Sun™ Management Center 3.0 Service Availability Manager User's Guide

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Contents

Preface

The *Sun Management Center 3.0 Service Availability Manager User's Guide* provides instructions on how to use the modules in Service Availability Manager.

Audience

This document is intended for users familiar with the Sun Management Center product. Therefore, many terms and concepts specific to the Sun Management Center are not explained here. For more information about the Sun Management Center, refer to the *Sun Management Center 3.0 User's Guide.*

Contents of this Manual

This document describes all services offered by Service Availability Manager. It includes the following chapters:

- Chapter 1, "Introduction to Service Availability Manager"
- Chapter 2, "Service Availability Manager Installation and Setup"
- Chapter 3, "Synthetic Transaction Modules"
- Chapter 4, "Service Element Modules"
- Chapter 5, "Service Availability Manager GUI"
- Appendix A, "Configuration and Module Parameters Reference"

Sun Management Center allows you to install and set up the add-on, load the modules in the agent through the console, and manage the alarm events generated by these modules. You can also use the existing Sun Management Center discovery

mechanism to discover an object containing all the services that are being monitored from a system. You can view the availability of all their services through the Service Availability Manager GUI.

Access to Latest Information on Sun Management Center

For the latest information on the Sun Management Center 3.0 software and the Service Availability Manager add-on product, refer to the following site:

```
http://www.sun.com/sunmanagementcenter/
```

Using UNIX Commands

This document does not contain information on basic UNIX® commands and procedures, such as shutting down the system, booting the system, and configuring devices. See one or more of the following for this information:

- *Solaris Handbook for Sun Peripherals*
- AnswerBook™ online documentation for the Solaris operating environment
- Other software documentation that you received with your system

Shell Prompts

Shell	Prompt
C shell	*machine_name*%
C shell superuser	*machine_name*#
Bourne shell and Korn shell	$
Bourne shell and Korn shell superuser	#

Typographic Conventions

Typeface	Meaning	Examples
`AaBbCc123`	The names of commands, files, and directories; on-screen computer output	Edit your `.login` file. Use `ls -a` to list all files. `% You have mail.`
`AaBbCc123`	What you type, when contrasted with on-screen computer output	`% `**`su`** `Password:`
`<abc>` or *<abc>*	These are both acceptable formats that define variables. They are only pertinent to this document and do not denote Sun's standard usage.	`<abc>` *<abc>*
AaBbCc123	Book titles, new words or terms, words to be emphasized	Read Chapter 6 in the *User's Guide*. These are called *class* options. You *must* be superuser to do this.
	Command-line variable; replace with a real name or value	To delete a file, type `rm` *filename*.

Sun Documentation on the Web

The `docs.sun.com`^{sm} web site enables you to access Sun technical documentation on the web. You can browse the `docs.sun.com` archive or search for a specific book title or subject at:

```
http://docs.sun.com
```

Related Documentation

For a list of related documents, see the *Sun Management Center 3.0 Software Release Notes* on the Sun Management Center website:

```
http://www.sun.com/sunmanagementcenter
```

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docfeedback@sun.com
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Please include the part number (816-2758) of your document in the subject line of your email.

Introduction to Service Availability Manager

This chapter discusses the following topics:

- "Service Availability Manager Overview" on page 1
- "Synthetic Transaction Modules" on page 3
- "Service Element Modules" on page 3
- "Service Object" on page 4
- "Service Manager GUI" on page 5
- "Configuration Example" on page 5

Service Availability Manager Overview

Service Availability Manager is an add-on to Sun Management Center 3.0 that enables you to monitor the availability of Internet services. The monitored services can run either locally or remotely. Service Availability Manager enables you to measure and monitor the availability of the following Internet services:

- Web service using the HTTP protocol
- Directory service that uses either LDAP (Version 3), or DNS, or NIS (Version 2) protocol
- Telnet service
- File transfer service that uses the FTP protocol
- Mail service that uses either the SMTP or, IMAP4, or POP3 protocol
- Solaris calendar service

This add-on uses Sun Management Center agent modules to measure and monitor the availability of the service. You can load Sun Management Center instances to monitor different services locally and remotely. The modules used to monitor

services locally are called Service Element modules. The modules used to monitor services remotely are called Synthetic Transaction modules. Once loaded, the modules display the status of the services.

The modules also send service requests periodically, according to the parameters of the requests, and measure the response times of the requests. You can also group a set of Sun Management Center modules that are monitoring various services and view the high level summary of their status. The logical grouping of the modules monitoring the services are represented in a composite object called the service object. The high-level summary of the status of services is displayed in a new graphical user interface (GUI) called Service Manager. This new GUI can be invoked from the Sun Management Center 3.0 Java™ console.

Before you can use Service Availability Manager, you must perform several tasks. An outline of the tasks is provided here. More detailed procedures are contained in the following chapters. A more thorough discussion of some of the components mentioned here is found later in this chapter. In brief, the tasks you will need to perform are:

1. Install the add-on software on all agents from which you want to monitor a service, as well as on the Sun Management Center 3.0 server layer.

2. Use the setup script to setup the software on the agent and server layers.

3. Load the Service Element modules on each host that is running a service, in order to monitor the service locally.

4. Load the Synthetic Transaction modules on the host, in order to monitor the services running remotely.

The loading of the Service Element and Synthetic Transaction modules is what enables you to monitor services. The host details view is available for looking at information displayed by the modules.

You can now start viewing the availability status of services with Service Availability Manager. To look at the high-level summary of the available services and their status, you need to:

1. Create the service object on the host that has the Synthetic Transaction modules loaded. You can do this by either using the discovery capabilities or by using the Create Composite Object utility, both found in Sun Management Center 3.0.

2. Right-click the service object that you created. From the menu that appears, either:

■ Choose Modify Service Object to customize the service object with a set of Service Element or Synthetic Transaction modules.

■ Choose Service Manager to view a high-level summary of the availability of services.

Synthetic Transaction Modules

To monitor services remotely, Service Availability Manager uses Synthetic Transaction modules. Synthetic (dummy) transactions are used to simulate the use of the services. The synthetic transactions can be used to measure performance statistics such as DNS resolve time, the total time a transaction takes, or connect time. There are ten kinds of Synthetic Transaction modules included in Service Availability Manager.

Service Element Modules

To monitor services on the same (local) system, Service Availability Manager uses Service Element modules. A Service Element module sends service requests periodically according to configuration parameters you specify. In this way both service availability and response time can be determined. There are ten kinds of Service Element modules included in Service Availability Manager. See FIGURE 1-1 for an example of the HTTP Service Element module.
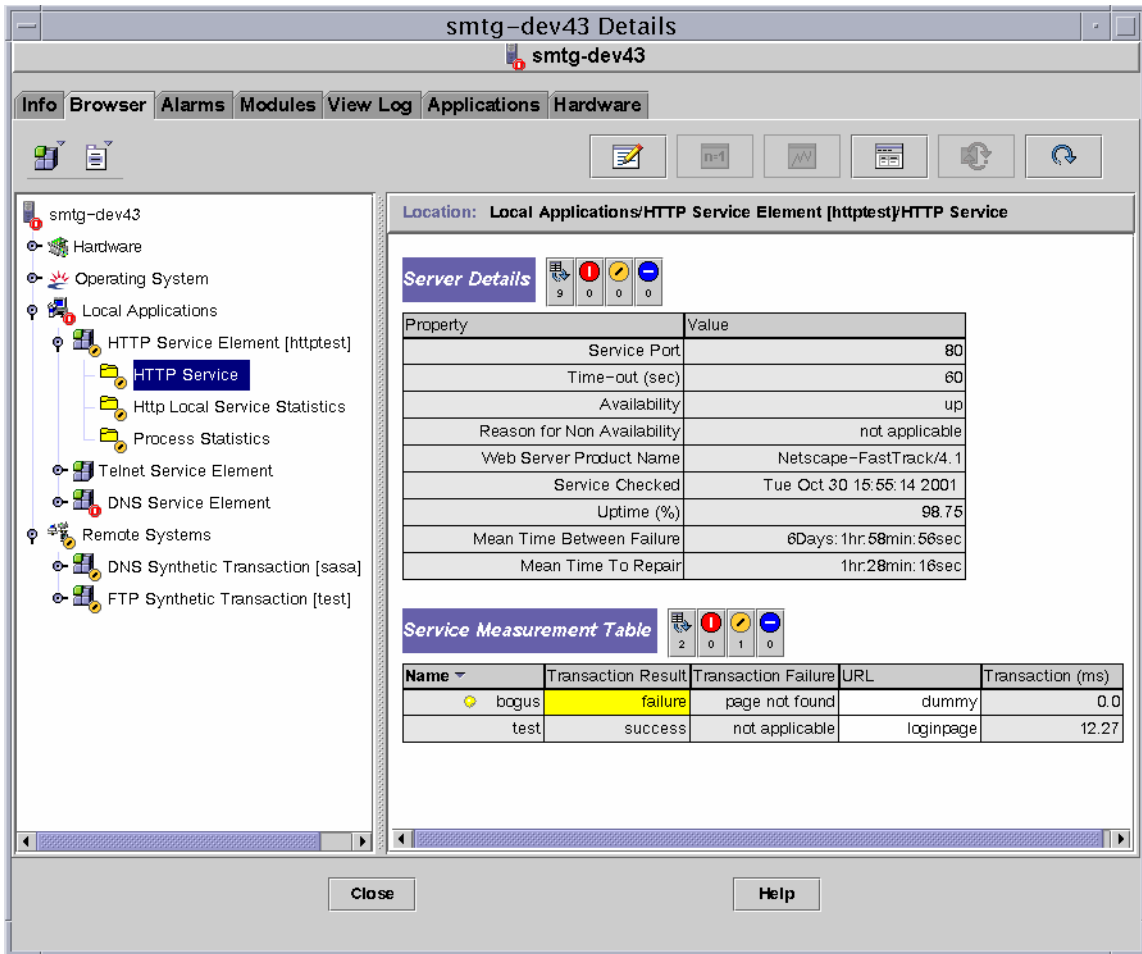
FIGURE 1-1 HTTP Service Element module

Service Object

An important feature of Service Availability Manager is the service object. A service object is a composite object containing Service Element modules and Synthetic Transaction modules. You customize a service object by using the Modify Service Object dialog to select the set of modules wanted.

Service Manager GUI

Service Manager GUI displays in a single view the availability of all the services contained in a service object. The GUI is linked to the Sun Management Center 3.0 Java console only.

The Service Manager dialog displays the availability of the different services locally and remotely. Service Availability Manager dynamically updates the data in the table to reflect the real-time status of the services.

Configuration Example

The following illustration depicts an example of how Sun Management Center 3.0 Service Availability Manager can be used:
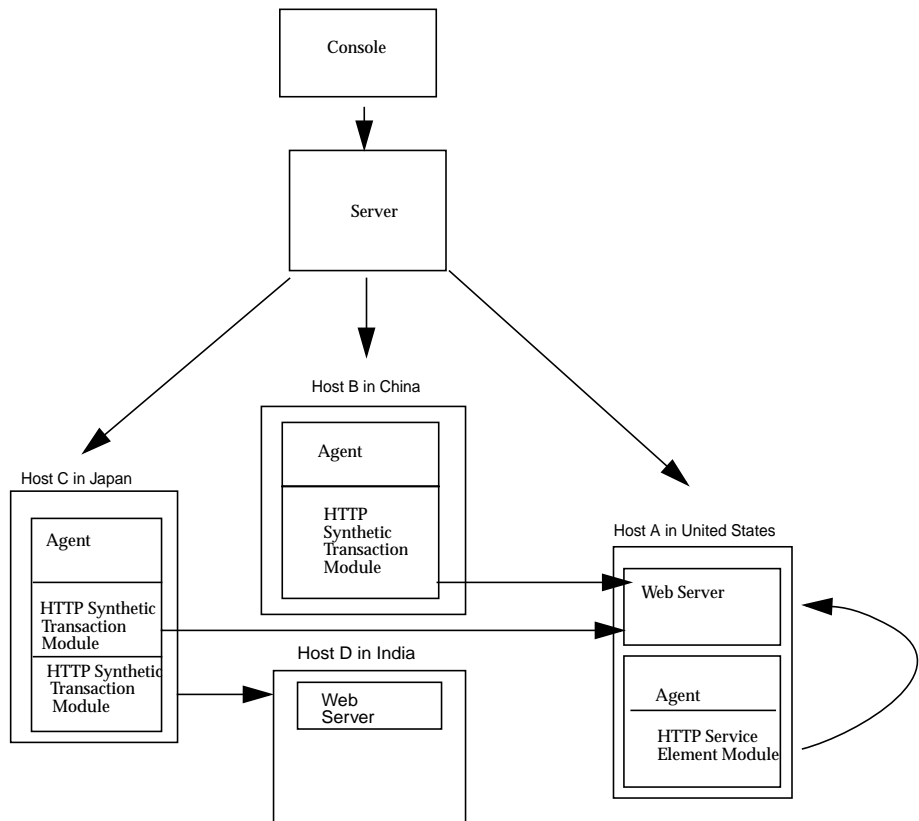
FIGURE 1-2 Configuration Example of Service Availability Manager

In this example, a single Sun Management Center server is shown with three agents:

- Host A is located in the United States and has a web server running. A HTTP Service Element module is loaded.

- Host B is located in China and a HTTP Synthetic Transaction module is loaded.

- Host C is located in Japan and has two HTTP Synthetic Transaction modules loaded.

- Host D is located in India and has no agent. A web server is running.

With this configuration, the system administrator for Host A can monitor the web server that is running locally. The administrator can also check remotely from Hosts B and C on the status and measure the performance of the web server on Host A. The HTTP Synthetic Transaction modules loaded on Hosts B and C makes this possible.

Host D has a web server running, but does not have an agent installed. This means the system administrator can not monitor the services locally. However, from Host D the services can be monitored remotely. The HTTP Synthetic Transaction modules loaded on Host C enables the remote monitoring of the web server on Host D.

Service Availability Manager Installation and Setup

This chapter discusses the following topics:

- "Service Availability Manager" on page 7
- "Installing Service Availability Manager" on page 8
- "Setting Up Service Availability Manager" on page 10
- "Removing Service Availability Manager" on page 11

Service Availability Manager

The Service Availability Manager is installed as an add-on to the Sun Management Center 3.0 software. The software runs on the Solaris™ 2.5.1, Solaris 2.6, Solaris 7, Solaris 8 operating environments, all the platforms that the Sun Management Center agent can run on, and that are supported by Sun Management Center 3.0. The LDAP modules are supported only on the Solaris 7 and 8 operating environments. The calendar modules are supported only on the Solaris 2.6, Solaris 7, and Solaris 8 operating environments. For any late-breaking information, please see the README file for Service Availability Manager.

Before installing Service Availability Manager, you must have both the Sun Management Center 3.0 software and the minimum recommended patch level installed. You can obtain the latest patches at:

```
http://sunsolve.sun.com/pub-cgi/show.pl?target=patches/patch-access
```

If necessary, download the patch ID specific to your operating environment and Sun Management Center 3.0 release version (see TABLE 2-1).

TABLE 2-1   Minimum Recommended Patch Level

Operating Environment	Sun Management Center 3.0 RR Version (Build 39)	Sun Management Center 3.0 GA Version (Build 41)
Solaris 2.5.1	110861-04	110862-04
Solaris 2.6	110971-05	110936-05
Solaris 7	110972-05	110937-05
Solaris 8	110973-05	110938-05
Microsoft Windows	110863-04	110863-04

If you are not sure which version of Sun Management Center 3.0 you have installed on your system, type the following command to verify your particular Build number: `pkgparam SUNWescom VERSION`.

Service Availability Manager consists of the following packages:

■ SUNWesaes: Service Availability Manager add-on for Sun Management Center agent

■ SUNWesses: Service Availability Manager add-on for Sun Management Center server

■ SUNWesces: Service Availability Manager add-on for Sun Management Center console

■ SUNWeshes: Service Availability Manager help add-on for Sun Management Center console

Installing Service Availability Manager

Installation of Service Availability Manager follows the standard Sun Management Center 3.0 add-on installation procedures. For more information about add-on installation, refer to the *Sun Management Center 3.0 User's Guide*.

Service Availability Manager must be installed on the following layers of Sun Management Center 3.0:

■ server layer
■ agent layer, on all hosts from which you want to monitor a service

Installation on the console layer is optional.

The interactive `es-inst` installation script installs the correct Service Availability Manager packages for the agent and server layers. For the agent package, the module configuration files and libraries are stored in standard Sun Management Center locations.

▼ To Install Service Availability Manager

Note – You must stop all Sun Management Center agent and server components before beginning the installation procedure.

1. **As superuser, run the installation script by typing:**

```
# /opt/SUNWsymon/sbin/es-inst
```

when /opt is the directory where Sun Management Center 3.0 is installed. Substitute the name of the actual directory if it is different on your system.

2. **Provide the source directory of the Service Availability Manager files when prompted:**

```
Please enter the source directory: /<Service Availability Manager directory>/disk1/image
```

3. **To install the Service Availability Manager, answer "Yes" when prompted.**

The `es-inst` script installs Service Availability Manager.

Setting Up Service Availability Manager

After installation is complete, you must run the Service Availability Manager setup script to configure the server and agent layers.

▼ To Set Up Service Availability Manager

Note – You must stop all Sun Management Center agent and server components before beginning the setup procedure.

To set up Service Availability Manager, choose one of the following:

1. **Answer 'y' or 'n' depending on whether you want to run setup.**

   - If you want to run setup for all Sun Management Center components found on the system, answer, 'y' for "Yes." Running the Sun Management Center setup script invokes the setup script for add-ons automatically.

   - If you want to run the setup script only for the newly-installed add-on, after installation, answer 'n' for "No." Then proceed to Step 2.

2. **If you answered "No", as superuser, run the** setup **script by typing:**

   ```
   # /opt/SUNWsymon/sbin/es-setup -p EServices
   ```

   when /opt is the directory where Sun Management Center 3.0 is installed. Substitute the name of the actual directory if it is different on your system.

Removing Service Availability Manager

Sun Management Center 3.0 does not support the uninstallation of an add-on only. To remove Service Availability Manager, you must run `pkgrm` on all applicable packages. Before removing the packages, you can save system resources by removing the configuration changes that the setup process made.

▼ To Remove the Configuration

1. **As superuser, change to the directory where Sun Management Center 3.0 is installed by typing:**

```
# cd /opt/SUNWsymon
```

when `/opt` is the directory where Sun Management Center 3.0 is installed. Substitute the name of the actual directory if it is different on your system.

2. **Remove the configuration by typing:**

```
# ./addons/Eservices/sbin/es-setup.sh -u
```

▼ To Remove an Add-on

1. **Check for the existence of the following packages:**
   - `SUNWesaes`
   - `SUNWesces`
   - `SUNWesses`
   - `SUNWeshes`

2. **Remove the packages using** `pkgrm`**.**

Synthetic Transaction Modules

This chapter discusses the following topics:

- "Synthetic Transaction Module Overview" on page 13
- "Using Synthetic Transaction Modules" on page 14

Synthetic Transaction Module Overview

Synthetic Transaction modules can monitor and measure the availability of services remotely. The modules use synthetic (dummy) transactions to simulate use of the service. These modules send service requests to the services periodically, according to defined settings, and simulate usage to monitor the service. Examples of response times that can be reported are connect time and total transaction time. All response times are reported in milliseconds. You can set alarm thresholds on response times. All Synthetic Transaction modules are multi-instance modules.

The following ten Synthetic Transaction modules are available:

- **HTTP:** This module determines web server service availability and web page retrieval time using HTTP protocol.
- **FTP:** This module determines the FTP service availability and the ability to transfer files to and from the FTP servers. `FtpGet` gets a file that you define from the FTP server. `FtpPut` puts a file on the server.
- **Telnet:** This module determines the availability of the TELNET service.
- **DNS:** This module determines the availability of the DNS Service and the ability of the DNS daemon to resolve a host name.
- **NIS:** This module determines the NIS service availability and the ability of the NIS daemon to resolve a name in a NIS domain. The supported name resolution types are user name, host name, group name, and mail alias.

- **LDAP:** This module determines the LDAP service availability and the ability of the LDAP daemon to resolve a name.
- **SMTP:** This module measures the availability of SMTP mail service and performance of sending mail. You must create at least one dummy email account on the target server for sending the test email. Remember to periodically delete the test email to ensure that the mailbox does not fill up.
- **POP3:** This module measures the availability of POP3 mail service and performance of retrieving mail.
- **IMAP4:** This module measures the availability of IMAP4 mail service and performance of retrieving mail.
- **Calendar:** This module measures the availability of Solaris calendar service and ability to retrieve calendar appointments from it.

Using Synthetic Transaction Modules

Note – The IMAP and POP modules each require a dummy user name and password. The password is passed in clear text during the synthetic transactions and is therefore not secure. Be certain that such a user has no privileges.

Prior to loading a module, certain configuration parameters must be specified. For example, the service host name might be requested. For more detail about the configuration parameters, see Appendix A.

Once a module is loaded, the state of the service is confirmed in the Server Details table. A service status is indicated in the Server Details table as one of three possible states:

- **Available (up):** The service is running.
- **Unavailable (down):** The service is unavailable. The reason for this result will vary depending on the circumstances. For example, the host name can not be resolved, or the destination is unreachable, or the service is not running. A critical alarm is generated.
- **Degraded:** The service is running, but the performance is not as expected. The module is able to run test transactions but the response times of the transactions exceeds the alarm thresholds specified. When the availability is degraded, an alarm is generated. The alarm severity is the highest severity of all alarms that is set on the response times of the transaction.

▼ To Load a Synthetic Transaction Module

1. **Load the module.**

   For detailed information on loading modules, refer to the *Sun Management Center 3.0 User's Guide.*

2. **Enter the required configuration parameters in the Load Module dialog for each module loaded.**

   A complete list of the Synthetic Transaction modules is available at the beginning of this chapter.

   Each module requires that specific parameter requirements be defined. Once the parameters are completed, the module will be loaded in Sun Management Center under the Remote Systems category.

▼ To Access the Synthetic Transaction Modules

1. **Click the Browser tab in the Sun Management Center 3.0 console.**

2. **Double-click Remote Systems to expand this category.**

3. **Double-click the Synthetic Transaction if it is loaded. To load it, see "To Load a Synthetic Transaction Module" on page 15.**

   Once loaded, Service Manager displays the applicable folders.

4. **Double-click the applicable folder.**

   Service Manager can display the following tables as they relate to the module:

   - Server Details Table: provides the details about the services monitored on the server.
   - Service Measurement Table: provides the details about the synthetic transactions.

▼ To Activate a Transaction

1. **In the Service Measurement Table, right-click a table row.**

   A pop-up menu opens.

2. **Select Add Row ...**

   The Add Row dialog opens.

3. **Enter the applicable parameters to add the row.**

   For additional information about parameter requirements, see Appendix A.

4. Click OK.

▼ To Delete or Edit a Synthetic Transaction

1. In the Service Measurement Table, right-click the desired row.

2. Select the Delete Row or Edit Row option, as appropriate.

3. Complete the edits, as appropriate.

▼ To Edit the Server Details Table

● **Edit the applicable parameters in the Server Details table using the Edit Module feature. See the** *Sun Management Center 3.0 User's Guide* **for detailed information.**

Service Element Modules

This chapter discusses the following topics:
- "Service Element Modules Overview" on page 17
- "Using Service Element Modules" on page 18

Service Element Modules Overview

Service Element modules monitor and measure the availability of services locally. These modules are loaded under Local Applications. They are single-instance modules, except the module that monitors HTTP is multi-instance. You can set alarm thresholds on response times.

These modules send service requests to the services periodically per user configuration settings to determine service availability and local response time.

This following ten Service Element modules are available:
- **HTTP:** This module determines web server service availability and web page retrieval time using the HTTP protocol on a service site. The module provides process monitoring statistics for the HTTP daemon, as well as monitoring the access log file and reports statistics such as the number of errors. The module also scans the log file that is in common log file format.
- **FTP:** This module determines the FTP service availability and ability to transfer files to and from the FTP servers on a service site locally. `FtpGet` gets a file from a server. `FtpPut` puts a file on the server.
- **Telnet:** This module determines the availability of the TELNET service locally.
- **DNS:** This module determines the availability of the DNS Service and the ability of the DNS daemon to resolve a host name. The module measures the server response time locally and provides process monitoring statistics for the DNS daemon.

- **NIS:** This module determines the NIS service availability and the ability of the NIS daemon to resolve a name in a NIS domain. The supported name resolution types are user name, host name, group name, and mail alias.

- **LDAP:** This module determines the LDAP service availability and the ability of the LDAP daemon to resolve a name. You can also measure server response time locally.

- **SMTP:** This module measures the availability of SMTP mail service and server response time locally for sending email. You must create at least one dummy email account on the target server for sending the test email. Remember to periodically delete the test email to ensure that the mailbox does not fill up.

- **POP3:** This module measures the availability of POP3 mail service and server response time locally while retrieving mail.

- **IMAP4:** This module measures the availability of IMAP4 mail service and service response time locally for retrieving mail.

- **Calendar:** This module measures the availability of the Solaris calendar service and ability to retrieve calendar appointments from it. You can also measure the service response time locally.

Using Service Element Modules

Note – The IMAP and POP modules each require a dummy user name and password. The password is passed in clear text during the synthetic transactions and is therefore not secure. Be certain that users for these modules have no privileges.

Before loading a module, you must specify certain configuration parameters. For example, a service port might be requested. For more detail about the confirguration parameters, see Appendix A.

Once a module is loaded, the state of the service is confirmed in the Server Details table. For more information, see Chapter 3.

▼ To Load the Module

1. **Load the module.**

   For detailed information on loading modules, refer to the *Sun Management Center 3.0 User's Guide.*

2. **Enter the required parameters for each module you want to load in the Load Module dialog.**

   Each module has specific parameters that need to be defined. Once the parameters are completed, the module is loaded in Sun Management Center under the Local Applications category.

3. **Go to Local Applications in Sun Management Center agent.**

4. **Double-click the Service Element module.**

▼ To Access the Service Element Modules

1. **Click the Browser tab in the Sun Management Center console.**

2. **Double-click Local Applications to expand this category.**

3. **Double-click the Service Element if it is loaded. To load it, see "To Load the Module" on page 19.**

   Once loaded, Service Manager displays the applicable folders.

4. **Double-click the applicable folder.**

▼ To Activate a Transaction

Refer to Chapter 3, "To Activate a Transaction" on page 15.

▼ To Delete or Edit a Service Element Module

Refer to Chapter 3, "To Delete or Edit a Synthetic Transaction" on page 16.

▼ To Edit the Server Details

● **Edit the applicable parameters in the Server Details table using the Edit Module feature. See the** *Sun Management Center 3.0 User's Guide* **for detailed information.**

Service Availability Manager GUI

This section discusses the following topics:

- "Overview" on page 21
- "Discovering Service Objects" on page 22
- "Service Manager" on page 24

Overview

The Service Availability Manager Graphical User Interface (GUI) enables you to modify service objects, and to look at a summary of the availability of the services contained in a service object. The GUI is accessed from the Sun Management Center 3.0 console. Use either the Service Manager dialog or the Modify Service Object dialog to access the services you are monitoring with Service Availability Manager.

To view either the Service Manager or Modify Service Object dialogs:

1. Discover a service object.

2. Select the service object,

3. Right-click to access the pop-up menu.

4. From the menu select either Service Manager or Modify Service Object.

- From Service Manager, you can view the status of the services you are monitoring.

- From Modify Service Object, you can change the services contained in the service object.

Discovering Service Objects

A service object is a Sun Management Center composite object. This composite object is an association of the local and network view of services. The service object consists of Service Element modules and Synthetic Transaction modules. A service object should be created using Sun Management Center discovery mechanisms for each node that has a Synthetic Transaction module loaded. See FIGURE 5-1 for an example of how to create a service object.
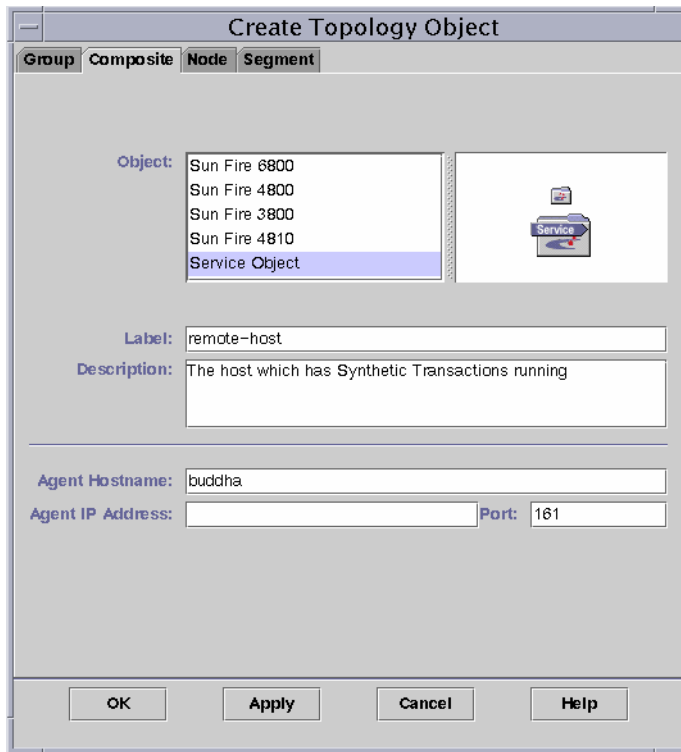
FIGURE 5-1 Creating a Service Object using the Create Object Utility

Use the Sun Management Center discovery mechanism to discover an object called the service object. A service object can also be created using the Create Node for Composite Object utility and selecting Service Object for the object type. For more information, see *Sun Management Center 3.0 User's Guide*.

Modifying Service Objects

The Modify Service Object dialog enables you to add or delete services from the service object. You must first select a service object to access the Modify Service Object dialog. Once in the dialog, you can perform multiple changes before exiting. See FIGURE 5-2 for an example of how to add a service object.
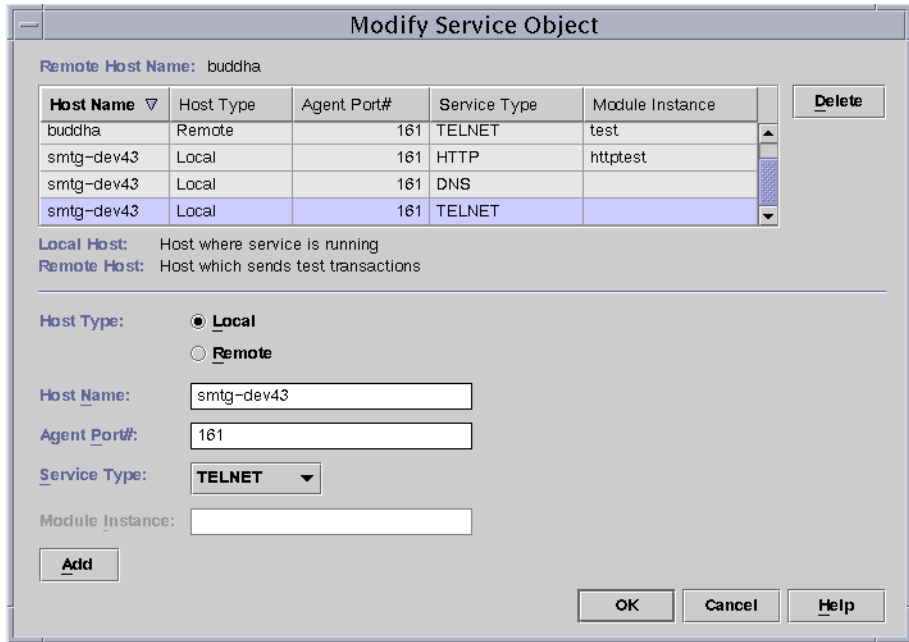
FIGURE 5-2   Adding a Service Object

▼ To Add a Service to the Service Object

1. **From the Sun Management Center 3.0 topology window menu, right-click the desired service object.**

   A menu opens.

2. **Select Modify Service Object.**

   The Modify Service Object dialog opens.

3. **Choose the local or remote service to be included in the service object.**

4. **If needed, type the Host Name and Agent Port Number in the appropriate text fields.**

5. **From the Service Type drop-down menu, select the name of the service you want to monitor.**

6. **If needed, type the Instance Name in the text field.**

7. **Click Add.**

   Service Availability Manager enters the information to the table located at the top of the Modify Service Object dialog. Verify the information is correct.

8. **Click OK to add the entry to the service object and to exit. Or click Cancel to cancel the changes.**

▼ To Delete a Service from the Service Object

1. **If not already open, open the Modify Service Object dialog by following Steps one and two from the procedure To Add a Service to the Service Object.**

2. **Select the row that contains the service to be deleted.**

3. **Click the Delete button.**

   The row that contains the service is deleted from the table.

4. **Click OK to delete the entry from the service object and to exit. Or click Cancel to cancel the changes.**

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Service Manager

Service Manager displays in a single view the availability of all the services contained in a service object. Service Manager is linked to the Sun Management Center 3.0 Java console only. Service Manager dynamically updates the data in the table to reflect the real time status of the services. From this dialog, you can choose to view details of a particular service, either from a local host or a remote host. You can also choose to filter your display according to your preferences. See FIGURE 5-3 for an example of the Service Manager dialog.
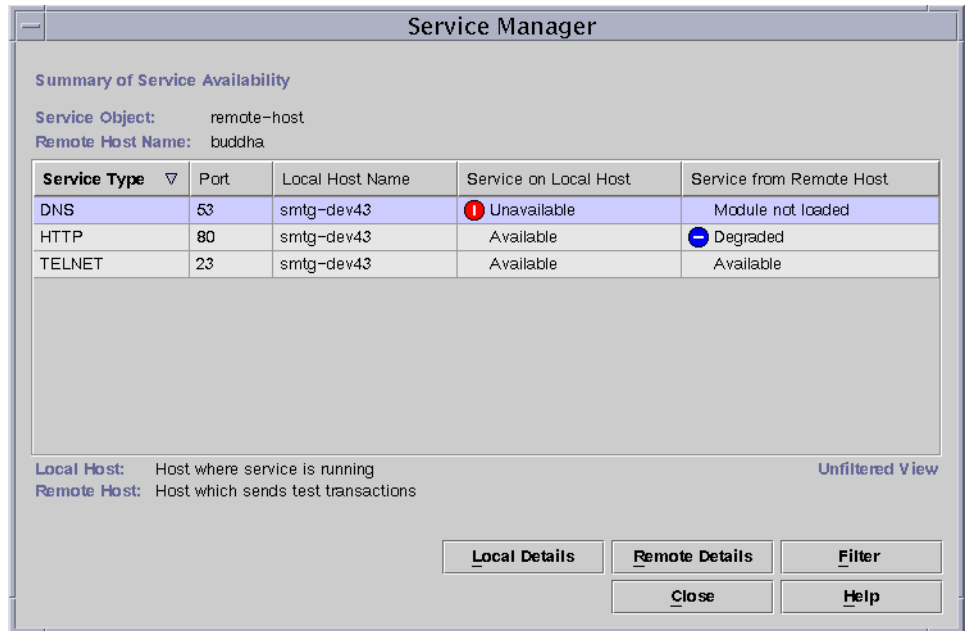
FIGURE 5-3 Service Manager dialog

Filtering Services

Service Availability Manager enables you to customize a display of services so that only desired services are displayed. This is achieved through the use of filters. A filtered view cannot be saved.

▼ To Filter a Service

1. **Click Filter in the Service Manager dialog.**

   The Service Object Filter dialog opens.

2. **Select the desired filtering options.**

   Filter by alarms, service types, Local Host name, or availability.

3. **You cannot save a filtered view. Complete your session by doing one of the following:**

   a. **Click OK to apply the filter and close the window.**

   b. **Click Close to not apply the filter and close the window.**

Configuration and Module Parameters Reference

The following table lists all the configuration and module parameters for the Synthetic Transaction modules and Service Element modules, and includes a description of each.

TABLE A-1   Configuration and module parameters

Parameter Name	Parameter Description
Instance	Name of the module instance.
Description	Description of the instance.
Service Host	Name of the server where the service is running
Service Port	Port number where the service is running
Time-out (sec)	Time-out interval for each request made to the server. Should have a positive value. Value of 0 nullifies the effect of timeout.
Login ID	Login ID to access the service. Required only for IMAP and POP modules.
Password	Password for the user. The IMAP and POP modules each require a password. The password is passed in clear text during the synthetic transactions and is therefore not secure. Be certain that users for these modules have no privileges.
Domain Name	The domain name where the NIS lookup is done.
Email From	For SMTP service, this is the email address of the sender of the mail. It is recommended that an email account be set up for each test on the systems so that the test email sent has a place to go. Failure to do this may cause concurrent access problems, SMTP to reject mail requests, and undeliverable email will end up at your root mail system.

TABLE A-1 Configuration and module parameters *(Continued)*

Parameter Name	Parameter Description
Process Name	The name of the process to be monitored.
Argv Pattern of Process	Arguments to the process.
User ID of Process	The user ID of the process owner.
Process Count	The number of processes found matching process name, argv pattern of process and user ID of process.
Access Log File	The absolute path name of the HTTP server access log file. This file contains information about Web Server Statistics. Only a file with Common Log File (CLF) format is supported. An alarm is displayed if the file does not exist or the file format is not CLF
Web Server Product Name	Product name of the web server.
Availability	Indicates the availability of the service. One of three states is returned: 1. up: Indicates the service is available 2. down: Indicates service is not available. Shows an alert if state is down. 3. degraded: Indicates performance is not as expected. The module is able to run test transactions but the response times of the transactions exceeds the alarm thresholds specified. When the availability is degraded, an alarm is generated. The alarm severity is the highest severity of all alarms that is set on the response times of the transaction.
Reason for Non Availability	Indicates the likely reason for the service not being available. For example: Destination is unreachable which indicates network or host is unreachable. Not applicable is indicated when the service is not down.
Uptime (%)	This is the percentage of uptime for the corresponding server since the module started monitoring the service.
Mean Time To Recovery	The mean time to recovery since monitoring began. The value is calculated as the total downtime of service divided by the number of failures.
Mean Time Between Failure	The mean time between failure, since you started monitoring it. The value is calculated as the ideal uptime of the service divided by the number of failures.
Service Checked	Last time when the service was contacted.
Name	Row name.

TABLE A-1 Configuration and module parameters *(Continued)*

Parameter Name	Parameter Description
Transaction Result	Indicates what happened to the transaction. One of two values is returned: 1. Success: Indicates transaction was successful. 2. Failure: Indicates transaction failed. The next column will give the reason for failure. A warning alarm is also shown.
Transaction Failure	If a transaction fails, this determines the reason for the failure. For example: Unknown server name, Unable to reach the server. Not applicable is indicated when the transaction was successful
Lookup (ms)	Time taken to resolve the server name where service is running in milliseconds. You can set alarm thresholds on this property.
Connect (ms)	Total time to establish a connection with the service in milliseconds. You can set alarm thresholds on this property.
Data Transfer (Kbyte/sec)	Time from when the web page is requested until the web page is completely returned in Kilobytes/second. You can set alarm thresholds on this property.
Transaction (ms)	Total time taken to complete whole transaction in milliseconds. This is the sum of the total Network time and Total Server processing Time. You can set alarm thresholds on this property.
Network (ms)	Total time spent in the network during the transaction in milliseconds. You can set alarm thresholds on this property.
Server processing (ms)	Total time taken in milliseconds by the server to process the transaction. You can set alarm thresholds on this property.
URL	HTTP page to test.
Directory	Directory on the FTP server to put the file in or to get the file from.
Operation	Indicates the type of FTP operation the user wants to monitor. The two values are: 1. get, which indicates a FTP get operation. 2. put, which indicates a FTP put operation.
File	For FTP transactions, the name of file to get or put.
Packet (KB)	Size of the each packet during the FTP get/put operation in KB.
Authentication (ms)	Time to login to the server. For FTP it will login as anonymous user.

TABLE A-1   Configuration and module parameters   *(Continued)*

Parameter Name	Parameter Description
Data Transfer (ms)	Time to transfer the file (get or put) in milliseconds.
Host Name	The host name to lookup in the DNS server.
IP address(es)	IP address of the host.
Host Lookup (ms)	Time taken to resolve the host name in the DNS server in milliseconds.
NIS Lookup	Name to lookup in the NIS domain. This could be either a host or user or UNIX group or mail alias.
NIS Map	The NIS name services map. Currently has four default values: passwd, hosts, groups and mail aliases.The name to be resolved should be one of the four types.
Base DN	The starting point for the search in the LDAP directory.
Search Filter	The filter is a string representation of the filter to apply in the search. Simple filters can be specified as attributetype=attributevalue.
LDAP Lookup (ms)	Time taken to resolve the name in the LDAP directory in milliseconds.
Email To	Email address to send the test message to.
Email (KB)	Size of the test message to be sent in KB.
Message (KB)	Size of the message to be retrieved from the mail servers. Default value is 1k. You can edit this row. The values are: 1k, 5k, 10k, 20k and 25k.
Get Message (ms)	Time to retrieve a message from the mail server in milliseconds.
User Name	User name whose calendar has to be looked up. This user's calendar has to exist in the server or you receive an error.
Logfile	Same as HTTP servers Access Log File.
Total Operations	Total number of operations done by the service since it was started.
Total Data Transferred (KB)	Total data transferred in KB, since the service was started.
Total Files Transferred	Total files transferred, since the service was started.
Total Errors	Total errors encountered, since the service was started.
Total Server errors	Total errors encountered with error code numbers 500 or higher, since the service was started.

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