Chapter 4

Scheduling Services with the SRC CLI

This chapter describes how to create and manage schedules for services with the SRC CLI.

You can also use SRC configuration applications to configure the SRC software on a Solaris platform. See *Chapter 5, Scheduling Services on a Solaris Platform*.

Topics in this chapter include:

- Setting the Action Threshold and Preparation Time with the CLI on page 102

- Authorizing Scheduled Services with the CLI on page 103

- Adding a Service Schedule with the CLI on page 104

- Example: Configuring Different Service Tiers for Different Days with the CLI on page 109

- Example: Configuring a Service to Be Active During Nonwork Hours with the CLI on page 111

- Example: Configuring a Service to Be Available for a Specified Interval with the CLI on page 113

Setting the Action Threshold and Preparation Time with the CLI

You can set the action threshold and preparation time for all schedules; you cannot set these values for individual schedules.

Use the following configuration statements to set the action threshold and preparation time:

```
shared sae configuration time-based-policies {
    action-threshold action-threshold;
    preparation-time preparation-time;
    max-worker-threads max-worker-threads;
}
```

To set the action threshold and preparation time for an SAE:

1. From configuration mode, access the configuration statement that configures time-based policies.

    user@host# **edit shared sae configuration time-based-policies**

2. Configure the maximum delay that the service allows for a time-related change to occur. The recommended range is 60000–300000 milliseconds. The minimum value supported is 60000 milliseconds.

    [edit shared sae configuration time-based-policies]
    user@host# **set action-threshold** *action-threshold*

3. Configure the preparation time permitted for a state transition.

    [edit shared sae configuration time-based-policies]
    user@host# **set preparation-time** *preparation-time*

    When you set a value for the preparation time, take into consideration system load and performance. Factors such as the number of subscribers, the number of active services, the number of schedule services, the speed of the processor on the system, as well as other conditions might affect the amount of time to process all the scheduled actions at a specified schedule time.

4. (Optional) Configure the maximum number of threads for service scheduling.

    [edit shared sae configuration time-based-policies]
    user@host# **set max-worker-threads** *max-worker-threads*

5. (Optional) Verify your configuration.

    [edit shared sae configuration time-based-policies]
    user@host# **show**

Authorizing Scheduled Services with the CLI

You can configure an authorization plug-in to authorize a scheduled service by specifying the name of the plug-in that authorizes the schedule in the service definition. The default schedule authorization plug-in is named scheduleAuth.

Use the following configuration statement to configure an authorization plug-in for a service configured in the global configuration:

services global service *name* {
    authorization-plug-in [*authorization-plug-in*...];
}

Use the following configuration statement to configure an authorization plug-in for a service configured in the service scope:

services scope *name* service *name* {
    authorization-plug-in [*authorization-plug-in*...];
}

To define an authorization plug-in for a service:

1. From configuration mode, access the configuration statement that configures the service configuration in the global configuration or in the service scope.

    user@host# **edit services global service** *name*
    user@host# **edit services scope** *name* **service** *name*

    For example, to configure the service named Video-Gold in the global configuration:

    user@host# **edit services global service Video-Gold**

2. Enter the name of the authorization plug-in that will authorize the schedule for this service.

    user@host# **set authorization-plug-in** [*authorization-plug-in*...]

    For example, to specify the default schedule authorization plug-in:

    user@host# **set authorization-plug-in scheduleAuth**

Adding a Service Schedule with the CLI

You can create a service schedule for the following objects:

- Scopes

- Services

- Retailers

- Enterprises

- Subscribers in an enterprise

NOTE: If you change or remove the name of a service that is referenced by a schedule, the SRC software treats this case like one in which no subscribers have a subscription to this service. In both cases, the action for the service is not taken. The software does not regard either case as an error in the schedule; a failure is not reported.

Use the following statements to configure a service schedule:

```
schedule name {
    description description;
}
```

To add a service schedule:

1. From configuration mode, access the configuration statement that configures the service schedule for the objects for which you can create a service schedule. Enter a unique name for the service schedule.

    For example:

    user@host# **edit services scope** name **schedule** name

    user@host# **edit services global schedule** name

    user@host# **edit subscribers retailer** name **schedule** name

    user@host# **edit subscribers retailer** name **subscriber-folder** folder-name **enterprise** name **schedule** name

    user@host# **edit subscribers retailer** name **subscriber-folder** folder-name **subscriber** name **schedule** name

2. (Optional) Describe the service schedule.

    user@host# **set description** description

3. Create schedule entries for the service schedule. A number of schedule entries, or rules, constitute each service schedule.

   user@host# **set event** *name*

   An entry consists of the schedule time, any excluded times, and a list of actions. To create an entry:

   ■ Specify the time schedule.

     See *Setting the Time Schedule* on page 105.

   ■ Specify the actions.

     See *Setting the Action* on page 108.

Setting the Time Schedule

When you set up a time schedule, you specify:

■ For event schedules—Time at which an action is to occur; the from date and time information

■ For schedules for services that have authorization configured—Beginning and end of the interval; the to date and time information

■ For exclusions—Times to be excluded from that schedule

Use the guidelines in *Guidelines for Entering Time Values* on page 107.

Use the following statements to configure a time schedule for an event:

```
schedule name event name from {
    effective effective;
    hour hour;
    minute minute;
    day-of-month day-of-month;
    day-of-week day-of-week;
    month month;
    year year;
    time-zone time-zone;
}

schedule name event name to {
    effective effective;
    hour hour;
    minute minute;
    day-of-month day-of-month;
    day-of-week day-of-week;
    month month;
    year year;
    time-zone time-zone;
}
```

Use the following statements to configure time exclusions from the schedule:

schedule *name* event *name* except *name* from {
    hour *hour*;
    minute *minute*;
    day-of-month *day-of-month*;
    day-of-week *day-of-week*;
    month *month*;
    year *year*;
    time-zone *time-zone*;
}

schedule *name* event *name* except *name* to {
    hour *hour*;
    minute *minute*;
    day-of-month *day-of-month*;
    day-of-week *day-of-week*;
    month *month*;
    year *year*;
    time-zone *time-zone*;
}

To configure the time schedule:

1. From configuration mode, access the configuration statement that configures the service schedule for the objects for which you can create a service schedule. Enter a name for the event and the exclusion. The specified name is not stored as an identifier, so the arbitrary value can be as simple as a number.

2. (Optional) Specify the effective period in which to schedule the event. This period is the interval after the associated from or to time during which the scheduled action can be initiated by a subscriber who is logging in to a subscriber session.

    user@host# **set effective** *effective*

3. (Optional) Specify the hour of the day in the indicated month in which to schedule the event or exclusion.

    user@host# **set hour** *hour*

4. (Optional) Specify the minutes past the indicated hour in which to schedule the event or exclusion.

    user@host# **set minute** *minute*

5. (Optional) Specify the day of the month in which to schedule the event or exclusion.

    user@host# **set day-of-month** *day-of-month*

6. (Optional) Specify the day of the week in which to schedule the event or exclusion.

    user@host# **set day-of-week** *day-of-week*

7. (Optional) Specify the month of the year in which to schedule the event or exclusion.

   user@host# **set month** *month*

8. (Optional) Specify the year in which to schedule the event or exclusion.

   user@host# **set year** *year*

9. (Optional) Specify the time zone to use in the schedule.

   user@host# **set time-zone** *time-zone*

Guidelines for Entering Time Values

When you enter time schedules, you can use the values in the following list. See *Setting the Time Schedule* on page 105 for a description of the options.

☞ **NOTE:** Dates in the to statements apply only to services that have an authorization plug-in configured. If an authorization plug-in is not configured for the service associated with the schedule, the entries in the to statements are ignored.

- *—Asterisks are interpreted as follows:

  - Minutes and hours:

    - 0 if used in the from or to statements of a scheduled event

    - First or last if used in the statements of a schedule exclusion

  - Time zones—Local SAE time zone

  - All other options—First through last

  - For options in the to statements, * for the end time is equivalent to "deny service activation after this start date."

  - For dates in the from statements, * is equivalent to "deny service activation before this end date."

- Range of numbers separated by a hyphen. The range is inclusive; for example, 1-5 for the hour specifies hours 1, 2, 3, 4, and 5.

- List of numbers or ranges separated by commas. For example, 1,2,5,9 or 0-4,8-12.

- Skip values in ranges:

    - To skip a number's value through the range, follow a range with
      / < number > . For example, 0-23/2 used in the **hour** option specifies that the
      event occurs every other hour.

    - Skip values with *. If you want to specify every two hours, use */2.

👉 **NOTE:** If you set both a day of the month and a day of the week, the day of the
month is used.

Setting the Action

Use the following configuration statements to configure the list of actions for the
service schedule:

schedule *name* event *name* action *name* {
    type (activate | deactivate | deny | deny-deactivate);
    service *service*;
    substitution [*substitution*...]; }

To configure the actions:

1. From configuration mode, access the configuration statement that configures
    the service schedule for the objects for which you can create a service schedule.
    Enter a name for the event and the action. The specified name is not stored as
    an identifier, so the arbitrary value can be as simple as a number.

2. Specify the type of action. The deny and the deny-deactivate values apply only
    to services that have an authorization plug-in configured. For more information,
    see *Authorizing Scheduled Services with the CLI* on page 103.

    user@host# **set type** (**activate** | **deactivate** | **deny** | **deny-deactivate**)

3. Specify the name of the service.

    user@host# **set service** *service*

4. (Optional) Specify substitutions to be used when the service is activated.
    Substitutions apply only to service activations.

    user@host# **set substitution** [*substitution*...]

    For more information, see the activateService method of the SAE external
    interface in the SAE CORBA remote API documentation in the SRC software
    distribution in the folder *SDK/doc/idl* or on the Juniper Networks Web site at

        http://www.juniper.net/techpubs/software/management/sdx/api-index.html

    For more information about substitutions and schedules, see *Example:
    Configuring Different Service Tiers for Different Days with the CLI* on page 109.

    For information about the syntax for substitutions, see *Chapter 14, Defining
    and Acquiring Values for Parameters*.

Defining Attributes for Service Activation

Use the following statement to configure attributes for service activation:

schedule *name* event *name* action *name* attribute (sessionName | sessionTag |
sessionTimeout | downStreamBandwidth | upStreamBandwidth) {
     value;
}

To define the attributes:

1. From configuration mode, access the configuration statement that configures
   the service schedule for the objects for which you can create a service schedule.

2. Specify the value for the attribute that is set before the service is activated.

   user@host# **set attribute** (**sessionName** | **sessionTag** | **sessionTimeout** |
   downStreamBandwidth | **upStreamBandwidth**) *value*

   Subscription attributes apply only to service activations.

   For more information about subscription attributes, see the *Subscription.html*
   file in the SAE core portal API documentation in the
   SDK/doc/sae/net/juniper/smgt/sae/portal directory in the SRC software
   distribution or on the Juniper Networks Web site at

       http://www.juniper.net/techpubs/software/management/sdx/api-index.html

Example: Configuring Different Service Tiers for Different Days with the CLI

This example shows how to configure a schedule for an audio service to provide:

■   Gold level of service on weekends

■   Bronze level of service on weekdays

The sample schedule:

■   Uses the Audio-Gold and Audio-Bronze services in the sample data.

■   Activates the Audio-Gold service and denies the Audio-Bronze service on
    Saturday.

■   Activates the Audio-Bronze service and denies and deactivates the Audio-Gold
    service on Monday.

■   Does not have a preparation time configured for the SAE.

For demonstration purposes, the sample schedule is configured in the global
configuration to make the service schedule available to all subscribers to the two
audio services. It is assumed that subscribers are continuously logged in to the
system to access the audio services.

To configure a schedule to make the Audio-Gold service available on Saturday and Sunday and the Audio-Bronze service available for the rest of the week:

1. From configuration mode, access the configuration statement that configures the service schedule in the global configuration. Enter a unique name for the service schedule; for example, audioSchedule.

   user@host# **edit services global schedule audioSchedule**

   Enter a description of the schedule.

   [edit services global schedule audioSchedule]
   user@host# **set description** *description*

2. From configuration mode, access the configuration statement that configures the schedule entry. Enter a name for the schedule entry; for example, audioTime1.

   user@host# **edit services global schedule audioSchedule event audioTime1**

3. For the time, specify the day of the week as Saturday. For the actions, specify **activate** for the Audio-Gold service (named Action-1) and **deny-deactivate** for the Audio-Bronze service (named Action-2).

   [edit services global schedule audioSchedule event audioTime1]
   user@host# **set from day-of-week 6**
   user@host# **set action action-1 type activate service Audio-Gold**
   user@host# **set action action-2 type deny-deactivate service Audio-Bronze**

4. From configuration mode, access the configuration statement that configures the schedule entry. Enter a name for the schedule entry; for example, audioTime2.

   user@host# **edit services global schedule audioSchedule event audioTime2**

5. For the time, specify the day of the week as Monday. For the actions, specify **activate** for the Audio-Bronze service (named Action-1) and **deny-deactivate** for the Audio-Gold service (named Action-2).

   [edit services global schedule audioSchedule event audioTime2]
   user@host# **set from day-of-week 1**
   user@host# **set action action-1 type activate service Audio-Bronze**
   user@host# **set action action-2 type deny-deactivate service Audio-Gold**

Example: Configuring a Service to Be Active During Nonwork Hours with the CLI

This example shows how to configure a schedule for an Internet gold service to be active:

■ Monday–Friday outside the 8:30 AM to 4:30 PM work day

■ January 1 of the following year—All day

The example uses the Internet-GoldAuth service. This service is based on the Internet-Gold service in the sample data with the addition of the scheduleAuth plug-in defined as the authorization plug-in for the service.

The sample schedule:

■ Deactivates the Internet-GoldAuth service from 8:30 AM through 4:29 PM.

■ Activates the service at 4:30 PM.

■ Does not have a preparation time configured for the SAE.

This configuration avoids schedule overlap.

For demonstration purposes, the sample schedule is configured in the global configuration to make the service schedule available to all subscribers to the Internet-GoldAuth service.

To configure a schedule to make a service available outside work hours and on January 1:

1. From configuration mode, access the configuration statement that configures the service configuration named Internet-GoldAuth in the global configuration. Specify the default schedule authorization plug-in.

   user@host# **edit services global service Internet-GoldAuth**

   [edit services global service Internet-GoldAuth]
   user@host# **set authorization-plug-in scheduleAuth**

2. From configuration mode, access the configuration statement that configures the service schedule. Enter a unique name for the service schedule; for example, afterHours.

   user@host# **edit services global schedule afterHours**

   Enter a description for the schedule.

   [edit services global schedule afterHours]
   user@host# **set description** *description*

3. From configuration mode, access the configuration statement that configures the schedule entry. Enter a name for the schedule entry; for example, goldTime.

   user@host# **edit services global schedule afterHours event goldTime**

4. From configuration mode, access the configuration statement that configures the time schedule. For the time, specify the day of the week as Monday through Friday, and specify that the schedule start at 8:30 AM and end at 4:29 PM (16:29) each day.

   user@host# **edit services global schedule afterHours event goldTime from**

   [edit services global schedule afterHours event goldTime from]
   user@host# **set day-of-week 1**
   user@host# **set hour 8**
   user@host# **set minute 30**

   user@host# **edit services global schedule afterHours event goldTime to**

   [edit services global schedule afterHours event goldTime to]
   user@host# **set day-of-week 5**
   user@host# **set hour 16**
   user@host# **set minute 29**

5. From configuration mode, access the configuration statement that configures the exclusion. Enter a name for the exclusion; for example, exclude-1. Specify a one-time exclusion for January 1.

   user@host# **edit services global schedule afterHours event goldTime except exclude-1 from**

   [edit services global schedule afterHours event goldTime except exclude-1 from]
   user@host# **set month 1**
   user@host# **set day-of-month 1**

   By excluding January 1 from the schedule, the Internet-GoldAuth service is active all day.

6. From configuration mode, access the configuration statement that configures the action. Enter a name for the action; for example, action-1. Specify **deny-deactivate** for the Internet-GoldAuth service.

   user@host# **edit services global schedule afterHours event goldTime action action-1**

   [edit services global schedule afterHours event goldTime action action-1]
   user@host# **set type deny-deactivate**
   user@host# **set service Internet-GoldAuth**

7. From configuration mode, access the configuration statement that configures the schedule entry. Enter a name for the schedule entry; for example, goldTime2.

   user@host# **edit services global schedule afterHours event goldTime2**

8. From configuration mode, access the configuration statement that configures the time schedule. Specify 4:30 PM (that is, 16:30).

   user@host# **edit services global schedule afterHours event goldTime2 from**

   [edit services global schedule afterHours event goldTime2 from]
   user@host# **set hour 16**
   user@host# **set minute 30**

9. From configuration mode, access the configuration statement that configures the exclusion. Enter a name for the exclusion; for example, exclude-2. Specify a one-time exclusion for January 1.

   user@host# **edit services global schedule afterHours event goldTime2 except exclude-2 from**

   [edit services global schedule afterHours event goldTime2 except exclude-2 from]
   user@host# **set month 1**
   user@host# **set day-of-month 1**

   By excluding January 1 from the schedule, the Internet-GoldAuth service is active all day.

10. From configuration mode, access the configuration statement that configures the action. Enter a name for the action; for example, action-2. Specify **activate** for the Internet-GoldAuth service.

    user@host# **edit services global schedule afterHours event goldTime2 action action-2**

    [edit services global schedule afterHours event goldTime2 action action-2]
    user@host# **set type activate**
    user@host# **set service Internet-GoldAuth**

Example: Configuring a Service to Be Available for a Specified Interval with the CLI

You can use an effective period for a schedule to make a service available to subscribers who log in during a specified time period. The following example shows how to configure a schedule to make a service available from 8 AM until 4 PM.

To make a specified service available from 8 AM until 4 PM:

1. From configuration mode, access the configuration statement that configures the service schedule in the global configuration. Enter a unique name for the service schedule; for example, effectiveHours.

   user@host# **edit services global schedule effectiveHours**

   Enter a description for the schedule.

   [edit services global schedule effectiveHours]
   user@host# **set description** *description*

2. From configuration mode, access the configuration statement that configures the schedule entry. Enter a name for the schedule entry; for example, availableTime.

   user@host# **edit services global schedule effectiveHours event availableTime**

3. From configuration mode, access the configuration statement that configures the time schedule. Specify the time when the service is first available—8 AM— and for how long the service is to be available—480 minutes.

   user@host# **edit services global schedule effectiveHours event availableTime from**

   [edit services global schedule effectiveHours event availableTime from]
   user@host# **set hour 8**
   user@host# **set effective 480**

4. From configuration mode, access the configuration statement that configures the action. Enter a name for the action; for example, action-1. Specify **activate** for the service; for example, Internet-GoldAuth service.

   user@host# **edit services global schedule effectiveHours event availableTime action action-1**

   [edit services global schedule effectiveHours event availableTime action action-1]
   user@host# **set type activate**
   user@host# **set service Internet-GoldAuth**