Sun StorEdge™ Enterprise Storage Manager Base Applications Getting Started Guide

Release 4.0, Pre-installed

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Preface

The *Sun StorEdge Enterprise Storage Manager Base Applications Release 4.0, Pre-installed, Getting Started Guide* is a combined software installation, initial configuration, and getting started guide for the Sun StorEdge™ Enterprise Storage Manager (ESM) Base Applications 4.0, which include:

- Sun StorEdge™ Data Replication Manager 1.0
- Sun StorEdge™ Management Portal 1.0
- SANbox Manager 2.1
- Storage Automated Diagnostic Environment (StorADE), Enterprise Edition, 2.4

Before You Read This Document

This guide is written for the software installer and storage administrator of the Sun StorEdge ESM Base Applications 4.0.

Users of this document should have knowledge or experience in the following areas:

- Solaris 10 Operating System
- Sun SPARC hardware
- Local area networks
- Storage area networks

How This Document Is Organized

Chapter 1 provides an overview of the ESM Base Applications, system requirements, and how they are installed.

Chapter 2 describes Solaris setup, how to complete the installation and configuration of the ESM Base Applications, how to reconfigure ALOM for your site, and how to assign StorADE's `sa_admin` role to users.

Chapter 3 describes how to configure and use the Management Portal. It also describes the portlets that comprise the Management Portal.

Chapter 4 describes how to configure and use Data Replication Manager. It also describes Data Replication Manager's administrative tasks.

Appendix A describes how to reinstall the Solaris OS and the ESM Base Applications from the Sun StorEdge Enterprise Storage Manager Base Applications 4.0, Pre-Installed DVD. This restores the system to its factory default configuration in the event that the software becomes corrupted or inoperable.

Appendix B provides information on the login accounts, roles, and default passwords used in the ESM Base Applications.

Using UNIX Commands

This document does not contain information about 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™ 10 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*	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*.

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

Related Documentation

For related documents, go to:

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

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CHAPTER 1

Sun StorEdge ESM Base Applications Overview

This chapter provides an overview of the Sun StorEdge ESM Base Applications 4.0 software. The ESM Base Applications are pre-installed on a Solaris 10-based V210 Sun Fire server. The chapter includes the following topics:

- "Sun StorEdge ESM Base Applications 4.0" on page 1
- "ESM Base Applications 4.0 Components" on page 2

Sun StorEdge ESM Base Applications 4.0

The Sun StorEdge ESM Base Applications 4.0, which include the Sun StorEdge Management Portal, are pre-installed on a V210 Sun Fire server. The system boots up in the same manner as a system returning from a `sys-unconfig` (1M) state. After you configure the system through the Solaris command-line interface (CLI), you log in to a Telnet session to run an ESM Base Applications configuration script. Once you provide licensing and network information, configuration of the ESM Base Applications and any other required software proceeds in a non-interactive manner. Periodically, the configuration process provides progress updates and estimates of time remaining.

The product includes a DVD to allow you to recover the ESM Base Applications and reset them to their default state.

The ESM Base Applications are managed as a pre-installed Solaris host, not as an appliance. The ESM Base Applications and the operating system (including required and installed infrastructure software) are maintained and serviced through Solaris commands.

ESM Base Applications 4.0 Components

The ESM Base Applications 4.0 release includes the following components:

- Sun StorEdge Management Portal 1.0
- Sun StorEdge Data Replication Manager 1.0
- SANbox Manager 2.1
- Storage Automated Diagnostic Environment, Enterprise Edition, 2.4 (StorADE)

Sun StorEdge Management Portal 1.0 and Sun StorEdge Data Replication Manager 1.0 are new products, available only as part of the ESM Base Applications 4.0 software package; StorADE 2.4 and SANbox Manager 2.1 are existing products that are also available for download from `http://www.sun.com`.

When you install the ESM Base Applications, dependent packages from Sun Java Enterprise System (Java ES) 2005Q1 are automatically installed on the system. For more information on Java ES, go to the following URL:

`http://www.sun.com/software/javaenterprisesystem/`

The following subsections describe each of these components in more detail.

Management Portal

The Management Portal is one of the ESM Base Applications that come pre-installed on a V210 Sun Fire server.

The Management Portal provides a solution for organizing a storage administrator's tools, data, and information. The Management Portal provides high-level information wherever possible. This enables the administrator to more easily determine when to investigate a particular task through a first-class application available on the network (such as an element manager). The Management Portal addresses the needs of facilities with multiple storage administrators by allowing desktop customization on a per-administrator basis.

The Management Portal is a flexible, customizable interface for managing Sun network storage and third-party management applications. It functions as a dashboard and launchpad, providing an environment for aggregating and organizing a storage administrator's tools, data, and information.

The Management Portal features the following portlets:

- Portal Reporter – Displays the status of the Management Portal infrastructure, including information on databases, proxy configurations, and remote service.

- Administration Tasks – Allows access to administration tasks that enable you to configure the Management Portal.
- Event Organizer – Provides information about the filtered or unfiltered device list from the Storage Automated Diagnostic Environment.
- Storage Event Reporter – Displays all event information from storage networks, as recognized by the Storage Automated Diagnostic Environment.
- Storage Application Organizer – Contains a list of a user's web-based applications that are used for general management of the storage environment.
- Storage News and Information – Displays real-time storage news, information, and updates through Really Simple Syndication (RSS) feeds or links to the web.
- Data Replication Reporter – Uses information from the Data Replication Manager to deliver an overview of data replication between Sun StorEdge 6920 systems.
- Storage Pool Reporter – Displays information relative to the Sun StorEdge 6920 system storage pool type.
- Volume Performance Reporter – Provides performance statistics for volumes in a single Sun StorEdge 6130 array.
- File System Reporter – Displays how file system capacity is being used throughout the storage network.
- Report Organizer – Generates and displays reports from the Sun StorEdge Operations Manager.

Sun StorEdge Data Replication Manager

Sun StorEdge Data Replication Manager manages and monitors remote data replication between two Sun StorEdge 6920 systems running Release 3.0.1 software. It is designed to manage replication across the entire enterprise.

Supported features include:

- Creation and management of replication sets and groups
- Management of replication links
- Monitoring of the state of replication sets and groups
- Management of failure scenarios
- Ability to request snapshots of volumes
- Ability to grow volumes within a set

SANbox Manager

SANbox Manager is a switch management application that allows storage administrators to install, configure, and monitor Sun StorEdge Network Fibre Channel switches.

Sun Storage Automated Diagnostic Environment

Sun Storage Automated Diagnostic Environment software provides health monitoring and diagnostic services for your storage environment. These services will help prevent downtime by providing advance notification of potential problems. Sun Storage Automated Diagnostic Environment delivers device monitoring and diagnostic services for Sun StorEdge arrays and systems, and Sun StorEdge Open SAN connectivity devices. The software can also distribute health information from Sun StorEdge devices to the Sun Remote Services Net Connect management services, enabling an integrated remote monitoring solution for your Sun environment, 24 hours a day, 7 days a week.

CHAPTER 2

Configuring the Software

This chapter describes how to set up the V210 Sun Fire server and use the software installation utility, `ssmsconfig`, to install the Sun StorEdge Management Portal and the other Sun StorEdge Enterprise Storage Manager (ESM) Base Applications. It includes the following topics:

- "Setting Up the Hardware" on page 5
- "Establishing a System Console Session Through ALOM" on page 6
- "Setting Up Solaris" on page 8
- "Installing the ESM Base Applications" on page 9
- "Configuring the ALOM" on page 11
- "Managing the sa_admin Role" on page 13
- "Changing the sa_admin Role Password" on page 15

Setting Up the Hardware

The ESM Base Applications are hosted on a V210 Sun Fire server, which is typically rack mounted. Installation and mounting of the server is beyond the scope of this guide. For instructions on installing the V210 server, consult the *Sun Fire V210 and V240 Servers Installation Guide*.

After you have installed and mounted the server, make the following physical network connections to the server:

- Connect an RJ-45 network cable to the Net 0 Ethernet port.
- Connect an RJ-45 network cable to the Network Management port (labeled "Net Mgt").

Establishing a System Console Session Through ALOM

Advanced Lights-Out Management (ALOM) provides remote management and administration capabilities for the V210 server. The Network Management port is part of the V210's ALOM system. The ESM Base Applications system console is redirected to the Network Management port. You must establish a console session through ALOM to install and configure the ESM Base Applications.

Note – The ALOM is active as soon as the V210 server is connected to a power source and remains active until the system is unplugged. The ALOM is operational even when the operating system is offline.

Use the following procedure to establish a console session on the Network Management port.

1. **Configure a network interface on another system to use 10.0.0.2 as an IP address with a netmask of 255.255.255.0.**

Note – This other system must have network connectivity to the V210 server that will host the ESM Base Applications. This may require the use of a cross-over Ethernet cable or a network hub to establish connectivity.

---

2. **From the other system, telnet to 10.0.0.1 (the default IP address of the Network Management port) and log in to the ALOM as** `admin`**, using the password** `ssmspass`**.**

```
$ telnet 10.0.0.1
Trying 10.0.0.1...
Connected to 10.0.0.1.
Escape character is '^]'.

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Sun(tm) Advanced Lights Out Manager 1.4 (10.0.0.1)

Please login: admin
Please Enter password: ********


sc>
```

3. **ALOM is active as soon as the system is powered up. To power up the system, type** `poweron` **at the** `sc>` **prompt. The system boots up in approximately 90 seconds.**

```
sc> poweron

SC Alert: Host System has Reset
sc>
```

4. **To initiate a system console session from ALOM, type** `console -f` **and answer** `y` **to take control of the console.**

```
sc> console -f
Warning: User < > currently has write permission to this console
and forcibly removing them will terminate any current write actions
and all work will be lost.  Would you like to continue? [y/n]y
Enter #. to return to ALOM.

{1} ok
```

5. **At the V210 Open Boot Prom** `{1} ok` **prompt, type** `boot`**.**

```
{1} ok boot
```

Setting Up Solaris

Before the system leaves the factory, it is set to an unconfigured state through the `sys-unconfig` (1M) command. When you reboot the system, you are prompted for network and Solaris system configuration information, as would normally be the case during a system reboot following a `sys-unconfig` (1M) command.

Note – For a narrated, step-by-step example of a Solaris configuration session, see Appendix A.

Make sure you have the following information before you start configuring the Solaris Operating System (OS). You will be prompted to provide this information, unless otherwise noted:

- The type of terminal from which you are logged in to ALOM.
- DHCP configuration, if any. The system requires a static IP address and host name; typically, DHCP is not used.
- Ethernet port: Select **`bge0`** when prompted.
- Host name.
- IP address.
- Kerberos. Although it is not required, you can use the Kerberos authentication protocol on the system.
- Name service. This is typically DNS, LDAP or NIS.
- Name Service Domain. The Sun Java Enterprise System (Java ES) that is bundled with the ESM Base Applications requires a fully qualified domain name. For example, a system with the host name of `server1` that is in the `example.com` domain has a fully qualified domain name of `server1.example.com`.
- Time zone.
- Date and time.
- Root password.

There are several other settings and selections you must make to complete the configuration of the Solaris OS. See the Solaris documentation for more information about these settings.

If you make a mistake during the Solaris configuration, you can go back and fix it. If you discover the error after the Solaris OS is configured, but before you have configured the ESM Base Applications, run `sys-unconfig` (1M) and reconfigure the Solaris OS. If the mistake is discovered after the ESM Base Applications are

configured, you must reload the ESM Base Applications from the product DVD, then reconfigure the Solaris OS, and reinstall the ESM Base Applications. See Appendix A for details.

Installing the ESM Base Applications

This section describes how to complete installation and configuration of these ESM Base Applications:

- Management Portal 1.0
- Sun StorEdge Data Replication Manager 1.0
- SANbox Manager 2.1
- Sun Storage Automated Diagnostic Environment, Enterprise Edition, 2.4

This also includes configuration of the Java ES. Installation and configuration of all components is accomplished through an automated script (`ssmsconfig`).

Installation Procedure

Use the following procedure to complete the installation and configuration of the ESM Base Applications.

1. **Log in to the system as `root`, using the password you provided when you set up Solaris.**

2. **Open another shell window and start a second Telnet session on the system.**

   It is recommended that you start another Telnet session to avoid display of extraneous messages. Use the host name and password that you assigned to the system during Solaris setup, as in the following example:

```
$ telnet server1
Trying 10.20.30.40...
Connected to server1.
Escape character is '^]'.
login: root
Password: ********
Last login: Tue Oct 25 08:47:04 on console
Sun Microsystems Inc.   SunOS 5.10      Generic January 2005
```

Note – Until the ESM Base Applications are fully configured, you may see transitory error messages written to the system console. These messages will no longer be displayed once installation of the ESM Base Applications is completed. You can ignore them.

3. **Type** `/var/opt/SUNWbaconf/bin/ssmsconfig` **at the shell prompt to start the installation script.**

```
# /var/opt/SUNWbaconf/bin/ssmsconfig
```

4. **When the license agreement is displayed, read it, press Return to accept the license terms, and continue with the installation.**

   If you do not accept the agreement, the installation terminates.

5. **Specify the fully qualified domain name of the host.**

   Enter the fully qualified domain name you prefer to use. Enter **`y`** to confirm your response. For future reference, also record the location of the installation log file.

   In the example, the system's host name is `server1` and the domain name is `lab.example.com`. Thus, this system's fully qualified domain name is `server1.lab.example.com`.

```
Please wait... -

Attempting to install: Sun StorEdge Enterprise Storage Manager
Base Applications Pre-Installed 4.0
baconfig log file: /var/opt/SUNWbaconf/logs/SSMS-1.0-
1131109142.install.log
Please enter the fully qualified host name (i.e.
host.domain.com):server1.lab.example.com
You entered: server1.lab.example.com
Is this correct? (Y/N) y
```

Note – Once Java ES is configured, you cannot change the system's host name, domain name, or IP address. If you must change the host name, domain name, or IP address, you must reload and reconfigure the system as described in Appendix A.

6. **If the IP address listed as the default by `ssmsconfig` is correct, press Return to continue. If it is not correct, enter the IP address you prefer to use. Type `y` to confirm your response.**

```
Please enter the IP address for the given host name
[10.20.30.40]:<Return>
You entered: 10.20.30.40
Is this correct? (Y/N) y
```

After you confirm the system information, the ESM Base Applications installation and Java ES configuration process begins and takes approximately 45 minutes. No further user interaction is required.

Caution – Do not interrupt the installation process, as this may result in a partial configuration of the ESM Base Applications. In the event that the configuration is not completed, use the DVD recovery procedure described in Appendix A to reload and reconfigure the system.

As a convenience for installation, `CONSOLE=/dev/console` has been commented out of the `/etc/default/login` file to allow non-console root logins. It is strongly recommended that you reset `CONSOLE=/dev/console` after installation.

Configuring the ALOM

After the ESM Base Applications are installed, you should change the ALOM default administrative password and network configuration to suit your particular site.

Changing the Password

An ALOM password must meet the following requirements:

- Contain at least six characters. Only the first eight characters are significant, so any characters beyond the first eight are ignored.
- Contain at least two alphabetic (uppercase or lowercase letters) characters and at least one numeric or special character.
- Differ from your login name and any reverse or circular shift of your login name. For comparison purposes, uppercase and lowercase letters are considered equivalent.

- Differ from the old password by at least three characters. For comparison purposes, uppercase and lowercase letters are considered equivalent.

The default ALOM password is `ssms`. Change the default ALOM password by typing the new password at the `Password` and `Re-enter Password` prompts.

```
# PATH=$PATH:/usr/platform/SUNW,Sun-Fire-V210/sbin
# export PATH
# scadm userpassword admin
Password: ********
Re-enter Password: ********
#
```

Changing the Network Configuration

The default ALOM network configuration probably is not useful to you after you have installed the ESM Base Applications. This procedure describes how to change the network configuration to better suit your location.

Note – Although this can be done directly from the ALOM application, this example shows how to configure the network settings from the root user's shell prompt.

---

1. **Display the current ALOM network configuration.**

```
# PATH=$PATH:/usr/platform/SUNW,Sun-Fire-V210/sbin
# export PATH
# scadm shownetwork
IP Address: 10.0.0.1
Gateway address: 10.0.0.1
Netmask: 255.255.255.0
Ethernet address: 00:03:ba:a6:eb:90
#
```

2. **Change the network interface configuration and reset ALOM (via `resetrsc`).**

In the example, the IP address, the netmask, and default routing destination are changed to 10.10.10.10, 255.255.255.0, and 10.10.10.248 respectively. Resetting the ALOM takes about 10 seconds and does not affect the operation of the ESM Base Applications. Note that if you have a Telnet session running on ALOM, it will be terminated.

```
# scadm set netsc_ipaddr 10.10.10.10
# scadm set netsc_ipnetmask 255.255.255.0
# scadm set netsc_ipgateway 10.10.10.248
# scadm resetrsc
```

3. **Display the new ALOM configuration and make sure the settings are correct.**

```
# scadm shownetwork
IP Address: 10.10.10.10
Gateway address: 10.10.10.248
Netmask: 255.255.255.0
Ethernet address: 00:03:ba:a6:eb:90
#
```

After you verify the settings, you can use Telnet to establish a new system console session with the new IP address.

Note – If you plan to use Sun StorEdge Data Replication Manager (DRM), you must enable it. See Chapter 4 for more information.

Managing the sa_admin Role

The `sa_admin` role is automatically created during the Storage Automated Diagnostic Environment installation. You should assign the `sa_admin` role to any user who will do more than just view and refresh the configuration information.

Note – The user whose role you plan to modify must be logged out of the system. If the user is not logged out of the system, the role assignment will fail.

To assign the `sa_admin` role to a user, you must be logged in as root.

1. **Determine the existing roles of the user to whom you want to grant the** `sa_admin` **role.**

```
# /usr/bin/roles username
```

2. **Do one of the following, depending on the output from the preceding command:**
   - If the preceding command returned `No roles`, then the user does not have any roles. Use the following command to grant the `sa_admin` role to the user:

```
# /usr/sbin/usermod -R sa_admin username
```

   - If the preceding command returned one or more roles, append the `sa_admin` role to the user's existing roles, as follows:

```
# /usr/sbin/usermod -R `/usr/bin/roles username`,sa_admin
username
```

3. **Verify that the** `sa_admin` **role was granted to the user:**

```
# /usr/bin/roles username
```

   The `sa_admin` role should be listed in the output from the above command.

   If `sa_admin` does not appear in the output and the user has existing roles, try running the command again by replacing `` `/usr/bin/roles` *username*` `` with the output from the command issued in Step 3. Do not include spaces in the comma-separated list.

   For more information about Storage Automated Diagnostic Environment, go to `http://www.sun.com/products-n-solutions/hardware/docs/Software/index.html`.

Changing the sa_admin Role Password

To change the `sa_admin` password, type the following:

```
# /usr/bin/passwd sa_admin
New Password: ********
Re-enter new Password: ********
```

CHAPTER 3

Setting Up and Using the Sun StorEdge Management Portal

The Management Portal contains a preconfigured environment for managing storage devices. This chapter describes basic portal concepts, the contents of the portal package, and the tasks you perform to configure and use the portal.

This chapter contains the following sections:

- "Portal Architecture" on page 17
- "Logging In to the Management Portal" on page 19
- "User Overview" on page 20
- "Using the Desktop" on page 21
- "Portlet Overview" on page 25
- "Configuration Tasks" on page 37
- "Administrative Tasks" on page 41

Portal Architecture

The portal architecture and infrastructure follow industry standards to bring information into a highly modular, dynamic, and customizable storage desktop built on top of the Java System Portal Server software, which is included in the Sun Java Enterprise System (Java ES).

FIGURE 3-1 shows the application tiers that you can have in your environment. The Management Portal is portal application software that provides the top two tiers of this application environment.

Information that resides in the portal environment comes from a variety of storage devices and information interfaces in the lower tier of the environment. Generally, users are not exposed to this lower tier, although administrators may have to enter information about the location of the information sources.

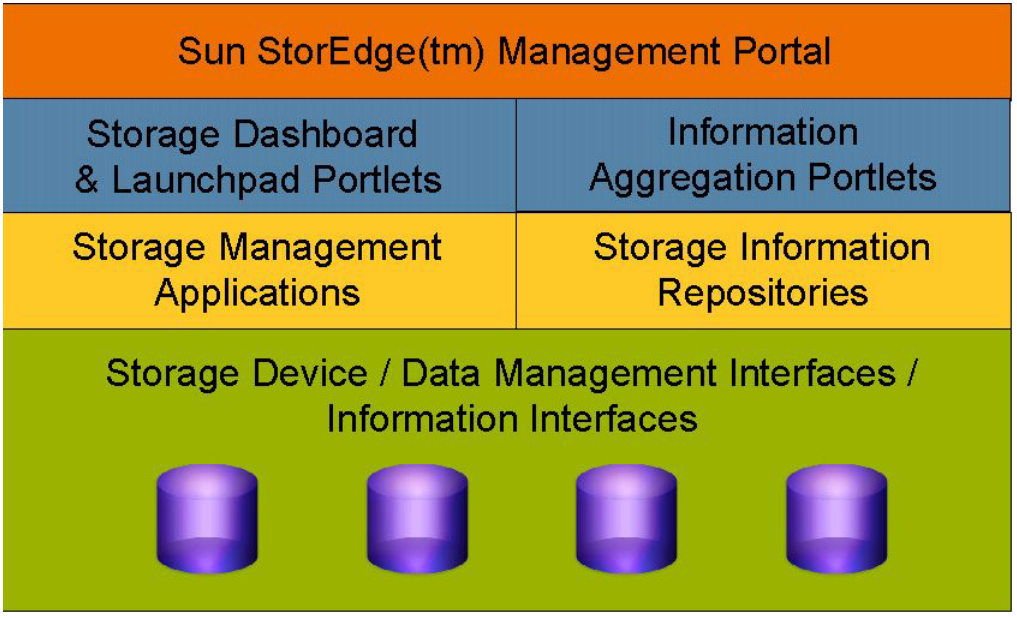


FIGURE 3-1 Management Portal and Surrounding Environment

When you log in to the Management Portal, you see the storage desktop, within which are a series of *portlets*, or individual applications. There are two types of portlets:

- **Storage dashboard and launchpad portlets** – These portlets help you organize storage devices by providing links to a variety of storage management applications, such as Sun StorEdge Operations Manager and device element managers. These portlets also provide contextual information, such as information about the health status of a device, vendor information, and World Wide Name (WWN) information. Depending on the status information displayed, such as an alarm or information indicating poor performance, you can then launch applications as needed.
- **Information aggregation portlets** – These portlets provide information about the storage types within your environment as well as information that can be useful in managing your storage. Much of this information is derived from the Internet or links provided with the product. These portlets generally launch external web sites, such as documentation and news sites.

Logging In to the Management Portal

You log in as either of the two users created as part of the default configuration:

- The general user (`sestorageadmin`) has access to management functions only.
- The administrator (`seadmin`) has access to all administrator functions.

To log in, follow these steps:

1. **Go to the portal login page at `http://`*`hostname`*`/portal`, where *hostname* is the fully qualified domain name of the management station on which you installed the Management Portal (FIGURE 3-2).**

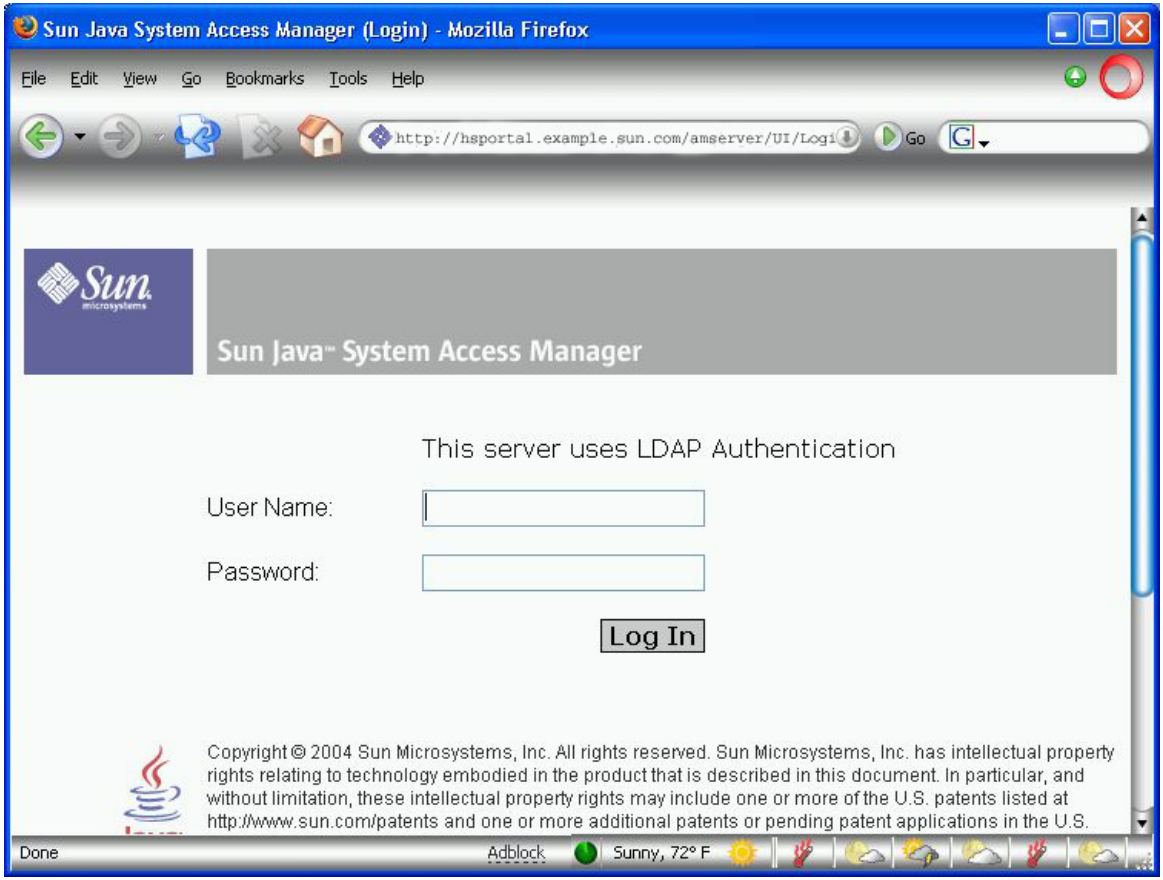


FIGURE 3-2 Management Portal Login Screen

2. **On the login page, enter your user name and password (either `seadmin` and `seadmin`, or `sestorageadmin` and `sestorageadmin`).**

3. **Click Login.**

User Overview

The Management Portal installation creates two users: `sestorageadmin` and `seadmin`. These users are described in the following subsections.

Management Portal General User

A Management Portal general user (`sestorageadmin`) can use the portal to manage and monitor storage devices and data services. This user can also personalize the environment. The following are some of the tasks that a general user can perform:

- Customize the storage desktop (by changing layouts, creating and removing tabs, and adding and removing portlets from pages).
- Modify content in portlets through the Edit Content menus.
- Launch the Storage Automated Diagnostic Environment and other management applications to which the portal links as allowed by application-specific permissions.
- View documentation and news links.
- Add additional applications to the Storage Application Organizer portlet.
- Add Really Simple Syndication (RSS) and Atom feeds to the Storage News and Information portlet.
- View performance and storage pool information.
- View data replication status and information.

General users cannot perform "global" administration operations, such as adding additional devices to monitor, configuring performance monitors, and configuring access and authorization to agents residing on a Sun StorEdge 6920 system. These tasks, available from the Administration Tasks portlet, can be performed by the Management Portal Administrator only.

Management Portal Administrator

A Management Portal administrator (`seadmin`) has access to the same functions as the general user. This user can also access functions for administering the Management Portal environment. After the installation and initial configuration are complete, daily administrator functions might include the following, through use of the Administration Tasks portlet:

- Adding additional devices to discover and monitor.
- Turning performance monitoring on or off for individual Sun StorEdge 6130 arrays.
- Adding information about newly deployed applications to which all network users should have access.
- Viewing the status of the various infrastructure services.
- Discovering new devices.
- Changing the rate at which devices are polled.
- Selecting Sun StorEdge 6130 arrays on which to collect performance data.
- Selecting Sun StorEdge 6920 arrays on which to collect storage pool information.

Many of these operations affect data collection and change the content available to all users. The Management Portal centralizes this configuration under a single master administrative ID to ensure a consistent and planned operational profile.

Using the Desktop

You cannot change the way the Management Portal collects data from outside sources, but you can personalize your own environment to control how you view storage. Common desktop operations include the following:

- Setting filters on the devices shown in a particular portlet.
- Adding personal display items (such as applications and news feeds).
- Altering the desktop layout or a page layout.
- Altering the portlets displayed on any page.

The storage desktop contains several layers of information, as shown in FIGURE 3-3.



FIGURE 3-3 Storage Desktop

From the desktop, you view individual portlets. A single portlet can be deployed in multiple places with unique content displayed in each instance. For example, you might have several instances of the Storage News and Information portlet on a page or on multiple pages, each displaying different information.

Using Masthead Functions

The following subsections describe various desktop elements and how to use them.

The masthead on the storage desktop is visible on all pages of the portal. The masthead includes the following:

- Buttons for basic user functions, such as Home, Logout, and Help.

- A Search field that enables searches for storage elements using regular expressions. The result of a search is a the list of matching elements and alarms on those elements.
- A summary of current alarms by alarm severity. Clicking an alarm severity to see a filtered list of alarms of that severity.

Using Portlet Controls

Each portlet has a series of controls along the top border, as shown in FIGURE 3-4. To see online help for the portlet, click the question mark Help button. The remainder of the operations are available from the Options menu in the far right corner of the portlet title bar.



FIGURE 3-4 Portlet Controls

When you click the Options menu, the available operations become visible for selection, as shown in FIGURE 3-5.



FIGURE 3-5 Options Menu

Options menu commands include the following:

- Edit Content – Takes you to a full-page display of options that help you personalize the view of the content. This feature is not available for all portlets.
- Minimize/Restore – Changes the full portlet view to a minimal title bar. You can use this option to compress information on the page. To return to a full view, use the Restore option.
- Help – Displays online help for the portlet.

Finding Help Online

To open the online help, do one of the following:

- To browse help from the table of contents, click the Help button in the desktop masthead.
- To see help for a specific portlet, click the Help button in the portlet title bar.
- To see help for a specific page, click the Details link on that page.

The help window has its own navigation, contents, and search capabilities, as shown in FIGURE 3-6.

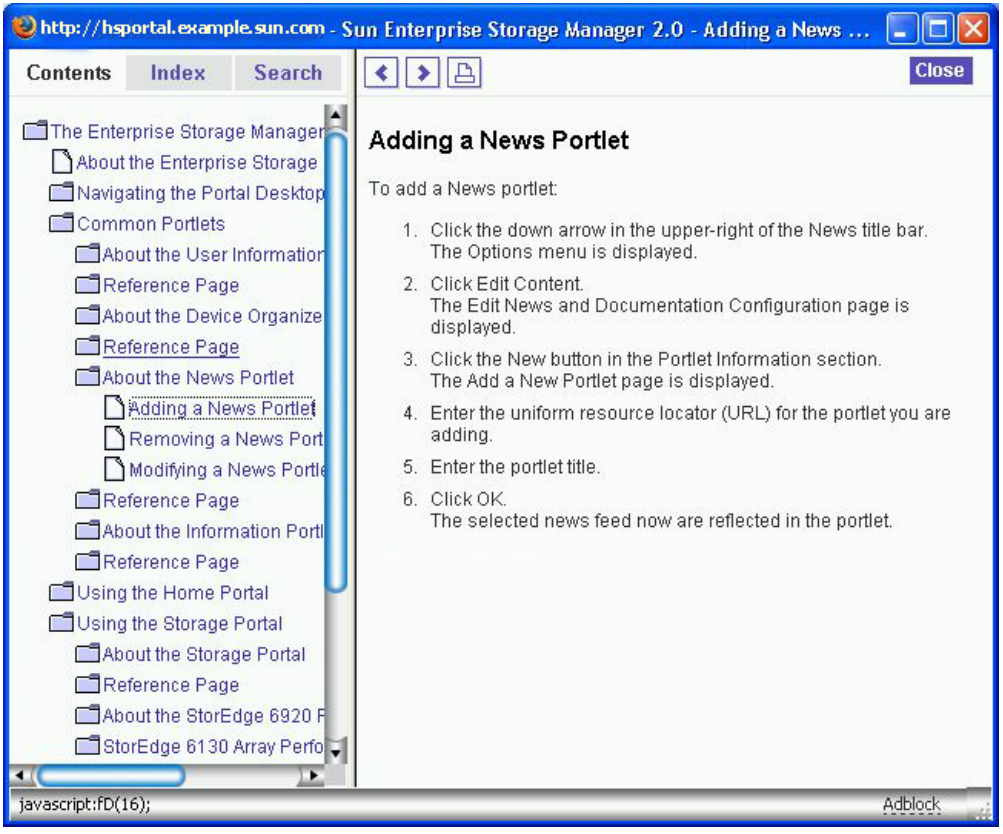


FIGURE 3-6 Help System

Customizing the Desktop

You can use the Page Options customization features to modify the layout, content, and pages of the storage desktop so that it contains the information you want in the form and location you want. There are three ways to modify your desktop environment:

- Content – You can add, remove, and hide portlets on specific pages within the environment, including both user-created and default pages.
- Layout – You can change the column layout of your pages as well as move portlets up and down within a column. This feature allows you to change the focus of a page to a different portlet.
- Tabs – You can add tabs to the environment, using blank pages to organize content to your own specifications. You can also remove tabs.

The Page Options links are in the top right corner of the desktop, underneath the masthead and tabs, as shown in FIGURE 3-7.



FIGURE 3-7 Page Options Links

Portlet Overview

This section describes the contents and attributes of each of the portlets on the storage desktop. A portlet can be added multiple times on the storage desktop. For example, you may want to add multiple Volume Performance Reporter portlets to display performance information for the 6130 arrays in your storage network. By default, each portlet has separate personalization settings.

The Portal Reporter and Administration Tasks portlets can be accessed by `seadmin` users only. The following portlets can be accessed by `seadmin` and `sestorageadmin` users:

- Event Organizer
- Storage Event Reporter
- Storage Application Organizer
- Storage News and Information
- Data Replication Reporter
- Storage Pool Reporter
- Volume Performance Reporter
- File System Reporter
- Report Organizer

TABLE 3-1 shows the portlets that are specific to individual Sun products.

TABLE 3-1 Sun Products Portlet Support

Portlets	Sun Product
Data Replication Reporter, Storage Pool Reporter	Sun StorEdge 6920 systems
Volume Performance Reporter	Sun StorEdge 6130 arrays
File System Reporter	Sun StorEdge SAM-FS
File System Reporter	Sun StorEdge QFS
Report Organizer	Sun StorEdge Operations Manager

The following subsections describe each of these portlets.

Portal Reporter Portlet

The Portal Reporter portlet, shown in FIGURE 3-8, enables you to quickly determine the status of various important processes and configurations. It is located on the Administration tab.

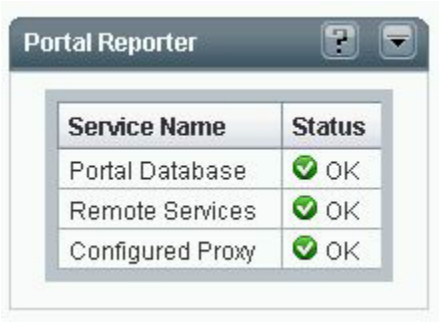


FIGURE 3-8 Portal Reporter

The first two service lights, Portal Database and Remote Services, indicate the availability of the "infrastructure" services, similar to the `checkservers` command from the `/opt/SUNWesmportal/bin` directory. If either of the dashboard lights is anything but green, there is a problem with the infrastructure. In this case, restart the server, using the `restartportal` command.

TABLE 3-2 shows the meanings of the status colors for the third service, Configured Proxy.

TABLE 3-2 Portlet Reporter Portlet Configured Proxy Status Indicator

Portlet Reporter Status Color	Description	Next Steps
Green	Connection to Internet is established and the proxy is configured correctly.	Add news feeds.
Yellow	Proxy is enabled and configured, but a connection to the Internet cannot be established.	Click Configure Proxy in the Administration Tasks portlet and verify that the proxy host name and port are correct. The issue may also be a slow proxy or slow Internet performance.
Red	The proxy is configured but disabled, and a connection to Internet cannot be established.	Check the proxy configuration and response.
Black	The proxy is not configured and a connection to the Internet cannot be established.	Configure a proxy to get an Internet connection.

Administration Tasks Portlet

Use the Administration Tasks portlet, shown in FIGURE 3-9, to set up the Management Portal. The Administration Tasks portlet is available only to the `seadmin` user. It is located on the Administration tab.

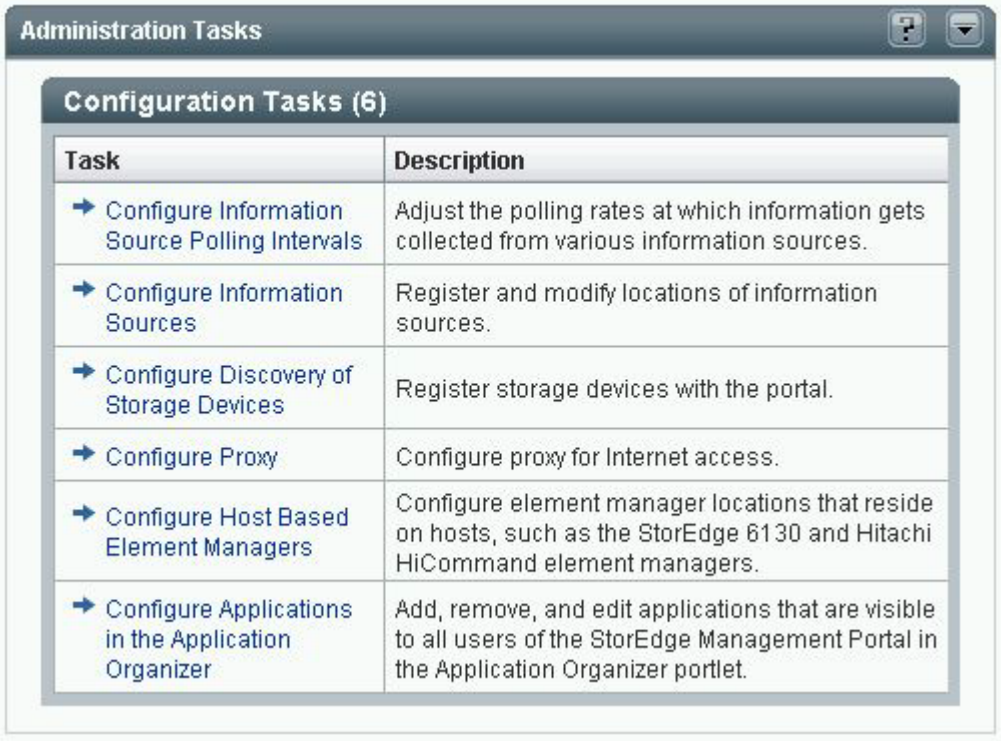


FIGURE 3-9 Administration Tasks

During the initial configuration, you should perform administration tasks in the following order:

1. Configure Information Sources
2. Configure Discovery of Storage Devices
3. Configure Proxy
4. Configure Host Based Element Managers
5. Configure Applications in the Application Organizer
6. Configure Information Source Polling Intervals

You use the Configure Information Sources task to register information sources (for example, Data Replication Manager) with the portal. For instructions on using this task, see "Configuration Tasks" on page 37.

You use the Configure Discovery of Storage Devices task to enter the IP addresses of systems that the portal should recognize. Depending on the number of devices that you are attempting to discover, this process can take from a few minutes to several hours.

You use the Configure Proxy task to enter proxy information that the Management Portal infrastructure can use to access information on the Internet. The only content that is currently retrieved from the Internet is RSS information for the Storage News and Information portlets.

After the initial configuration, the tasks you are most likely to use in your daily work are Configure Information Sources and Configure Polling Intervals.

Event Organizer Portlet

The Event Organizer, shown in FIGURE 3-10, allows you to display an alarm for each registered device in your network. If a device has multiple alarms, the one with the maximum severity will be displayed.

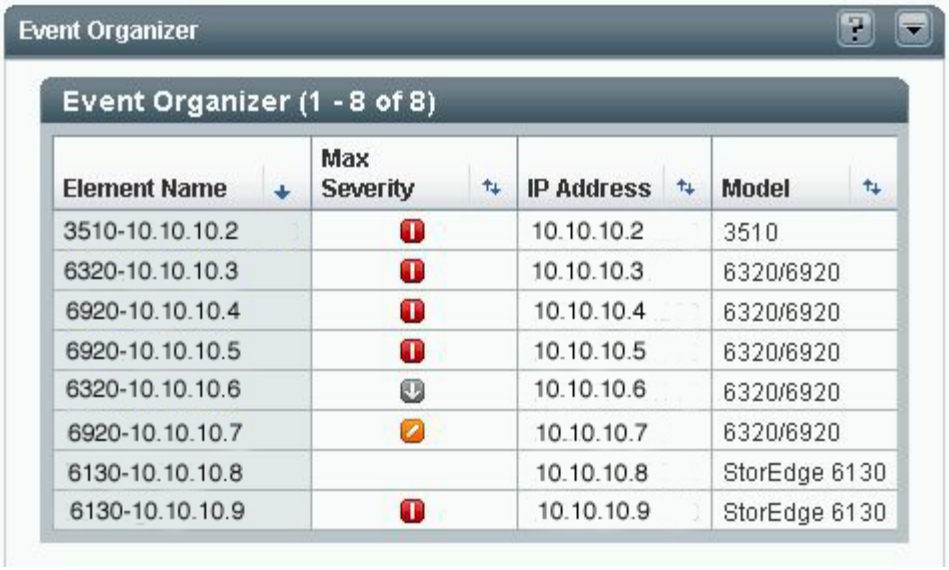


FIGURE 3-10 Event Organizer

The Event Organizer uses information from the embedded Storage Automated Diagnostic Environment agent.

If you click a device in the Element Name column, the management application for that device is launched, if it is available. Clicking an alarm under Max Severity brings up the Storage Automated Diagnostic Environment, where you can find more information on the alarm, such as how to mitigate, acknowledge, or close it, for example. The first time you open the Storage Automated Diagnostic Environment, you are prompted for a user ID and password.

Storage Event Reporter Portlet

The Storage Event Reporter portlet, shown in FIGURE 3-11, shows all health information for the registered devices in your network.

The Storage Event Reporter portlet is located on the Home tab.

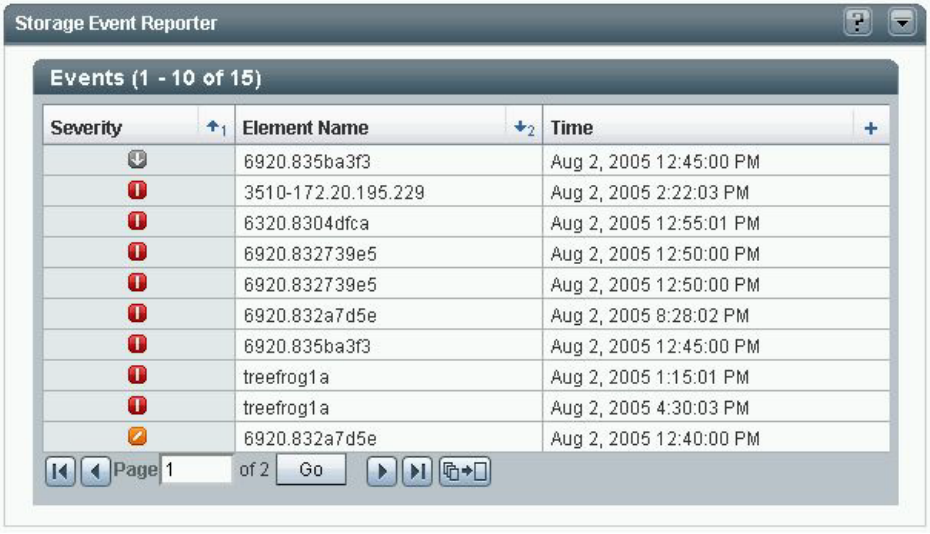


FIGURE 3-11 Storage Event Reporter

If you click a device in the Element Name column, the management application for that device is launched, if it is available. Clicking an alarm under Severity brings up the Storage Automated Diagnostic Environment, where you can find more information on the alarm, such as how to mitigate, acknowledge, or close it, for example. The first time you open the Storage Automated Diagnostic Environment, you are prompted for a user ID and password.

Storage Application Organizer Portlet

The Storage Application Organizer portlet, shown in FIGURE 3-12, contains a list of web-based applications that are used for general management of the storage environment, such as Sun StorEdge Operations Manager and Data Replication Manager.

The Storage Application Organizer portlet is located on the Home tab.



FIGURE 3-12 Storage Application Organizer

The portal derives Storage Application Organizer information from three locations:

- Preconfigured applications delivered with the Management Portal.
- Application information entered by the Management Portal administrator for all users. The administrator manually enters this data.
- Frequently used application information entered by a general user, for that user's individual use.

The primary view of the Storage Application Organizer lists the name of each application and provides a link that launches the application in a new window. The table can be sorted in a variety of ways. By default, as many as ten applications can be shown on the primary view before the pagination controls appear on the bottom of the page.

Storage News and Information Portlet

The Storage News and Information portlet, shown in FIGURE 3-13, displays channels, which are news, information, and documentation for Sun Microsystems network storage. Typically, a channel is an RSS news feed, but there are also other supported channel protocols, such as Atom.

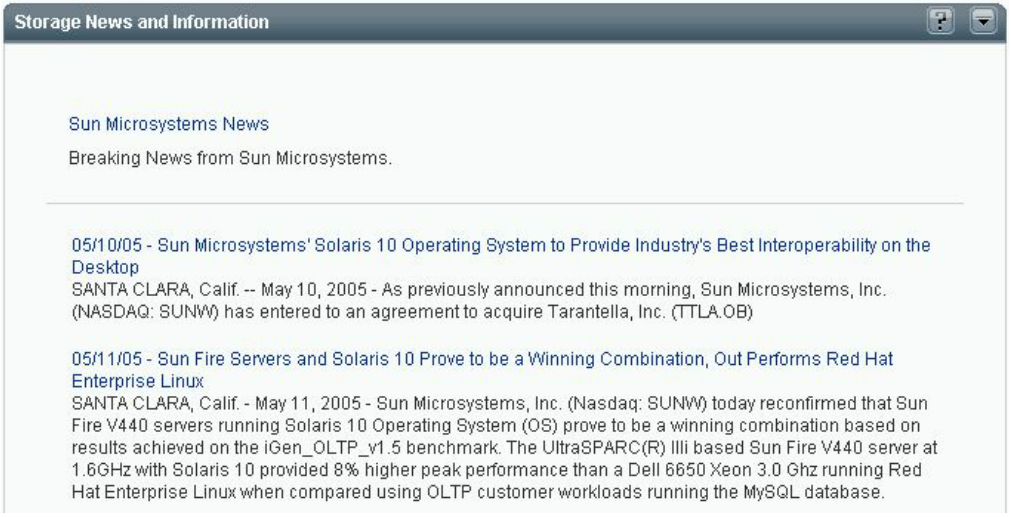


FIGURE 3-13 Storage News and Information Portlet

Administrators can add channels through the Administrative Tasks portlet. General users can add personal channels by customizing the Storage News and Information portlet.

Data Replication Reporter Portlet

The Data Replication Reporter portlet, shown in FIGURE 3-14, uses information from the Sun StorEdge Data Replication Manager 1.0 product to deliver a concise overview of replication sets between Sun StorEdge 6920 systems. All users can use this portlet for a variety of tasks, such as viewing replication sets or viewing the current state of a replication set (Replicating, Suspended, and Synchronizing). The state does not relate to the health of the replication set.

The Data Replication Reporter portlet is located on the SE 6920 subtab of the Storage tab.

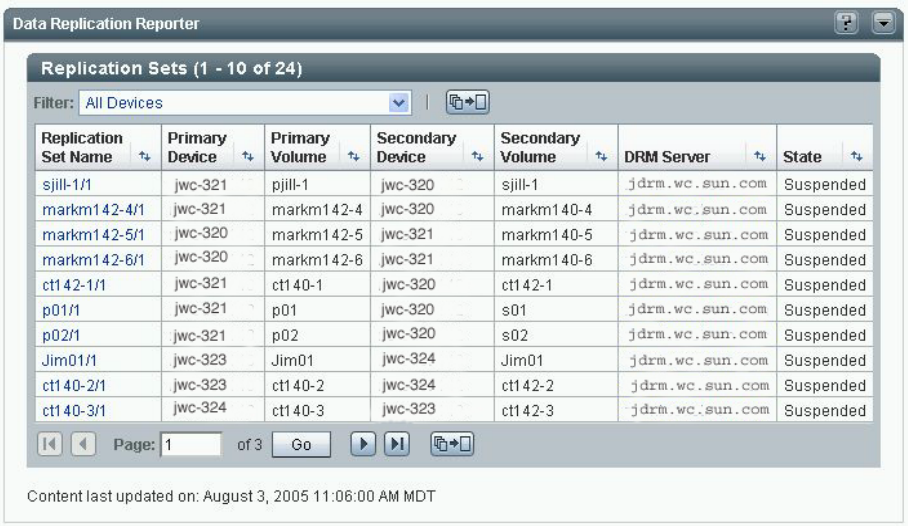


FIGURE 3-14 Data Replication Reporter

Before you can use Data Replication Manager through the Management Portal, the administrator (`seadmin`) must perform the following tasks:

1. Configure the Data Replication Reporter portlet.
2. Turn on the Data Replication Manager agent.

These tasks are described in "Setting Up the Data Replication Reporter Portlet" on page 38.

Storage Pool Reporter Portlet

The primary view of the Storage Pool Reporter portlet, shown in FIGURE 3-15, provides aggregate statistics about Sun StorEdge 6920 storage pools based on the storage profile type. Displayed information includes the storage profile type, the number of pools that have this type, the total capacity of all pools of this type, the available capacity from the pools, and the percentage of utilization. The Storage Pool Reporter is located on the SE 6920 subtab of the Storage tab.

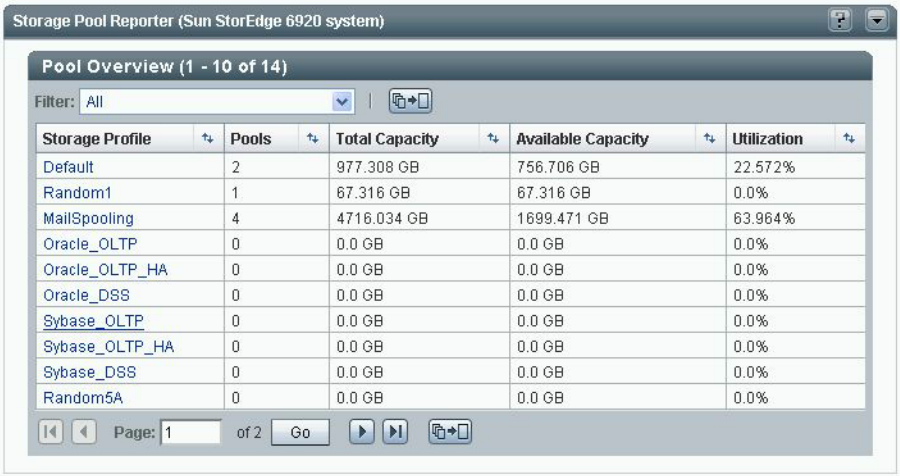


FIGURE 3-15 Storage Pool Reporter (Sun StorEdge 6920 System)

You use Storage Pool Reporter to do the following:

- Determine what storage profile types have the most allocated capacity in the network, the highest utilization capacity, the lowest utilization capacity, and other permutations involving capacity and storage profile type.
- Determine what storage pools on what devices make up the aggregate capacity of a particular storage profile type.
- Access devices that have available capacity of a particular storage profile type.

Before you can use Storage Pools through the Management Portal, the administrator (`seadmin`) must configure the Storage Pools portlet. For instructions, see "Setting Up the Storage Pools Portlet" on page 39.

Volume Performance Reporter Portlet

The Volume Performance Reporter portlet, shown in FIGURE 3-16, provides a view of various performance statistics for a single Sun StorEdge 6130 array. If you have a number of these arrays in your storage network, you might want to set up a portal page with a separate portlet for each. Alternatively, if you have just one array, you might want a separate portlet for each type of statistic.

The Volume Performance Reporter portlet is located on the SE 6130 subtab of the Storage tab.

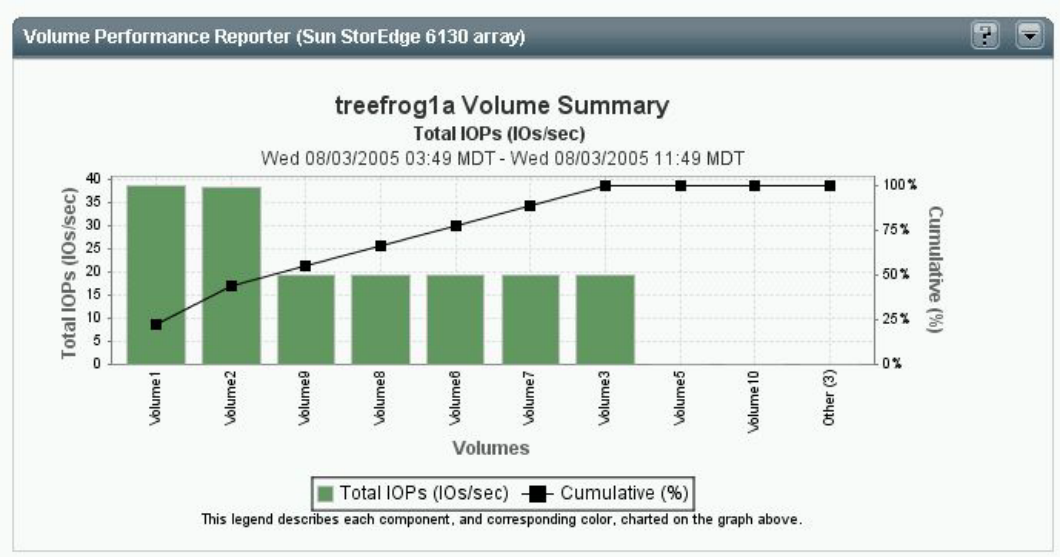


FIGURE 3-16 Volume Performance Reporter

The statistics are presented in the form of a Pareto chart for ease of use. However, a Pareto chart shows only the most active volumes, not all of the volumes. If you are interested in all volumes on a particular array, you can choose to render the information in table format, Pareto chart format, or both.

Clicking on a bar within the Pareto chart takes you to a Time Series chart. This chart depicts the volume's performance over time.

Before you can use the Volume Performance Reporter through the Management Portal, the administrator (`seadmin`) must configure the Volume Performance Reporter portlet. For instructions, see "Setting Up the Volume Performance Reporter Portlet" on page 39.

File System Reporter Portlet

The File System Reporter portlet, shown in FIGURE 3-17, allows you to view the capacity and utilization information for servers in file systems, if you have an instance of the File System Manager software installed on the network. This portlet is located on the File Systems tab.

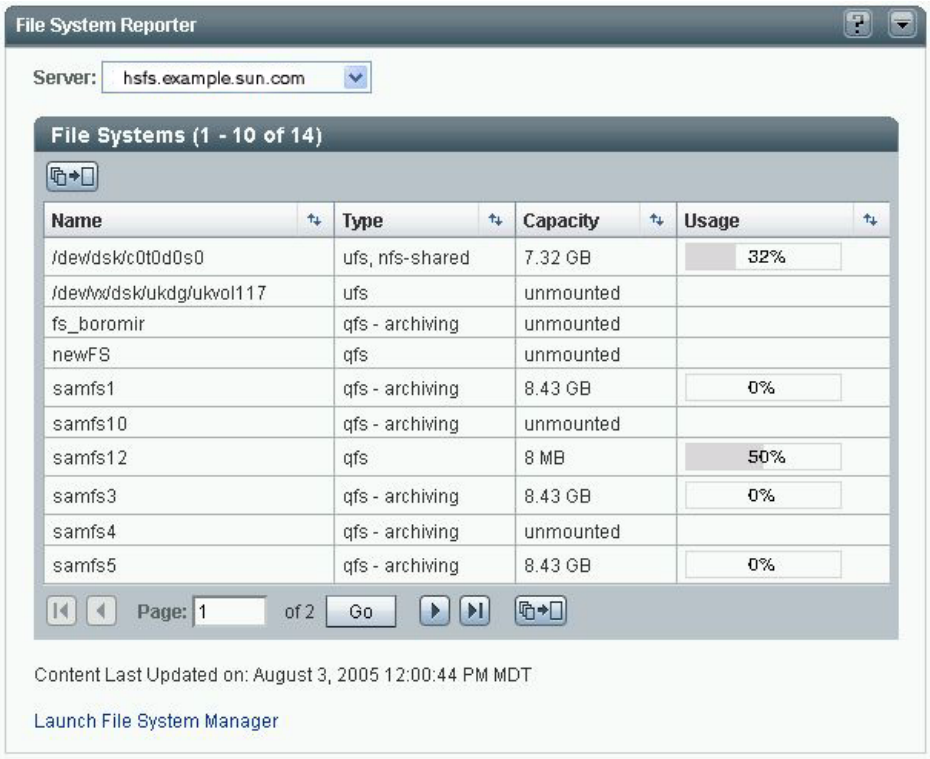


FIGURE 3-17 File System Reporter

Before you can use File System Reporter through the Management Portal, the administrator (`seadmin`) must perform the following tasks:

1. Configure the File System Reporter portlet.
2. Turn on the File System Reporter agent.

These tasks are described in "Setting Up the File System Reporter Portlet" on page 39.

Report Organizer Portlet

The Report Organizer portlet, shown in FIGURE 3-18, makes reports from the Sun StorEdge Operations Manager available with a single click. This portlet is located on the Enterprise tab.



FIGURE 3-18 Report Organizer

Configuration Tasks

This section describes the tasks that are involved in configuring portlets and other storage elements for use through the Management Portal. You may not need to complete all of these tasks, depending on what services are included in your particular environment.

You must be the Management Portal administrator (`seadmin`) user to complete these tasks.

Setting Up the Data Replication Reporter Portlet

Before Data Replication Manager can be used through the Management Portal, you must configure the Data Replication Reporter portlet and turn on the Data Replication Manager agent as described in this section.

For additional information on configuring Data Replication Manager, see Chapter 4.

▼ To Configure the Data Replication Reporter Portlet

1. **Click the Administration tab.**
2. **Click Configure Information Sources in the Administration Tasks portlet.**
3. **Select Operations > Add Data Replication Information Source from the Information Source table.**
4. **Enter the properties for Sun StorEdge Data Replication Manager.**

▼ To Turn On the Data Replication Manager Agent

The Management Portal queries Data Replication Manager for replication set information. To integrate these products, you must first turn on an agent that is shipped with Data Replication Manager.

1. **On the host on which Data Replication Manager is installed, log in to the system using a root password.**
2. **Edit the file** `/opt/SUNWrrm/etc/rrmapp.properties` **to change the value of** `rrm.xml.enabled` **to** `true` **from** `false`**.**

```
# Port for the XML data exporter.  Set 'enabled' to true and restart the DRM
# server in order to turn on the exporter.
#
rrm.xml.port=31338
rrm.xml.enabled=true
```

3. **(Optional) Change the port number that the interface will use when communicating with the Data Replication Manager portlet.**

   This change must be made both in the `rrmapp.properties` file and in the Data Replication Manager portlet so that the interface and portlet can communicate.

4. **Restart the Data Replication Manager server.**

```
# /opt/SUNWrrm/bin/drmserver restart
Restarting the DRM server...done.
#
```

Setting Up the Storage Pools Portlet

Before you can use the Storage Pools portlet, you must configure Storage Pools in the Administration Tasks portlet, using the following procedure:

1. **Click the Administration tab.**
2. **Click Configure Information Sources in the Administration Tasks portlet.**
3. **Select Operations > Add Storage Pools Information Source from the Information Source table.**

   All discovered 6920 arrays will be listed in the table. Select an array that you wish to add and provide the login credentials for that device.

Setting Up the Volume Performance Reporter Portlet

Before you can use the Volume Performance Reporter portlet, you must configure it, as follows:

1. **Click the Administration tab.**
2. **Click Configure Information Sources in the Administration Tasks portlet.**
3. **Select Operations > Add Volume Performance Information Source from the Information Source table.**
4. **Select the Storage tab.**
5. **Select the SE 6130 tab.**
6. **Edit the content of the Volume Performance Reporter.**

   All discovered 6130 arrays will be listed in the table. Select the array on which you want to report.

Setting Up the File System Reporter Portlet

File System Manager is the browser interface tool used to manage the Sun StorEdge SAM-FS and QFS file systems. Before you can use File System Manager through the Management Portal, you must configure the File System Reporter portlet and turn on the File System Manager agent as described in this section.

▼ To Configure the File System Reporter Portlet

1. **Click the Administration tab.**
2. **Click Configure Information Sources in the Administration Tasks portlet.**
3. **Select Operations > Add File System Information Source from the Information Source table.**
4. **Enter the File System Manager host name, default port, and optional description.**

▼ To Turn On the File System Manager Agent

The File System Manager 2.0 software is packaged and delivered as part of the SAM-FS 4.4 and QFS 4.4 products. The Management Portal queries File System Manager for file system capacity information. To integrate these products, you must turn on an agent that is shipped with File System Manager 2.0 and above.

1. **On the host on which File System Manager is installed, log in to the system using a root password.**
2. **Start the agent using the following command:**

```
# /opt/SUNWfsmgr/bin/fsmgr agent config -a
```

Specifying Element Manager Locations

Several storage element types use host-based element managers. These are element managers that reside on a service processor that is not bundled within the storage device itself. These elements include Sun StorEdge 6120 (T3), 6130, and 9900 models, as well as Hitachi 9900 series arrays.

If the location of an element manager cannot be derived automatically, you must enter it manually, as follows:

1. **Click the Administration tab.**
2. **Click the Configure Host-based Element Managers task in the Administration Tasks portlet.**
3. **Enter the name of the host on which the element manager is installed.**

   The Management Portal will determine the URL.

Creating and Removing Users

When you install the Management Portal, the following two command-line utilities are installed in the `/opt/SUNWesmportal/bin` directory:

- `addEsmUser` *username* – Adds a user desktop, which includes a user name and password. When the configuration is complete, the new user can log in immediately and start personalizing the new desktop.
- `delEsmUser` *username* – Removes the user desktop. This permanently deletes the user and associated settings.

You must be root to execute these utilities, and you must supply the Java System Access Manager `amAdmin` password.

To change the user password, see the Java System Access Manager documentation at `http://docs.sun.com/app/docs/prod/java.sys/`.

Administrative Tasks

This section describes how to complete administrative tasks that you might need to perform while using the Management Portal.

Restarting, Starting, Stopping the Management Portal

To manually start, restart, or stop the servers used as a part of the Management Portal, you use the scripts located in the `/opt/SUNWesmportal/bin` directory. You must be logged in as root to make use of the scripts.

Note – These scripts do not accept additional parameters (for example, `-h` or `-?`). Execution of any of these scripts occurs immediately after the script name is entered on the command line.

The scripts and their functions are as follows:

- `checkservers` – Displays the status of all servers.
- `restartportal` – Stops the running servers and starts them again.
- `startservers` – Starts all servers if they are not currently running.
- `stopservers` – Stops all servers.

Backing Up and Restoring Management Portal Information

Note – After you back up the Management Portal database, copy the backup files to another system or to the second hard drive on the V210. After you have reinstalled the ESM Base Applications software (see Appendix A for instructions), you will need to copy the backup files to the V210 boot drive to restore the data. If you do not perform this step, the backup files will be deleted. The database backup procedures work correctly only if you do not change the host name, domain name, or IP address during software reinstallation. Otherwise, the results are unsupported.

Database backups occur daily through the use of a `cron` job. However, you can also make an immediate backup through the use of a script.

With database backups, discovered devices, historical data that can be used for performance monitoring, and the latest device scans are all stored. Backing up the database does not back up individual users, individual user configurations, or any desktop personalization.

▼ To Back Up the Database

Before you can back up the database, you must first stop all Management Portal database clients. Use the following procedure to stop the clients, back up the database, and restart the clients.

1. **Log in as root.**
2. **Stop the clients by entering the following commands:**

```
# cd /opt/SUNWesmportal/bin/
# ./stopservers
# cd /opt/SUNWcacao/bin
# ./cacaoadm stop
```

3. **Change the directory to the location of the scripts.**

```
# cd /opt/SUNWesmportal/util/psql/portal/bin/
```

4. **Run the database backup script.**

```
# ./dbbackup.sh
```

5. **After the backup is complete, restart the Management Portal clients by entering the following commands:**

```
# cd /opt/SUNWesmportal/bin/
# ./startservers
# cd /opt/SUNWcacao/bin
# ./cacaoadm start
```

The backup is located in the `/opt/SUNWesmportal/util/psql/backup` directory.



Caution – Do not add files to, remove files from, or modify in any way the files in the `/opt/SUNWesmportal/util/psql/backup` directory. Changing the contents or permissions of this directory will cause the restore process to fail.

There may be up to five backups in this directory. By default, the restore process uses the latest backup.

▼ To Restore the Database

Before you can restore the database, you must first stop all Management Portal database clients. Use the following procedure to stop the clients, restore the database, and restart the clients.

1. **Log in as root.**
2. **Stop the clients by entering the following commands:**

```
# cd /opt/SUNWesmportal/bin/
# ./stopservers
# cd /opt/SUNWcacao/bin
# ./cacaoadm stop
```

3. **Change the directory to the location of the scripts.**

```
# cd /opt/SUNWesmportal/util/psql/portal/bin/
```

4. **Run the database restore script.**

```
# ./dbrestore.sh
```

5. **After the restore is complete, restart the Management Portal clients by entering the following commands:**

```
# cd /opt/SUNWesmportal/bin/
# ./startservers
# cd /opt/SUNWcacao/bin
# ./cacaoadm start
```

CHAPTER 4

Configuring and Administering Data Replication Manager

This chapter describes the Data Replication Manager (DRM) configuration and administration tasks. It contains the following sections:

- "Setting Up the drmadmin Role" on page 45
- "Enabling DRM" on page 47
- "Logging In to Data Replication Manager" on page 47
- "Registering Devices" on page 52
- "Finding Help Online" on page 54
- "Administrative Tasks" on page 54

Setting Up the drmadmin Role

The `drmadmin` role should be given to any user who will add devices, create replication sets, or do anything more than simply view and refresh the configuration information.

Note – The user whose role you plan to modify must be logged out of the system. If the user is not logged out of the system, the role assignment will fail.

To set up the `drmadmin` role, you must be logged in as root.

1. **Set the `drmadmin` role password. The password is not displayed.**

```
# /usr/bin/passwd drmadmin
New Password:********
Re-enter new Password:********
passwd: password successfully changed for drmadmin
#
```

2. **Determine the existing roles of the user to whom you want to grant the `drmadmin` role.**

```
# /usr/bin/roles username
```

3. **Do one of the following, depending on the output from the preceding command:**
   - **If the preceding command returned `No roles`, then the user does not have any roles. Use the following command to grant the `drmadmin` role to the user:**

```
# /usr/sbin/usermod -R drmadmin username
```

   - **If the preceding command returned one or more roles, append the `drmadmin` role to the user's existing roles, as follows:**

```
# /usr/sbin/usermod -R `/usr/bin/roles username`,drmadmin
username
```

4. **Verify that the `drmadmin` role was granted to the user:**

```
# /usr/bin/roles username
```

   The `drmadmin` role should be listed in the output from the above command.

   If the `drmadmin` role does not appear in the output, refer to the `usermod`(1m) and `roles`(1m) man pages for assistance in diagnosing and resolving the issue.

   To change the `drmadmin` password at any time, see Step 1.

Enabling DRM

To enable the Data Replication Manager:

1. **As root user, type the following command:**

```
# /opt/SUNWrrm/bin/drmenable
```

2. **At the encryption key prompt, enter at least ten alphanumeric characters to generate the key.**

   You will not be required to remember the key. The `drmenable` command generates the DRM database and installs the DRM browser interface in the common console. During the time that the browser interface is being installed, which takes about one minute, the common console will not be available.

Logging In to Data Replication Manager

To log in to Data Replication Manager after it is installed, use the following procedure:

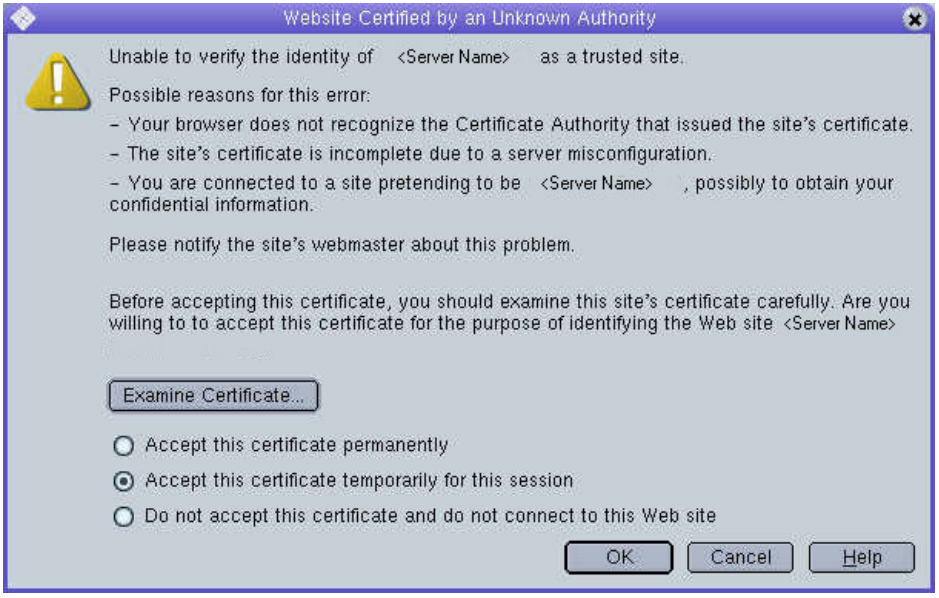
1. **Enter the following URL in your web browser:**

   `https://`*drm-system*`:6789`

   where *drm-system* is the host name or IP address of the system on which Data Replication Manager has been installed.

   The Login Page is displayed, as shown on page 49.

The first time you log in to the DRM server, the site security certificate is displayed, as shown below. This certificate authenticates your hostname as a trusted DRM server.





2. **Enter your user name and password and click Log In.**

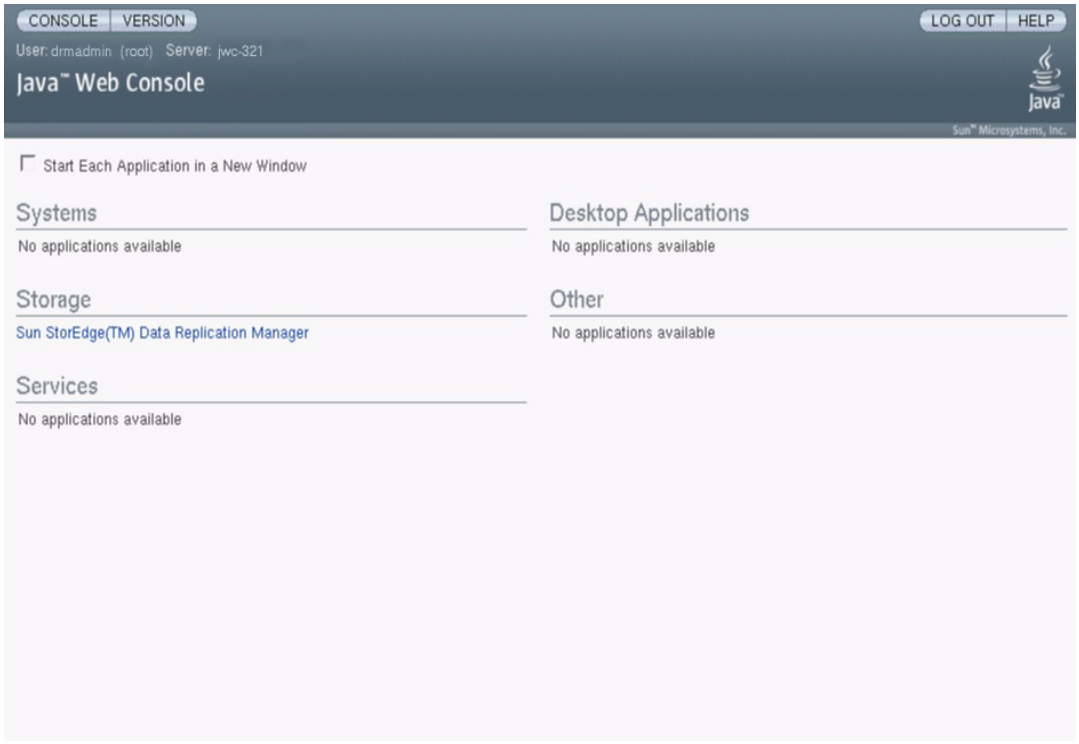
   All users have access to Data Replication Manager. However, only users with the `drmadmin` role will have administrative access, which allows them to configure and manage replication services.

3. **If you entered the user name and password of a user with the `drmadmin` role, select drmadmin from the Role Name list and provide the assigned role password, as shown here:**



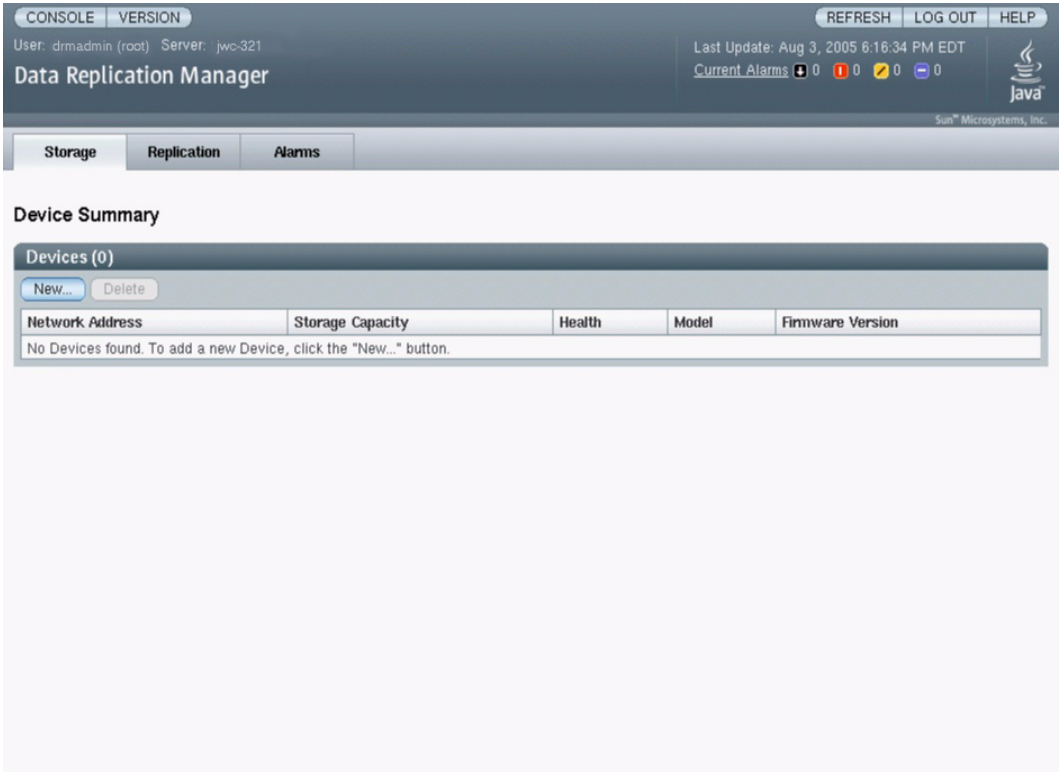
4. **Click Log In.**

   The Java Web Console page is displayed.



5. **To access Data Replication Manager, select the Sun StorEdge Data Replication Manager link.**

   Data Replication Manager displays the Device Summary page, which enables you to manage registered replication devices. You must register devices for them to be listed here. For instructions, see the next section, "Registering Devices" on page 52.



Registering Devices

You must be logged in to Data Replication Manager with the `dradmin` role to register devices, including Sun StorEdge 6920 systems.

1. **Click New on the Device Summary page.**

   The Register New Device page is displayed.



2. **In the Device Name field, type a host name or IP address. In the Username and Password fields, type the user name and password that Data Replication Manager will require for access to the device.**

   Although Data Replication Manager stores this data on disk, this data is encrypted and cannot be read.

3. **Click OK.**

   The registration process starts. As part of this process, Data Replication Manager logs in to the device and collects some initial data about the device.

   When the process is complete, the Device Summary page displays the new device.

   In addition to validating credentials and collecting initial data, Data Replication Manager initiates a full scan of the device to collect details about associated replication sets, volumes, consistency groups, and other pieces of data.

Note – This scan can take some time. While it is in process, the user interface can show what appears to be erroneous data. For example, the Replication Sets Summary page might show internal identifiers for World Wide Names (WWNs) in Device and Volume fields. These fields revert to their normal appearance when the scan is complete.

If the registration fails, check the following items:

- Credentials (user name and password) are valid.
- Host name or IP address is valid.
- Network connection to the Sun StorEdge 6920 system is available.

Next Steps

After you have registered your devices, you can perform management operations. For more information, see the Data Replication Manager online help.

If you are using the Management Portal software and the Data Replication Reporter portlet, you must manually configure the port for the Data Replication Manager server. For instructions, see "To Back Up and Restore Data Replication Manager Data" on page 56.

Finding Help Online

The upper right corner of every page in the Data Replication Manager user interface includes a link to the online help. The help window is context-sensitive; it automatically displays text for the current UI page.

Administrative Tasks

The following subsections discuss Data Replication Manager administrative tasks:

- "To Start, Stop, and Restart Data Replication Manager Processes" on page 55
- "To Change the Polling Interval" on page 55
- "To Back Up and Restore Data Replication Manager Data" on page 56
- "To Maximize the Logging/Tracing Feature" on page 57

▼ To Start, Stop, and Restart Data Replication Manager Processes

If you make configuration changes to the Data Replication Manager server, enable the Data Replication Manager portlet, or change the device rescan interval, you may need to start, stop, or restart the Data Replication Manager processes.

- **To start the server, log in as root and type the following command:**

```
# /opt/SUNWrrm/bin/drmserver start
```

- **To stop the server, log in as root and type the following command:**

```
# /opt/SUNWrrm/bin/drmserver stop
```

- **To restart the server, log in as root and type the following command:**

```
# /opt/SUNWrrm/bin/drmserver restart
```

▼ To Change the Polling Interval

By default, the Data Replication Manager server rescans devices for updated information (for example, new replication sets, volumes, or consistency groups) every 15 minutes. This section describes how to change the polling interval.

Although Data Replication Manager does not have any restrictions on the frequency of rescans, the interval should be as low as practical, given site considerations, including network speed and latency. Additionally, an interval more frequent than every 15 minutes can generate excessive traffic and is not recommended.

1. **Edit the file** `/opt/SUNWrrm/etc/rrmapp.properties` **and change the value of** `updaterScanInterval` **to the desired polling frequency, in minutes.**

   The following example shows how the relevant section of the file would appear if you were setting Data Replication Manager to rescan devices on an hourly basis:

```
# Default scan interval in minutes. Set to 0 or < 0 to turn off
automatic updates
updaterScanInterval=60
```

2. **Restart the Data Replication Manager server by typing the following command:**

```
# /opt/SUNWrrm/bin/drmserver restart
Restarting the DRM server...done.
#
```

▼ To Back Up and Restore Data Replication Manager Data

Note – After you back up the DRM database, copy the backup files to another system or to the second hard drive on the V210. After you have reinstalled the ESM Base Applications software (see Appendix A for instructions), you will need to copy the backup files to the V210 boot drive to restore the data. If you do not perform this step, the backup files will be deleted. The database backup procedures work correctly only if you do not change the host name, domain name, or IP address during software reinstallation. Otherwise, the results are unsupported.



Caution – Shutting down the Data Replication Manager server will disrupt any active Data Replication Manager sessions. Users should not attempt to use the Data Replication Manager until this procedure is complete and the server has been restarted.

▼ Backing up the Data Replication Manager Database

1. **Shut down the Data Replication Manager server.**

```
# /opt/SUNWrrm/bin/drmserver stop
Stopping the DRM server...done.
```

2. **Back up the** `/var/opt/SUNWrrm/datastore` **and** `/opt/SUNWrrm/etc` **directories, using the tools employed at your site. For example, using** `tar`**, type the following:**

```
# tar cf /drm-backup.tar /var/opt/SUNWrrm/datastore
/opt/SUNWrrm/etc
```

▼ Restoring the Data Replication Manager Database After Re-installing From the Sun StorEdge Enterprise Storage Manager Base Applications 4.0, Pre-installed, DVD

After you have re-installed the ESM BAse Applications software (see Appendix A for instructions), follow these steps:

1. **Enable the Data Replication Manager.**

```
# /opt/SUNWrrm/bin/drmenable
```

2. **Shut down Data Replication Manager in preparation for the database restore.**

```
# /opt/SUNWrrm/bin/drmserver stop
Stopping the DRM server...done.
```

3. **Restore the** `/var/opt/SUNWrrm/datastore` **and** `/opt/SUNWrrm/etc` **directories, using the tools employed at your site. For example, using** `tar`**, type the following:**

```
# tar xf /drm-backup.tar
```

4. **Restart the Data Replication Manager server with the restored database.**

```
# /opt/SUNWrrm/bin/drmserver start
Starting the DRM server...done.
```

▼ To Maximize the Logging/Tracing Feature

Data Replication Manager maintains a number of logging and tracing files under `/var/opt/SUNWrrm`. By default, only minimal tracing is turned on. To enable a greater level of tracing, you must change the `log4j.properties` files.

You must be logged in as root to perform the following tasks.

1. **Edit the file** `/opt/SUNWrrm/etc/bui/log4j.properties`**, which contains the logging and tracing configuration for the user interface, and search for the following two lines:**

```
log4j.logger.com.sun.netstorage.mgmt.rrm=ERROR,
RRM_TRACE_APPENDER
log4j.logger.RRMLogger=INFO, RRM_LOG_APPENDER
```

2. **Change** `ERROR` **and** `INFO` **to** `ALL`**, as shown here:**

```
log4j.logger.com.sun.netstorage.mgmt.rrm=ALL, RRM_TRACE_APPENDER
log4j.logger.RRMLogger=ALL, RRM_LOG_APPENDER
```

3. **Restart the Sun Java Web Console, using the following command:**

```
# /usr/sbin/smcwebserver restart
```



Caution – Restarting the Data Replication Manager server may disrupt any active Data Replication Manager sessions. Users should not perform any Data Replication Manager actions while the restart is in progress.

4. **Open the file** `/opt/SUNWrrm/etc/server/log4j.properties`**, which contains the logging and tracing configuration for the Data Replication Manager server, and search for the following two lines:**

```
log4j.logger.com.sun.netstorage.mgmt.rrm=ERROR,
RRM_TRACE_APPENDER
log4j.logger.RRMLogger=INFO, RRM_LOG_APPENDER
```

5. **Change** `ERROR` **and** `INFO` **to** `ALL`**, as shown here:**

```
log4j.logger.com.sun.netstorage.mgmt.rrm=ALL, RRM_TRACE_APPENDER
log4j.logger.RRMLogger=ALL, RRM_LOG_APPENDER
```

6. **Restart the server, using the following command:**

```
# /opt/SUNWrrm/bin/drmserver restart
```



Caution – Restarting the Web Console server will disrupt any active Web Console sessions. Users should log out prior to performing a restart and remain logged out until after the restart is complete.

The logging and tracing files in `/var/opt/SUNWrrm/log` and `/var/opt/SUNWrrm/trace` will now contain all actions that Data Replication Manager attempts to perform, including stack traces from exception handling.

APPENDIX **A**

Recovering the Software

If the Solaris operating system (OS) or the Sun StorEdge Management Portal software on your system is irreparably damaged, you can reinstall the Solaris OS and the Enterprise Storage Manager Base Applications from the Sun StorEdge Enterprise Storage Manager Base Applications 4.0, Pre-installed, DVD. This returns the system to its original factory configuration.

If you reinstall the ESM Base Applications from the DVD, you will also have to reconfigure the Solaris OS and the Management Portal. The reinstallation takes approximately 35 minutes.

This appendix describes the reinstallation process. It includes the following topics:

- "Preparing for Reinstallation" on page 61
- "Reinstalling from the DVD" on page 62

Preparing for Reinstallation

Make sure you have the following information before you start reinstalling. You will be prompted to provide this information, unless otherwise noted:

- The type of terminal from which you are logged in to ALOM.
- DHCP configuration, if any. The system requires a static IP address and host name; typically, DHCP is not used.
- Ethernet port: Select **`bge0`** when prompted.
- Host name.
- IP address.
- Kerberos. Although it is not required, you can use the Kerberos authentication protocol on the system.
- Name service. This is typically DNS, LDAP or NIS.

- Name Service Domain. The Sun Java Enterprise System (Java ES) that is bundled with the ESM Base Applications requires a fully qualified domain name. For example, a system with the host name of `server1`, that is in the `example.com` domain, has a fully qualified domain name of `server1.example.com`.
- Time zone.
- Date and time.
- Root password.

There are several other settings and selections you must make to complete the configuration of the Solaris OS. See the Solaris documentation for more information about these settings.

Reinstalling from the DVD

This section describes how to reinstall the system to its factory configuration, using the Sun StorEdge Enterprise Storage Manager Base Applications 4.0, Pre-installed, DVD.



Caution – After reinstalling from DVD, any customizations you made to the system are lost, including passwords, patches, user accounts, and the portal user desktop configuration. Also, if you change the host name, IP address, or domain name when you reinstall the software from the DVD, the reinstalled applications may not operate correctly and are not supported.

1. **Back up the contents of the Management Portal database and the DRM database, as described in "Backing Up and Restoring Management Portal Information" on page 42 and "To Back Up and Restore Data Replication Manager Data" on page 56, respectively. Copy the backup files to another system or to the second hard drive on the V210.**

   After reinstalling the software, you will need to copy the backup files to the V210 boot drive to restore the databases. If you do not perform this step, the backup files will be deleted. The database backup procedures work correctly only if you do not change the host name, domain name, or IP address during software reinstallation. Otherwise, the results are unsupported.

2. **Insert the DVD into the DVD reader.**

3. **Use Telnet to connect to the ALOM IP address you set during the initial installation and configuration of the ESM Base Applications. Then, log in as `admin` using the ALOM password you assigned.**

Note – The ALOM configuration is not bound to the Solaris configuration of the system. Reinstalling from the DVD does not affect any changes you made to the ALOM configuration settings.

```
$ telnet n.n.n.n
Trying n.n.n.n...
Connected to n.n.n.n.
Escape character is '^]'.

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Use is subject to license terms.

Sun(tm) Advanced Lights Out Manager 1.4 (n.n.n.n)

Please login: admin
Please Enter password: ********


sc>
```

Note – If you have an active console session running, type the characters `#.` to access the ALOM Service Console and display the `sc>` prompt.

4. **To initiate a system console session from ALOM, type** `console -f` **and then answer** `y` **when prompted to continue.**

```
sc> console -f
Warning: User < > currently has write permission to this console
and forcibly removing them will terminate any current write actions
and all work will be lost.  Would you like to continue? [y/n]y
Enter #. to return to ALOM.

{1} ok
```

5. **At the V210 Open Boot Prom** `{1} Ok` **prompt, type** `boot cdrom - install` **to start the reinstallation.**

```
{1} ok boot cdrom - install
SC Alert: Host System has Reset

Sun Fire V210, No Keyboard
Copyright 1998-2003 Sun Microsystems, Inc.  All rights reserved.
OpenBoot 4.13.2, 2048 MB memory installed, Serial #61270919.
Ethernet address 0:3:ba:a6:eb:87, Host ID: 83a6eb87.

Rebooting with command: boot cdrom - install
Boot device: /pci@1e,600000/ide@d/cdrom@0,0:f  File and args: -
install
SunOS Release 5.10 Version Generic 64-bit
Copyright 1983-2005 Sun Microsystems, Inc.  All rights reserved.
Use is subject to license terms.
.
.
.
```

6. **For the language, select 0.**

   The ESM Base Applications support English only.

```
Select a Language

   0. English
   1. French
   2. German
   3. Italian
   4. Japanese
   5. Korean
   6. Simplified Chinese
   7. Spanish
   8. Swedish
   9. Traditional Chinese

Please make a choice (0 - 9), or press h or ? for help: 0
```

7. **Type the number for the terminal type you want to use, and press Return to continue.**

   In this example, DEC VT100 is used.

```
What type of terminal are you using?
 1) ANSI Standard CRT
 2) DEC VT52
 3) DEC VT100
 4) Heathkit 19
 5) Lear Siegler ADM31
 6) PC Console
 7) Sun Command Tool
 8) Sun Workstation
 9) Televideo 910
 10) Televideo 925
 11) Wyse Model 50
 12) X Terminal Emulator (xterms)
 13) CDE Terminal Emulator (dtterm)
 14) Other
Type the number of your choice and press Return: 3
```

8. **Read the instructions for screen navigation and press F2 (or the appropriate key combination) to continue.**

```
The Solaris Installation Program

The Solaris installation program is divided into a series of short
sections where you'll be prompted to provide information for the
installation. At the end of each section, you'll be able to change
the selections you've made before continuing.

  About navigation...
- The mouse cannot be used
- If your keyboard does not have function keys, or they do not
respond, press ESC; the legend at the bottom of the screen will
change to show the ESC keys to use for navigation.




F2_Continue    F6_Help
```

9. **Read the instructions about identifying the system, and press F2 to continue.**

```
Identify This System

On the next screens, you must identify this system as networked or
non-networked, and set the default time zone and date/time.

If this system is networked, the software will try to find the
information it needs to identify your system; you will be prompted
to supply any information it cannot find.

> To begin identifying this system, press F2.



F2_Continue    F6_Help
```

10. **Verify that `Yes` is marked with an `X`, and press F2 to continue.**

```
Network Connectivity

Specify Yes if the system is connected to the network by one of
the Solaris or vendor network/communication Ethernet cards that
are supported on the Solaris CD. See your hardware documentation
for the current list of supported cards.
Specify No if the system is connected to a network/communication
card that is not supported on the Solaris CD, and follow the
instructions listed under Help.


      Networked

      [X] Yes
      [ ] No



F2_Continue    F6_Help
```

11. **Verify that** `bge0` **is marked with an** `X`**, and press F2 to continue.**

```
Configure Multiple Network Interfaces

Multiple network interfaces have been detected on this system.
Specify all of the network interfaces you want to configure.

Note: You must choose at least one interface to configure.

      Network interfaces

      [X] bge0
      [ ] bge1
      [ ] bge2
      [ ] bge3




F2_Continue    F6_Help
```

12. **Verify that** `No` **is marked with an** `X`**, and press F2 to continue.**

Note – Host names and IP addresses that are assigned dynamically by DHCP should not be used with Java ES.

```
DHCP for bge0

Specify whether or not this network interface should use DHCP to
configure itself.Choose Yes if DHCP is to be used, or No if the
network interface is to be configured manually.

NOTE: DHCP support will not be enabled, if selected, until after
the system reboots.

      Use DHCP for bge0

      [ ] Yes
      [X] No




F2_Continue    F6_Help
```

13. **Type the host name (`server1` is used in this example), and press F2 to continue.**

Note – The fully qualified domain name is not required here.

```
Host Name for bge0

Enter the host name which identifies this system on the network.
The name must be unique within your domain; creating a duplicate
host name will cause problems on the network after you install
Solaris.

A host name must be at least two characters; it can contain
letters, digits,and minus signs (-).


    Host name for bge0 server1




F2_Continue    F6_Help
```

14. **Type the system's IP address, and press F2 to continue.**

```
IP Address for bge0

Enter the Internet Protocol (IP) address for this network
interface. It must be unique and follow your site's address
conventions, or a system/network failure could result.

IP addresses contain four sets of numbers separated by periods (for
example 129.200.9.1).


    IP address for bge0 10.20.30.40




F2_Continue    F6_Help
```

15. **Verify that** `Yes` **is marked with an** `X`**, and press F2 to continue.**

```
Subnet for bge0

On this screen you must specify whether this system is part of a
subnet. If you specify incorrectly, the system will have problems
communicating on the network after you reboot.

> To make a selection, use the arrow keys to highlight the option
and press Return to mark it [X].


      System part of a subnet

      [X] Yes
      [ ] No




F2_Continue    F6_Help
```

16. **Type** `255.255.255.0` **or the appropriate subnet mask for your network, and press F2 to continue.**

```
Netmask for bge0

On this screen you must specify the netmask of your subnet.  A
default netmask is shown; do not accept the default unless you are
sure it is correct for your subnet.  A netmask must contain four
sets of numbers separated by periods (for example 255.255.255.0).


    Netmask for bge0 255.255.255.0




F2_Continue    F6_Help
```

17. **Type an** `X` **in** `Yes` **or** `No` **as appropriate, and press F2 to continue.**

Note – The system is compatible with IPv6.

```
IPv6 for bge0

Specify whether or not you want to enable IPv6, the next generation
Internet Protocol, on this network interface.  Enabling IPv6 will
have no effect if this machine is not on a network that provides
IPv6 service.IPv4 service will not be affected if IPv6 is enabled.

> To make a selection, use the arrow keys to highlight the option
and press Return to mark it [X].


      Enable IPv6 for bge0

      [ ] Yes
      [X] No




F2_Continue    F6_Help
```

18. **Verify that the information displayed is correct, and press F2 to continue.**

```
Confirm Information for bge0
  > Confirm the following information.  If it is correct, press F2;
    to change any information, press F4.


                  Networked: Yes
                   Use DHCP: No
                  Host name: server1
                 IP address: 10.20.30.40
    System part of a subnet: Yes
                    Netmask: 255.255.255.0
                Enable IPv6: No




F2_Continue    F4_Change    F6_Help
```

19. **Type an `X` in `Yes` or `No` as appropriate, and press F2 to continue.**

Note – The system is compatible with Kerberos.

```
Configure Security Policy:

Specify Yes if the system will use the Kerberos security mechanism.

Specify No if this system will use standard UNIX security.

      Configure Kerberos Security

      [ ] Yes
      [X] No



F2_Continue    F6_Help
```

20. **Verify that the information displayed is correct, and press F2 to continue.**

```
Confirm Information

  > Confirm the following information.  If it is correct, press F2;
    to change any information, press F4.


    Configure Kerberos Security: No



F2_Continue    F4_Change    F6_Help
```

21. **Select the appropriate name service (`DNS` is used in this example), and press F2 to continue.**

```
Name Service

On this screen you must provide name service information.  Select
the name service that will be used by this system, or None if your
system will either not use a name service at all, or if it will
use a name service not listed here.

  > To make a selection, use the arrow keys to highlight the option
    and press Return to mark it [X].


      Name service

      [ ] NIS+
      [ ] NIS
      [X] DNS
      [ ] LDAP
      [ ] None



F2_Continue    F6_Help
```

22. **Type the DNS domain name for the system (`lab.example.com` is used in this example), and press F2 to continue.**

```
Domain Name

On this screen you must specify the domain where this system
resides. Make sure you enter the name correctly including
capitalization and punctuation.


    Domain name: lab.example.com



F2_Continue    F6_Help
```

23. **Type the IP addresses of your DNS servers, and press F2 to continue.**

```
DNS Server Addresses

On this screen you must enter the IP address of your DNS server(s).
You must enter at least one address.  IP addresses must contain
four sets of numbers separated by periods (for example
129.200.9.1).


    Server's IP address: 10.10.10.35
    Server's IP address: 10.10.10.55
    Server's IP address:



F2_Continue    F6_Help
```

24. **Type the appropriate search domain information, and press F2 to continue.**

    If you are not using multiple domains, simply press F2 to continue.

```
On this screen you can enter a list of domains that will be searched
when a DNS query is made.  If you do not enter any domains, DNS
will only search the DNS domain chosen for this system.  The
domains entered, when concatenated, may not be longer than 250
characters.


    Search domain:
    Search domain:
    Search domain:
    Search domain:
    Search domain:
    Search domain:



F2_Continue    F6_Help
```

25. Verify that the information displayed is correct, and press F2 to continue.

```
> Confirm the following information.  If it is correct, press F2;
to change any information, press F4.


          Name service: DNS
           Domain name: lab.example.com
    Server address(es): 10.10.10.35
                        10.10.10.55




F2_Continue    F4_Change    F6_Help
```

26. Select the appropriate location for your site, and press F2 to continue.

```
Time Zone

On this screen you must specify your default time zone.  You can
specify a time zone in three ways:  select one of the continents
or oceans from the list, select other - offset from GMT, or other
- specify time zone file.

> To make a selection, use the arrow keys to highlight the option
and press Return to mark it [X].


Continents and Oceans

[ ] Africa
[X] Americas
[ ] Antarctica
[ ] Arctic Ocean
[ ] Asia
[ ] Atlantic Ocean
[ ] Australia
[ ] Europe
[ ] Indian Ocean

F2_Continue    F6_Help
```

27. **Select the appropriate country for your site, and press F2 to continue.**

```
Country or Region

> To make a selection, use the arrow keys to highlight the option
and press Return to mark it [X].


Countries and Regions

[X] United States
[ ] Anguilla
[ ] Antigua & Barbuda
[ ] Argentina
[ ] Aruba
[ ] Bahamas
[ ] Barbados
[ ] Belize
[ ] Bolivia
[ ] Brazil
[ ] Canada
[ ] Cayman Islands
[ ] Chile

F2_Continue    F6_Help
```

28. **Select the appropriate time zone for your site, and press F2 to continue.**

```
Time Zone

> To make a selection, use the arrow keys to highlight the option
and press Return to mark it [X].


Time zones

[X] Eastern Time
[ ] Eastern Time - Michigan - most locations
[ ] Eastern Time - Kentucky - Louisville area
[ ] Eastern Time - Kentucky - Wayne County
[ ] Eastern Standard Time - Indiana - most locations
[ ] Eastern Standard Time - Indiana - Crawford County
[ ] Eastern Standard Time - Indiana - Starke County
[ ] Eastern Standard Time - Indiana - Switzerland County
[ ] Central Time
[ ] Central Time - Michigan - Wisconsin border
[ ] Central Time - North Dakota - Oliver County
[ ] Mountain Time
[ ] Mountain Time - south Idaho & east Oregon

F2_Continue    F6_Help
```

29. **Verify that the date and time information is correct, and press F2 to continue.**

```
Date and Time

> Accept the default date and time or enter new values.

  Date and time: 2005-10-25 08:41

    Year   (4 digits) : 2005
    Month  (1-12)     : 10
    Day    (1-31)     : 25
    Hour   (0-23)     : 08
    Minute (0-59)     : 41




F2_Continue    F6_Help
```

30. **Verify that the information displayed is correct, and press F2 to continue.**

```
Confirm Information

> Confirm the following information.  If it is correct, press F2;
    to change any information, press F4.


        Time zone: Eastern Time
                   (US/Eastern)
    Date and time: 2005-10-25 08:41:00




F2_Continue    F4_Change    F6_Help
```

31. **Wait as the system is installed and reboots. This may take a few minutes.**

Note – During installation you may see messages such as `NOTE: 1 archives did not include size information` or `No local customization defined.` These messages do not indicate a problem with the installation, and you can safely ignore them.

---

32. **After the system has rebooted, type the root password you want to assign to the system. Type the root password again to confirm your input, and press F2 to continue.**

```
Root Password

Please enter the root password for this system.

The root password may contain alphanumeric and special characters.
For security, the password will not be displayed on the screen as
you type it.

> If you do not want a root password, leave both entries blank.


    Root password:  ********
    Root password:  ********



F2_Continue     F6_Help
```

33. **Type** `yes` **if you want to override the system's default NFS version 4 domain name as described in the screen.**

    If not, press Return to accept the default (`no`).

```
System identification is completed.

This system is configured with NFS version 4, which uses a domain
name that is automatically derived from the system's name services.
The derived domain name is sufficient for most configurations. In
a few cases, mounts that cross different domains might cause files
to be owned by "nobody" due to the lack of a common domain name.

Do you need to override the system's default NFS version 4 domain
name (yes/no) ? [no] : <Return>
```

34. **Log in as the root user and install the ESM Base Applications, as described in "Installing the ESM Base Applications" on page 9.**

35. **Restore the contents of the Management Portal database and the DRM database, as described in Chapter 3 and Chapter 4, respectively.**

APPENDIX **B**

Logins, Roles, and Passwords

This appendix summarizes the various login accounts, roles, and passwords used in the ESM Base Applications.

TABLE B-1 Logins, Roles, and Password Information

Login Account or Role	Description	Default Password	Password Managed With This Command	Notes
`root`	Solaris administrative account	None. Password is set at installation time.	`/usr/bin/passwd`	
`sa_admin`	StorADE administrative role	`password`	`/usr/bin/passwd`	Assigned to user accounts that use StorADE. See Chapter 2 for more information.
`admin`	Default StorADE account	`password`	`/usr/bin/passwd`	The `sa_admin` role is assigned to this account.
`esmprt1`	Management Portal database user account	None. Account is locked to disable logins.	Not applicable	
`seadmin`	Administrative account for the Management Portal environment	`seadmin`		See Chapter 3 for more information.
`sestorageadmin`	Administrative account for managing and monitoring ESM Base Application storage devices and data services	`sestorageadmin`		See Chapter 3 for more information.

TABLE B-1 Logins, Roles, and Password Information *(Continued)*

Login Account or Role	Description	Default Password	Password Managed With This Command	Notes
`drmadmin`	Data Replication Manager administrative account	None. You reset the DRM password when setting up the role.	`/usr/bin/passwd`	Assigned to users who perform DRM operations. See Chapter 4 for more information.
`admin` (for Java ES)	Java ES Web Server administrative account	`password`	For instructions on how to change the Java ES usernames `admin` (for Java ES), `amAdmin`, `cn-Directory Manager`, `admin` (for Java ES Portal server) and their default passwords, refer to the Java ES documents, located at the following URL: http://docs.sun.com/app/docs/prod/entsys.05q1#hic	
`amAdmin`	Java ES Access Manager administrative account	`password`		
cn-Directory Manager		`password`		
`admin` (for Java ES Portal server)	Java ES Portal Server administrative account	`password`		
`webservd`	Owner of the Java ES web server processes	None. Account is locked to prevent logins.	Not applicable	

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