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Sun Management Center 3.5 System Reliability Manager User's Guide

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Contents

Preface

The *Sun Management Center 3.5 System Reliability Manager User's Guide* provides instructions on how to use the modules in System Reliability Manager.

Who Should Use This Book

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 3.5 User's Guide*.

How This Book Is Organized

This document describes the modules that are part of the System Reliability Manager. It includes the following chapters:

- Chapter 1 describes how to install and set up the System Reliability Manager software.
- Chapter 2 explains how to analyze system crashes. OS Crash Dump Analyzer enables you to detect operating system crash dumps and analyze the data contained in them.
- Chapter 3 describes how to monitor file changes. File Watch enables you to monitor a list of files for record additions, deletions, and modifications.
- Chapter 4 explains how to monitor your system for suggested patches. Patch Monitoring produces alarms on suggested patches.

- Chapter 5 describes how to manage and run scripts. Script Repository and Script Launcher enable you to run scripts on agents.
- Chapter 6 explains how to audit the status of packages. Installed Packages Audit enables you to manage the patches and packages on the system.
- Appendix A contains instructions for installing and setting up the software from the command line.

To view license terms, attribution, and copyright statements for open source software included in this release, the default path is `/cdrom/sunmc_3_5_sparc/image/Webserver/Solaris_9/SUNWtcatr/install/copyright`. If you are using Solaris™ 8 software, substitute `Solaris_8` for `Solaris_9` in the path.

Access to Latest Information on the Sun Management Center

The latest information on the Sun Management Center 3.5 software and the System Reliability Manager add-on product is available at `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 sources for this information:

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

Accessing Sun Documentation Online

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Typographic Conventions

The following table describes the typographic changes used in this book.

TABLE P–1 Typographic Conventions

Typeface or Symbol	Meaning	Example
AaBbCc123	The names of commands, files, and directories; on-screen computer output	Edit your `.login` file. Use `ls -a` to list all files. `machine_name% you have mail.`
AaBbCc123	What you type, contrasted with on-screen computer output	`machine_name%` **su** `Password:`
AaBbCc123	Command-line placeholder: replace with a real name or value	To delete a file, type **rm** *filename*.
AaBbCc123	Book titles, new words, or terms, or words to be emphasized.	Read Chapter 6 in *User's Guide*. These are called *class* options. You must be *root* to do this.

Shell Prompts in Command Examples

The following table shows the default system prompt and superuser prompt for the C shell, Bourne shell, and Korn shell.

TABLE P–2 Shell Prompts

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

System Reliability Manager Installation and Setup

This chapter contains procedures for installing and setting up the System Reliability Manager 3.5 add-on software using the installation and setup wizards. For information about using the command line to install and set up the software, see Appendix A.

This chapter discusses the following topics:

- "System Reliability Manager Software" on page 11
- "Installing the System Reliability Manager Software" on page 13
- "Setting Up the System Reliability Manager Software" on page 15
- "Agent Update Feature" on page 17
- "Upgrading to System Reliability Manager 3.5" on page 17
- "Uninstalling System Reliability Manager" on page 17

System Reliability Manager Software

System Reliability Manager 3.5 is installed as an add-on to the Sun™ Management Center 3.5 software. The System Reliability Manager software runs on the following platforms:

- Solaris™ 2.6, Solaris 7, Solaris 8, and Solaris 9 operating environment
- All the platforms that the Sun Management Center 3.5 agent can run on, and that are supported by Sun Management Center 3.5

The System Reliability Manager server layer runs on the Solaris 8 and Solaris 9 operating environments, as does the Sun Management Center 3.5 server layer.

Before installing System Reliability Manager, you must have already installed the Sun Management Center 3.5 software.

For any late-breaking information, please see the *Sun Management Center 3.5 Release Notes*.

The System Reliability Manager 3.5 add-on software consists of the following packages:

- `SUNWesasm` – System Reliability Manager package for Sun Management Center agent layer

- `SUNWesssm` – System Reliability Manager package for Sun Management Center server layer

- `SUNWeshsm` – System Reliability Manager online help package for Sun Management Center server layer (English)

- `SUNWessrm` – System Reliability Manager package for Sun Management Center agent and server layer

- `SUNWfrsrm` – System Reliability Manager package for Sun Management Center agent and server layer for French Localization

- `SUNWjasrm` – System Reliability Manager package for Sun Management Center agent and server layer for Japanese Localization

- `SUNWkosrm` – System Reliability Manager package for Sun Management Center agent and server layer for Korean Localization

- `SUNWcsrm` – System Reliability Manager package for Sun Management Center agent and server layer for Simplified Chinese Localization

- `SUNWhsrm` – System Reliability Manager package for Sun Management Center agent and server layer for Traditional Chinese Localization

- `SUNWfrsrh` – System Reliability Manager online help package for Sun Management Center server layer for French Localization

- `SUNWjasrh` – System Reliability Manager online help package for Sun Management Center server layer for Japanese Localization

- `SUNWkosrh` – System Reliability Manager online help package for Sun Management Center server layer for Korean Localization

- `SUNWcsrh` – System Reliability Manager online help package for Sun Management Center server layer for Simplified Chinese Localization

- `SUNWhsrh` – System Reliability Manager online help package for Sun Management Center server layer for Traditional Chinese Localization

Installing the System Reliability Manager Software

You can install the System Reliability Manager add-on software using either the installation wizard or the command line. This section discusses how to install the software using the installation wizard. For information about installing using the command line, see Appendix A.

The System Reliability Manager software can be installed at the same time that you install the Sun Management Center 3.5 software. Installation can also be done after Sun Management Center 3.5 is already installed. Installation of the System Reliability Manager 3.5 software follows the standard Sun Management Center 3.5 add-on software installation procedures.

System Reliability Manager must be installed on the server and agent layers of Sun Management Center 3.5.

The installation wizard installs the correct System Reliability Manager packages on the correct Sun Management Center layers.

▼ To Install System Reliability Manager With a Sun Management Center 3.5 Installation

● **For more information and detailed steps, see** *Sun Management Center 3.5 Installation and Configuration Guide.*

▼ To Install System Reliability Manager Individually

Note – Perform this procedure only after the Sun Management Center 3.5 software has been installed.

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1. **As superuser (`su -`), launch the Sun Management Center 3.5 installation wizard by typing:**

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

   where `/opt` is the directory in which Sun Management Center 3.5 is installed. Substitute the name of the actual directory if it is different on your system.

   The Sun Management Center 3.5 installation wizard appears.

2. **Provide the source directory of the System Reliability Manager files when prompted.**

   ■ If installing from the software CD-ROM and the path is not provided, type:

      # **/cdrom/sunmanagementcenter_3_5/image**

   ■ If installing from a directory to which the software has been copied, type:

      # *disk1***/image**

   where *disk1* is the corresponding name of the location where the software was copied. You can also use the Browse button to locate the directory.

3. **If installing the server layer, select the languages from the Select Language Support panel and click Next.**

   The Checking for Available Products panel appears. When the progress bar is finished, the Products Already Installed panel appears.

4. **Review the list of products already installed and click Next.**

   The Select Add-on Products panel appears.

5. **Select System Reliability Manager from the list of add-on software to be installed, and click Next.**

   The Add-on Products License Agreement panel appears.

6. **Read the license agreement. You must click the I Agree button to proceed with installation and then click Next.**

   The Confirmation Panel appears.

7. **Review the Confirmation Panel and click Next.**

   The Installation Complete panel is displayed when the software installation is complete.

   Once installation of the System Reliability Manager software is complete, the setup wizard guides you through the setup process for the software. For more information, see "Setting Up the System Reliability Manager Software" on page 15.

Setting Up the System Reliability Manager Software

After installation is complete, you must run the System Reliability Manager setup wizard to configure the server and agent layers. You can perform the setup procedure directly after the software installation is complete. You can also exit the installation wizard and perform the setup procedure later. The Sun Management Center 3.5 core server layer must be set up before starting the System Reliability Manager setup procedure.

The Sun Management Center 3.5 installation wizard can launch the System Reliability Manager setup wizard. The setup wizard appears after the Installation Complete panel when using the installation wizard. The System Reliability Manager setup wizard guides you through the setup procedure. For the command-line instructions for running the `setup` script, see Appendix A.

▼ To Set Up System Reliability Manager During a Sun Management Center 3.5 Installation

● **For more information and detailed steps, see** *Sun Management Center 3.5 Installation and Configuration Guide*.

▼ To Set Up System Reliability Manager Individually

Note – Perform this procedure only after the Sun Management Center 3.5 software has been already installed. This procedure assumes that you chose not to set up System Reliability Manager 3.5 at the end of the installation process.

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1. **As superuser (`su -`), launch the Sun Management Center 3.5 setup wizard by typing:**

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

   where `/opt` is the directory in which Sun Management Center 3.5 is installed. Substitute the name of the actual directory if it is different on your system.

   The Sun Management Center 3.5 setup wizard appears and guides you through the setup process for the software.

Note – If you have installed more than one add-on product, the setup wizard for each product appears automatically. Each wizard guides you through the setup process for its add-on product. Each new setup wizard appears automatically after the setup process is completed for the previous add-on product. The setup wizard for the System Reliability Manager software might not be the first to appear in this case.

2. **The Overview panel appears first. Click Next to continue through the wizard panels.**

3. **Review the list in the Stopping Components panel and click Next.**

   The Sun Management Center components must be stopped before the setup process can continue.

4. **The Advanced Setup Options panel appears if you have completed the setup process for some of the add-on products installed. The remaining add-on software can be setup now. Select from the following options and click Next:**

   - Reconfigure All – The setup process is run again for the base Sun Management Center 3.5 software and all add-on software. All the Sun Management Center software that was previously set up is set up again.

   - Configure Addons – The add-on software that was recently installed but not yet set up is now set up.

5. **Review the list of products in the Sun Management Center Base Product Setup Complete panel and click Next.**

   The Select Add-on Products panel appears. All products newly installed on the system that will be set up are listed. You are also given the option to run setup again on any product that has already been set up.

6. **Confirm that System Reliability Manager appears as a product to be set up now and click Next.**

   The setup progress bar appears. Once the progress bar is done, the Add-on Products Setup panel appears.

   Once the setup procedure is complete, you have the option to start the Sun Management Center processes. For more information, see *Sun Management Center 3.5 Installation and Configuration Guide*.

Agent Update Feature

Sun Management Center 3.5 Agent Update feature enables you to update the agent layer. An update image is created on the server machine that is specified as the server context for the agent machines. Before using the Agent Update feature, the System Reliability Manager 3.5 server layer must be installed on the server machine that is specified as the server context. The update image wizard prompts you to select from the list of products to include in the update image. You must select System Reliability Managerfor inclusion in the update image. You must provide the server context for the agent machine when the update image wizard prompts you.For more information about using the Agent Update feature, see *Sun Management Center 3.5 Installation and Configuration Guide*.

Upgrading to System Reliability Manager 3.5

If you have an installation of System Reliability Manager 3.0 on your system, the earlier software must be uninstalled first. The Sun Management Center 3.5 installation wizard asks whether you want to preserve your data files before removing the software. If you want to preserve your System Reliability Manager 3.0 data files, answer Yes to this question. The installation wizard then proceeds to install the System Reliability Manager 3.5 software. For more information, see *Sun Management Center 3.5 Installation and Configuration Guide*.

Uninstalling System Reliability Manager

Use the Sun Management Center 3.5 uninstall wizard to remove the System Reliability Manager software. The uninstall wizard removes both the System Reliability Manager packages and data and configuration changes made during setup. For more information about using the uninstall wizard, see *Sun Management Center 3.5 Installation and Configuration Guide*.

▼ To Remove the System Reliability Manager Software

1. As superuser (`su -`), launch the uninstall wizard by typing:

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

where `/opt` is the directory where Sun Management Center 3.5 is installed. Substitute the name of the actual directory if it is different on your systems.

The Sun Management Center 3.5 uninstall wizard appears.

2. Select System Reliability Manager from the list of software, and click Next.

3. Indicate whether to preserve the data files.

4. Review the names of the products selected for removal, and click Next.

The System Reliability Manager packages and configuration files are removed. If you chose not to preserve the data files, they are removed as well.

5. Click Close to exit the wizard.

OS Crash Dump Analyzer

This chapter provides an overview of the OS Crash Dump Analyzer module.

Overview of the OS Crash Dump Analyzer Module

The OS Crash Dump Analyzer module checks the dump configuration of a system, and detects whether an OS crash dump has occurred.

This module also provides the following features:

- Displays the current configuration of the system crash dump data, and helps detect OS crash dump files that are saved in the `savecore` directory
- Prints a report that can be used to help analyze the crash dump files
- Enables you to send output to one or more email addresses

The OS Crash Dump Analyzer module generates the following types of alarms:

- An alert alarm when the module detects that at least one crash dump has occurred
- A caution alarm if `savecore` is disabled, since this situation is not a recommended configuration
- A caution alarm for each UNIX or `vmcore` file the module cannot find

You can configure the alarm thresholds through the Attributes window. For more information on the Attributes window, refer to the *Sun Management Center 3.5 User's Guide*.

The data acquisition for the module is based on the `dumpadm` command. The `dumpadm` command is not available on the Solaris 2.6 operating environment. Therefore, if at setup time the `dumpadm` tool cannot be found, the module prompts for the location of the `savecore` directory. The usual location is `/var/crash/`*system_name*.

The OS Crash Dump Analyzer displays two tables, the Dump Configuration table and the List of UNIX/`vmcore` Files table.

The Dump Configuration table displays the values listed in the following table.

TABLE 2–1 Dump Configuration Table

Field Name	Description
Dump Content	Includes possible values for any one of the following pages: ■ "Kernel pages" for kernel memory pages only ■ "All pages" for all memory pages
Dump Device	The following values are available: ■ "Dump-device", which is a specific dump device specified as an absolute path name, such as /dev/dsk/cNtNdNsN ■ "Swap". If the special token swap is specified as the dump device, then `dumpadm` examines the active swap entries. This value is the most appropriate entry to configure as the dump device is selected.
Savecore Directory	Path to the `savecore` directory.
Savecore Enabled	Displays Yes when enabled, and No when disabled.
Number of Crash Dumps	Number of crash dumps detected in the `savecore` directory.

The Dump Configuration table does not show the same information on the Solaris 2.6 operating environment. On this operating environment, only the `savecore` directory and number of crash dumps is given.

The List of UNIX/`vmcore` Files table gives more information about each crash dump.

TABLE 2–2 List of UNIX/`vmcore` Files Table

Field	Description
ID	File identification

TABLE 2–2 List of UNIX/`vmcore` Files Table   *(Continued)*

Field	Description
Size of `vmcore`	Size of `vmcore` file
Size of unix core	Size of UNIX core file
Timestamp	Timestamp

▼ To Access the OS Crash Dump Analyzer

1. **Load the OS Crash Dump Analyzer module.**

   To learn how to load a module, refer to the *Sun Management Center 3.5 User's Guide*. Once loaded, this module is located under the Operating System category.

   You can also specify your contact email address at this time. For detailed steps, see "To Specify an Email Address" on page 22.

2. **Double-click Operating System in the Navigator window.**

3. **Double-click OS Crash Dump Analyzer.**

   The OS Crash Dump Analyzer icon is displayed in the Viewer window.
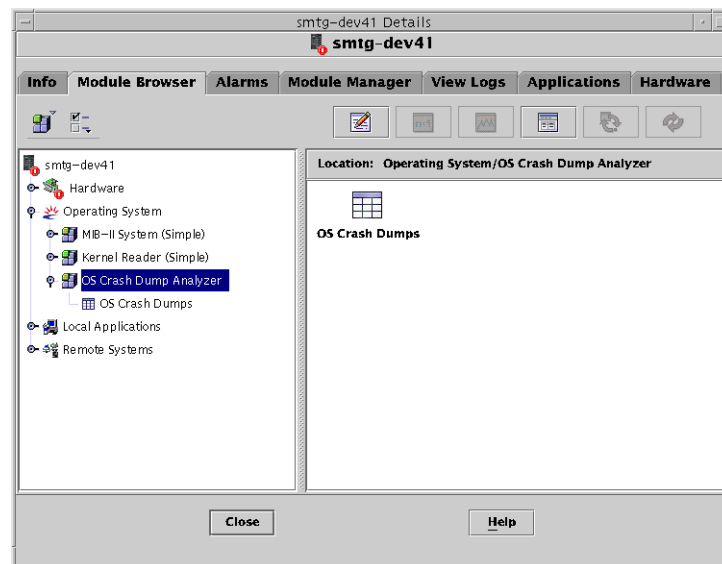
4. **Double-click the OS Crash Dumps icon in the Viewer window.**

   The Details window displays the Dump Configuration Table and the List of UNIX/`vmcore` Files Table.

▼ To Specify an Email Address

The module assumes that you provided an email address when you loaded the module. To specify an email address for use by the module, do the following:

1. **Press mouse button 3 on the OS Crash Dump Analyzer icon in the Navigator window.**

   A pop-up menu is displayed

2. **Choose Edit Module from the menu.**

   The Edit Module dialog box appears.

3. **Provide the contact email address.**

4. **Click OK.**

▼ To Display the Savecore Filesystem Size

1. **If the OS Crash Dump Analyzer module is not already displayed, access the module as described in "To Access the OS Crash Dump Analyzer" on page 21.**

2. **Press mouse button 3 on the OS Crash Dumps icon located in the Navigator window.**

   A pop-up menu is displayed.

3. **Choose Savecore Filesystem Size**

   Sun Management Center displays the Probe Viewer window with the results of the command.

▼ To Analyze the Crash Dump File

1. **If the OS Crash Dump Analyzer module is not already displayed, access the module as described in "To Access the OS Crash Dump Analyzer" on page 21.**

2. **Select a crash dump file in the List of UNIX/vmcore Files table.**

3. **Press mouse button 3 anywhere in the row.**

   A pop-up menu is displayed.

4. **Choose System Crash Dump Analysis.**

   This option displays the results in the Probe Viewer window. The information includes stack trace, process information, message buffers, and other such detail.

   If files are corrupted, the Probe Viewer displays an incomplete report providing only status information.

5. (Optional) If you want the results sent in an email message, press mouse button 3 in the row and choose Analysis Output by Email from the pop-up menu.

File Watch

The File Watch module monitors a list of files for additions, deletions, and modifications.

This chapter discusses the following topics:

- "File Watch Module Overview" on page 25
- "Accessing and Using the File Watch Module" on page 32

File Watch Module Overview

The File Watch module can only monitor files that have a one record per line format. If changes to monitored files are detected, the module builds events and displays them in a table. The module provides default capabilities for some of the popular files, such as `passwd`, `vfstab`, and so on.

You can add, remove, or edit entries in this default list. To add a new file, you must define the record format of the file being monitored. You must specify the file-specific severities of the alarms to be generated in the following cases:

- A record addition event
- A record deletion event
- A record modification event

Use the File Watch module to monitor only system files that are not expected to change frequently, for example, the `passwd` file. This approach ensures that the change notifications are as useful as possible.

The following File Watch tables are displayed in the module:

- Watched File Table
- File Change Table

If the file to be monitored, such as a directory, exists but cannot be opened, the file is added to the Watched File Table. No other information about this file is displayed. An information alarm is generated.

On the right side of each table title, File Watch lists the associated alarm counts. The Watched File Table is used to monitor the existence of files. The Change Table is used to monitor the changes in existing files.

The module uses a validation script to validate the file when its timestamp changes. You can use the `fileparse` binary included with the module or create your own validation script.

This module provides a way to enable or disable the event monitoring mode for a particular file. This concept is similar to the idea of enabling or disabling a pattern matching search in the file scan module. For example, if you disable the `/etc/passwd` file and an entry is added to this file, no corresponding event detection appears in the bottom table. The entry will not appear until the `/etc/passwd` monitoring state is enabled again.

Watched File Table

The Watched File Table lists all the files being monitored by the module. This table displays some of the more commonly used attributes at the top level and other hidden attributes in a lower level. For more information on hidden attributes, refer to "Hidden File Attributes" on page 27.

File changes can only be noticed once the file has been detected as existing. If a file does not exist or is nonexistent, the module detects that the file does exist with a size bigger than 0. For example, if a file has two records, the module is not able to notice those two records. However, the module notices all future modifications.

This table is initialized with the following seven system files:

```
/etc/hosts
/etc/aliases
/etc/nsswitch.conf
/etc/inittab
/etc/vfstab
/etc/passwd
/etc/rmtab
```

Displayed File Attributes

The Watched File Table displays information about each file and provides the data on the attributes listed in the following table.

TABLE 3–1 Watched File Table

Field	Description
File	Name of the file.
Full Path	Path to file and the real name.
File Size	Size of the file in bytes.
File Owner	The owner of the file.
File Group	The group the file belongs to.
File Permissions	Permissions on the file.
Timestamp	Time when the file was last updated.
Validation Script	The path to the validation script used to validate the file when its timestamp changes. Save the script in `/var/opt/SUNWsymon/ SysMgmtPack/filewch/scripts` and provide a relative path. The value for script is optional. For more information, see "Validation Script" on page 31.
Exit Code	Displays the exit code of the last execution of the validation script.
Event Monitoring	Displays the state of the file watch mode for each file. For more information, see "To Disable Event Monitoring" on page 35.

Hidden File Attributes

The following is a list of attributes that are hidden, and that are accessible from the Row Editor window. To open this window, press mouse button 3 on any row and choose Edit Row from the pop-up menu.

TABLE 3–2 Hidden File Attributes

Field	Description
Delimiter	Delimiter between columns.
Comment char	Type of the character that delimits a comment line.
Number of fields	Number of fields in each file entry.

TABLE 3–2 Hidden File Attributes   *(Continued)*

Field	Description
Num key field	Number of fields composing the key. The key is assumed to be at the beginning of the record. A key is an identifier for the record. For example, in the `passwd` file, the key for each record is the first field: user name. The key is unique for each record.
Field names	Names of the different columns in the file entries.
Hide values flag	One of the following values: ■ FALSE = Display the value that changed ■ TRUE = Do not display changed values
Addition Severity	Possible values: Info, Warning, Error, None.
Deletion Severity	Possible values: Info, Warning, Error, None.
Change Severity	Possible values: Info, Warning, Error, None.
Record Format	Format of the record. Refer to "Record Format" on page 29 for more information.

Watched File Table Alarms

You can use the Attribute Editor to set a regular expression alarm threshold on Exit Code. There is no default alarm threshold.

If the file to be monitored does not exist, File Watch generates an information alarm. However, the module still adds the file to the Watched File Table but does not display any other information about this file.

If the file to be monitored, such as a directory, exists but cannot be opened, the file is added to the Watched File Table. No other information about this file is displayed.

File Change Table

The File Change Table monitors files and displays their record additions, deletions, or modifications.

The File Change Table provides the data on the attributes listed in the following table.

TABLE 3–3 File Change Table

Field	Description
File	Name of the file.
Line Number	The number of the line.
Index Key	Value found in the key field for the changed record.
Change Type	Indicates whether one of the following actions occurred: addition, deletion, or change.
Field Changed	One of the following values are possible: ■ For an addition or a deletion, the cell displays All. ■ For a change, the cell displays the column name, as specified when the Watched File entry was created.
Old Value	One of the following values are possible: ■ In case of a new addition, the cell displays NA. ■ If the hidden value flag for this file is set to True, the cell displays "hidden". ■ The actual old value.
New Value	One of the following are possible: ■ In case of a deletion, the cell displays NA. ■ If the hidden value flag for this file is set to True, the cell displays "hidden". ■ The actual new value.
Time Changed	The time when the changes occurred.

File Change Table Alarms

When File Watch detects a new event, the event is displayed and the corresponding alarm is generated. The color of the File Name cell changes to the event-value appropriate color you specified when the file was added to the Watch File Table. The event options are info, warning, error, or none.

Record Format

When you add a new file to the list of files to be monitored by the module, you must provide a value for the *record format* attribute. This attribute defines the format of the file being monitored. This value is needed if the `fileparse` binary is specified as the only required validation script. The `fileparse` binary checks the record format as

part of the validation performed on the file. The *record format* is a hidden attribute of the *file* entry in the Watched File table. You will not see this attribute displayed once it is defined, unless you choose to edit the file's entry. For more information, see "Validation Script" on page 31.

The following list describes supported datatypes for *record_format*:

```
datatype = {STRING, INT, IPADDRESS, ZERO_STRING, RANGE_INT,
CHOICE_INT, CHOICE_STRING CONST}
```

where

STRING	The string cannot be empty
ZERO_STRING	The string can be empty or not empty
RANGE_INT	The integer must match one of the strings specified
CHOICE_INT	The integer must match one of the integers specified
CHOICE_STRING	The string must match one of the strings specified
CONST	The field value must match

The grammar also supports the following values:

- Ranges for numbers, such as RANGE_INT (1...9)
- A list of possible values for numbers and strings, such as:

    - CHOICE_INT (0|1)
    - CHOICE_STRING (true|false)

Note – The character "|" is not allowed in the choice list of strings. These strings can only be embedded in double quotes if they appear within double quotes in the monitored file. INT values can only be positive values. Negative values for INT are not supported.

A constant string can be declared by enclosing it in double quotes, as shown in the following example:

```
 "+" | "-" | STRING STRING
```

The available operators are as follows:

```
operator = | , [], *
```

where

| Means "or". For example, - line-format = "+" | "-" | STRING STRING

[] Means optional. For example, - line-format = STRING [STRING|IPADDRESS]

*   Means zero or multiple repetition of one datatype. For example: -
       line-format= IPADDRESS STRING STRING*

The following example shows the record format to validate /etc/passwd:

```
STRING STRING INT INT ZERO_STRING STRING ZERO_STRING | "+" | "-"
```

The precedence of the operators is as follows:

```
[] , | , *
```

Validation Script

During a refresh of the module, if the module detects that the timestamp of a file has
changed, the associated validation script is executed. The exit code of the last
execution is displayed in the Exit Code field. When a new value is given to the script
field, the module checks whether the path given is a valid file. If the path is not valid,
the Exit Code field displays NO_SUCH_SCRIPT. The field could also display killed if
the validation script that was running was killed. In this case, specify regular
expressions on which to generate alarms for Exit Code.

You can place your own validation scripts in the
/var/opt/SUNWsymon/SysMgmtPack/filewch/scripts directory or use the
fileparse binary installed with the module.

- If fileparse is specified, the module ignores the parameters provided. The
  arguments are built from the delimiter, comment, and record format values that are
  known for the file. If you specify a value, all the parameters are replaced by the
  ones built into the module. This behavior ensures that no unsupported comment or
  unsupported delimiter is specified.
- If, for example, you specify mytest.sh -a myarg, the mytest.sh script will be
  executed, with -a myarg as argument.

fileparse Binary

fileparse is a C binary located in
/var/opt/SUNWsymon/SysMgmtPack/filewch/scripts/.

The default list of script files has a value set for Validation Script and Record Format.
For example, for /etc/hosts, the values are set as follows:

- Validation Script is set to fileparse
- Record Format is set to IPADDRESS STRING STRING

The binary parses *filename* against the *record_format* specified in the *file* definition contained in the Watched File table. Errors are reported if the file contents do not conform to the input file *record_format*. Blank lines and comment lines are skipped. The binary returns the following values:

0   Success

1   Cannot open file

2   *record_format* is not correct

3   file format is not correct

–1   program error, such as not enough memory

–2   argument error

Accessing and Using the File Watch Module

This section describes how to access and use the File Watch module.

▼ To Access the File Watch Module

1. **Load the File Watch module.**

   For instructions on how to load a module, refer to the *Sun Management Center 3.5 User's Guide*.

2. **In the Navigator window, double-click Local Applications.**

   The category expands.

3. **Double-click File Watch.**

   The Viewer displays the File Watch icon in the Viewer window.

4. **Access the File Watch tables using one of the following methods:**

   - Double-click the File Watch option.
   - In the Viewer window, double-click the File Watch icon.

   The Watched File Table and the File Change Table are displayed in the right pane.
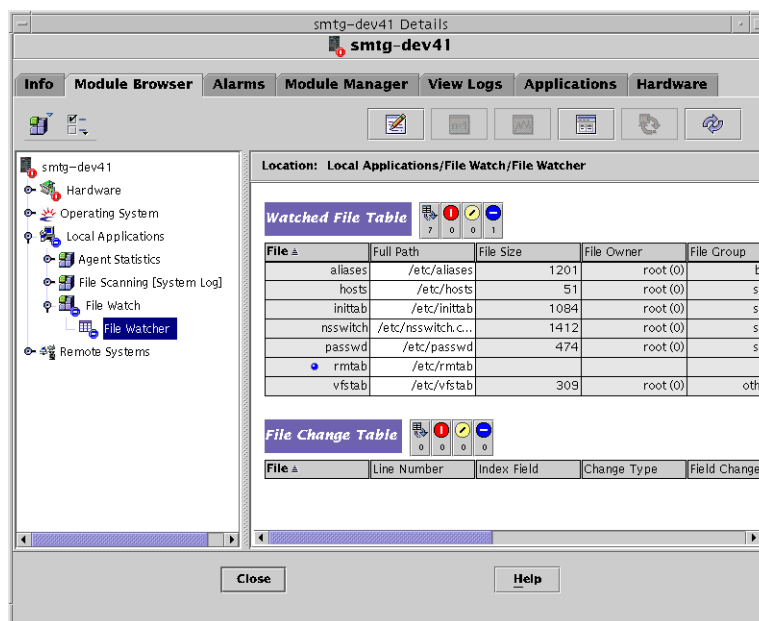
▼ To Add a New File to the List of Files to Be Monitored

1. **If the Watched File Table is not already displayed, display it as described in "To Access the File Watch Module" on page 32.**

2. **Press mouse button 3 on the header or any selected row in the Watched File table.**

   A pop-up menu is displayed.

3. **Choose New Row.**

   This command adds a file.

4. **Provide the following attribute values to describe the format of the file to be monitored.**

   TABLE 3–4 Watched File Table Attributes

Field	Description
Name	Name of the file.
File Name	Complete path to the file.

TABLE 3–4 Watched File Table Attributes   *(Continued)*

Field	Description
Delimiter	Type of the delimiter.
File Comment Char	Type of the character that delimits the comment line. The only possible values are `tab`, `colon`, `semicolon`, `comma`, `hash`, and `pipe`.
Number of Fields	The number of fields in each file entry.
Num Key Field	The number of fields composing the key. The key is assumed to be at the beginning of the record.
Field Names	Meaningful names for the different columns in the file.
Hide values flag	The following values are possible: ■ FALSE = Display the value. ■ TRUE = Do not display the value. This setting is used to prevent users with insufficient privileges from viewing information.
Addition Severity	Info, Warning, Error, None
Deletion Severity	Info Warning, Error, None
Change Severity	Info, Warning, Error, None
Validation Script	The path to the validation script to be used to validate the file.
Record Format	Format of the record, if `fileparse` is specified as the only required validation script.
Exit Code	The number returned by a script when the script finishes.
Event Monitoring	The state of the file watch mode for the file. The following values are possible: ■ On = event monitoring is enabled. ■ Off = event monitoring is disabled.

▼ To Modify or Edit File Information

1. **If the Watched File Table is not already displayed, display it as described in "To Access the File Watch Module" on page 32.**

2. **Press mouse button 3 on the row displaying the file name.**
   A pop-up menu is displayed.

3. **Choose Edit Row from the pop-up menu.**

4. **Modify the path name and the definition of the record format of the file.**

5. **Click OK.**

▼ To Remove a File From Being Monitored

If you do not want to monitor a file, you must remove the file from the list of files to be monitored.

1. **If the Watched File Table is not already displayed, display it as described in "To Access the File Watch Module" on page 32.**

2. **Press mouse button 3 on the row displaying the file name.**

   A pop-up menu is displayed.

3. **Choose Delete Row from the pop-up menu.**

   This option removes the file from the list of files to be monitored.

   Note – When a file is removed from the list of watched files, the events previously detected for that file are not automatically removed from the events log. These events continue to be displayed in the File Changes Table. To find out how to clear the File Change Table, see "To Dump Events to a Log" on page 36.

▼ To Disable Event Monitoring

The state of event monitoring is shown in the final column of the Watched File Table. The on value indicates that event monitoring is enabled. The off value indicates that event monitoring is disabled. You can also use the Manage Jobs feature of Sun Management Center 3.5 to create a data property task to set the Event Monitoring node to on or off. Trying to set the node to a value other than on or off results in the task failing.

1. **If the Watched File Table is not already displayed, display it as described in "To Access the File Watch Module" on page 32.**

2. **From the table column titled Event Monitoring, click the corresponding table cell.**

   Use the scroll bar located at the bottom of the window to view the Event Monitoring column, if needed.

   The table cell becomes a drop-down menu displaying the options on and off.

3. **Select on to enable event monitoring or off to disable it.**

An Alert dialog box appears asking you to confirm the change.

4. **Click OK to confirm.**

The state of event monitoring for the file is changed.

▼ To Dump Events to a Log

The File Change Table is cleared when events are dumped to a log file.

1. **If the File Change Table is not already displayed, display it as described in "To Access the File Watch Module" on page 32.**

2. **Press mouse button 3 anywhere in the row that displays the file name whose events you want to clear.**

A pop-up menu is displayed.

3. **Choose Dump events to log.**

The events are saved to the events_*timestamp*.log file in the log directory. The Probe Viewer then provides the location of the log file.

Patch Monitoring

This chapter describes the Patch Monitoring module, which generates alarms on uninstalled patches.

This chapter covers the following topics:

- "Patch Monitoring Module Overview" on page 37
- "Accessing and Using the Patch Monitoring Module" on page 38

Patch Monitoring Module Overview

Note – The Patch Management module in System Reliability Manager 3.0 is named Patch Monitoring in version 3.5. A System Reliability Manager 3.5 server can still monitor an agent that is running the System Reliability Manager 3.0 Patch Management module.

The System Reliability Manager 3.5 Patch Monitoring module uses the PatchPro software, a patch-management solution from Sun. This patch software is also known as Patch Manager. This patch software collects the data regarding available patches that is used by the module. You must download and install the patch software separately. For more information, see "Obtaining the Patch Software" on page 38. The module first checks to see whether the patch software is installed. If the patch software is not installed, then the module is unavailable.

The Patch Monitoring module displays the following Patch Monitoring tables:

- Patch Status Table: Displays general information about suggested patches
- Patch List Table: Lists missing patches and information about them

The Patch Monitoring module generates alarms on uninstalled patches. The Patch Monitoring module detects the number of patches that are available but not installed and generates alarms against this count. The module also lists the suggested patches in a table. Missing patches are also saved to the `patches.list` file, enabling you to write scripts that use this list. The location of this file is `/var/opt/SUNWsymon/SysMgmtPack/patchmonitoring/patches.list`.

The module automatically refreshes after 24 hours. If you want to change the default setting, use the Attribute Editor. To display the Attribute Editor dialog box, press mouse button 3 on a row in the Patch List table.

This module performs the following functions:

- Checks installed patches and detects uninstalled patches
- Displays the list of missing patches in a table
- Enables you to run a command to get the list of packages and patches installed on the system
- Generates alarms when the number of uninstalled patches reaches a certain threshold

The Patch Monitoring module generates the following alarms in the Patch Status table:

- A warning alarm if the state result is ERROR.
- A warning alarm if the Number of Suggested Patches is greater than 0.

Obtaining the Patch Software

The Patch Monitoring module requires that you install the PatchPro software, formerly known as Patch Manager. This software is available for download from SunSolve at `https://sunsolve.sun.com/patchpro`. You must download and install the software for your version of the Solaris operating environment. Software version information and installation documentation is available from the same web site.

Accessing and Using the Patch Monitoring Module

This section describes how to access the Patch Monitoring module. It also describes how to view information about patches and packages.

▼ To Access the Patch Monitoring Module

1. **Download and install the Patch Manager or PatchPro software, if not already installed on the system.**

   For more information, see "Obtaining the Patch Software" on page 38.

2. **Load the Patch Monitoring module.**

   For instructions on how to load a module, refer to "To Load a Module" in *Sun Management Center 3.5 User's Guide*. The Patch Monitoring module is available under Operating System in the Navigator window.

3. **In the Sun Management Center 3.5 console, double-click the host name in the left pane.**

4. **In the Module Browser view in the Host Details window, double-click the Operating System folder.**

   The category expands.

5. **Double-click the Patch Monitoring module.**

   The category expands.

6. **Double-click Suggested Patches.**

   The Patch Monitoring module displays the Patch Status table and the Patch List table in the right pane.

   The patch software is based on Java™ technology. If the correct version of the Java runtime environment is not detected on the system, the patch software installs it for you.

   The Patch Status table displays general information about the suggested patches, as described in the following table.

   TABLE 4–1 Patch Status Information

State	The following values are possible: ■ OK. ■ ERROR. If the source of the ERROR is detected, it is listed.
Number of Suggested Patches	The number of suggested patches to apply to the system.

   The Patch List table lists the missing patches and the information about them, as described in the following table.

TABLE 4–2 Patch List Information

Patch ID	The identification number of the patch.
Synopsis	A summary of information about the patch.
Requires	The list of patches that this patch must have installed in order for this patch to install itself. Patch IDs inside a parenthesis are patches that are not already installed on the system.
Obsolesces	The list of patches that this patch has accumulated and replaces. Patch IDs inside a parenthesis are patches that are not already installed.

▼ To View a List of Patches Referencing a Patch

1. **Display the Patch List table.**

   For detailed steps, see "To Access the Patch Monitoring Module" on page 39.

2. **Press mouse button 3 on the row displaying the patch.**

   A pop-up menu appears.

3. **Choose Installed Patches Referring to <PatchID>.**

   The Probe Viewer opens with a list of installed patches that reference the selected patch.

▼ To View Detail About Installed Patches and Packages

1. **From the Module Browser view in Host Details, double-click Operating Systems in the Navigator window.**

   The category expands underneath.

2. **Double-click Patch Monitoring.**

   The category expands, and Suggested Patches appears underneath.

3. **Press mouse button 3 on Suggested Patches.**

   A pop-up menu appears.

The figure shows a window titled "smtg-dev41 Details" with a tree browser and patch list panel.
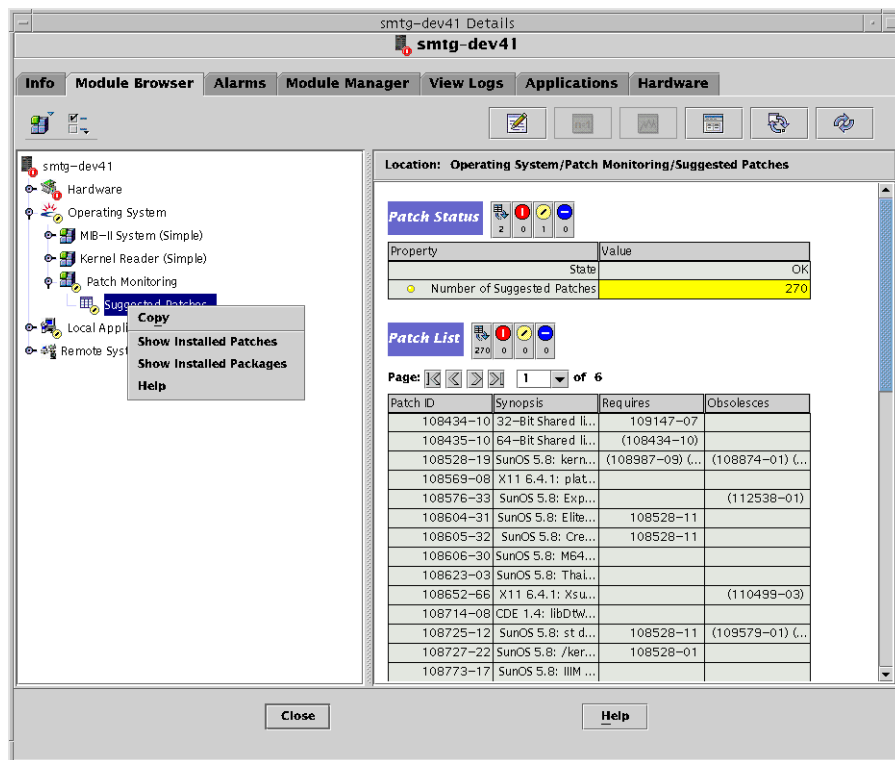
4. **Choose whether to view:**

   ■ To view a list of patches installed on the system, choose Show Installed Patches.

   ■ To view a list of packages installed on the system, choose Show Installed Packages.

   The Probe Viewer opens with the appropriate list.

Script Repository and Script Launcher Modules

The Script Repository and Script Launcher modules included with System Reliability Manager enable you to execute scripts that perform arbitrary management tasks on remote devices. The ability to execute scripts on remote devices reduces the processing load on a central management station. This ability also provides a mechanism to keep polling local.

This chapter covers the following topics:

- "Script Repository Module" on page 43
- "Script Launcher Module" on page 47

Script Repository Module

The Script Repository module enables you to view the scripts available on the agent machine to be run by the Script Launcher module. The Script Repository module also lists the languages supported by the Script Launcher module.

The Script Information group includes two tables:

- The Language Table, which lists the supported languages. Currently, Java and shell script are included.
- The Script Table, which enables you to view available scripts on the agent

The security for Script Repository module is implemented as follows:

- Only the `root` user can place scripts in the following directory:

  `/var/opt/SUNWsymon/SysMgmtPack/script-launcher/scripts`

- Each script specifies the users and groups who are allowed to execute the script. These users and groups are specified as entries within Users and Groups in the script configuration file. Additionally, these fields can be modified from any

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console through the Scripts Table. Only `esadm` users are allowed to modify these fields.

■ `root` cannot be in the Script Users field of the Script Table.

▼ To Access the Script Repository Module

1. **Load the module.**

   For more information on loading and unloading modules, see the *Sun Management Center 3.5 User's Guide*. The Script Repository module is available under Local Applications in the Navigator window.

2. **In the Browser window, double-click Local Applications.**

   The category expands.

3. **Under Local Applications, double-click Script Repository.**

   The category expands.

4. **Double-click the Script Information folder to view the Language Table and the Script Table.**

Language Table

The first table in the Script Information group is the Language Table. It lists all the scripting languages supported on the agent. Each table entry has the following attributes:

■ Language Name. (For example, Java)
■ Language Source. (For example, `/usr/java`)

There are no commands available for this table. You cannot specify a new language or remove a language. The number of entries is fixed and is defined by the implementation of the module and the languages it supports.

You can modify the Language Source by typing new information in the cell.

Alarms

System Reliability Manager generates an information (INFO) alarm if the language cannot be found at the specified location.

Script Table

The Script Table lists all scripts known to the Script Launcher on the agent. Each entry in the table has the attributes listed in the following table.

TABLE 5–1 Script Table Values

Attribute	Description
Script Owner	The user on the agent who owns this script.
Script Name	The script name.
Description	A description of the purpose of the script.
Admin Status	The following statuses are possible: ■ Enabled indicates that the owner allows the script to be used by others. ■ Disabled indicates that the owner does not allow the script to be used by anyone else.
Operation Status	The following statuses are possible: ■ Enabled indicates that the script is available and can be started by a launch table entry. ■ Disabled indicates that the script cannot be used. ■ NoSuchScript indicates that the script does not exist at the specified location. ■ WrongLanguage indicates that the language is not known.
Language	The language in which the script is written. This value needs to be one of the languages listed in the Language Table.
Script Source	File name of the script.
Default Argument	The default argument for this script.
Script Users	The users who are permitted to use this script.
Groups	The UNIX groups that are permitted to use this script.

The fields you can modify through the browser are Admin Status, Script Users, and Groups. The Admin Status is the area where you enter the desired status of your script. For example, the Admin Status can be enabled or disabled. While this choice reflects your desired status, only the Operation Status reflects the actual status once the module determines that all criteria have been met and are ready.

Script Table Alarms

■ An info alarm is issued if the script is not in a supported language.
■ An info alarm is issued if the script is not accessible.

`ScriptInfo.dat` File

The `ScriptInfo.dat` contains information about the scripts that are available to be run. The addition of a new script to the `ScriptInfo.dat` file enables the module to recognize the script. All the scripts that belong to a user must be listed in this file.

▼ To Add a New Script

1. **Write a new script.**

   The format of the `ScriptInfo.dat` file follows the standard configuration file format.

   slice:*attribute=value*

2. **Copy the new script to the `ScriptInfo.dat` file.**

   The `ScriptInfo.dat` file is located in a directory identified by your user name, as in this example:

   `/var/opt/SUNWsymon/SysMgmtPack/script-launcher/scripts/`*username*`/ScriptInfo.dat`

   If this file already contains information about a script, add your script below the current information.

   The following example of the `ScriptInfo.dat` file contains two scripts.

   ```
   Script1:Owner = Scott
   Script1:Name = MyHello
   Script1:Desc = Says Hello
   Script1:Language = Java1.2
   Script1:Source = Hello.class
   Script1:AdminStat = 1
   Script1:OperStat = 1
   Script1:Users = Noble
   Script1:Group = Staff
   Script2:Owner = Denise
   Script2:Name = MyFile
   Script2:Desc = Says Hello
   Script2:Language = Java1.2
   Script2:Source = Hello.class
   Script2:AdminStat = 1
   Script2:OperStat = 1
   Script2:Users = Noble
   Script2:Group = Staff
   ```

Script Launcher Module

The Script Launcher module enables you to delegate management functions to agents. Management functions are management scripts written in a management scripting language. The Script Launcher module is a multi-instance module. All instances of the Script Launcher module access the same Script Repository module for language and script information.

The module includes the following two tables:

- Launch Table – Describes scripts that are ready to be launched and indicates their parameters
- Result Table – Enables you to view the results of running a selected script

The Script Launcher module enables you to manipulate scripts as follows:

- Control who is allowed to read, write, and execute scripts from the Script Repository module
- Specify arguments for management scripts
- Initiate and terminate management scripts
- Monitor and control running management scripts
- View the results produced by running management scripts
- Control who is allowed to read, write, and execute scripts

The security for Script Launcher module is implemented as follows:

- `root` cannot be part of the `LaunchOwner` field of the Launch Table. To enable the `root` user of a machine to run scripts as a superuser, create a new user on the machine. Use that user name to run the scripts.
- The `launchOwner` must be a part of new `esscrusers` group on the server. Only `esscrusers` can create rows or make changes in the Launch Table.
- The Launch Owner, or `launchOwner`, must be a valid user on the agent machine. The user must be a local user or someone added through a service such as NIS on the agent. Scripts are run with the launch owner's permissions.

▼ To Access the Script Launcher Module

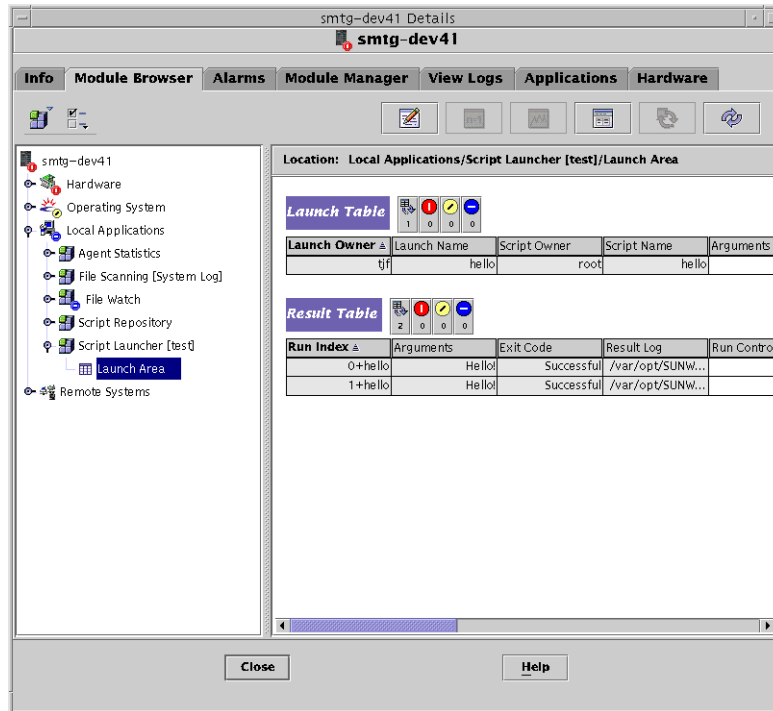1. **Load the module.**

   See the *Sun Management Center 3.5 User's Guide* for more information. The Script Repository module is available under Local Applications in the Browser window.

2. **Double-click Local Applications in the Browser window.**

3. Double-click Script Launcher.

The Script Launcher displays the Launch Table and the Result Table.

Launch Table

The Launch Table controls the execution of all scripts. This table describes scripts that are ready to be launched along with descriptions of their parameters.

An entry in the Launch Table attaches an argument to a script. The entry also defines the owner, who is used to associate permissions to execute the script.

Several instances of a script may be created through one single entry on this table. Also, several entries on this table may point to a same script on the Script Table. You can execute several identical scripts with different arguments and different permissions. Scripts can only be run with the launch owner's permissions.

The Launch Table has the attributes listed in the following table.

TABLE 5–2 Launch Table Attributes

Attribute	Description
Launch Owner	The manager who owns this entry.
Launch Name	The name of the entry. Names should be unique for each row in the launch table.
Script Owner	In combination with the script name, identifies the script.
Script Name	In combination with the script owner, identifies the script.
Arguments	Arguments to be supplied to the script.
Launch Start	Initiates execution of a script. Before a script is launched, the following conditions must be satisfied: 1. The Operation Status for the entry should be in enabled state. 2. There should be an entry in Script Table with the same values in the Script Owner and Script Name fields. 3. The Script Operation Status field in the script table should be in enabled state. 4. The Launch Owner has necessary security permissions to launch the script.
Launch Control	This object is used to request a state change for all running scripts in the Run Table started from the Launch Table.
Admin Status	The desired status of this launch table entry, which can be either enabled or disabled.
Operation Status	The actual status of this launch table entry, which can be either enabled or disabled.
Max Running	The maximum number of concurrently running scripts that may be invoked from this entry. The default value is 3. This field can be modified by directly writing into the field.
Max Completed	The default value is 3. The maximum number of finished scripts invoked from this entry in the Launch Table that are allowed to be retained in the Result Table.
Life Time	The default maximum amount of time that a script launched from this entry may run. The default value is 86,400 seconds (1 day).

TABLE 5–2 Launch Table Attributes   *(Continued)*

Attribute	Description
Expire Time	The default maximum amount of time that information about a script launched from this entry is kept in the Result Table after the script has completed execution.

▼ To Add a New Entry to the Launch Table

1. **Access the Launch Table as described in "To Access the Script Launcher Module" on page 47.**

2. **Press mouse button 3 on the Launch Table header.**

   A pop-up menu is displayed.
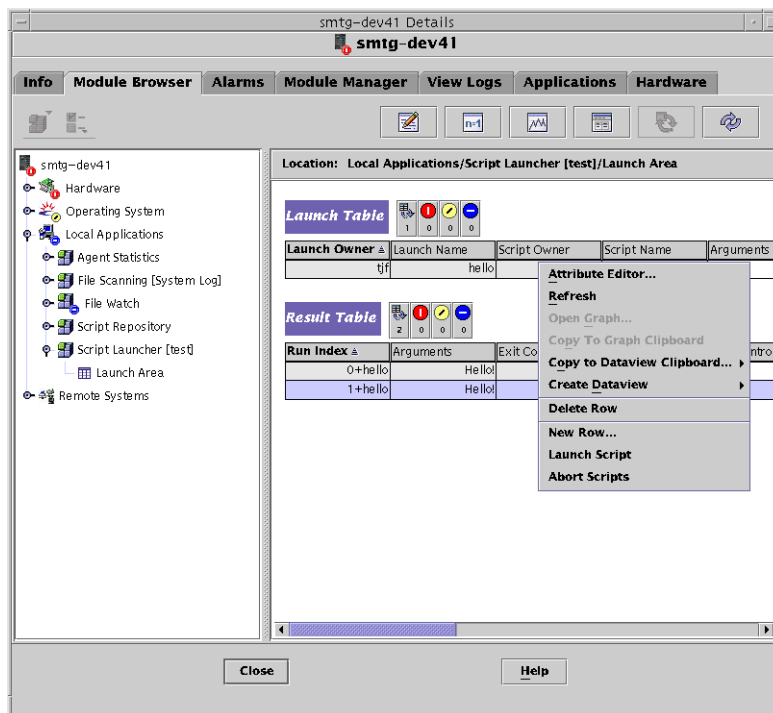
3. **Choose New Row and provide all the required parameters.**

   The Script Owner and Script Name values point to the script that is started from this launch button.

▼ To Launch an Instance of a Script

1. **Access the Launch Table as described in "To Access the Script Launcher Module" on page 47.**

2. **Press mouse button 3 on the row displaying the desired script name.**

3. **Select Launch Script.**

   The script is launched.

▼ To Stop Scripts

1. **Access the Launch Table as described in "To Access the Script Launcher Module" on page 47.**

2. **Press mouse button 3 on the row displaying the script you want to stop.**

   A pop-up menu appears.

3. **Choose Abort Scripts.**

   The script stops running.

Result Table

The Result Table lists all scripts that are currently running or have recently terminated. This table contains the following information:

- The time the script started and finished execution
- The reason the script finished executing
- The result of the script
- The remaining time the script is allowed to run

Every row in the Result Table contains the arguments passed during script invocation, the results produced by the script, and the script exit code. The Result Table also provides information about the current run state, and start and end timestamps.

The Result Table shows the attributes listed in the following table.

TABLE 5–3 Result Table Attributes

Attribute	Description
Run Index	A unique identifier associated with the script. The value is obtained by prepending launchName with an increasing integer. The integer starts from 0.

TABLE 5–3 Result Table Attributes   *(Continued)*

Attribute	Description
Argument	The argument supplied to the script when it started.
Exit Code	The reason why a script finished execution. The following values are possible: ■ None – Script is still in initializing or Running state. ■ Halted – Script has been aborted. ■ Successful – Script finished executing successfully. ■ Failed – Script finished execution with an error.
Result Log	The path to the log file.
Run Control	The desired status of the script execution defined by this row (abort or noop).
Run State	The script execution status. The following values are possible: ■ Initializing – The script is initializing. ■ Running – The script is running. ■ Not Running – The script could be in this state because of successful completion, failing, or aborting. The exact reason why the script is Not Running is reflected in the Exit Code field.
Error Log	The path to the log file.
Start Time	The date and time when the execution started.
End Time	The date and time when the execution terminated.
Life Time	How long the script can execute. If the script has not terminated when this time has expired, the script is killed automatically.
Expire Time	How long this row can exist in the Result Table after the script has terminated. This attribute is the value of the Expire Time field of the Launch Table when the script was launched. A script entry is removed from the Result table when Expire Time seconds have passed since the script reached the Not Running state.

▼ To View the Results From the Result Table

1. **Access the Result Table as described in "To Access the Script Repository Module" on page 44.**

2. **In the Result Table, press mouse button 3 on a running script entry.**

   A pop-up menu is displayed.

3. **Choose View the Result Log to view the result log file corresponding to the selected running script.**

   The Probe Viewer appears, and displays the result of the log.

   Note – You can also access log files at the command line. The log files are saved in the `/var/opt/SUNWsymon/SysMgmtPack/script-launcher/scripts/`*UserName*`/logs` directory. The log file name includes the running instance so that the current log file is identifiable when a user runs the same script several times.

▼ To Delete a Row From the Result Table

1. **Access the Result Table as described in "To Access the Script Repository Module" on page 44.**

2. **In the Result table, press mouse button 3 on a row.**

   A pop-up menu is displayed.

3. **Choose Delete Row.**

   A dialog box appears to confirm or cancel the deletion.

4. **Click Yes to confirm.**

   Once the row has been deleted, the Run Table is automatically refreshed.

Installed Packages Audit Module

This chapter describes the Installed Packages Audit Module.

Overview of Installed Packages Audit Module

The Installed Packages Audit module checks the integrity of the specified packages using the `pkgchk` command. This module is a multi-instance module. You can organize the package audit results by product.

The output of the `pkgchk` command lists the package and file name for each error detected. Using this module reduces the number of commands you need to use to collect the same information. The data is displayed in an easy-to-read format.

The data collected from this module is displayed in three tables:

- Packages Table

  This table displays the list of packages that you selected to monitor. For each package, you specify which File Attribute or File Content audits should be performed. The displayed information includes whether the package is installed and whether errors have been detected.

  The Errors field of the Packages table displays yes if the package has errors. Otherwise, it displays no. The Errors field remains empty for uninstalled packages.

- File Attributes Errors Table

  This table lists a formatted output of the `pkgchk -n -a` command, which is run on the packages listed in the Packages table.

  The refresh command reads and displays errors for each installed package that has the attribute audit set to on.

- File Contents Errors Table

  This table lists the formatted output of the `pkgchk -n -c` command, which is run on the packages listed in the Packages table.

  The refresh command reads and displays errors for each installed package that has the content audit set to on.

The Installed Packages Audit module generates an alarm if the package is not installed, or if some errors were detected.

Note – An alarm threshold cannot be set on the File Attributes Errors table or the File Contents Errors table.

▼ To Access the Installed Packages Audit Module

1. **Load the module.**

   See the *Sun Management Center 3.5 User's Guide* for more information. The Installed Packages Audit module is available under Local Applications in the Details window.

2. **Double-click Local Applications.**

   The menu underneath expands.

3. **Double-click Installed Packages Audit.**

   The Pkgchck Utility icon appears.

4. **Double-click Pckgchck Utility.**

   Three tables appear in the Viewer window: Packages Table, File Attribute Errors, and File Content Errors.
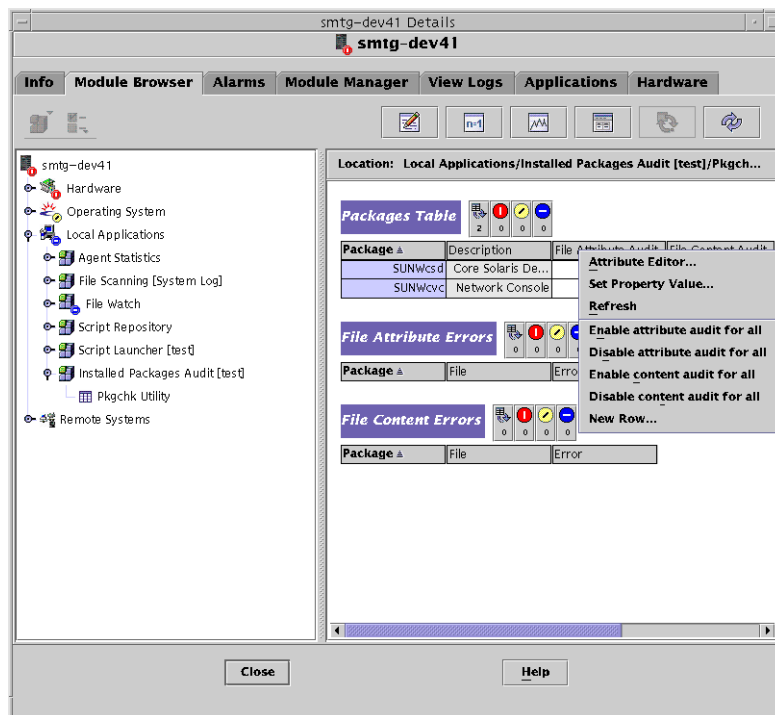
▼ To Add a Package to the List Being Audited

1. **Access the Packages table as described in "To Access the Installed Packages Audit Module" on page 56.**

2. **Add a row to the Packages table by pressing mouse button 3 on the header of the Packages table.**
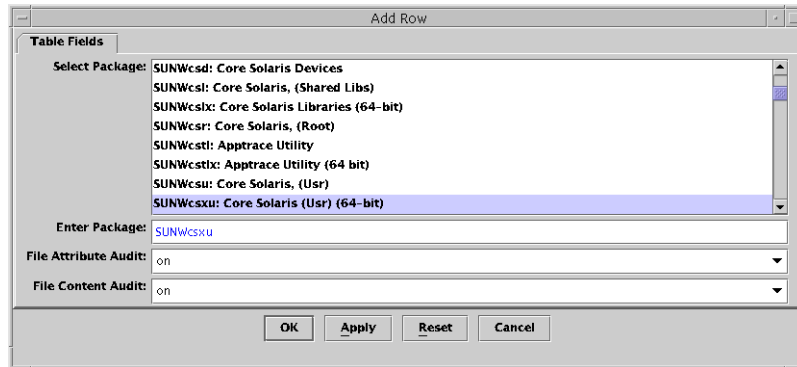
   A pop-up menu appears.

3. **Choose New Row.**

   The New Row dialog box lists the packages installed on the system with their description.

4. **Select the package in the Select Packages field, or provide the package name in the Enter Package text field.**

5. **Determine whether to enable attribute auditing on the package through the drop-down menu in the File Attribute Audit field.**

   Choose Yes to enable file attribute auditing on the package, or No to disable auditing.

6. **Determine whether to enable content auditing on the package through the drop-down menu in the File Content Audit field.**

   Choose Yes to enable file content auditing on the package, or No to disable auditing.

7. **(Optional) Click Apply if you want to add more packages.**

   Repeat Steps 3 through 6 until all packages are added.

8. **Click OK.**

▼ To Enable or Disable Auditing on All Packages

1. **Access the Packages table as described in "To Access the Installed Packages Audit Module" on page 56.**

2. **Press mouse button 3 on the header of the Packages table.**

   A pop-up menu appears.

3. **Choose the desired level of auditing.**

   - Enable Attribute Audit for All sets attribute auditing to on for all packages.
   - Disable Attribute Audit for All sets attribute auditing to off for all packages.
   - Enable Content Audit for All sets content auditing to on for all packages.
   - Disable Content Audit for All sets content auditing to off for all packages.

▼ To Enable or Disable Auditing on a Single Package

1. **Access the Packages table as described in "To Access the Installed Packages Audit Module" on page 56.**

   All packages that are being monitored are listed in the table.

2. **Select the package.**

3. **In the File Attribute Audit or the File Content Audit row, click the table cell below the desired header.**

   A drop-down menu appears in the table cell.

4. **Select Yes to enable auditing or No to disable auditing.**

   A confirmation box appears.

5. **Click OK to confirm the change.**

   The value in the table cell changes.

   Note – The auditing values can also be set to on or off using the Manage Jobs functionality of Sun Management Center 3.5. For more information, see *Sun Management Center 3.5 User's Guide*.

▼ To Use Probe Commands on a Package

The Packages table has probe commands available on each selected row.

1. **Press mouse button 3 on the row that contains the package name to be probed.**

2. **From the pop-up menu, select either `Run pkginfo −l` or `Run pkgchk −l`.**

   The Probe Viewer dialog box displays the requested information.

3. **(Optional) Click the Reload button to refresh the information.**

Installing System Reliability Manager Using the Command Line

This appendix contains procedures for installing and setting up the System Reliability Manager software using the command line. Command-line installation is provided as an alternative to using the installation wizard. For information about using the installation wizard, see Chapter 1.

This appendix discusses the following topics:

- "Installing the System Reliability Manager Software" on page 61
- "Setting Up the System Reliability Manager Software" on page 63
- "Removing the System Reliability Manager Software" on page 64

For information about installing add-on software while installing Sun Management Center 3.5 at the same time, see *Sun Management Center 3.5 Installation and Configuration Guide*.

Installing the System Reliability Manager Software

Installation of the System Reliability Manager 3.5 software using the command line follows the standard Sun Management Center 3.5 add-on software installation procedures. For more information about installation of add-on software using the command line, see *Sun Management Center 3.5 Installation and Configuration Guide*.

The interactive `es-inst` installation script installs the correct System Reliability Manager software packages on the correct Sun Management Center 3.5 layer. The software must be installed on the server and agent layers of Sun Management Center 3.5.

For the agent layer, the module configuration files and libraries are stored in standard Sun Management Center locations. The data files are stored in the `/var/opt/SUNWsymon/SysMgmtPack/`*modulename* directory.

▼ To Install System Reliability Manager During Sun Management Center 3.5

● **For information and detailed steps, see** *Sun Management Center 3.5 Installation and Configuration Guide***.**

▼ To Install System Reliability Manager Individually

1. **As superuser (`su -`), run the installation script by typing:**

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

   where `/opt` is the directory in which Sun Management Center 3.5 is installed. Substitute the name of the actual directory if it is different on your system.

2. **Provide the source directory of the System Reliability Manager files when prompted.**

   ■ If installing from the software CD-ROM, type:

     # **/cdrom/sunmanagementcenter_3_5/image**

   ■ If installing from a directory to which the software has been copied, type:

     # *disk1***/image**

     where *disk1* is the name of the location where the software was copied.

3. **To install the System Reliability Manager software, answer "Yes" when prompted.**

   The `es-inst` script installs the System Reliability Manager 3.5 software on your system. The `es-inst` script automatically displays the `setup` prompt. For more information, see "Setting Up the System Reliability Manager Software" on page 63.

4. **Determine whether you want to set up System Reliability Manager now or at a later time.**

   ■ To set up the software at a later time, answer n for "No. When you are ready to run the setup process, see "To Set Up System Reliability Manager" on page 63.

   ■ To set up the software now, answer y for "Yes". The process described in "To Set Up System Reliability Manager" on page 63 begins.

Setting Up the System Reliability Manager Software

After installation is complete, you must run the System Reliability Manager `setup` script to configure the server and agent layers.

▼ To Set Up System Reliability Manager

Note – This procedure assumes that you chose not to set up System Reliability Manager at the end of the installation process.

● **Run the Sun Management Center 3.5 `setup` script as superuser (`su -`). Choose one of the following options:**

■ To run the setup process on all components that are not yet set up, type:

/opt/SUNWsymon/sbin/es-setup

■ To run the setup process on the System Reliability Manager add-on software only, type:

/opt/SUNWsymon/sbin/es-setup -p SystemManagement

where /opt is the directory in which Sun Management Center 3.5 is installed. Substitute the name of the actual directory if it is different on your system.

The setup process is started for the System Reliability Manager software.

The following is an example of the output from setup on a machine where both the server and the agent layers are installed:

```
Setup for System Reliability Manager - Server Layer
Creating new group: esscrusers
...
Setup for System Reliability Manager - Agent Layer
System Reliability Manager Setup complete
#
```

■ On the server layer, Sun Management Center creates a new group, `esscrusers`. This group is later used by the Script Launcher module.

■ On the agent layer, the `setup` script performs a clean-up of the following directory and regenerates the files needed by the modules:

/var/opt/SUNWsymon/SysMgmtPack

Removing the System Reliability Manager Software

The `es-uninst` removal script removes the System Reliability Manager add-on software. This script removes the System Reliability Manager packages, all the System Reliability Manager data, and the configuration changes made during setup. You are given the option to preserve the data files before removing the software.

▼ To Remove System Reliability Manager Using `es-uninst`

1. **As superuser (`su -`), type:**

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

   where `/opt` is the directory where Sun Management Center 3.5 is installed. Substitute the name of the actual directory if it is different on your system.

2. **Select System Reliability Manager from the list of add-on software, and click Next.**

3. **Indicate whether to preserve the data files, and click Next.**

   The System Reliability Manager packages and configuration files are removed. If you chose not to preserve the data files, they are removed as well.

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