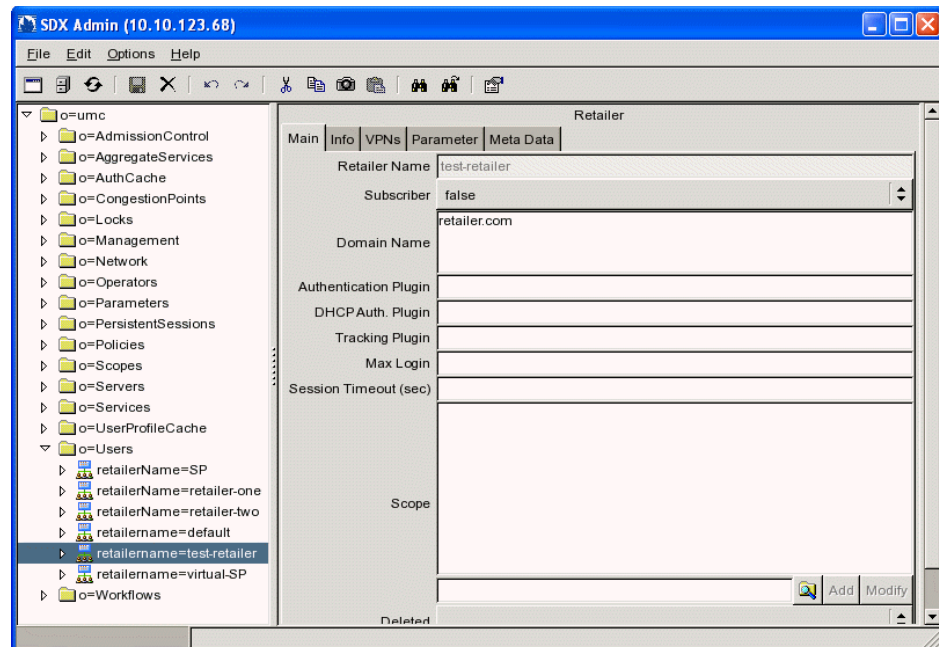
3. Use the field descriptions in *Retailer Fields* on page 210 to configure the retailer, and then click Save.

4. Enter information in the other tabs:

   ■ Info tab—Enter the subscriber's contact details and additional administrative information in this tab.

   ■ VPNs tab—Retailers can be extranet clients. Enter Imported Extranets in this tab. (See *Adding Extranet Clients to VPNs* on page 311.)

   ■ Parameter tab— Enter substitutions in this tab. (See *Configuring Substitutions for Subscriptions* on page 240.)

Retailer Fields

Use the fields in this section to configure retailers.

Subscriber

- Specifies whether or not a subscriber folder can subscribe to services. Subscriptions for the folder are inherited by all subscribers in the folder.
- Value
    - True—Subscriber folder is considered a subscriber.
    - False—Subscriber folder is not considered a subscriber.
- Default—False

Domain Name

- ISP's domain names.
- Value—Domain name in the format *domainName.domainExtension*
- Default—No value
- Example—isp1.com, isp1a.com

Authentication Plugin

- Name of the plug-in used to authenticate subscribers who log in to the domains specified for this retailer. If you do not specify a plug-in for the retailer, the SAE uses the default retailer authentication plug-in.
- Value—Name of the plug-in
- Default—No value

DHCP Authorization Plugin

- Name of the DHCP authorization plug-in used to authenticate DHCP address requests (DHCP discover requests) for subscribers who log in to the domains specified for this retailer. If you do not specify a plug-in for the retailer, the SAE uses the default retailer DHCP authentication plug-in.
- Value—Name of the plug-in
- Default—No value

Tracking Plugin

- Name of the plug-in used for accounting or tracking subscriber sessions. If you do not specify a plug-in for the retailer, the SAE uses the global user tracking plug-in.
- Value—Name of the plug-in
- Default—No value

Max Login

- Maximum number of concurrent logins for subscribers associated with this retailer.
- Value—Integer in the range 0–2147483647
- Guidelines—By default, all subordinate objects use this value. However, if you specify this value for a subordinate object, that object and its subordinate objects will use the subordinate's value.
- Default—No value

Session Timeout (sec)

- Timeout for subscriber sessions.
- Value—Number of seconds in the range 0–2147483647
- Guidelines—By default, all subordinate objects use this value. However, if you specify this value for a subordinate object, that object and its subordinate objects will use the subordinate's value.
- Default—No value

Scope

- Service scope assigned to this retailer.
- Value—See *Assigning Service Scopes* on page 212.
- Guidelines—By default, all subordinate objects use this value. However, if you specify this value for a subordinate object, that object and its subordinate objects will use the subordinate's value.
- Default—No value

Deleted

- Specifies whether or not this entry is available to other SRC components connected to the directory.
- Value
  - Blank—Other SRC components can access this entry in the directory.
  - True—Other SRC components cannot use this entry in the directory, although the object still exists.
  - False—Other SRC components can access this entry in the directory.
- Default—Blank

Assigning Service Scopes

You can assign multiple service scopes to a subscriber, and you can assign a service scope to multiple subscribers. You must define the service scope before you can assign it to other objects. For information about service scopes, see *SRC-PE Services and Policies Guide, Chapter 2, Managing Services on a Solaris Platform*.

To assign a service scope:

1. In the Users folder of the SDX Admin navigation pane, click on the subscriber to which you want to assign the service scope.

2. Click the icon below the Scope field in the Main tab of the associated pane.

    The Select Object dialog box appears.

3. Select the service scopes.

    To select multiple objects, shift-click or control-click service scopes.

4. Click **OK**, and then click **Add**.

    The service scopes appear in the Scope field of the pane.

Adding Subscriber Folders

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. In Users folder in the SDX Admin navigation pane, right-click the object in which you want to add the subscriber folder, and select **New > Subscriber Folder**.

    The New Subscriber Folder dialog box appears.

2. Enter a name for the subscriber folder that is unique within the parent folder, and click **OK**.

An object for the new subscriber folder appears in the navigation pane, and the Subscriber Folder pane appears.
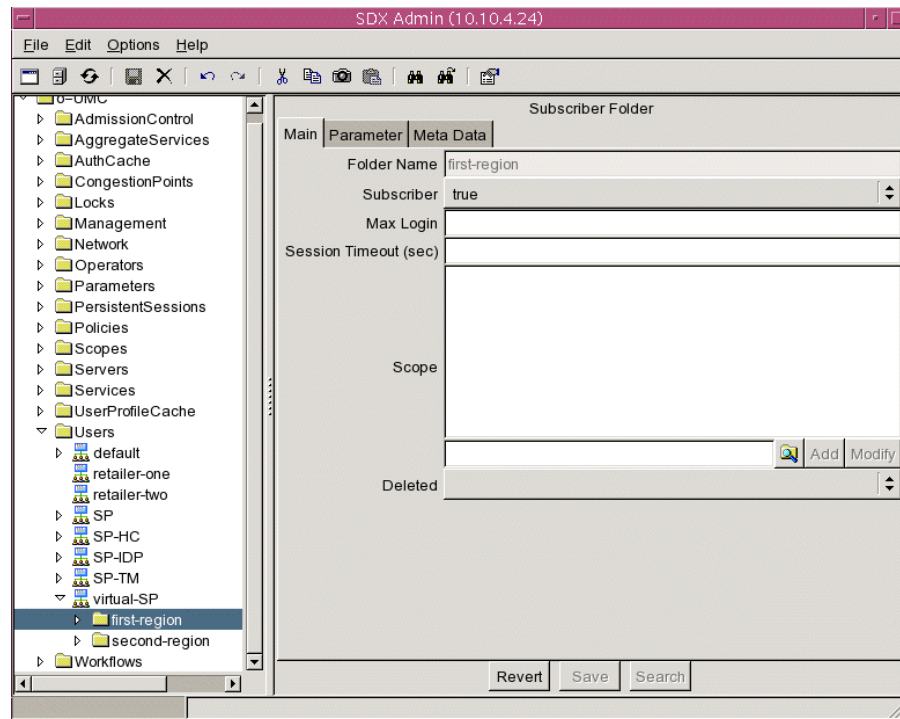
3. Use the field descriptions in *Subscriber Folder Fields* on page 213 to configure the subscriber folder, and then click Save.

4. Enter information in the other tabs:

    ■ Parameter tab— Enter substitutions in this tab. (See *Configuring Substitutions for Subscriptions* on page 240.)

Subscriber Folder Fields

Use the fields in this section to configure subscriber folders.

Max Login

■ Maximum number of concurrent logins for subscribers associated with this subscriber folder.

■ Integer in the range 0–2147483647

■ Default—By default this value is inherited from parent objects. However, if you specify a value here, it overrides the default for this subscriber and all subordinate objects.

Session Timeout (sec)

- Timeout for subscriber sessions associated with this subscriber folder.

- Value—Number of seconds in the range 0–2147483647

- Default—By default, this value is inherited from parent objects. However, if you specify a value here, it overrides the default for this subscriber and all subordinate objects.

Scope

- Service scope assigned to subscribers associated with this subscriber folder.

- Value—See *Assigning Service Scopes* on page 212.

- Default—By default, this value is inherited from parent objects. However, if you specify a value here, it overrides the default for this subscriber and all subordinate objects.

Deleted

- Specifies whether or not this entry is available to other SRC components connected to the directory.

- Value

  - Blank—Other SRC components can access this entry in the directory.

  - True—Other SRC components cannot use this entry in the directory, although the object still exists.

  - False—Other SRC components can access this entry in the directory.

- Default—Blank
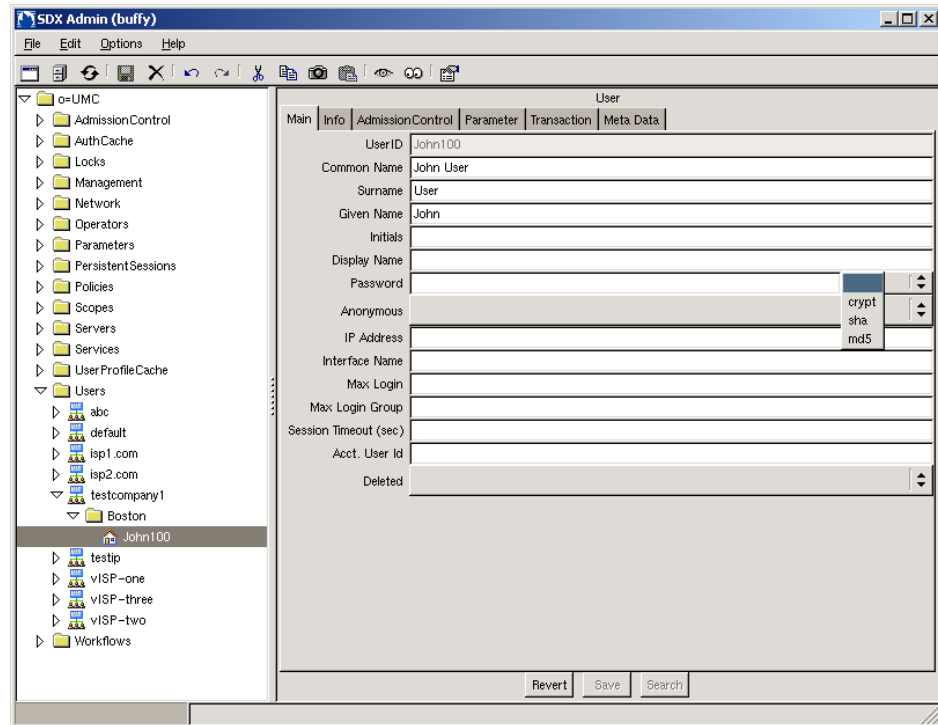
Adding Residential Subscribers

To add a residential subscriber:

1. In the navigation pane, right-click the subscriber folder to which you want to add the new subscriber, and select **New > User**.

    The New User dialog box appears.

2. Enter the UserID and Common Name, and click **OK**.

    - UserID—Subscriber's unique login ID.

    - Common Name—Unique name that defines the subscriber in the directory and typically has the format firstName lastName or lastName firstName.

An object for the new subscriber appears in the navigation pane.

3. Use the field descriptions in *Residential Subscriber Fields* on page 216 to configure the subscriber, and then click Save.

4. Enter information in the other tabs:

    ■   Info tab—Enter the subscriber's contact details and additional administrative information in this tab.

    ■   AdmissionControl tab—If the Admission Control Plug-In (ACP) manages the subscriber, you must configure bandwidths for the subscriber in this tab. (See *SRC Application Library Guide*.)

    ■   Parameter tab— Enter substitutions in this tab. (See *Configuring Substitutions for Subscriptions* on page 240*.)*

Residential Subscriber Fields

Use the fields in this section to configure residential subscriber objects.

Common Name

- Name that defines the subscriber in the directory.
- Value—Typically in the format firstName lastName or lastname firstName
- Default—No value

Surname

- Subscriber's last name.
- Value—Text
- Default—No value

Given Name

- Subscriber's first name.
- Value—Text
- Default—No value

Initials

- Subscriber's middle initial(s).
- Value—Text
- Default—No value

Display Name

- Subscriber's name as it appears in login screens.
- Value—Text
- Default—No value

Password

- Login password and type of encryption.
- Value—Enter a password, and select an encryption method that your directory supports (see Table 22 on page 207).
    - empty line—No encryption
    - crypt—Style is /etc/passwd
    - sha—Secure hash algorithm
    - md5—Message digest #5
- Default—No value

Anonymous

- Subscriber's permissions for making modifications to the subscriber's profile or service subscriptions.
- Value
    - True—Subscribers cannot modify their profiles or service subscriptions.
    - False—Subscribers can modify their profiles and service subscriptions.
- Default—No value

IP Address

- Static IP address on subscriber's system for subscribers who connect through PPP or a static IP address (not DHCP or RADIUS).
- Value—IP address
- Default—No value

Interface Name

- Type and specifier of the router interface and virtual router that manage this subscriber.
- Value
    - Name of the interface in your router CLI syntax
- Guidelines—Use this field when you want the subscriber classification script to identify the subscriber entry in the directory based on the interface name received from the router.
- Default—No value
- Example—For JUNOSe routers:
  interfaceName = "fastethernet6/0.1@vrName@routerName"

  For JUNOS routing platforms:
  interfaceName = "fe-0/1/0.0@vrName@routerName"

Max Login

- Maximum number of concurrent logins for this subscriber.
- Value—Integer in the range 0–2147483647
- Default—By default, this value is inherited from parent objects. However, if you specify a value here, it overrides the default for this subscriber and all subordinate objects.

Max Login Group

- Maximum number of concurrent logins for this subscriber and all objects below it in the navigation pane; typically the maximum number of concurrent logins for a household.
- Value—Integer in the range 0–2147483647
- Default—No value

Session Timeout (sec)

- Timeout for subscriber sessions.
- Value—Number of seconds in the range 0–2147483647
- Default—No session timeout

Acct. User id

- Value that identifies the profile in accounting records; for a household subscriber, all subordinate subscribers generally use the same ID.
- Value—Text
- Default—No value

Deleted

- Specifies whether or not this entry is available to other SRC components connected to the directory.
- Value
  - Blank—Other SRC components can access this entry in the directory.
  - True—Other SRC components cannot use this entry in the directory, although the object still exists.
  - False—Other SRC components can access this entry in the directory.
- Default—Blank

Adding Enterprises

When you add an enterprise, the SRC software creates a default operator within the enterprise (see *Operators* on page 204).

To add an enterprise subscriber:

1. In the navigation pane, right-click the subscriber folder to which you want to add the new subscriber, and select New > Enterprise.

   The New Enterprise dialog box appears.

2. Enter a name for the enterprise that is unique for this retailer, and click OK.

The enterprise and a subordinate operator appear in the navigation pane. This default operator has the privilege level administrators.
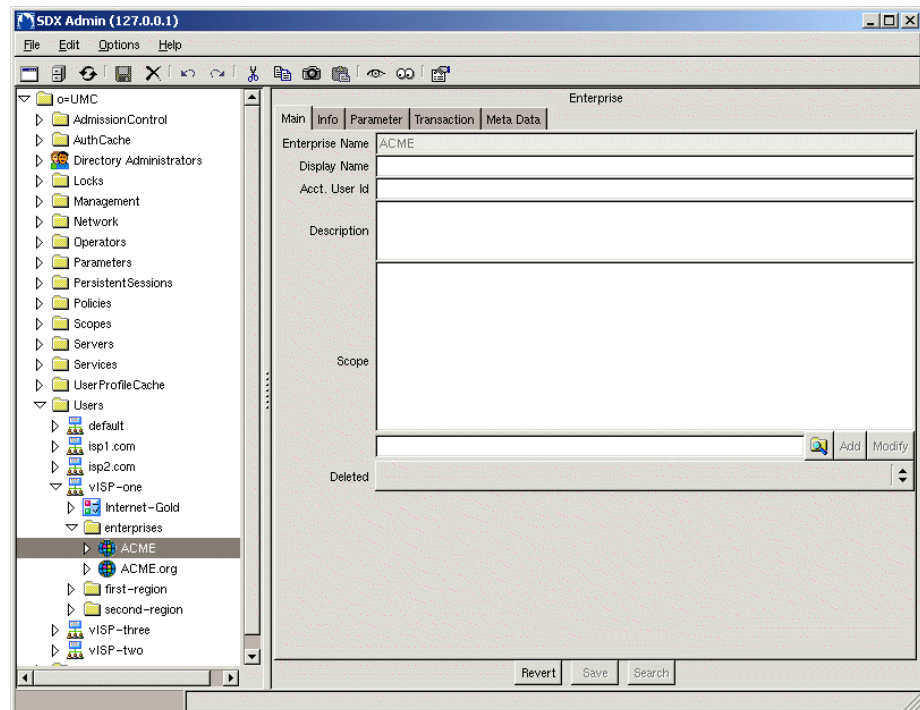
3. Use the field descriptions in *Enterprise Fields* on page 219 to configure the enterprise, and then click Save.

4. Modify the password of the default operator that is subordinate to the enterprise; the default password is not valid.

5. Enter information in the other tabs:

    ■   Info tab—Enter the enterprise's contact details and additional administrative information in this tab.

    ■   VPNs tab—Enterprises can be extranet clients. Enter imported extranets in this tab. (See *Adding Extranet Clients to VPNs* on page 311.)

    ■   Parameter tab— Enter substitutions in this tab. (See *Configuring Substitutions for Subscriptions* on page 240.)

6. Configure an access subscription for the enterprise. (See *Configuring Access Subscriptions* on page 233.)

Enterprise Fields

Use the fields in this section to configure enterprise subscribers.

Display Name

- Name that is displayed in enterprise management portals, if different from the enterprise name. An enterprise IT manager can change this name through the portal, whereas the enterprise name is fixed for the lifetime of the enterprise.
- Value—Text
- Default—No value

Acct User Id

- Name that identifies the enterprise in accounting records.
- Value—Text
- Default—No value

Description

- Information about the enterprise.
- Value—Text
- Default—No value

Scope

- Service scope assigned to subscribers associated with this enterprise. For information about service scopes, see *SRC-PE Services and Policies Guide, Chapter 2, Managing Services on a Solaris Platform.*
- Value—See *Assigning Service Scopes* on page 212.
- Default—By default, this value is inherited from parent objects. However, if you specify a value here, it overrides the default for this subscriber and all subordinate objects.

Deleted

- Specifies whether or not this entry is available to other SRC components connected to the directory.
- Value
    - Blank—Other SRC components can access this entry in the directory.
    - True—Other SRC components cannot use this entry in the directory, although the object still exists.
    - False—Other SRC components can access this entry in the directory.
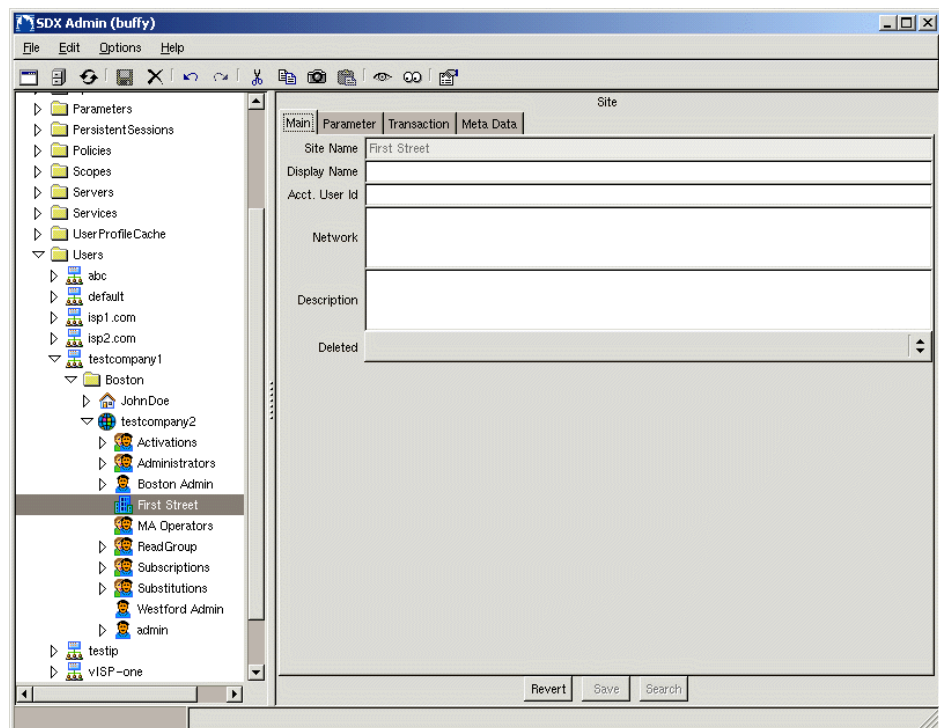- Default—Blank

Adding Sites

To add a site:

1. In the navigation pane, right-click the enterprise to which you want to add the new site, and select **New > Site**.

    The New Enterprise dialog box appears.

2. Enter a name for the site that is unique for the enterprise, and click **OK**.

    An object for the new site appears in the navigation pane, and the Site pane appears.

3. Use the field descriptions in *Site Fields* on page 221 to configure the site, and then click Save.

4. Enter information in the other tabs:

    ■ Parameter tab— Enter substitutions in this tab. (See *Configuring Substitutions for Subscriptions* on page 240.)

5. Configure an access subscription for the site. (See *Configuring Access Subscriptions* on page 233.)

Site Fields

Use the fields in this section to configure sites.

Display Name

- Name that is displayed in portals, if different from the site name. An IT manager can change this name through the portal.
- Value—Text
- Default—No value

Acct. User id

- Value that identifies the profile in accounting records.
- Value—Text
- Default—No value

Network

- Not currently used.
- Value—Text
- Default—No value

Description

- Information about the site.
- Value—Text
- Default—No value

Deleted

- Specifies whether or not this entry is available to other SRC components connected to the directory.
- Value
  - Blank—Other SRC components can access this entry in the directory.
  - True—Other SRC components cannot use this entry in the directory, although the object still exists.
  - False—Other SRC components can access this entry in the directory.
- Default—Blank

Adding Routers as Subscribers

You can add routers as subscribers to enterprises and sites, as well as to subscriber folders. To add a router as a subscriber:

1. In the navigation pane, right-click the object to which you want to add the subscriber, and select **New > Router Subscriber**.

   The New Router Subscriber dialog box appears.

2. Enter the name of a router that is configured in the directory.

   An object for the new subscriber appears in the navigation pane, and the Router Subscriber pane appears.
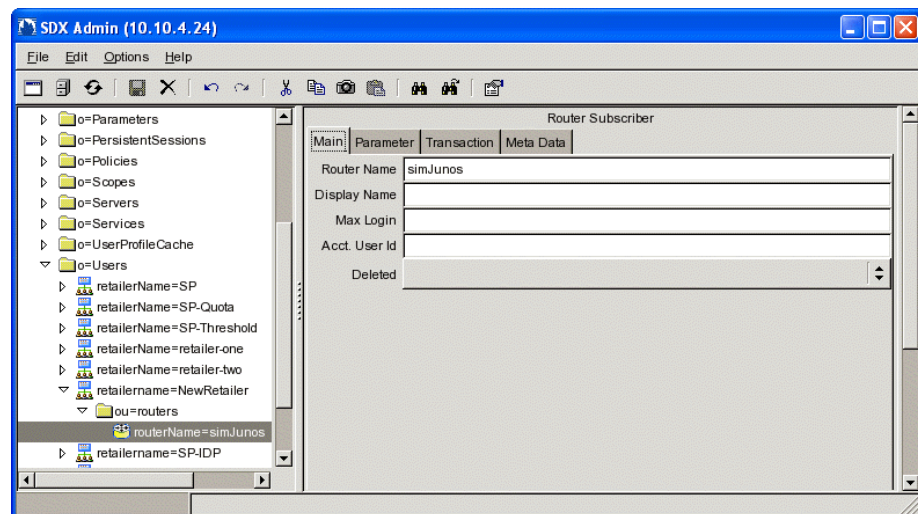
3. Use the information in *Router Subscriber Fields* on page 224 to configure the Router Subscriber pane, and then click Save.

4. Enter information in the other tabs:

   ■ Parameter tab— Enter substitutions in this tab. (See *Configuring Substitutions for Subscriptions* on page 240.)

Router Subscriber Fields

Use the fields in this section to configure routers as subscribers.

Router Name

- Name assigned to the router in the directory.
- Value—Text
- Default—No value

Display Name

- Name of the router as it appears in login dialog boxes.
- Value—Text
- Default—No value

Max Login

- Maximum number of concurrent logins for subscribers associated with this retailer.
- Value—Integer in the range 0–2147483647
- Guidelines—By default, all subordinate objects use this value. However, if you specify this value for a subordinate object, that object and its subordinate objects will use the subordinate's value.
- Default—No value

Acct User Id

- Name that identifies the subscriber profile in accounting records.
- Value—Text
- Default—No value

Deleted

- Specifies whether or not this entry is available to other SRC components connected to the directory.
- Value
  - Blank—Other SRC components can access this entry in the directory.
  - True—Other SRC components cannot use this entry in the directory, although the object still exists.
  - False—Other SRC components can access this entry in the directory.
- Default—Blank

Adding Operators

You can add operators with SDX Admin, with an LDAP client, or through an enterprise service portal. If you add an enterprise with SDX Admin, the enterprise will have a default operator that represents the primary IT manager in the enterprise. If you add an enterprise with an LDAP client other than SDX Admin, you must also add to the enterprise an operator that represents the primary IT manager.

To add an operator with SDX Admin:

1. In the navigation pane, right-click the object to which you want to add an operator.

   ■   To add an operator to a subscriber, select the subscriber in $o = Users,$ $o = umc$.

   ■   To add an operator that controls all retailers, select $o = Operators, o = umc$.

2. Select **New > Operator**.

   The New Operator dialog box appears.

3. Enter a unique name for the operator, and click **OK**.

An object for the operator appears in the navigation pane, and the Operator pane appears.
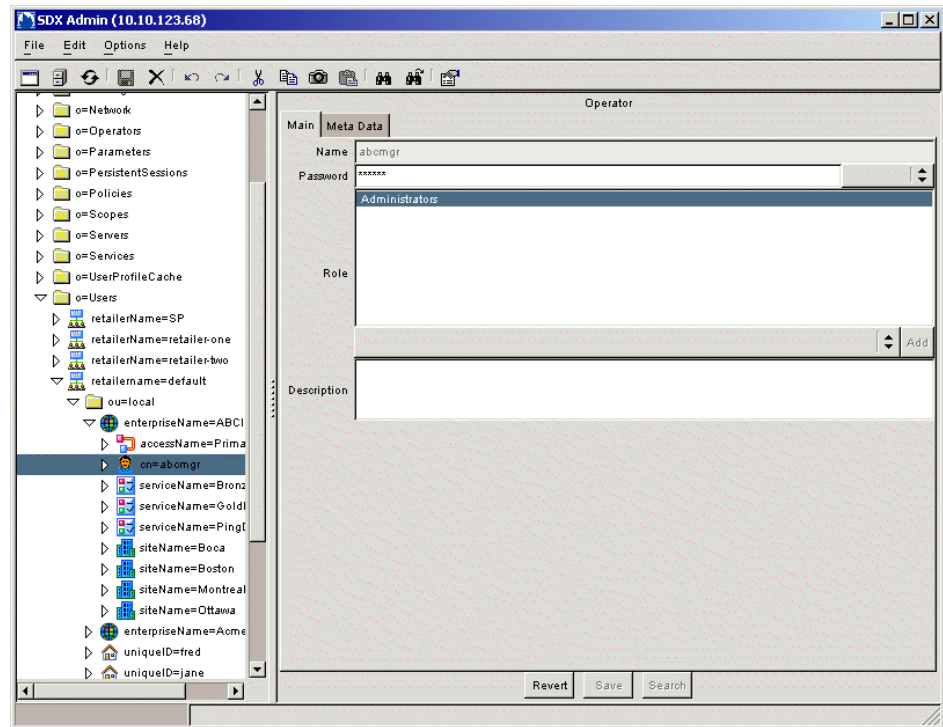
4. Use the field descriptions in *Operator Fields* on page 226 to configure the operator, and then click **Save**.

Operator Fields

Use the fields in this section to configure operators.

Password

- Login password and type of encryption.
- Value—Enter a password, and select an encryption method that your directory supports (see Table 22 on page 207).
  - empty line—No encryption
  - crypt—Style is /etc/passwd
  - sha—Secure hash algorithm
  - md5—Message digest #5
- Default—No value for operators that you create. The default password for operators that SDX Admin creates when you add an enterprise is not valid. You must enter a new password.

Role

- Privilege level for the operator.
- Value—Select a privilege level in the menu (for a description of privilege levels, see Table 21 on page 205), and click Add. You can add multiple privilege levels.

   If you do not specify a privilege level, the operator has read-only access to associated objects.

- Default—No value

Description

- Information about the operator.
- Value—Text
- Default—No value

Configuring Subscriptions

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

The following sections describe how to configure the different types of subscriptions:

- Configuring Subscriptions to Value-Added Services on page 227
- Configuring Subscriptions to Outsourced Services on page 230
- Configuring Access Subscriptions on page 233
- Configuring RADIUS Subscriptions on page 236

Configuring Subscriptions to Value-Added Services

You must add a value-added service to the directory before you can specify that service for subscribers. See *SRC-PE Services and Policies Guide, Chapter 2, Managing Services on a Solaris Platform*.

After you configure a subscription to a value-added 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 value-added services are available to subscribers. See *SRC-PE Services and Policies Guide, Chapter 5, Scheduling Services on a Solaris Platform*.
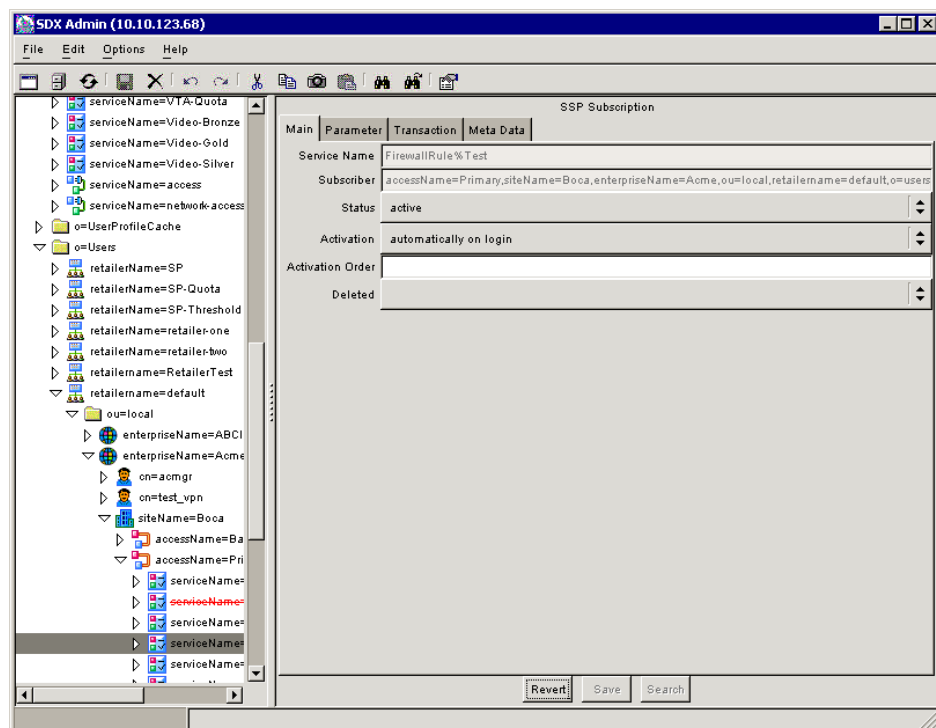
To configure a subscription to a value-added service:

1. In the SDX Admin navigation pane, right-click the subscriber to which you want to add a subscription, and select **New > SSP Subscription**.

   The New SSP Subscription dialog box appears.

2. Complete the fields in the dialog box as follows:

    a. Select a service from the Service Name menu.

    b. To create multiple subscriptions to the same service, enter a subscription ID. (See *Allowing Multiple Subscriptions per Subscriber* on page 230.)

    c. Click **OK**.

    An object for the new subscription appears in the navigation pane, and the SSP Subscription pane appears.

3. Use the field descriptions in *Value-Added Subscription Fields* on page 229 to configure the subscription, and then click **Save**.

4. Enter information in the other tabs:

    ■ Parameter tab— Enter substitutions in this tab. (See *Configuring Substitutions for Subscriptions* on page 240.)

Value-Added Subscription Fields

Use the fields in this section to configure value-added subscriptions.

Status

- Status of the service subscription.

- Value

    - active—Subscriber can activate this service.

    - suspended—Subscriber cannot activate this service, although it may be visible through a portal. If you change the value of this field to suspended while the subscription is active, the service is deactivated.

    - hidden—Service is not available through a portal and cannot be activated automatically when the subscriber logs in. If you change the value of this field to hidden while the subscription is active, the service is not deactivated.

- Default—Active

Activation

- Specifies how the service is activated.

- Value

    - manual—Subscriber must activate the service; the service is not activated automatically on login.

    - automatically on login—Service is activated automatically when the subscriber logs in.

    The SRC software may modify this setting if the service appears in mutex groups. See *SRC-PE Services and Policies Guide, Chapter 2, Managing Services on a Solaris Platform*.

- Default value—Manual

Activation Order

- Specifies when the SAE should activate this subscription relative to the subscriber's other subscriptions that are configured to activate on login.

- Value—Integer in the range 0–2147483647

- Guidelines—Review all subscriptions that are configured to activate on login for this subscriber, and review the activation order for subscriptions of the parent subscribers. Assign the lowest number to the subscription that you want to activate first. Assign higher numbers to the other subscriptions in the order you want the SAE to activate them. If you assign the same value to multiple subscriptions, the SAE activates them in an unspecified order.

- Default—10000

- Example—200

Deleted

- Specifies whether or not this entry is available to other SRC components connected to the directory.

- Value

  - Blank—Other SRC components can access this entry in the directory.

  - True—Other SRC components cannot use this entry in the directory, although the object still exists.

  - False—Other SRC components can access this entry in the directory.

- Default—Blank

Allowing Multiple Subscriptions per Subscriber

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:

<ServiceName>%<SubscriptionId>

- < ServiceName > —Name of the service

- < SubscriptionId > —Name of the subscription

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

Configuring Subscriptions to Outsourced Services

Create an outsource subscription for retailers to specify that a retailer will use outsourced services from wholesalers. You must add an outsourced service to the directory before you specify that service for subscribers. See *SRC-PE Services and Policies Guide, Chapter 2, Managing Services on a Solaris Platform.*
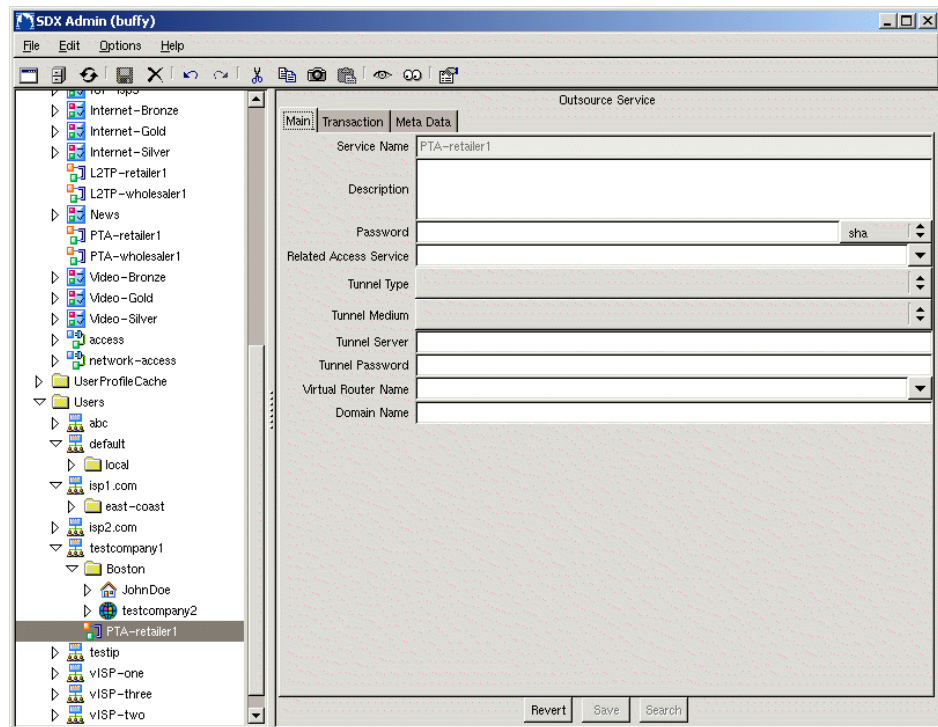
To configure a subscription to an outsourced service:

1. In the SDX Admin navigation pane, right-click the subscriber to which you want to add the subscription, and select **New > Outsource Service**.

   The New Outsource Service dialog box appears.

2. Select a service from the Service Name menu, and click **OK**.

An object for the new outsource service subscription appears in the navigation pane, and the Outsource Service pane appears.

3. Use the field descriptions in *Outsource Service Subscription Fields* on page 231 to configure the outsource service subscription, and click **Save**.

4. Enter information in the other tabs.

Outsource Service Subscription Fields

Use the fields in this section to configure outsourced service subscriptions.

Description

■ Information about this service.

■ Value—Text

■ Default—If a description exists for this outsourced service in the Services folder, the same description is visible in this pane.

Password

- Password for the outsourced service.
- Value—Enter a password, and select an encryption method that your directory supports (see Table 22 on page 207).
  - empty line—No encryption
  - crypt—Style is /etc/passwd
  - sha—Secure hash algorithm
  - md5—Message digest #5
- Default—No value

Related Access Service

- Access service that allows the retailer to use this tunnel and password.
- Value—Select an access service from the drop-down menu, or enter an access service
- Default—No value
- Example—*serviceName = BackupAccess, o = Services, o = umc*

Tunnel Type

- Encapsulation protocol used by this tunnel.
- Value
  - PPTP—Point-to-Point Tunneling Protocol
  - L2F—Layer 2 Forwarding Protocol
  - L2TP—Layer 2 Tunneling Protocol
- Default—No value

Tunnel Medium

- Address protocol used by this tunnel.
- Value
  - IPv4—Internet Protocol version 4
  - IPv6—Internet Protocol version 6
  - NSAP—Network Service Access Point
- Default—No value

Tunnel Server

- IP address of the tunnel server at the company that provides the outsourced service.
- Value—IP address
- Default—No value

Tunnel Password

- Password that this retailer uses to access the tunnel.
- Value—Password
- Default—No value

Virtual Router Name

- Name of the virtual router on the router that provides access to this tunnel
- Value—Virtual router name
- Default—No value

Domain Name

- Domain name of the company that provides the outsourced service.
- Value—Domain name
- Default—No value

Configuring Access Subscriptions

You must configure an access subscription for an enterprise or a site. An access subscription determines the way that the enterprise or site accesses Internet services, and specifies a set of value-added services that are available to the enterprise or site. You must add an access service to the directory before you create an access subscription. See *SRC-PE Services and Policies Guide, Chapter 2, Managing Services on a Solaris Platform*.

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

To configure a subscription to an access service:

1. In the SDX Admin navigation pane, right-click the enterprise or site for which you want to specify an access service, and select **New > Access Subscription**.

   The New Access Subscription dialog box appears.

2. Enter a name for the subscription that is unique for the enterprise or site, select a service from the Used Service menu, and click **OK**.

An object for the new access subscription appears in the navigation pane, and the Access Subscription pane appears.
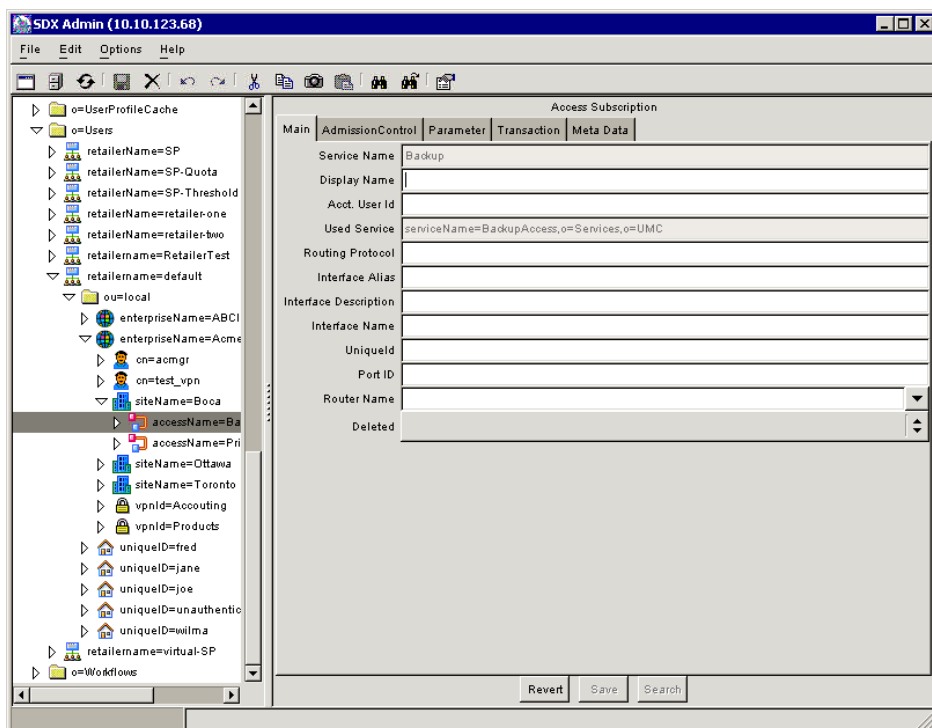
3. Use the field descriptions in *Access Subscription Fields* on page 234 to configure the access subscriptions, and click **Save**.

4. Enter information in the other tabs:

   ■ AdmissionControl tab—If the ACP manages the subscription, you must configure bandwidths for the subscription in this tab. (See *SRC Application Library Guide*.)

   ■ Parameter tab— Enter substitutions in this tab. (See *Configuring Substitutions for Subscriptions* on page 240.)

Access Subscription Fields

Use the fields in this section to configure access subscriptions. Subscriber classification scripts can use access subscription properties to match the interface in the network with an access in the directory.

Display Name

- Name that is displayed in enterprise management portals, if different from the service name. IT managers can change this name through the portal, whereas the service name is fixed for the lifetime of the access.

- Value—Text

- Default—No value

Acct. User id

- Value that identifies the service in accounting records.

- Value—Text

- Default—No value

Routing Protocol

- Not currently used.

Interface Alias

- Description of a router interface.

- Value—Interface description that is configured on the router

- Default—No value

Interface Description

- Alternate name of the interface that SNMP uses. This name is system-generated.

- Value

  - On a JUNOSe router, the format of the description is:

    ip<slot>/<port>.<subinterface>

  - On the JUNOS routing platform, ifDesc is the same as interfaceName.

- Default—No value

- Example—ifDesc = "IP3/1.1"

Interface Name

- Name of the interface.

- Value

  - Name of the interface in your router CLI syntax

  - FORWARDING_INTERFACE for routing instance (used by traffic mirroring)

- Default—No value

- Example—For JUNOSe routers: interfaceName = "fastethernet6/0.1"

  For JUNOS routing platforms: interfaceName = "fe-0/1/0.0"

  For forwarding interface: interfaceName = "FORWARDING_INTERFACE"

Uniqueid

- Router's unique ID.
- Value—Index of the router in the SNMP table for all interfaces.
- Default—No value

Port ID

- NAS port ID reported by the JUNOSe router through COPS.
- Value—Includes interface name and additional layer 2 information
- Default—No value
- Example—nasPortId = "fastEthernet 3/1" (There is a space between fastEthernet and slot number 3/1 in the NAS port ID.)

Router Name

- Name of the router to which this access connects.
- Value—Select a name from the menu.
- Default—No value

Deleted

- Specifies whether or not this entry is available to other SRC components connected to the directory.
- Value
  - Blank—Other SRC components can access this entry in the directory.
  - True—Other SRC components cannot use this entry in the directory, although the object still exists.
  - False—Other SRC components can access this entry in the directory.
- Default—Blank

Configuring RADIUS Subscriptions

You must add a RADIUS service to the directory before you specify that service for subscribers. See *SRC-PE Services and Policies Guide, Chapter 2, Managing Services on a Solaris Platform*.

To configure a subscription to a RADIUS service:

1. In the SDX Admin navigation pane, right-click the access subscription folder or residential subscription folder to which you want to add the new subscriber, and select **New > Radius Subscription**.

   The New RADIUS Subscription dialog box appears.

2. Select a RADIUS service from the Service Name menu, and click **OK**.

   An object for the new subscription appears in the navigation pane, and the RADIUS Subscription pane appears.

   Some values for the RADIUS subscription are inherited from the RADIUS service. However, you can change these values to make them specific to the subscriber.
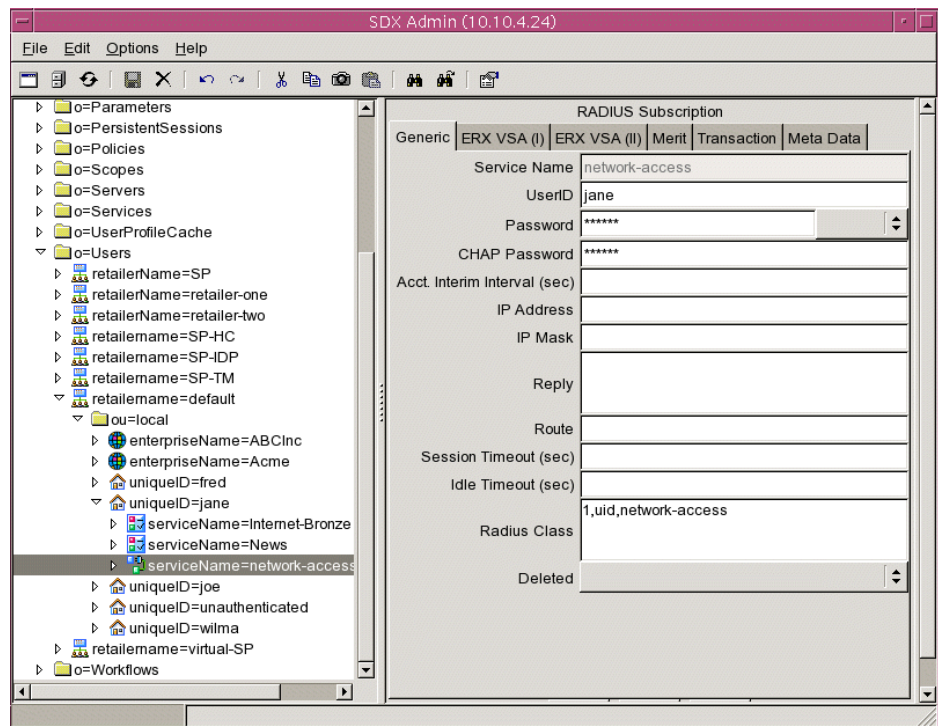
3. Use the field descriptions in *RADIUS Subscription Fields* on page 238 to configure the subscription, and click **OK**.

   You can define RADIUS attributes in generic schema format, in which each RADIUS attribute corresponds to one LDAP attribute. These values are displayed in the Generic and ERX VSA tabs.

4. Enter information in the other tabs:

■ ERX VSA tabs—For information about configuring in these tabs, see the information about configuring RADIUS services in *SRC-PE Services and Policies Guide, Chapter 2, Managing Services on a Solaris Platform*.

■ Merit tab—If you are running an ordinary LDAP client, you must enter these attributes and click Save.

If you enter values in the Generic, ERX VSA(1), or ERX VSA(2) tabs and click Save, the values get populated in the Merit AAA Reply field. To set up AAA Check or AAA Deny policies, enter them in the appropriate Merit fields, and click Save.

RADIUS Subscription Fields

Use the fields in this section to configure RADIUS subscriptions.

UserID

■ Login ID that RADIUS uses to authenticate the subscriber.

■ Value—Text

■ Default—Inherited from the User ID attribute of the subscriber.

Password

■ Password that the subscriber uses to access the RADIUS server.

■ Value—Enter a password, and select an encryption method that your directory supports (see Table 22 on page 207).

   ■ empty line—No encryption

   ■ crypt—Style is /etc/passwd

   ■ sha—Secure hash algorithm

   ■ md5—Message digest #5

■ Default—No value

CHAP Password

■ Password that the subscriber uses for CHAP authentication on the RADIUS server.

■ Value—CHAP password

■ Default—No value

Acct. Interim Interval (sec)

■ Interval between interim accounting messages for this service.

■ Value—Number of seconds in the range 0-2147483648

   ■ No value—The globally configured accounting interim value is used.

   ■ 0—Interim accounting is disabled for this service.

■ Default—No value; may be inherited from the RADIUS service

IP Address

- IP address for the subscriber's network.

- Value—IP address

- Default—No value

IP Mask

- Mask for the subscriber's subnet.

- Value—IP mask

- Default—No value

Reply

- Text to be displayed to the subscriber. This is the RADIUS Reply-Message attribute.

- Value—Text string

- Default—No value; may be inherited from the RADIUS service

Route

- Route from the subscriber to the RADIUS server

- Value—Route in the format compatible with *RFC 2865—Remote Authentication Dial In User Service (RADIUS) (June 2000)*: < ipAddress > / < ipLength > < gatewayAddress > < metric >

  - ipAddress—IP address of the subnet

  - ipLength—Optional value that specifies the number of high-order bits from the IP address of the subnet. Default values are:

    - 8 (for class A prefixes)

    - 16 (for class B prefixes)

    - 24 (for class C prefixes)

  - gatewayAddress—IP address of the router that forwards traffic to the RADIUS server; a value of 0.0.0.0 indicates that the gateway address is the subscriber's IP address

  - metric—Number in the range 1–254 that specifies a precedence for the route; a lower number indicates a higher precedence

- Default—No value

- Example:

  192.168.1.0/24 192.168.1.1 1 2 -1 3 400
  192.168.1.0 192.168.1.1 1

Session Timeout (sec)

- Timeout for RADIUS session.

- Value—Number of seconds in the range 0–2147483647

- Guidelines—If this timeout is lower than the timeout defined for the subscriber session, the SRC software uses the RADIUS timeout for subscriber sessions.

- Default—No value; may be inherited from the RADIUS service

Idle Timeout (sec)

- Time at which the RADIUS session ends if there is no activity between the subscriber and the RADIUS server.

- Value—Number of seconds in the range 0–2147483647

- Default—No value; may be inherited from the RADIUS service

RADIUS Class

- Arbitrary value that, if the RADIUS server supplies it, the network access server (NAS) includes in all accounting packets for the subscriber.

- Value—Text

- Default—No value; may be inherited from the RADIUS service

Deleted

- Specifies whether or not this entry is available to other SRC components connected to the directory.

- Value

    - Blank—Other SRC components can access this entry in the directory.

    - True—Other SRC components cannot use this entry in the directory, although the object still exists.

    - False—Other SRC components can access this entry in the directory.

- Default—Blank

Configuring Substitutions for Subscriptions

This section shows how to add, modify, validate, and delete substitutions in SDX Admin.

Adding Substitutions

To add a substitution:

1. In SDX Admin, select the **Parameter** tab for the subscriber to which you want to add a substitution.

2. In the unlabeled field below the Substitution field, enter the substitution in the correct syntax (see *Formatting Substitutions* on page 403*).* For example:

Fixed	Name	Role	Value	Description
	dept	network		subnet of the department to apply the service to
!	qos		interface_speed*0.5	gold qos is 50% of interface speed
!	outside	network	dept	rename outside policy parameter to dept

!inside:network=any//always apply to any subnet inside the service provider | Validate | Add | Modify

3. Click **Add**.

☞ **NOTE:** Substitutions for JUNOSe routers may not be correctly displayed in the Substitution field for SDX Admin. To confirm the syntax of a JUNOSe substitution, click on the substitution in the Substitution field, and observe the syntax in the entry field below the Substitution field.

Substitutions to a Transmission Rate for a Scheduled Action

When you use SDX Admin to assign substitutions to the Transmit Rate Unit for a Scheduler action, you can specify one of the following:

- "percent"

- "remainder"

- "bps"

Do not use the "rate_in_percent" value as it appears in Policy Editor for substitutions in SDX Admin. Do one or the other. For example in Policy Editor, specify a parameter called 'x' for the Transmit Rate Unit for a Scheduler Action and select rate_in_percent; or in SDX Admin, create a substitution as x = percent.

Modifying Substitutions

To modify a substitution:

1. In SDX Admin, select the **Parameter** tab for the subscription to which you want to add a substitution.

2. Select the substitution in the Substitutions field.

3. Modify the substitution in the unlabeled field below the Substitution field.

4. Click **Modify**.

Validating Substitutions

To validate a substitution:

1. In SDX Admin, select **Options > Configure**.

    The Main Configuration window appears.

2. In the SAE Admin Web Application Server field, enter the identifier of the host on which you installed SAE Web Admin, in the format: < host > : < port > .

    - < host >—Name or IP address of the host

    - < port >—Port number for SAE Web Admin

3. Click **OK**.

4. Select the substitution in the Substitution field.

5. Click **Validate**.

    SDX Admin displays the result of the validation.

Deleting Substitutions

To delete a substitution, select it in the Substitutions field, right-click, and select **Delete**.

Modifying and Deleting Subscribers and Subscriptions

For information about modifying and deleting objects, see *SRC-PE Getting Started Guide, Chapter 43, Using SDX Admin*. For information about customizing fields when you modify an object, see the section that describes how to add that type of object.