Sun StorEdge™ 3000 Family Diagnostic Reporter 2.5 User's Guide

Sun Microsystems, Inc.
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Preface

This guide explains how to use Sun StorEdge™ Diagnostic Reporter as a companion utility to Sun StorEdge Configuration Service. For information about installing Sun StorEdge Diagnostic Reporter, refer to the *Sun StorEdge 3000 Family Software Installation Guide*.

Unless otherwise specified, the Sun StorEdge 3120 SCSI array, Sun StorEdge 3310 SCSI array, Sun StorEdge 3320 SCSI array, Sun StorEdge 3510 FC array, and Sun StorEdge 3511 SATA array are referred to as the *array* or *arrays.*

This guide is written for experienced system administrators who are familiar with Sun hardware and software products.

How This Book Is Organized

This book covers the following topics:

Chapter 1 introduces Sun StorEdge Diagnostic Reporter and provides an overview about how it operates.

Chapter 2 provides steps on how to set up Sun StorEdge Diagnostic Reporter.

Using UNIX Commands

This document might not contain information on basic UNIX® commands and procedures such as shutting down the system, booting the system, and configuring devices. Refer to the following for this information:

- Software documentation that you received with your system
- Solaris™ operating system documentation, which is at

  `http://docs.sun.com`

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[1]	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:`
AaBbCc123	Book titles, new words or terms, words to be emphasized. Replace command-line variables with real names or values.	Read Chapter 6 in the *User's Guide*. These are called *class* options. You *must* be superuser to do this. To delete a file, type `rm` *filename*.

1 The settings on your browser might differ from these settings.

Related Documentation

The following table contains a list of related software documentation. For a complete list of all related documentation, refer to the *Sun StorEdge 3000 Family Installation, Operation, and Service Manual* for your array.

Title	Part Number
Sun StorEdge 3120 SCSI Array Release Notes	816-7955
Sun StorEdge 3310 SCSI Array Release Notes	819-7109
Sun StorEdge 3320 SCSI Array Release Notes	817-7660
Sun StorEdge 3510 FC Array and Sun StorEdge 3511 SATA Array Release Notes	817-6597
Sun StorEdge 3000 Family 2.5 Software Installation Guide	817-3764
Sun StorEdge 3000 Family RAID Firmware 4.2x User's Guide	817-3711
Sun StorEdge 3000 Family Configuration Service 2.5 User's Guide	817-3337
Sun StorEdge 3000 Family CLI 2.5 User's Guide	817-4951

Accessing Sun Documentation

All Sun StorEdge 3000 family documentation is available online in both PDF and HTML format at the following location:

http://www.sun.com/products-n-solutions/hardware/docs/Network_Storage_Solutions/Workgroup/

The following locations are specific for the SCSI, FC, and SATA arrays:

http://www.sun.com/products-n-solutions/hardware/docs/Network_Storage_Solutions/Workgroup/3120/

http://www.sun.com/products-n-solutions/hardware/docs/Network_Storage_Solutions/Workgroup/3310/

http://www.sun.com/products-n-solutions/hardware/docs/Network_Storage_Solutions/Workgroup/3320/

http://www.sun.com/products-n-solutions/hardware/docs/Network_Storage_Solutions/Workgroup/3510/

http://www.sun.com/products-n-solutions/hardware/docs/Network_Storage_Solutions/Workgroup/3511/

You can view, print, or purchase a broad selection of Sun documentation at:

http://www.sun.com/documentation

Contacting Sun Technical Support

For late-breaking news and troubleshooting tips, review the release notes for your array located at the appropriate link on the following page:

http://www.sun.com/products-n-solutions/hardware/docs/Network_Storage_Solutions/Workgroup/

If you have technical questions about this product that are not answered in the documentation, go to:

http://www.sun.com/service/contacting

To initiate or check on a USA-only service request, contact Sun support at:

800-USA-4SUN

To obtain international technical support, contact the sales office of each country at:

http://www.sun.com/service/contacting/sales.html

508 Accessibility Features

The Sun StorEdge documentation is available in Section 508-compliant HTML files that can be used with assistive technology programs for visually impaired personnel. These files are provided on the Documentation CD for your product as well as on the websites identified in the previous “Accessing Sun Documentation” section. Additionally, the software and firmware applications provide keyboard navigation and shortcuts, which are documented in the user's guides.

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Please include the title and part number of your document with your feedback: *Sun StorEdge 3000 Family Diagnostic Reporter 2.5 User's Guide*, part number 817-3338-17.

CHAPTER 1

Overview

This chapter introduces Sun StorEdge Diagnostic Reporter. Topics covered in this chapter include:

- "Installing Sun StorEdge Diagnostic Reporter" on page 1
- "What is Sun StorEdge Diagnostic Reporter?" on page 1
- "How Sun StorEdge Diagnostic Reporter Operates" on page 3

Installing Sun StorEdge Diagnostic Reporter

For installation instructions, refer to the *Sun StorEdge 3000 Family Software Installation Guide*.

What is Sun StorEdge Diagnostic Reporter?

Instead of keeping the Sun StorEdge Configuration Service console running in the foreground, you can use Sun StorEdge Diagnostic Reporter as a companion utility of Sun StorEdge Configuration Service that runs as a background service that sends messages when triggered events occur from the hosts and arrays to specified email addresses. Using Sun StorEdge Diagnostic Reporter, you can:

- Define the types of message traps sent
- Define the timing of messages sent

- Send encrypted messages
- Receive messages and decrypt encrypted messages on the Mail Receiver Tool (which functions as an email viewing program if you do not have a program such as Microsoft Outlook on the receiving computer)

To use Sun StorEdge Diagnostic Reporter throughout the storage data network, install it as a service on each computer that has a controlling Sun StorEdge Configuration Service agent (a controlling agent is the only agent that talks to a specific array).

One major benefit of installing Sun StorEdge Diagnostic Reporter on all host computers is that it can be configured to ping each computer periodically, and to send a single-point-of-failure message from a Sun StorEdge Configuration Service agent to the specified email addresses when a host fails.

Sun StorEdge Diagnostic Reporter includes the following components:

- Sun StorEdge Diagnostic Reporter agent (daemon) – Operates in background mode continuously on the computer where it is installed. The daemon can be installed and used on any computer where Sun StorEdge Configuration Service is running.
- Sun StorEdge Diagnostic Reporter Config Tool (UI) – A utility that configures the types of message traps that are sent to the Sun StorEdge Configuration Service agent and that are sent to a specific email address as an alert or for informational purposes. Also known as the UI (user interface).
- Sun StorEdge Diagnostic Reporter Mail Receiver Tool – Displays the messages that are collected. Also known as the POP3 Mail Receiver.

Note – To ensure that Sun StorEdge Configuration Service receives email, refer to the "Email and SNMP" appendix in the *Sun StorEdge 3000 Family Configuration Service User's Guide* for information on setting traps.

How Sun StorEdge Diagnostic Reporter Operates

After connecting to a Sun StorEdge Configuration Service agent, Sun StorEdge Diagnostic Reporter receives any event from the agent; if the event is assigned a trap condition, then Sun StorEdge Diagnostic Reporter emails the event to the user-specified email address.

Note – For the Sun StorEdge 3120 SCSI array, Sun StorEdge Diagnostic Reporter sends triggered event notification only for environmental failures and hard drive failures.

If Sun StorEdge Diagnostic Reporter cannot connect to any agent or the agent is offline, it then tries to discover the agent every five minutes. This prevents Sun StorEdge Diagnostic Reporter from being disconnected from the agent when network traffic is congested.

In the typical setup shown in FIGURE 1-1, the array hosts (computers #1, #2, and #3) are used with the array devices (#A, #B, and #C respectively). Each host contains a Sun StorEdge Configuration Service agent and a Sun StorEdge Diagnostic Reporter daemon. Each Sun StorEdge Diagnostic Reporter daemon can be configured by the Config Tool to send event messages to any email address (shown as computer #5, which uses the Mail Receiver Tool to download the messages).

The Sun StorEdge Diagnostic Reporter Config Tool and the Sun StorEdge Configuration Service console can be located on any computer on the network and are located on one computer (#4) for convenience only.

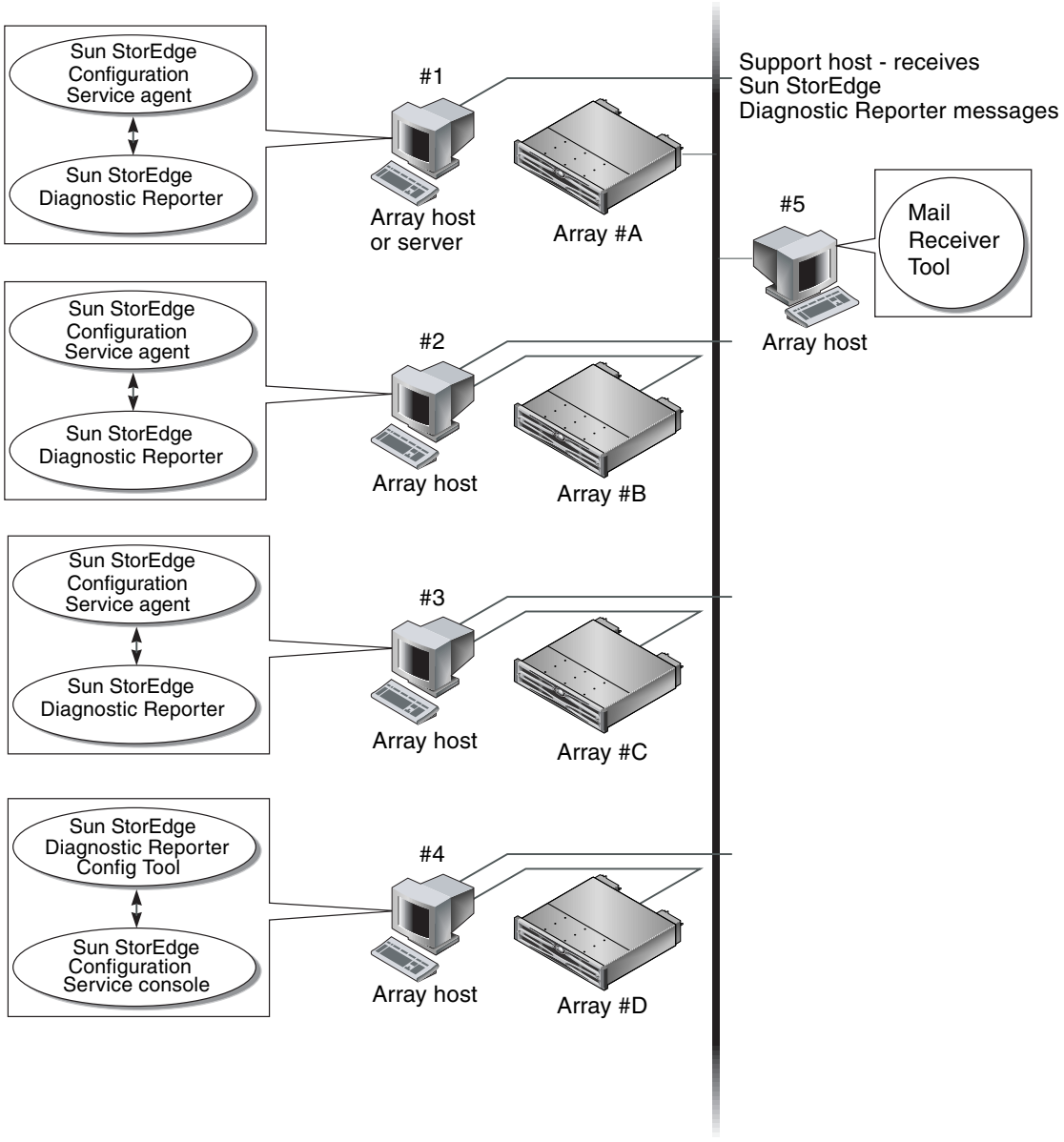


FIGURE 1-1 Typical Sun StorEdge Diagnostic Reporter Setup

CHAPTER 2

Using Sun StorEdge Diagnostic Reporter

This chapter provides steps on using Sun StorEdge Diagnostic Reporter, including the Report Tool and the Mail Receiver Tool. Topics covered in this chapter include:

- "Setting Up the Sun StorEdge Diagnostic Reporter Configuration" on page 5
  - "To Set Up the Configuration" on page 6
  - "To Set Up the Report Tool" on page 15
  - "To Set Up the Mail Receiver Tool" on page 16
- "Troubleshooting" on page 18

Setting Up the Sun StorEdge Diagnostic Reporter Configuration

Only one instance of the Config utility can be open at a time. The configuration information is saved in a file named `ssdgrpt_cfg.xml`. (See "Host Event Log" on page 13 for the location of this file.)

Note – To implement any configuration change to a service, you must be connected to a Sun StorEdge Diagnostic Reporter server and you must click Save Configuration after you have completed the changes.

▼ To Set Up the Configuration

1. **Start Sun StorEdge Diagnostic Reporter.**
   - On a Solaris, Linux, HP-UX, or IBM AIX OS, type:

```
# ssdgrptui
```

   - On a Windows 2000 OS, choose Start → Programs → Sun StorEdge 3000 Family → Diagnostic Reporter Config Tool.
   - On a Windows 2003 OS, choose Start → All Programs → Sun StorEdge 3000 Family → Diagnostic Reporter Config Tool.

   If you have previously configured and connected to one daemon, the Config Tool automatically connects to the server that you last used.

2. **For the first-time installation, you must first set up a connection between the Config Tool and a server where a daemon is running.**

   a. **To create a server connection, choose Servers → Server List Setup.**

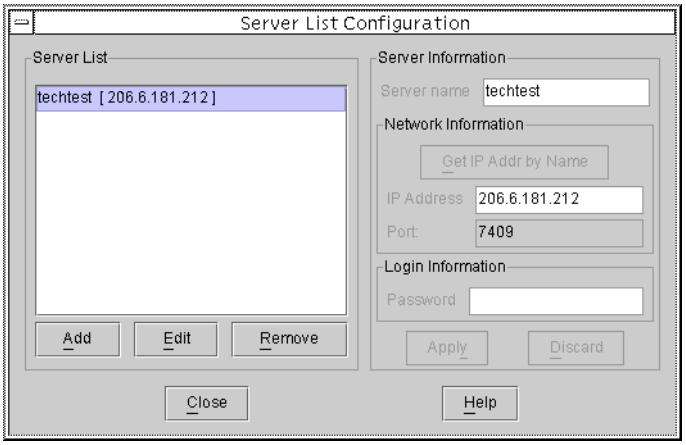
   b. **In the Server List Configuration dialog box, click Add and enter the daemon server name and IP address.**

   c. **Keep the default port number (which is displayed automatically and is used by the Config Tool (UI) to communicate with the daemon).**

   d. **Type the `ssconfig` login password for the server.**

      This is the same login password that was set when you installed Sun StorEdge Configuration Service. If this password has not already been set, you must set it before continuing. Refer to the *Sun StorEdge 3000 Family Configuration Service User's Guide* for details.

   e. **Click Apply.**

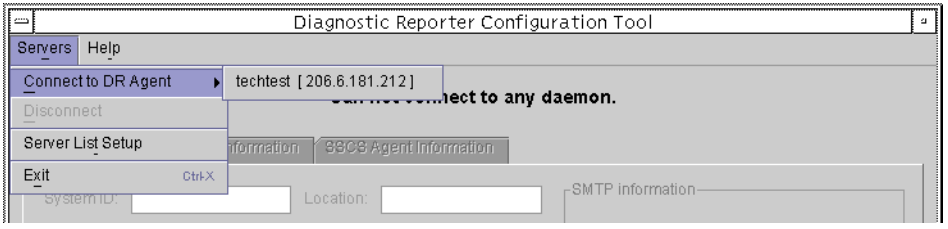


The server Name and IP Address are displayed in the Server List. The Config Tool can access multiple servers, but can only connect to one server and one service at a time.

If you do not specify a password for each server, you are asked for a password each time you reconnect to a server.

3. **Click Close.**

4. **To connect to a server, choose Servers → Connect to DR Agent and then select the desired server from the list that is displayed.**



Note – The Sun StorEdge Diagnostic Reporter agent must be running in order to connect to the server. Refer to the *Sun StorEdge 3000 Family Software Installation Guide* for instructions on starting the agent.

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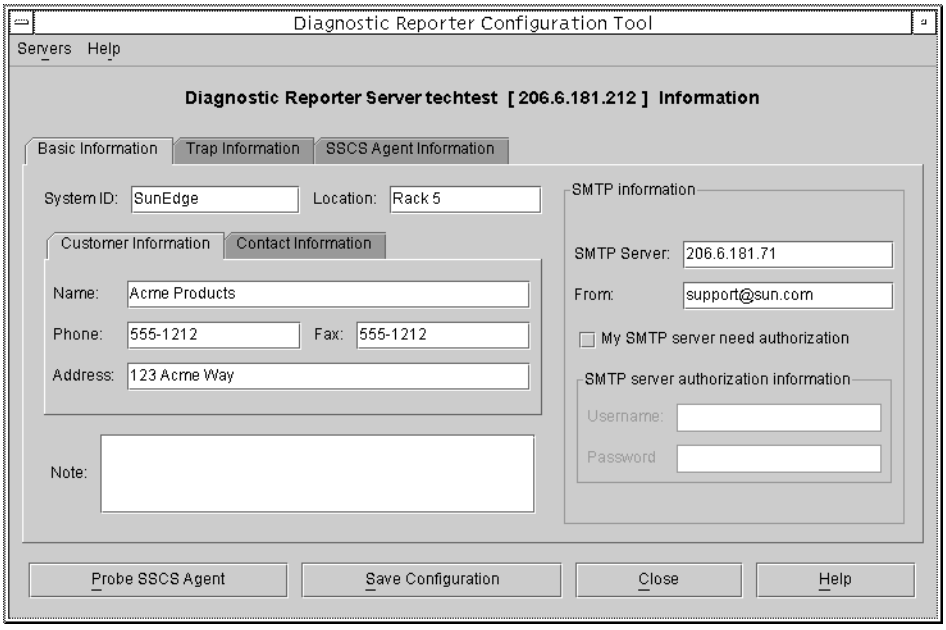
5. **Click the Basic Information tab to enter information used for the email server and event messages.**



- System ID and Location – Descriptive fields for the server where the service resides.
- Customer and Contact Information – Provides information to be attached to the event emails, which is helpful when the event messages are sent to multiple email locations.
- SMTP Server – The IP address or domain name for the server that Sun StorEdge Diagnostic Reporter uses to send email. If you enter an incorrect address, Sun StorEdge Diagnostic Reporter cannot find it and mail messages are not sent. If the SMTP server needs authorization, you must enter the necessary information to log in to the SMTP server.

Note – Sun StorEdge Diagnostic Reporter uses the host system clock for event time stamps. The RAID array uses its own clock for event time stamps. These times might not agree with each other.

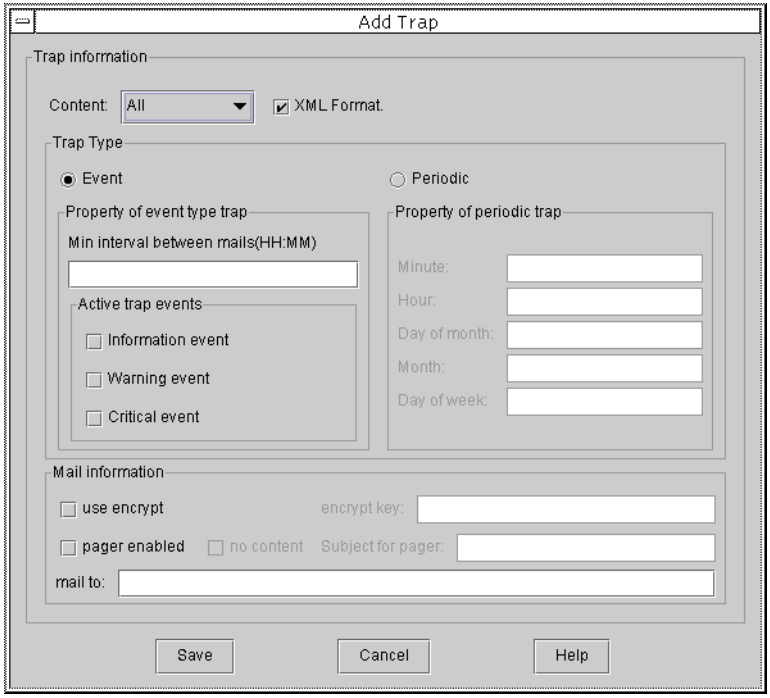
---

6. **Configure the From field using the following format:**

name@domain

7. **To specify the trap messages to be reported, select the Trap Information tab and click Add.**

   In the Add Trap dialog box, select and enter the desired parameters according to the information in TABLE 2-1.

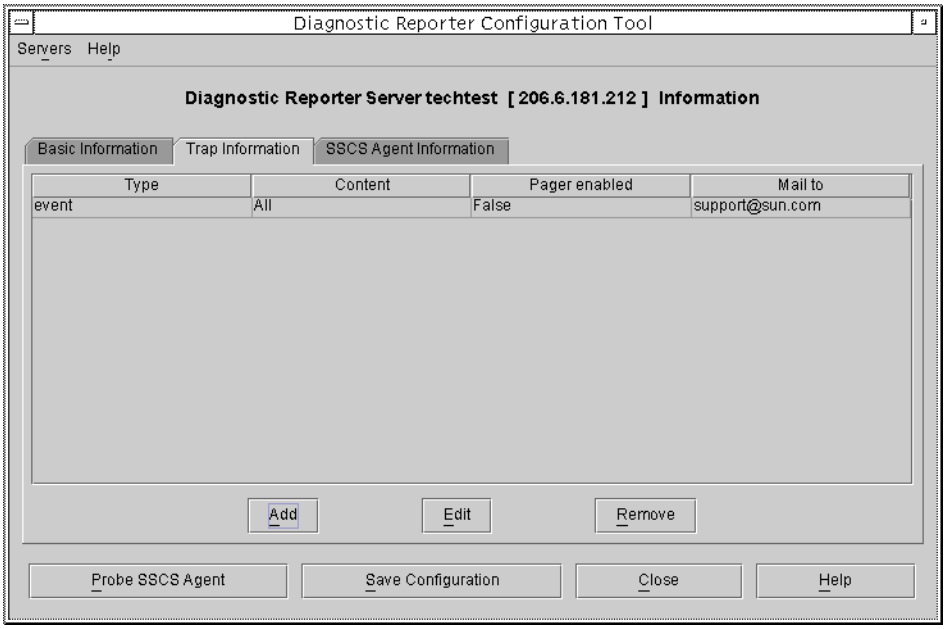


As a minimum, select a trap event, enter the minimum interval between mails, and enter one email address. To enter multiple email addresses, separate each address with a space, comma, or semicolon.

TABLE 2-1 Trap Information Parameters

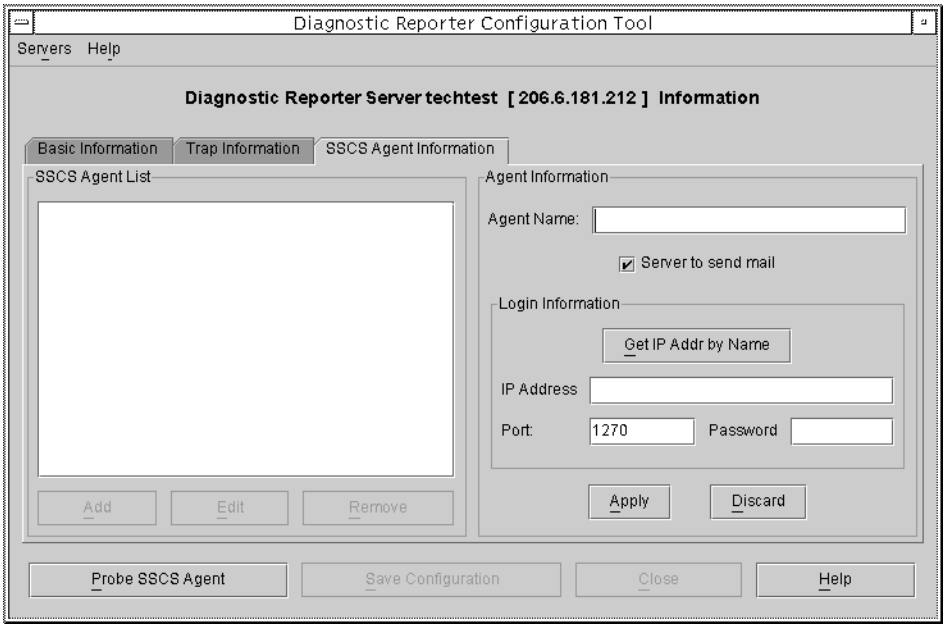
Parameter	Values/Description
Content	Specifies the information to include in the email body. Values: `all/ event /log /report /hosteventlog` If you select an event trap and Minimum interval is 0 or *, the Content must be Event. To select periodic trap, Content cannot be Event.
XML Format	Select to generate the email and report in XML format.
Trap type	Select trap type Property of event type trap or Property of periodic trap.
Minimum interval between mails	For the interval between emails for an event type trap, specify the desired values: * - reports all events as they occur HH:MM - sets a specific time of day in hour:minute format, for reporting the last event message delivered during the time interval, using a 24-hour clock. Example: 16:30 = 4:30PM. **Note:** Always use the HH:MM format. For example, if you want to set the time interval to every 24 hours, set it to 24:00. Remember to include the colon.
Active trap events	An event trap is activated by an event, with a choice of any three kinds of event.
Periodic trap type	Use `crontab` format to define when to send emails: minute (0-59) hour (0-23) day of month (1-31) month (1-12) day of week (0-6 with 0=Sunday)
Checkbox – use encrypt	If selected, sends encrypted emails. To encrypt the email sent to Sun, select use encrypt. The encrypt key is an identifier (optional) that is displayed when you download event messages.
Checkbox – pager enabled	To send mail to a pager-enabled mail address, select this box and enter the mail subject in Subject for Pager. If you do not want this mail to include any content, select no content.
Checkbox – no content	
mail to:	Define the email address for mail. You can specify several mail addresses, separated by " ", ",", ";".

In the following example, all events are selected and sent to support@sun.com.



8. **Sun StorEdge Diagnostic Reporter can connect to multiple Sun StorEdge Configuration Service agents at the same time.**

   To connect to one or more Sun StorEdge Configuration Service agents, click the SSCS Agent Information tab and click Add.



For each Sun StorEdge Configuration Service agent, specify the Agent Name, Agent IP Address, Port and Password for the `ssconfig` user accessing that agent.

- Agent Name – Name that is included in emails. You can use the real machine host name or an alias.
- Port – The Sun StorEdge Configuration Service agent listener port number. Keep the default value 1270 (other valid values are 1271, 1272, and 1273). If you cannot connect to the agent, change the value and try again.
- Password – The password for the `ssconfig` user. Before the Sun StorEdge Diagnostic Reporter daemon can connect to the Sun StorEdge Configuration Service agent, the Service must provide the correct password for the `ssconfig` user.

After you have entered the agent parameters, click Discard to cancel changes, or click Apply to save the configuration. Each agent listed in the agent sends the specified event messages to the Sun StorEdge Diagnostic Reporter Service where this configuration has been saved.

9. **After you create or edit any configuration, click Save Configuration in the main window to save the configuration to Sun StorEdge Diagnostic Reporter.**

   Sun StorEdge Diagnostic Reporter Service restarts to read the configuration file again.

10. **To see the current status of each agent at a specific moment, click Probe Configuration Service Agent in the main window.**

    In the Agent Information window, the colored status buttons indicate if the Sun StorEdge Diagnostic Reporter Service is active with the Sun StorEdge Configuration Service agent on each agent server.

    - Red – Sun StorEdge Diagnostic Reporter cannot connect to the Sun StorEdge Configuration Service agent.
    - Yellow – Sun StorEdge Diagnostic Reporter is seeking the Sun StorEdge Configuration Service agent.
    - Green – Sun StorEdge Diagnostic Reporter is connected to the Sun StorEdge Configuration Service agent.
    - None – The Sun StorEdge Configuration Service agent information has not been saved.

    The color and text of this button can change every 20 seconds.

Host Event Log

When there is a triggered event, Sun StorEdge Diagnostic Reporter attaches the host event log to the email that is sent. The events are logged into the system log of the host where the agent is installed. The following table lists the locations where the events are logged to in each OS.

TABLE 2-2 Event Log Location

OS	Event Log Location
Solaris OS	`/var/adm/messages` (Also shown on the console)
Linux OS	`/var/log/messages`
Microsoft Windows OS	The application log of the system, which can be viewed using Event Viewer. You can also read the event log directly from the file `\Program Files\Sun\sscs\eventlog.txt`
HP-UX OS	`/var/adm/syslog/syslog.log`

Note – For an IBM AIX OS, the event logs are not logged by default. Refer to the *Sun StorEdge 3000 Family Configuration Service User's Guide* for more information about writing events to a logfile for an IBM AIX host.

Because the host can generate a large amount of messages, it is possible to exceed the mail size limit allowed by some SMTP servers. Sun StorEdge Diagnostic Reporter limits the size of the host event log to 5 Mbyte. This limit can be changed by defining the mail size limit attribute of the smtp element in `ssdgrpt_cfg.xml`. The following table lists the location of this file for each OS.

TABLE 2-3 `ssdgrpt_cfg.xml` File Location

OS	`ssdgrpt_cfg.xml` Location
Solaris, Linux, and HP-UX OS	`/opt/SUNWsscs/ssdiagreporterd/`
Microsoft Windows OS	`<install path\service\`, where the default install path is `C:\Program Files\Sun\ssdgrpt`
IBM AIX	`/opt/SUNWsscs/ssdiagreporterd`

For example, to define the host event log size limit to 1 Mbyte (1 Mbyte = 1024 x 1024 = 1048576), define the mail size limit attribute as follows:

```
<smtp auth="false" username="" password="XXXX" mail_size_limit=
"1048576" from="test@sina.com" >smtp.sina.com</smtp>
```

Note – If the mail size limit attribute is not defined, Sun StorEdge Diagnostic Reporter uses the default value of 5 Mbyte.

▼ To Set Up the Report Tool

The report capability enables you to generate a report that contains the configuration of all locally attached arrays.

The following steps describe how to set up the report tool on UNIX systems.

1. **On a UNIX OS, configure the local host to monitor the locally attached arrays.**

   a. **From the main Sun StorEdge Configuration Service window, choose Array Administration → Controller Assignment.**

      The Assign Server to Manage a RAID Controller window is displayed.

   b. **Select a server from the Server to manage this controller list and click Apply.**

      This enables the selected server to manage an array controller. It also disables all other servers listed from managing the same array.

   c. **Click Close to close the view.**

2. **Add the local server to the** `ssdgrcli.cfg` **file by typing the following command from the server that is attached to and managing the array:**

```
# /usr/sbin/ssdgrptd -c -s password@ip address
```

   You are prompted for the `ssconfig` password.

3. **Run the following command to generate the report:**

```
# /usr/sbin/ssdgrptd -r
```

   The default report file name is `report.xml`. For systems running the Solaris, Linux, or HP-UX OS, it is saved to `/opt/SUNWsscs/ssdiagreporterd`. For systems running the IBM AIX OS, it is saved to `/usr/SUNWsscs/ssdiagreporterd`.

The following steps describe how to set up the report tool on a Microsoft Windows OS.

1. **Change to the directory where** `ssdgrptd` **was installed (default** `C:\Program Files\Sun\ssdgrpt`**).**

2. **Run the following command:**

```
java -cp .\;.\ssdgrptd.jar sscs_daemon -x -x
```

where *x*'s are `c` and `s` to generate the report in `xml` format, or `r` and `e` to generate the report in `txt` format.

Note – Whether you generate the report as `xml` or `txt`, the extension remains `xml`.

---

3. **Run the following command:**

```
java -cp .\;.\ssdgrptd.jar sscs_daemon -r
```

The default report file name is `report.xml` and is saved to the directory where `ssdgrptd` was installed.

▼ To Set Up the Mail Receiver Tool

The Mail Receiver Tool is optional and can be used in place of your regular email application. It can be used to receive and forward unencrypted and encrypted email.

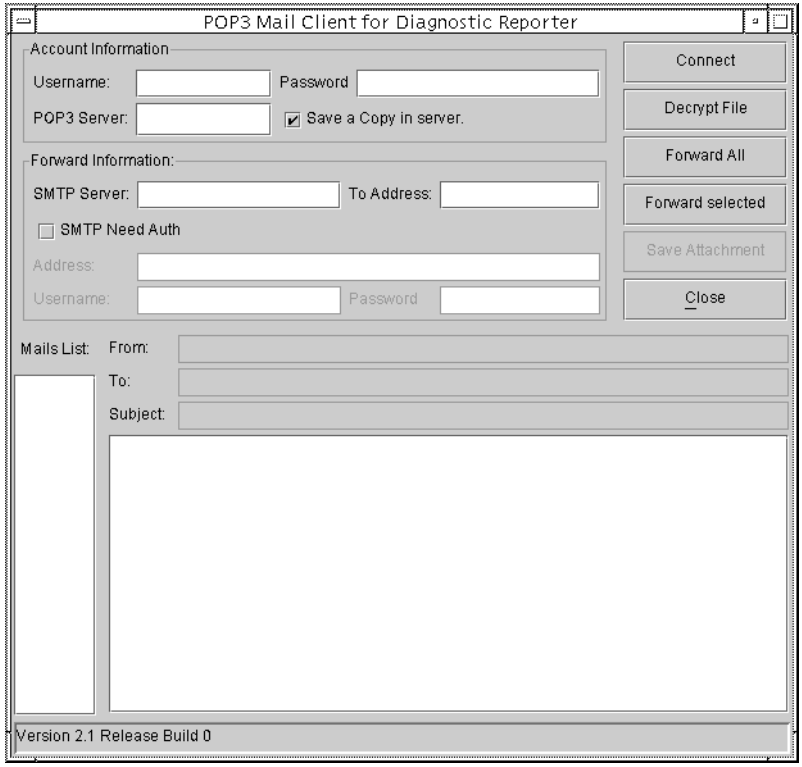
1. **Start the Mail Receiver Tool.**
   - On a Solaris, Linux, HP-UX, or IBM AIX OS, type:

```
# ssdgrptpop
```

   - On a Windows 2000 OS, choose Start → Programs → Sun StorEdge 3000 Family → Diagnostic Reporter Mail Receiver Tool.
   - On a Windows 2003 OS, choose Start → All Programs → Sun StorEdge 3000 Family → Diagnostic Reporter Mail Receiver Tool.

2. **In the POP3 Mail Client window, identify the UserName, Password, and email server IP address (POP Server) where the event messages are to be sent.**

   If needed, specify the appropriate SMTP information.



   a. **To receive event messages, click Connect.**

   b. **If decryption is necessary, click Decrypt File.**

   c. **For event information or alerts that need to be sent to additional staff, click Forward All or Forward Selected and specify the destination address(es).**

Troubleshooting

Note – For a list of error messages and prompts, refer to the "Error Codes and Messages" appendix in the *Sun StorEdge 3000 Family Configuration Service User's Guide*.

If you stop receiving email messages from Sun StorEdge Diagnostic Reporter, it might need to be stopped and restarted.

(UNIX OS) There are three conditions under which Sun StorEdge Diagnostic Reporter stops working and does not report its condition.

- If the Sun StorEdge Configuration Service agent fails or is stopped and restarted, Sun StorEdge Diagnostic Reporter stops working.
- If the Sun StorEdge Diagnostic Reporter Config Tool is running and the daemon is stopped and restarted, a condition might occur whereby the Config Tool can no longer communicate with the daemon.
- If the Sun StorEdge Configuration Service agent fails or is stopped, the Sun StorEdge Diagnostic Reporter daemon does not detect it, stops sending email messages, and continues to show that Sun StorEdge Diagnostic Reporter is still connected by displaying a green status.

The workaround is to stop and restart Sun StorEdge Diagnostic Reporter as explained in the following steps.

Note – To start and stop the agents (daemons), you must have superuser (administrator) privileges.

▼ To Stop and Start Sun StorEdge Diagnostic Reporter on a Solaris Host or Linux Host

Type:

```
# /etc/init.d/ssdgrptd stop
# /etc/init.d/ssdgrptd start
```

▼ To Stop and Start Sun StorEdge Diagnostic Reporter on a Windows Host

1. **To start the agent software on a Windows 2000 host, choose Start → Programs → Administrative Tools → Computer Management.**

   To start the agent software on a Windows 2003 host, **choose Start → Administrative Tools → Computer Management.**

   Alternatively, you can right-click My Computer and select Manage.

2. **Click Services & Applications.**

3. **Select the Sun StorEdge Diagnostic Reporter Server, and right-click the service you want to stop or start.**

▼ To Stop and Start Sun StorEdge Diagnostic Reporter on an HP-UX Host

Type:

```
# /sbin/init.d/ssdgrptd stop
# /sbin/init.d/ssdgrptd start
```

▼ To Stop and Start Sun StorEdge Diagnostic Reporter on an IBM AIX Host

Type:

```
# /usr/sbin/ssdgrptd stop
# /usr/sbin/ssdgrptd start
```