

Chapter 3

Managing Service Schedules

This chapter provides an overview of service schedules. Topics include:

- Overview of Service Schedules on page 93
- Planning Service Schedules on page 98

You can use the following to create and manage service schedules:

- To use the SRC CLI, see *Chapter 4, Scheduling Services with the SRC CLI*.
- To use the C-Web interface, see *SRC-PE C-Web Interface Configuration Guide, Chapter 24, Scheduling Services with the C-Web Interface*
- To use SRC configuration applications to configure the SRC software on a Solaris platform. See *Chapter 5, Scheduling Services on a Solaris Platform*.

Overview of Service Schedules

Service schedules define when specified services will be activated or deactivated and can also indicate when specified services are available or unavailable to subscribers. You can configure a service schedule for all subscribers to a service, or for a selected subscriber or subscribers. Schedules are composed of a number of rules expressed as schedule entries in schedule configuration.

You can exclude specified times, such as a day of the week, a specific date, or a time interval, from schedule rules. These times are referred to as schedule exclusions.

There are three types of schedules:

- Event-based schedules—The SAE activates or deactivates a service at a specified time. You specify the time the action is to occur, and any intervals to extend that time.
- Authorization schedules—The SAE allows or disallows access to a service during a specified interval; it can also deactivate sessions for current subscribers to a service at the beginning or end of an interval.
- State-based schedules—The SAE controls the times at which a service is available. Subscribers cannot change these schedules.

Event-Based Schedules

For each rule in event-based schedules, you specify a time at which the SAE activates or deactivates a specified service. In most cases for schedules configured under the global service configuration (for example, *o = Services*), a subscriber must be logged in at the time that the event occurs. For example, if a service is scheduled to be activated at 8 AM, the subscriber must already be logged in to the system at 8 AM.

You can extend the time at which a scheduled action can be initiated by configuring the following for event-based schedules:

- **Action threshold**—Interval after a scheduled time that an action can occur. The action threshold is configured globally for the SAE server.
- **Preparation time**—Interval before a scheduled time that an action can occur. The preparation time is configured globally for the SAE server.

Extending the time gives subscribers flexibility in when they can log in and in the time they can perform a task. It also gives the system time to complete a transition from one state to another and distributes the load on the system.

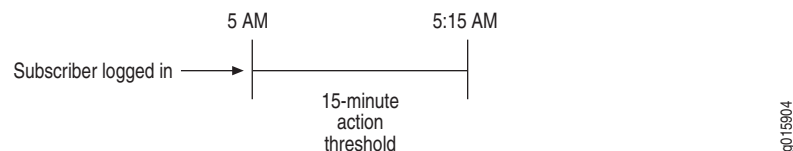
You can also configure an interval after a scheduled time that an action can occur for individual schedules. See *Effective Period for Service Activation or Deactivation* on page 96.

You can configure event-based schedules. See *Adding a Service Schedule with the CLI* on page 104 or *Adding a Service Schedule on a Solaris Platform* on page 116.

Action Threshold

The action threshold indicates the maximum delay that a service allows for a time-related change to occur. For example, you can allow a 15-minute delay so that if an event is scheduled for 5:00 AM but the system is not able to perform the event at 5:00 AM, the SAE attempts to perform the action until 5:15 AM, as shown in Figure 6.

Figure 6: Sample Action Threshold



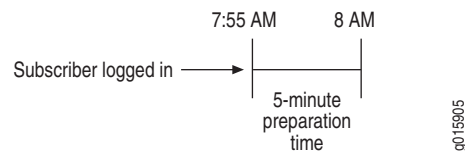
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Preparation Time

Because the transition from one state to another does not occur instantaneously, the SAE uses the preparation time to allow for the time that the SAE needs to make the transition. For example, if you have a pay-per-view service and many subscribers need to have the service activated by a certain time, you can configure the service schedule preparation time to begin the process early to make sure that everyone gets his or her service activated by the time the event starts. Or you could schedule a few minutes of preparation time for setting up a videoconference.

A preparation time applies only to subscribers who have a service schedule and who are logged in to their subscriber session before the preparation time starts. For example, if you define a service schedule that activates service Audio-Gold at 8:00 AM, this service is activated only for subscribers who are subscribed to this service and are logged in as of 7:55 AM (assuming a default preparation time of 5 minutes). The service is not activated for subscribers who log in between 7:55 AM and 8:00 AM, as shown in Figure 7.

Figure 7: Sample Preparation Time



Authorization Schedules

For authorization schedules, a service is either available or unavailable. You can configure intervals during which subscribers can log in and activate a specified service and intervals during which subscribers cannot activate a specified service. In addition, an authorization schedule can deactivate a service at a specified time for subscribers who are using the service.

For example, you could use an authorization schedule to offer a service only between 5 PM and 8 PM. In this case, you can configure a schedule that denies activation of the service during any other time period. If a subscriber attempts to activate the service at a time other than between 5 PM and 8 PM, the activation is denied.

You can configure authorization schedules only for services that use authorization; that is, a service configured to use an authorization plug-in, such as the `scheduleAuth` plug-in provided by the sample data.

For information about configuring an authorization plug-in for a service, see *Authorizing Scheduled Services with the CLI* on page 103 or *Authorizing Scheduled Services on a Solaris Platform* on page 115.

For information about configuring authorization schedules, see *Adding a Service Schedule with the CLI* on page 104 or *Adding a Service Schedule on a Solaris Platform* on page 116.

State-Based Schedules

For state-based schedules, you create service schedules that are controlled administratively. A state-based schedule defines when a service is available or unavailable.

For example, you could configure a schedule to provide a service at 5 Mbps from 8 AM to 4 PM and another service at 2 Mbps from 3:45 PM to 8:15 AM. The time overlap ensures that one of the services is available at transition time.

You create state-based service schedules from:

- Enterprise Manager Portal—Service providers make schedules available to IT managers in enterprises. IT managers can then configure service schedules for their enterprises.

See *SRC-PE Subscribers and Subscriptions Guide, Chapter 24, Managing Services with Enterprise Manager Portal*.

- An application that uses the CORBA remote API—You can incorporate service schedules, including schedules that affect subscriber sessions, in an application that has been created with the CORBA remote API, such as a residential portal.



NOTE: The only way to associate a session with a service schedule is through the CORBA remote API.

For information about the residential portal, see *SRC-PE Sample Applications Guide*.

For information about the SAE CORBA remote API, see the documentation for the API 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>

Effective Period for Service Activation or Deactivation

You can configure an effective period for a schedule rule to give subscribers an opportunity to take advantage of a scheduled action for a specified amount of time, rather than for one specific time. If users log in after a scheduled action but before the end of the effective period, they can take advantage of the service. Although similar to an action threshold, an effective period can be configured for each schedule rule, whereas the action threshold applies to all schedules on an SAE.

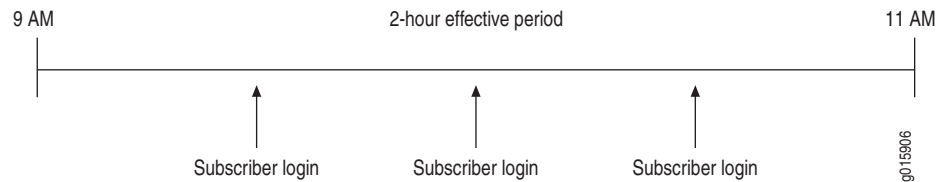
An effective period is active for service schedules assigned to subscribers under the subscriber tree (for example, *o = Users*), but not for services under the global service configuration or a defined service scope (for example, *o = Services* or *o = Scopes*).

An effective period applies to subscribers who:

- Have a service schedule that includes an effective period
- Are logging in to their subscriber session

An effective period does not apply to subscribers who are already logged in to the system.

For example, you could create a schedule that includes a scheduled event to start at 9 AM and an effective period of 2 hours; subscribers can log in between 9 AM and 11 AM and have the event take place, as shown in Figure 8.

Figure 8: Sample Effective Period

You can use effective periods rather than activate-on-login for subscriptions. If activate-on-login is configured for a subscription, we recommend that the service for the subscription not have an effective period configured.



If an effective period is configured so that it overlaps with an excluded time, the scheduled event does not take place, because it is within an excluded time period. To clearly define when a scheduled event can occur, do not configure an effective period to overlap with an excluded time.

One-Time Events and Recurring Events

You can specify service schedules for numerous situations. For example, you can set up:

- A one-time event—Performs an action at a specified time; for example, activating a gold Internet service at 7:00 AM on January 1, 2006.
- A recurring event—Performs an action over a period of time at specified intervals; for example, activating a gold video service at 7:00 AM every morning.
- A working-hours service—Performs actions at specified times on Monday through Friday; for example, a gold Internet service that is activated Monday through Friday at 8:00 AM and deactivated Monday through Friday at 5:00 PM. This type of service requires two schedule entries—one that activates the service and one that deactivates the service.

Schedule Availability to Subscribers

Which subscribers a service schedule affects depends on the configuration for the schedule. Table 8 shows which subscribers are affected by a schedule.

Table 8: Schedule Availability to Service Subscribers

Schedule Configured for This Object	Applies to These Subscribers
Service	All subscribers to that service
Scope	All subscribers to the specified service in that scope
Retailer	Any subscriber subordinate to the retailer for whom the service schedule is configured
Subscriber	The subscriber for whom the service schedule is configured or, in the case of enterprise subscribers, any subscribers subordinate to that subscriber

When a service provider or IT manager creates a schedule and attaches it to a service, the service schedule can be assigned to enterprise subscribers or residential subscribers. In some instances, subscribers can also create their own service schedules. When the scheduled action occurs, it applies to subscribers who are logged in and have a subscription to the scheduled service.

Schedule Exclusions

You can also exclude specific time intervals from a service schedule. For example, you can set:

- A holiday schedule—Ignores the service schedule for a specified day; for example, for January 1.
- A promotional period—Ignores the service schedule for a specified interval; for example, a 2-week period after the start date for the promotion.

Excluded times can apply to event schedules and authorization schedules. You can create numerous exclusion intervals to specify different actions and different times.

Planning Service Schedules

Before you configure service schedules, carefully plan individual rules for the schedule to avoid conflicts between the rules. The rules become entries when you configure the schedule. The SAE evaluates each schedule entry independently of the others.

Schedule Configuration Guidelines

Use the following guidelines when you plan and configure service schedules:

- Do not configure schedules for services that are configured as persistent services on the router.
- If activate-on-login is configured for a subscription, do not configure an effective period in a schedule for the associated service.

Consider changing the configuration for this subscription to use an effective period, rather than activate-on-login.

- Make sure you know the values for preparation time and action threshold that have been configured for the SAE.
- Do not configure an effective period to overlap with an excluded time.
- To avoid schedule conflicts, configure one service schedule to include all rules that control a service.
- Determine whether or not a service to be scheduled has an authorization plug-in configured. If an authorization plug-in is configured for a service, you can create an authorization schedule for that service.
- Create a schedule for a service under one of the following:
 - The subscriber tree (for example, *o = Users*)
 - The global service configuration (for example, *o = Services*)
 - A defined service scope (for example, *o = Scopes*)
- Do not specify the time in a schedule entry that is more than 5 years in the past or 15 years in the future.

Planning Schedules

The following list of planning activities applies to both event-based and authorization schedules unless otherwise indicated.

For each service schedule:

1. Decide whether to configure the schedule for a group of subscribers. Configure a schedule that includes rules for the same service under only one of the following:
 - The global service configuration
 - A defined service scope
 - The subscriber tree

2. For each rule in a service schedule, list the following information for each service included in the schedule:

- Time to activate the service and any effective time associated with this action.
- Time to deactivate the service.

or

(Optional for authorization schedules) Time to deny or to deny and deactivate the service.

Times can include a date and day of the week.

3. (Event-based schedules) Make sure that the scheduled times take into consideration a preparation time or an action threshold that has been configured for the SAE.

For example, if a schedule entry activates a service at 8:00, a schedule entry to deny access to the service should have a time before 8:00, such as 7:59. If a preparation time of 15 minutes is configured for the SAE, a schedule entry to deny access to the service should have a time before 7:45. The deny period ends before the service can be activated, with the time between the end of the deny interval and the activation time greater than the preparation time.

4. List any exclusions to a schedule, including:

- Time the exclusion starts
- Time the exclusion ends

Times can include a date and day of the week.

5. Review all rules for the schedule, and make sure that individual rules do not conflict with one another. Make sure that activate and deactivate times do not overlap for the same service.