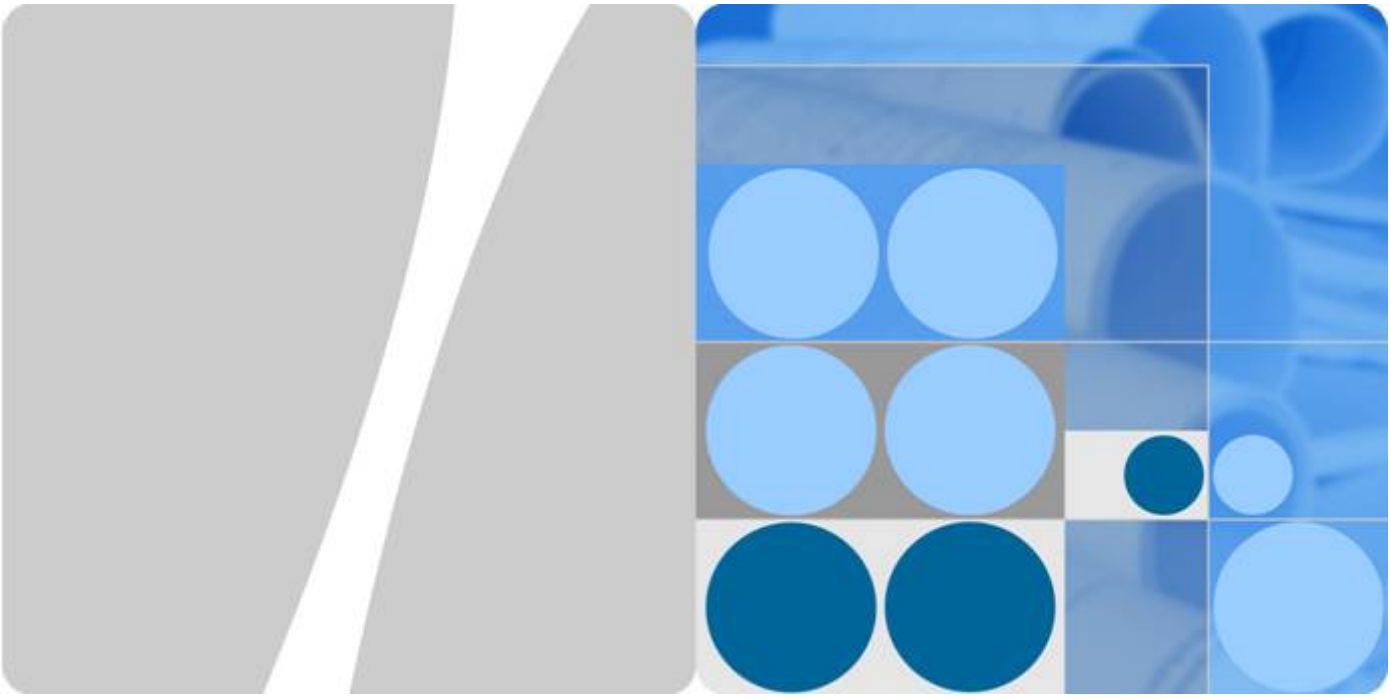

iManager U2000 Unified Network Management System

V100R002C01

Single-Server System Software Installation Guide (Solaris)

Issue 06

Date 2010-11-19

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About This Document

Related Version

The following table lists the product version related to this document.

Product Name	Version
iManager U2000	V100R002C01

Intended Audience

This document describes how to install the U2000 and obtain the reference information required during the installation.

This document is intended for:

- Technical support engineers
- Maintenance engineers
- Installation and commissioning engineers

Symbol Conventions

The symbols that may be found in this document are defined as follows.

Symbol	Description
DANGER	Indicates a hazard with a high level of risk, which if not avoided, will result in death or serious injury.
WARNING	Indicates a hazard with a medium or low level of risk, which if not avoided, could result in minor or moderate injury.
CAUTION	Indicates a potentially hazardous situation, which if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results.

Symbol	Description
TIP	Indicates a tip that may help you solve a problem or save time.
NOTE	Provides additional information to emphasize or supplement important points of the main text.

Command Conventions

The command conventions that may be found in this document are defined as follows.

Convention	Description
Boldface	The keywords of a command line are in **boldface**.
Italic	Command arguments are in *italics*.
[ ]	Items (keywords or arguments) in brackets [ ] are optional.
{ x | y | ... }	Optional items are grouped in braces and separated by vertical bars. One item is selected.
[x | y | ...]	Optional items are grouped in brackets and separated by vertical bars. One item is selected or no item is selected.
{ x | y | ... }*	Optional items are grouped in braces and separated by vertical bars. A minimum of one item or a maximum of all items can be selected.
[x | y | ...]*	Optional items are grouped in brackets and separated by vertical bars. Several items or no item can be selected.

GUI Conventions

The GUI conventions that may be found in this document are defined as follows.

Convention	Description
Boldface	Buttons, menus, parameters, tabs, window, and dialog titles are in **boldface**. For example, click **OK**.
>	Multi-level menus are in **boldface** and separated by the ">" signs. For example, choose **File** > **Create** > **Folder**.

Change History

Updates between document issues are cumulative. Therefore, the latest document issue contains all updates made in previous issues.

Changes in Issue 06 (2010-11-19)

The sixth commercial release has the following updates:

Fixed some bugs.

Changes in Issue 05 (2010-10-20)

The fifth commercial release has the following updates:

Fixed some bugs.

Changes in Issue 04 (2010-09-24)

The fourth commercial release has the following updates:

Fixed some bugs.

Changes in Issue 03 (2010-08-16)

The third commercial release has the following updates:

Fixed some bugs.

Changes in Issue 02 (2010-07-16)

The second commercial release has the following updates:

Fixed some bugs.

Changes in Issue 01 (2010-05-18)

Initial release.

Contents

Figures

Tables

1 Installation Overview

This topic explains the terms involved with installing the U2000 into a Solaris operating system (OS).

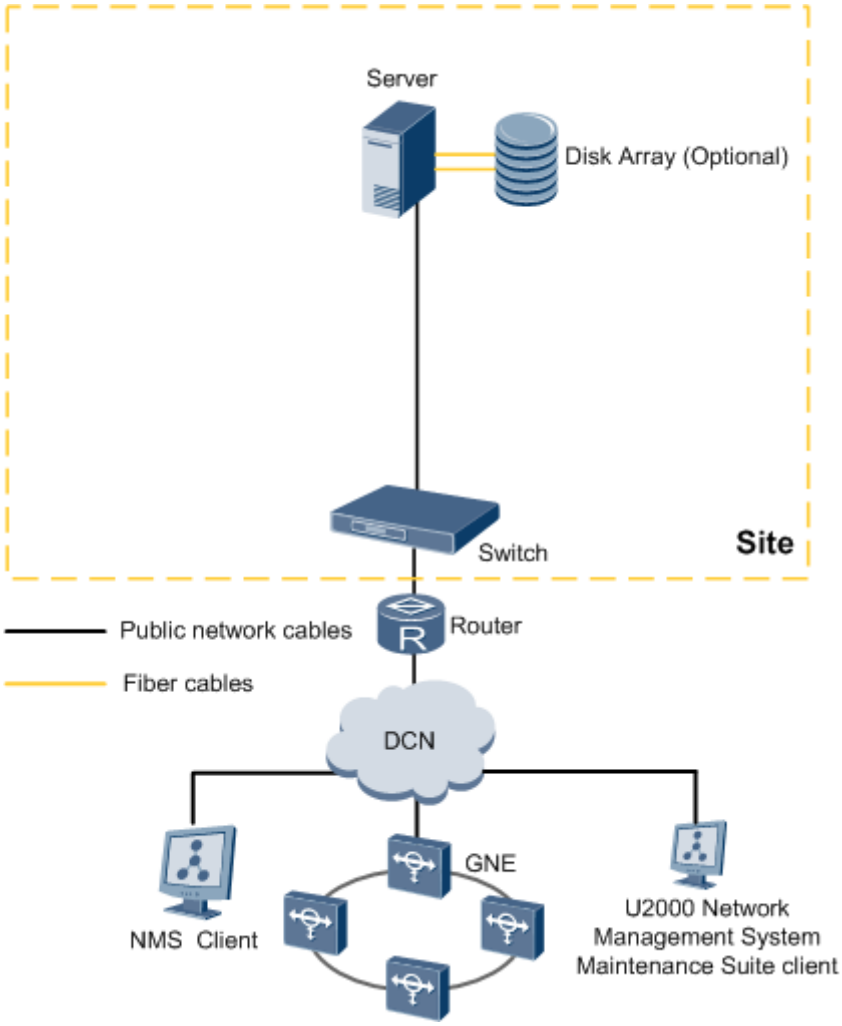
CAUTION

Servers are pre-installed with software from Huawei and can be commissioned immediately. For more information, see the *iManager U2000 Commissioning Guide*. If servers are purchased from other suppliers, install software according to the U2000 deployment.

Definitions for terms as used in this document:

- Server: A server can refer to the hardware and/or software. In the client/server structure, a server refers to the server program. The term refers to hardware when used in reference to a computer where a server program runs.
- Client: Refers to the client application of the software in a client/server structure. The client application can run on a computer along with the server application or on a separate computer. The term refers to hardware when used in reference to the computer where a client application runs.
- Workstation and host: A workstation functions the same as a host. Generally, a workstation or host refers to the computer where services run in a Solaris OS.
- Centralized system: Refers to the core processes of the U2000 and database service that are deployed on a server.

Figure 1-1 Network diagram of a single-server system (Solaris)



- Component: Refers to a functional unit of software that you can select to install. A component can consist of multiple deployment packages.
- Deployment package: Refers to a software unit that is deployed on a computer.

  Deployment packages are classified into the following types:
  - System single-instance: These types of deployment packages can be installed on only one server and each component can be deployed with only one instance.
  - Single-server single-instance: These types of deployment packages can be installed on multiple servers and each component can be deployed with only one instance on each server.
  - Single-server multi-instance: These types of deployment packages can be installed on multiple servers and each component can be deployed with multiple instances on each server.

2 Installation Procedure

This topic briefly describes the process of installing a single-server system into Solaris OS.

TIP

Installation engineers not familiar with Solaris OS should read **D Getting Started** to learn about the basic operations of the system.

The following table shows the chapters for reference and the time required for installing the single-server system (Solaris).

Table 2-1 Installation process of a single-server system (Solaris)

Stage	Chapter	Description	Duration (Minutes)
1	**3 Preparations**	Describes how to prepare for installation of a single-server system (Solaris).	40
2	**4 Configuring Controller IP Addresses**	Describes how to configure the server hardware according to the server model and how to select the disk array hardware according to conditions at your site.	30
3	**5 Powering On a Server**	Describes how to power on the server.	10
4	**6 Installing the Solaris OS and Patches Using a Quick Installation DVD**	Describes how to install a Solaris OS on the U2000 server.	80
5	**7 Installing the U2000 Software**	Describes how to start the U2000 installation program after the U2000 is preconfigured by means of a DVD-ROM or software package.	130
6	**8 (Optional) Loading a U2000 License**	Describes how to install the U2000 license if the U2000 software is not installed by means of the license.	5

Stage	Chapter	Description	Duration (Minutes)
7	**9 Checking the Installation of the Single-Server System (Solaris)**	Describes how to check the installation of the single-server system (Solaris).	10

3 Preparations

About This Chapter

This topic describes the preparations that need to be completed on software, hardware, and environment before installing single-server system (Solaris).

3.1 Configuration Requirements
This topic describes the configuration requirements on the hardware and software of the server before installing the U2000.

3.2 Networking Structure
This topic describes the networking structure for a centralized system. Before installing a centralized system, installation engineers need to get familiar with the network structure of the centralized system prior to installation.

3.3 Installation Environment Requirements
This topic describes the environment conditions, such as the telecommunications room environment, cable condition, and networking condition of the telecommunications room, that you must get familiar with before you install a U2000.

3.4 Collecting Installation Information
This topic describes how to collect installation information. Before installing a centralized system, collect required information, including the host name, IP address, route, time zone and time, user password, installation path, component quantity, and instance quantity.

3.5 Checking Required Software
This topic describes the software required to be checked. Ensure that the required software is on-hand and meets the installation requirements before installing the U2000.

3.6 Checking Hardware Connections
This topic describes how to check that hardware is installed and connected properly.

3.7 Applying for a U2000 License
This topic describes how to apply for a U2000 license.

3.1 Configuration Requirements

This topic describes the configuration requirements on the hardware and software of the server before installing the U2000.

Hardware Configuration

The following table shows the configuration requirements on the hardware of the U2000 server.

Table 3-1 Configuration requirements on the hardware of the U2000 server

Server Name	Server Description
Sun T5220 (with low-end configuration)	Server, Sun T5220, 4 Core/16 GB memory, 6 x 146 GB
Sun T5220 (with high-end configuration)	Server, Sun T5220, 8 Core/32 GB memory, 6 x 146 GB
M4000 (recommended configuration)	Server, Sun M4000, 4 CPU x 4Core /32 GB memory, 2 x 300 GB
M4000 (compatible configuration)	Server, Sun M4000, 4 CPU x 4Core /32 GB memory, 2 x 146 GB
Disk array	Recommended configuration: OceanStor S2600 (6 x 300 GB)
	Compatible configuration: StorageTek 2540 (6 x 300 GB)
	Compatible configurations: OceanStor S3100 (6 x 146 GB)

NOTE

Disk arrays must meet the preceding configuration requirements. To use disk arrays with other configurations, contact Huawei engineers to check whether such disk arrays are applicable to the single-server system (Solaris).

Software Configuration

The following table shows the configuration requirements on the software of the U2000 server.

Table 3-2 Configuration requirements on the software for the U2000 server

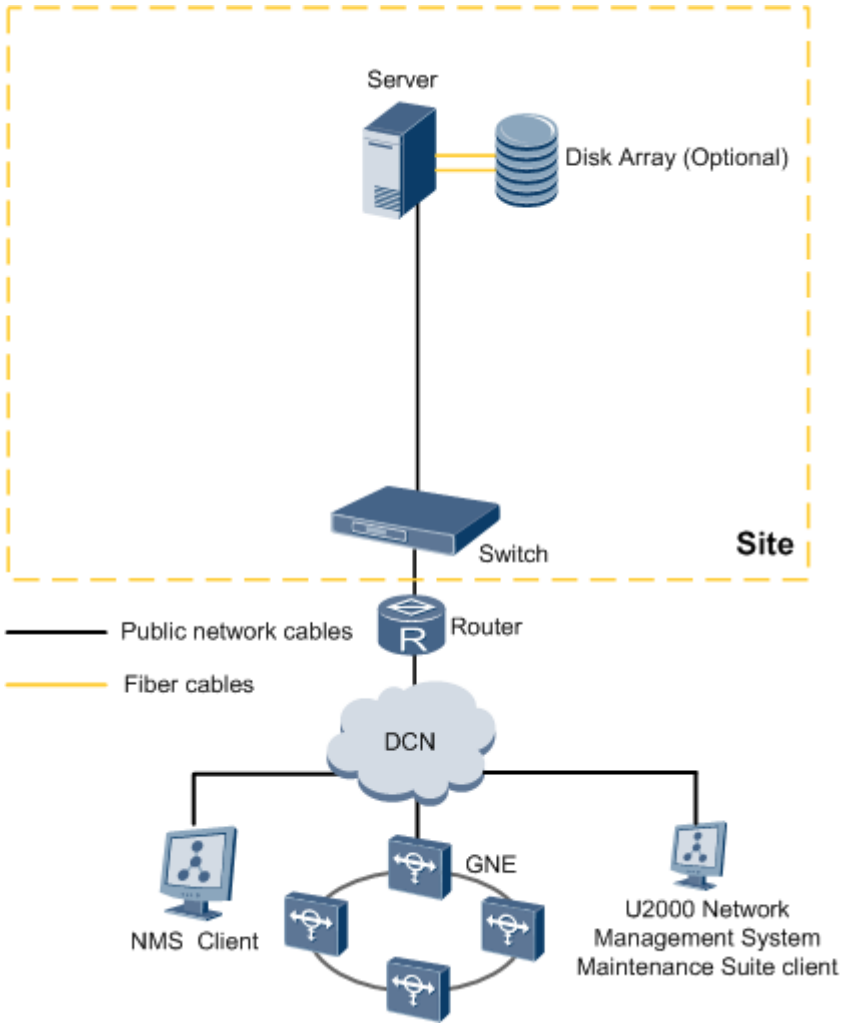
Configuration Item	Typical Configuration
OS	Solaris 10 (10/08) with Huawei Patch 9.0.1
Database	SYBASE 15.0.3 with EBF16476 + EBF16548
NMS software	U2000 software **NOTE** The U2000 software can be installed on the OS with the simplified Chinese version or English version.

3.2 Networking Structure

This topic describes the networking structure for a centralized system. Before installing a centralized system, installation engineers need to get familiar with the network structure of the centralized system prior to installation.

The following figure shows the network structure of the centralized system.

Figure 3-1 Network diagram for a centralized system



The disk array stores data to improve database performance. The server must be configured with a disk array if the U2000 manages a moderate amount of network elements (NEs). See chapter 3 Network Scale Planning in the *iManager U2000 Planning Guide* for specific definitions of management scales.

The U2000 client and network management system maintenance suite client communicate with the server using a DCN.

NEs and the OSS communicate with the centralized system using a DCN.

3.3 Installation Environment Requirements

This topic describes the environment conditions, such as the telecommunications room environment, cable condition, and networking condition of the telecommunications room, that you must get familiar with before you install a U2000.

Before installing a U2000, check the environment according to the following table.

Table 3-3 Installation environment requirements

Item	Requirement
Temperature	The required temperature range is from 15°C to 30°C for long-term working conditions and from 0°C to 45°C for short-term working conditions.
Humidity	The required humidity range is from 40% to 65% for long-term working conditions and from 20% to 90% for short-term working conditions.
Dust	Dust density is less than or equal to 3 x 104/m3 for particles with a diameter larger than 5 μm.
Floor	Flooring is anti-static movable and must be grounded.
Space	The telecommunications room has good ventilation and enough space for operation and maintenance.
Power supply	The power supply must be an independent external power supply system that provides stable electricity; UPS is recommended.
Circuit	The network where the server locates is functioning properly and is accessible.
Network	The routers connecting each server have been configured. For instructions on how to install routers, see the manuals delivered with the routers, or contact router suppliers. The networks of routers (including routers and the DCNs) in every telecommunications room are functioning properly.

3.4 Collecting Installation Information

This topic describes how to collect installation information. Before installing a centralized system, collect required information, including the host name, IP address, route, time zone and time, user password, installation path, component quantity, and instance quantity.

Complete planning for the information listed in the following tables according to the *iManager U2000 Planning Guide*. Collect and record the installation information in the tables.

TIP

Print the following tables and fill in the blanks with the site-specific planning information.

Examples provided in the tables are the default values of servers that come pre-installed with software from Huawei.

Table 3-4 Host name list

Item	Example	Plan
Server	NMSserver	

Table 3-5 Controller IP address list

Item		Example	Plan
T5220	Controller IP address	129.9.1.20/255.255.255.0/129.9.1.254	
M4000	Primary controller IP address	129.9.1.21/255.255.255.0/129.9.1.254	
	Secondary controller IP address	129.9.2.21/255.255.255.0/129.9.2.254	
Disk array (optional)	Primary controller IP address	129.9.1.10/255.255.255.0/129.9.1.254	
	Secondary controller IP address	129.9.1.11/255.255.255.0/129.9.1.254	

NOTE

The IP address is in the **IP address/subnet mask/gateway** format. The IP addresses for the primary and secondary controllers of the M4000 cannot be in the same network segment.

Table 3-6 System IP address list

Item	Example	Plan
System network interface	e1000g0	
System IP address	129.9.1.1/255.255.255.0/129.9.1.254	

NOTE

Common network interface types include bge, ce, eri, ge0, and e1000g. You can check the physical network interfaces on the network card of the server.

To check the available physical network interfaces on the server, run the following command:

```
# more /etc/path_to_inst | grep network
```

Table 3-7 Route list

Item	Example	Plan
Routing network segment 1	129.9.10.0\255.255.255.0	
Routing network segment 2	10.71.6.0\255.255.255.0	
...	...	
Routing network segment N	10.121.124.0\255.255.255.0	

NOTE

Installation engineers need to add routes to the client and management network to ensure communication between the U2000 and the client, and between the U2000 and the management network.

Table 3-8 Time zone and time list

Item	Example	Plan
Time zone	PRC	
Time	14:00	

Table 3-9 User and password list

User	Example	Plan
T5220 controller (ILOM) user **root**	changeme	
M4000 controller (XSCF) monitoring user **eis-installer**	eis-installer	
OS user **root**	root	
OS user **nmsuser**	admin123	
OS user **sybase**	No password	
Database superuser (sa)	changeme	
Database user	NMSuser	
U2000 user **admin**	admin123	

User	Example	Plan
network management system maintenance suite user **admin**	admin	

Table 3-10 Quantity list of configured components and instances

Example	Plan
● One instance for SDH NE management ● One instance for PTN NE management ● One instance for router NE management ● ...	

Table 3-11 Installation path list

Item	Installation Path
NMS software	/opt/U2000
Sybase database software	/opt/sybase

Before manually install an OS, determine the disk partitioning scheme. If a quick installation DVD is used to install an OS, the installation software automatically partitions disks according to the disk size. For details about disk partitioning planning, see **F Planning Disk Partitions**.

3.5 Checking Required Software

This topic describes the software required to be checked. Ensure that the required software is on-hand and meets the installation requirements before installing the U2000.

Installation engineers can install the U2000 in either of the following ways:

- Using software packages: Required software packages must be on-hand.
- Using DVDs: Required DVDs must be on-hand.

Using Software Packages

Before installing the U2000, ensure that the Solaris OS installation DVD and software packages are available.

Do as follows:

TIP

Read the **Read Me** file before downloading the software packages. The **Read Me** file is stored in the same path as software packages.

1. Access **http://support.huawei.com** and choose **Software Center** > **Version Software** > **Network OSS&Service** > **iManager U2000** > **iManager U2000** > **iManager U2000** > **iManager U2000 V100R002**.
2. Select the version to be installed.
3. Download required software packages listed in **Table 3-12**. It is recommended that installation engineers use the download tool (for example, Flashget). If they use Windows Internet Explorer, some software packages may be renamed automatically after being downloaded to the local computer. In this case, change the software package names to the same as those on the **http://support.huawei.com**.
4. Use the MD5 to verify correctness of the software packages. For details, see **A.3.11 How to Check Downloaded Software Packages by Using MD5 Software**.
5. **http://support.huawei.com** can store files with a maximum size of 1.8 GB. The file with the size larger than 1.8 GB will be separated into different software packages. The file name extension is part1.rar for the first package, part2.rar for the second, part3.rar for the third, and so on.
   - Download all the required packages. Read the Read Me file before downloading the software package. The Read Me file contains key instructions and restrictions on downloaded files.
   - Before selecting the part1.rar file to decompress, obtain the WinRAR tool from Web site **http://www.winrar.com** and install the tool.

NOTE

- The Solaris OS can be installed only by using DVDs. Therefore, if you install the U2000 by using software packages, ensure that the Solaris OS installation DVD is available.
- In an installation DVD or installation package, *Version* indicates the detailed version number of the U2000. For example, V100R002C01SPCxxx.

Table 3-12 Software package list

Software	Medium Name	Description
Solaris OS installation DVD	You can install the Solaris 10 OS by using the quick installation DVD or the common installation DVD. Using the quick installation DVD is recommended. ● Quick installation DVD: U2000***version***_server_os_solaris_SPARC_sun4v_dvd2 or U2000***version***_server_os_solaris_SPARC_sun4u_dvd1 **NOTE** ● Ensure that the quick installation DVD U2000***version***_server_os_solaris_SPARC_sun4v_dvd2 is available if the hardware type of the selected server is sun4v (the T5220 server for example). ● Ensure that the quick installation DVD U2000***version***_server_os_solaris_SPARC_sun4u_dvd1 is available if the hardware of the selected server is sun4u (the M4000 server for example). Installation engineers can run the **uname -m** command to view the hardware type of a server after logging in to the server OS as user **root**. ● Common installation DVD: Solaris 10 Software (10/08 SPARC Platform Edition) **NOTE** To install the Solaris 10 OS by using the common installation DVD, you also need to prepare the OS patch DVD: U2000***version***_server_patch_solaris_SPARC_dvd3, or OS patch software package U2000***version***_server_ospatch_solaris_SPARC.tar.	It is used to install Solaris OS. **It must be available.**
StorageTek 2540 disk array manager CAM	Installation package: U2000***version***_server_ospatch_solaris_SPARC.tar	**It is required only if you configure the StorageTek 2540 disk array**.

Software	Medium Name	Description
Database software package	Installation package: U2000***version***_ server_db_solaris_SPARC.tar	**It must be available.** It is used to install the database.
U2000 server software package	Basic component: U2000***version***_ server_nmsbase_solaris_SPARC.tar	**It must be available.** It is used to install the U2000.
	Core component: U2000***version***_ server_nmscore_solaris_SPARC.tar	**It must be available.** It is used to install the U2000.
	Transport component: U2000***version***_ server_nmstrans_solaris_SPARC.tar	**It is required only if the U2000 needs to manage Huawei transport equipment**. Huawei transport equipment, including: ● MSTP Series Equipment ● WDM Series Equipment ● NA WDM Series Equipment ● Submarine Line Equipment ● RTN Series Equipment ● PTN Series Equipment
	IP component: U2000***version***_ server_nmsip_solaris_SPARC.tar	**It is required only if the U2000 needs to manage Huawei IP equipment**. Huawei IP equipment, including: ● Router Series Equipment ● Switch Series Equipment ● Metro Service Platform Equipment ● Broadband Access Series Equipment ● VoIP Gateway Equipment ● Firewall Series Equipment ● Service Inspection Gateway Equipment ● SVN Series Equipment
	Access component: U2000***version***_ server_nmsaccess_solaris_SPARC.tar	**It is required only if the U2000 needs to manage Huawei access equipment**. Huawei access equipment, including: ● FTTx Series Equipment ● MSAN Series Equipment ● DSLAM Series Equipment

Using DVDs

Ensure that the following DVDs are on-hand before installing the U2000 by using DVDs.

Table 3-13 DVD list

Software	DVD Name
Solaris OS installation DVD	You can install the Solaris 10 OS by using the quick installation DVD or the common installation DVD. Using the quick installation DVD is recommended. ● Quick installation DVD: U2000***version***_server_os_solaris_SPARC_sun4v_dvd2 or U2000***version***_server_os_solaris_SPARC_sun4u_dvd1 **NOTE** ● Ensure that the quick installation DVD U2000***version***_server_os_solaris_SPARC_sun4v_dvd2 is available if the hardware type of the selected server is sun4v (the T5220 server for example). ● Ensure that the quick installation DVD U2000***version***_server_os_solaris_SPARC_sun4u_dvd1 is available if the hardware of the selected server is sun4u (the M4000 server for example). Installation engineers can run the **uname -m** command to view the hardware type of a server after logging in to the server OS as user **root**. ● Common installation DVD: Solaris 10 Software (10/08 SPARC Platform Edition) **NOTE** To install the Solaris 10 OS by using the common installation DVD, you also need to prepare the OS patch DVD: U2000***version***_server_patch_solaris_SPARC_dvd3, or OS patch software package U2000***version***_server_ospatch_solaris_SPARC.tar.
StorageTek 2540 disk array manager CAM (Select it when you configure the StorageTek 2540 disk array)	U2000***version***_server_patch_solaris_SPARC_dvd3
Database software DVD	U2000***version***_server_db_solaris_SPARC_dvd4
U2000 server software	U2000***version***_server_nms_solaris_SPARC_dvd5

3.6 Checking Hardware Connections

This topic describes how to check that hardware is installed and connected properly.

Prerequisite

The server hardware must have been installed and equipment cables must have been connected.

Procedure

1. Ensure that the power cables and ground wires for all components are tightly connected and in good contact and that the polarities are properly placed.
2. Ensure that all cables are bundled and free of visible damage.
3. Check hardware connections and network cable connections according to the hardware connection diagram.

   Configuring disk arrays are optional. Skip this step if no disk array needs to be used.

   - The following figures show the hardware connections between the T5220 server and three types of disk arrays.

Figure 3-2 Hardware connections between the T5220 server and the OceanStor S2600 disk array

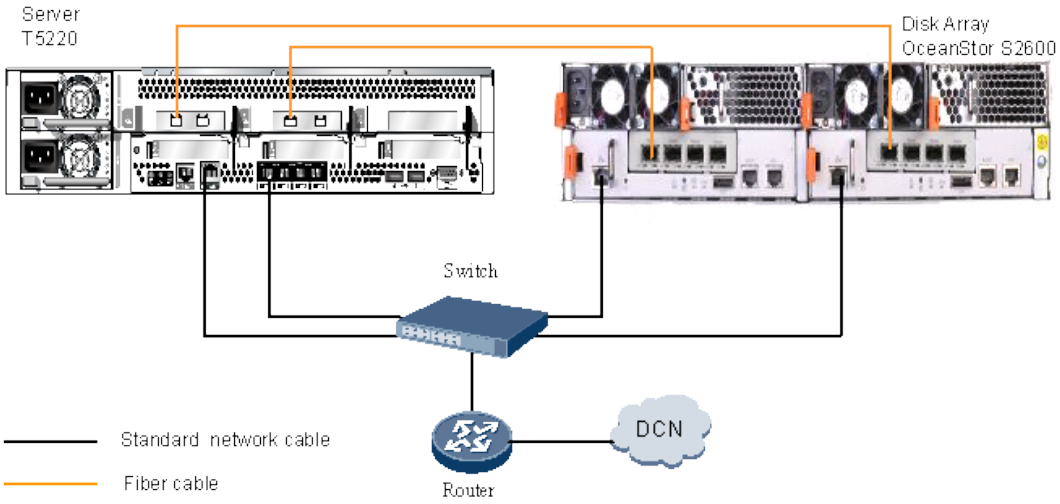


Figure 3-3 Hardware connections between the T5220 server and the OceanStor S3100 disk array

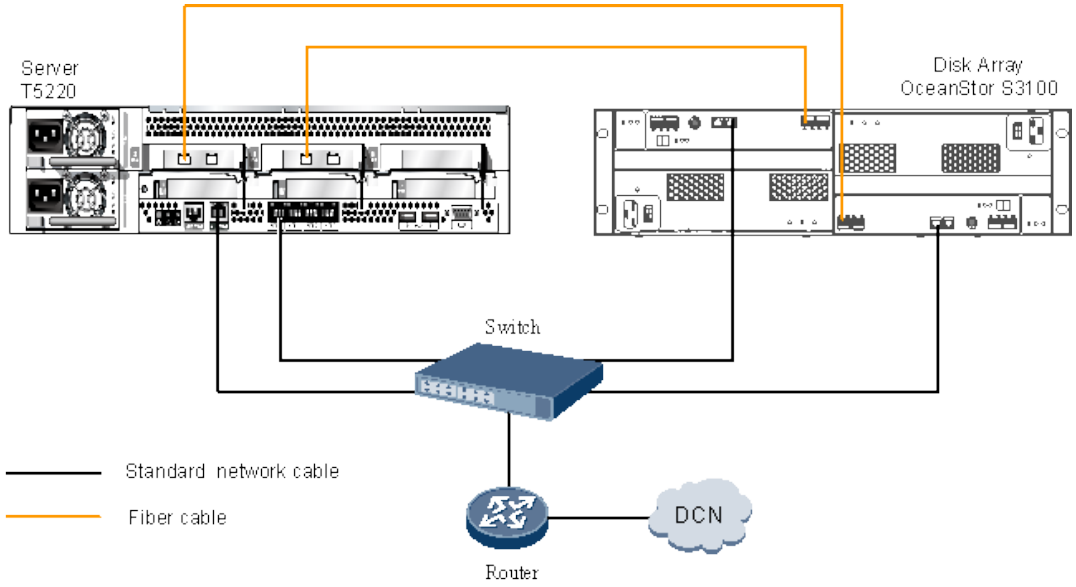
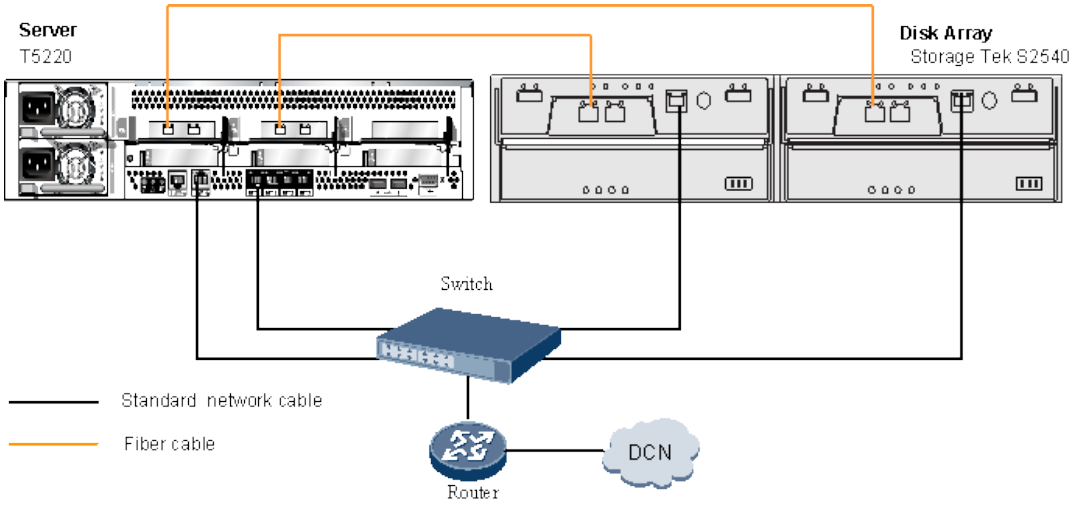


Figure 3-4 Hardware connections between the T5220 server and the StorageTek 2540 disk array



- The following figures show the hardware connections between the M4000 server and three types of disk arrays.

Figure 3-5 Hardware connections between the M4000 server and the OceanStor S2600 disk array

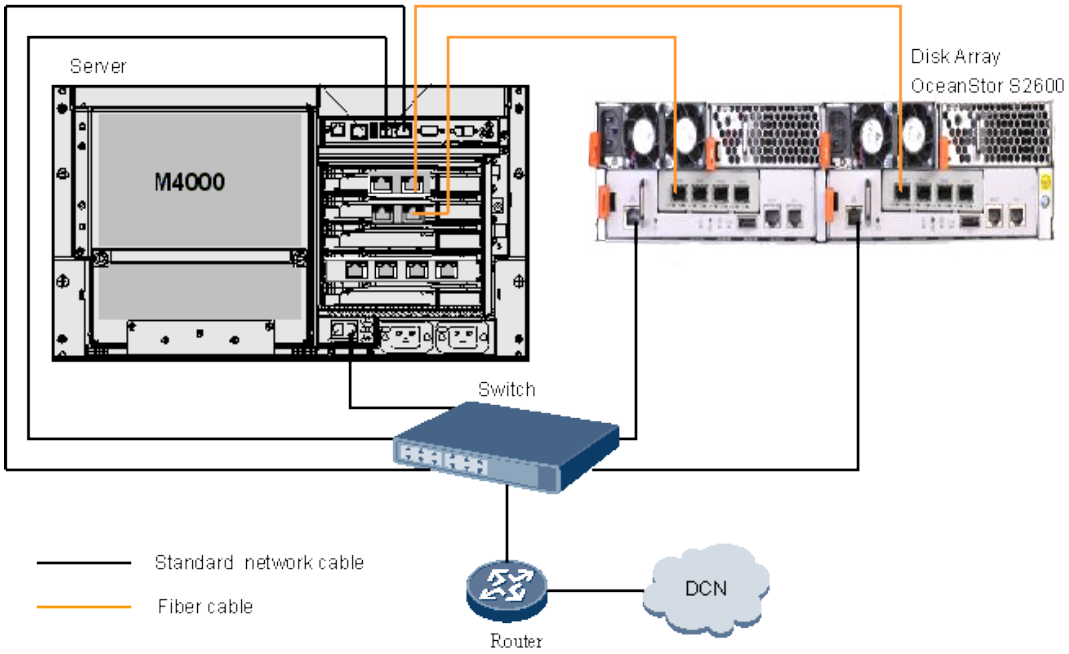


Figure 3-6 Hardware connections between the M4000 server and the OceanStor S3100 disk array

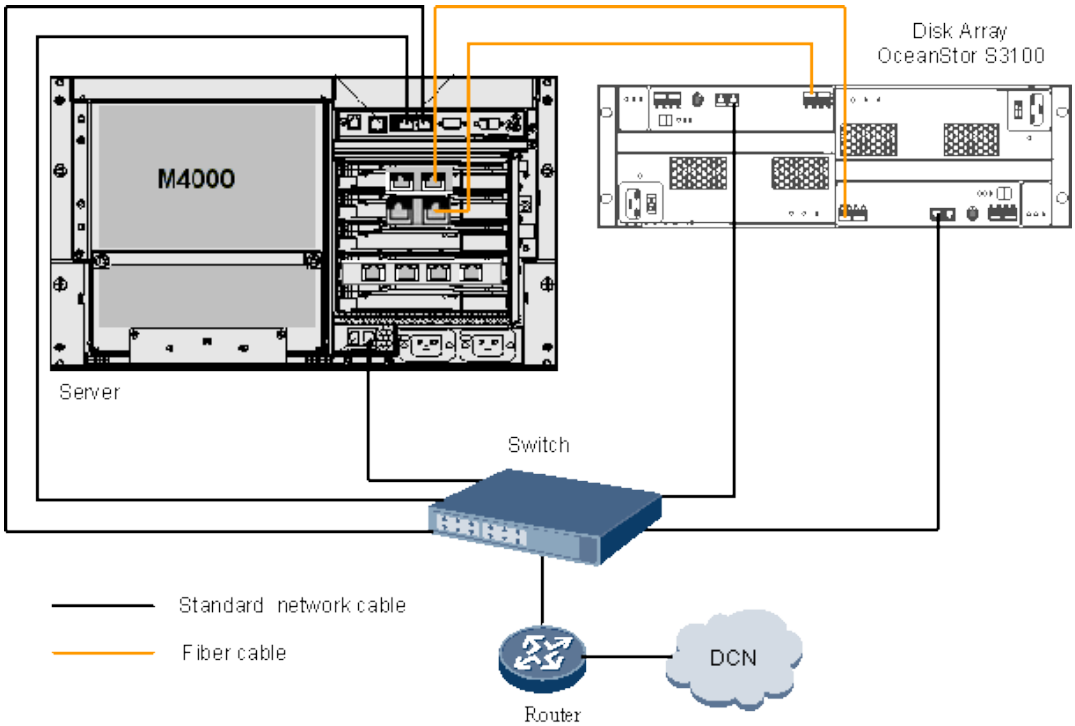
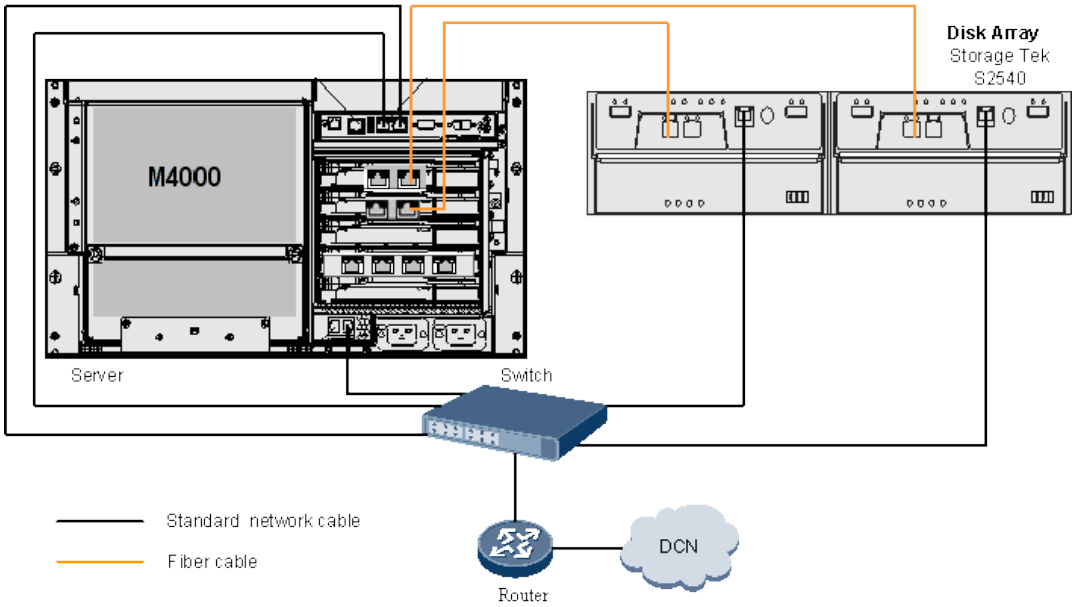


Figure 3-7 Hardware connections between the M4000 server and the StorageTek 2540 disk array



4 Check the plugs and sockets.

1. Ensure that the latches of cable plugs are locked fast and the plugs of coaxial cables are secured tightly.
2. Ensure that the pins in each socket are complete and in good order. Curved pins may cause short circuits.

5 Ensure that all debris (cable straps, stubs, or moisture-absorbent packets) are picked up.

6 Remove unnecessary items from the telecommunications room. The workbench must be neat and the movable floor must be level and clean.

----End

3.7 Applying for a U2000 License

This topic describes how to apply for a U2000 license.

Context

- The license file is not delivered to customers along with the U2000 installation DVD. Contact Huawei engineers to apply for a license according to the project contract number and the equipment serial number (ESN) of the U2000 server.
- An ESN is a string consisting of 40-digit numerals or letters obtained through encrypted calculation on the MAC addresses of the U2000 server network interface. The number of ESNs is the same as the number of network interfaces on the U2000 server.

  The U2000 license is valid as long as it is bound to any of the server ESNs. To avoid applying for a new license due to replacing certain network interface cards (NICs), save all the ESNs to ensure proper use of the U2000 license.

Procedure

1 Obtain the contract number.

2 View ESNs.

Mode 1: Use the ESN tool to generate ESNs before installing the U2000.

NOTE

Make the following preparations:

- Obtain the ESN tool released with U2000 version from **http://support.huawei.com**. The ESN tool name is **U2000*version*_ESN_solaris_SPARC.tar**.
- Copy the ESN tool package to the computer.

1. FTP the ESN tool to the U2000 server in binary mode. For example, upload the ESN tool to the **/opt** path. Details are as follows:
   a. Log in to the computer where the ESN tool is stored.
   b. Choose **start** > **Run**. Enter **ftp** ***system IP address of the server*** and click **OK**. The FTP connection will be established and the command line interface (CLI) will be displayed.
   c. Enter **root** as the name of the OS user.
   ```
   User (IP_address:(none)):root
   ```
   d. Enter the password of user **root**.
   ```
   Password:
   ```
   e. Set the format of the file to be transferred by means of FTP to **bin**.
   ```
   ftp> bin
   ```
   f. Access the directory on the computer where the ESN tool is stored.
   ```
   ftp> lcd PC_directory
   ```
   g. Access the **/opt** directory.
   ```
   ftp> cd /opt
   ```
   h. Run the **put** command to upload the ESN tool to the server.
   ```
   ftp> put ""
   ```
   i. Run the following command to exit the FTP program:
   ```
   ftp> quit
   ```
2. Run the following commands to decompress the ESN tool package:
   ```
   # cd /opt
   # tar xvf U2000version_ESN_solaris_SPARC.tar
   ```
3. Run the following command to view the ESN:
   ```
   # ./esn
   ```
   Information similar to the following is displayed:
   ```
   ESN0:EBB74B99612CEDC82AD0A59886EC5018CE44DDD4
   ESN1:BDA706C825FE0543DC028209778AA66396545412
   ESN2:E1B00EEF6947DD95687AA5C608B72ACC532AB2BD
   ESN3:F72F9EC08AEE78AA05A42EFD7BFD89F5E03139C4
   ...
   ```

Mode 2: View the ESN using the ESN tool of the NMS after installing the U2000.

1. Log in to the OS as user **root**.
2. Run the following commands to view the ESN:
   ```
   # . /export/home/nmsuser/.profile
   # cd /opt/U2000/server/lbin
   # ./esn
   ```

NOTE

Leave a space between the dot (.) and the command **/export/home/nmsuser/.profile**.

Information similar to the following is displayed:

```
ESN0:EBB74B99612CEDC82AD0A59886EC5018CE44DDD4
ESN1:BDA706C825FE0543DC028209778AA66396545412
ESN2:E1B00EEF6947DD95687AA5C608B72ACC532AB2BD
ESN3:F72F9EC08AEE78AA05A42EFD7BFD89F5E03139C4
...
```

3 Send the contract number and the server ESN to Huawei engineers or the local Huawei office.

NOTE

Huawei engineers need the contract number and ESN to procure the license from **http://license.huawei.com**. For details about how to apply for the license file, see the *iManager U2000V100R002C01 License Instructions*.

4 Huawei engineers will send the license file after it is procured.

The NMS license file is stored in the .dat format.

----End

4 Configuring Controller IP Addresses

About This Chapter

Controller IP addresses are used to manage and maintain equipment remotely. Configure controller IP addresses for equipment before installing the operating system (OSs).

4.1 Configuring Controller IP Addresses for Workstation

This topic describes how to configure controller IP addresses for the T5220 and M4000 servers. System controller IP addresses are used to install, manage, and maintain servers remotely. After servers are powered on, installation engineers can set system controller IP addresses.

4.1.1 Configuring the IP Address for a System Controller on a T5220 Server

This topic describes how to configure the IP address for a system controller on a T5220 server. After the IP addresses are configured, installation engineers can install, manage, and maintain servers remotely by using this IP address.

Prerequisite

- The controller IP addresses are obtained.
- The server is powered on.

Context

Installation engineers can configure server connections through system controllers so that Sun servers can be remotely controlled and maintained.

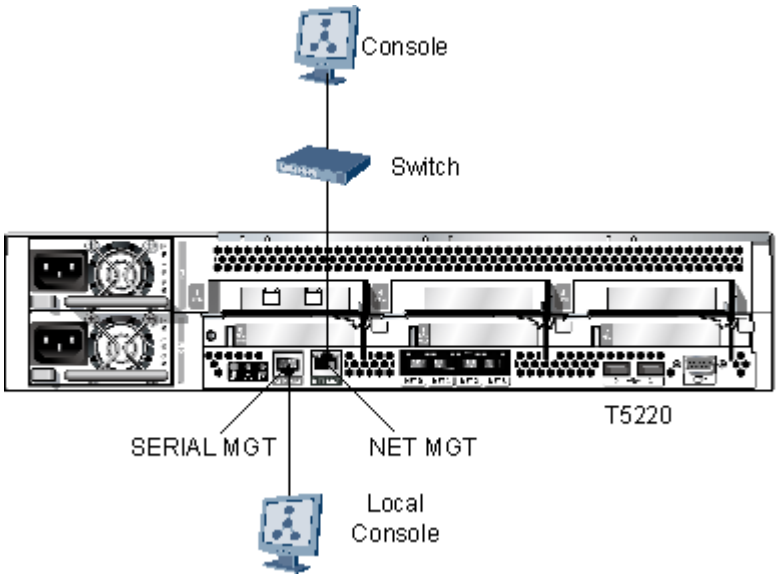
Procedure

1 Connect the computer and the server physically.

1. Use a serial port (DB9-RJ45) to connect the serial port of the local console and the serial port (SERIAL MGT) of the server.

   Use an RJ-45 connector at one end of the serial port cable to connect to the serial port (SERIAL MGT) of the server and use a DB-9 connector at the other end of the cable to connect to the serial port (COM1 or COM2) of the computer.
2. Use a network cable to connect the network management port (NET MGT) of the system controller and the switch.

Figure 4-1 Connections between the T5220 server and the controller



2 Set up a logical connection between the computer and the server.

1. Start the computer and enter Windows OS.
2. Choose **start** > **Programs (P)** > **Accessories** > **Communications** > **HyperTerminal**.
3. In the **Connection Description** dialog box, enter the name of the new connection, such as **NMS**, and click **OK**.
4. In the dialog box that is displayed, select the serial port of the computer that is used to connect to the server, such as **COM1**, and click **OK**.
5. In the dialog box that is displayed, click **Restore Defaults**.
6. Click **OK**.

3 Press **Enter**.

Enter the user name and password. The default user name is **root** and the default password is **changeme**.

NOTE

The OS will be started after this step is complete if the OS is installed on the workstation. Run the **#.** command to display the prompt of the controller.

4 Perform the following operations to configure hardware at the **->** prompt:

1. Enter **cd /SP/network**.

   The following message will be displayed:

   ```
   /SP/network
   ```

2. Enter **set state=enabled**.

   The following message will be displayed:

   ```
   Set 'state' to 'enabled'
   ```

3. Enter **set pendingipaddress=*controller IP address***.

   The following message will be displayed:

```
Set 'pendingipaddress' to 'controller IP address'
```

4. Enter **set pendingipdiscovery=static**.

   The following message will be displayed:

   ```
   Set 'pendingipdiscovery' to 'static'
   ```

5. Enter **set pendingipnetmask=*controller subnet mask***.

   The following message will be displayed:

   ```
   Set 'pendingipnetmask' to 'controller subnet mask'
   ```

6. Enter **set pendingipgateway=*gateway IP address of controller***.

   The following message will be displayed:

   ```
   Set 'pendingipgateway' to 'gateway IP address of controller'
   ```

7. Enter **set commitpending=true**.

   The following message will be displayed:

   ```
   Set 'commitpending' to 'true'
   ```

8. Enter **exit** to complete configuration.

5 Disconnect the serial port of the system controller from the HyperTerminal. Configuration is complete.

----End

4.1.2 Configuring the IP Address for a System Controller on an M4000 Server

This topic describes how to configure the IP address for a system controller on an M4000 server. After the IP addresses are configured, installation engineers can install, manage, and maintain servers remotely by using this IP address.

Prerequisite

- The controller IP addresses are obtained.
- The server is powered on.
- The OS of the server is shut down.

Context

Installation engineers can configure server connections through system controllers so that Sun servers can be remotely controlled and maintained.

Procedure

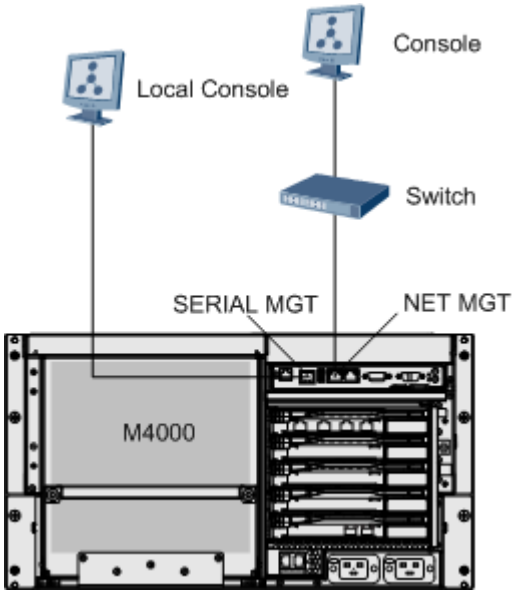
1 Connect the computer and the server physically.

1. Use a serial port (DB9-RJ45) to connect the serial port of the local console and the serial port (SERIAL MGT) of the server.

   Use an RJ-45 connector at one end of the serial port cable to connect to the serial port (SERIAL MGT) of the server and use a DB-9 connector at the other end of the cable to connect to the serial port (COM1 or COM2) of the computer.

2. Use a network cable to connect the network management port (NET MGT) of the system controller and the switch.

Figure 4-2 Connections between the M4000 server and the controller



2 Set up a logical connection between the computer and the server.

1. Start the computer and enter Windows OS.
2. Choose **start** > **Programs (P)** > **Accessories** > **Communications** > **HyperTerminal**.
3. In the **Connection Description** dialog box, enter the name of the new connection, such as **NMS**, and click **OK**.
4. In the dialog box that is displayed, select the serial port of the computer that is used to connect to the server, such as **COM1**, and click **OK**.
5. In the dialog box that is displayed, click **Restore Defaults**.
6. Click **OK**.

3 Press **Enter**.

Enter the user name. Enter the default user name (**default**) if the system is being logged in to for the first time.

```
login: default
```

A message similar to the following will be displayed:

```
Change the panel mode switch to Service and press return...
```

4 Within 5 to 10 seconds, insert the key into the key slot in the front panel of the M4000. Turn the switch to **Service** labeled with  and press **Enter**.

A message similar to the following will be displayed:

```
Leave it in that position for at least 5 seconds. Change the panel mode switch to
Locked, and press return...
```

5 Within 5 to 10 seconds, turn the switch to **Locked** labeled with  and press **Enter**.

A message similar to the following will be displayed:

```
XSCF>
```

NOTE

If the event that XSCF> is not displayed (which means that login has failed), attempt to log in again.

6 Run the following commands to create a monitor user:

```
XSCF> adduser eis-installer
XSCF> setprivileges eis-installer platadm useradm auditadm fieldeng
XSCF> password eis-installer
New XSCF password:
Retype new XSCF password:
```

NOTE

The password must contain the following:

- At least two letters
- At least one number or one special character
- At least 8 to 16 characters

The **eis-installer** user has complete access rights and can run all commands after the password is set. The default password is **eis-installer**.

7 Run the following commands to log in to the system as the new user:

```
XSCF> exit
logout
login: eis-installer
```

8 Enter the password.

9 Run the following command to set the time for automatic logout:

```
XSCF> setautologout -s 60
60min
```

10 Run the following command to set the time zone:

```
XSCF> settimezone -c settz -s name_of_the_time_zone
```

NOTE

Run the following command to query the name of the time zone:

```
XSCF> settimezone -c settz -a -M
```

11 Run the following command to set the time:

```
XSCF> setdate -s time
```

NOTE

System time is entered in **year.month.date-hour:minute:second** (for example, **2008.03.25-17:13:00**).
System time will be displayed in the following format:

```
Tue Mar 25 17:13:00 CST 2008
```

A message similar to the following will be displayed:

```
The XSCF will be reset. Continue? [y|n]:
```

12 Enter **n**.

13 Run the following command to set the altitude:

```
XSCF> setaltitude -s altitude=1000
```

A message similar to the following will be displayed:

```
1000m
```

14 Run the following command to enable SSH:

```
XSCF> setssh -c enable
```

A message similar to the following will be displayed:

```
Continue? [y|n]:
```

15 Enter **y**.

A message similar to the following will be displayed:

```
Please reset the XSCF by rebootxscf to apply the ssh settings.
```

16 Run the following command to enable the Telnet function:

```
XSCF> settelnet -c enable
```

17 Run the following command to configure the DSCP of the controller:

```
XSCF> setdscp
DSCP network [0.0.0.0] > 192.168.224.0
DSCP netmask [255.255.255.0] >
```

Press **Enter** to continue.

```
XSCF address [192.168.224.1] >
```

Press **Enter** to continue.

```
Domain #00 address [192.168.224.2] >
```

Press **Enter** to continue.

```
Domain #01 address [192.168.224.3] >
```

Press **Enter** to continue.

NOTE

If the configuration is being performed for the first time, the following message will be displayed: **Commit these changes to the database? [y|n]**. Enter **y** to accept the settings.

18 Run the following commands to set the IP addresses of the controllers:

```
XSCF> setnetwork -c up xscf#0-lan#0
XSCF> setnetwork -c up xscf#0-lan#1
XSCF> setnetwork xscf#0-lan#0 -m Subnet_mask IP_address_of_the_primary_controller
XSCF> setnetwork xscf#0-lan#1 -m Subnet_mask IP_address_of_the_secondary_controller
XSCF> sethostname -d huawei.com
XSCF> setroute -c add -n 0.0.0.0 -g
IP_address_of_the_network_gateway_of_the_primary_controller xscf#0-lan#0
XSCF> setroute -c add -n 0.0.0.0 -g
IP_address_of_the_network_gateway_of_the_secondary_controller xscf#0-lan#1
```

19 Run the following command:

```
XSCF> sethostname xscf#0 sc
```

20 Run the following command to apply network settings:

```
XSCF> applynetwork
```

A message similar to the following will be displayed:

```
The following network settings will be applied:
  xscf#0 hostname  :sc
  DNS domain name  :huawei.com

  interface        :xscf#0-lan#0
  status           :up
  IP address       :IP_address_of_the_primary_controller
  netmask          :255.255.255.0
  route            :-n 0.0.0.0 -m 0.0.0.0 -g
IP_address_of_the_network_gateway_of_the_primary_controller

  interface        :xscf#0-lan#1
  status           :up
  IP address       :IP_address_of_the_secondary_controller
  netmask          :255.255.255.0
  route            :-n 0.0.0.0 -m 0.0.0.0 -g
IP_address_of_the_network_gateway_of_the_secondary_controller
```

```
Continue? [y|n]
```

21 Enter **y**.

A message similar to the following will be displayed:

```
Please reset the XSCF by rebootxscf to apply the network settings.
Please confirm that the settings have been applied by executing
showhostname, shownetwork, showroute and shownameserver after rebooting
the XSCF.
```

22 Run the following command to restart the system controller so that the settings take effect:

```
XSCF> rebootxscf
```

A message similar to the following will be displayed:

```
The XSCF will be reset. Continue? [y|n]:
```

23 Enter **y** to restart the controller.

A message similar to the following will be displayed:

```
XSCF> Mar 25 09:13:02 localhost XSCF[105]: XSCF shutdown sequence start
execute K000end  --  complete
execute K100end  --  complete
execute K101end  --  complete
......
login:
```

Restarting the system controller takes about three minutes. Wait patiently.

24 **Optional:** Perform the following to test the connection of the network management port of the primary controller.

TIP

- The port of the primary controller on the M4000 server is on the right.
- Before the test, the console must communicate properly with the primary controller on the M4000 server. If the console is directly connected to the primary controller of the M4000 server by a network cable, you must change the IP address of the console to ensure that the IP addresses of the console and the primary controller are on the same network segment. For example, if the IP address of the primary controller is **129.9.1.21**, the IP address of the console must be changed to **129.9.1.121**.

1. Run the following command on the console:

   ```
   # telnet IP_address_of_the_primary_controller
   ```

   A message similar to the following will be displayed:

   ```
   login:
   ```

2. Enter the user name **eis-installer**.

   A message similar to the following will be displayed:

   ```
   password:
   ```

3. Enter the password of user **eis-installer**.
4. Run the following command to exit the connection to the primary controller:

   ```
   XSCF> exit
   ```

   If installation engineers cannot log in to the network management port (NET MGT), check the network cable and the IP address settings on the console. If the problem persists, configure the server through the serial port cable of the local console again.

25 **Optional:** Perform the following to test the connection of the network management port of the secondary controller.

TIP

- The port of the secondary controller on the M4000 server is on the left.
- Before the test, the console must communicate properly with the secondary controller on the M4000 server. If the console is directly connected to the secondary controller of the M4000 server by a network cable, you must change the IP address of the console to ensure that the IP addresses of the console and the secondary controller are on the same network segment. For example, if the IP address of the primary controller is **129.9.2.21**, the IP address of the console must be changed to **129.9.2.121**.

1. Run the following command on the console:
   ```
   # telnet IP_address_of_the_secondary_controller
   ```
   A message similar to the following will be displayed:
   ```
   login:
   ```
2. Enter the user name **eis-installer**.
   A message similar to the following will be displayed:
   ```
   password:
   ```
3. Enter the password of user **eis-installer**.
4. Run the following command to exit the connection to the primary controller:
   ```
   XSCF> exit
   ```
   If you cannot log in to the network management port (NET MGT), check the network cable and the IP address settings on the console. If the problem persists, configure the server through the serial port cable of the local console again.

26 Disconnect the serial port of the system controller from the HyperTerminal. Configuration is complete.

----End

4.2 Configuring Controller IP Addresses for Disk Arrays

This topic describes how to configure controller IP addresses for the OceanStor S2600, and StorageTek 2540 disk array.

4.2.1 Configuring the SC IP Address of the OceanStor S2600 Disk Array
This topic describes how to configure the SC IP address of OceanStor S2600 disk array.

4.2.2 Configuring the SC IP Address of the StorageTek 2540 Disk Array
This topic describes how to configure SC IP address of the StorageTek 2540 disk array.

4.2.1 Configuring the SC IP Address of the OceanStor S2600 Disk Array

This topic describes how to configure the SC IP address of OceanStor S2600 disk array.

Prerequisite

- The controller IP addresses are obtained.
- The power cable of the disk array is connected.

Context

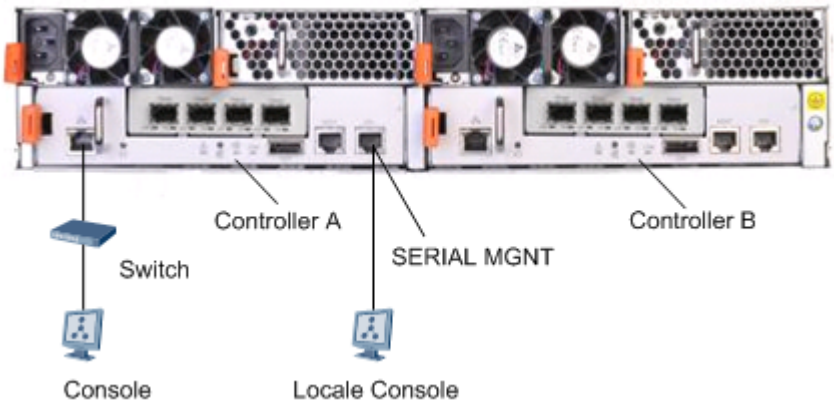
Each OceanStor S2600 disk array has two controllers that need to be configured with management interfaces separately.

Procedure

1 Connect the computer and controller A of the disk array physically.

Use a serial port cable (DB9-RJ45) to connect the serial port of the local controller to the serial port of the disk array (SERIAL MGT).

Use an RJ-45 connector at one end of the serial port cable to connect to the serial port of the disk array (SERIAL MGT) and a DB-9 connector at the other end of the cable to connect to the serial port of the computer (COM1 or COM2).



2 Set up a logical connection between the computer and controller A.

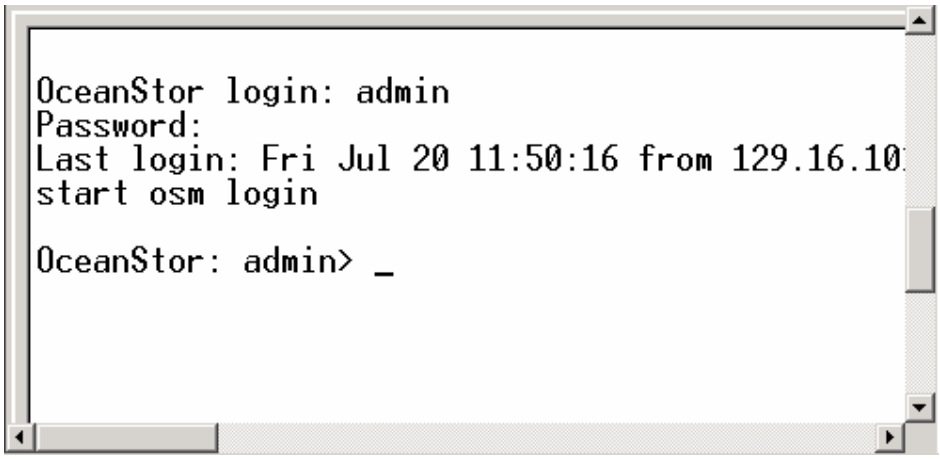
1. Start the computer and enter Windows OS.
2. Choose **start** > **Programs (P)** > **Accessories** > **Communications** > **HyperTerminal**.
3. In the **Connection Description** dialog box, enter the name of the new connection, such as **NMS**, and click **OK**.
4. In the dialog box that is displayed, select the serial port of the computer that is used to connect to the disk array, such as COM1, and click **OK**.
5. In the dialog box that is displayed, set the attributes of the serial port as follows:
   - Bits per second: 115200 bps
   - Data bits: 8 bit
   - Parity: None
   - Stop bits: 1 bit
   - Flow control: None
6. Click **OK**.

   The following message will be displayed on the Windows management terminal if the connection was established:

   ```
   Login:
   ```
7. Enter the user name and password to log in.

   NOTE

   The default user name and password of the system administrator are **admin** and **123456**.



After login authentication, the system will display the CLI.

3 In the CLI, run the **chgctrlip** command to configure the IP address for the network interface of controller A. See **Table 4-1**.

Table 4-1 Command format and parameter description of the **chgctrlip** command

Command Format	Parameter Description
chgctrlip -c *controller ID* { **-a** *IP address* | **-s** *subnet mask* | **-g** *gateway* }	● **-c** *controller ID*: Indicates the controller ID. The value of this parameter is **a** or **b**, where, **a** represents controller A and **b** represents controller B. ● **-a** *IP address*: Indicates the IP address of the management network interface of the controller. ● **-s** *subnet mask*: Indicates the subnet mask. ● **-g** *gateway*: Indicates the gateway.

The following is an example:

Configure the IP address for the management network interface of controller A. Specifically, the IP address is *129.9.1.10*, the subnet mask is *255.255.255.0*, and the gateway IP address is *129.9.1.254*. Run the following command:

```
OceanStor: admin> chgctrlip -c a -a 129.9.1.10 -s 255.255.255.0 -g 129.9.1.254
```

4 Disconnect the serial port from controller A.

1. In the CLI, run the **logout** command.
2. On the computer, exit the HyperTerminal software.
3. Remove the serial port cable on the disk array.

5 Repeat Step 1 to Step 4 to configure the network interface of controller B.

1. Connect the computer and controller B physically.
2. Establish a logical connection between the computer and controller B.
3. Configure the IP address of the network interface of controller B on the local console.

TIP

Run the **showctrlip** command to query the IP address of the management network interface of a controller after the **chgctrlip** command. Table 4-2 provides the format and parameter description of the **showctrlip** command.

Table 4-2 Command format and parameter description of the **showctrlip** command

Command Format	Parameter Description
showctrlip [**-c** *controller ID*]	● **-c** *controller ID*: Indicates the controller ID. The value of this parameter is **a** or **b**, where, **a** represents controller A and **b** represents controller B.

Precautions for running the **showctrlip** command are as follows:

- Run the **showctrlip** command to query the IP addresses of the management network interfaces of all controllers.
- Run the **showctrlip -c** *controller ID* command to query the IP address of the management network interface of a specified controller.

The following is an example for querying the IP addresses of the management network interfaces of all controllers:

```
OceanStor: admin> showctrlip
  Controller  IP Address       Subnet Mask      Gateway          MAC Address
           A  129.9.1.10     255.255.255.0      0.0.0.0
00:12:34:56:70:46
           B  129.9.1.11     255.255.255.0      0.0.0.0
00:12:34:56:79:92
```

6 Disconnect the serial port from controller B.

1. In the CLI, run the **logout** command.
2. On the computer, exit the HyperTerminal software.
3. Remove the serial port cable on the disk array.

----End

4.2.2 Configuring the SC IP Address of the StorageTek 2540 Disk Array

This topic describes how to configure SC IP address of the StorageTek 2540 disk array.

Prerequisite

- The controller IP addresses are obtained.
- The power cable of the disk array is connected.

Context

Each StorageTek 2540 disk array has two controllers that need to be configured separately.

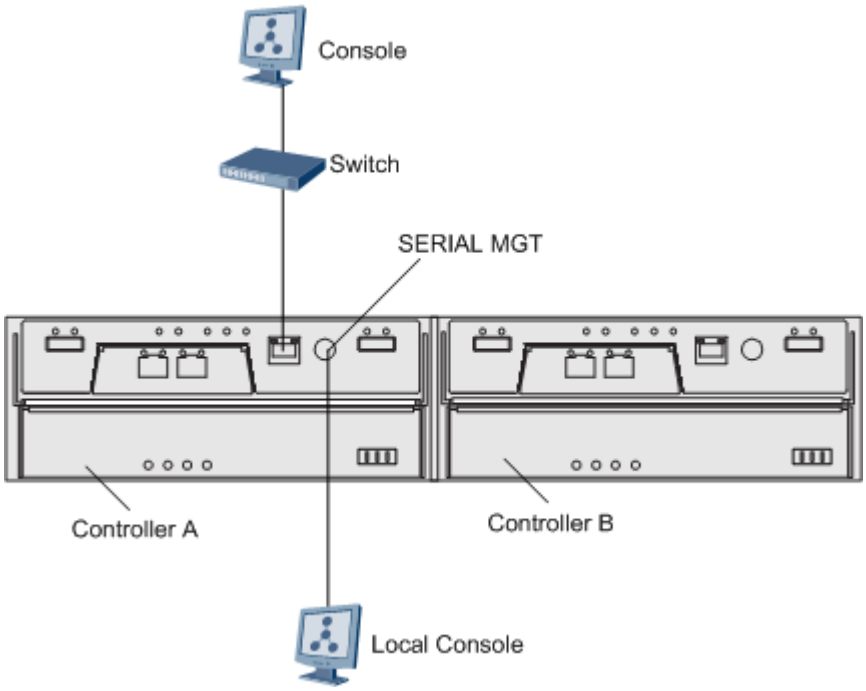
Procedure

1 Connect the computer and controller A of the disk array physically.

Use a serial port cable (DB9-PS/2) to connect the serial port of the local controller to the serial port of the disk array (SERIAL MGT).

Use a PS/2 connector at one end of the serial port cable to connect to the serial port of the disk array (SERIAL MGT) and a DB-9 connector at the other end of the cable to connect to the serial port of the computer (COM1 or COM2).

Figure 4-3 Connections between the local console and the controller on the StorageTek 2540 disk array



2 Set up a logical connection between the computer and controller A.

1. Start the computer and enter Windows OS.
2. Choose **start** > **Programs (P)** > **Accessories** > **Communications** > **HyperTerminal**.
3. In the **Connection Description** dialog box, enter the name of the new connection, such as **NMS**, and click **OK**.
4. In the dialog box that is displayed, select the serial port of the computer that is used to connect to the disk array, such as COM1, and click **OK**.
5. In the dialog box that is displayed, set the attributes of the serial port as follows:
   - Bits per second: 38400 bps
   - Data bit: 8 bit
   - Parity check: none
   - Stop bit: 1 bit
   - Data flow control: none
6. Click **OK**.

3 Configure the IP address of the network interface of controller A of the disk array on the local console.

NOTE

Each StorageTek 2540 disk array has two controllers that need to be configured separately.

1. Send a break signal from the computer by pressing **Ctrl+Pause Break**.

```
Press within 5 seconds: <S> for Service In press <space> within 5 seconds
Baud rate set to 38400
```

2. Enter **S** to open the service window.

```
03/28/08-05:21:18 (GMT) (utlTimer): WARN:  Extended Link Down Timeout on
channel 2
03/28/08-05:21:18 (GMT) (utlTimer): WARN:  Extended Link Down Timeout on
channel 3
Current date: 03/28/08  time: 05:22:11
Enter Password to access Service Interface (60 sec timeout):
```

3. Enter a password. Enter the default password **kra16wen** to access the disk array if the configuration is being performed for the first time.

NOTE

In the default password, **1** is the number one and not the letter **l**.

```
->
Service Interface Main Menu
===========================

 1) Display IP Configuration
 2) Change IP Configuration
 3) Reset Storage Array (SYMbol) Password
 Q) Quit Menu

    Enter Selection:
```

4. Enter **2** to set the IP address of the first controller.

```
Enable IPv4? (Y/N):
```

5. Enter **y** to enable IPv4.

```
Configure using DHCP? (Y/N): n
```

6. Enter **n** to disable DHCP.

```
    Press '.' to clear the field;
    Press '-' to return to the previous field;
    Press <ENTER> and then ^D to quit (Keep Changes)

                          Current Configuration   New Configuration
IP Address         if0  :
Subnet Mask        if0  :
Gateway IP Address if0  :
```

7. Enter the IP address, subnet mask, and gateway IP address of the controller.

```
The IP Configuration is getting changed to:

IP Address          : IP address of the controller
Subnet Mask         : Subnet mask of the controller
Gateway IP Address  : Gateway IP address of the controller

Are you sure that you want to change IP Configuration ? (Y/N): y
```

8. Enter **y** if you want to modify the IP address.

```
Network Configuration successfully changed.

Enable IPv6? (Y/N):
```

9. Enter **n** to disable IPv6.

```
Change port configuration (speed & duplex) ? (Y/N):
```

10. Enter **n** so that the port configuration will not be modified.

```
Reboot to have the settings take effect? (Y/N)
```

11. Enter **y** to restart the system and make the configuration take effect.

```
...
Send <BREAK> for Service Interface or baud rate change
```

4 Disconnect the serial port cable from controller A.

1. On the computer, exit the HyperTerminal software.
2. Remove the serial port cable on the disk array.

5 Repeat Step 1 to Step 4 to configure the network port of controller B.

1. Establish a physical connection between the computer and controller B.
2. Establish a logical connection between the computer and controller B.
3. Configure the IP address of the network interface of controller B on the local console.
4. Disconnect the serial port from controller B.

----End

5 Powering On a Server

This topic describes how to power on a server. The T5220 server, M4000 server, and disk array are taken as examples to show how to power on a server according to the server type and disk array type.

T5220 Server

1. Connect the power supply to a T5220 server.
2. Wait for 2 to 3 minutes until the indicator on the front of the server turns on. Press the power button of the T5220 server to start it.

   NOTE

   The power button is on the left of the server's front panel. It is labeled with , as shown in the following figure.

   Figure 5-1 Power button of the T5220 server

NOTE

- The server will display an **OK** prompt if a Solaris OS has not been installed on it.
- The server will automatically start a Solaris OS after power-on if the OS has been installed on it. Enter **boot** to start a Solaris OS manually if the server displays an **OK** prompt.

M4000 Server

1. Connect the power supply to an M4000 server.
2. Insert the key delivered with the server into the key slot in the front panel of the M4000 server, and then turn the switch to the **Service** position labeled with  , as shown in the following figure.

   Figure 5-2 Power button of the M4000 server

3. Press the power button of the server. The switch is labeled with  . The server starts and then operates diagnosis.

   NOTE

   - Ensure that the green LED power indicator on the operation panel is on.
   - If the server has not been installed with a Solaris OS, the server accesses the OK prompt state.
   - If the server has been installed with a Solaris OS, the server automatically starts the Solaris OS after power-on. If the server does not automatically start the Solaris OS but accesses the OK prompt state, enter **boot** to start the Solaris OS manually.

4. After the server is started, turn the rotary switch to the **Locked** position labeled with  .

Disk Arrays

CAUTION

- Ensure that main power switch of the rack and the power switch of the UPS module are off before powering on the system.
- Do not pull out or plug in disk modules, controllers, fibers, network cables, or serial cables when powering-on the disk to avoid loss of data.
- Do not disconnect or connect to the power supply while the disk is saving data. This is to prevent the disk from being damaged losing data. Wait for at least 1 minute before reconnecting the power supply once it has been disconnected.

1. Connect the power supply to the disk array.
2. Switch the two power buttons on the back to the ON position.

6 Installing the Solaris OS and Patches Using a Quick Installation DVD

This topic describes how to install Solaris 10 and its patches using a quick installation DVD. The quick installation DVD is the recommended installation method.

Prerequisite

- The quick installation DVD U2000***version***_server_os_solaris_SPARC_sun4v_dvd2 or U2000***version***_server_os_solaris_SPARC_sun4u_dvd1 is available.

  NOTE

  - Ensure that the quick installation DVD U2000***version***_server_os_solaris_SPARC_sun4v_dvd2 is available if the hardware type of the selected server is sun4v (the T5220 server for example).
  - Ensure that the quick installation DVD U2000***version***_server_os_solaris_SPARC_sun4u_dvd1 is available if the hardware of the selected server is sun4u (the M4000 server for example).

  Installation engineers can run the **uname -m** command to view the hardware type of a server after logging in to the server OS as user **root**.
- Obtain the following information:
  - Host name
  - Network interface
  - System IP address
  - Subnet mask
  - Default Route IP address
- The IP address of the system controller is configured. For details about how to configure the IP address, see **4.1 Configuring Controller IP Addresses for Workstation**.

Context

If the quick installation DVD is unavailable, manually install Solaris OS using the DVD delivered with the product. For details, see **E Manually Installing the Solaris OS and Its Patches**.

Procedure

1 **Optional:** If the quick installation DVD is used to install two or more servers, remove network cables from the system network interfaces of the servers and only keep network cables connected

to network interfaces corresponding to system controllers for the purpose of installing Solaris OS.

2 **Optional:** If the T5220 server is used, perform the following operations to display the **OK** prompt:

1. Log in to the system controller in SSH mode.

   NOTE

   The T5220 server does not support login through Telnet. Log in to the system controller performing the following:

   - Install the tool software of the SSH client on the Windows terminal to log in to the system controller, for example: **Putty**.
   - Run the **ssh** *SC_IP_Address* command on the terminals of other Sun servers. If the following message is displayed, enter **yes**:
     ```
     The authenticity of host '129.9.1.20 (129.9.1.20)' can't be
     established.
     RSA key fingerprint is 0b:23:07:0c:27:72:44:3f:d1:aa:12:99:ed:dd:c0:5a.
     Are you sure you want to continue connecting (yes/no)?
     ```

2. In the CLI, enter the user name and password of the system controller. The default user name and password are **root** and **changeme**.
3. Enter **set /HOST/bootmode state=reset_nvram script="setenv auto-boot? false"**.

   NOTE

   There must be a space between **?** and **false**.

   The following message will be displayed:

   ```
   Set 'state' to 'reset_nvram'
   Set 'script' to 'setenv auto-boot? false'
   ```

4. Enter **start /SYS**.

   The following message will be displayed:

   ```
   Are you sure you want to start /SYS (y/n)?
   ```

5. Enter **y** to start the T5220.

   The system is running if the following message is displayed:
   ```
   start: Target already started
   ```
   Perform the following operations:

   a. Enter **stop /SYS**.

      The following message will be displayed:

      ```
      Are you sure you want to stop /SYS (y/n)?
      ```

   b. Enter **y**.

      The following message will be displayed:

      ```
      Stopping /SYS
      ```

   c. Enter **show /HOST status** repeatedly to check the system status.

      Proceed with the subsequent operations until the following message is displayed:
      ```
      status = Powered off
      ```

   d. Enter **start /SYS**.

      The following message will be displayed:

      ```
      Are you sure you want to start /SYS (y/n)?
      ```

   e. Enter **y** to start the T5220.

6. Enter **start /SP/console -f**.

The following message will be displayed:

```
Are you sure you want to start /SP/console (y/n)?
```

7. Enter **y** and press **Enter**.

   NOTE

   If a prompt is displayed, enter **y** and press **Enter**.

   The following message will be displayed:

```
Serial console started.  To stop, type #.
...
Setting NVRAM parameters to default values.


SPARC Enterprise T5220, No Keyboard
Copyright 2008 Sun Microsystems, Inc.  All rights reserved.
OpenBoot 4.28.0, 8064 MB memory available, Serial #85369820.
Ethernet address 0:21:28:16:a3:dc, Host ID: 8516a3dc.


auto-boot? =            false
{0} ok
```

3 Optional: If the M4000 server is used, perform the following to display the **OK** prompt:

1. Log in to the system controller through Telnet. Run the **telnet** ***Controller IP Address*** command on the controller.

   The following message will be displayed:

```
Login:
```

2. Enter **eis-installer** as the user name.

   The following message will be displayed:

```
Password:
```

3. Enter the password of user **eis-installer**.

   The following message will be displayed:

```
XSCF>
```

4. Enter **showdomainmode -d 0**.

   The following message will be displayed:

```
Host-ID             : 8501c2de
Diagnostic Level    : min
Secure Mode         : off (host watchdog: unavailable Break-signal: receive)
Autoboot            : on
CPU Mode            : auto
```

NOTE

If the **Secure Mode** item is in the **on** state, perform the following:

a. Enter **setdomainmode -d 0 -m secure=off**.

The following message will be displayed:

```
Diagnostic Level    :min        -> -
Secure Mode         : on         -> off
Autoboot            : on         -> -
CPU Mode            : auto
The specified modes will be changed.
Continue? [y|n]
```

b. Enter **y**.

The following message will be displayed:

```
configured.
Diagnostic Level    : min
Secure Mode         : off (host watchdog: unavailable Break-signal:
receive)
Autoboot            : on (autoboot:on)
CPU Mode            : auto
```

5. Enter **showdomainstatus -a**.

The following message will be displayed:

```
DID         Domain Status
00          Running
01          -
```

NOTE

If the following message is displayed, run the **poweron -d 0** command:

```
DID         Domain Status
00          Powered Off
01          -
```

Run the **showdomainstatus -a** command repeatedly to check the system status. Proceed with the next step only after the status is displayed as **running**.

6. Enter **sendbreak -d 0**.

The following message will be displayed:

```
Send break signal to DomainID 0? [y|n]
```

7. Enter **y**.
8. Enter **console -d 0 -f**.

The following message will be displayed:

```
Connect to DomainID 0? [y|n]
```

9. Enter **y** and press **Enter**.

```
OK
```

4 Insert the quick installation DVD of the server into the DVD drive of the server.

5 Run the following command at the **OK** prompt to set the OS automatic startup and press **Enter**:

```
ok setenv auto-boot? true
```

NOTE

There must be a space between **?** and **true**.

If the following message is displayed, the configuration is complete:

```
auto-boot? =           true
```

6 Run the following command to configure all network interfaces on the workstation to use different MAC addresses and press **Enter**:

```
ok setenv local-mac-address? true
```

NOTE

There must be a space between **?** and **true**.

If the following message is displayed, the configuration is complete:

```
local-mac-address? =           true
```

7 Run the following command to enable the system to boot from the DVD-ROM and open the single-user installation window. Press **Enter**.

```
ok boot cdrom - install
```

NOTE

There must be a space between **-** and **install**.

Wait about five minutes. The single-user installation window will be displayed.

```
Please select the server mode:
------------------------------------------------------------
 1    Single Server System
 2    High Availability System (Veritas Hot Standby)
------------------------------------------------------------
Please enter [1,2]:
>
```

8 Enter **1** to select the single-server system. Press **Enter**.

```
Please confirm the configuration...
The following server mode is selected:
------------------------------------------------------------
1   Single Server System
------------------------------------------------------------
Enter 'y' to apply the configuration and continue the
restoration, or enter 'n' to return and make changes (y/n):
>
```

9 Confirm the configurations. Enter **y** and press **Enter**.

```
All the selections are confirmed.
If the server will use a disk array:
------------------------------------------------------------
 1    Yes
 2    No
------------------------------------------------------------
Please enter [1,2]:
>
```

10 Enter **1** or **2** according to conditions at your site. For example, if a disk array is not connected, select **2**.

```
The choice is as follows:
------------------------------------------------------------
 2    No
------------------------------------------------------------
Enter 'y' to apply the configuration and continue the
restoration, or enter 'n' to return and make changes (y/n):
>
```

11 Ensure that the configurations are correct. Enter **y** and press **Enter**.

```
Please select a language for the server:
------------------------------------------------------------
 1    English (C)
 2    Chinese (zh_CN.GB18030)
------------------------------------------------------------
Please enter [1,2]:
>
```

NOTE

- If **1** is entered, the English version is automatically selected during installation.
- If **2** is entered, the Chinese version is automatically selected during installation.

12 Enter **1** and press **Enter**.

```
The language is as follows:
-------------------------------------------------------------
 1    English (C)
-------------------------------------------------------------
Enter 'y' to apply the configuration and continue the
restoration, or enter 'n' to return and make changes (y/n):
```

13 Enter **y** after you confirm that the configuration is correct and press **Enter**.

```
Please configure the network information on the server.
Please enter a new hostname for the server:
>
```

14 Enter the planned host name of the server and press **Enter**.

```
Please enter a new IP address for the server:
>
```

15 Enter the system IP address of the server and press **Enter**.

```
Please enter a new subnet mask for the server:
>
```

16 Enter the system IP address mask of the server and press **Enter**.

```
Please enter the default route of the server, or keep the default route blank:
>
```

17 Enter the default gateway of the server and press **Enter**.

```
Confirm the configuration of the server.
The configuration of the server is as follows:
-------------------------------------------------------------
          Hostname             NMSserver
          IP address            129.9.1.1
          Netmask               255.255.255.0
          Default route         129.1.1.254
-------------------------------------------------------------
Enter 'y' to apply the configuration and continue the
restoration, or enter 'n' to return and make changes [y/n]:
>
```

18 Enter **y** after you confirm that the configuration is correct and press **Enter**.

```
The configuration of the local server is confirmed.
-------------------------------------------------------------------------------
The NICs available in the local server are as follows:
-----------------------------------------
             1            e1000g0
             2            e1000g1
             3            e1000g2
             4            e1000g3
             5            nxge0
             6            nxge1
             7            nxge2
             8            nxge3
-----------------------------------------
Please enter a number to select the system NIC[1-8]:
>
```

19 Enter **1** or another number to select the correct network interface of the system IP address and press **Enter**.

```
NIC e1000g0 is selected!
Enter 'y' to confirm the selection of NIC e1000g0 and continue,
```

```
or enter 'n' to return and make changes [y/n]:
>
```

20 Enter **y** after you confirm that the configuration is correct and press **Enter**. The system automatically starts to import data.

NOTE

- The workstation automatically restarts after the system data is imported.
- If # appears after the message "Solaris installation program completed" is displayed, enter **reboot** and press **Enter** to restart the OS.
- It takes about 60 minutes to import the system data from the DVD to the workstation. The time required depends on the workstation model.
- If the **Configure Keyboard Layout** window is displayed, press **F2** to continue.

21 Log in to the Solaris OS as user **root**.

NOTE

- The default login password is **root**.
- By default, the system enables the **root** user to perform remote login and use the FTP tool.

If login to Solaris OS as user **root** is possible, Solaris OS is successfully installed. Otherwise, install the OS again.

22 Run the following command to eject the DVD:

```
# eject
```

23 **Optional:** If the quick installation DVD is used to install two or more servers, correctly connect network cables to all network interfaces of the servers.

----End

Follow-up Procedure

- Run the following command to view the version of the system:

  ```
  # uname -rv
  ```

  Information similar to **5.10 Generic_141414-07** is displayed. Here, **5.10 Generic_141414-07** indicates the patch version of the Solaris 10(10/08) OS.

  If the patch version is **5.10 Generic_141414-07**, the OS and patches are successfully installed. Otherwise, refer to this topic to reinstall the OS and its patches.

- After the OS installation is completed by using the quick installation CD-ROM, the default time zone is **PRC**. The local time and time zone can be changed as required. For details, see **A.1.4.2 How to Change the System Time and Time Zone of Solaris OS**.

7 Installing the U2000 Software

About This Chapter

This topic describes how to start the U2000 installation program after a U2000 is preconfigured by using a DVD-ROM or software package.

7.1 Preparing Software Packages
This topic describes how to upload and decompress software packages. Software packages must be uploaded to the server and then decompressed if the software packages are used to install the U2000. If the U2000 is installed by using DVD-ROMs, skip this operation.

7.2 Pre-configuring the U2000
Pre-configure the OS using the DVD or software package, including copying the HWICMR, Network Management System Maintenance Suite, and Java environment. Start the HWICMR to modify system parameters, configure a disk array, modify the network settings of the system, and configure disk mirroring.

7.3 Starting the U2000 Installation Program
This topic describes how to start the U2000 installation program. Install the U2000 software through the GUI (recommended) or CLI. If the GUI cannot be logged in to, install the U2000 software through the CLI.

7.1 Preparing Software Packages

This topic describes how to upload and decompress software packages. Software packages must be uploaded to the server and then decompressed if the software packages are used to install the U2000. If the U2000 is installed by using DVD-ROMs, skip this operation.

Context

The U2000 can be installed by using software packages or installation DVDs. To install the U2000 by using software packages, perform the following operations to upload software packages to the server and then decompress them.

Procedure

1 Perform the following operations to upload software packages to the **/opt/install** path on the server. For more information, see **3.5 Checking Required Software**.

CAUTION

Do not upload U2000***version***_client_solaris_SPARC.tar software package. Decompressing the U2000***version***_client_solaris_SPARC.tar software package and the following software packages into the same directory will cause the U2000 installation to fail.

1. Log in to the Solaris OS as user **root**.
2. Run the following command to create the **/opt/install** directory:
   ```
   # mkdir /opt/install
   ```
3. Perform the following operations to FTP the software packages in binary mode to the **/opt/install** directory on the server:
   a. Log in to the computer where the software packages are stored.
   b. On the computer, choose **start** > **Run**. Enter **ftp** ***the_system_IP_address_of_server*** and click **OK**. The FTP connection is set up and the CLI is displayed.
   c. In the CLI that is displayed, enter **root** as the user name of the server:
      ```
      User (IP Address:(none)):root
      ```
   d. Enter the password of user **root**:
      ```
      Password:
      ```
   e. Set the FTP transfer mode to **bin**:
      ```
      ftp> bin
      ```
   f. Go to the directory where the software packages are stored on the computer:
      ```
      ftp> lcd the_path_of_computer
      ```
   g. Go to the **/opt/install** directory:
      ```
      ftp> cd /opt/install
      ```
   h. Run the **put** command to upload all of the required software packages to the server:
      ```
      ftp> put Name_of_software_package
      ```
      For example, **put U2000*version*_server_nmscore_solaris_SPARC.tar**.
      Wait for a moment. When the software packages are uploaded, the system will prompt **Transfer complete**.

CAUTION

Upload all of the required software packages to the server.

i. Run the following command to exit the FTP program:
```
ftp> quit
```

2 Run the following commands to switch to the directory where the software packages are stored, and run the **tar** command to decompress all the uploaded software packages on the server. There is no requirement on the sequence for decompressing the software packages.
```
# cd /opt/install
# tar xvf Name_of_software_package
```

For example, **tar xvf U2000*version*_server_nmscore_solaris_SPARC.tar**.

3 Run the following command to delete the software packages and free up disk space:
```
# rm Name_of_software_package
```

For example, **rm U2000*version*_server_nmscore_solaris_SPARC.tar**.

----End

7.2 Pre-configuring the U2000

Pre-configure the OS using the DVD or software package, including copying the HWICMR, Network Management System Maintenance Suite, and Java environment. Start the HWICMR to modify system parameters, configure a disk array, modify the network settings of the system, and configure disk mirroring.

Prerequisite

- The installation software has been prepared. For more information, see **7.1 Preparing Software Packages**.
- The hardware is properly connected. For more information, see **3.6 Checking Hardware Connections**.
- Installation engineers are familiar with the IP address planning scheme of the U2000. For more information, see **3.4 Collecting Installation Information**.
- The primary and secondary power supplies of the disk array have been powered on. For more information, see **5 Powering On a Server**.
- IP addresses have been assigned to disk array controllers if automatic disk array configuration by means of the HWICMR is required.
  - For information about how to configure the SC IP of OceanStor S2600 disk array, see **4.2.1 Configuring the SC IP Address of the OceanStor S2600 Disk Array**.
  - For information about how to configure the SC IP of OceanStor S3100 disk array, see **G.3.1 Configuring the SC IP Address of the OceanStor S3100 Disk Array**.
  - For information about how to configure the SC IP of StorageTek 2540 disk array, see **4.2.2 Configuring the SC IP Address of the StorageTek 2540 Disk Array**.

Context

CAUTION

When performing the operations described in this section, do not adjust the size of the command line interface (CLI), otherwise the information could be incorrectly displayed.

1. Perform the following operations by using the HWICMR:
   - Set the shared system memory parameters: Modify the **/etc/system** file to set the shared system memory parameters.
   - Configure a disk array: The HWICMR automatically verifies that the disk array is connected and then it mounts the disk array on the server.
   - Modify the network settings of the system: You can modify the network settings of the system, including the system IP address, the system host name, the subnet mask of the system IP address, and the default gateway IP address.
   - Configure disk mirroring.
2. A scenario where the disk array is mounted is mainly described in this section, while a scenario where a disk array is not mounted is also addressed.

Procedure

1 Log in to the OS as user **root**.

2 Start copying software.

- **Mode 1**: Installation using a software package.
  1. Run the following commands to switch to the directory where the **pre_install.sh** file is stored and run the **pre_install.sh** file to start copying software:

     ```
     # cd /opt/install/engineering/HWICMR
     # ./pre_install.sh
     ```

     It takes approximately five minutes to complete system pre-configuration. The pre-configuration includes copying the HWICMR, Network Management System Maintenance Suite, and Java environment.
     - Path for the Java environment variable: /opt/HWNMSJRE
     - Path for the NMS maintenance suite: /opt/HWENGR
     - HWICMR path: /opt/HWICMR

     A message similar to the following will be displayed:

     ```
     ============================================
      System pre-configuration
     ============================================
     ...
     ...
     ============================================
     If install High Availability NMS System (Veritas Hot Standby), input "1" to
     start copy Veritas installation software.
     If no need, input "2" to skip
     ```

  2. Enter **2** to skip copying of the Veritas software.

     A message similar to the following will be displayed:

```
Skip copy Veritas software...
Solaris patch 9.0.1 is already installed. Skip patch install.
==========================================
 * NMS Engineering Directory: /opt/HWENGR
 * NMS Software Lib Directory: /opt/install/
 * NMS Java Runtime Environment: /opt/HWNMSJRE/jre_sol


Finish...
```

- **Mode 2**: Installation using a DVD.

  1. Insert the installation DVD of the U2000 server software into the server DVD-ROM.
  2. Run the following commands to switch to the directory where the **pre_install.sh** file is stored and run the **pre_install.sh** file to start copying software:

     ```
     # cd /cdrom/cdrom0/engineering/HWICMR
     # . ./pre_install.sh
     ```

     NOTE

     There must be a space between the dot (.) and the command **./pre_install.sh**.

     It takes approximately five minutes to complete system pre-configuration. The pre-configuration includes copying the HWICMR, Network Management System Maintenance Suite, and Java environment.

     - Path for the Java environment variable: /opt/HWNMSJRE
     - Path for the NMS maintenance suite: /opt/HWENGR
     - HWICMR path: /opt/HWICMR

     A message similar to the following will be displayed:

     ```
     ==========================================
      System pre-configuration
     ==========================================
     ...
     ...
     ==========================================
     Cannot find database installation package.
     Please insert the installation CD #3, or extract database compress package
     to /opt/install, or input another path that contains a database installation
     package, then press Enter key to continue
     ```

  3. The DVD-ROM will eject the installation DVD for the U2000 server software after configuration is complete. Insert the installation DVD for the database software into the server DVD-ROM.

     The system will automatically copy the database installation software to the server.

     A message similar to the following will be displayed:

     ```
     Deal with Database installation file to /opt/install...
     > Finish
     If install High Availability NMS System (Veritas Hot Standby), input "1" to
     start deal with Veritas installation software.
     If no need, input "2" to skip
     ```

  4. Enter **2** to skip copying of the Veritas software.

     A message similar to the following will be displayed:

     ```
     Skip deal with Veritas software...
     Solaris patch 9.0.1 is already installed. Skip patch install.
     ==========================================
      * NMS Engineering Directory: /opt/HWENGR
      * NMS Software Lib Directory: /opt/install/
      * NMS Java Runtime Environment: /opt/HWNMSJRE/jre_sol
     ```

```
Configure OS successful...
Finish...
```

5. Run the following commands to eject the DVD.
```
# cd /
# eject
```

3 Ensure that the language environment variable of the system is **C**.

Run the following command to check the language environment variable of the system:

```
# echo $LANG
```

If **C** is not displayed, change the language environment variable description in the **/etc/TIMEZONE** file to **LANG=C**, and then restart the system. Perform the following steps:

NOTE

The language environment variable **C** of the OS indicates that the system language is English.

1. Run the following commands to change the language environment variable description in the **/etc/TIMEZONE** file.
```
# cd /opt/HWICMR/tools
# ./ChangeLanEnv.sh
```
A message similar to the following will be displayed:
```
Getting the current working directory...
Working directory: /opt/HWICMR/tools
The current language is "zh_CN.GB18030", Do you really want to change? [y or n]
```
2. Enter **y** and press **Enter**.

A message similar to the following will be displayed:
```
Please enter the language you want to change!
```
3. Enter **C** and press **Enter**.

A message similar to the following will be displayed:
```
You input is C. Press Y to confirm!
```
4. Enter **Y** and press **Enter**.

A message similar to the following will be displayed:
```
Success to update, please restart the system to take effect!
```
5. Run the following commands to restart the OS:
```
# sync;sync;sync;sync
# shutdown -y -g0 -i6
```

4 **Optional:** If disk arrays are installed, perform this step. Otherwise, skip this step.

NOTE

- The OceanStor S2600 disk array (6 x 300 GB) and the StorageTek 2540 disk array (6 x 300 GB) support automatic configuration by means of the **HWICMR**. To use disk arrays that do not support automatic configuration, contact Huawei engineers.
- The OceanStor S3100 disk array does not support automatic script configuration. For details about how to configure the OceanStor S3100 disk array, see **G.3.2 Using the Manager Suite to Configure the OceanStor S3100 Disk Array**.

To configure the OceanStor S2600 disk array by using an automatic configuration script, perform the following operations:

1. Run the following commands to switch to the directory where the script for configuring the OceanStor S2600 disk array is stored, and run the **AutoSetupS2600.sh** script to start configuring the OceanStor S2600 disk array:
```
# cd /opt/HWICMR/bin/array
# ./AutoSetupS2600.sh
```

A message similar to the following will be displayed:

```
Please enter the username of the array.
```

2. Enter the user name of the disk array and press **Enter**. The default user name is **admin**.

   A message similar to the following will be displayed:

   ```
   Please enter the password of the disk array.
   ```

3. Enter the user password of the disk array and press **Enter**. The default password is **123456**.

   A message similar to the following will be displayed:

   ```
   Please enter the IP address of array controller A.
   ```

4. Enter the IP address of the primary controller of the disk array, such as *129.9.1.10* and press **Enter**.

   A message similar to the following will be displayed:

   ```
   Are you sure to continue? [y/n]
   ```

5. Enter **y** and press **Enter**. The script clears the configurations of the disk array.

   ```
   Configured the disk array successfully.
   ```

   NOTE

   Wait about five minutes. The configuration result will be displayed. If the configuration fails, run the **AutoSetupS2600.sh** script again. If the configuration fails again, use the ISM to configure the OceanStor S2600 disk array. For more information, see **G.1 Configuring the OceanStor S2600 Disk Array by Using the ISM**.

6. Run the following commands to restart the OS:

   ```
   # sync;sync;sync;sync
   # shutdown -y -g0 -i6
   ```

To configure the StorageTek 2540 disk array using the automatic configuration script, perform the following operations:

1. Install the CAM. For details, see Step 1 in **G.2 Configuring the StorageTek 2540 Disk Array Through the Web Browser**.
2. Run the following commands to navigate to the directory where the script for configuring the StorageTek 2540 disk array is stored. Run the **AutoSetup2540.sh** file to start configuring the StorageTek 2540 disk array:

   ```
   # cd /opt/HWICMR/bin/array
   # ./AutoSetup2540.sh
   ```

   A message similar to the following will be displayed:

   ```
   Please input "y" to go on or "n" to quit:
   ```

3. Enter **y** and press **Enter**.

   A message similar to the following will be displayed:

   ```
   Please input the IP address of the array:
   ```

4. Enter the IP address of a disk array controller, such as the IP address of the primary controller *129.9.1.10*, and press **Enter**.

   A message similar to the following will be displayed:

   ```
   Please input the password of user root...
   Type your password:
   ```

5. Enter the password of user **root** of the OS and press **Enter**. The default password is **root**.

   Wait about 10 minutes. The result of the configuration will be displayed. If the configuration fails, run the **AutoSetup2540.sh** script and configure the StorageTek 2540 disk array again. If the configuration fails again, configure the StorageTek 2540 disk array through the Web browser. For more information, see **G.2 Configuring the StorageTek 2540 Disk Array Through the Web Browser**.

A message similar to the following will be displayed:

```
...
Succeeded to configure disk array!
...
```

6. Run the following commands to restart the OS:

```
# sync;sync;sync;sync
# shutdown -y -g0 -i6
```

5 Run the following commands to switch to the directory where the HWICMR is stored, and run the **install.sh** script to start the HWICMR for system pre-configuration:

```
# cd /opt/HWICMR/bin
# ./install.sh -r
```

NOTE

A message similar to the following will be displayed:

```
 ======= Installation Type =======
Select the installation type. The installation wizard will guide
you through the rest of the installation process according
to the installation type you selected.
       1.      Single-Server System (Solaris)
       2.      High Availability System (Solaris)
                     Select[1]:
```

6 Enter **1** to select **Single-Server System (Solaris)**. Press **Enter**.

A message similar to the following will be displayed:

```
======= The path of database =======

               Please input the database path, which is a directory used to install
the database software.

                        Please input path or press the Enter key that used the
default directory[/opt/sybase]:
```

1. Press **Enter**.

CAUTION

The database installation path may vary according to disk partitions. By default, the database is installed in the **/opt/sybase** path. Do not change the database installation path.

A message similar to the following will be displayed:

```
 ======= The path of NMS =======

                Please input the NMS path which is a directory used to install
the NMS software.

                          Please input path or press Enter key that used the
default directory [/opt/U2000]:
```

2. Press **Enter**.

CAUTION

The NMS installation path may vary according to disk partitions. By default, the NMS is installed in the **/opt/U2000** path. Do not change the NMS installation path.

A message similar to the following will be displayed:

```
       ======= Network Configuration Mode  =======
Do you want to configure the OS network?
If so, you can clear up the original network configurations and reconfigure the
network.
If not, The original network configurations will be reused.
                                1.      yes
                                2.      no
                          Select[2]:
```

7 According to the conditions at your site, determine if the system work needs to be reconfigured.

NOTE

System network settings include: the system IP address, the system host name, the subnet mask of the system IP address, and the default gateway IP address.

The displayed configuration result depends on the configurations of the disk array and the configurations of the system network. Watch out for failed configurations.

- If the system network does not need to be reconfigured, perform the following operations:

  Enter **2** and press **Enter**.

  A message similar to the following will be displayed:

```
Modifying the system parameters.......................
Enable disk multi-pathing service.....................
Mirroring disks.......................................
...
Press Enter to restart the computer.
```

  NOTE

  If the message “It will take 3-5 minute(s) to execute this task....” is displayed, wait patiently.

- If the system network needs to be reconfigured, perform the following operations:

  1. Enter **1** to reconfigure the system network and press **Enter**.

     A message similar to the following will be displayed:

```
Trying to back up the current network configurations...
Do you want to clear up the current system network configurations[y/n]?
Enter "y" to clear up and "n" to reserve.
>
```

  2. Determine whether to clear or save the current system network settings according to the conditions at your site, as follows:

     - Enter **y** to clear the current system network settings and press **Enter**.
     - Enter **n** to save the current system network settings and press **Enter**.

     A message similar to the following will be displayed:

```
...
Please input the system ip[10.71.224.12] >
```

  3. Enter the planned system IP address and press **Enter**.

     A message similar to the following will be displayed:

```
Please input the system hostname [NMSserver]: >
```

  4. Enter the planned host name and press **Enter**.

     A message similar to the following will be displayed:

```
Please input the system netmask [255.255.255.0]: >
```

  5. Enter the subnet mask of the system IP address and press **Enter**.

     A message similar to the following will be displayed:

```
Please input the system default router []: >
```

6. Enter the default gateway IP address and press **Enter**.

   A message similar to the following will be displayed:

```
Please confirm the following configurations...
*****************************************************************
            System NIC              e1000g0
            System ip               129.9.1.1
            System hostname         NMSserver
            System netmask          255.255.255.0
            system default router     129.9.1.254
*****************************************************************
Enter 'y' to apply these values and proceed to the next step,
 or 'n' to return to make any changes (y/n):
>
```

7. Enter **y** after you confirm that the system network settings are correct. Press **Enter**.

   A message similar to the following will be displayed:

```
Will the application network reuse the system network [y/n]?
>
```

8. The system network is recommended to be reused. Enter **y** to reuse the system network and press **Enter**.

   The system will start to modify the system network settings and configure disk mirroring.

   A message similar to the following will be displayed:

```
...

Modifying the system parameters.........................
Enable disk multi-pathing service.......................

...
Press Enter to restart the computer.
```

   NOTE

   - If the system network is not reused, enter **n** and press **Enter**. Select the application NIC and enter the application IP address, host name of the application IP address, and mask of the application IP address. Confirm that the application IP address is correct at the system prompts.
   - If a disk array is not mounted, a message similar to the following will be displayed:

```
Modifying the system parameters.......................
Enable disk multi-pathing service.....................
Mirroring disks.......................................
...
Press Enter to restart the computer.
```

CAUTION

Do not perform **8** to **10** unless the disk array is mounted.

8 **Optional:** Press **Enter** to restart the OS.

9 **Optional:** After the OS restarts, log in to the OS as user **root**.

10 **Optional:** Run the following commands to switch to the directory where the HWICMR is stored, and run the **install.sh** script to start the HWICMR to mirror disks:

```
# cd /opt/HWICMR/bin
# ./install.sh
```

A message similar to the following will be displayed:

```
...

Modifying the system parameters.........................
Enable disk multi-pathing service.......................
Mirroring disks.........................................
...
Press Enter to restart the computer.
```

11 Press **Enter** to restart the OS.

12 After the OS restarts, log in to the OS as user **root**.

13 Run the following commands to switch to the directory where the HWICMR is stored, and run the **install.sh** script to start the HWICMR to check system pre-configuration:

```
# cd /opt/HWICMR/bin
# ./install.sh
```

A message similar to the following will be displayed:

```
...

Modifying the system parameters.........................
Enable disk multi-pathing service.......................
Mirroring disks.........................................
Mounting disk array.....................................
...

All operations defined in the task flow have been completed.

All operation logs are saved in:
              /var/ICMR/ICMR_20090915024631.log
```

- The displayed configuration result depends on the configurations of the disk array and the configurations of the system network. Watch out for failed configurations.
- If **Failed** is returned, the configuration fails. In this case, save the operation log and contact Huawei engineers for fault locating.

----End

Follow-up Procedure

If the OS must be reconfigured because of incorrect parameter settings (such as incorrect IP addresses), perform the following operations:

1. Press **Ctrl+C** to stop the program from configuring the OS.
2. Run the following commands to reconfigure the OS:
   ```
   # cd /opt/HWICMR/bin
   # ./install.sh -r
   ```
   For more information, refer to the procedures described above.

7.3 Starting the U2000 Installation Program

This topic describes how to start the U2000 installation program. Install the U2000 software through the GUI (recommended) or CLI. If the GUI cannot be logged in to, install the U2000 software through the CLI.

7.3.1 Installing the U2000 Through the GUI
This topic describes how to install the U2000 software through the GUI. It is recommended that you install the U2000 through the GUI if you are not familiar with the common commands of the Solaris OS.

7.3.2 Installing the U2000 Through the CLI
This topic describes how to install the U2000 software through the CLI. Installation engineers are recommended to install the U2000 through the CLI if they cannot log in to the GUI.

7.3.1 Installing the U2000 Through the GUI

This topic describes how to install the U2000 software through the GUI. It is recommended that you install the U2000 through the GUI if you are not familiar with the common commands of the Solaris OS.

Prerequisite

- If the U2000 is not pre-configured, see **7.2 Pre-configuring the U2000**. The U2000 will fail to install if it is not pre-configured.
- The operation procedure varies according to whether a database is installed on site.
  1. The Sybase database is not reused.

     If the Sybase database is not installed on site or the version of the installed database does not meet requirements, it is recommended that the Sybase database be not reused. The database software is pre-installed on the U2000.
  2. The Sybase database is reused.

     If the database is installed on the server and installation engineers want to use the original database software, ensure that the database is running. For details, see **A.2.1.3 How to Verify That the Sybase Process Is Running** and **A.2.1.2 How to Start the Sybase Database Service**.
     - If the Sybase 12.5 is installed, do not use the original database software.
     - If the Sybase 15.0 is installed, do not use the original database software. In the event that the original Sybase 15.0 software must be used, ensure that the following criteria are met:

       (1) The server name of the Sybase database is **DBSVR**. For details, see **A.2.2.7 How to Change the Server Name of the Sybase Database to DBSVR**.

       (2) There are not any redundant database items. For details, see **A.2.2.8 How to Delete Redundant Database Items**.

       (3) The character set **UTF-8** is configured for the database. For details, see **A.2.2.9 How to Change the Character Set of the Database to UTF-8**.
- Ensure that the size of the installation directory of the server meets the requirement. For example, if all components need to be installed, the remaining space of the installation directory must be larger than 30 GB. It is advisable to install the components of only one product domain if the server is configured with only two 73 GB hard disks.

  TIP

  Run the **df -hk /opt** command to view the remaining space of the **/opt** directory.
- The remote desktop control software is ready.

Context

Any of the following methods can be used to install the U2000:

- **Installation by typical network**: Choose the desired scenario according to the type of the equipment to be managed. The U2000 software provides common scenarios. This method is recommended in situations where the license file is not on-hand.

- **Installation by license**: This method is recommended if the license is on-hand.
- **Custom installation**: This method is applicable to advanced users familiar with managing the network and U2000. This method is also recommended in the event that the license file is on-hand and the common scenarios provided by the U2000 software are insufficient.

Procedure

1. Log in to the **Java Desktop System, Release 3** session of the server OS as user **root** using the remote desktop control software.

   TIP

   - To log in to the **Java Desktop System, Release 3**, perform the following operations: In the login dialog box of the remote desktop control software, choose **Options** > **Session** > **Java Desktop System, Release 3**. Then, set the session to **Java Desktop System, Release 3**.
   - After you log in to the **Java Desktop System, Release 3**, if the **Solaris Registration Wizard** dialog box is displayed, click the **Run the Solaris software without registering** option button and then click **Next**. In the dialog box that is displayed, click **Never Register**.

2. On the desktop, right-click and choose **Open Terminal** from the shortcut menu to display a CLI.

3. Run the following command to check whether the system character set is correct:

   ```
   # locale -a
   ```

   If the following message is displayed, the character set of Solaris OS is correct. Otherwise, reinstall the OS.

   ```
   C
   en_US.UTF-8
   ```

4. Run the following commands to go to the path where the **install.sh** file is stored and run the **install.sh** file:

   ```
   # cd /opt/HWENGR
   # ./install.sh
   ```

   Wait about one minute. The **Copyright** dialog box will be displayed.

   NOTE

   If the U2000 is not pre-configured, the **/opt/HWENGR** directory and the **install.sh** will not be generated and the U2000 cannot be installed.

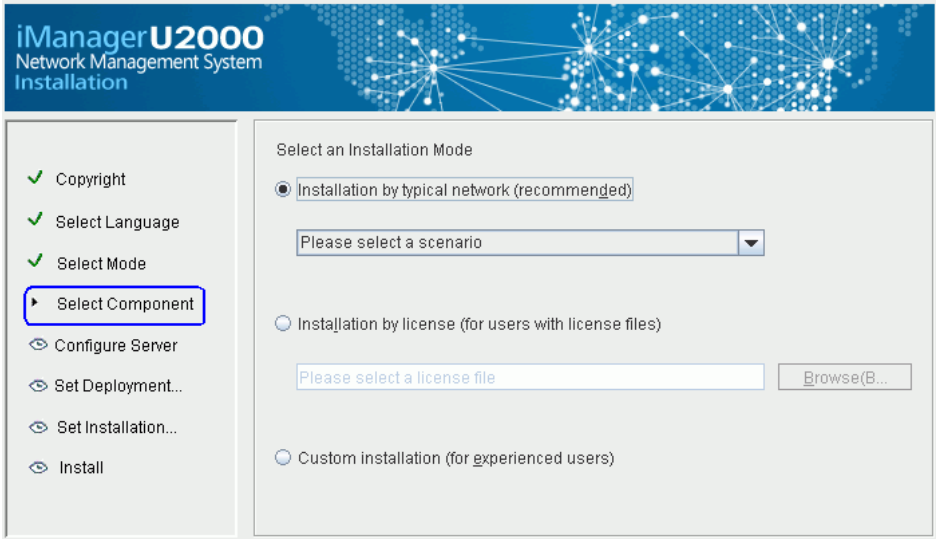
   Read the terms of the software license agreement carefully.

5. Click **Accept these terms**, and click **Next** to continue. The **Select Language** dialog box will be displayed.

   NOTE

   If a dialog box is displayed prompting you to select the directory of the installation package, enter the directory where the installation files were uploaded to the server. For example, **/opt/install**.

6. Select the language according to the conditions at your site, such as **English**. Then, click **Next**. The **Installation Mode** dialog box will be displayed.



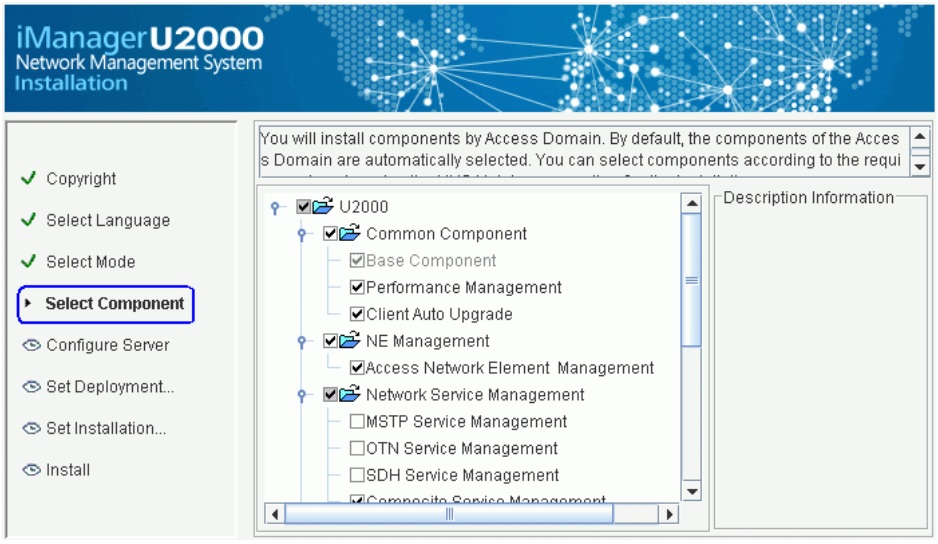
- Select **Installation by typical network**. Then, select a scenario from the drop-down list according to the type of the equipment to be managed.
- Select **Installation by license**. Then, click **Browse** to select the license file that has already been applied for and issued.
- Select **Custom installation**.

NOTE

Any of the following methods can be used to install the U2000:

- **Installation by typical network**: Choose the desired scenario according to the type of the equipment to be managed. The U2000 software provides common scenarios. This method is recommended in situations where the license file is not on-hand.
- **Installation by license**: This method is recommended if the license is on-hand.
- **Custom installation**: This method is applicable to advanced users familiar with managing the network and U2000. This method is also recommended in the event that the license file is on-hand and the common scenarios provided by the U2000 software are insufficient.

7 Click **Next**. The **Component** dialog box will be displayed.



- If you select **Installation by typical network**, the software selects the components to be installed according to the conditions at your site.

- If you select **Installation by license**, the software selects the components to be installed according to the license file.
- If you select **Custom installation**, the software selects the components to be installed according to the type of the equipment to be managed.

8 Click **Next**. The **Server** dialog box is displayed.

NOTE

To modify the server parameters, select the server and click **Modify**. Then, modify the server parameters in the dialog box that is displayed.

9 Click **Next**. The **Deployment Parameters** dialog box will be displayed.

NOTE

If the **/opt/U2000** path does not exist, the **Confirm** dialog box will be displayed. Click **Yes** to create the **/opt/U2000** path.

- You can modify the number of instances only for components with **single-server multi-instance**.
- Limited by the port quantity, a maximum number of 25 instances can be deployed for the transport domain in the single-server multi-instance deployment mode.
- To use the CORBA northbound interface (NBI), XML NBI, SNMP NBI, and text NBI, instances must be added by using the Network Management System Maintenance Suite after installing the desired NBIs.

10 Click **Next**. The **Version Style** dialog box will be displayed.

NOTE

The following is an example of the differences between the two styles:

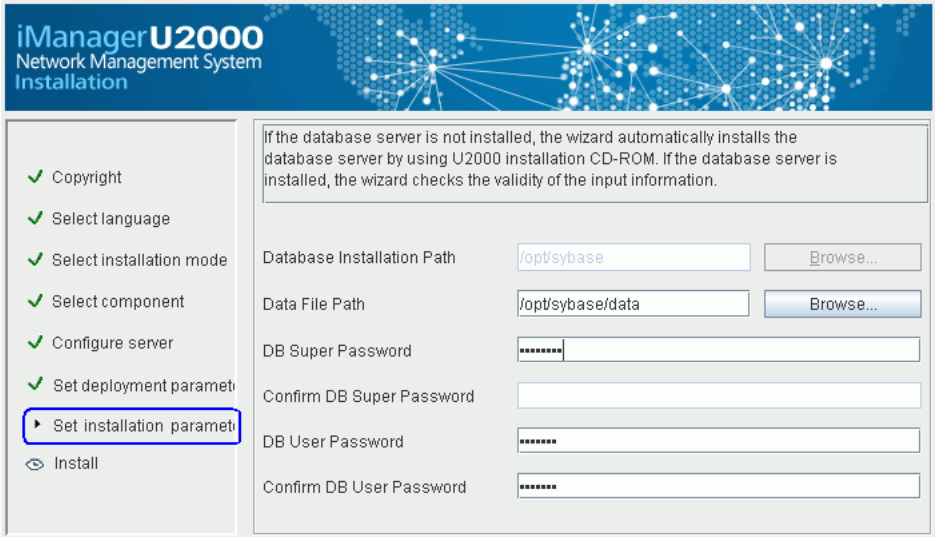
- For the default style, alarms are displayed in the following descending order of severity: **Critical**, **Major**, **Minor** and **Warning**.
- For the North America style, alarms are displayed in the following five levels in descending order of severity: **Critical**, **Major**, **Minor**, **Not Alarmed** and **Not Reported**.

11 Select the style according to the conditions at your site, such as **Default style**. Click **Next**. The **Installation Parameters** dialog box will be displayed.

NOTE

If the components include **SDH Network Element Management** or **SDH Service Management**, the **Version Timeslot Mode** dialog box will be displayed. Select the slot mode according to the conditions at your site, such as **Sequence mode**. Click **Next**.

The **Sequence mode** is the international standard mode and is recommended.



The following table shows the basic settings of the database server and NMS database user.

Parameter	Description
Database Installation Path	Specifies the installation directory of the Sybase database. The default value is **/opt/sybase**. This parameter does not need to be set.
Data File Path	Specifies the path of the data file. The default value is **/opt/sybase/data**. This parameter does not need to be set.
Database Superuser Password	Specifies the superuser password of the database. This password can be left blank (not recommended). The password must be 6-30 characters long and consist of letters or digits. Special characters are not allowed. For example, it can be **changeme**. **NOTE** If the database is installed, enter the password of the database superuser (this password was set when the database was installed).
Reenter Database Superuser Password	Confirms the password of the database superuser. **NOTE** If the database is installed, you do not need to enter the password of the database superuser.
Database User Password	Specifies the password of the database user. This parameter contains a minimum of six characters. The default value is **NMSuser**. **NOTE** If the database is installed, enter the password of the database user (this password was set when the database was installed).
Reenter Database User Password	Confirms the password of the database user.

12 Set the installation parameters and click **Next**. The installation information will be displayed.

NOTE

- If the system prompts you to use the original database software, a database has been installed on the server. If you reuse the database, the installation program will skip database installation. If you do not reuse the database, the installation program will uninstall the existing database and reinstall the database. It is recommended that installation engineers not to reuse the database.
- If the message "Select Installation Package Patch" is displayed, no database installation package is stored in the **/opt/install** directory. In this case, upload database software U2000***version***_server_db_solaris_SPARC.tar to the **/opt/install** directory on the server and decompress it. Set the directory of the installation package to **/opt/install**.

13 Verify that the installation information is correct and click **Next**. A progress bar will be displayed. The time required for the installation depends on the number of components to be installed and the server configuration. The entire process takes about 120 minutes. Wait patiently.

NOTE

- The NMS can automatically expand the capacity of a database according to the growth parameters defined when the database is created. The disk space for installing the database must be greater than the maximum size to which the file is permitted to grow. If the disk space is insufficient, the system will display a prompt message in red. The U2000 can manage up to the maximum of NEs as supported by the server model.
- When the progress bar reaches 99%, the system may wait about half an hour until U2000 installation is complete. This is normal.
- If a message indicating an installation failure or interruption is displayed during installation, perform the following operations to clear the installation environment, and then install the U2000.
  1. Run the following commands to use the environment clean-up tool to clear the installation environment:
     ```
     # cd /opt/HWENGR/engineering/tool
     # ./FailedNMSInstallationClear.sh
     ```
  2. Perform 4 to install the U2000.

14 The system will display a prompt indicating that installation was successfully completed.

15 Click **Finish** to complete the U2000 installation.

16 Run the following commands to restart the OS:

```
# sync;sync;sync;sync
# shutdown -y -g0 -i6
```

----End

7.3.2 Installing the U2000 Through the CLI

This topic describes how to install the U2000 software through the CLI. Installation engineers are recommended to install the U2000 through the CLI if they cannot log in to the GUI.

Prerequisite

- If the U2000 is not pre-configured, see **7.2 Pre-configuring the U2000**. The U2000 will fail to install if it is not pre-configured.
- The operation procedure varies according to whether a database is installed on site.
  1. The Sybase database is not reused.

     If the Sybase database is not installed on site or the version of the installed database does not meet requirements, it is recommended that the Sybase database be not reused. The database software is pre-installed on the U2000.
  2. The Sybase database is reused.

If the database is installed on the server and installation engineers want to use the original database software, ensure that the database is running. For details, see **A.2.1.3 How to Verify That the Sybase Process Is Running** and **A.2.1.2 How to Start the Sybase Database Service**.

- If the Sybase 12.5 is installed, do not use the original database software.
- If the Sybase 15.0 is installed, do not use the original database software. In the event that the original Sybase 15.0 software must be used, ensure that the following criteria are met:

(1) The server name of the Sybase database is **DBSVR**. For details, see **A.2.2.7 How to Change the Server Name of the Sybase Database to DBSVR**.

(2) There are not any redundant database items. For details, see **A.2.2.8 How to Delete Redundant Database Items**.

(3) The character set **UTF-8** is configured for the database. For details, see **A.2.2.9 How to Change the Character Set of the Database to UTF-8**.

- Ensure that the size of the installation directory of the server meets the requirement. For example, if all components need to be installed, the remaining space of the installation directory must be larger than 30 GB. It is advisable to install the components of only one product domain if the server is configured with only two 73 GB hard disks.

  TIP

  Run the **df -hk /opt** command to view the remaining space of the **/opt** directory.

Context

- A large amount of information is displayed in the CLI when installation is performed in CLI mode. Adjust the CLI parameters before installing the U2000 to have the information neatly and quickly displayed. Details are as follows:
  1. Right-click the title bar of the CLI and choose **Properties** from the shortcut menu. The **Properties** dialog box will be displayed.
  2. On the **Option** tab page, set **Buffer Size** to **100** in the **Command History** area.
  3. On the **Layout** tab page, set **Width** to **120** in the **Screen Buffer Size** area.
- Any of the following methods can be used to install the U2000:
  - **Installation by typical network**: Choose the desired scenario according to the type of the equipment to be managed. The U2000 software provides common scenarios. This method is recommended in situations where the license file is not on-hand.
  - **Installation by license**: This method is recommended if the license is on-hand.
  - **Custom installation**: This method is applicable to advanced users familiar with managing the network and U2000. This method is also recommended in the event that the license file is on-hand and the common scenarios provided by the U2000 software are insufficient.

Procedure

1 Log in to the OS of the server as user **root**.

2 Run the following command to verify that the character set of the system is correct:

```
# locale -a
```

If the following message is displayed, the character set of Solaris OS is correct. Otherwise, reinstall the OS.

```
C
en_US.UTF-8
```

3 Run the following commands to switch to the path where the **install.sh** file is stored and run the **install.sh** script:

```
# cd /opt/HWENGR
# ./install.sh -cmd
```

NOTE

After the message `Starting NMS Engineering CMD Install Server...` is displayed, wait about two minutes.

A message similar to the following will be displayed:

```
===============< Copyright Notice >===============
Copyright Notice
...
I accept these terms [y:Yes, n:No, n]:
```

NOTE

If the U2000 is not pre-configured, the **/opt/HWENGR** directory and the **install.sh** will not be generated and the U2000 cannot be installed.

Read the terms of the software license agreement carefully. Enter **y** if the terms are accepted.

4 Enter **y** and press **Enter**.

NOTE

If a dialog box is displayed prompting you to select the directory of the installation package, enter the directory where the installation files were uploaded to the server. For example, **/opt/install**.

A message similar to the following will be displayed:

```
Install [c:Cancel, <p:< Previous, n:Next>, n]:
```

5 Enter **n** and press **Enter**.

A message similar to the following will be displayed:

```
===============< Select NMS Language >===============

NMS Version Language [1:Chinese, 2:English, 2]:
```

6 Enter **2** and then press **Enter** to select the English version.

A message similar to the following will be displayed:

```
Install [c:Cancel, <p:< Previous, n:Next>, n]:
```

7 Enter **n** and press **Enter**.

A message similar to the following will be displayed:

```
===============< Select an Installation Mode >===============

[1: Installation by typical network (recommended), 2: Installation by license (for
users with license files), 3: Custom installation (for experienced users), 1]:
```

The following uses **Installation by typical network** as an example.

Any of the following methods can be used to install the U2000:

- **Installation by typical network**: Choose the desired scenario according to the type of the equipment to be managed. The U2000 software provides common scenarios. This method is recommended in situations where the license file is not on-hand.

- **Installation by license**: This method is recommended if the license is on-hand.
- **Custom installation**: This method is applicable to advanced users familiar with managing the network and U2000. This method is also recommended in the event that the license file is on-hand and the common scenarios provided by the U2000 software are insufficient.

NOTE

- Enter **2** and press **Enter** to install with a license. Enter the path where the license file is stored and press **Enter**. Then, follow the prompts to install the U2000.
- Enter **3** and press **Enter** to install with a customized installation. Then, follow the prompts to install the U2000.

8 Enter **1** to select **Installation by typical network** and press **Enter**.

NOTE

The following uses the installation by typical network as an example.

A message similar to the following will be displayed:

```
Select a scenario: [1: Transport domain, 2: Access domain, 3: IP domain, 4: All
domains,  1 ][]:
```

9 Select the desired scenario according to the conditions at your site. For example, enter **1** to select the transport network domain scenarios, and press **Enter**.

A message similar to the following will be displayed:

```
Install [c:Cancel, <p:< Previous, n:Next>, n]:
```

10 Enter **n** and press **Enter**.

A message similar to the following will be displayed:

```
===============< Select Components >===============

[1: Select Component, 2: Finished select, 1]:
```

11 Enter **2** to finish selecting the components.

NOTE

- Components marked with the asterisk (*) in the **component** column are mandatory.
- Selected components are indicated with **Y** in the **Option** column.

Enter **1** to reselect the components to be installed if modification is still required.

A message similar to the following will be displayed:

```
Install [c:Cancel, <p:< Previous, n:Next>, n]:
```

12 Enter **n** and press **Enter**.

A message similar to the following will be displayed:

```
===============< Deployment Server >===============
+---------+-------------+-------------+----------------------+-----------------+
|Server Name |IP Address|Server Type|Administrator Password|Installation Path|
+---------+-------------+-------------+----------------------+-----------------+
|NMSserver|129.9.1.1|Master Server|****                  |/opt/U2000         |
+---------+-------------+-------------+----------------------+-----------------+

[1: Modify , 2: Complete, 2]:
```

To modify the server, enter **1** and press **Enter**. Follow the prompts to modify the server parameters.

13 Confirm that the information about the server is correct. Enter **2** and press **Enter** to complete the installation.

A message similar to the following will be displayed:

```
Install [c:Cancel, <p:< Previous, n:Next>, n]:
```

14 Enter **n** and press **Enter**.

A message similar to the following will be displayed:

```
===============< An instance is configured for each deployment package for the
master server.
By default, no instance is configured for a slave server.
Specify the number of instances for deployment packages for each server according
to the installation plan. >===============

[1: Configure instances, 2: Configuration is complete., 1]:
```

15 Enter **2** to finish the deployment of instances.

NOTE

- Enter **1** to configure the number of the instances if this parameter needs to be modified.
- You can modify the number of instances only for components with **single-server multi-instance**.
- Limited by the port quantity, a maximum number of 25 instances can be deployed for the transport domain in the single-server multi-instance deployment mode.
- To use the CORBA northbound interface (NBI), XML NBI, SNMP NBI, and text NBI, instances must be added by using the Network Management System Maintenance Suite after installing the desired NBIs.

A message similar to the following will be displayed:

```
Install [c: Cancel, <p: < Previous, n:Next>, n]:
```

16 Enter **n** and press **Enter**.

A message similar to the following will be displayed:

```
===============< Select Style >===============

Version Style [1: Default style, 2: North America style, 1]:
```

NOTE

The following is an example of the differences between the two styles:

- For the default style, alarms are displayed in the following descending order of severity: **Critical**, **Major**, **Minor** and **Warning**.
- For the North America style, alarms are displayed in the following five levels in descending order of severity: **Critical**, **Major**, **Minor**, **Not Alarmed** and **Not Reported**.

17 Select the style according to the conditions at your site. For example, enter **1** to select **Default style** and press **Enter**.

A message similar to the following will be displayed:

```
Install [c: Cancel, <p: < Previous, n:Next>, n]:
```

18 Enter **n** and press **Enter**.

NOTE

If the components include **SDH Network Element Management** or **SDH Service Management**, the **Select timeslot mode** information will be displayed. Select the slot mode according to the conditions at your site. For example, enter **1** to select **Sequence mode** and press **Enter**. Enter **n** and press **Enter** to proceed with the next step.

The **Sequence mode** is the international standard mode and is recommended.

A message similar to the following will be displayed:

```
...
Database Installation Path [/opt/sybase]
Data File Path [/opt/sybase/data]:
```

19 Configure the information about the database service as follows:

1. Press **Enter**. Configure the installation path of the database file in this step. The default value is **/opt/sybase/data**.

   A message similar to the following will be displayed:

   ```
   DB Super Password [******]:
   ```

2. Enter the password of user **DB Super** and press **Enter**.

   NOTE

   - Specifies the superuser password of the database. This password can be left blank (not recommended). The password must be 6-30 characters long and consist of letters or digits. Special characters are not allowed. For example, it can be **changeme**.
   - If the database is installed, and you do not need not to perform the next operations (Enter the password of the **DB Super** user again).

   A message similar to the following will be displayed:

   ```
   Confirm DB Super Password[]:
   ```

3. Enter the password of user **DB Super** again and press **Enter**.

   A message similar to the following will be displayed:

   ```
   DB User Password [******]:
   ```

4. Enter the password of the DB user and press **Enter**.

   NOTE

   - This parameter contains a minimum of six characters and specifies the password of the DB user. The default value is **NMSuser**.
   - If the database is installed, enter the password of the DB user (this password was set when the database was installed).

   A message similar to the following will be displayed:

   ```
   Confirm DB User Password [******]:
   ```

5. Enter the password of the DB user and press **Enter**.

   A message similar to the following will be displayed:

   ```
   Install [c: Cancel, <p: < Previous, n:Next>, n]:
   ```

6. Enter **n** and press **Enter**.

   NOTE

   - If the system prompts you to use the original database software, a database has been installed on the server. If you reuse the database, the installation program will skip database installation. If you do not reuse the database, the installation program will uninstall the existing database and reinstall the database. It is recommended that installation engineers not to reuse the database.
   - If the message "Select Installation Package Patch" is displayed, no database installation package is stored in the **/opt/install** directory. In this case, upload database software U2000***version***_server_db_solaris_SPARC.tar to the **/opt/install** directory on the server and decompress it. Set the directory of the installation package to **/opt/install**.

   A message similar to the following will be displayed:

```
===============< Please check the following overall information about the
U2000 installation>===============
[Basic Information]
...
Install[c:Cancel, <p:< Previous, n:Next>, n]:
```

20 Confirm that the installation information is correct, enter **n** and press **Enter**.

A message similar to the following will be displayed:

```
===============< Progress information >===============


Initializing the data model. Please wait...: 0%
```

NOTE

- The NMS can automatically expand the capacity of a database according to the growth parameters defined when the database is created. The disk space for installing the database must be greater than the maximum size to which the file is permitted to grow. If the disk space is insufficient, the system displays a prompt message in red. The management capability of the U2000 after the installation cannot reach the associated maximum value of this model.
- When the progress bar reaches 99%, the system may wait about half an hour until U2000 installation is complete. This is normal.
- If a message indicating installation failure or abnormal interruption is displayed during installation, perform the following operations to clean up the installation environment, and then install the U2000.
  1. Run the following commands to use the environment clean-up tool to clear the installation environment:
     ```
     # cd /opt/HWENGR/engineering/tool
     # ./FailedNMSInstallationClear.sh
     ```
  2. Run Step 3 to install the U2000.

21 After the installation, the message similar to the following will be displayed:

```
...
Install [c: Cancel, p: < Previous, n:Next>, n]:
```

22 Enter **n** and press **Enter** to complete the installation.

A message similar to the following will be displayed:

```
===============< Installation Completed >===============

The iManager U2000 is installed successfully.
...
```

23 Run the following commands to restart the OS:

```
# sync;sync;sync;sync
# shutdown -y -g0 -i6
```

----End

8 (Optional) Loading a U2000 License

This topic describes how to load a U2000 license. If **Installation by license** is not selected during installation of the U2000 software, you must upload a U2000 license.

Prerequisite

The U2000 license file must be ready. The file name cannot contain any space. If a space is included in the file name, delete the space or change it to an underscore (_).

Context

- During installation of the U2000 software, the OS user **nmsuser** is created automatically. The **nmsuser** user is used to regularly maintain a U2000.
- Two methods are available for loading a U2000 license.
  - **Method one**:

    Use commands to load the license. This method is applicable to users who cannot log in to GUI OSs.

    Deployment scenario: The GUI is unavailable. Users cannot log in to the U2000 client but have to use commands for remote operations.
  - **Method two**:

    Load the license in the GUI. This method is applicable to users who are not familiar with common commands of the Solaris OS.

    Deployment scenario: Loading the license in the GUI is recommended. If the GUI is available and the login to the U2000 client is successful, use this method.

Procedure

1. Log in to the OS of the server as the **nmsuser** user.

   NOTE

   As the default password of the **nmsuser** user is not set, it can be blank or any character that can be used when the OS is first logged in to as the **nmsuser** user. The system will prompt you to change the password which must be a string of at least six characters and contain at least one digit or special character. The login window will close after the password is changed. Then, log in to the Java Desktop System, Release 3 session process of the server OS again as the **nmsuser** user.

2. Ensure that the database is running.

Run the following command to check whether the Sybase database is running:

```
$ ps -ef | grep sybase
```

Information similar to the following is displayed:

```
  sybase  4848  4847   0   May 18 ?         167:11 /opt/sybase/ASE-15_0/bin/data
server -sDBSVR -d/opt/sybase/data/lv_master -e/opt
  sybase  5250  5248   0   May 18 ?           0:00 /opt/sybase/ASE-15_0/bin/back
upserver -SDBSVR_back -e/opt/sybase/ASE-15_0/insta
  sybase  4847     1   0   May 18 ?           0:00 /usr/bin/sh /opt/sybase/ASE-1
5_0/install/RUN_DBSVR
  sybase  5248     1   0   May 18 ?           0:00 /usr/bin/sh /opt/sybase/ASE-1
5_0/install/RUN_DBSVR_back
 ...
```

NOTE

The database is running if the displayed information contains **/opt/sybase/ASE-15_0/install/RUN_DBSVR** and **/opt/sybase/ASE-15_0/install/RUN_DBSVR_back**.

Run the following commands to start the Sybase database if it is not running:

```
$ su - sybase
$ . /opt/sybase/SYBASE.sh
$ cd /opt/sybase/ASE-15_0/install
$ ./startserver -f ./RUN_DBSVR &
$ ./startserver -f ./RUN_DBSVR_back &
$ exit
```

NOTE

Leave a space between the dot (.) and the command **/opt/sybase/SYBASE.sh**.

NOTE

- **DBSVR** is the name of the database server and **DBSVR_back** is the name of the database backup server. These names must be consistent with the actual database names.
- View the database name and database backup server name by running the **more /opt/sybase/interfaces** command.

3 Ensure that the U2000 is running.

Run the following command to check whether the U2000 is running:

```
$ daem_ps
```

Information similar to the following is displayed:

```
    nmsuser 27069     1   0 10:31:39 ?           1:39 imapmrb
    nmsuser 27079     1   0 10:31:39 ?           0:00 imapwatchdog -cmd start
    nmsuser 27075     1   0 10:31:39 ?           0:50 imapsysd -cmd start
    nmsuser 27086     1   0 10:31:39 ?           0:09 imapeventmgr
    nmsuser 23679     1   1 17:57:06 pts/8       0:02 imap_sysmonitor -cmd start
    nmsuser 27116     1   0 10:31:40 ?           0:52 ResourceMonitor -cmd start
```

NOTE

The U2000 is running if the displayed information contains **imap_sysmonitor -cmd start**.

To start the U2000 if it is not running, run the following commands:

```
$ cd /opt/U2000/server/bin
$ ./startnms.sh
```

4 Run the following commands to check whether a license file exists. If a license file exists, back it up .

```
# cd /opt/U2000/server/etc/conf/license
# ls
```

If the folder contains any other license file, run the following commands to back up the any other license file to the **/opt/U2000/server/etc/conf/license_backup** path.

```
# mkdir -p /opt/U2000/server/etc/conf/license_backup
# cd /opt/U2000/server/etc/conf/license
# cp license_file_name /opt/U2000/server/etc/conf/license_backup
```

5 Load the U2000 license file.

Method one: Use commands to load the license.

1. Send the license file to the U2000 installation path **/export/home/nmsuser** in ASCII codes using FTP as the **nmsuser** user. Details are as follows:
   a. Log in to the PC where the license file is stored.
   b. Choose **Start** > **Run**. In the **Run** dialog box, enter **ftp** ***system IP address of the server*** and click **OK**. An FTP connection is established and a CLI is displayed.
   c. In the CLI, enter **nmsuser** as the name of the OS user.
      ```
      User (IP_address:(none)):nmsuser
      ```
   d. Enter the password for the **nmsuser** user.
      ```
      Password:
      ```
   e. Set the format of the file to be transferred using FTP to ASCII.
      ```
      ftp> ascii
      ```
   f. Navigate to the path on the computer where the license file is stored.
      ```
      ftp> lcd PC_directory
      ```
   g. Navigate to the **/export/home/nmsuser** directory.
      ```
      ftp> cd /export/home/nmsuser
      ```
   h. Run the **put** command to upload the license file to the server.
      ```
      ftp> put "License_file_name"
      ```
   i. To exit the FTP program, run the following command:
      ```
      ftp> quit
      ```
2. To activate the license file, run the following commands:
   a. Log in to the OS of the server as the **nmsuser** user.
   b. Run the following commands to update the U2000 license file:
      ```
      $ cd /export/home/nmsuser
      $ updateLicense -file License_file_name
      ```
      Information similar to the following is displayed:
      ```
      state            product        feature        item        name        old
      value        new value
      no change:    U2000        COMMON        LSW1CAPA01        Client
      500        500
      no change:    U2000        COMMON        LSW1CAPA01        Client
      1        1
      no change:   U2000       COMMON       LSW1FMCLT01       Alarm Export
      1        1
      no change:    U2000        COMMON        LSW1RENOTI01        Client
      1        1

      Are you sure to update the license?(Y/N)
      ```
   c. Enter **Y**, and then press **Enter**.

Method two: Load the license in the GUI.

1. Save the license to be loaded to the server where the U2000 client is located.
2. Log in to the OS where the client program is installed.
   - In Windows, log in to the OS as the **administrator** user.

- In Solaris, log in to the OS as the **nmsuser** user.

3. On the OS desktop, double-click the **U2000 Client** shortcut icon. The **Login** dialog box is displayed.
4. In the **Server** drop-down list, select the server to be logged in to. Then, set **User Name** and **Password** to the valid values, and click **Login**. If you have logged in to the System Monitor before, enter the password for logging in to the System Monitor. If you have never logged in to the System Monitor before and this is the first time that you log in to the U2000 client, the password is empty and you must change the password.

   NOTE

   - If a message indicating that no license is available is displayed when you log in to the U2000 client, select the license to be updated as prompted.
   - If **Installation by license** or an access domain component is selected during installation, choose **Help** > **License Management** > **License Information** from the main menu of the U2000 client.
   - In the **License Information** dialog box, click **Update License**.
   - In the **Open** dialog box that is displayed, select the new license file and click **Open**.

----End

Result

After the preceding operations are performed, the license file is automatically loaded to the **/opt/U2000/server/etc/conf/license** path.

9 Checking the Installation of the Single-Server System (Solaris)

This topic describes how to check the installation of the single-server system (Solaris). Ensure that the single-server system (Solaris) was properly installed before using it to manage a network.

Context

- The client is installed at the same time as the centralized system.
- During installation of the U2000 software, the OS user **nmsuser** is created automatically. The **nmsuser** user is used to regularly maintain a U2000.
- During installation of the U2000 software, only one default NMS user, that is, user **admin**, is provided. The **admin** user is the administrator of the U2000 and has the highest rights of the U2000. The default password of user **admin** is blank. You must change the default password during first-time login.

Procedure

1. Log in to the **Java Desktop System, Release 3** session of the server OS as user nmsuser.

   NOTE

   As the default password of the **nmsuser** user is not set, it can be blank or any character that can be used when the OS is first logged in to as the **nmsuser** user. The system will prompt you to change the password which must be a string of at least six characters and contain at least one digit or special character. The login window will close after the password is changed. Then, log in to the Java Desktop System, Release 3 session process of the server OS again as the **nmsuser** user.

2. Check the shortcut icons.

   CAUTION

   If you cannot log in to the server through the GUI, skip this step.

   The following shortcut icons are displayed on the desktop:

   - **U2000 Client**
   - **U2000 System Monitor**

- **U2000 Server**
- **U2000 NMS Maintenance Suite**
- **NE Software Management**

3 Ensure that the database is running.

Run the following command to check whether the Sybase database is running:

```
$ ps -ef | grep sybase
```

Information similar to the following is displayed:

```
  sybase  4848  4847   0   May 18 ?         167:11 /opt/sybase/ASE-15_0/bin/data
server -sDBSVR -d/opt/sybase/data/lv_master -e/opt
  sybase  5250  5248   0   May 18 ?           0:00 /opt/sybase/ASE-15_0/bin/back
upserver -SDBSVR_back -e/opt/sybase/ASE-15_0/insta
  sybase  4847     1   0   May 18 ?           0:00 /usr/bin/sh /opt/sybase/ASE-1
5_0/install/RUN_DBSVR
  sybase  5248     1   0   May 18 ?           0:00 /usr/bin/sh /opt/sybase/ASE-1
5_0/install/RUN_DBSVR_back
 ...
```

NOTE

The database is running if the displayed information contains **/opt/sybase/ASE-15_0/install/RUN_DBSVR** and **/opt/sybase/ASE-15_0/install/RUN_DBSVR_back**.

Run the following commands to start the Sybase database if it is not running:

```
$ su - sybase
$ . /opt/sybase/SYBASE.sh
$ cd /opt/sybase/ASE-15_0/install
$ ./startserver -f ./RUN_DBSVR &
$ ./startserver -f ./RUN_DBSVR_back &
$ exit
```

NOTE

Leave a space between the dot (.) and the command **/opt/sybase/SYBASE.sh**.

NOTE

- **DBSVR** is the name of the database server and **DBSVR_back** is the name of the database backup server. These names must be consistent with the actual database names.
- View the database name and database backup server name by running the **more /opt/sybase/interfaces** command.

4 Ensure that the U2000 is running.

Run the following command to check whether the U2000 is running:

```
$ daem_ps
```

Information similar to the following is displayed:

```
    nmsuser 27069     1   0 10:31:39 ?           1:39 imapmrb
    nmsuser 27079     1   0 10:31:39 ?           0:00 imapwatchdog -cmd start
    nmsuser 27075     1   0 10:31:39 ?           0:50 imapsysd -cmd start
    nmsuser 27086     1   0 10:31:39 ?           0:09 imapeventmgr
    nmsuser 23679     1   1 17:57:06 pts/8       0:02 imap_sysmonitor -cmd start
    nmsuser 27116     1   0 10:31:40 ?           0:52 ResourceMonitor -cmd start
```

NOTE

The U2000 is running if the displayed information contains **imap_sysmonitor -cmd start**.

Run the following command to start the U2000 if it is not running:

```
$ cd /opt/U2000/server/bin
```

```
$ ./startnms.sh
```

5 View the running status of each process through the System Monitor as user **nmsuser** to log in to the server GUI, as follows:

CAUTION

If you cannot log in to the GUI of the server, run the **svc_adm -cmd status** command to view the status of processes as user **nmsuser**.

1. On the desktop of the OS, double-click the **U2000 System Monitor** shortcut icon.

   NOTE

   The default ACL range is the entire network segment. It is recommended that you set the ACL restriction range based on the security requirements. For details, see *iManager U2000 Commissioning Guide*.

2. In the dialog box that is displayed, enter the U2000 user name and password (to open the System Monitor window). The default password of user **admin** is blank. You must change the default password during first-time login.

   NOTE

   There are two data transmission modes, namely, **Common** and **Security(SSL)**. You can run the **ssl_adm -cmd query** command to query data transmission modes on the server. The **ssl_adm -cmd query** command must be run as user **nmsuser** in Solaris and SUSE Linux OS. The default data transmission mode is **Common**.

   For details about how to set the communication mode on the U2000 server for the single-server system (Solaris), see **A.3.13 How to Set the Communication Mode on the U2000 server for the Single-Server System (Solaris)**.

   The U2000 is functioning properly if it can initiate in automatic startup mode, indicating that the U2000 is functioning properly.

   If a process cannot start, right-click the process and choose **Start the Process** from the shortcut menu.

   If the U2000 works properly, contact Huawei engineers.

6 Start the U2000 client as user **nmsuser** to log in to the server GUI.

CAUTION

The U2000 should be logged in to through a standalone client in the event that login to the server through the GUI fails and login to the client on the server is not possible.

1. On the desktop of the OS, double-click the **U2000 Client** shortcut icon.
2. In the dialog box that is displayed, enter the U2000 user name and password to open the main window of the client. The user name is **admin** and the password is the one changed in the previous step.

NOTE

There are two data transmission modes, namely, **Common** and **Security(SSL)**. You can run the **ssl_adm -cmd query** command to query data transmission modes on the server. The **ssl_adm -cmd query** command must be run as user **nmsuser** in Solaris and SUSE Linux OS. The default data transmission mode is **Common**.

For details about how to set the communication mode on the U2000 server for the single-server system (Solaris), see **A.3.13 How to Set the Communication Mode on the U2000 server for the Single-Server System (Solaris)**.

----End

Follow-up Procedure

The installation is not complete if any of the preceding checks are not passed. For details, see **10 Troubleshooting**.

10 Troubleshooting

This topic describes how to troubleshoot failed U2000 software installation.

Procedure

1. Log in to the OS through the serial port as user **root**.
2. Ensure that the Sybase database is not running.

   Run the following command to check whether the Sybase database is running:

   ```
   $ ps -ef | grep sybase
   ```

   Information similar to the following is displayed:

   ```
     sybase  4848  4847   0   May 18 ?         167:11 /opt/sybase/ASE-15_0/bin/data
   server -sDBSVR -d/opt/sybase/data/lv_master -e/opt
     sybase  5250  5248   0   May 18 ?           0:00 /opt/sybase/ASE-15_0/bin/back
   upserver -SDBSVR_back -e/opt/sybase/ASE-15_0/insta
     sybase  4847     1   0   May 18 ?           0:00 /usr/bin/sh /opt/sybase/ASE-1
   5_0/install/RUN_DBSVR
     sybase  5248     1   0   May 18 ?           0:00 /usr/bin/sh /opt/sybase/ASE-1
   5_0/install/RUN_DBSVR_back
    ...
   ```

   NOTE

   The database is running if the displayed information contains **/opt/sybase/ASE-15_0/install/RUN_DBSVR** and **/opt/sybase/ASE-15_0/install/RUN_DBSVR_back**.

   Run the following commands to stop the Sybase database if it is running:

   ```
   $ su - sybase
   $ . /opt/sybase/SYBASE.sh
   $ cd /opt/sybase/OCS-15_0/bin
   $ ./isql -SDBSVR -Usa -Pchangeme
   1> shutdown SYB_BACKUP
   2> go
   1> shutdown
   2> go
   $ exit
   ```

   NOTE

   - Leave a space between the dot (.) and the command **/opt/sybase/SYBASE.sh**.
   - In the **./isql -SDBSVR -Usa -Pchangeme** command, *changeme* is the password of user **sa** of the Sybase database.

3 Ensure that the Network Management System Maintenance Suite is not running.

Run the following command to check whether the network management system maintenance suite process is started:

```
# ps -ef | grep java
root 19913 19907   0 04:04:09 pts/1       0:00 grep java
...
root 18382 18311   0 03:42:33 pts/2      12:20 /opt/HWNMSJRE/jre_sol/bin/java -
server -Dlanguage=en -Xverify:none -Xmx128m -Xm
```

NOTE

If the displayed information contains **/opt/HWNMSJRE/jre_sol/bin/java -server**, it indicates that the network management system maintenance suite process is started.

Run the following commands to stop the Network Management System Maintenance Suite if it is running:

```
# cd /opt/HWENGR/engineering
# ./stopserver.sh
```

4 Run the following commands to delete the installation paths **/opt/U2000** and **/opt/sybase**:

```
# rm -rf /opt/U2000
# cd /opt/sybase
# rm *.*
```

5 Run the following commands to delete users **nmsuser** and **sybase**:

```
# userdel nmsuser
# userdel sybase
```

6 Run the following command to delete user groups **nmsgroup** and **sybase**:

```
# groupdel nmsgroup
# groupdel sybase
```

7 Run the following command to delete user directory **/export/home/nmsuser**:

```
# rm -rf /export/home/nmsuser
```

8 Reinstall the U2000 software. For details, see **7.3 Starting the U2000 Installation Program**.

----End

A FAQs

This topic provides answers to the most frequent questions concerning the installation.

A.1 Solaris OS
This topic provides answers to FAQs about clients installed on Solaris OS.

A.2 Sybase Database
This topic covers FAQs about the Sybase database.

A.3 U2000 System
This topic covers FAQs about the U2000 system.

A.1 Solaris OS

This topic provides answers to FAQs about clients installed on Solaris OS.

A.1.1 Network Configurations of the Workstation

This topic provides answers to FAQs about the network configurations of the workstation.

A.1.1.1 How to Add the Default Route

Question

How do I add the default route?

Answer

1. Log in the OS as user **root**.
2. Open a terminal window in the Solaris OS.
3. Run the following command:
   ```
   # vi /etc/defaultrouter
   ```
4. Enter an IP address as the default route in the file, for example, 129.9.1.254.
5. Run the **vi** command to save and close the file.
6. Run the following commands to restart the server:
   ```
   # sync;sync;sync;sync
   # shutdown -y -g0 -i6
   ```
7. Log in to the Solaris OS as the **root** user. Run the **netstat -nr** command to view the default route of the system.

----End

A.1.1.2 How to Add a Static Route

Question

How do I add a static route?

Answer

1. Log in to the system as user **root**.
2. Run the following command in the **Terminal** window to view the existing routes in the system:
   # **netstat -nr**
3. Run the following command to add a route:
   # **route add** *network_IP_address* **-netmask** *netmask gateway_IP_address*

   Routes added this way will disappear after the system reboots. To prevent this from happening, create the startup file **S98router** in the **/etc/rc3.d** directory and type the command **route add** *network_IP_address* **-netmask** *netmask gateway_IP_address* into the boot script.

   After creating the **S98router** file, run the following command to set the **S98router** file to be executed:

   # **chmod a+x S98router**

   NOTE

   Run the following command to delete a route:

   # **route delete** *network_IP_address* **-netmask** *netmask gateway_IP_address*

----End

A.1.1.3 How to Query the Gateway of a Sun Workstation

Question

How do I query the gateway of a Sun workstation?

Answer

1. Log in to the OS as user **root** and open the terminal window.
2. Run the following command to query the workstation:
   ```
   # netstat -nr
   ```

   The following message will be displayed:

   ```
   Routing Table: IPv4
     Destination           Gateway           Flags  Ref   Use   Interface
   -------------------- -------------------- ----- ----- ------ ---------
   10.71.224.0          10.71.225.24         U         1   1006  bge0
   224.0.0.0            10.71.225.24         U         1      0  bge0
   default              10.71.224.1          UG        1 114902
   127.0.0.1            127.0.0.1            UH        6  25558  lo0
   ```

NOTE

- The contents displayed on the terminal will vary according to the route configuration.
- The gateway with **UG** listed in the **Flags** is the gateway of the workstation. In this example, the IP address of the workstation gateway is *10.71.224.1*. There are five flags (UGHDM) for a specified route.

----End

A.1.1.4 How to Check the NIC Type of a Server

Question

How do I check the NIC type of a server?

Answer

You can run the **more /etc/path_to_inst | grep network** command as user **root** to check the NIC type of a server.

A.1.2 System Settings of the Workstation

This topic covers FAQs about workstation system settings.

A.1.2.1 How to Boot Up the Workstation from the CD-ROM Drive

Question

How do I boot up the workstation from the CD-ROM drive?

Answer

1. At the # prompt, run the following command to display the **OK** prompt (OK>):

   # **init 0**

2. After the `OK` prompt is displayed, insert the installation DVD of Solaris OS into the CD-ROM drive.

3. Enter **boot cdrom** and press **Enter**.

----End

A.1.2.2 How to Enable Input Modes on Solaris OS

Question

How do I solve the problem that occurs when the switch between the Chinese and English input modes fails on Solaris OS?

Answer

1. In most cases, the problem occurs when input modes is disabled. Enable the input modes if they are disabled.
2. Run the following commands to enable the input modes:

   # **cd /usr/openwin/bin**

   # **./htt -nosm**

   NOTE

   This operation needs to be performed in an environment supporting GUIs. After the input modes are enabled, the **Htt** flag is displayed in the upper left corner of the screen. Press **Ctrl+Space** to switch between input modes. If the operation is performed on the emulation terminal WinaXe, press **Ctrl+Shift+Space** to switch between input modes.

----End

A.1.2.3 How to Set the Interface Language of Solaris OS

Question

How do I set the interface language of Solaris OS?

Answer

1. Power on the workstation, and start Solaris OS.
2. Choose **Options** > **Language**. A dialog box will be displayed prompting you to select a language.
3. Select the system language from the list box according to the conditions at your site.
4. Click **OK**.

   If you want to save the setting of the system language, select **Set selected language as default**.

----End

A.1.2.4 How to Call the GUI Management Tool in Solaris 10 OS

Question

How do I call the GUI management tool in Solaris 10 OS?

Answer

1 Log in to Solaris 10 OS through the GUI. Then, run the following command to call the GUI management tool:

```
# smc &
```

----End

A.1.2.5 How to Switch to the Multi-user Mode or Single-user Mode

Question

How do I switch to the multi-user mode or single-user mode?

Answer

- Run the following command to switch to the multi-user mode:

  ```
  ok> boot
  ```

- Run the following command to switch to the single-user mode:

  ```
  ok> boot -s
  ```

----End

A.1.2.6 How to Open the Terminal Window on the Desktop in the JDS

Question

How do I open the terminal window on the desktop in the Java Desk System (JDS)?

Answer

1 Open the desktop in the JDS.

1. Enter the user name for login, such as **root**.
2. Choose **Options** > **Session** > **Java Desktop System** to select the JDS.
3. Click **OK**. Enter the password for the user, such as **root**.
4. Click **OK** to log in to the desktop in the JDS.

2 Right-click on the desktop in the JDS and choose **Open Terminal** from the shortcut menu to open a terminal window.

----End

A.1.2.7 How to Operate the CD-ROM

Question

How do I operate the CD-ROM?

Answer

1. If the Sun workstation has a built-in CD-ROM drive, perform the following operation:

   The system automatically installs the CD-ROM to the **/cdrom** directory after startup. If there is a CD-ROM in the CD-ROM drive, view the contents of the CD-ROM after accessing the **/cdrom** directory.

2. If the Sun workstation has an external CD-ROM drive, perform the following operation:

   Power on the CD-ROM drive after the SCSI wire is connected. Then, power on the workstation. The system automatically identifies and installs the CD-ROM to the **/cdrom** directory after startup.

3. Use appropriate commands to open the CD-ROM drive.

   If there is a CD-ROM in the CD-ROM drive, run appropriate commands to open the CD-ROM drive.

   Verify that the CD-ROM is not being used by any program and exit the directory for the CD-ROM. Run the following command as user **root**:

   # **eject**

   Open the CD-ROM drive and take out the CD-ROM.

   NOTE

   If the system prompts "Device busy" and the CD-ROM cannot be ejected, run the following command as user **root**:

   # **svcadm disable volfs**

   Press the eject button on the drive panel to take out the CD-ROM.

   The drive becomes unavailable in this situation. Run the following command:

   # **svcadm enable volfs**

   The CD-ROM drive can then be used.

4. Install or start the system from the CD-ROM.

   Insert the CD-ROM to the drive, and then run the following command at the OK prompt on the workstation:

   OK> **boot cdrom**

   By doing this, you can install or start the system from the CD-ROM.

5. Check the SCSI device mounted on the workstation.

   Enter the following command at the OK prompt:

   OK> **probe-scsi**

   By doing this, you can check the SCSI device mounted on the workstation. This command is usually used to verify that the CD-ROM drive is correctly mounted.

----End

A.1.3 FTP and Telnet Service Configuration

This topic covers the FAQs about the FTP and Telnet service configuration.

A.1.3.1 How to Start/Stop the FTP, TFTP, SFTP, and Telnet Services

Question

How do I start/stop the FTP, TFTP, SFTP, and Telnet services?

Answer

Use the following methods to start/stop the FTP, TFTP, SFTP, and Telnet services. You are recommended to restore the original settings afterwards.

- Start the FTP, TFTP, SFTP, and Telnet services as follows:
  - Starting the FTP service
    1. Log in to Solaris OS as user **root**.
    2. Run the following command to start the FTP service:

       # **svcadm enable ftp**
  - Starting the TFTP service
    1. Log in to Solaris OS as user **root**.
    2. Run the following command to verify that the TFTP service is running:

       # **svcs -a|grep tftp**

       The TFTP service is not started if there is no response.
    3. Run the following command to modify the **inetd** configuration file:

       # **vi /etc/inetd.conf**

       Delete # to the left of TFTPD.
    4. Run the following command to start the TFTP service:

       # **/usr/sbin/inetconv -i /etc/inetd.conf**

       # **svcadm enable svc:/network/tftp/udp6:default**
    5. Run the following command to verify that the TFTP service is running:

       # **svcs -a|grep tftp**

       The TFTP service is running if a message is displayed:

       ```
       online         22:07:11 svc:/network/tftp/udp6:default
       ```
  - Starting the SFTP service
    1. Log in to Solaris OS as user **root**.
    2. Run the following command to start the SFTP service:

       # **vi /etc/ssh/sshd_config**

       Modify the "PAMAuthenticationViaKBDInt yes" to "PAMAuthenticationViaKBDInt no", and run the **:wq!** command to save the settings and exit.

       # **svcadm restart network/ssh**

svcadm enable network/ssh

- Starting the Telnet service
  1. Log in to Solaris OS as user **root**.
  2. Run the following command to start the Telnet service:

     # **svcadm enable telnet**

- Stop the FTP, TFTP, SFTP, and Telnet services as follows:
  - Stopping the FTP service
    1. Log in to Solaris OS as user **root**.
    2. Run the following command to stop the FTP service:

       # **svcadm disable ftp**
  - Stopping the TFTP service
    1. Log in to Solaris OS as user **root**.
    2. Run the following command to verify that the TFTP service is stopped:

       # **svcs -a|grep tftp**

       The TFTP service is running if a message similar to the following is displayed:

       ```
       online         22:07:11 svc:/network/tftp/udp6:default
       ```
    3. Run the following command to modify the **inetd** configuration file:

       # **vi /etc/inetd.conf**

       Add # to the left of TFTPD.
    4. Run the following command to verify that the TFTP service is stopped:

       # **svcs -a|grep tftp**

       If there is no response, the TFTP service is stopped.
  - Stopping the SFTP service
    1. Log in to Solaris OS as user **root**.
    2. Run the following command to stop the SFTP service:

       # **svcadm disable network/ssh**
  - Stopping the Telnet service
    1. Log in to Solaris OS as user **root**.
    2. Run the following command to stop the Telnet service:

       # **svcadm disable telnet**

A.1.3.2 How to Enable and Disable the FTP/Telnet Authority of user root on Solaris OS

Question

How do I enable and disable the FTP/Telnet authority for user **root** on Solaris OS?

Answer

1 Enable or disable the FTP authority for user **root** as follows:

- Enabling the FTP authority for user **root**

1. Log in to Solaris OS as user **root**.
2. Run the following commands to enable the FTP authority for user **root**:

```
# svcadm enable ftp
# sed "/^root/s//#root/g" /etc/ftpd/ftpusers > /tmp/ftpusers
# cp /tmp/ftpusers /etc/ftpd/ftpusers
```

- Disabling the FTP authority for user **root**

1. Log in to Solaris OS as user **root**.
2. Run the following commands to enable the FTP authority for user **root**:

```
# svcadm disable ftp
# sed "/^#root/s//root/g" /etc/ftpd/ftpusers > /tmp/ftpusers
# cp /tmp/ftpusers /etc/ftpd/ftpusers
```

2 Enable or disable the Telnet authority for user **root** as follows:

- Enabling the Telnet authority for user **root**

1. Log in to the Solaris OS as user **root**.
2. Run the following commands to enable the Telnet authority of user **root**:

```
# svcadm enable telnet
# sed "/^CONSOLE/s//#CONSOLE/g" /etc/default/login > /tmp/login
# cp /tmp/login /etc/default/login
```

- Disabling the Telnet authority for user **root**

1. Log in to Solaris OS as user **root**.
2. Run the following commands to disable the Telnet authority of the **root** user:

```
# svcadm disable telnet
# sed "/^#CONSOLE/s//CONSOLE/g" /etc/default/login > /tmp/login
# cp /tmp/login /etc/default/login
```

----End

A.1.3.3 How to Transfer Files by Means of FTP

Question

How do I transfer files by means of FTP?

NOTE

The available FTP modes are ASCII (default) and binary.

To ensure that files are available after transfer, determine the FTP transfer mode before transferring files. Generally, license files are transferred in ASCII mode whereas binary files such as NMS installation programs and databases **interfaces** files are transferred in binary mode.

Answer

1 Run the following command to connect to the server by means of FTP:

ftp *server IP address*

Enter the user name and password of the server.

2 Set the FTP transfer mode.

- To use the ASCII mode, run the **ascii** command.
- To use the binary mode, run the **bin** command.

3 Go to the path to files to be transferred.

lcd *path of files to be transferred*

4 Go to the path where the files are to be transferred.

cd *path to which the files are to be transferred*

5 Run the following **put** command to transfer files:

put *names of files to be transferred*

6 After the files are transferred, run the **quit** command to break the FTP connection.

----End

A.1.4 Usage and Maintenance of Workstation

This topic covers the FAQs about the usage and maintenance of the workstation.

A.1.4.1 How to View the Versions and Release Date of the Solaris OS

Question

How do I view the versions and release date of Solaris OS?

Answer

1 Open a terminal window on Solaris OS.

2 Run the following command to view the version information about Solaris OS:

```
# uname -a
```

The Solaris version is Solaris 10 and the core patch version is 141414-07 if the following message is displayed:

```
SunOS NMSServer 5.10 Generic_141414-07 sun4v sparc SUNW,SPARC-Enterprise-T5220
```

3 Run the following command to view the release date of Solaris OS:

more */etc/release*

A message similar to the following will be displayed:

```
......
Copyright 2007 Sun Microsystems, Inc.  All Rights Reserved.
        Use is subject to license terms.
            Assembled 16 August 2007
```

----End

A.1.4.2 How to Change the System Time and Time Zone of Solaris OS

Question

How do I to change the system time and time zone of Solaris OS?

Answer

- To change the time zone of Solaris OS, perform the following operations:
  1. Run the following command to modify the **/etc/TIMEZONE** file:
     ```
     # vi /etc/TIMEZONE
     ```
  2. Change the value of **TZ** to the local time zone. For example, set **TZ** to **PRC**.
  3. Press **Esc**. Press **Shift+;** and enter **wq!**. Then, press **Enter** to forcibly save and close the file.
  4. Run the following commands to restart the server:
     ```
     # sync;sync;sync;sync
     # shutdown -y -g0 -i6
     ```
  5. Run the following command to verify that the time zone is correct:
     ```
     # echo $TZ
     ```
     If the time zone is incorrect, verify that the **/etc/TIMEZONE** file and GMT are set properly.
- To change the system time of Solaris OS, perform the following operations:
  1. Run the **date** command to set the system date and time.
     For example, to set the system date and time to **2005-11-17 16:30:43**, run the following command:
     ```
     # date 111716302005.43
     ```
     The following message will be displayed:
     ```
     Mon Nov 17 16:30:43 CST 2005
     ```
  2. Optional: Run the following commands to restart the server:
     ```
     # sync;sync;sync;sync
     # shutdown -y -g0 -i6
     ```

----End

A.1.4.3 How to View Hardware Configurations for the Sun Workstation

Question

How do I view hardware configurations for the Sun workstation?

Answer

1 Log in to the Sun workstation as the **root** user. Then, run the following commands:

cd /usr/platform/`uname -i`/sbin

./prtdiag

A message similar to the following is displayed:

```
System Configuration: Sun Microsystems  sun4u Sun Fire V445
System clock frequency: 199 MHZ
Memory size: 8GB

================================== CPUs ==================================
               E$          CPU                    CPU
CPU  Freq      Size        Implementation         Mask    Status      Location
---  --------  ----------  ---------------------  -----   ------      --------
0    1592 MHz  1MB         SUNW,UltraSPARC-IIIi    3.4    on-line     MB/C0/P0
1    1592 MHz  1MB         SUNW,UltraSPARC-IIIi    3.4    on-line     MB/C1/P0
2    1592 MHz  1MB         SUNW,UltraSPARC-IIIi    3.4    on-line     MB/C2/P0
3    1592 MHz  1MB         SUNW,UltraSPARC-IIIi    3.4    on-line     MB/C3/P0

================================ IO Devices ================================
Bus     Freq  Slot +      Name +
Type    MHz   Status      Path                           Model
------  ----  ----------  -----------------------------  --------------------
pci     199   MB          pci14e4,1668 (network)
              okay        /pci@1e,600000/pci@0/pci@1/pci@0/network@4

pci     199   MB          pci14e4,1668 (network)
              okay        /pci@1e,600000/pci@0/pci@1/pci@0/network@4,1

pci     199   MB/PCI2     SUNW,XVR-100 (display)         SUNW,375-3290
              okay        /pci@1e,600000/pci@0/pci@1/pci@0/pci@8/SUNW,XVR-100@1

pci     199   MB          pci10b9,5229 (ide)
              okay        /pci@1f,700000/pci@0/pci@1/pci@0/ide@1f

pci     199   MB          pci14e4,1668 (network)
              okay        /pci@1f,700000/pci@0/pci@2/pci@0/network@4

pci     199   MB          pci14e4,1668 (network)
              okay        /pci@1f,700000/pci@0/pci@2/pci@0/network@4,1

pciex   199   MB          scsi-pciex1000,58 (scsi-2)     LSI,1068E
              okay        /pci@1e,600000/pci@0/pci@2/scsi@0


========================== Memory Configuration ==========================
Segment Table:
------------------------------------------------------------------------
Base Address       Size       Interleave Factor  Contains
------------------------------------------------------------------------
0x0                2GB                4          BankIDs 0,1,2,3
0x1000000000       2GB                4          BankIDs 16,17,18,19
0x2000000000       2GB                4          BankIDs 32,33,34,35
0x3000000000       2GB                4          BankIDs 48,49,50,51

Bank Table:
------------------------------------------------------------
```

```
           Physical Location
ID       ControllerID  GroupID   Size       Interleave Way
-------------------------------------------------------------
0        0             0         512MB           0,1,2,3
1        0             1         512MB
2        0             1         512MB
3        0             0         512MB
16       1             0         512MB           0,1,2,3
17       1             1         512MB
18       1             1         512MB
19       1             0         512MB
32       2             0         512MB           0,1,2,3
33       2             1         512MB
34       2             1         512MB
35       2             0         512MB
48       3             0         512MB           0,1,2,3
49       3             1         512MB
50       3             1         512MB
51       3             0         512MB

Memory Module Groups:
-------------------------------------------------
ControllerID   GroupID  Labels         Status
-------------------------------------------------
0              0        MB/C0/P0/B0/D0 okay
0              0        MB/C0/P0/B0/D1 okay
0              1        MB/C0/P0/B1/D0 okay
0              1        MB/C0/P0/B1/D1 okay
1              0        MB/C1/P0/B0/D0 okay
1              0        MB/C1/P0/B0/D1 okay
1              1        MB/C1/P0/B1/D0 okay
1              1        MB/C1/P0/B1/D1 okay
2              0        MB/C2/P0/B0/D0 okay
2              0        MB/C2/P0/B0/D1 okay
2              1        MB/C2/P0/B1/D0 okay
2              1        MB/C2/P0/B1/D1 okay
3              0        MB/C3/P0/B0/D0 okay
3              0        MB/C3/P0/B0/D1 okay
3              1        MB/C3/P0/B1/D0 okay
3              1        MB/C3/P0/B1/D1 okay

============================== USB Devices ==============================

Name          Port#
------------  -----
hub           HUB0
```

Details about the message are as follows:

- The following information indicates a workstation model. In this example, the workstation model is **Sun Fire V445**.

  ```
  System Configuration: Sun Microsystems  sun4u Sun Fire V445
  System
  ```

- The following information indicates the system clock frequency. In this example, the workstation clock frequency is **199 MHZ**.

  ```
  System clock frequency: 199 MHZ
  ```

- The following information indicates the memory configuration for the workstation. In this example, the memory configuration for the workstation is **8GB**.

  ```
  Memory size: 8GB
  ```

- The following information indicates the CPU configuration for the workstation. In this example, the CPU configuration for the workstation is **4Core**.

  ```
  ==================================== CPUs ====================================
                E$          CPU                   CPU
  CPU  Freq     Size        Implementation        Mask    Status      Location
  ---  --------  ----------  --------------------  -----   ------      --------
  ```

```
0    1592 MHz  1MB         SUNW,UltraSPARC-IIIi    3.4    on-line     MB/C0/P0
1    1592 MHz  1MB         SUNW,UltraSPARC-IIIi    3.4    on-line     MB/C1/P0
2    1592 MHz  1MB         SUNW,UltraSPARC-IIIi    3.4    on-line     MB/C2/P0
3    1592 MHz  1MB         SUNW,UltraSPARC-IIIi    3.4    on-line     MB/C3/P0
```

NOTE

Hardware configurations for a workstation vary according to the workstation model.

----End

A.1.4.4 How to Check Whether the Hard Disk of the Sun Workstation Is Damaged

Question

How do I check whether the hard disk of the Sun workstation is damaged?

Answer

1 During the operation of the Sun workstation, inappropriate powering-off usually causes damage to the hard disk and even renders the Sybase database unavailable. Run the **iostat -E** command to check whether the hard disk of the OS is damaged.

Log in to the Sun workstation as user **root** and run the following command:

iostat -En

A message similar to the following will be displayed:

```
c0t0d0           Soft Errors: 0 Hard Errors: 0 Transport Errors: 0
Vendor: FUJITSU  Product: MAY2073RCSUN72G  Revision: 0501 Serial No: 0742S0EPT7
Size: 73.40GB <73400057856 bytes>
Media Error: 0 Device Not Ready: 0 No Device: 0 Recoverable: 0
Illegal Request: 0 Predictive Failure Analysis: 0
c0t1d0           Soft Errors: 0 Hard Errors: 0 Transport Errors: 0
Vendor: FUJITSU  Product: MAY2073RCSUN72G  Revision: 0501 Serial No: 0742S0EPL9
Size: 73.40GB <73400057856 bytes>
Media Error: 0 Device Not Ready: 0 No Device: 0 Recoverable: 0
Illegal Request: 0 Predictive Failure Analysis: 0
c0t2d0           Soft Errors: 0 Hard Errors: 0 Transport Errors: 0
Vendor: FUJITSU  Product: MBB2073RCSUN72G  Revision: 0505 Serial No: 0805A011C0
Size: 73.40GB <73400057856 bytes>
Media Error: 0 Device Not Ready: 0 No Device: 0 Recoverable: 0
Illegal Request: 0 Predictive Failure Analysis: 0
c1t0d0           Soft Errors: 1 Hard Errors: 0 Transport Errors: 1
Vendor: TSSTcorp Product: CD/DVDW TS-T632A Revision: SR03 Serial No:
Size: 0.00GB <0 bytes>
Media Error: 0 Device Not Ready: 0 No Device: 0 Recoverable: 0
Illegal Request: 1 Predictive Failure Analysis: 0
c0t3d0           Soft Errors: 0 Hard Errors: 0 Transport Errors: 0
Vendor: FUJITSU  Product: MBB2073RCSUN72G  Revision: 0505 Serial No: 0805A011DH
Size: 73.40GB <73400057856 bytes>
Media Error: 0 Device Not Ready: 0 No Device: 0 Recoverable: 0
Illegal Request: 0 Predictive Failure Analysis: 0
```

NOTE

The hard disk is damaged if the information to the rights of **Hard Errors** is not **0**. Send the message series files in the **/var/adm** directory to Huawei engineers so that they can apply for a spare part to replace the hard disk on site.

----End

A.1.4.5 How to Check the Partition of Solaris OS

Question

How do I check the partition of Solaris OS?

Answer

1. Log in to Solaris OS as user **root**.
2. Run the following command to check all disks of the server:
   # **format**

   The following message will be displayed:

```
Searching for disks...done


AVAILABLE DISK SELECTIONS:
       0. c0t0d0 <SUN146G cyl 14087 alt 2 hd 24 sec 848>
          /pci@0,600000/pci@0/pci@8/pci@0/scsi@1/sd@0,0
       1. c0t1d0 <SEAGATE-ST914602SSUN146G-0603 cyl 14087 alt 2 hd 24 sec 848>
   /pci@0,600000/pci@0/pci@8/pci@0/scsi@1/sd@1,0
       2. c1t4d0 <ENGENIO-INF-01-00-0619 cyl 51198 alt 2 hd 128 sec 64>
       /pci@2,600000/SUNW,qlc@0/fp@0,0/ssd@w201600a0b8293a52,0
       3. c2t5d0 <ENGENIO-INF-01-00-0619 cyl 51198 alt 2 hd 128 sec 64>
  /pci@2,600000/SUNW,qlc@0,1/fp@0,0/ssd@w202700a0b8293a52,0
Specify disk (enter its number):
```

3. Enter **0** and press **Enter** to view the information about the c1t0d0 disk. The following message will be displayed:

```
selecting c0t0d0
[disk formatted]
/dev/dsk/c0t0d0s1 is in use by dump. Please see dumpadm(1M).


FORMAT MENU:
        disk       - select a disk
        type       - select (define) a disk type
        partition  - select (define) a partition table
        current    - describe the current disk
        format     - format and analyze the disk
        repair     - repair a defective sector
        label      - write label to the disk
        analyze    - surface analysis
        defect     - defect list management
        backup     - search for backup labels
        verify     - read and display labels
        save       - save new disk/partition definitions
        inquiry    - show vendor, product and revision
        volname    - set 8-character volume name
        !<cmd>    - execute<cmd>, then return
        quit
        format>
```

4. Enter **p** and press **Enter** to select the partition list. The following message will be displayed:

```
PARTITION MENU:

0 - change `0' partition
1 - change `1' partition
2 - change `2' partition
3 - change `3' partition
4 - change `4' partition
5 - change `5' partition
6 - change `6' partition
```

```
7 - change `7' partition
select - select a predefined table
modify - modify a predefined partition table
name - name the current table
print - display the current table
label - write partition map and label to the disk
!<cmd>   - execute<cmd>, then return
quit
partition>
```

5 Enter **p** and press **Enter** to view the partition information of disk c1t0d0, including the raw partition information. The following message will be displayed:

```
Current partition table (original):
Total disk cylinders available: 14087 + 2 (reserved cylinders)

Part      Tag    Flag     Cylinders         Size            Blocks
  0       root    wm       0 -  3091       30.01GB    (3092/0/0)   62928384
  1       swap    wu    3092 -  6389       32.01GB    (3298/0/0)   67120896
  2     backup    wm       0 - 14086      136.71GB    (14087/0/0) 286698624
  3          -    wu       0 - 14086      136.71GB    (14087/0/0) 286698624
  4          -    wu   14083 - 14086       39.75MB    (4/0/0)         81408
  5 unassigned    wm    6390 - 10511       40.00GB    (4122/0/0)   83890944
  6        var    wm   10512 - 13603       30.01GB    (3092/0/0)   62928384
  7 unassigned    wm       0                0         (0/0/0)             0

partition>
```

6 Enter **q** to exit the c1t0d0 disk directory. The following message will be displayed:

```
FORMAT MENU:
        disk       - select a disk
        type       - select (define) a disk type
        partition  - select (define) a partition table
        current    - describe the current disk
        format     - format and analyze the disk
        repair     - repair a defective sector
        label      - write label to the disk
        analyze    - surface analysis
        defect     - defect list management
        backup     - search for backup labels
        verify     - read and display labels
        save       - save new disk/partition definitions
        inquiry    - show vendor, product and revision
        volname    - set 8-character volume name
        !<cmd>    - execute<cmd>, then return
        quit
        format>
```

7 Enter **q** and exit the **format** command.

8 Repeat Step 2 to Step 7, and select other disks to check the partitions.

----End

A.1.4.6 How to Check the Remaining Space of a Disk

Question

How do I check the remaining space of a disk?

Answer

Run the **df -hk** command to check the remaining space of a disk.

For example, run the **df -hk /opt** command to check the remaining space of the **/opt** partition.

A.1.4.7 How to Decompress Files

Question

Compressed files are usually in ***.tar**, ***.tar.gz**, or ***.zip** format. How do I decompress these files?

Answer

1. To decompress a ***.tar** file, perform the following operation:

   The following uses the **abc.tar** file as an example. Run the following command:

   # **tar xvf abc.tar**

2. To decompress a ***.tar.gz** file, perform the following operation:
   - The following uses the **abc.tar.gz** file as an example. Run the following commands:

     # **gunzip abc.tar.gz**

     # **tar xvf abc.tar**
   - The following uses the **solaris10_HuaweiPatch9.0.tar.gz** file as an example. Run the following command:

     # **gzcat solaris10_HuaweiPatch9.0.tar.gz | tar xBpf -**

3. To decompress a ***.zip** file, perform the following operation:

   The following uses the **abc.zip** file as an example. Run the following command:

   # **unzip abc.zip**

----End

A.1.4.8 How to Remotely Log In to the System as User root

Question

Remote login fails after the system is restarted. How do I remotely log in to the system as user **root**?

Answer

1. Log in to the server from the controller. Ensure that the server is running.
2. Check whether user **root** has rights to log in to the server. Ensure that user **root** has rights to log in to the server by means of FTP.
3. Verify the routing information about the server. Ensure that the route is reachable.

----End

A.1.4.9 How to Access the OS from the Controller

Question

How do I access the OS from the controller IP address if login to the OS from the system IP address fails?

Answer

1. Log in to the controller.
   - For M4000 servers, log in to the controller in Telnet or SSH mode.
   - For T5220 servers, log in to the controller in SSH mode.
2. Access the OS.
   - For M4000 servers, run the **console -d 0** command to access the OS.
   - For T5220 servers, run the **start /SP/console** command to access the OS.

----End

A.1.4.10 How to Switch Between the Console, OK Prompt, and # Prompt

Question

How do I switch between the console, **OK** prompt, and # prompt?

NOTE

The switching method varies based on the type of the Sun server used.

Answer

- T5220 Servers
  - Switch from the console to the **OK** prompt.
    1. Log in to the IP address of the system controller in Secure Shell (SSH) mode. Perform the following operations to display the **OK** prompt:

       NOTE

       The T5220 server does not support the login to the system controller in Telnet mode. Log in to the system controller by performing the following operation:

       - Install the SSH client tool, such as the PuTTY, in the console on Windows. Then, you can log in to the system controller through the tool.
       - Run the **ssh *IP address of the system controller*** command on the terminal console of another Sun server to log in to the system controller. If a message similar to the following is displayed, enter **yes** to continue:

         ```
         The authenticity of host '10.71.35.12 (10.71.35.12)' can't be
         established.
         RSA key fingerprint is 0b:23:07:0c:27:72:44:3f:d1:aa:
         12:99:ed:dd:c0:5a.
         Are you sure you want to continue connecting (yes/no)?
         ```

    2. In the command line interface (CLI) that is displayed, enter the user name and password of the system controller. By default, the user name is *root* and the default password is *changeme*.
    3. Enter **set /HOST/bootmode state=reset_nvram script="setenv auto-boot? false"**.

NOTE

There must be a space between **?** and **false**.

The following message will be displayed:

```
Set 'state' to 'reset_nvram'
Set 'script' to 'setenv auto-boot? false'
```

4. Enter **start /SYS**.

   The following message will be displayed:

   ```
   Are you sure you want to start /SYS (y/n)?
   ```

5. Enter **y** to start the server.

   If the message **start: Target already started** is displayed, the system is running. Perform the following operations:

   Enter **stop /SYS**. The following message will be displayed:

   ```
   Are you sure you want to stop /SYS (y/n)?
   ```

   Enter **y**. The following message will be displayed:

   ```
   Stopping /SYS
   ```

   Enter **show /HOST status** repeatedly to check the system status. After a message containing **status = Powered off** is displayed, proceed with the next step.

   Enter **start /SYS**. The following message will be displayed:

   ```
   Are you sure you want to start /SYS (y/n)?
   ```

   Enter **y** to start the server.

6. Enter **start /SP/console**.

   The following message will be displayed:

   ```
   Are you sure you want to start /SP/console (y/n)?
   ```

7. Enter **y** and press **Enter**.

   The following message will be displayed:

   ```
   Serial console started. To stop, type #.
   ...
   Setting NVRAM parameters to default values.


   SPARC Enterprise T5220, No Keyboard
   Copyright 2008 Sun Microsystems, Inc.  All rights reserved.
   OpenBoot 4.28.0, 8064 MB memory available, Serial #85369820.
   Ethernet address 0:21:28:16:a3:dc, Host ID: 8516a3dc.


   auto-boot? =            false
   {0} ok
   ```

- Switch from the **OK** prompt to the # prompt.

  Run the following command:

  `ok` **setenv auto-boot? true**

  NOTE

  There must be a space between **?** and **true**.

  Run the following command to verify that the parameter settings have taken effect:

  `ok` **printenv**

  Run the following command to enable the system to perform another self-check:

  `ok` **reset-all**

  The system will display the **OK** prompt. Enter **boot** to display the # prompt.

- Switch from the # prompt to the console.

  Run the following command:

  # **#.**

  NOTE

  Enter **#** and **.**.

- Switch from the # prompt to the **OK** prompt.

  Run the following command:

  # **init 0**

- M4000 Servers
  - Switch from the console to the **OK** prompt.

    1. Run the **telnet** ***IP address of the controller*** command on the console to log in to the controller IP address by means of Telnet.

       The following message will be displayed:

       ```
       Login:
       ```

    2. Enter the user name, that is, **eis-installer**.

       The following message will be displayed:

       ```
       Password:
       ```

    3. Enter the password of the **eis-installer** user.

       The following message will be displayed:

       ```
       XSCF>
       ```

    4. Enter **showdomainmode -d 0**.

       The following message will be displayed:

       ```
       Host-ID             :8501c2de
       Diagnostic Level    :min
       Secure Mode         :off (host watchdog: unavailable  Break-
       signal:receive)
       Autoboot            :on
       CPU Mode            :auto
       ```

       NOTE

       If **Secure Mode** is **on**, perform the following:

       1. Enter **setdomainmode -d 0 -m secure=off**.

          The following message will be displayed:

          ```
          Diagnostic Level    :min        -> -
          Secure Mode         :on         -> off
          Autoboot            :on         -> -
          CPU Mode            :auto
          The specified modes will be changed.
          Continue? [y|n]
          ```

       2. Enter **y**.

          The following message will be displayed:

          ```
          configured.
          Diagnostic Level    :min
          Secure Mode         :off (host watchdog: unavailable  Break-
          signal:receive)
          Autoboot            :on (autoboot:on)
          CPU Mode            :auto
          ```

    5. Enter **showdomainstatus -a**.

       The following message will be displayed:

```
DID         Domain Status
00          Running
01          -
```

NOTE

The following message will be displayed:

```
DID         Domain Status
00          Powered Off
01          -
```

Run the **poweron -d 0** command. Then, run the **showdomainstatus -a** command repeatedly to check the system status until the system displays the status as **running**. Proceed with the next step.

6. Enter **sendbreak -d 0**.

   The following message will be displayed:

   ```
   Send break signal to DomainID 0? [y|n]
   ```

7. Enter **y**.
8. Enter **console -d 0 -f**.

   The following message will be displayed:

   ```
   Connect to DomainID 0? [y|n]
   ```

9. Enter **y** and press **Enter**.

   ```
   OK
   ```

- Switch from the **OK** prompt to the # prompt.

  Run the following command:

  ok **setenv auto-boot? true**

  NOTE

  There must be a space between **?** and **true**.

  Run the following command to verify that the parameter settings have taken effect:

  ok **printenv**

  Run the following command to enable the system to perform another self-check:

  ok **reset-all**

  The system will display the **OK** prompt. Enter **boot** to display the # prompt.

- Switch from the # prompt to the console.

  Run the following command:

  # **#.**

  NOTE

  Enter **#** and **.**.

- Switch from the # prompt to the **OK** prompt.

  Run the following command:

  # **init 0**

- V890 Servers
  - Switch from the console to the **OK** prompt.

    1. Run the **telnet *IP address of the controller*** command on the console to log in to the controller IP address by means of Telnet.

       The following message will be displayed:

       ```
       Login:
       ```

2. Enter the user name **admin** and password. Generally, the default password of the RSC is **admin123**.
3. Enter **console** to display the **OK** prompt.

   NOTE

   In certain conditions, the following message will be displayed:

   ```
   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]
   ```

   Enter **y**.

   If the V890 server is used for the first time, the system will display the **OK** prompt.

   If the V890 server is installed with the operating system (OS), the system will display the # prompt. Perform the following operations to display the **OK** prompt:

   Enter **~.** to display the **RSC** prompt. (If the ALOM control card is used, enter **#.**.)

   Run the following command at the **RSC** prompt:

   `rsc>` **break**

   The following message will be displayed:

   ```
   Are you sure you want to send a break to the system [y/n]?
   ```

   Enter **y**.

   `rsc>` **console**

- Switch from the **OK** prompt to the # prompt.

  Run the following command:

  `ok` **setenv auto-boot? true**

  NOTE

  There must be a space between **?** and **true**.

  Run the following command to verify that the parameter settings have taken effect:

  `ok` **printenv**

  Run the following command to enable the system to perform another self-check:

  `ok` **reset-all**

  The system will display the **OK** prompt. Enter **boot** to display the # prompt.
- Switch from the # prompt to the console.

  Run the following command:

  # **#.**

  NOTE

  Enter **#** and **.**.
- Switch from the # prompt to the **OK** prompt.

  Run the following command:

  # **init 0**

- V240, V245, V440, and V445 Servers
  - Switch from the console to the **OK** prompt.
    1. Run the **telnet** ***IP address of the controller*** command on the console to log in to the controller IP address by means of Telnet.

       The following message will be displayed:

```
Login:
```

2. Enter the user name and password. The default user name and password are **admin**.
3. Enter **console -f** to display the **OK** prompt.

   NOTE

   In certain conditions, the following message will be displayed:

   ```
   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]
   ```

   Enter **y**.

   If the intended server is used for the first time, the system will display the **OK** prompt.

   If the server is installed with the OS, the system will display the # prompt. Perform the following operations to display the **OK** prompt:

   Enter **#.** to display the ALOM prompt. (If the RSC control card is used, enter **~.**.)

   Run the following command at the ALOM prompt:

   sc> **break**

   The following message will be displayed:

   ```
   Are you sure you want to send a break to the system [y/n]?
   ```

   Enter **y**.

   sc> **console -f**

- Switch from the **OK** prompt to the # prompt.

  Run the following command:

  ok **setenv auto-boot? true**

  NOTE

  There must be a space between **?** and **true**.

  Run the following command to verify that the parameter settings have taken effect:

  ok **printenv**

  Run the following command to enable the system to perform another self-check:

  ok **reset-all**

  The system will display the **OK** prompt. Enter **boot** to display the # prompt.

- Switch from the # prompt to the console.

  Run the following command:

  # **#.**

  NOTE

  Enter **#** and **.**.

- Switch from the # prompt to the **OK** prompt.

  Run the following command:

  # **init 0**

----End

A.1.4.11 How to Use the vi Editor

Question

How do I use the vi editor?

Answer

Run the following command to open the vi editor:

```
vi file name
```

- If a file with the same filename exists, run the **vi** command to open and edit the file.
- If a file with the same filename does not exist, run the **vi** command to create and edit a file.

The edit commands are as follows:

- The command for opening the vi editor is as follows:

  vi *file name*

- The command for entering the command mode is as follows.

Command	Function
ESC	Press **ESC** to exit the text input mode and enter the command mode.

- The commands for inserting text are as follows (must be run in command mode).

Command	Function
a	Appends text at the cursor (append).
A	Appends text at the end of the line where the cursor locates.
i	Adds text in front of the cursor (insert).
I	Adds text to the front of the first non-null character in the line where the cursor locates.
o	Adds text at the beginning of the next line where the cursor locates (open).
O	Adds text at the beginning of the previous line where the cursor locates.

- The commands for moving the cursor are as follows (must be run in command mode).

Command	Function
h	Moves the cursor to the left.
j	Moves the cursor downwards.
k	Moves the cursor upwards.
l	Moves the cursor to the right.

Command	Function
Line number G	Moves the cursor to a specified line. For example, **1G** moves the cursor to the first line.
G	Moves the cursor to the end of the file.

- The commands for deleting texts are as follows (must be run in command mode).

Command	Function
x	Deletes the character where the cursor is located.
dd	Deletes the line where the cursor is located.

- The commands for quitting the vi editor are as follows and must be run in command mode. You are recommended to press **ESC** before running any command listed in **Table A-1**.

Table A-1 Commands for quitting the vi editor

Command	Function
:wq	Saves changes and quits the vi editor.
:q	Quits the vi editor without saving changes.
:q!	Forcibly quits the vi editor without saving changes.
:w	Saves changes without quitting the vi editor.

A.1.4.12 How to Use the Text Editor

Question

How do I use the text editor?

NOTE

Use the text editor only through the GUI.

The text editor is recommended because it is easier to use than the vi editor.

Answer

Run the following command to open the text editor:

```
dtpad file name
```

- If a file with the same filename exists, run the **dtpad** command to open and edit the file.
- If a file with the same filename does not exist, run the **dtpad** command to create and edit a file.

A.1.4.13 How to Query the Process Status

Question

How do I query the process status?

Answer

Run the **ps -ef | grep** ***process name*** command to query the process status.

For example, run the **ps -ef | grep sysmonitor** command to query the status of the **sysmonitor** process.The following message will be displayed:

```
 nmsuser 17156 17032   0 22:13:59 pts/3      0:00 grep sysmonitor  nmsuser 11972
1   0 04:38:10 pts/2      13:00 imap_sysmonitor -cmd start
```

- **imap_sysmonitor** indicates information about the process, where **17156** is the process ID.

  NOTE

  Process information will be displayed if the process is running.

- **grep sysmonitor** indicates the query operation performed by the user and can be ignored.

A.1.4.14 How to Forcibly End a Process

Question

How do I forcibly end a process?

Answer

Run the **kill -9** ***process ID*** command to forcibly end a process.

A.1.4.15 How to Deploy a Solaris Single-Server System If Data Is Stored on Some Hard Disks

Question

A server is equipped with four hard disks, two of which are in use. How to deploy a Solaris single-server system without impacting data on the two hard disks?

Answer

1. Remove the two hard disks from the server.
2. Use the other two hard disks for U2000 installation and quick system installation.

   For details, see the *iManager U2000 Single-Server System Software Installation Guide (Solaris)*.
3. Insert the removed hard disks into the server.

   If the two hard disks are mounted but the **vfstab** file is not modified, data on the two hard disks can be viewed and used only this time. After the server is restarted, data on the two hard disks cannot be viewed.
4. To ensure proper use, mount the two hard disks.

Run the following commands:

mkdir data1

mkdir data2

mount -F ufs /dev/dsk/c1t2d0s7 /data1

mount -F ufs /dev/dsk/c1t3d0s7 /data2

5 Modify the **vfstab** file to ensure that data on the two hard disks can still be viewed after the server is restarted.

Run the following command:

vi /etc/vfstab

Add the following two lines of information to the **vfstab** file:

```
/dev/dsk/c1t2d0s7    /dev/rdsk/c1t2d0s7    /data1    ufs    2    yes    - /dev/dsk/
c1t3d0s7    /dev/rdsk/c1t3d0s7    /data2    ufs    2    yes    -
```

Press **ESC**. Then, press **Shift+;**, enter **wq!**, and press **Enter**.

----End

A.2 Sybase Database

This topic covers FAQs about the Sybase database.

A.2.1 Startup and Shutdown of the Sybase Database

This topic describes the FAQs about the startup and shutdown of the Sybase database.

A.2.1.1 How to Disable the Sybase Database Service

Question

How do I disable the Sybase database service?

Answer

1 Perform the following operations to disable the Sybase database service in the single-server system:

1. Log in to the OS as user **root**.
2. Run the following commands to disable the Sybase database service:

   # **su - sybase**

   $ **cd /opt/sybase/OCS*/bin**

   $ **./isql -SDBSVR -Usa -Pchangeme**

   1> **shutdown SYB_BACKUP**

   2> **go**

   1> **shutdown**

   2> **go**

   NOTE

   In the **./isql -SDBSVR -Usa -Pchangeme** command, *changeme* is the password of user **sa** of the Sybase database.
3. Run the following command to check whether the Sybase database service is disabled:

   # **ps -ef | grep sybase**

   If the following message is displayed, the Sybase database service has been disabled:

   ```
   root  9629 14603   0 07:46:52 pts/3       0:00 grep sybase
   ```

----End

A.2.1.2 How to Start the Sybase Database Service

Question

How do I start the Sybase database service?

Answer

1 Perform the following operations to start the Sybase database service in the single-server system:

1. Open a terminal window on Solaris OS and run the following commands to start the Sybase database service:

   ```
   # su - sybase
   $ cd /opt/sybase/ASE*/install
   $ ./startserver -f ./RUN_DBSVR &
   $ ./startserver -f ./RUN_DBSVR_back &
   ```
2. Run the following command to check whether the Sybase database service is running:

   ```
   $ ./showserver
   ```

   If the displayed information contains the following message, the Sybase database service is running.

   ```
   UID   PID  PPID   C    STIME TTY         TIME CMD
     sybase  4195  4170   0 18:42:26 ?          70:35 /opt/sybase/ASE-15_0/bin/
   dataserver -ONLINE:1,0,0x6505fd2a, 10000000000, 0x18fc
     sybase  4563  4559   0 18:42:50 ?           0:00 /opt/sybase/ASE-15_0/bin/
   backupserver -SDBSVR_back -e/opt/sybase/ASE-15_0/install
   ```

```
  sybase  4170  4168   0 18:42:00 ?         546:12 /opt/sybase/ASE-15_0/bin/
dataserver -sDBSVR -d/opt/sybase/data/lv_master -e/opt
```

----End

A.2.1.3 How to Verify That the Sybase Process Is Running

Question

How do I verify that the Sybase process is running?

Answer

1. In the single-server system, open a terminal window on Solaris OS.
2. Run the following commands to check the Sybase process status:

```
# su - sybase
$ cd /opt/sybase/ASE*/install
$ ./showserver
```

If the displayed information contains the following message, the Sybase database service is running.

```
UID   PID  PPID   C    STIME TTY         TIME CMD
  sybase  4195  4170   0 18:42:26 ?          70:35 /opt/sybase/ASE-15_0/bin/
dataserver -ONLINE:1,0,0x6505fd2a, 10000000000, 0x18fc
  sybase  4563  4559   0 18:42:50 ?           0:00 /opt/sybase/ASE-15_0/bin/
backupserver -SDBSVR_back -e/opt/sybase/ASE-15_0/install
  sybase  4170  4168   0 18:42:00 ?         546:12 /opt/sybase/ASE-15_0/bin/
dataserver -sDBSVR -d/opt/sybase/data/lv_master -e/opt
```

----End

A.2.2 Sybase Database Maintenance

This topic describes the FAQs about the Sybase database maintenance.

A.2.2.1 How to Verify That the Sybase Database Has Been Installed

Question

How do I verify that the Sybase database has been installed?

Answer

NOTE

- The Sybase database will be automatically installed when the U2000 is installed if the Sybase database does not exist on the system.
- If the Sybase database exists on the system, a dialog box will be displayed asking you whether or not you want to reuse the Sybase database. There is no need to reinstall the Sybase database if it is reused (saves time, but not recommended).

- Consult with the computer administrator to see if the Sybase database has been installed.
- Verify that the installation directory and file of the Sybase database exist. A sample directory is **/opt/sybase**.
- Verify that the version of the Sybase database is correct. For details, see **A.2.2.2 How to Check the Sybase Database Version**.
- Verify that the Sybase database is running. For details, see **A.2.1.3 How to Verify That the Sybase Process Is Running**. For details about how to start the Sybase database, see **A.2.1.2 How to Start the Sybase Database Service**.

----End

A.2.2.2 How to Check the Sybase Database Version

Question

How do I perform the required check on the Sybase database version to see if it is correct after the Sybase database is installed?

Answer

1 Switch to user **sybase**, and connect to the Sybase database. Run the following commands:

su - sybase

$ **cd /opt/sybase/OCS*/bin**

$ **./isql -SDBSVR -Usa -Pchangeme**

NOTE

In the **./isql -SDBSVR -Usa -Pchangeme** command, *changeme* is the password of user **sa** of the Sybase database.

2 Run the following commands to check the Sybase database version:

1> **use master**

2> **go**

1> **select @@version**

2> **go**

NOTE

There must be a space between **select** and **@** in the **select @@version** command.

A message similar to the following will be displayed:

```
-----------------------

 Adaptive Server Enterprise/15.0.3/EBF 16548 ESD#1/P/Sun_svr4/OS 5.8/ase1503/268
        0/64-bit/FBO/Thu Mar  5 09:39:28 2009
(1 row affected)
```

The preceding message indicates that Sybase database version is SYBASE 15.0.3.

----End

A.2.2.3 How to View the Server Name of the Sybase Database

Question

How do I view the server name of the Sybase database?

Answer

1. Log in to the OS as user **sybase**.
2. Run the following command to view the server name of the Sybase database:

   $ **more /opt/sybase/interfaces**

   A message similar to the following will be displayed:

```
DBSVR
        master tcp ether 10.71.225.89 4100
        query tcp ether 10.71.225.89 4100
        master tcp ether 10.71.225.89 4100
        query tcp ether 10.71.225.89 4100
        master tcp ether 127.0.0.1 4100
        query tcp ether 127.0.0.1 4100

DBSVR_back
        master tcp ether 10.71.225.89 4200
        query tcp ether 10.71.225.89 4200
        master tcp ether 10.71.225.89 4200
        query tcp ether 10.71.225.89 4200
        master tcp ether 127.0.0.1 4200
        query tcp ether 127.0.0.1 4200
```

   NOTE

   Run the following commands to change the server name of the Sybase database to **DBSVR**:

   $ **cd /opt/HWENGR/upgrade/scripts/solaris**

   $ **./_modifyInterfaces.sh old_main_DBServer_name DBSVR**

   $ **./_modifyCfgFile.sh old_main_DBServer_name DBSVR**

   $ **./_modifyLogFile.sh old_main_DBServer_name DBSVR**

   $ **./_modifyRunFile.sh old_main_DBServer_name DBSVR**

   In the preceding commands, **old_main_DBServer_name** indicates the name of the server to be reused.

----End

A.2.2.4 How to Change the Password of User sa for the Sybase Database

Question

How do I change the password of user **sa** for the Sybase database?

Answer

1. Shut down the NMS server and client.

   Log in to the system as user **nmsuser** and run the following commands to end the U2000 processes:

   $ **cd /opt/U2000/server/bin**

   $ **./stopnms.sh**

   NOTE

   Ensure that the database is running.

2. Log in to the network management maintenance suite (MSuite) client.
   1. On the computer where the MSuite client is installed, double-click the **U2000 MSuite** shortcut icon on the desktop. Wait about one minute. The **Login** dialog box is displayed.
   2. Set the login parameters and click **OK**. The **NMS maintenance suite** window will be displayed.
      - IP Address: Indicates the system IP address of the computer where the MSuite server is installed.
      - Port No.: The default port ID is **12212**. There is no need to change the default value during login.
      - User Name and Password: The default user name and password are **admin**.
3. On the MSuite client, choose **Deploy** > **Change Database Administrator Password**. The **Change Database Administrator Password** dialog box is displayed.
4. Enter the old password and new password.

   NOTE

   A password must be 6-30 characters long and consist of letters or digits. Special characters are not allowed.
5. Click **OK**. The password is changed.

   ----End

A.2.2.5 How to View the Bit Number of the Sybase Database

Question

How do I view the bit number of the Sybase database?

Answer

1. Run the following commands to view the bit number of the Sybase database:

   # **cd /opt/sybase/OCS*/bin**

./isql -SDBSVR -Usa -Pchangeme

1>**select @@version**

2>**go**

NOTE

- In the **./isql -SDBSVR -Usa -Pchangeme** command, *changeme* is the password of user **sa** of the Sybase database.
- There must be a space between **select** and **@** in the **select @@version** command.

The following message will be displayed:

```
Adaptive Server Enterprise/12.5.3/EBF 13325 ESD#5/P/Sun_svr4/OS 5.8/ase1253/193
9/64-bit/FBO/Tue Dec 6 09:13:20 2005
```

`64-bit` indicates the bit number of the Sybase database.

----End

A.2.2.6 How to View the Details of the Sybase Database

Question

How do I view the details about the Sybase database during routine maintenance?

Answer

1 Run the following commands to view the details of all databases:

cd /opt/sybase/OCS*/bin

./isql -SDBSVR -Usa -Pchangeme

1>**sp_helpdb**

2>**go**

NOTE

In the **./isql -SDBSVR -Usa -Pchangeme** command, *changeme* is the password of user **sa** of the Sybase database.

The information about the Sybase database will be displayed, including the name, size, owner, and status.

2 Run the following commands to view the details of a specific database:

1>**sp_helpdb database_name**

2>**go**

NOTE

In the **sp_helpdb database_name** command, *database_name* is the name of the Sybase database.

Database space used can also be viewed.

----End

A.2.2.7 How to Change the Server Name of the Sybase Database to DBSVR

Question

If the OS is configured and the NMS installation needs to reuse the installed database, the database server name needs to be changed to **DBSVR**. How do I change the server name?

Answer

1. Log in to the OS as user **root**.
2. Run the following commands to view the server name of the Sybase database:

   ```
   # more /opt/sybase/interfaces
   ```

   Information similar to the following is displayed:

   ```
   DBSVR
           master tcp ether 10.71.225.89 4100
           query tcp ether 10.71.225.89 4100
           master tcp ether 10.71.225.89 4100
           query tcp ether 10.71.225.89 4100
           master tcp ether 127.0.0.1 4100
           query tcp ether 127.0.0.1 4100

   DBSVR_back
           master tcp ether 10.71.225.89 4200
           query tcp ether 10.71.225.89 4200
           master tcp ether 10.71.225.89 4200
           query tcp ether 10.71.225.89 4200
           master tcp ether 127.0.0.1 4200
           query tcp ether 127.0.0.1 4200
   ```

3. Run the following commands to change the database server name to **DBSVR** if the name is not **DBSVR**:

   ```
   # . /opt/sybase/SYBASE.sh
   # cd /opt/HWENGR/upgrade/scripts/solaris
   # ./_modifyInterfaces.sh old_main_DBServer_name DBSVR
   # ./_modifyCfgFile.sh old_main_DBServer_name DBSVR
   # ./_modifyLogFile.sh old_main_DBServer_name DBSVR
   # ./_modifyRunFile.sh old_main_DBServer_name DBSVR
   ```

   In the preceding command, *old_main_DBServer_name* indicates the name of the server to be reused.

----End

A.2.2.8 How to Delete Redundant Database Items

Question

If the NMS installation needs to reuse the installed database, redundant database items need to be deleted. How do I delete redundant database items?

Answer

1. Log in to the OS as user **root**.
2. Run the following commands to view databases:

   ```
   # su - sybase
   $ . /opt/sybase/SYBASE.sh
   ```

```
$ cd /opt/sybase/OCS*/bin
$ ./isql -SDBSVR -Usa -Pchangeme
```

NOTE

In the **./isql -SDBSVR -Usa -Pchangeme** command, *changeme* is the password of user **sa** of the Sybase database.

```
1> sp_helpdb
2> go
```

Information similar to the following is displayed:

```
 name                 db_size       owner                 dbid
        created

status

 -------------------- ------------- --------------------- ------
...
 XFTPDB                        150.0 MB sa                      12
        Mar 06, 2009
        select into/bulkcopy/pllsort, trunc log on
chkpt
 master                        240.0 MB sa                       1
        Mar 05, 2009
        mixed log and
data
 model                           2.0 MB sa                       3
        Mar 05, 2009
        select into/bulkcopy/pllsort, trunc log on chkpt, mixed log and
data
 sybsystemdb                     2.0 MB sa                   31513
        Mar 05, 2009
        mixed log and
data
 sybsystemprocs                250.0 MB sa                   31514
        Mar 05, 2009
        trunc log on chkpt, mixed log and
data
 tempdb                       1003.0 MB sa                       2
        Mar 29, 2009
        select into/bulkcopy/pllsort, trunc log on chkpt, mixed log and
data

(1 row affected)
(return status = 0)
1>
```

Look over the displayed message and delete any redundant databases other than **master**, **model**, **sybsystemdb**, **sybsystemprocs**, **tempdb** exist.

NOTE

- If the NMS of Chinese edition is installed, illegible characters may be displayed when you log in to the system using the remote terminal login tool (CLI-based). If this happens, set the encoding scheme of the remote terminal login tool to **UTF-8**.
- If the remote terminal login tool does not support the ability to set the encoding scheme, log in to the system by using the GUI.

3 Perform the following operations to delete the information about the redundant databases: (The following uses the **XFTPDB** as an example.)

1. Run the following commands to view the device information in the **XFTPDB** database:

   ```
   1> sp_helpdb XFTPDB
   2> go
   ```

   Information similar to the following is displayed:

   ```
    name                 db_size       owner                 dbid
           created
   ```

```
status

 ------------------------ ------------- ------------------------ ------
...
 XFTPDB                          150.0 MB sa                           12
        Mar 06, 2009
        select into/bulkcopy/pllsort, trunc log on
chkpt

(1 row affected)
 device_fragments               size          usage
        created             free kbytes
 ------------------------------ ------------- --------------------
        -------------------- ----------------
 XFTPDBdata                             100.0 MB data only
        Mar  6 2009  4:13PM           100742
 XFTPDBlog                               50.0 MB log only
        Mar  6 2009  4:13PM not applicable

 ---------------------------------------------------------------
 log only free kbytes = 50998
(return status = 0)
1>
```

2. Run the following commands to delete the **XFTPDB** database and the **XFTPDBdata** and **XFTPDBlog** items in the **XFTPDB** database:

```
1> drop database XFTPDB
2> go
1> sp_dropdevice XFTPDBdata
2> go
1> sp_dropdevice XFTPDBlog
2> go
```

3. Run the following commands to exit the SQL and log out as user **sybase**:

```
1> exit
$ exit
```

4. Run the following commands to go to the **sybase** directory and delete the associated files of the device information from the **XFTPDB** database:

```
# cd /opt/sybase/data
# rm XFTPDBdata.dat
# rm XFTPDBlog.dat
```

----End

A.2.2.9 How to Change the Character Set of the Database to UTF-8

Question

If the OS is configured and the NMS installation needs to reuse the installed database, the character set of the database needs to be changed to **UTF-8**. How do I change the character set?

Answer

1 Log in to the OS as user **root**.

2 Run the following commands to view the character set of the database:

```
# su - sybase
$ . /opt/sybase/SYBASE.sh
$ cd /opt/sybase/OCS*/bin
$ ./isql -SDBSVR -Usa -Pchangeme
```

NOTE

In the **./isql -SDBSVR -Usa -Pchangeme** command, *changeme* is the password of user **sa** of the Sybase database.

```
1> sp_helpsort
2> go
```

Information similar to the following is displayed:

```
...
     Unicode 3.1 UTF-8 Character Set
     Binary sort order for the ISO 10646-1, UTF-8 multibyte encoding character set
(utf8).
(return status = 0)
1>
```

3 Run the following commands to exit the SQL and log out as user **sybase**:

```
1> exit
$ exit
```

4 Run the following commands to change the character set to **UTF-8** if it is not **UTF-8**:

```
# cd /opt/HWENGR/engineering/script/sybase
# ./transferCharset.sh database_installation_path DBSVR sa password_of_sa
```

----End

A.3 U2000 System

This topic covers FAQs about the U2000 system.

A.3.1 How to Verify That the U2000 Is Installed

Question

How do I verify that the U2000 is installed?

Answer

1. Log in to the OS as user **nmsuser**.
2. Check whether the icons of the U2000 client and U2000 System Monitor exist on the desktop. If they exist, it indicates that the U2000 has been installed.
3. If login to the desktop fails, run the following commands to view the **/opt/U2000** directory: If this directory exists and is not empty, it indicates that the U2000 is installed.

   $ **cd /opt/U2000**

   $ **ls**

A.3.2 How to Verify That the Processes of the U2000 Single-Server System Are Running on Solaris

Question

How do I verify that the processes of the U2000 single-server system are running on Solaris?

Answer

1 Log in to the server as user **nmsuser**.

2 Check the U2000 processes.

Run the following command to check whether the U2000 is running:

$ **daem_ps**

Information similar to the following is displayed:

```
nmsuser 27069     1   0 10:31:39 ?           1:39 imapmrb
nmsuser 27079     1   0 10:31:39 ?           0:00 imapwatchdog -cmd start
nmsuser 27075     1   0 10:31:39 ?           0:50 imapsysd -cmd start
nmsuser 27086     1   0 10:31:39 ?           0:09 imapeventmgr
nmsuser 23679     1   1 17:57:06 pts/8       0:02 imap_sysmonitor -cmd start
nmsuser 27116     1   0 10:31:40 ?           0:52 ResourceMonitor -cmd start
```

NOTE

The U2000 is running if the displayed information contains **imap_sysmonitor -cmd start**.

----End

A.3.3 How to Start the Processes of the U2000 Single-Server System on Solaris

Question

How do I start the processes of the U2000 single-server system on Solaris?

Answer

1 Log in to the server as user **nmsuser**.

2 Ensure that the U2000 is running.

Run the following command to check whether the U2000 is running:

```
$ daem_ps
```

Information similar to the following is displayed:

```
nmsuser 27069     1   0 10:31:39 ?           1:39 imapmrb
nmsuser 27079     1   0 10:31:39 ?           0:00 imapwatchdog -cmd start
nmsuser 27075     1   0 10:31:39 ?           0:50 imapsysd -cmd start
nmsuser 27086     1   0 10:31:39 ?           0:09 imapeventmgr
nmsuser 23679     1   1 17:57:06 pts/8       0:02 imap_sysmonitor -cmd start
nmsuser 27116     1   0 10:31:40 ?           0:52 ResourceMonitor -cmd start
```

NOTE

The U2000 is running if the displayed information contains **imap_sysmonitor -cmd start**.

Run the following command to start the U2000 if it is not running:

```
$ cd /opt/U2000/server/bin
$ ./startnms.sh
```

----End

A.3.4 How to End the Processes of the U2000 Single-Server System on Solaris

Question

How do I end the processes of the U2000 single-server system on Solaris?

Answer

1 Log in to the server as user **nmsuser**.

2 Ensure that the U2000 is not running:

To check the running status of the U2000 process, run the following command:

```
$ daem_ps
```

Information similar to the following is displayed:

```
nmsuser 27069     1   0 10:31:39 ?           1:39 imapmrb
nmsuser 27079     1   0 10:31:39 ?           0:00 imapwatchdog -cmd start
nmsuser 27075     1   0 10:31:39 ?           0:50 imapsysd -cmd start
nmsuser 27086     1   0 10:31:39 ?           0:09 imapeventmgr
nmsuser 23679     1   1 17:57:06 pts/8       0:02 imap_sysmonitor -cmd start
nmsuser 27116     1   0 10:31:40 ?           0:52 ResourceMonitor -cmd start
```

NOTE

The U2000 is running if the displayed information contains **imap_sysmonitor -cmd start**.

Run the following commands to stop U2000 if it is running:

```
$ cd /opt/U2000/server/bin
```

```
$ ./stopnms.sh
```

----End

A.3.5 How to Determine Which Types of Software Are Preinstalled

Question

Servers come preinstalled with software from Huawei. The U2000 servers come preinstalled to different extents according to the scheme and software purchased. How do I determine which types of software are preinstalled?

Answer

In the single-server system: The U2000 is installed based on the bill of material (BOM).

- If the U2000 license BOM is available, the U2000 needs to be installed according to the license BOM. Technical support engineers should change the IP address, install the license on the U2000, and then use the U2000.
- If the U2000 license BOM is unavailable, only the OS needs to be installed.

A.3.6 Which Installation Packages Are Required for U2000 Installation

Question

Which installation packages are required for U2000 installation?

Answer

Prepare installation packages according to the U2000 installation scheme.

Table A-2 Software required for installation

Software	Medium Description
Solaris 10 OS	You can install Solaris 10 OS by using the quick installation DVD or Common installation DVD. ● Quick installation DVD: U2000***version***_server_os_solaris_SPARC_sun4v_dvd2 or U2000***version***_server_os_solaris_SPARC_sun4u_dvd1 **NOTE** ● Ensure that the quick installation DVD U2000***version***_server_os_solaris_SPARC_sun4v_dvd2 is available if the hardware type of the selected server is sun4v (the T5220 server for example). ● Ensure that the quick installation DVD U2000***version***_server_os_solaris_SPARC_sun4u_dvd1 is available if the hardware of the selected server is sun4u (the M4000 server for example). Installation engineers can run the **uname -m** command to view the hardware type of a server after logging in to the server OS as user **root**. ● Common installation DVD: Solaris 10 Software (10/08 SPARC Platform Edition) **NOTE** Before installing Solaris 10 OS by using the common installation DVD, prepare the OS patch DVD: U2000***version***_server_patch_solaris_SPARC_dvd3, or OS patch package U2000***version***_server_ospatch_solaris_SPARC.tar.
Database	Installation DVD or installation package ● Installation DVD: U2000***version***_server_db_solaris_SPARC_dvd4 ● Installation software package: U2000***version***_server_db_solaris_SPARC.tar

Software	Medium Description
U2000 server software	Installation DVD or installation package ● Installation DVD: U2000***version***_server_nms_solaris_SPARC_dvd5 ● Installation package: **NOTE** Prepare software packages required by the components to be installed. Do not prepare U2000***version***_client_solaris_SPARC.tar software packages. If the U2000***version***_client_solaris_SPARC.tar and the following software packages are decompressed into the same path, the U2000 installation will fail. – Basic component: U2000***version***_server_nmsbase_solaris_SPARC.tar **It must be available.** It is used to install the U2000. – Core component: U2000***version***_server_nmscore_solaris_SPARC.tar **It must be available.** It is used to install the U2000. – Transport domain component: U2000***version***_server_nmstrans_solaris_SPARC.tar **It is required only if the U2000 needs to manage Huawei transport equipment**. Huawei transport equipment, including: – MSTP Series Equipment – WDM Series Equipment – NA WDM Series Equipment – Submarine Line Equipment – RTN Series Equipment – PTN Series Equipment – IP domain component: U2000***version***_server_nmsip_solaris_SPARC.tar **It is required only if the U2000 needs to manage Huawei IP equipment**. Huawei IP equipment, including: – Router Series Equipment – Switch Series Equipment – Metro Service Platform Equipment – Broadband Access Series Equipment – VoIP Gateway Equipment – Firewall Series Equipment – Service Inspection Gateway Equipment – SVN Series Equipment – Access domain component: U2000***version***_server_nmsaccess_solaris_SPARC.tar **It is required only if the U2000 needs to manage Huawei access equipment**. Huawei access equipment, including: – FTTx Series Equipment

Software	Medium Description
	- MSAN Series Equipment - DSLAM Series Equipment - StorageTek 2540 disk array manager CAM (optional). Prepare this component if the StorageTek 2540 disk array is configured: U2000***version***_server_ospatch_solaris_SPARC.tar

A.3.7 How to Handle Messages Indicating That the Port Is Occupied During Installation or Uninstall

Question

How do I handle messages indicating that the port is occupied during use of the MSuite, installation, or uninstall?

In the Solaris OS, the message is as follows:

```
The communication port (12212,12213,12214,12215) of the installation framework is
used. Run the "/usr/bin/netstat -an -P tcp" command to query the usage status of
the port, or try later.
```

Answer

- Wait about one minute and try again after the port is released automatically.
- In the Solaris or SUSE Linux OS, run the following command to view process IDs:

  ```
  # ps -ef | grep java root 19913 19907   0 04:04:09 pts/1      0:00 grep java ...
  root 18382 18311   0 03:42:33 pts/2      12:20 /opt/HWNMSJRE/jre_sol/bin/java
  -server -Dequinox.conf=engineering/conf/installE ...
  ```

  Locate the process that contains the command output: **/opt/HWNMSJRE/jre_sol/bin/java -server** and end the process by running the **kill** command. The following is a sample **kill** command:

  ```
  # kill -9 18382
  ```

----End

A.3.8 How to Rectify the Application GUI Startup Failure Caused by User Switching

Question

After a user logs in to the graphical desktop system as user **root** and runs the **su - nmsuser** command to switch to user **nmsuser**, applications such as the NMS maintenance suite client, U2000 client, and U2000 System Monitor client fail to start. How do I rectify this fault?

Answer

1. Use either of the following methods to rectify the fault.
   - Method 1: Log out of the graphical desktop system and then log in as user **nmsuser**. Then, start an application in the desktop system.

- Method 2: Perform the following operations in the current window:
  1. Run the following command to switch back to user **root**:
     ```
     $ exit
     ```
     NOTE

     The command prompt for user **root** is **#**. If **#** is not displayed after you run the **exit** command, run the **exit** command again.
  2. Run the following command to check the **DISPLAY** variable of user **root**. Then, record the value of the **DISPLAY** variable.
     ```
     # echo $DISPLAY
     ```
  3. Run the following commands to switch to user **nmsuser** and set the **DISPLAY** variable.
     ```
     # xhost +
     # su - nmsuserr
     $ export DISPLAY=DISPLAY value
     ```
     NOTE

     In the preceding command, **DISPLAY value** is the recorded value of the **DISPLAY** variable.
  4. Run the appropriate command to start the application.

----End

A.3.9 How to View the U2000 and Sybase Database Installation Paths

Question

How do I view the U2000 and Sybase database installation paths?

Answer

Generally, the U2000 installation path is **/opt/U2000** and the Sybase database installation path is **/opt/sybase**.

To view the installation paths, perform the following steps:

1 Log in to the OS as user **root**.

2 Check the **ICMR_conf.xml** configuration file to confirm the installation paths.

Run the following commands to check the **ICMR_conf.xml** configuration file:

```
# cd /etc/ICMR
# more ICMR_conf.xml
```

A message similar to the following will be displayed:

```
<CONFIGITEMS>
<NETCONFIGFILE>/etc/ICMR/netCfg/OS/os_net_config.cfg</NETCONFIGFILE>
<DATABASEINSTALLPATH>/opt/sybase</DATABASEINSTALLPATH>
<IFCONFIGSYSNET>no</IFCONFIGSYSNET>
<NMSINSTALLPATH>/opt/U2000</NMSINSTALLPATH>
<FINISHTASKLIST>tasks::installtype_request,tasks::instSybase_request,tasks::instNM
S_request,tasks::single_network_request,tasks::modify_sys_paras,tasks::enable_mult
ipath,tasks::mirrorDisk,tasks::mount_array_disks</FINISHTASKLIST>
<INSTALLTYPE>1</INSTALLTYPE>
<DEBUGLEVEL>9</DEBUGLEVEL>
</CONFIGITEMS>
```

Confirm the installation paths according to the preceding message:

- The Sybase database installation path is **/opt/sybase** if **<DATABASEINSTALLPATH>/opt/sybase</DATABASEINSTALLPATH>** is displayed.
- The U2000 installation path is **/opt/U2000** if **<NMSINSTALLPATH>/opt/U2000</NMSINSTALLPATH>** is displayed.

----End

A.3.10 How to Rectify the Mouse Detection Failure and Open the GUI After the T5220 Is Connected to the KVM

Question

The OS was installed by using the quick installation DVD. After the T5220 is connected to the KVM, the GUI cannot be opened. How do I rectify this fault?

Answer

1 To set the I/O mode, run the following commands:

eeprom output-device=screen

eeprom input-device=keyboard

2 To set the screen resolution and refresh rate, perform the following operations:

1. To view information about the current video card, run the following command:

   # **fbconfig -list**

   A message similar to the following will be displayed:

```
  Device File Name            Device Model     Configuration Program
  ----------------            ------------     --------------
  /dev/fbs/nfb0 [a|b]                          SUNWnfb_config
```

2. To view the screen resolution and refresh rate supported for the current video card, run the following command:

   # **fbconfig -res \?**

   A message similar to the following will be displayed:

```
Valid values for -res option are:
        VESA_STD_640x480x60
             ...
             ...
Notes:
Monitor 1 edid data not available, monitor may not support all resolutions.
Monitor 2 edid data not available, monitor may not support all resolutions.

Use unsupported resolutions at your own risk.

* Abbreviations such as "1280x1024x75" may also be used
```

3. To view the current configurations for the video card, run the following command:

   # **fbconfig -propt**

   A message similar to the following will be displayed:

```
--- OpenWindows Configuration for /dev/fb0 ---
```

```
OWconfig: machine
Video Mode: not set

Screen Information:
        Doublewide: Disable
        Doublehigh: Disable
        Clone: Disable
        Offset/Overlap: [0, 0]
        Output Configuration: Direct
        Fake8 Rendering: Disable
```

4. The screen resolution and refresh rate are not set if **Video Mode** is set to **not set**. To set the screen resolution and refresh rate, run the following commands:

   # **fbconfig -dev** */dev/fbs/nfb0* **-res** *1024x768x60* **now**

   A message similar to the following will be displayed:

```
SUNWnfb_config: Warning: no edid data available from monitor A
SUNWnfb_config: Cannot verify that 1024x768x60 is a supported
        video resolution for this monitor
SUNWnfb_config: Use 1024x768x60 anyway (yes/no) ?
```

   Enter **y**, and then press **Enter**. A message similar to the following will be displayed:

```
Setting 1024x768x60
```

5. To view the current configurations for the video card, run the following command:

   # **fbconfig -propt**

   The setting has taken effect if a message similar to the following is displayed.

```
--- Open Windows Configuration for /dev/fb0 ---

OWconfig: machine
Video Mode: 1024x768x60

Screen Information:
        Doublewide: Disable
        Doublehigh: Disable
        Clone: Disable
        Offset/Overlap: [0, 0]
        Output Configuration: Direct
        Fake8 Rendering: Disable
```

3 To restart the OS, run the following command. After the OS is restarted, connect the T2550 to the KVM.

sync;sync;sync;sync

shutdown -y -g0 -i6

----End

A.3.11 How to Check Downloaded Software Packages by Using MD5 Software

Question

How do I check downloaded software packages by using MD5 software?

Answer

1 Download the **MD5_Code_English** file from http://support.huawei.com. The **MD5_Code_English** file contains MD5 code information after all software and document packages are decompressed.

NOTE

Perform the following operations to obtain the **MD5_Code_English** file:

1. Access **http://support.huawei.com**.
2. Choose **Software Center** > **Version Software** > **Network OSS&Service** > **iManager U2000** > **iManager U2000** > **iManager U2000** > **iManager U2000 V100R002** > **iManager U2000 V100R002C01SPC002**.
3. Download the **MD5_Code_English** file in the **Release Document** column.

2 Navigate to **http://www.winmd5.com** and download the WinMD5.

3 Double-click **WinMD5 1.2.exe** to run the WinMD5.

4 Drag the downloaded software package to the window for running the WinMD5. The WinMD5 automatically generates MD5 code information about the downloaded software package and then compares the information with the counterpart in the **MD5_Code_English** file.

- The downloaded software package is correct if the information about the software package is consistent with the counterpart in the **MD5_Code_English** file.
- The software package must be re-downloaded if the information about the software package is inconsistent with the counterpart in the **MD5_Code_English** file.

----End

A.3.12 How to Rectify the Failure to Connect to the Sybase Database During U2000 Installation

Question

How to rectify the failure to connect to the Sybase database during U2000 installation?

Answer

1 This fault occurs if the IP address recorded in the **interfaces** file in the Sybase database is different from the IP address of the U2000 server. To rectify this fault, modify the IP address recorded in the **interfaces** file.

2 To modify the **interfaces** file, run the following command:

$ **vi /opt/sybase/interfaces**

Information similar to the following is displayed:

```
DBSVR master tcp ether 129.9.1.20 4100 query tcp ether 129.9.1.20 4100 master tcp
ether 129.9.1.20 4100 query tcp ether 129.9.1.20 4100 master tcp ether 127.0.0.1
4100 query tcp ether 127.0.0.1 4100

DBSVR_back master tcp ether 129.9.1.20 4200 query tcp ether 129.9.1.20 4200 master
tcp ether 129.9.1.20 4200 query tcp ether 129.9.1.20 4200 master tcp ether
127.0.0.1 4200 query tcp ether 127.0.0.1 4200
```

Change the IP address (for example, 129.9.1.20) recorded in the **interfaces** file to the IP address of the U2000 server.

----End

A.3.13 How to Set the Communication Mode on the U2000 server for the Single-Server System (Solaris)

Question

The U2000 server and client can communicate with each other in common or Security Socket Layer (SSL) mode. How to set the common or SSL mode?

Answer

1. Log in to the OS on the U2000 server as **nmsuser** user and do as follows to query the communication mode in use:

   ```
   $ ssl_adm -cmd query
   ```

2. Run the following command to stop U2000 processes.

   ```
   $ cd /opt/U2000/server/bin
   $ ./stopnms.sh
   ```

3. Set the communication mode for the U2000 server and client.

   ```
   $  ssl_adm -cmd setmode mode parameter
   ```

   NOTE

   The available options for *mode parameter* are **normal**, **ssl**, and **both**.

   - **normal**: indicates that the U2000 server and client can communicate with each other only in common mode.
   - **ssl**: indicates that the U2000 server and client can communicate with each other only in SSL mode. In this mode, communication security is guaranteed between the U2000 server and client.
   - **both**: indicates that the U2000 server and client can communicate with each other in either common or SSL mode.

4. Run the following command to start U2000 processes.

   ```
   $ cd /opt/U2000/server/bin
   $ ./startnms.sh
   ```

----End

B Uninstalling the U2000 Software

This topic describes how to uninstall the U2000 software. Uninstall the U2000 software prior to reinstallation.

B.1 Uninstall Preparations
This topic describes the preparations for uninstalling the U2000 software.

B.2 Uninstalling the U2000
This topic describes how to uninstall the U2000 software.

B.3 Verifying the Uninstall Status of the Server Software
This topic describes how to verify that the U2000 server software is uninstalled.

B.1 Uninstall Preparations

This topic describes the preparations for uninstalling the U2000 software.

Procedure

1. Log out of all running U2000 clients.
2. Log in to the OS of the server as the **nmsuser** user.
3. Ensure that the U2000 is not running:

   To check the running status of the U2000 process, run the following command:

   ```
   $ daem_ps
   ```

   Information similar to the following is displayed:

   ```
   nmsuser 27069     1   0 10:31:39 ?           1:39 imapmrb
   nmsuser 27079     1   0 10:31:39 ?           0:00 imapwatchdog -cmd start
   nmsuser 27075     1   0 10:31:39 ?           0:50 imapsysd -cmd start
   nmsuser 27086     1   0 10:31:39 ?           0:09 imapeventmgr
   nmsuser 23679     1   1 17:57:06 pts/8       0:02 imap_sysmonitor -cmd start
   nmsuser 27116     1   0 10:31:40 ?           0:52 ResourceMonitor -cmd start
   ```

   NOTE

   The U2000 is running if the displayed information contains **imap_sysmonitor -cmd start**.

   Run the following commands to stop U2000 if it is running:

   ```
   $ cd /opt/U2000/server/bin
   $ ./stopnms.sh
   ```

4. Run the following commands to stop the Network Management System Maintenance Suite:

   ```
   $ su
   password: password_of_root_user
   # cd /opt/HWENGR/engineering
   # ./stopserver.sh
   # exit
   ```

   Run the following command to verify that the Network Management System Maintenance Suite is not running:

   ```
   $ ps -ef | grep java
   root 19913 19907   0 04:04:09 pts/1       0:00 grep java
   ...
   root 18382 18311   0 03:42:33 pts/2      12:20 /opt/HWNMSJRE/jre_sol/bin/java -
   server -Dequinox.conf=engineering/conf/installE
   ```

   NOTE

   If the displayed information does not contain **/opt/HWNMSJRE/jre_sol/bin/java -server**, the Network Management System Maintenance Suite is stopped successfully.

5. Ensure that the database is running.

   Run the following command to check whether the Sybase database is running:

   ```
   $ ps -ef | grep sybase
   ```

   Information similar to the following is displayed:

   ```
     sybase  4848  4847   0   May 18 ?         167:11 /opt/sybase/ASE-15_0/bin/data
   server -sDBSVR -d/opt/sybase/data/lv_master -e/opt
     sybase  5250  5248   0   May 18 ?           0:00 /opt/sybase/ASE-15_0/bin/back
   ```

```
upserver -SDBSVR_back -e/opt/sybase/ASE-15_0/insta
  sybase  4847     1   0   May 18 ?           0:00 /usr/bin/sh /opt/sybase/ASE-1
5_0/install/RUN_DBSVR
  sybase  5248     1   0   May 18 ?           0:00 /usr/bin/sh /opt/sybase/ASE-1
5_0/install/RUN_DBSVR_back
 ...
```

NOTE

The database is running if the displayed information contains **/opt/sybase/ASE-15_0/install/RUN_DBSVR** and **/opt/sybase/ASE-15_0/install/RUN_DBSVR_back**.

Run the following commands to start the Sybase database if it is not running:

```
$ su - sybase
$ . /opt/sybase/SYBASE.sh
$ cd /opt/sybase/ASE-15_0/install
$ ./startserver -f ./RUN_DBSVR &
$ ./startserver -f ./RUN_DBSVR_back &
$ exit
```

NOTE

Leave a space between the dot (.) and the command **/opt/sybase/SYBASE.sh**.

NOTE

- **DBSVR** is the name of the database server and **DBSVR_back** is the name of the database backup server. These names must be consistent with the actual database names.
- View the database name and database backup server name by running the **more /opt/sybase/interfaces** command.

----End

B.2 Uninstalling the U2000

This topic describes how to uninstall the U2000 software.

Prerequisite

Uninstall preparations have been completed.

User **nmsuser** is logged out.

Context

- This operation uninstalls only the U2000. The Sybase database will not be uninstalled.
- Two modes are available to uninstall the U2000. One is the GUI mode and the other is the CLI mode. The procedure for uninstalling the U2000 in GUI mode is described in the following sections. Installation engineers are recommended to uninstall the U2000 through the CLI if they cannot log in to the GUI of the OS.

  Run the **./uninstall.sh -cmd** command to uninstall the U2000 in the **/opt/HWENGR** path through the CLI.

Procedure

1. Log in to the **Java Desktop System, Release 3** session of the server OS as user **root** using the remote desktop control software.

TIP

- To log in to the **Java Desktop System, Release 3**, perform the following operations: In the login dialog box of the remote desktop control software, choose **Options** > **Session** > **Java Desktop System, Release 3**. Then, set the session to **Java Desktop System, Release 3**.
- After you log in to the **Java Desktop System, Release 3**, if the **Solaris Registration Wizard** dialog box is displayed, click the **Run the Solaris software without registering** option button and then click **Next**. In the dialog box that is displayed, click **Never Register**.

2 Run the following command to go to the path where the **uninstall.sh** script is stored and run the script:

```
# cd /opt/HWENGR
# ./uninstall.sh
```

The **Confirm Uninstallation** dialog box will be displayed.

3 Click **Next**. The **Confirm** dialog box is displayed.

4 Click **Yes**. A dialog box showing the progress of the uninstall will be displayed.

NOTE

The duration of the uninstall depends on the quantity of installed components. Wait patiently.

5 After the uninstall is complete, the **Uninstallation Complete** dialog box is displayed.

6 Click **Finish**.

7 Run the following command to delete the **HWENGR** directory:

```
# rm -rf /opt/HWENGR
```

----End

B.3 Verifying the Uninstall Status of the Server Software

This topic describes how to verify that the U2000 server software is uninstalled.

Procedure

1 Log in to the OS of the server as user **root**.

2 Confirm that the installation path is correct during the uninstall.

- If the server is not mounted with disk arrays, the NMS installation path**/opt/U2000** will be deleted.
- If the server is mounted with disk arrays, the NMS installation path **/opt/U2000** will be empty.

The installation paths **/opt/HWENGR**, **/opt/HWICMR** and **/opt/HWNMSJRE**, are deleted.

3 Confirm the **nmsuser** user that must be deleted during the uninstall.

Run the following command to switch to user **nmsuser**:

```
# su - nmsuser
```

A message similar to the following will be displayed:

```
su: unknown id: nmsuser
```

----End

C Powering Off the Single-Server System (Solaris)

This topic describes how to power off the system. Do not power off the U2000 when it is properly managing NEs. The U2000 only needs to be shut down in special circumstances (such as switching the power supply).

Context

- Always follow site-specific procedures for powering off the server to ensure that it is safely shut down.
- The system may fail to recover if the **halt** command is used to shut down the server or if the server is directly powered off.

Procedure

1. Exit all running U2000 clients.
2. Log in to the OS of the server as the **nmsuser** user.
3. Ensure that the U2000 is not running:

   To check the running status of the U2000 process, run the following command:

   ```
   $ daem_ps
   ```

   Information similar to the following is displayed:

   ```
   nmsuser 27069     1   0 10:31:39 ?           1:39 imapmrb
   nmsuser 27079     1   0 10:31:39 ?           0:00 imapwatchdog -cmd start
   nmsuser 27075     1   0 10:31:39 ?           0:50 imapsysd -cmd start
   nmsuser 27086     1   0 10:31:39 ?           0:09 imapeventmgr
   nmsuser 23679     1   1 17:57:06 pts/8       0:02 imap_sysmonitor -cmd start
   nmsuser 27116     1   0 10:31:40 ?           0:52 ResourceMonitor -cmd start
   ```

   NOTE

   The U2000 is running if the displayed information contains **imap_sysmonitor -cmd start**.

   Run the following commands to stop U2000 if it is running:

   ```
   $ cd /opt/U2000/server/bin
   $ ./stopnms.sh
   ```

4. Ensure that the Sybase database is not running.

Run the following command to check whether the Sybase database is running:

```
$ ps -ef | grep sybase
```

Information similar to the following is displayed:

```
  sybase  4848  4847   0   May 18 ?         167:11 /opt/sybase/ASE-15_0/bin/data
server -sDBSVR -d/opt/sybase/data/lv_master -e/opt
  sybase  5250  5248   0   May 18 ?           0:00 /opt/sybase/ASE-15_0/bin/back
upserver -SDBSVR_back -e/opt/sybase/ASE-15_0/insta
  sybase  4847     1   0   May 18 ?           0:00 /usr/bin/sh /opt/sybase/ASE-1
5_0/install/RUN_DBSVR
  sybase  5248     1   0   May 18 ?           0:00 /usr/bin/sh /opt/sybase/ASE-1
5_0/install/RUN_DBSVR_back
 ...
```

NOTE

The database is running if the displayed information contains **/opt/sybase/ASE-15_0/install/RUN_DBSVR** and **/opt/sybase/ASE-15_0/install/RUN_DBSVR_back**.

Run the following commands to stop the Sybase database if it is running:

```
$ su - sybase
$ . /opt/sybase/SYBASE.sh
$ cd /opt/sybase/OCS-15_0/bin
$ ./isql -SDBSVR -Usa -Pchangeme
1> shutdown SYB_BACKUP
2> go
1> shutdown
2> go
$ exit
```

NOTE

- Leave a space between the dot (.) and the command **/opt/sybase/SYBASE.sh**.
- In the **./isql -SDBSVR -Usa -Pchangeme** command, *changeme* is the password of user **sa** of the Sybase database.

5 Run the following commands to switch to user **root**:

```
$ su
password: password_of_root_user
```

6 Run the following commands to shut down the OS:

```
# sync;sync;sync;sync
# shutdown -y -g0 -i5
```

----End

D Getting Started

This topic describes certain common operations that can be performed on the Solaris workstation. After learning this topic, you can improve the efficiency of the operations in the Solaris OS.

Syntax Structure of Command Lines

The syntax structure of command lines is as follows:

```
command option parameter
```

The Solaris commands are case-sensitive. That is, the OS considers an uppercase letter and its corresponding lowercase letter two different letters. For example, when you want to use the command for displaying the files in the certain directory, the OS can correctly run the **ls** command, but it cannot run the **Ls** command because the **Ls** command is considered as an invalid system command. The options in the Solaris commands are used to change the command execution method. Generally, the options start with the en-dash (-).

For example, run the following command to display the files and the related details in the **/opt** directory:

```
ls -al /opt
```

Switching to the bash Mode

It is recommended that you switch the system to the bash mode after logging in to the OS to reduce the period used for entering commands. Generally, after logging in to the OS, you can run the **bash** command to switch to the bash mode, as shown in the following figure.

The following basic features of the bash mode help you interact with the system better:

- Command line editing: enables you move the cursor among command lines or edit text.
- History command: allows you to edit or restore the command that has been entered in command lines.

For example, if you enter the first two or three letters of a command or a file and then press **Tab**, the system automatically fills in the desired command or file.

Switching Users

The Solaris OS has strict user management rules. Different OS users can access only associated applications.

- To switch OS users, run the following command:

  `su - OS user name`

  Leave a space between **-** and **OS user name**.

  For example, to switch to the **nmsuser** user, run the following command:

  `su - nmsuser`

- To exit an OS user, run the following command:

  `exit`

  NOTE

  To switch back to the **root** user, run the **exit** command several times until the prompt changes to **#**.

Directory Browsing and Control Commands

Command/Usage	Example	Description
cd *directory*	cd */opt*	Switches to another directory.
ls *option file directory*	ls *-al /opt*	Displays the directory contents or file information.
mkdir *directory*	mkdir *install*	Creates a directory.
pwd	pwd	Displays the current directory of the user.
rm *file name*	rm *file.tar*	Deletes a file.
rmdir *directory*	rmdir *temp*	Deletes an empty directory.

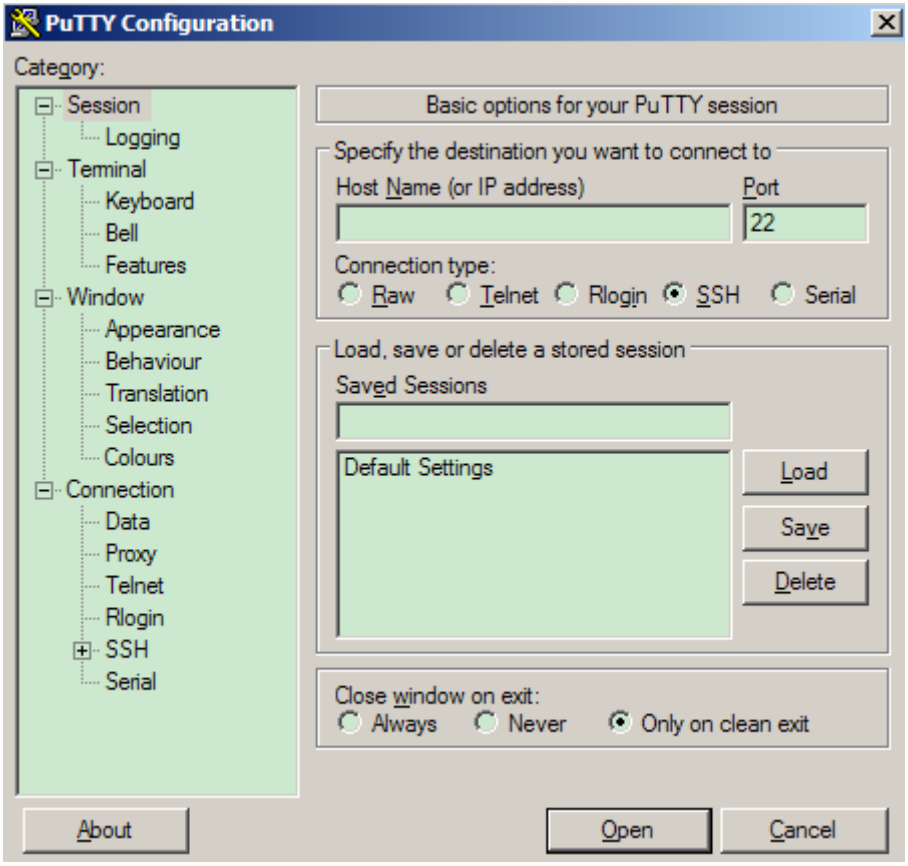
Logging In to the Solaris OS Through Remote Login Software

There are many remote login software products, such as the PuTTY. This topic takes the PuTTY as an example. The PuTTY is used to log in to the server from a remote site through command lines.

CAUTION

Make sure that the remote login software is installed.

1. Double-click the shortcut icon of the PuTTY software on the desktop. The following dialog box is displayed.



The following table shows the login configurations.

Parameter	Description
Host Name (or IP address)	Specifies the IP address of the server to be logged in to, for example, 10.71.225.89.
Connection type	Specifies the connection type. You need to select a connection type as required. Generally, select **Telnet** or **SSH**.
Saved Sessions	This parameter cannot be set.
Close window on exit	This parameter cannot be set. The default value is **Only on clean exit**.

2. Set the parameters for logging in to the server. Then, click **Open**. The login dialog box is displayed.
3. Enter the login user name, and then press **Enter**.
4. Enter the login password, and then press **Enter**.

Accessing the CLI of the Windows OS

1. Choose **Start** > **Run** on the Windows OS desktop.
2. In the **Run** dialog box, enter **cmd**, and then click **OK**. The CLI is displayed.

Logging In to the Solaris OS Through the Windows OS CLI

1. In the CLI, enter **telnet IP address of the server to be logged in to**, and then press **Enter**.
   ```
   Login:
   ```
2. Enter the name of the user who logs in to the OS of the server, for example, **root**. Then, press **Enter**.
   ```
   Password:
   ```
3. Enter the login password of the user. Press **Enter** to log in to the OS. Generally, the default login password of the **root** user is **root**.

Restarting the Solaris OS

Run the following commands to restart the OS:

```
# sync;sync;sync;sync
# shutdown -y -g0 -i6
```

When you restart the OS, the remote login user exits. It takes approximately 3 to 5 minutes to restart the OS. After the OS is restarted, re-log in to the server by referring to the preceding login method.

E Manually Installing the Solaris OS and Its Patches

This topic describes how to manually install the OS by using the Solaris installation DVD delivered with the product and how to install patches by using the patch package.

E.1 Installing the OS Through the GUI
This topic describes how to install Solaris 10 OS through the GUI if the server is connected to the KVMS or monitor.

E.2 Installing the OS Through the CLI
This topic describes how to install Solaris 10 OS through the CLI if the server is not connected to the KVMS or monitor.

E.3 Installing the Solaris OS Patches
This topic describes how to install the Solaris OS patches. To ensure the reliable system performance, the **huawei_patch_9.0.1** patch must be installed immediately after the Solaris OS is installed.

E.1 Installing the OS Through the GUI

This topic describes how to install Solaris 10 OS through the GUI if the server is connected to the KVMS or monitor.

Prerequisite

- The Solaris 10 OS disk, that is, Solaris 10 Operating System (10/08), is on-hand.
- Obtain the following information:
  - Host name
  - Network interface
  - System IP address
  - Subnet mask
  - Default Route IP address
- The server is connected to the keyboard, video, mouse, switch (KVMS) or monitor.

Context

- The system will go straight to the OK prompt if Solaris OS has not been installed on the server.
- The system will go to the OK prompt if Solaris OS is installed on the server when user **root** runs the **init 0** command.

Procedure

1. Power on the Sun server and insert the Solaris 10 OS installation DVD into the DVD-ROM drive.
2. Press **STOP+A**. At the **OK** prompt, run the following command:
   ```
   ok boot cdrom
   ```
   Press **Enter**. The system will restart. After five minutes, the system will prompt you to select the language for the installation program.
3. Move the pointer to the text box. Enter **0** to select **English** and press **Enter**.
4. In the **Welcome** dialog box, click **Next**.
5. In the **Network Connectivity** dialog box, select **Networked** and click **Next**.
6. **Optional:** In the **Configure Multiple Network Interfaces** dialog box, select a primary network interface such as e1000g0, and click **Next**.

   NOTE

   - If the server contains only one network interface, the **Configure Multiple Network Interfaces** dialog box will not be displayed.
   - You are recommended to select the first network interface in scenarios where the server contains multiple network interfaces (the **Configure Multiple Network Interfaces** dialog box will be displayed).
   - The network interface name is related to the network adapter type. The common types of network adapters are *e1000g*, *bge*, and *ce*.

7 In the **DHCP for e1000g0** dialog box, select **No** and click **Next**.

8 In the **Host Name for e1000g0** dialog box, enter the planned host name and click **Next**.

9 In the **IP Address for e1000g0** dialog box, enter the planned IP address and click **Next**.

10 In the **Netmask for e1000g0** dialog box, enter the planned subnet mask and click **Next**.

11 In the **IPv6 for e1000g0** dialog box, select **No** and click **Next**.

12 In the **Set the Default Route for e1000g0** dialog box, select **Specify one** and click **Next**.

CAUTION

The default route is not recommended if the NMS security policies are used. After installing the NMS, manually configure the static route. For details about how to manually configure the static route, see **A.1.1.2 How to Add a Static Route**.

13 In the **Set the Default Route for e1000g0** dialog box, enter the route IP address and click **Next**.

14 In the **Kerberos** dialog box, select **No** for the **Kerberos** security and click **Next**.

15 In the **Name Service** dialog box, select **None** for the name service and click **Next**.

16 In the**NFSv4 Domain Name** dialog box, select **Use the NFSv4 domain derived by the system** and click **Next**.

17 In the **Time Zone** dialog box, select **Geographic Continent/Country/Region** and click **Next**.

18 In the **Country or Region** dialog box, select the appropriate country and region. For example, select **Asia** and **China**. Then, click **Next**.

19 In the **Date and Time** dialog box, set the time and click **Next**.

CAUTION

In the OS, the system time must be set correctly according to the specified format. Stable system time is of vital importance to the system. Hence, do not modify the system time while the server is running.

20 In the **Root Password** dialog box, enter the password of user **root** twice and click **Next**.

NOTE

Do not forget the password of user **root**.

21 In the **Enabling Remote Services** dialog box, select **Yes** and click **Next**.

22 In the **Confirm Information** dialog box, confirm that the configuration is correct and click **Confirm**; click **Back** to modify the configuration.

23 In the **Welcome** dialog box, click **Next**.

24 In the **Installer Options** dialog box, select **Yes** for **Reboot automatically after software installation** and **Eject CD/DVD automatically after software installation**. Then, click **Next**.

25 In the **Specify Media** dialog box, select **CD/DVD** and click **Next**.

26 In the **License** dialog box, select **Accept** and click **Next**.

NOTE

If the **Select Upgrade** or **Initial Install** dialog box is displayed during installation, the system can be upgraded. You can select **Initial Install** if the original system configuration is not required.

27 In the **Select Type of Install** dialog box, select **Custom Install** and click **Next**.

28 In the **Select Software Localizations** dialog box, select **English (United States) (en_US)** and **English (United States, UTF-8) (en_US.UTF-8)** for **North America** and click **Next**.

29 In the **Select System Locale** dialog box, select **POSIX C (C)** and click **Next**.

30 In the **Additional Products** dialog box, select **None** and click **Next**.

31 In the **Select Solaris Software Group** dialog box, select **Default Packages for Entire Group Plus OEM** and click **Next**.

32 In the **Disk Selection** dialog box, select all disks and click **Next**.

33 In the **Preserve Data** dialog box, select **No** and click **Next**.

34 In the **Lay Out File Systems** dialog box, select the desired disks to lay out file systems, and click **Modify** to partition the disks.

CAUTION

Select the disks to be partitioned according to the disk partition plan. For details, see **F Planning Disk Partitions**. Assume that you need to partition the c1t0d0 and c1t1d0 disks need to be partitioned, both disks must be selected during this step; otherwise, the selected disks cannot be partitioned. It is important that the correct disks are selected because this step cannot be undone.

NOTE

- The sector names shown as **0**, **1**, **3**, **4**, **5**, **6**, and **7** respectively refer to c1t0d0s0, c1t0d0s1, c1t0d0s3, c1t0d0s4, c1t0d0s5, c1t0d0s6, and c1t0d0s7. The size of the overlap partition corresponding to the c1t0d0s2 disk is the same size as the entire disk. Therefore, there is no need to set the size.
- The disk names vary according to device model.

35 Click **OK**. In the **Lay Out File Systems** dialog box, click **Next**.

36 In the **Ready to Install** dialog box, click **Install Now**.

A dialog box will be displayed that shows the progress of the installation. The duration of the installation process depends on the server configuration. Generally, the installation lasts 60 minutes.

NOTE

- Click **Continue** each of the three times that the **Pause** dialog box is displayed during installation. The system will automatically restart and the installation will continue if this operation is not performed.
- After the installation is complete, the DVD-ROM door will automatically open. Take out the DVD.

37 After the system restarts, log in to the Solaris OS as user **root**.

If login to Solaris OS as user **root** is possible, Solaris OS is successfully installed. Otherwise, install the OS again.

----End

Follow-up Procedure

After the Solaris OS is installed, verify that the system character set is correct, and enable user **root** to remotely log in to the system and use the FTP tool.

1. Run the following command to verify that the system character set is correct:

   ```
   # locale -a
   ```

   If the following information is included in the command output, the character set of Solaris OS is correct. Otherwise, reinstall the OS.

   ```
   C
   en_US.UTF-8
   ```

2. Enable the **root** user to remotely log in to the system.

   (1) Run the **vi** command to modify the **/etc/default/login** file:

   ```
   # vi /etc/default/login
   ```

   (2) Add **#** to the left of *CONSOLE=/dev/console* to comment out this line. The following message will be displayed:

   ```
   ¡¡
   # If CONSOLE is set, root can only login on that device.
   # Comment this line out to allow remote login by root.
   #
   # CONSOLE=/dev/console
   ...
   ```

   (3) Press **ESC**. Press **Shift+;**. Enter **wq!**. Then, press **Enter** to forcibly save the file and exit.

3. Enable the **root** user to use the FTP tool.

   (1) Run the **vi** command to modify the **/etc/ftpd/ftpusers** file.

   (2) Add **#** to the left of *root* to comment out this line. The following message will be displayed:

   ```
   # ident "@(#)ftpusers 1.5 04/02/20 SMI"
   #
   # List of users denied access to the FTP server, see ftpusers(4)
   #
   #root
    daemon
    bin
    sys
   ...
   ```

   (3) Press **ESC**. Press **Shift+;**. Enter **wq!**. Then, press **Enter** to forcibly save the file and exit.

4. Run the following commands to restart the server:

   ```
   # sync;sync;sync;sync
   # shutdown -y -g0 -i6
   ```

E.2 Installing the OS Through the CLI

This topic describes how to install Solaris 10 OS through the CLI if the server is not connected to the KVMS or monitor.

Prerequisite

- The Solaris 10 OS disk, that is, Solaris 10 Operating System (10/08), is on-hand.
- Obtain the following information:
  - Host name
  - Network interface
  - System IP address
  - Subnet mask
  - Default Route IP address
- The IP address of the system controller is configured. For details about how to configure the IP address, see **4.1 Configuring Controller IP Addresses for Workstation**.

Procedure

1 **Optional:** If the T5220 server is used, perform the following operations to display the **OK** prompt:

1. Log in to the system controller in SSH mode.

   NOTE

   The T5220 server does not support login through Telnet. Log in to the system controller performing the following:

   - Install the tool software of the SSH client on the Windows terminal to log in to the system controller, for example: **Putty**.
   - Run the **ssh** *SC_IP_Address* command on the terminals of other Sun servers. If the following message is displayed, enter **yes**:

     ```
     The authenticity of host '129.9.1.20 (129.9.1.20)' can't be
     established.
     RSA key fingerprint is 0b:23:07:0c:27:72:44:3f:d1:aa:12:99:ed:dd:c0:5a.
     Are you sure you want to continue connecting (yes/no)?
     ```

2. In the CLI, enter the user name and password of the system controller. The default user name and password are **root** and **changeme**.
3. Enter **set /HOST/bootmode state=reset_nvram script="setenv auto-boot? false"**.

   NOTE

   There must be a space between **?** and **false**.

   The following message will be displayed:

   ```
   Set 'state' to 'reset_nvram'
   Set 'script' to 'setenv auto-boot? false'
   ```

4. Enter **start /SYS**.

   The following message will be displayed:

   ```
   Are you sure you want to start /SYS (y/n)?
   ```

5. Enter **y** to start the T5220.

   The system is running if the following message is displayed:

   ```
   start: Target already started
   ```

   Perform the following operations:

   a. Enter **stop /SYS**.

      The following message will be displayed:

      ```
      Are you sure you want to stop /SYS (y/n)?
      ```

b. Enter **y**.

The following message will be displayed:

```
Stopping /SYS
```

c. Enter **show /HOST status** repeatedly to check the system status.

Proceed with the subsequent operations until the following message is displayed:

```
status = Powered off
```

d. Enter **start /SYS**.

The following message will be displayed:

```
Are you sure you want to start /SYS (y/n)?
```

e. Enter **y** to start the T5220.

6. Enter **start /SP/console -f**.

The following message will be displayed:

```
Are you sure you want to start /SP/console (y/n)?
```

7. Enter **y** and press **Enter**.

NOTE

If a prompt is displayed, enter **y** and press **Enter**.

The following message will be displayed:

```
Serial console started.  To stop, type #.
...
Setting NVRAM parameters to default values.


SPARC Enterprise T5220, No Keyboard
Copyright 2008 Sun Microsystems, Inc.  All rights reserved.
OpenBoot 4.28.0, 8064 MB memory available, Serial #85369820.
Ethernet address 0:21:28:16:a3:dc, Host ID: 8516a3dc.


auto-boot? =            false
{0} ok
```

2 Optional: If the M4000 server is used, perform the following to display the **OK** prompt:

1. Log in to the system controller through Telnet. Run the **telnet *Controller IP Address*** command on the controller.

The following message will be displayed:

```
Login:
```

2. Enter **eis-installer** as the user name.

The following message will be displayed:

```
Password:
```

3. Enter the password of user **eis-installer**.

The following message will be displayed:

```
XSCF>
```

4. Enter **showdomainmode -d 0**.

The following message will be displayed:

```
Host-ID             : 8501c2de
Diagnostic Level    : min
Secure Mode         : off (host watchdog: unavailable Break-signal: receive)
Autoboot            : on
CPU Mode            : auto
```

NOTE

If the **Secure Mode** item is in the **on** state, perform the following:

a. Enter **setdomainmode -d 0 -m secure=off**.

The following message will be displayed:

```
Diagnostic Level    :min        -> -
Secure Mode         : on         -> off
Autoboot            : on         -> -
CPU Mode            : auto
The specified modes will be changed.
Continue? [y|n]
```

b. Enter **y**.

The following message will be displayed:

```
configured.
Diagnostic Level    : min
Secure Mode         : off (host watchdog: unavailable Break-signal:
receive)
Autoboot            : on (autoboot:on)
CPU Mode            : auto
```

5. Enter **showdomainstatus -a**.

The following message will be displayed:

```
DID         Domain Status
00          Running
01          -
```

NOTE

If the following message is displayed, run the **poweron -d 0** command:

```
DID         Domain Status
00          Powered Off
01          -
```

Run the **showdomainstatus -a** command repeatedly to check the system status. Proceed with the next step only after the status is displayed as **running**.

6. Enter **sendbreak -d 0**.

The following message will be displayed:

```
Send break signal to DomainID 0? [y|n]
```

7. Enter **y**.

8. Enter **console -d 0 -f**.

The following message will be displayed:

```
Connect to DomainID 0? [y|n]
```

9. Enter **y** and press **Enter**.

```
OK
```

3 Insert the Solaris 10 installation DVD into the DVD-ROM drive.

4 Run the following command to boot the system for installation preparation:

```
ok boot cdrom
```

Press **Enter**. The system will restart. After five minutes, the system will prompt you to select the language for the installation program.

5 In the **Select a Language** dialog box, the system prompts "Please make a choice (0-9), or press h or ? for help:." Enter **0** and select **English**. Then, press **Enter**.

NOTE

The language selected in this step only applies to the language environment of this installation process. It is irrelevant to the languages supported by the Solaris OS after installation.

6 In the **What type of terminal are you using?** dialog box, the system prompts "Type the number of your choice and press Return:". Enter **3** and set the type of the terminal used during OS installation to **DEC VT100**. Then, press **Enter**.

7 In the **The Solaris Installation Program** dialog box, press **F2**.

NOTE

- If **F2** does not function, press **Esc+2** instead.
- If ↑ or ↓ does not function, use **Ctrl+B** or **Ctrl+N** instead.

8 In the **Identify This System** dialog box, press **F2**.

9 In the **Network Connectivity** dialog box, click **Yes** to connect the network. Then, press **F2**.

NOTE

You can use ↑ and ↓ to move the cursor to the required bracket. Then, press **Enter**. The selection is complete if **X** is displayed in the bracket.

10 **Optional:** In the **Configure Multiple Network Interfaces** dialog box, select a primary network interface, such as *e1000g0*. Then, press **F2**.

NOTE

- If the server contains only one network interface, skip this step.
- If the server contains multiple network interfaces, the **Configure Multiple Network Interfaces** dialog box will be displayed. In this scenario, you are recommended that you select the first network interface as the primary network interface for connecting to the public network.
- The network interface name is related to the network adapter type. The common types of network adapters are *e1000g*, *bge*, and *ce*.

11 In the **DHCP for e1000g0** dialog box, select **No** to disable DHCP and press **F2**.

12 In the **Host Name for e1000g0** dialog box, enter the planned host name and press **F2**.

13 In the **IP Address for e1000g0** dialog box, enter the planned server IP address and press **F2**.

14 In the **Subnet for e1000g0** dialog box, select **Yes** and press **F2**.

15 In the **Netmask for e1000g0** dialog box, enter the planned subnet mask and press **F2**.

16 In the **IPv6 for e1000g0** dialog box, select **No** to disable IPv6 and press **F2**.

17 In the **Set the Default Route for e1000g0** dialog box, select **Specify one** and press **F2**.

CAUTION

The default route is not recommended if the NMS security policies are used. After installing the NMS, manually configure the static route. For details about how to manually configure the static route, see **A.1.1.2 How to Add a Static Route**.

18 In the **Set the Default Route for e1000g0** dialog box, enter the route IP address. Then, press **F2**.

19 In the **Confirm Information for e1000g0** dialog box, confirm that the configuration is correct and press **F2**.

NOTE

If any information is incorrect, you can press **F4** to return to the **Network Connectivity** dialog box, and modify the settings of the network connection.

20 In the **Configure Security Policy** dialog box, select **No** to skip the configuration of Kerberos security. Then, press **F2**.

21 In the **Confirm Information** dialog box, confirm that the security configuration is correct and press **F2**.

NOTE

If any information is incorrect, press **F4** to return to the **Configure Security Policy** dialog box, and modify the settings of security policies.

22 In the **Name Service** dialog box, select **None** to skip the configuration of the name server. Then, press **F2**.

23 In the **Confirm Information** dialog box, confirm that the name server configuration is correct and press **F2**.

NOTE

If any information is incorrect, press **F4** to return to the **Name Service** dialog box, and modify the settings of the name server.

24 In the **NFSv4 Domain Name** dialog box, select **Use the NFSv4 domain derived by the system**. Then, press **F2**.

25 In the **Confirm Information for NFSv4 Domain** dialog box, ensure that **NFSv4 Domain Name: Value to be derived dynamically** is displayed. Then, press **F2**.

26 In the **Time Zone** dialog box, select the appropriate geographical area, such as **Asia**, according to your location. Then, press **F2**.

CAUTION

Do not select **other - offset from GMT** or **other - specify time zone file**. Otherwise, a system time error may occur.

27 In the **Country or Region** dialog box, select the appropriate country or region, such as **China**, according to your location. Then, press **F2**.

28 In the **Date and Time** dialog box, set precise system time. Then, press **F2**.

CAUTION

In the OS, the system time must be set correctly according to the specified format. Stable system time is of vital importance to the system. Hence, do not modify the system time while the server is running.

29 In the **Confirm Information** dialog box, confirm that the preceding configuration is correct and press **F2**.

30 In the **Root Password** dialog box, enter the password of the **root** user twice to set the password. Then, press **F2**.

NOTE

Do not forget the password of user **root**.

31 In the **Identify This System** dialog box, confirm that the configuration is correct and press **F2**.

32 In the **Enabling remote services** dialog box, select **Yes** and press **F2**.

33 In the **Solaris Interactive Installation** dialog box, press **F2** to select the **Standard** installation.

34 In the **Eject a CD/DVD Automatically?** dialog box, select **Automatically eject CD/DVD** to automatically install the software through the drive. Then, press **F2**.

35 In the **Reboot After Installation?** dialog box, select **Auto Reboot** to set the restart mode to automatic restart. Then, press **F2**.

36 In the **Solaris Interactive Installation** dialog box, press **F2** to start initial installation.

37 In the **Select Geographic Regions** dialog box, press **Enter** to expand the **Asia** list. Select **Simplified Chinese EUC**, **Simplified Chinese GB18030**, **Simplified Chinese GBK**, and **Simplified Chinese UTF-8**. Expand the **North America** list. Select **U.S.A.(UTF-8)** and **U.S.A. (en_US.ISO8859-1)**. Then, press **F2**.

NOTE

The selections in this step determine the languages supported by the Solaris OS to be installed. Use ↑ and ↓ to move the cursor to the selected list. Then, press **Enter**. The subitems will be displayed. Use ↑ and ↓, or ← and → to move the cursor to the required bracket. Press **Enter**. If **X** is displayed in the bracket, the language is selected.

38 In the **Select System Locale** dialog box, select **POSIX C (C)** and press **F2**.

39 In the **Additional Products** dialog box, select **None** and press **F2**.

40 In the **Choose Filesystem Type** dialog box, select **UFS** and press **F2**.

41 In the **Select Software** dialog box, select **Entire Distribution plus OEM support** and press **F2**.

42 In the **Select Disks** dialog box, select all disks and press **F2**.

43 In the **Preserve Data?** dialog box, press **F2**. The data on the disk is not preserved.

44 In the **Automatically Layout File Systems?** dialog box, press **F4** to manually partition disks and plan the file system.

45 In the **File System and Disk Layout** dialog box, select the disk to be partitioned, and press **F4** to manually define disk partitions.

CAUTION

Select the disks to be partitioned according to the disk partition plan. For details, see **F Planning Disk Partitions**. Assume that you need to partition the c1t0d0 and c1t1d0 disks need to be partitioned, both disks must be selected during this step; otherwise, the selected disks cannot be partitioned. It is important that the correct disks are selected because this step cannot be undone.

NOTE

- The sector names shown as **0**, **1**, **3**, **4**, **5**, **6**, and **7** respectively refer to c1t0d0s0, c1t0d0s1, c1t0d0s3, c1t0d0s4, c1t0d0s5, c1t0d0s6, and c1t0d0s7. The size of the overlap partition corresponding to the c1t0d0s2 disk is the same size as the entire disk. Therefore, there is no need to set the size.
- The disk names vary according to device model.

46 In the **Select Disk to Customize** dialog box, perform the following to partition the selected disks:

1. Select the first disk. Move the cursor to the line of the c1t0d0 disk and press **F4**. The **Customize Disk: c1t0d0** dialog box will be displayed.
2. Define the partition and press **F2**. The **Select Disk to Customize** dialog box will be displayed.
3. Select other disks. For details, see the preceding steps for disk partitioning.

47 In the **File System and Disk Layout** dialog box, confirm that the disk partition plan is correct and press **F2**.

48 In the **Mount Remote File Systems?** dialog box, press **F2** to continue without installing the distributed file system.

49 In the **Profile** dialog box, confirm that the preceding configuration is correct and press **F2**.

NOTE

If the Solaris OS has been installed on the server and the currently planned boot partition is not on the disk where the original boot partition is located, a warning will indicate that the default boot device changed. In the **Warning** dialog box, press **F2** to ignore the warning and proceed with the following steps.

50 The duration of the installation process will vary according to the server configuration. Generally, the installation lasts 60 minutes.

NOTE

During system installation, a progress bar will be displayed.

When the following message is displayed, enter **c**:

```
Pausing for 30 seconds at the "Summary" screen. The wizard will continue to the next
step unless you select "Pause". Enter 'p' to pause. Enter 'c' to continue.
```

The system will continue the installation.

When the following message is displayed, enter **c**:

```
Pausing for 90 seconds at the "Reboot" screen. The wizard will continue to the next
step unless you select "Pause". Enter 'p' to pause. Enter 'c' to continue.
```

The system will restart automatically.

If no operation is performed, the OS will automatically restart after 90 seconds.

CAUTION

After the installation, the DVD-ROM door will automatically open. Take out the disk.

51 In the **Configure Keyboard Layout** dialog box that is displayed after system restart, select **US-English**. Then, press **F2** to complete all configurations and access the Solaris OS.

If login to Solaris OS as user **root** is possible, Solaris OS is successfully installed. Otherwise, install the OS again.

----End

Follow-up Procedure

After the Solaris OS is installed, verify that the system character set is correct, and enable user **root** to remotely log in to the system and use the FTP tool.

1. Run the following command to verify that the system character set is correct:
   ```
   # locale -a
   ```
   If the following information is included in the command output, the character set of Solaris OS is correct. Otherwise, reinstall the OS.
   ```
   C
   en_US.UTF-8
   ```
2. Enable the **root** user to remotely log in to the system.
   (1) Run the **vi** command to modify the **/etc/default/login** file:
   ```
   # vi /etc/default/login
   ```
   (2) Add **#** to the left of *CONSOLE=/dev/console* to comment out this line. The following message will be displayed:
   ```
   ¡¡
   # If CONSOLE is set, root can only login on that device.
   # Comment this line out to allow remote login by root.
   #
   # CONSOLE=/dev/console
   ...
   ```
   (3) Press **ESC**. Press **Shift+;**. Enter **wq!**. Then, press **Enter** to forcibly save the file and exit.
3. Enable the **root** user to use the FTP tool.
   (1) Run the **vi** command to modify the **/etc/ftpd/ftpusers** file.
   (2) Add **#** to the left of *root* to comment out this line. The following message will be displayed:
   ```
   # ident "@(#)ftpusers 1.5 04/02/20 SMI"
   #
   # List of users denied access to the FTP server, see ftpusers(4)
   #
   #root
    daemon
    bin
    sys
   ...
   ```
   (3) Press **ESC**. Press **Shift+;**. Enter **wq!**. Then, press **Enter** to forcibly save the file and exit.
4. Run the following commands to restart the server:
   ```
   # sync;sync;sync;sync
   # shutdown -y -g0 -i6
   ```

E.3 Installing the Solaris OS Patches

This topic describes how to install the Solaris OS patches. To ensure the reliable system performance, the **huawei_patch_9.0.1** patch must be installed immediately after the Solaris OS is installed.

Prerequisite

- The installation package for Solaris 10 OS patches is on-hand. The installation package is U2000***version***_server_ospatch_solaris_SPARC.tar.

  NOTE

  Before you install the OS patches, the DVD-ROM drive of the server will be unavailable. Copy the software package **Solaris10_huawei_patch_9.0.1.tar.gz** from the DVD U2000***version***_server_patch_solaris_SPARC_dvd3 to a computer. Then, FTP the software package to the **/opt/patches/sun** path of the server in binary mode.

  The installation software package must be uploaded to the **/opt** path of the server in binary mode through FTP. Run the **tar xvf** *name_of_installation_software_package* command to decompress the installation package.

- The system allows user **root** to log in remotely and use the FTP tool.

Procedure

1 Log in to the OS through the serial port as user **root**.

2 Ensure that the disk partitioning of the system is correct.

1. Run the following command to check the disk partitioning of the system:

   ```
   # format
   ```

   Partitioned disks and their serial numbers will be displayed.

2. Enter the serial number of a disk to be checked, such as 0, and press **Enter**. The format menu will be displayed.
3. Run the **partition** command and press **Enter**. The partition menu will be displayed.
4. Run the **print** command and press **Enter**. The disk partitioning information will be displayed.

   According to the displayed disk partitioning information, check whether the current disk partitioning of the system is consistent with the disk partition plan. If they are inconsistent, reinstall the OS and then partition disks according to the disk partition plan.

   A message similar to the following will be displayed:

   ```
   Part      Tag    Flag     Cylinders         Size            Blocks
     0       root    wm       0 -  8243       80.00GB    (8244/0/0)  167781888
     1       swap    wu    8244 -  9892       16.00GB    (1649/0/0)   33560448
     2     backup    wm       0 - 14086      136.71GB    (14087/0/0) 286698624
     3 unassigned    wu       0                 0         (0/0/0)             0
     4 unassigned    wu       0                 0         (0/0/0)             0
     5 unassigned    wu       0                 0         (0/0/0)             0
     6        usr    wm    9893 - 11953       20.00GB    (2061/0/0)   41945472
     7        var    wm   11954 - 14014       20.00GB    (2061/0/0)   41945472
   ```

   NOTE

   The **Part** column lists fragments. The **Tag** column lists the partitions. The **Size** column lists the partition sizes.

5. Run the **quit** command and press **Enter** to exit the partition menu.
6. Run the **quit** command and press **Enter** to exit the format menu.

3 Run the following commands to display the **OK** prompt:

```
# sync;sync;sync;sync;
# init 0
```

NOTE

About 5 to 10 minutes later, the **OK** prompt will be displayed.

4 Run the following commands to enter the single-user mode:

```
ok>  boot -s
```

NOTE

About 5 to 10 minutes later, the **>** prompt will be displayed, indicating the single-use mode.

5 Run the following commands to mount on the file system:

```
# mountall > /dev/null 2>&1
```

6 Run the following commands to decompress the **Solaris10_huawei_patch_9.0.1.tar.gz** file:

```
# cd /opt/patches/sun
# gzcat Solaris10_huawei_patch_9.0.1.tar.gz | tar xvf -
```

7 Run the following commands to switch to the path where the **QuickSetup.sh** file is stored and then run the **QuickSetup.sh** file:

```
# cd /opt/patches/sun/sun
# sh QuickSetup.sh
```

8 The system will start installing patches. The entire installation process takes about 40 minutes.

The patch installation is complete if the following message is displayed:

```
Success! <install_all_patches> OK!
************************************************************************
Setting system parameters
************************************************************************
************************************************************************
Restart the operation system
************************************************************************
Are you sure to restart the operation system right now?<y/n>
```

Enter **y** and press **Enter**.

9 After the system restarts, log in to the OS as user **root**.

----End

Follow-up Procedure

1. Run the following command to view the patch version of the system:

   ```
   # uname -rv
   ```

   Information similar to **5.10 Generic_141414-07** is displayed. Here, **5.10 Generic_141414-07** indicates the patch version of the Solaris 10(10/08) OS.

   If the patch version is **5.10 Generic_141414-07**, it indicates that the OS patches are successfully installed. Otherwise, you must reinstall OS patches.

2. Run the following command to verify that the system character set is correct:

   ```
   # locale -a
   ```

   If the following message is displayed, the character set of Solaris OS is correct. Otherwise, reinstall the OS.

   ```
   C
   en_US.UTF-8
   ```

3. If the OceanStor S2600 disk array is used, ensure that the **expect** plug-in was installed on the server before configuring the disk array.

   (1) Log in to the server OS as user **root**.

(2) Run the following command to verify that the **expect** plug-in has been installed:

```
# which expect
```

(3)
- If the **expect** plug-in installation path is displayed, the **expect** plug-in has been installed and you do not need to run the **autoinstall.sh** script.

  The following is an example path:

  ```
  /usr/bin/expect
  ```

- If the **expect** plug-in installation path is not displayed, run the **autoinstall.sh** script to install the **expect** plug-in.

  a. Run the following commands to go to the installation path of the Solaris patch and decompress the **expect.tar.gz** file:

  ```
  # cd /opt/patches/expect
  # gzcat expect.tar.gz | tar xvf -
  ```

  b. Run the following commands to install the **expect** plug-in:

  ```
  # ./autoinstall.sh
  ```

4. If the patches are successfully installed, perform the following operations to delete the patch package to free up disk space:

(1) Run the following commands to delete the OS patch package:

```
# cd /opt
# rm U2000V100R002C01_server_ospatch_solaris_SPARC.tar
```

(2) Run the following command to delete the OS patch path:

```
# rm -rf /opt/patches
```

F Planning Disk Partitions

This topic describes the disk partitioning scheme that is determined according to the sizes and quantities of the server hard disks.

Specify the disk partitioning plan before manually installing the OS. This part can be skipped if the OS is installed with the quick installation DVD because the installation software automatically partitions disks according to the disk size.

CAUTION

- The second partition indicates the capacity of the hard disk and should not be modified during partitioning; otherwise, the OS will not function properly.
- The fourth partition indicates the private partition for disk encapsulation and cannot be occupied.
- The following tables show only the fragments that require partitioning. For fragments that do not require partitioning, there is no need to enter the associated size or name during partitioning.
- The partition name does not need to be entered if the cell corresponding to the partition is empty. Partition name or size does not need to be entered if the cell corresponding to the size is empty.

- Partition disks according to the disk size of the server. The following tables show the partitioning of the first disk for a two-disk server.

  The second hard disk does not require partitioning because it serves as a mirror disk for the first hard disk.

  - **Table F-1** shows the disk partitioning scheme for a two-disk server that is not connected to disk arrays.

Table F-1 Partitioning schemes for a two-disk server without any disk array

Hard Disk	Fragment	Partition	2 x 300 GB Hard Disk (MB)	2 x 146 GB Hard Disk (MB)	2 x 73 GB Hard Disk (MB)
First hard disk	0	/	20000	12000	15000
	1	swap	16000	8000	6000
	4		200	200	200
	5	/opt	211000	107000	46500
	6	/var	30000	8000	The **/var** partition is not required.
	7	/export/ home	1000	500	The **/export/ home** partition is not required.

- **Table F-2** shows the disk partitioning scheme for a two-disk server that is connected to a disk array.

Table F-2 Partitioning scheme for a two-disk server with a disk array

Hard Disk	Fragment	Partition	2 x 300 GB Hard Disk (MB)	2 x 146 GB Hard Disk (MB)	2 x 73 GB Hard Disk (MB)
First hard disk	0	/	50000	20000	15000
	1	swap	16000	16000	16000
	4		200	200	200
	5	/opt	142000	50000	20000
	6	/var	50000	30000	15000
	7	/export/ home	20000	19000	1000

- Partition disks according to the hard disk size of the server. The following tables show the recommended disk partitioning for the first and second hard disks of four-disk servers.

  The third and fourth hard disks do not require partitioning because they serve as mirror disks for the first and second hard disks.

  - **Table F-3** and **Table F-4** show the disk partitioning schemes for a four-disk server that is not connected to a disk array.

Table F-3 Partitioning scheme for a four-disk server without any disk array (the first hard disk)

Hard Disk	Fragment	Partition	4 x 300 GB Hard Disk (MB)	4 x 146 GB Hard Disk (MB)	4 x 73 GB Hard Disk (MB)
First hard disk	0	/	20000	12000	12000
	1	swap	16000	8000	The **swap** partition is not required.
	4		200	200	200
	5	● 4 x 146 GB hard disks and 4 x 300 GB hard disks: /opt ● 4 x 73 GB hard disk: /opt/sybase	241000	115000	45000
	6	/var	The **/var** partition is not required.	The **/var** partition is not required.	10000

Table F-4 Partitioning scheme for a four-disk server without any disk array (second hard disk)

Hard Disk	Fragment	Partition	4 x 300 GB Hard Disk (MB)	4 x 146 GB Hard Disk (MB)	4 x 73 GB Hard Disk (MB)
Second hard disk	0	/opt/sybase	100000	60000	The **/opt/sybase** partition is not required.
	1	swap	The **swap** partition is not required.	The **swap** partition is not required.	6000
	4		200	200	200

Hard Disk	Fragment	Partition	4 x 300 GB Hard Disk (MB)	4 x 146 GB Hard Disk (MB)	4 x 73 GB Hard Disk (MB)
	5	● 4 x 146 GB hard disks and 4 x 300 GB hard disks: /opt/backup ● 4 x 73 GB hard disk: /opt	100000	54000	60000
	6	/var	40000	20000	The **/var** partition is not required.
	7	/export/home	10000	1000	1000

- **Table F-5** and **Table F-6** show the disk partitioning schemes for a four-disk server that is connected to a disk array.

Table F-5 Partitioning scheme for a four-disk server with a disk array (first hard disk)

Hard Disk	Fragment	Partition	4 x 300 GB Hard Disk (MB)	4 x 146 GB Hard Disk (MB)	4 x 73 GB Hard Disk (MB)
First hard disk	0	/	132000	50000	21000
	1	swap	16000	16000	16000
	4		200	200	200
	5	/opt	The **/opt** partition is not required.	70000	The **/opt** partition is not required.
	6	/var	50000	The **/var** partition is not required.	30000
	7	/export/home	80000	The **/export/home** partition is not required.	The **/export/home** partition is not required.

Table F-6 Partitioning scheme for a four-disk server with a disk array (second hard disk)

Hard Disk	Fragment	Partition	4 x 300 GB Hard Disk (MB)	4 x 146 GB Hard Disk (MB)	4 x 73 GB Hard Disk (MB)
	0	/opt	278000	The **/opt** partition is not required.	The **/opt** partition is not required.
	4		200	200	200
	5	/opt	The **/opt** partition is not required.	The **/opt** partition is not required.	50000
	6	/var	The **/var** partition is not required.	40000	The **/var** partition is not required.
	7	/export/ home	The **/export/ home** partition is not required.	95000	17000

- Partition disks according to the hard disk size of the server. The following tables show the recommended disk partitioning for the first, second, and third hard disks of a six-disk server.

  The fourth, fifth, and sixth hard disks do not require partitioning because they serve as mirror disks for the first, second, and third hard disks.

  - **Table F-7**, **Table F-8**, and **Table F-9** show the disk partitioning schemes for a six-disk server that is not connected to a disk array.

    Table F-7 Partitioning scheme for a six-disk server without any disk array (first hard disk)

Hard Disk	Fragment	Partition	6 x 300 GB Hard Disk (MB)	6 x 146 GB Hard Disk (MB)	6 x 73 GB Hard Disk (MB)
First hard disk	0	/	50000	20000	12000
	1	swap	16000	16000	16000
	4		200	200	200
	5	/opt/ backup	152000	77000	18000
	6	/var	50000	20000	20000
	7	/export/ home	10000	2000	1000

Table F-8 Partitioning scheme for a six-disk server without any disk array (second hard disk)

Hard Disk	Fragment	Partition	6 x 300 GB Hard Disk (MB)	6 x 146 GB Hard Disk (MB)	6 x 73 GB Hard Disk (MB)
Second hard disk	4		200	200	200
	5	/opt	278000	135000	67000

Table F-9 Partitioning scheme for a six-disk server without any disk array (third hard disk)

Hard Disk	Fragment	Partition	6 x 300 GB Hard Disk (MB)	6 x 146 GB Hard Disk (MB)	6 x 73 GB Hard Disk (MB)
Third hard disk	4		200	200	200
	5	/opt/ sybase	278000	135000	67000

- **Table F-10**, **Table F-11**, and **Table F-12** show the disk partitioning schemes for a six-disk server that is connected to a disk array.

Table F-10 Partitioning scheme for a six-disk server with a disk array (first hard disk)

Hard Disk	Fragment	Partition	6 x 300 GB Hard Disk (MB)	6 x 146 GB Hard Disk (MB)	6 x 73 GB Hard Disk (MB)
First hard disk	0	/	162000	60000	30000
	1	swap	16000	16000	16000
	4		200	200	200
	6	/var	100000	59000	20000

Table F-11 Partitioning scheme for a six-disk server with a disk array (second hard disk)

Hard Disk	Fragment	Partition	6 x 300 GB Hard Disk (MB)	6 x 146 GB Hard Disk (MB)	6 x 73 GB Hard Disk (MB)
Second hard disk	4		200	200	200
	5	/opt	278000	135000	67000

Table F-12 Partitioning scheme for a six-disk server with a disk array (third hard disk)

Hard Disk	Fragment	Partition	6 x 300 GB Hard Disk (MB)	6 x 146 GB Hard Disk (MB)	6 x 73 GB Hard Disk (MB)
Third hard disk	4		200	200	200
	7	/export/home	278000	135000	67000

G Configuring Disk Arrays

This topic describes how to configure the OceanStor S3100, OceanStor S2600, and StorageTek 2540 disk arrays.

G.1 Configuring the OceanStor S2600 Disk Array by Using the ISM

This topic describes how to configure the OceanStor S2600 disk array using the ISM.

Prerequisite

- The IP addresses for both controllers of the OceanStor S2600 disk array are configured.
- The primary and secondary power supplies of the disk array have been powered on. For more information, see **5 Powering On a Server**.
- The Window management terminal must communicate properly with the disk array controller.
- Users are logged in to the ISM from the Windows management terminal by using the Internet Explorer 6.0, Internet Explorer 7.0, or Internet Explorer 8.0.

Context

NOTE

The ISM software will lock up if an operation is not performed within 10 minutes after login. Enter the password again to log in if lock up occurs.

The following table shows the configuration requirements on the OceanStor S2600 disk array.

CAUTION

The following requirements are for the OceanStor S2600 (6 x 300 GB) disk arrays only. A OceanStor S2600 disk array (6 x 300 GB) is equipped with six hard disks, each of which is 300 GB in size. If the selected disk arrays are not the OceanStor S2600 disk arrays (6 x 300 GB), contact Huawei engineers for details about how to configure the disk arrays.

Configure Item	Settings
Hot-spare disk	The sixth disk is designated as the global hot-spare disk.
Host group and host	Set the host group name to **HostGroup001**. Set the host name to **Masterserver.**
RAID group	● Set the RAID group name to **RAID001**. ● Set the RAID Level to **RAID5**. ● Set the disk type to **SAS**. ● The first five disks serve as the RAID group.

Configure Item	Settings
LUN	Configure one LUN as follows: ● LUN information – Name: LUN001 – Capacity: 1000 GB – Stripe unit size: 32 KB – Home controller: controller A ● Cache strategy – Prefetch strategy: intelligent – Write strategy: write back (mirroring) ● Mapping mode Mapping object: host group name **HostGroup001**
Port	● Set the type to **FC**. ● Set the name associated with the first identifier to **port1**. ● Set the name associated with the second identifier to **port2**.

Procedure

1 Log in to the ISM.

1. Open the Internet Explorer on the Windows management terminal.
2. Enter **http://XXX.XXX.XXX.XXX** in the address bar of the Internet Explorer (where XXX.XXX.XXX.XXX indicates the IP address of the management network port of the storage array controller). Such as *http://129.9.1.10*.

   NOTE

   If "The page cannot be displayed" is displayed on the Internet Explorer, the Windows management terminal and the disk array controller fail to communicate with each other. Check the network connection.

   The system will navigate to the default login window of the ISM, as shown in the following figure.

3. Click **Click Here to Launch OceanStor ISM**. The system will check whether the ISM is installed on the Windows management terminal.

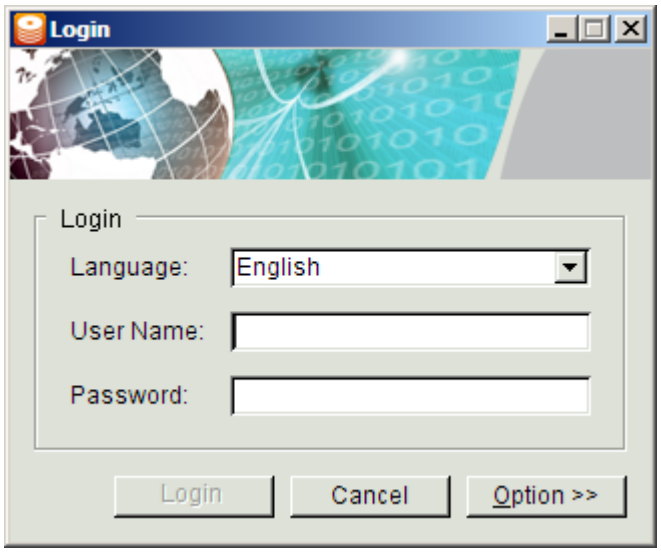
CAUTION

- Before installing the ISM, install the Java runtime environment (JRE). The JRE version must be 1.5.0 or later (excluding version 1.5.0.16). In the CLI, run the **java -version** command to view the JRE version. If the JRE is not installed, click **Please Setup JRE**.
- Do not use JRE 1.5.0.16. Downloading the ISM may fail due to the bugs in JRE 1.5.0.16.

If the ISM is not installed on the Windows management terminal, the system will automatically download and install the ISM by means of the Java web start (JWS). If the ISM is installed on the Windows management terminal, the system will automatically check the software version. If the version of the ISM is not the latest version, the system will automatically upgrade the software to the latest version.

4. In the **Warning - Security** dialog box, select **Always trust content from this publisher** and click **Run**.
5. Decide whether or not to create an ISM shortcut on the desktop and in the Start menu.

The system will open the login window of the ISM, as shown in the following figure.



6. Select the required language from the **Language** drop-down list. Then, enter the user name in **User Name** and the user password in **Password**.

   NOTE

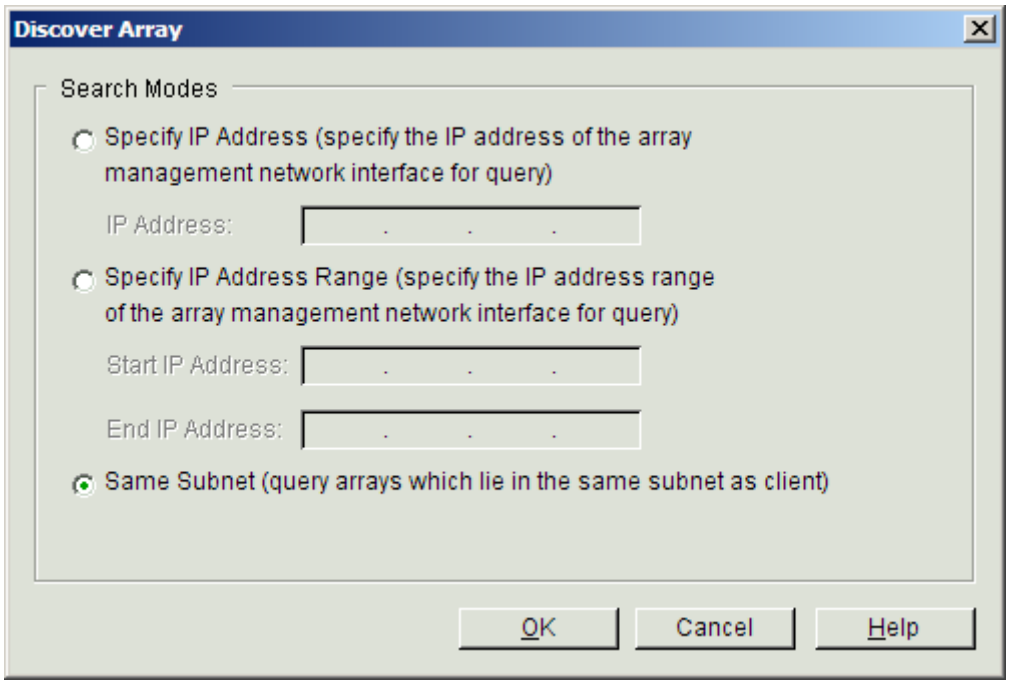
   - A disk array can be discovered only when the entered user name and password are the same as those of the disk array.
   - The default user name and password for logging in to the ISM are **admin** and **123456**. After login, change the password immediately and keep the password confidential.

7. Click **Login** to access the Welcome window, as shown in the following figure:

2 Discover disk arrays.

1. In the Welcome window of the ISM, click **Discover array**.

   The **Discover array** dialog box will be displayed, as shown in the following figure.



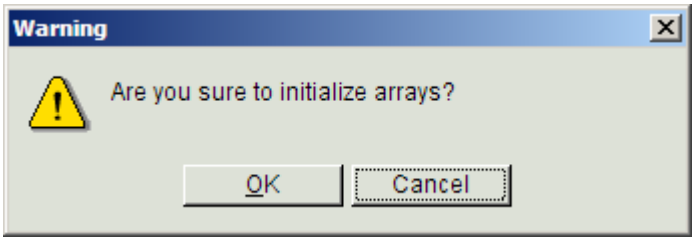
2. Select a mode for discovering disk arrays according to the conditions at your site. **Table G-1** describes the parameters for discovering disk arrays.

Table G-1 Parameters for discovering disk arrays

Parameter	Description
Specify IP Address	Indicates that disk arrays are discovered according to the IP address of the management network port on the specified disk array. When you specify the IP address, the first field on the left ranges from 1 to 223 (except 127), the last field ranges from 1 to 254, and the other fields range from 0 to 255.
Specify IP Address Range	Indicates that disk arrays are discovered according to the IP address segment of the management network port on the specified disk array. **Start IP Address** and **End IP Address** indicate the start IP address and end IP address of disk arrays to be discovered. When setting this parameter, pay attention to the following points: ● The discovery range is the IP subnet segment of the ISM client. ● The first field on the left ranges from 1 to 223 (except 127), the last field ranges from 1 to 254, and the other fields range from 0 to 255. ● The start IP address must be smaller than or equal to the end IP address.
Same Subnet	Indicates that the discovery range is the IP subnet segment of the ISM client. This mode is the default discovery mode of the system.

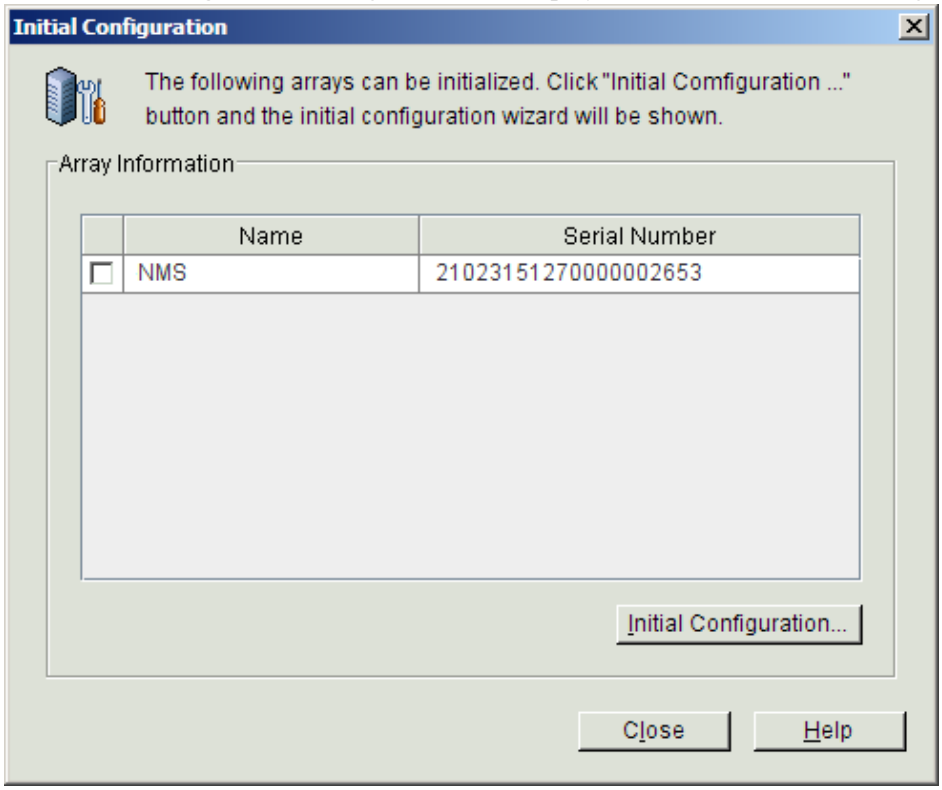
3. Click **OK**. After disk arrays are discovered, the **Info** dialog box will be displayed, prompting an operation success.

4. Click **OK**. The **Warning** dialog box will be displayed.

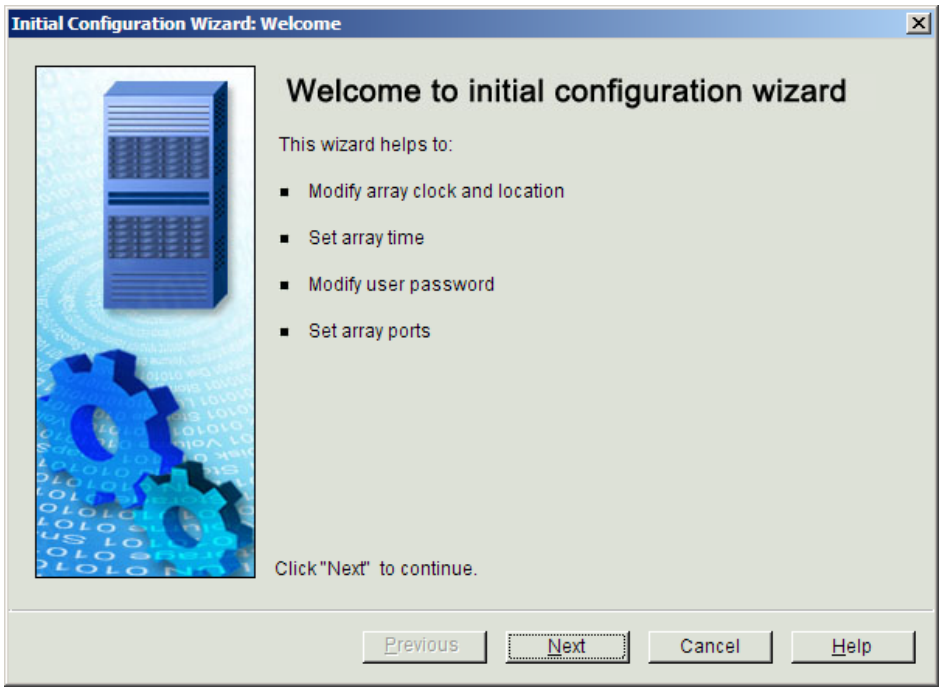


3 Initialize the configuration.

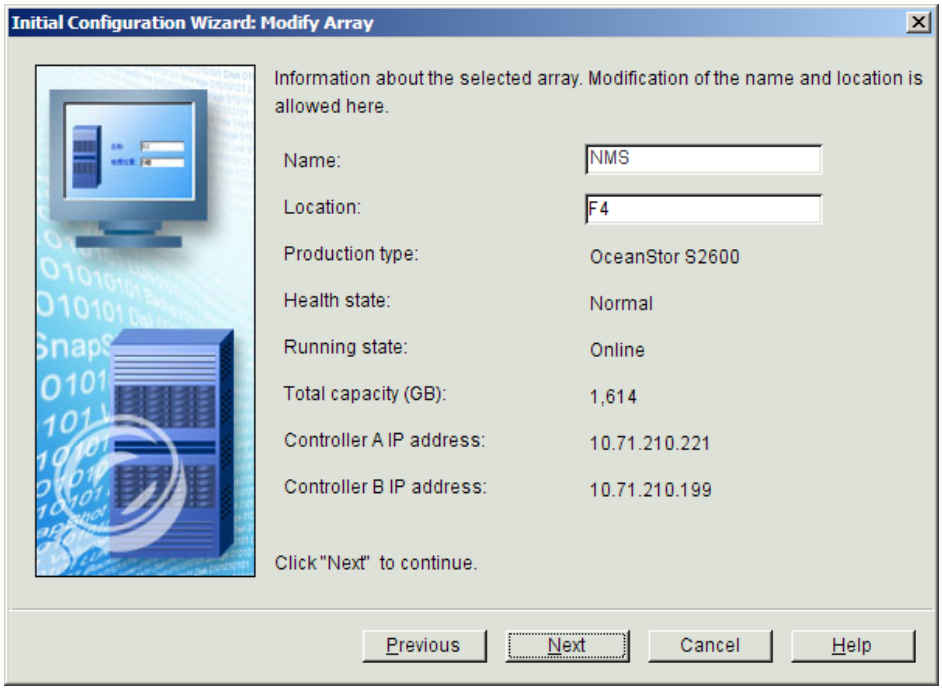
1. In the **Warning** dialog box, click **OK** to initialize the disk array.
   The **Initial Configuration** dialog box will be displayed, as shown in the following figure.



2. Select the disk array to be configured and click **Initial Configuration**. The **Initial Configuration Wizard: Welcome** dialog box will be displayed.



3. Click **Next**. The **Initial Configuration Wizard: Modify Array** dialog box will be displayed.

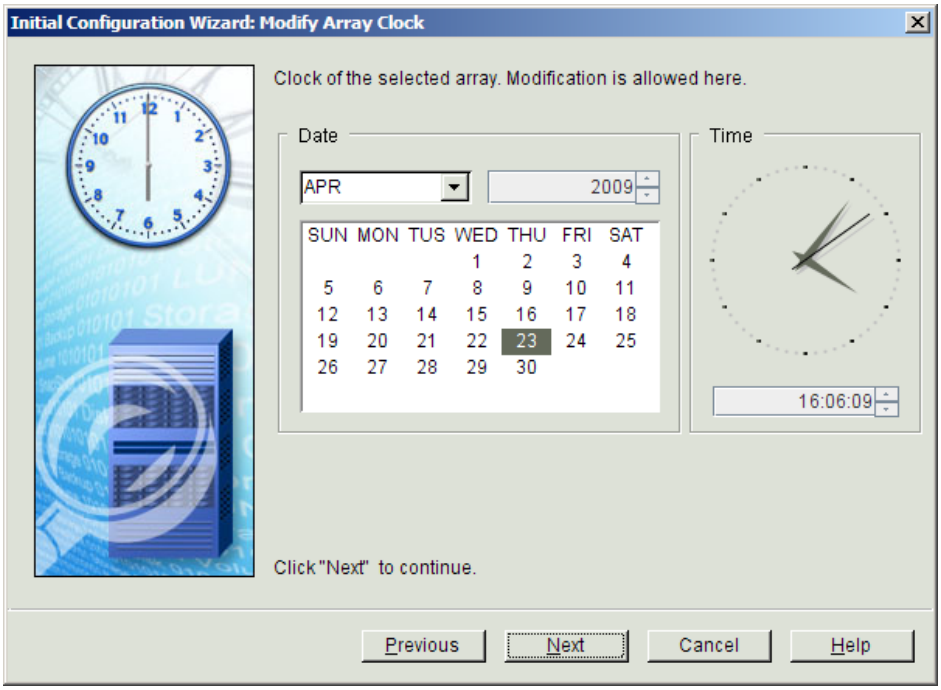


4. Enter the name of the disk array in the **Name** text box and the location information in the **Location** text box. **Table G-2** describes the parameters for modifying a disk array.

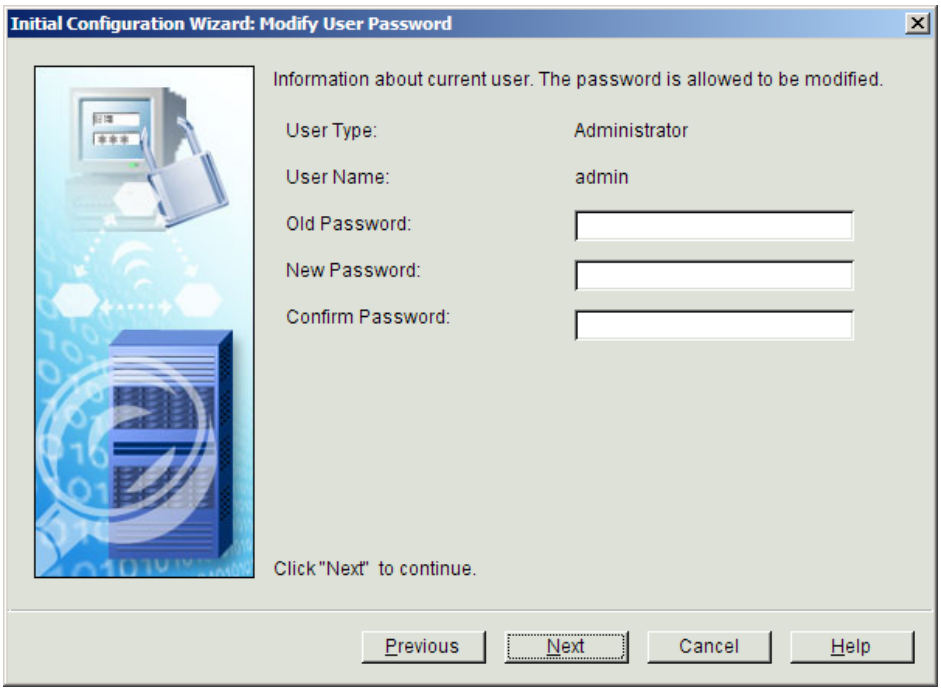
Table G-2 Parameters for modifying a disk array

Parameter	Description
Name	Specifies the name of the OceanStor S2600 disk array to be configured. When setting this parameter, note that: ● This parameter contains only the characters and numerals in DBC case, underscores (_), en-dash symbols (-), and simplified Chinese characters. ● This parameter consists of 1 to 32 characters. A Chinese character counts for two DBC characters.
Location	Specifies the location of the OceanStor S2600 disk array to be configured. When setting this parameter, note that: ● This parameter contains only the characters and numerals in DBC case, underscores (_), en-dash symbols (-), and simplified Chinese characters. ● This parameter consists of 1 to 32 characters. A Chinese character counts for two DBC characters.

5. Click **Next**. The **Initial Configuration Wizard: Modify Array Clock** dialog box will be displayed.



6. Select the required date and time, and then click **Next**. The **Initial Configuration Wizard: Modify User Password** dialog box will be displayed.



7. Change the login password of the user. **Table G-3** describes the parameters for changing the user password.

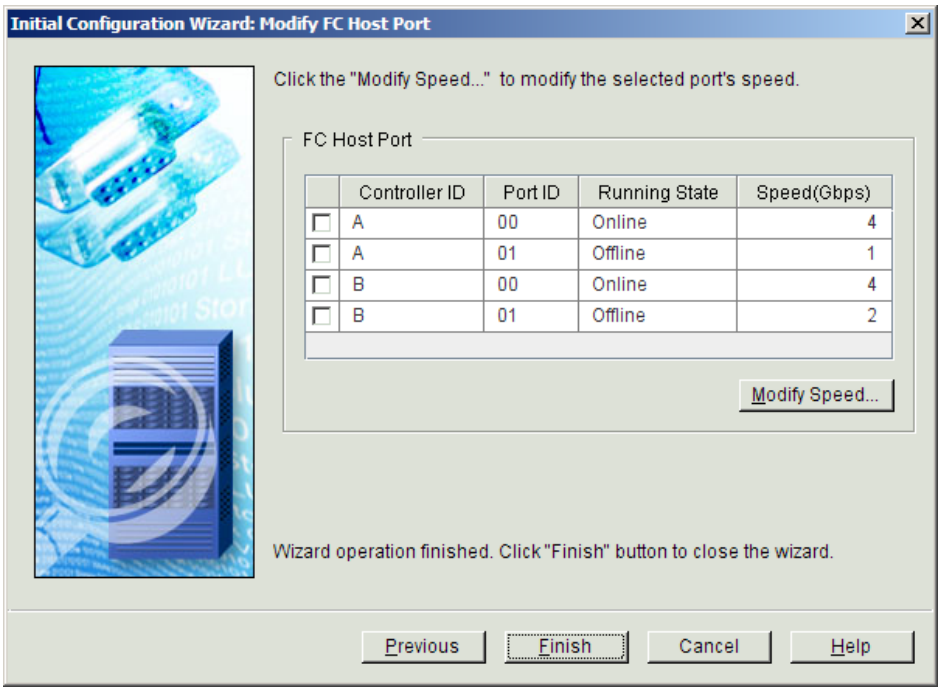
Table G-3 Parameters for changing the user password

Parameter	Description
Old Password	Specifies the original password. The default password is **123456**.
New Password	Specifies the new password. It ranges from 6 to 16 characters.
Confirm Password	Confirms the new password. When setting this parameter, pay attention to the following points: ● This parameter ranges from 6 to 16 characters. ● This parameter value must be the same as the value of **New Password**.

8. Click **Next**. The **Initial Configuration Wizard: Modify FC Host Port** dialog box will be displayed.

NOTE

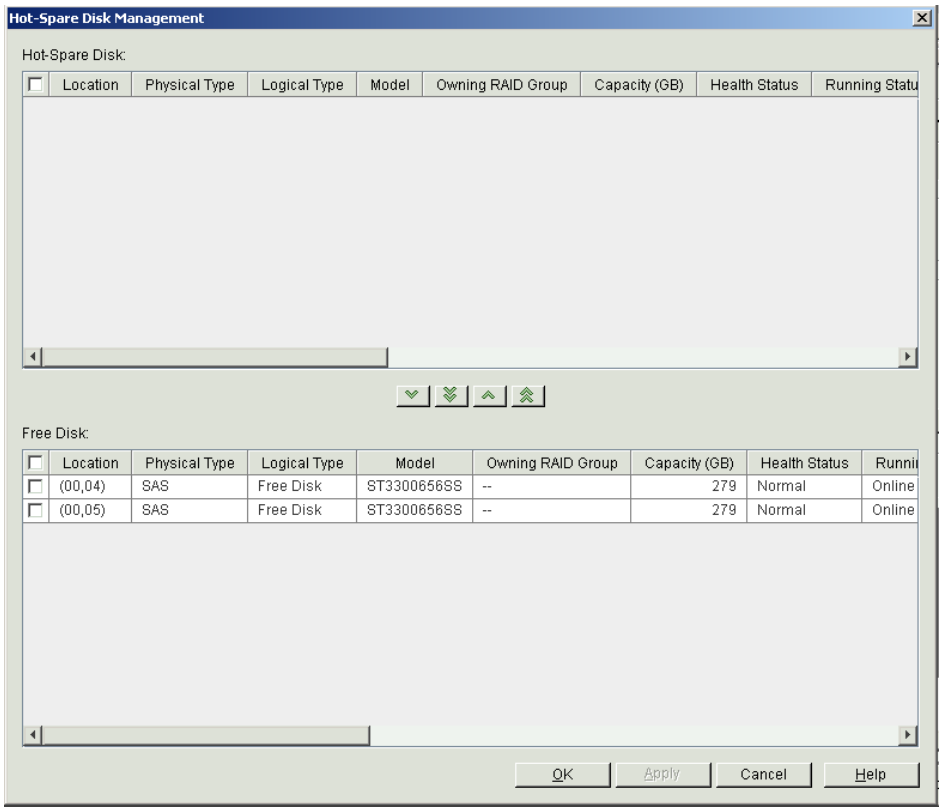
Click **Modify Speed** if the port rate needs to be changed. The default rate of an online port is 4 Gbit/s.



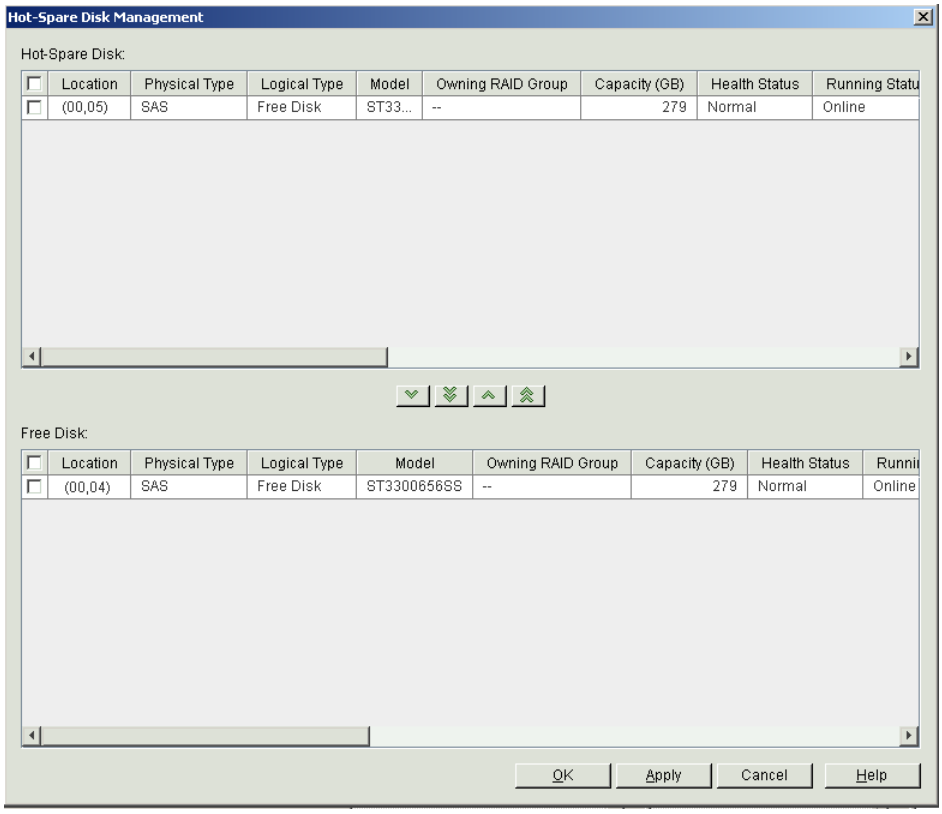
9. Click **Finish** to complete the initial configuration.
10. Click **Close** to exit.

4 Configure the hot-spare disk.

1. Click the **Physical View** tab in the navigation tree, and then select the OceanStor S2600 disk array to be configured.
2. Choose **Configuration** > **Hot-Spare Disk Management** from the main menu. The **Hot-Spare Disk Management** dialog box will be displayed.



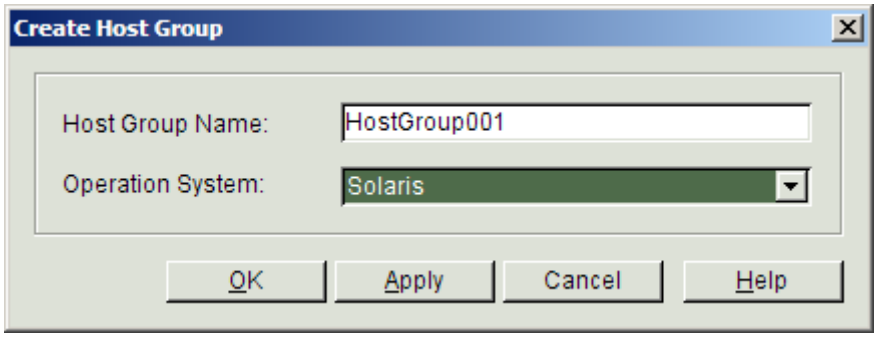
3. Select disk location **(00,05)** from the free disk list and click the third button () in the middle portion of the dialog box to add the selected disk to the hot spare disk list.



4. Click **OK** to close the **Hot-Spare Disk Management** dialog box. Click **OK** in the **Warning** dialog box. Then, click **OK** in the **Info** dialog box.

5 Create a host group and host.

1. Choose **Logical View** from the navigation tree and select the OceanStor S2600 disk array to be configured.
2. Choose **Configuration** > **Create Host Group** from the main menu. The **Create Host Group** dialog box will be displayed.



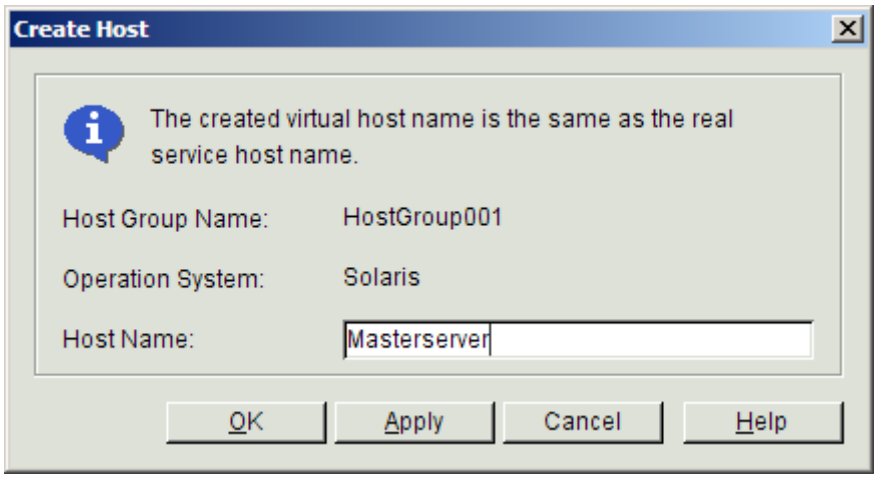
3. Select **Solaris**, and then click **OK**.

   The **Info** dialog box is displayed indicating that the operation was completed.

   NOTE

   In this step, the selected OS corresponds to the OS of the server connected to the disk array.

4. Click **OK** to complete creating the host group.
5. Choose the host group from the navigation tree, and then choose **Configuration** > **Create Host** from the main menu. The **Create Host** dialog box will be displayed.



6. Enter the host name and click **OK** to continue.

   TIP

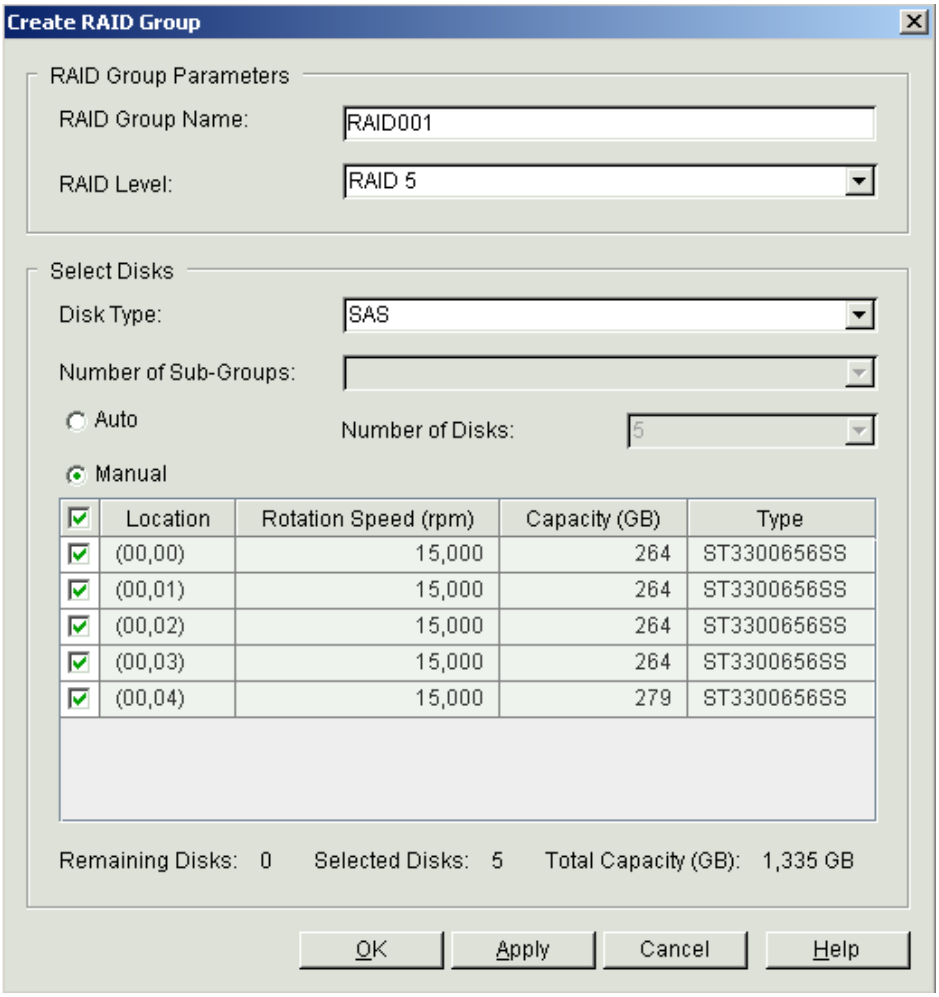
   It is recommended to enter the host name of the server connected to the disk array so that the host name is easy to remember.

   The **Info** dialog box will be displayed indicating that the operation was completed.
7. Click **OK** to complete creating the host.

6 Create a RAID group.

1. Choose **Logical View** from the navigation tree and select the OceanStor S2600 disk array to be configured.

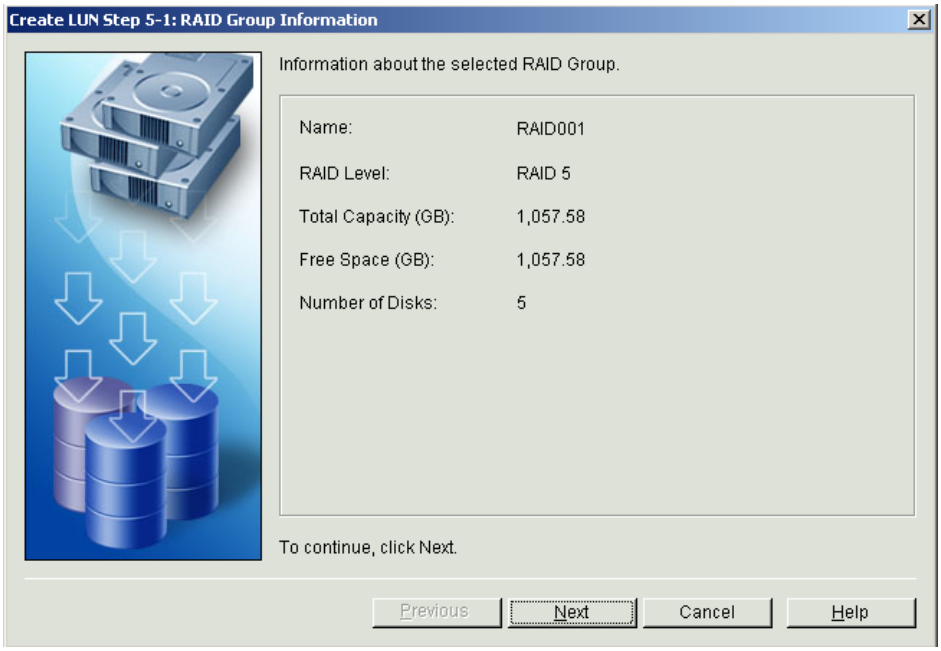
2. Choose **Configuration** > **Create RAID Group** from the main menu. In the **Create RAID Group** dialog box, modify the settings, as shown in the following figure.



3. Click **OK**. The **Info** dialog box will be displayed indicating that the operation was completed.
4. Click **OK**. Creation of the RAID group is completed.

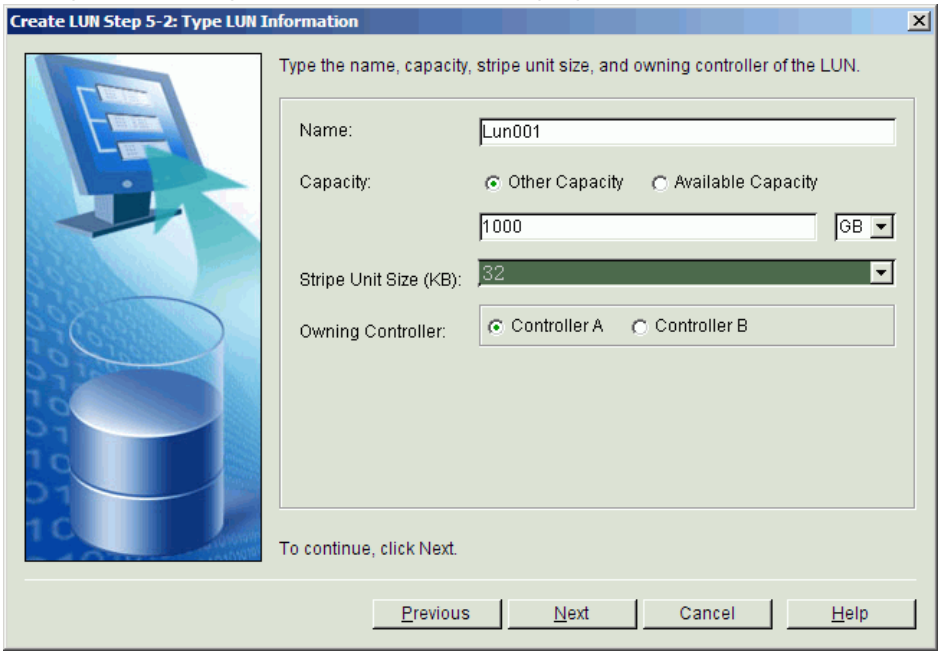
7 Create Lun001.

1. Click the **Logical View** tab in the navigation tree and select the RAID group where the new Lun001 locates.
2. Choose **Configuration** > **Create LUN** from the main menu. The **Create LUN Step 5-1: RAID Group Information** dialog box will be displayed.



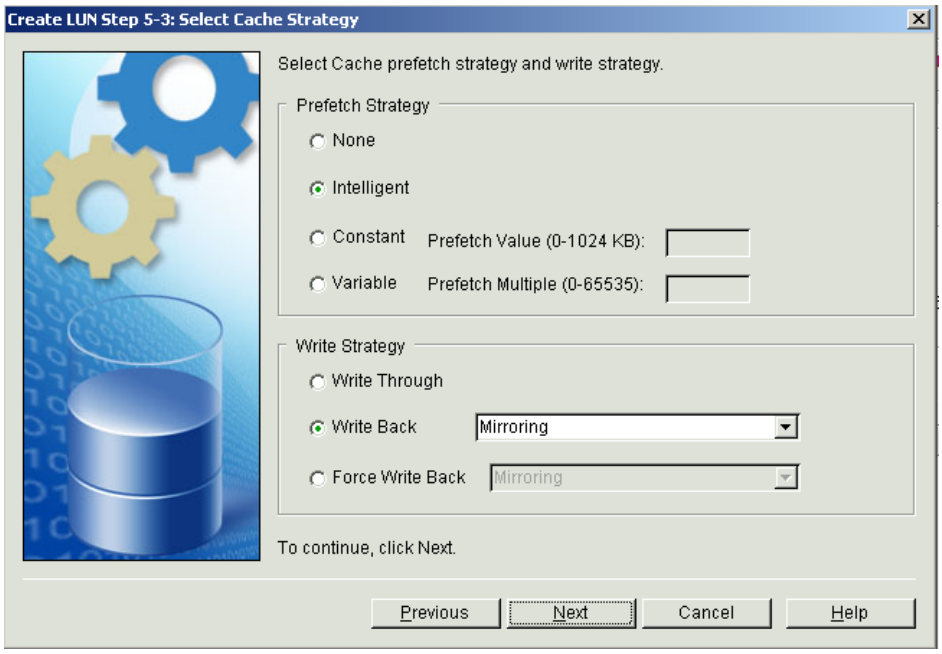
3. Click **Next**. The **Create LUN Step 5-2: Type LUN Information** dialog box will be displayed.

   Configure the settings as shown in the following figure.



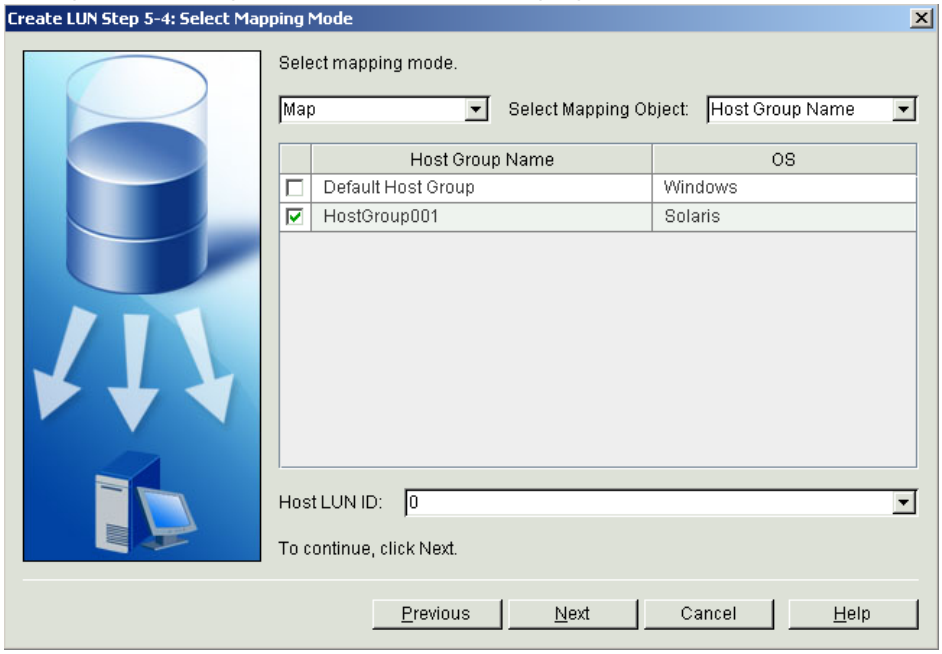
4. Click **Next**. The **Create LUN Step 5-3: Select Cache Strategy** dialog box will be displayed.

   Configure the settings as shown in the following figure.



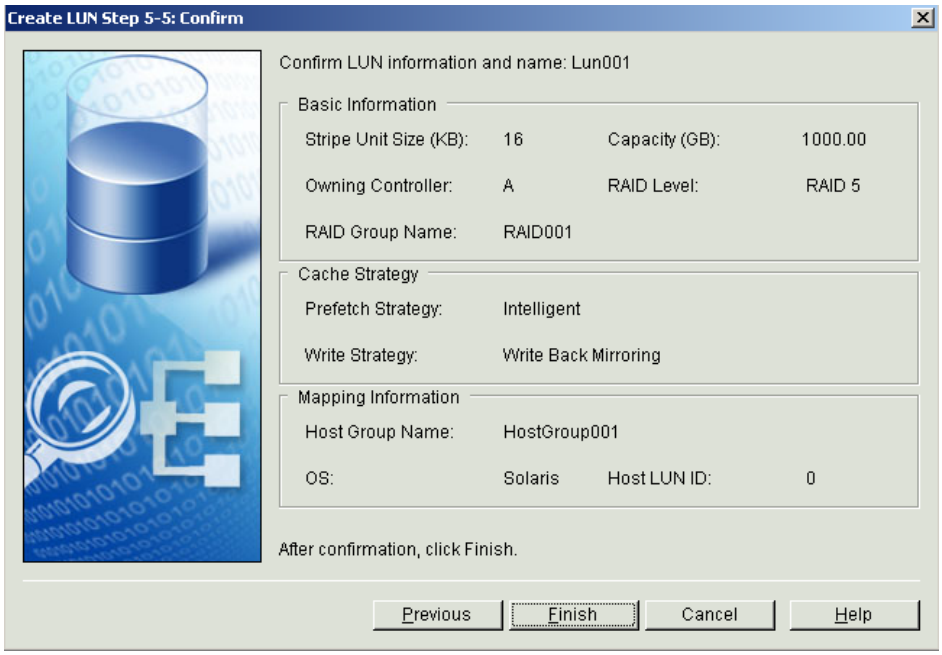
5. Click **Next**. The **Create LUN Step 5-4: Select Mapping Mode** dialog box will be displayed.

   Configure the settings as shown in the following figure.



6. Click **Next**. The **Create LUN Step 5-5: Confirm** dialog box will be displayed.

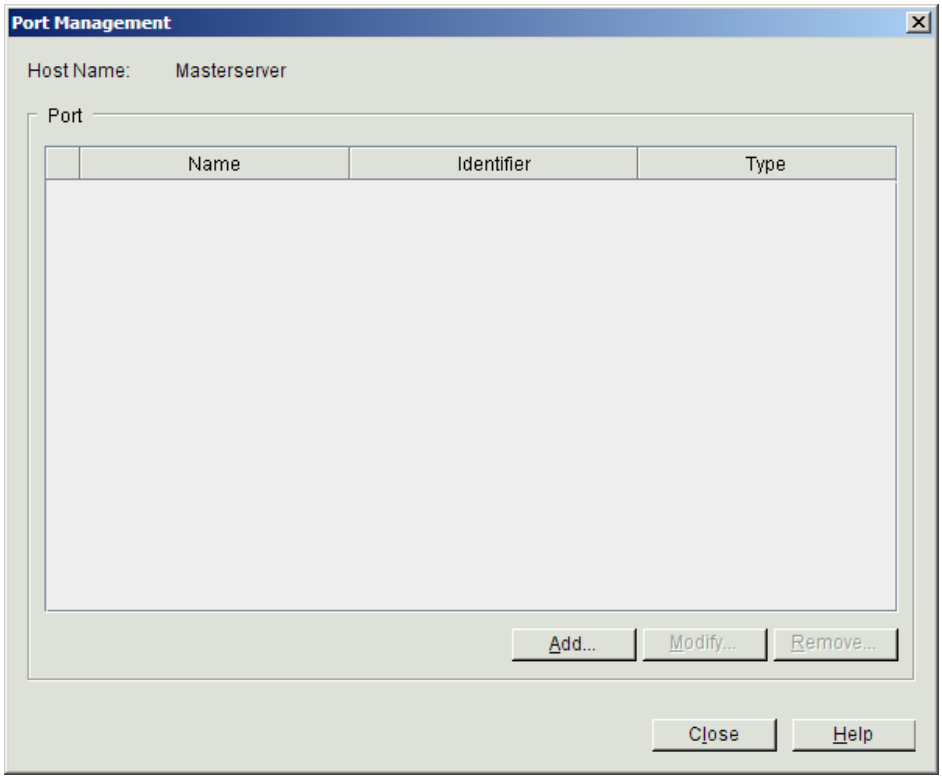
   Configure the settings as shown in the following figure.



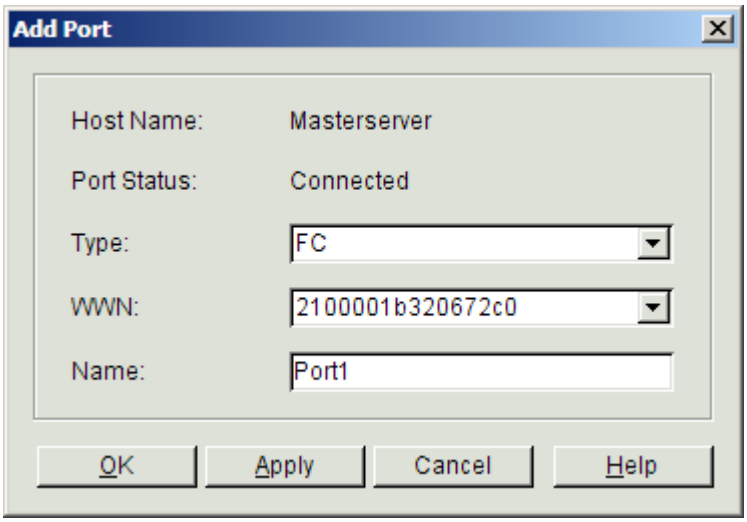
7. Click **Finish**. The **Info** dialog box will be displayed indicating that the operation was completed.
8. Click **OK**. Creation of Lun001 is complete.

8 Add a port.

1. Choose **Host** from the navigation tree, and then choose **Configuration** > **Host Port Management** from the main menu. The **Port Management** dialog box will be displayed.



2. Click **Add**. The **Add Port** dialog box will be displayed.



3. Select the first available option from the **WWN** drop-down list, enter **port1** in **Name**, and then click **Apply**. In the dialog box that will be displayed, click **OK**.
4. Click **Add** again. The **Add Port** dialog box will be displayed.
5. Enter **port2** in the **Name** text box, and click **OK**. In the dialog box that will be displayed, click **OK**.

9 Check the connection of the fiber card.

1. Log in to the server OS as user **root**.
2. Run the following command to check the connection status of the port on the fiber card:
```
# luxadm -e port
```

NOTE

In the preceding command, *port ID* indicates the ports through which the disk array connects to the server.

You can run the **lssci** command to query port IDs. the first column in the returned message displays the port IDs of the fiber card. For example, run the following command:

The following message will be displayed:

```
[0:0:0:0]    disk    IBM-ESXS  CBRBA146C3ETSO  N   C49B  -
[0:0:1:0]    disk    IBM-ESXS  CBRBA146C3ETSO  N   C49B  -
[0:1:0:0]    disk    LSTLOGIC  Logical Volume      3000  /dev/sda
[3:0:0:0]    disk    HUAWEI    S2600               1     /dev/sdb
[4:0:0:0]    disk    HUAWEI    S2600               1     /dev/sdc
```

Find the last two lines containing **S2600** in the fourth column. Information in the first columns (**[3:0:0:0]** and **[4:0:0:0]**) indicates that the S2600 disk array connects to the server through port 3 and port 4.

The following message will be displayed:

```
/devices/pci@0,600000/pci@0/pci@8/pci@0,1/SUNW,qlc@1/fp@0,0:devctl  CONNECTED
/devices/pci@0,600000/pci@0/pci@8/pci@0,1/SUNW,qlc@1,1/fp@0,0:devctl
CONNECTED
```

NOTE

If the fiber card is not in the **CONNECTED** state, check and ensure the following aspect:

- The fiber is properly connected to the optical module.
- There is not any damage to the fiber.
- The optical module is properly connected to the fiber card.
- The indicator of the fiber card is functioning properly.

3. Run the following commands to restart the OS of the server and refresh the disk status:
```
# sync;sync;sync;sync
# shutdown -y -g0 -i6
```
4. Run the following command to scan the LUN that maps the OceanStor S2600 disk array:
```
# format
```
The following message will be displayed:
```
Searching for disks...done

c1t2200662233556653d0: configured with capacity of 999.97GB
c2t2210662233556653d0: configured with capacity of 999.97GB


AVAILABLE DISK SELECTIONS:
       0. c0t0d0 <SUN72G cyl 14087 alt 2 hd 24 sec 424>
          /pci@0,600000/pci@0/pci@8/pci@0/scsi@1/sd@0,0
       1. c0t1d0 <SEAGATE-ST973402SSUN72G-0400 cyl 14087 alt 2 hd 24 sec 424>
          /pci@0,600000/pci@0/pci@8/pci@0/scsi@1/sd@1,0
       2. c1t2200662233556653d0 <HUAWEI-S2600-1 cyl 19198 alt 2 hd 64 sec 256>
          /pci@0,600000/pci@0/pci@8/pci@0,1/SUNW,qlc@1/fp@0,0/
ssd@w2200662233556653,0
       3. c2t2210662233556653d0 <HUAWEI-S2600-1 cyl 19198 alt 2 hd 64 sec 256>
          /pci@0,600000/pci@0/pci@8/pci@0,1/SUNW,qlc@1,1/fp@0,0/
ssd@w2210662233556653,0
Specify disk (enter its number):
```

NOTE

- The displayed disk size varies according to the actual size of the disk.
- The disk identified with `< HUAWEI-S2600-1 .... >` indicates the LUN that maps the OceanStor S2600 disk array.
- The scanned number of disks is the product of: the number of local disks, the number of LUNs that map the OceanStor S2600 disk array, and the number of fiber paths. After the MPxIO multipathing is enabled, the number of disks scanned by the **format** command is equal to the number of LUNs that map the OceanStor S2600 disk array.
- If the disks that map the OceanStor S2600 disk array fail to be scanned, run the **devfsadm -C** command first and the **format** command to scan the required disks. If the disks still cannot be scanned, ensure that the fiber is properly connected.

----End

G.2 Configuring the StorageTek 2540 Disk Array Through the Web Browser

This topic describes how to configure the StorageTek 2540 disk array through the Web browser.

Prerequisite

- The cables between the server and the disk array are connected properly.
- The IP addresses for both controllers of the StorageTek 2540 disk array are configured.
- The OS of the server is installed.
- The U2000***version***_server_patch_solaris_SPARC_dvd3 or installation package U2000***version***_server_ospatch_solaris_SPARC.tar are on-hand. The DVD or installation package contains the StorageTek 2540 disk array manager.

  The installation software package must be uploaded to the **/tmp** path of the server in binary mode through FTP. Run the **tar xvf** *name_of_installation_software_package* command to decompress the installation package.

Context

The **/tmp** path is the temporary system path. After restart, the system will automatically clear the files in the **/tmp** path.

The following table describes the configuration requirements on the StorageTek 2540 disk array.

Configure Item	Settings
RAID group	The first five disks serve as the RAID group named **RAID5**.
LUN	Configure one LUN and name it **disk1**; set the capacity to **1000** GB.
Hot-spare disk	The sixth disk is designated as the global hot-spare disk.

Procedure

1 Install the StorageTek 2540 disk array manager CAM on the server.

1. Log in to the OS of the server as user **root**.
2. To navigate to the directory of the installation files, perform the following operations:

   If the disk array manager was installed by using an installation DVD, perform the following operations:

   a. Insert U2000***version***_server_patch_solaris_SPARC_dvd3 into the DVD-ROM drive.

   b. Run the following command to navigate to the **/tmp** path:
   ```
   # cd /tmp
   ```

   c. Run the following command to copy the files from the **/cdrom/cdrom0/patches** directory to the **/tmp** path:
   ```
   # cp -r /cdrom/cdrom0/patches /tmp
   ```

   d. Run the following command to navigate to the **/tmp/patches/sun** directory where the installation files are saved:
   ```
   # cd /tmp/patches/sun
   ```

   If the disk array manager was installed by using an installation package, perform the following operations:

   a. Run the following command to navigate to the **/tmp** path:
   ```
   # cd /tmp
   ```

   b. Run the following **tar** command to decompress the installation package:
   ```
   # tar xvf U2000version_server_ospatch_solaris_SPARC.tar
   ```

   c. Run the following command to navigate to the **/tmp/patches/sun** directory where the installation files are saved:
   ```
   # cd /tmp/patches/sun
   ```

3. Run the following command to decompress the CAM installation file:
   ```
   # gzcat host_sw_solaris_6.6.0.11.tar.gz | tar xf -
   ```

4. Run the following commands to install the CAM software:
   ```
   # cd /tmp/patches/sun/HostSoftwareCD_6.6.0.11
   # ./RunMe.bin -c
   ```

   Follow the screen prompts and proceed with the installation of the StorageTek 2540 disk array manager.

NOTE

- During the installation, enter **1** and select **I accept the terms of the license agreement** in the license agreement window, and press **Enter** in the other windows.
- During the CAM installation, some OS patches may fail to be installed, but the failure does not affect the use of the CAM software; therefore, you can ignore these occurrences.

5. Run the following commands to enable the Internet Explorer login rights of other IP addresses:

```
# svccfg -s svc:/system/webconsole:console setprop options/local=false
# svccfg -s svc:/system/webconsole setprop options/tcp_listen=true
# svcadm restart svc:/system/webconsole
```

NOTE

Run the **netstat -an | grep 6789** command to verify that the login rights of other IP addresses are enabled. Information similar to the following will be displayed if rights are enabled. If no, run the preceding commands again.

```
      *.6789               *.*                0      0 49152      0 LISTEN
```

2 Start the disk array manager.

1. Log in to the OS of the Windows management terminal as an administrator.
2. Open the IE, enter the local IP address of the management terminal in the **Address** bar, and then press **Enter**. The IP address is in an **https://127.0.0.1:6789/**.

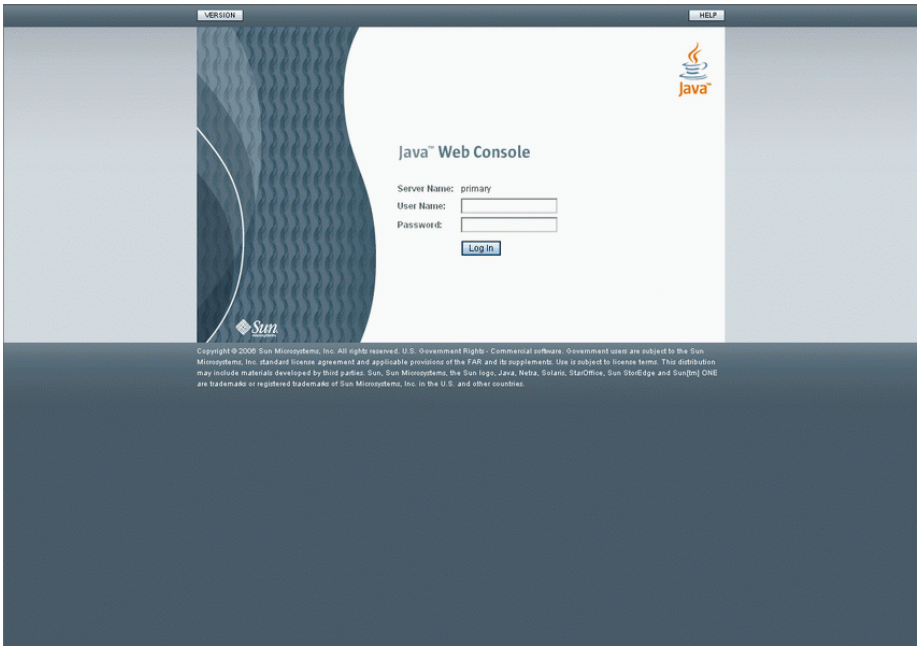
NOTE

You can also access the management terminal where the disk array manager is installed by using the IE on other Windows management terminals. In this scenario, enter the actual IP address of the management terminal where the disk array manager is installed.

3. The **Security Alert** dialog box is displayed. Click **Yes**.
4. In the login window, enter the user name and password, for example, **root**, and click **Log In**.

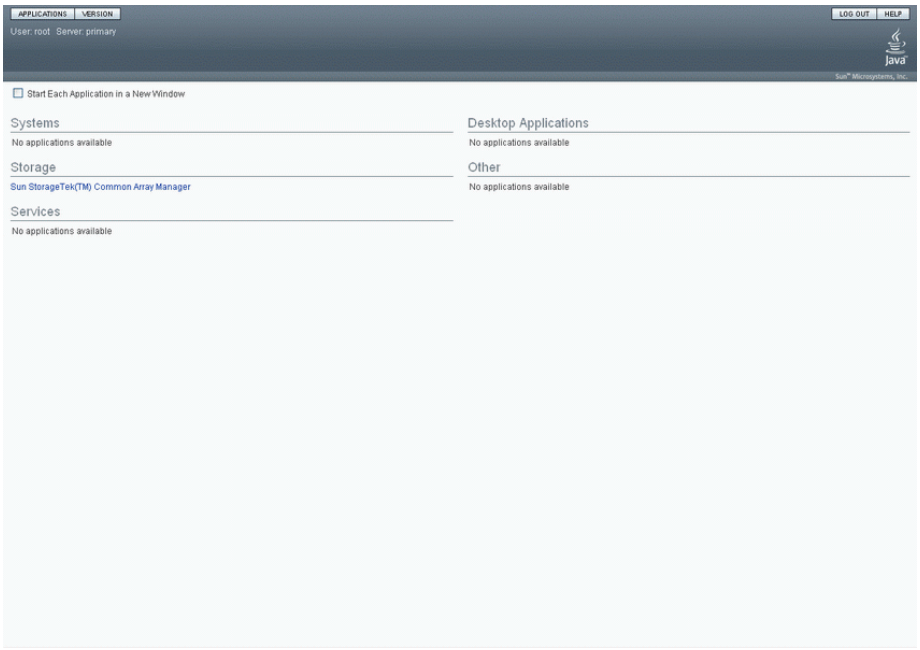
NOTE

If the security warning information is displayed, click **Confirm**.

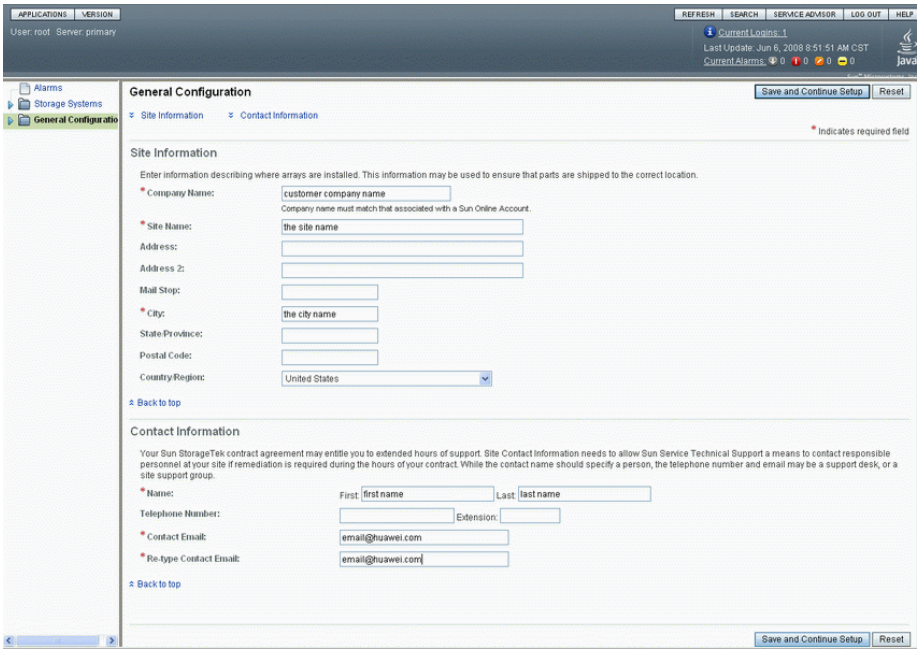


3 Configure the StorageTek 2540 disk array by using the disk array manager.

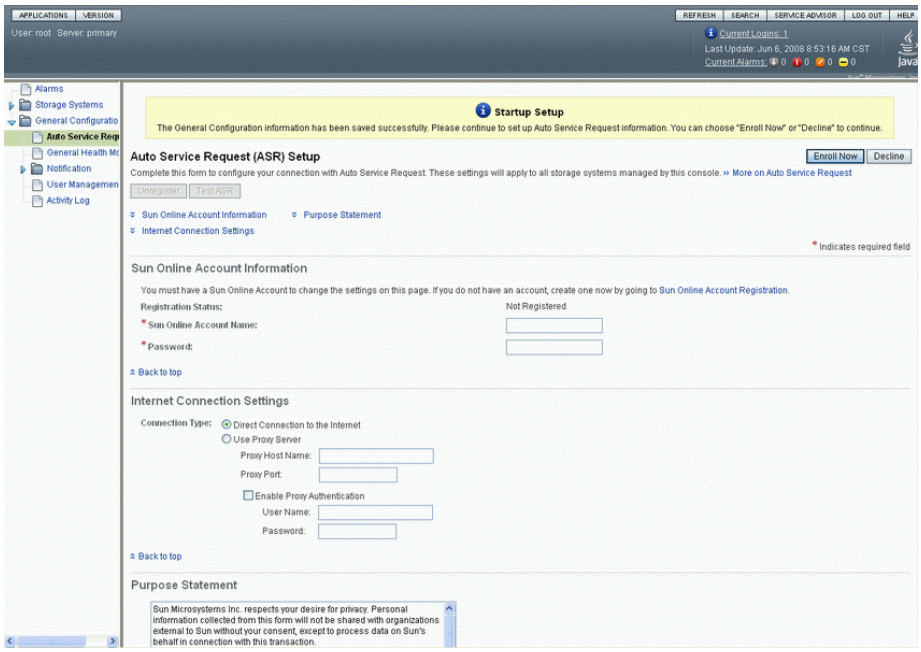
1. On Java Web console, click **Sun Storage Tek(TM) Common Array Manager** in **Storage**.



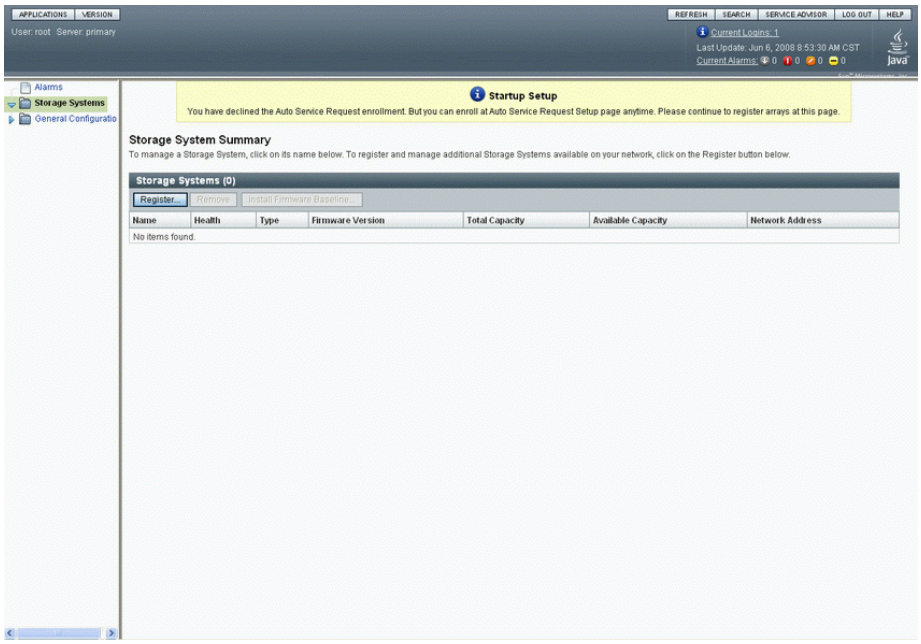
2. In the Common Array Manager, choose **General Configuration** from the navigation tree to set the station information. Then, click **Save and Continue Setup**.



3. Choose **General Configuration** > **Auto Service Request (ASR) Setup** from the navigation tree and click **Decline** in the **Auto Service Request (ASR) Setup** window.



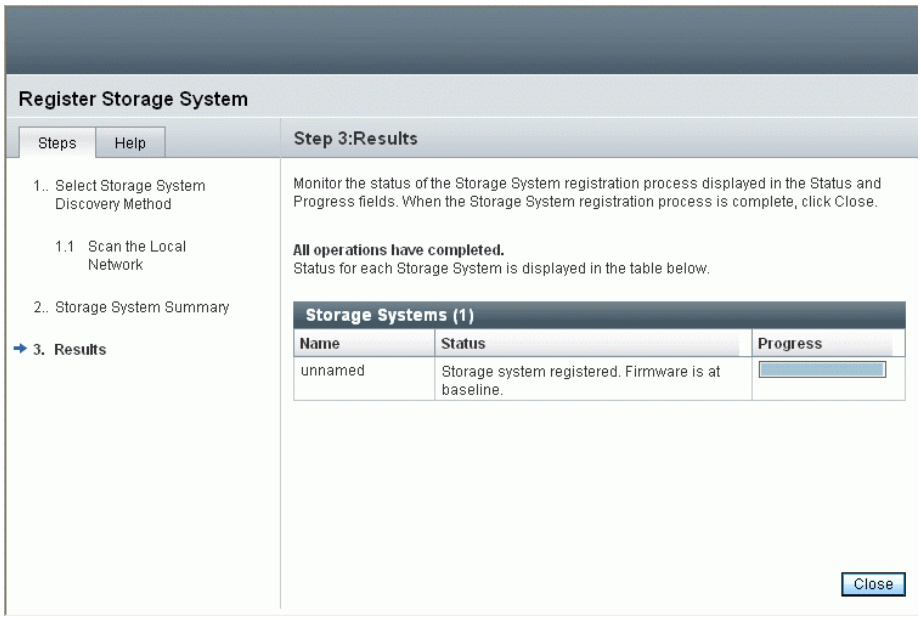
4. Choose **Storage Systems** from the navigation tree and click **Register**.



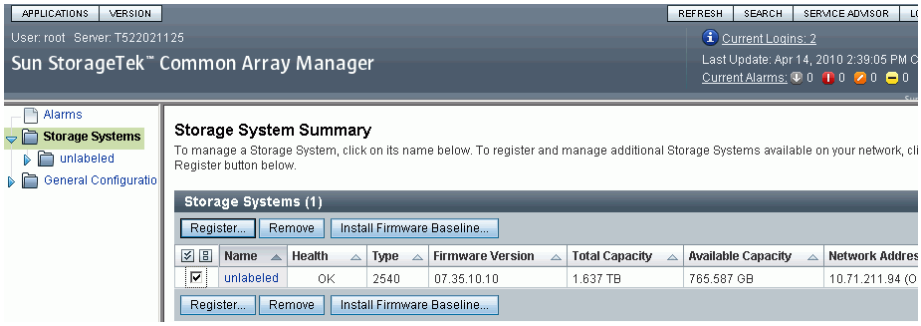
5. In the **Register Storage System** window, select **Enter IP address or hostname**, enter the IP address of disk array controller A in the address bar, and then click **Next**.

6. View the storage system list, select the system that you want to register right now, and click **Finish**.

7. The system will display a progress bar. After the registration is complete, click **Close**.



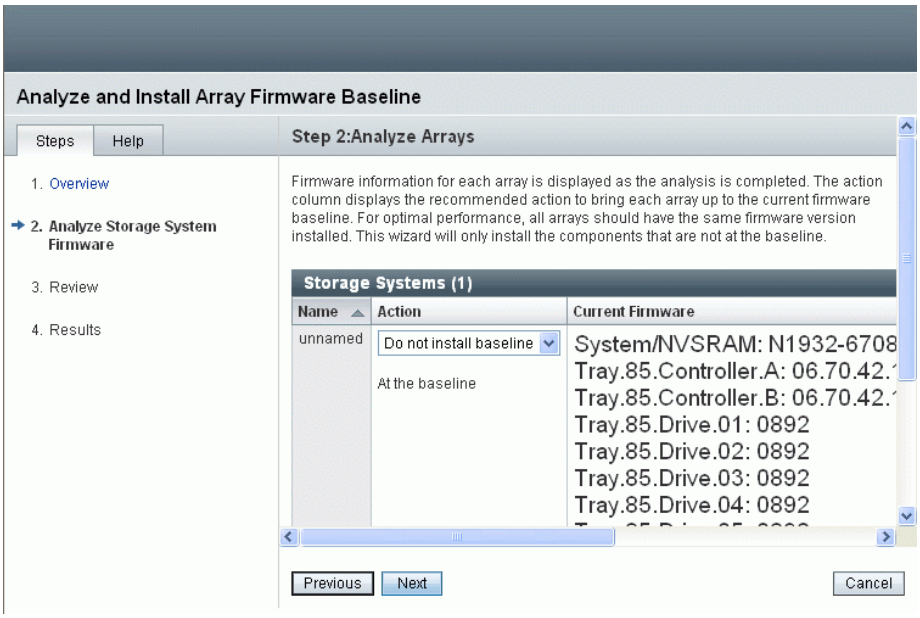
8. Under **Storage Systems** in the navigation tree, select the disk system to be configured and click **Install Firmware Baseline**.



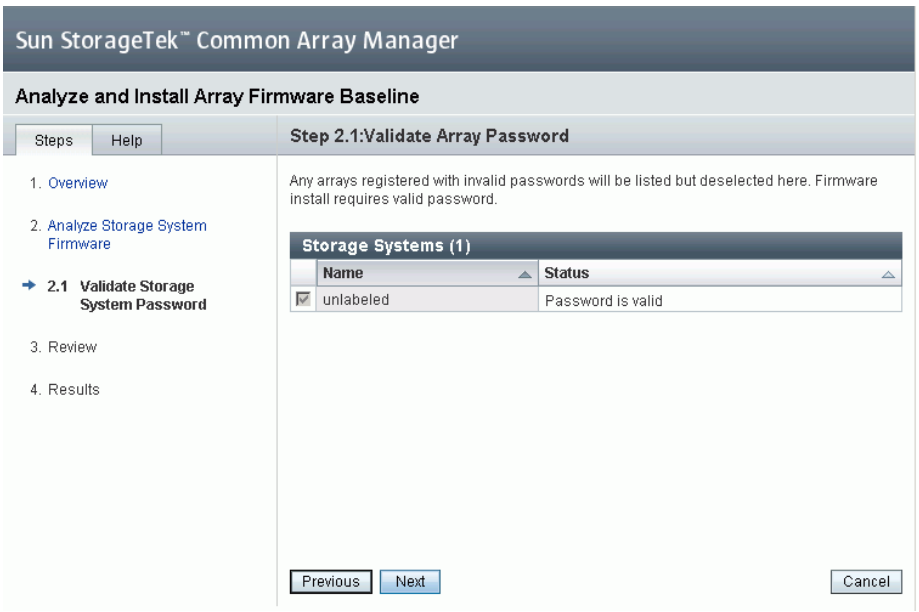
9. In the **Analyze and Install Array Firmware Baseline** window, click **Next**.
10. Analyze the firmware of the storage system and click **Next**.

NOTE

- If the components are not at the baseline (**Health** is displayed as **Degraded**), select **Install baseline, All** in **Storage Systems (1)**.
- If the components are at the baseline (**Health** is displayed as **OK**), select **Do not install baseline** in **Storage Systems (1)**.
- Options vary with CAM software versions. Select the appropriate option according to the conditions at your site.



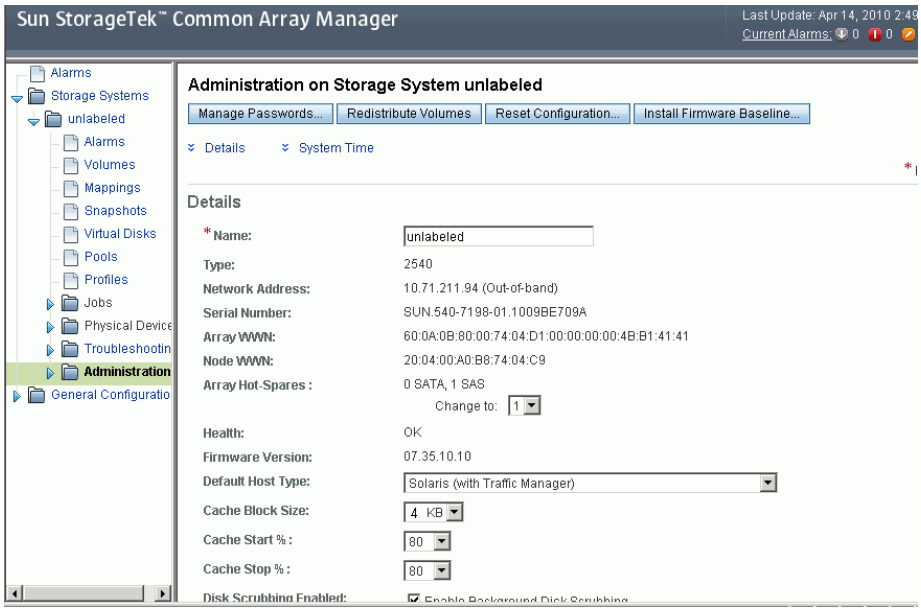
11. Verify the array password and click **Next**.



12. View the current selection and click **Finish** to install the specified firmware. After the installation is complete, click **Close**.
13. Select the storage system to be set from the navigation tree and set the detailed information in **Administration**. Then, click **Save**.

    NOTE

    - Set **Array Hot-Spares** to **1**.
    - Set **Default Host Type** to **Solaris (with Traffic Manager)**.
    - Use default values for other parameters.



14. In the storage system to be configured, choose **unamed** > **Physical Device** > **Disks**. Then, on the **Disk Summary on Storage System unlabeled** tab page, click the name of the last disk.
15. On the **Disk Details** tab page, click **Assign Hot-Standby Disk**. The **Succeeded in operating the hot-standby disk** message will be displayed.
16. In the storage system to be set, choose **Physical Device** > **Disks** from the navigation tree. In the **Role** column, ensure that the disk for hot backup has been allocated.

    NOTE

    Repeat **3.14** to **3.15** to set and save the information again if a disk for hot backup has not been allocated.

Disk Summary on Storage System unlabeled

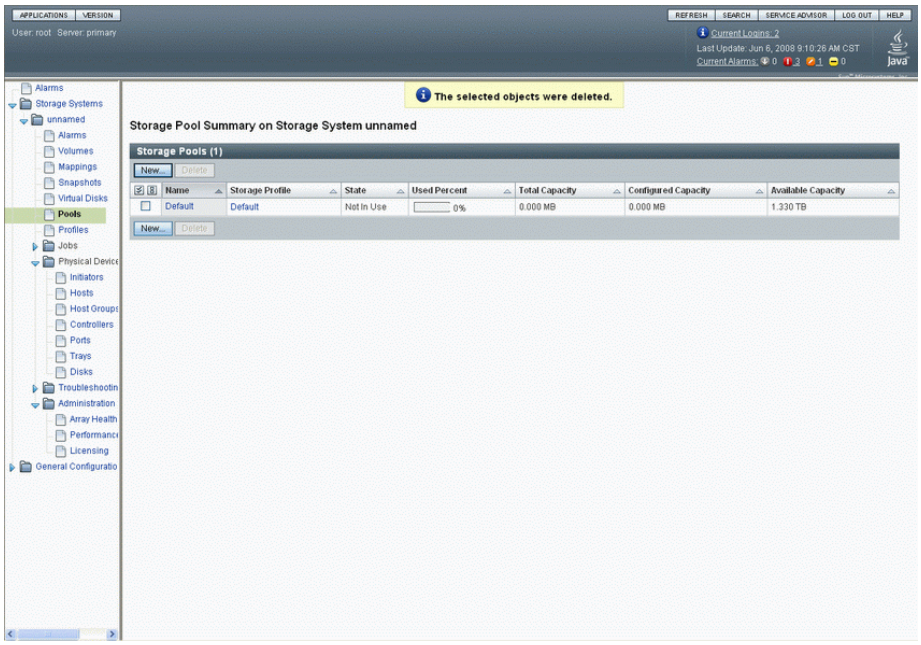
Disks (6)

Name	Array Name	Array Type	Tray	Role	State	Status	Capacity	Type	Firmware
t85d01		2540	85	Data Disk	Enabled	Optimal	279.396 GB	SAS	SA04
t85d02		2540	85	Data Disk	Enabled	Optimal	279.396 GB	SAS	SA04
t85d03		2540	85	Data Disk	Enabled	Optimal	279.396 GB	SAS	SA04
t85d04		2540	85	Data Disk	Enabled	Optimal	279.396 GB	SAS	SA04
t85d05		2540	85	Data Disk	Enabled	Optimal	279.396 GB	SAS	0605
t85d06		2540	85	Array Spare	Enabled	Optimal	279.396 GB	SAS	SA04

17. Delete the default mapping. In the navigation tree on the left, choose **Storage Systems** > **unnamed** > **Mappings**. Select the existing mapping **Access** and click **Delete**.
18. In the storage system to be configured, choose **Profiles** and click **New**.
19. Configure the configuration file and click **Confirm**.

    NOTE

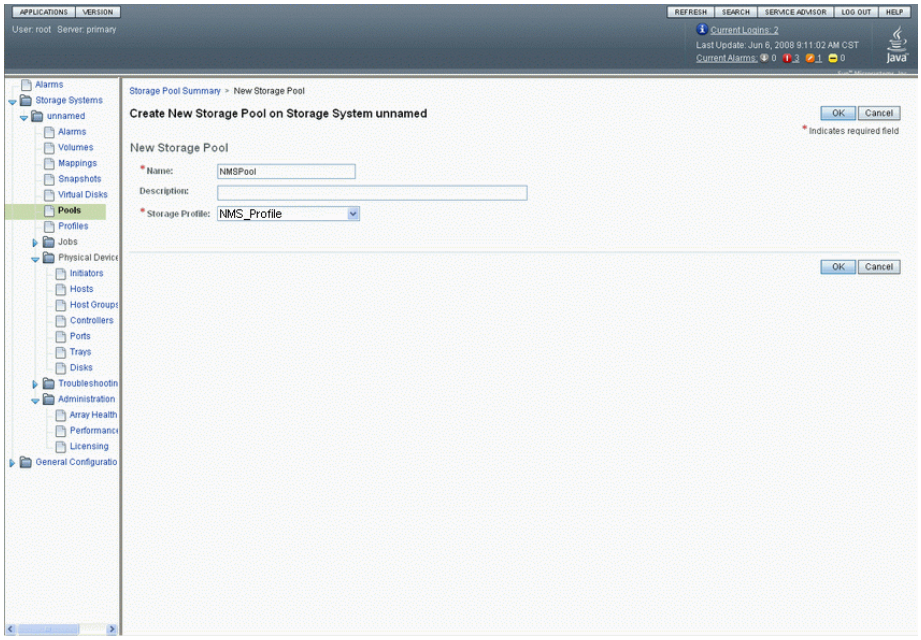
    - Set **Storage Profile** to **NMS_Profile**.
    - Set **Raid Level** to **Raid5**.
    - Set **Segment Size** to **512KB**.
    - Set **No. of Disks** to **5**.
    - Set **Disk Type** to **SAS**.
20. In the storage system to be set, choose **Pools** from the navigation tree and click **New**.



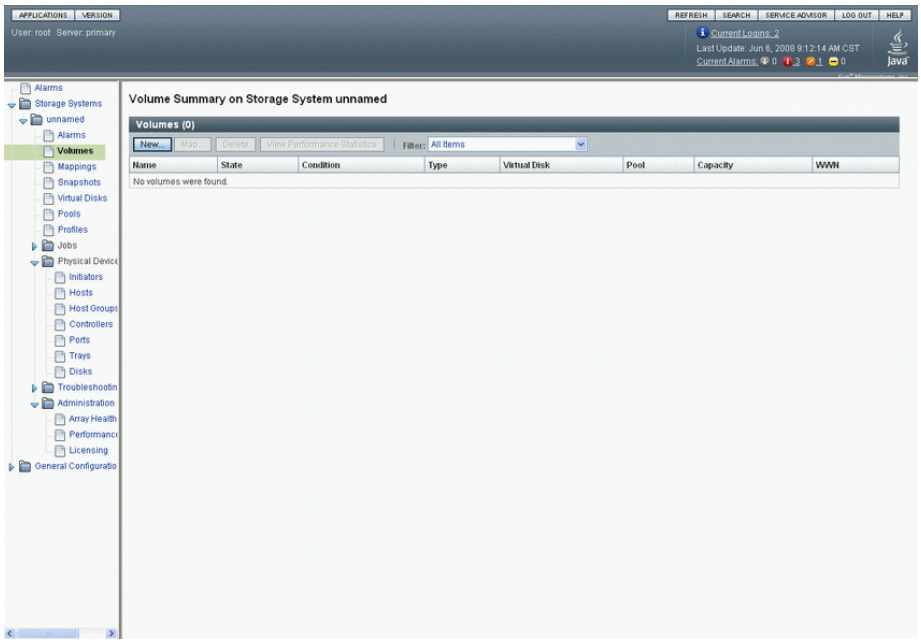
21. Set the storage pool and click **OK** to complete the settings.

    NOTE

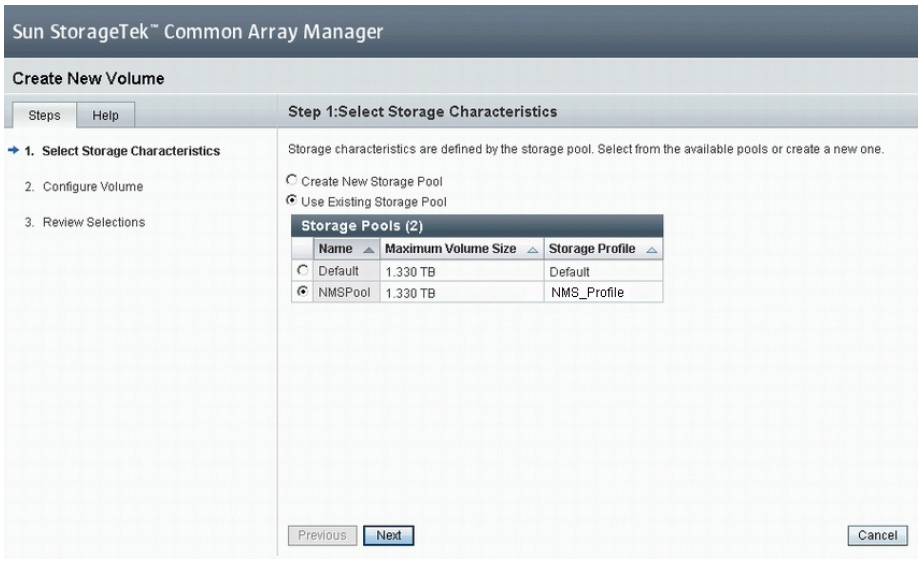
    - Set **Name** to **NMSPool**.
    - Set **Storage Profile** to **NMS_Profile**.



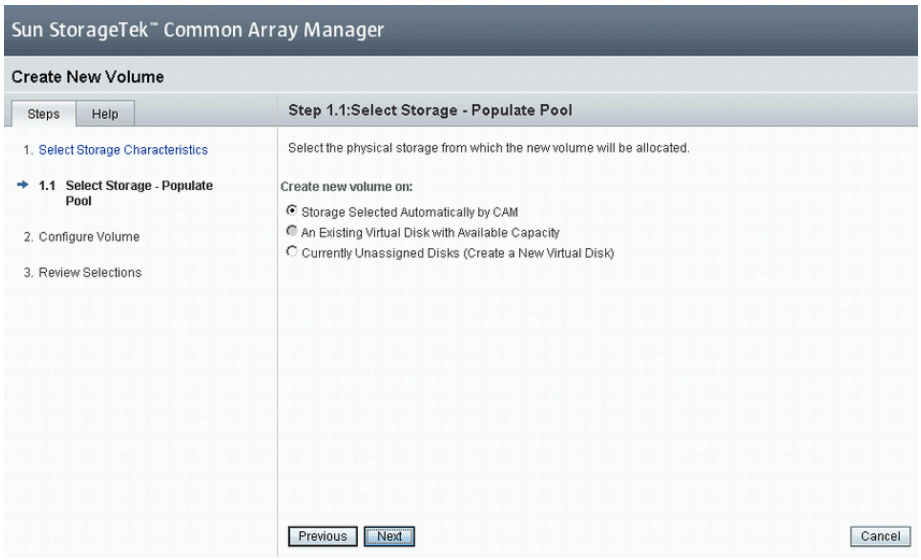
22. Create a volume. In the storage system to be set, choose **Volumes** from the navigation tree and click **New**.



23. Select **Use Existing Storage Pool**, select the storage pool **NMSPool**, and then click **Next**.



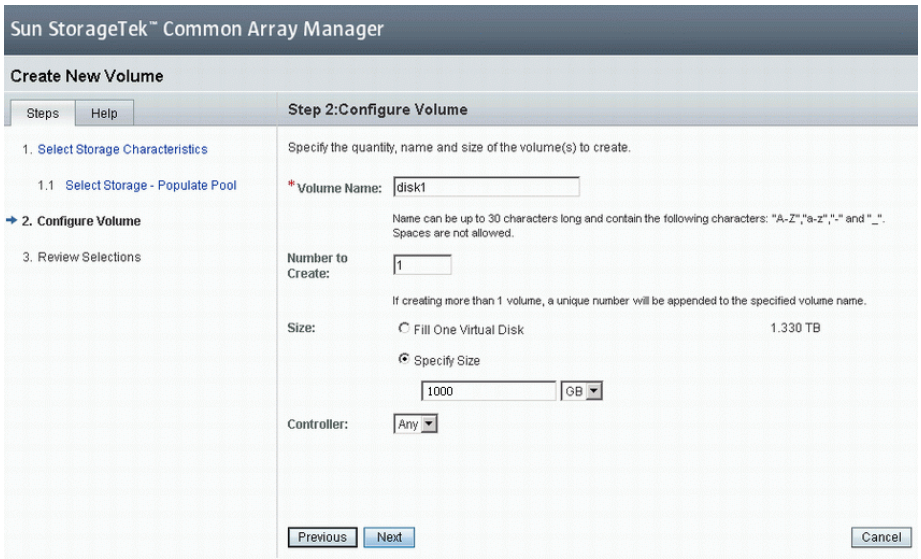
24. Set the storage characteristics. Specifically, select **Storage Selected Automatically by CAM** and click **Next**.



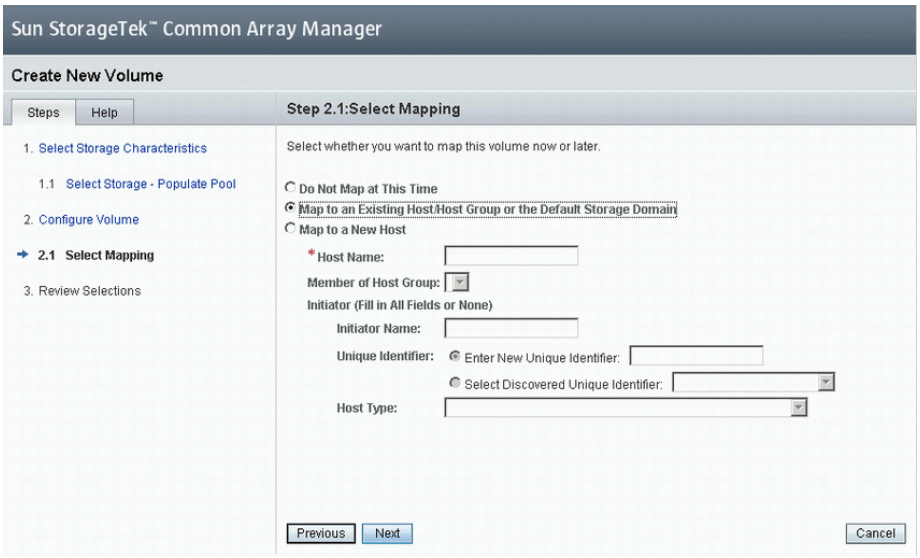
25. Configure the volume.

    NOTE

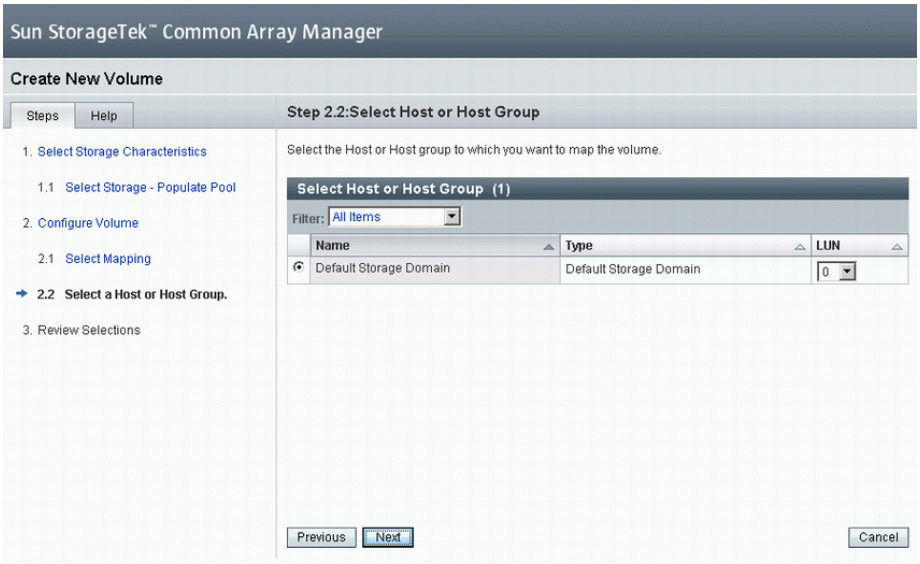
    - Set the volume name to **disk1**.
    - Set the number of volumes to be created to **1**.
    - Set the size of the volume to 1000 GB.
    - Set the controller to **Any**.



26. Select mapping. Specifically, select **Map to an Existing Host/Host Group or the Default Storage Domain** and click **Next**.

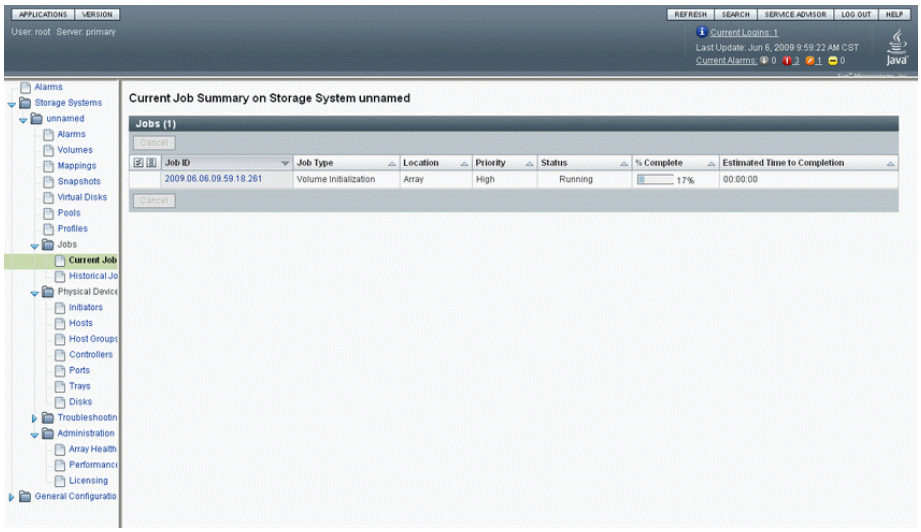


27. Select the host or host group. Specifically, select **Default Storage Domain** and click **Next**.



28. Check the settings and click **Finish**.

29. View the progress of the current job. Specifically, choose **Jobs** > **Current Job** to view the progress of the current job and wait until it is completed.



4 Configure multipathing.

1. Update disk information.

   a. Run the following command to view connections to the ports of the fiber cards:

   ```
   # luxadm -e port
   ```

   The following message will be displayed:

   ```
   /devices/pci@0,600000/pci@0/pci@8/pci@0,1/SUNW,qlc@1/fp@0,0:devctl
   CONNECTED
   /devices/pci@0,600000/pci@0/pci@8/pci@0,1/SUNW,qlc@1,1/fp@0,0:devctl
   CONNECTED
   ```

   NOTE

   If the fiber card is not in the **CONNECTED** state, check and ensure the following items:

   - The fiber is properly connected to the optical module.
   - There is not any damage to the fiber.
   - The optical module is properly connected to the fiber card.
   - The indicator of the fiber card is functioning properly.

   b. Run the following commands to update the disk information:

```
# devfsadm -C
# devfsadm
```

c. Run the following command to check the disk information:

```
# format
```

The following message will be displayed:

```
Searching for disks...done

c2t2d0: configured with capacity of 999.99GB
c3t1d0: configured with capacity of 999.99GB


AVAILABLE DISK SELECTIONS:
       0. c1t0d0 <SUN72G cyl 14087 alt 2 hd 24 sec 424>
          /pci@1f,700000/scsi@2/sd@0,0
       1. c1t1d0 <SEAGATE-ST373207LSUN72G-045A cyl 14087 alt 2 hd 24 sec
424>
          /pci@1f,700000/scsi@2/sd@1,0
       2. c2t2d0 <SUN-LCSM100_F-0670 cyl 38398 alt 2 hd 128 sec 64>
          /pci@1d,700000/SUNW,qlc@1/fp@0,0/ssd@w202300a0b85a4d21,0
       3. c3t1d0 <SUN-LCSM100_F-0670 cyl 38398 alt 2 hd 128 sec 64>
          /pci@1d,700000/SUNW,qlc@2/fp@0,0/ssd@w203200a0b85a4d21,0
Specify disk (enter its number):
```

NOTE

- **SUN-LCSM100_F** indicates the new volumes that are configured for the StorageTek 2540 disk array.
- If two controllers are properly connected to the server, the information about the volumes of the two StorageTek 2540 disk arrays will be displayed. Otherwise, check the connections of the disk arrays and run the command **reboot -- -r** to restart the server.

2. Enable multipathing.

a. Run the following command to enable multipathing on all ports that support the function:

```
# stmsboot -D fp -e
```

The following message will be displayed:

```
Warning: This operation will restart the system.
Are you sure to continue? [y/n] (Default: y)
```

b. Enter **y**.

```
The changes come into effect after the system is restarted.
Do you want to restart the system now? [y/n] (Default: y)
```

c. Enter **Y** to restart the OS.

NOTE

- If the **stmsboot -D fp -e** command is run, multipathing will be enabled only for SCSI HBA (mpt) ports without impacting the local SAS hard disk of the mini computer.
- Run the **stmsboot -D mpt -d** command to disable multipathing.
- If the **stmsboot -D fp -e** command is run, the system will restart automatically and then synchronize the **/etc/vfstab** file.

3. Run the following command to verify that multipathing is enabled:

```
# format
```

The following message will be displayed:

```
Searching for disks...done

c1t600A0B80005A4D2100000E6D4AFB1E2Cd0: configured with capacity of 999.99GB

AVAILABLE DISK SELECTIONS:
       0. c0t0d0 <SUN72G cyl 14087 alt 2 hd 24 sec 424>
          /pci@0,600000/pci@0/pci@8/pci@0/scsi@1/sd@0,0
```

```
       1. c0t1d0 <SEAGATE-ST973402SSUN72G-0400 cyl 14087 alt 2 hd 24 sec 424>
          /pci@0,600000/pci@0/pci@8/pci@0/scsi@1/sd@1,0
       2. c1t600A0B80005A4D2100000E6D4AFB1E2Cd0 <SUN-LCSM100_F-0670 cyl 38398
alt 2 hd 128 sec 64>
          /scsi_vhci/ssd@g600a0b80005a4d2100000e6d4afb1e2c

Specify disk (enter its number):
```

When multipathing is enabled, only one disk can be queried if the **format** command is run because the MPxIO multipathing masks other paths.

NOTE

- When multipathing is enabled, the drive letter for the LUN of the disk array mapping is a string similar to the following: **c1t600A0B80005A4D2100000E6D4AFB1E2Cd0**.
- Only one disk on the host can be queried if: a host is connected to a fiber switch by using fibers; the fiber switch is connected to the storage array; and multipathing is enabled on a network. For example, when checking fiber connections, you can query two disks: **c0t0d0** and **c0t1d0**. When multipathing is enabled, you can query only one disk, that is, **c1t600A0B80005A4D2100000E6D4AFB1E2Cd0**, after running the **format** command.
- After the message **Searching for disks...done** is displayed, he disk has not been labeled if a message similar to the following is displayed: **c1t600A0B80005A4D2100000E6D4AFB1E2Cd0: configured with capacity of 199.99GB**. Label the disk by referring to **5**. If such information is not displayed, all disks are labeled and you can press **Ctrl**+**D** to exit.
- The name of the disk will vary with each site because it is user-generated.

The disk information will be displayed. The number of disks is the sum of local disks and the logical disk that are configured for the disk array. Specifically, one disk is configured for the disk array with the capacity of 1000 GB. The other disks are local disks.

There are two local disks on Netra 240 or M4000 servers and four local disks on T5220 servers.

5 Label the unlabeled disks.

1. Select the disk to be labeled.

   The following message will be displayed:

   ```
   selecting c1t600A0B80005A4D2100000E6D4AFB1E2Cd0
   [disk formatted]
   Disk not labeled.  Label it now?
   ```

2. Enter **y** to label the disk.

   The following message will be displayed:

   ```
   FORMAT MENU:
           disk       - select a disk
           type       - select (define) a disk type
           partition  - select (define) a partition table
           current    - describe the current disk
           format     - format and analyze the disk
           repair     - repair a defective sector
           label      - write label to the disk
           analyze    - surface analysis
           defect     - defect list management
           backup     - search for backup labels
           verify     - read and display labels
           save       - save new disk/partition definitions
           inquiry    - show vendor, product and revision
           volname    - set 8-character volume name
           !<cmd>     - execute <cmd>, then return
   ```

```
        quit
format>
```

3. Enter **disk**.

   The following message will be displayed:

```
AVAILABLE DISK SELECTIONS:
       0. c0t0d0 <SUN72G cyl 14087 alt 2 hd 24 sec 424>
          /pci@0,600000/pci@0/pci@8/pci@0/scsi@1/sd@0,0
       1. c0t1d0 <SEAGATE-ST973402SSUN72G-0400 cyl 14087 alt 2 hd 24 sec 424>
          /pci@0,600000/pci@0/pci@8/pci@0/scsi@1/sd@1,0
       2. c1t600A0B80005A4D2100000E6D4AFB1E2Cd0 <SUN-LCSM100_F-0670 cyl 38398
alt 2 hd 128 sec 64>
          /scsi_vhci/ssd@g600a0b80005a4d2100000e6d4afb1e2c

Specify disk (enter its number):
```

4. Repeat **5.1** to **5.3** for the other unlabeled disks.
5. Press **Ctrl**+**D** to exit.

----End

G.3 Configuring the OceanStor S3100 Disk Array

This topic describes how to configure the OceanStor S3100 disk array.

G.3.1 Configuring the SC IP Address of the OceanStor S3100 Disk Array
This topic describes how to configure the SC IP address of the OceanStor S3100 disk array.

G.3.2 Using the Manager Suite to Configure the OceanStor S3100 Disk Array
This topic describes how to use the Manager Suite to configure the OceanStor S3100 disk array.

G.3.1 Configuring the SC IP Address of the OceanStor S3100 Disk Array

This topic describes how to configure the SC IP address of the OceanStor S3100 disk array.

Prerequisite

- The controller IP addresses are obtained.
- The power cable of the disk array is connected.

Context

Each disk array OceanStor S3100 has two controllers that need to be configured separately.

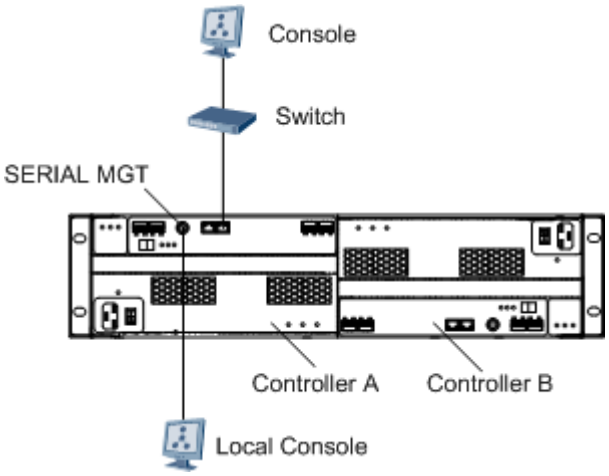
Procedure

1 Connect the computer and controller A of the disk array physically.

Use a serial port cable (DB9-PS/2) to connect the serial port of the local controller to the serial port of the disk array (SERIAL MGT).

Use an PS/2 connector at one end of the serial port cable to connect to the serial port of the disk array (SERIAL MGT) and a DB-9 connector at the other end of the cable to connect to the serial port of the computer (COM1 or COM2).

Figure G-1 Connections between the controllers of the OceanStor S3100 disk array



2 Set up a logical connection between the computer and controller A.

1. Start the computer and enter Windows OS.
2. Choose **start** > **Programs (P)** > **Accessories** > **Communications** > **HyperTerminal**.
3. In the **Connection Description** dialog box, enter the name of the new connection, such as **NMS**, and click **OK**.
4. In the dialog box that is displayed, select the serial port of the computer that is used to connect to the disk array, such as COM1, and click **OK**.
5. In the dialog box that is displayed, set the attributes of the serial port as follows:
   - Bits per second: 9600 bps
   - Data bit: 8 bit
   - Parity check: none
   - Stop bit: 1 bit
   - Data flow control: none
6. Click **OK**.

3 Configure the IP address of the network interface of controller A of the disk array on the local console.

NOTE

One OceanStor S3100 disk array has two controllers. You need to configure them separately.

1. Send a break signal from the computer by pressing **Ctrl+Pause Break**.
2. Press **ESC** within five seconds according to the prompt to access the shell login window.
3. Enter **infiniti** as the password and press **Enter**. If a dialog box shown in the following figure is displayed, it indicates that the login to the configuration shell of the controller succeeds.

```
Press within 5 seconds: <S> for Service Interface, <BREAK> for baud rate *** Exp
ired

Press within 5 seconds: <S> for Service Interface, <BREAK> for baud rate


Current date: 07/11/07  time: 06:25:12

Enter password to access shell:
LSI Logic RAID Controller
Copyright 2004-2006 LSI Logic Corporation. All Rights Reserved.
Copyright Wind River Systems, Inc., 1984-2003
VxWorks: VxWorks5.5.1   Kernel: WIND version 2.6
Model: 3994    Firmware version: 06.19.15.00



-> _
```

4. At the prompt, enter **netCfgShow** and press **Enter**. The information about the configuration network interface of the controller that you have logged in to is displayed.

```
->
-> netCfgShow

==== CURRENT NETWORK CONFIGURATION ====
My Host Name          :
Interface Name    if0 :  emac0
MAC Address       if0 :  00:a0:b8:2a:3f:6c
IP Address        if0 :  10.78.111.101
Subnet Mask       if0 :  255.255.255.0
Interface Name    if1 :  emac1
MAC Address       if1 :  00:a0:b8:2a:3f:6d
IP Address        if1 :  192.168.129.101
Subnet Mask       if1 :  255.255.255.0
Server Host Name      :
Server IP Address     :  0.0.0.0
Gateway IP Address    :  10.78.111.1
Network Init Flags    :  0xA0
User Name             :
User Password         :
value = 24 = 0x18
-> _
```

5. At the prompt, enter **netCfgSet**.

   The following message will be displayed:

```
->
-> netCfgSet


    '.' = clear field;  '-' = to previous field;
     ^D = quit (keep changes)

==== CURRENT NETWORK CONFIGURATION ====
My Host Name          :
IP Address if0        :  10.78.111.101            10.78.111.56
```

NOTE

There are three subcolumns in the **CURRENT NETWORK CONFIGURATION** column.

- The first subcolumn displays the name of the information about this row.
- The second subcolumn displays the current values.
- The third subcolumn displays a flashing cursor.

6. Enter information about the network card to be modified at the flashing cursor, which includes the IP address, gateway, and subnet mask of the network card.

   NOTE

   - Select a network interface of the controller for configuration according to the actual connection condition. The following takes the configuration of if0 as an example.
   - If there is no special requirement, keep the default settings of the other network interface of the controller unchanged.
   - If you press **Enter**, the current values in the second subcolumn remain unchanged. If you enter the desired characters and then press **Enter**, the values in the second subcolumn are changed to the new values.
   - If you need to restore a value to the default factory setting, enter **.**.
   - if0 indicates to network interface 1 of the disk array; if1 indicates network interface 2 of the disk array. Generally, it is recommended that you use network interface 1. You need to set only **IP Address if0**, **Subnet Mask if0**, and **Gateway IP Address** rather than **My Host Name**, **Server Host Name**, **Server IP Address**, **Network Init Flags**, **User Name**, and **User Password**.

   The following message will be displayed:

```
-> netCfgSet


    '.' = clear field;  '-' = to previous field;
      ^D = quit (keep changes)

==== CURRENT NETWORK CONFIGURATION ====
My Host Name          :
IP Address if0        :  10.78.111.101            10.78.111.56
Subnet Mask if0       :  255.255.255.0
IP Address if1        :  192.168.129.101
Subnet Mask if1       :  255.255.255.0
Server Host Name      :
Server IP Address     :
Gateway IP Address    :  10.78.111.1
Network Init Flags    :  0xA0
User Name             :
User Password         :

Network Configuration successfully written to NVSRAM.
value = 0 = 0x0
->
```

   NOTE

   Here, **Network Configuration successfully written to NVSRAM** indicates that the modification is successful.

4 Disconnect the serial port cable from controller A.

1. On the computer, exit the HyperTerminal software.
2. Remove the serial port cable on the disk array.

5 Repeat Step 1 to Step 4 to configure the network port of controller B.

1. Establish a physical connection between the computer and controller B.
2. Establish a logical connection between the computer and controller B.
3. Configure the IP address of the network interface of controller B on the local console.
4. Disconnect the serial port from controller B.

----End

G.3.2 Using the Manager Suite to Configure the OceanStor S3100 Disk Array

This topic describes how to use the Manager Suite to configure the OceanStor S3100 disk array.

Prerequisite

- The cables between the server and the disk array are connected properly.
- The IP addresses for both controllers of the OceanStor S3100 disk array are configured.
- The OS of the server is installed.
- Before installing the Manager Suite, ensure that there is at least 140 MB of remaining hard disk space for full installation.

Context

The following table describes the configuration requirements on the OceanStor S3100 disk array.

Configure Item	Settings
RAID group	The first five disks serve as the RAID group named **RAID5**.
LUN	Configure one LUN and name it **disk1**; set the capacity to **500** GB.
Hot-spare disk	The sixth disk is designated as the global hot-spare disk.

Procedure

1 Install the Manager Suite.

1. Log in to the server as user **root**.
2. Insert the **OceanStor Manager Suite 9.19 for S3000/S6000** installation DVD or prepare the **SMruntime-SOL.pkg**, **SMclient-SOL.pkg**, and **SMutil-SOL.pkg** installation packages.

   NOTE

   When uploading the installation packages by means of FTP, run the following commands to enable the FTP rights of user **root**:
   ```
   # sed "/^root/s//#root/g" /etc/ftpd/ftpusers > /tmp/ftpusers
   # cp /tmp/ftpusers /etc/ftpd/ftpusers
   ```
   Upload the installation packages to the **/tmp** path in binary mode.
3. In the terminal window, run the following command to go to the destination directory:
   ```
   # cd /cdrom/cdrom0/Solaris/native
   ```

   NOTE

   When installing from the hard disk, run the following command to go to the destination directory:
   ```
   # cd /tmp
   ```
4. Run the following commands to install the Manager Suite. Follow the screen prompts and determine the appropriate action specific to site scenarios:
   ```
   # pkgadd -d /tmp/SMruntime-SOL.pkg SMruntime
   # pkgadd -d /tmp/SMutil-SOL.pkg SMutil
   # pkgadd -d /tmp/SMclient-SOL.pkg SMclient
   ```

Installation of the Manager Suite is complete.

5. Run the following commands to check the installation of the Manager Suite:

```
# pkginfo -l SMruntime
# pkginfo -l SMutil
# pkginfo -l SMclient
```

The Manager Suite was successfully installed if the information about the corresponding installation package is displayed after each command is run. Otherwise, perform the following to reinstall the Manager Suite:

a. Uninstall the Manager Suite.

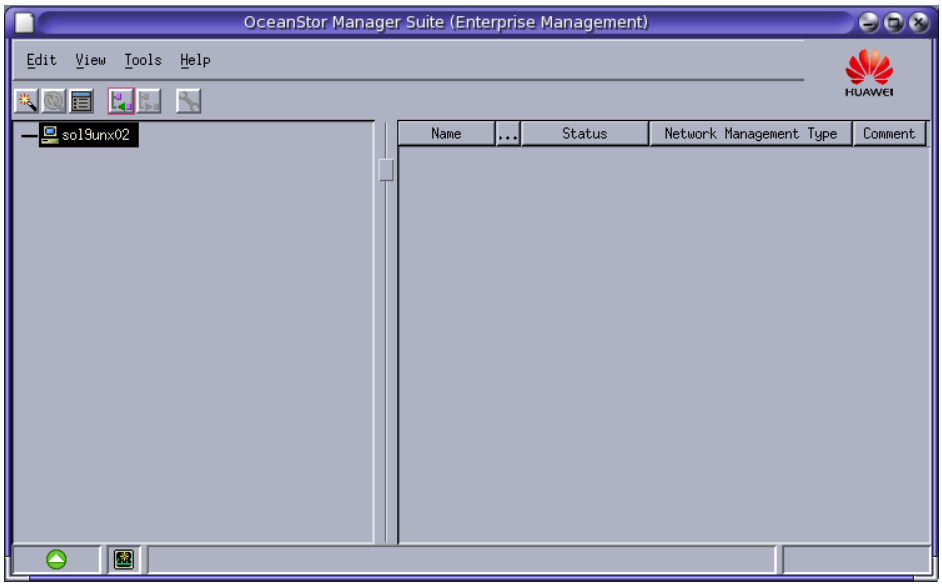
1) Run the following command:
```
# pkgrm SMutil
```
2) Enter **y**.
3) Run the following command:
```
# pkgrm SMclient
```
4) Enter **y**.
5) Enter **y**.
6) Run the following command:
```
# pkgrm SMruntime
```
7) Enter **y**.

b. Reinstall the Manager Suite.

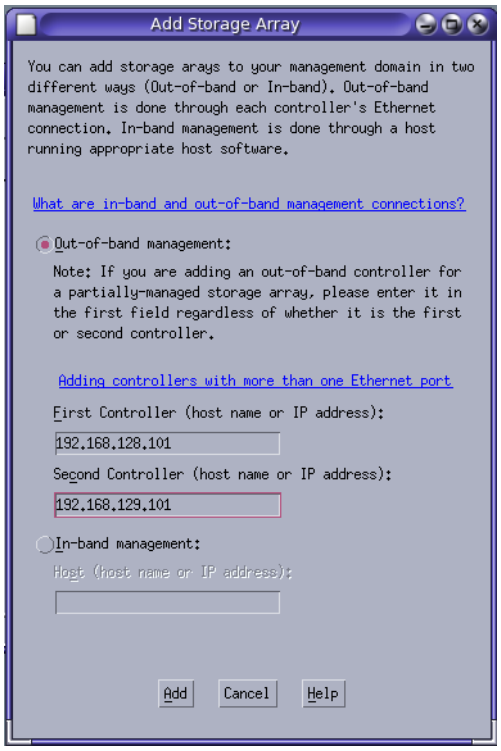
2 Log in to the server as user **root** through the GUI.

3 Use the Manager Suite to configure the OceanStor S3100 disk array.

1. In the terminal window, enter **SMclient** to start the Manager Suite.

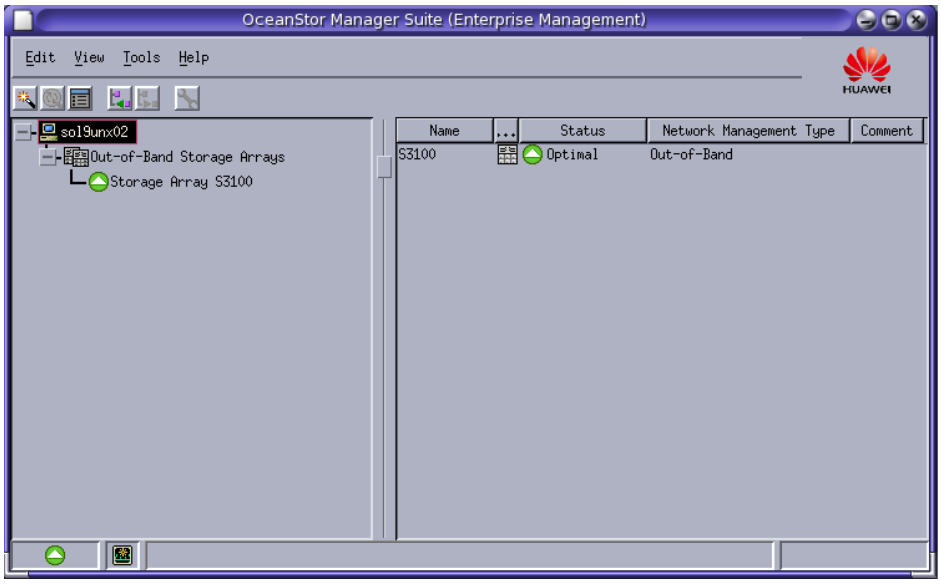


2. Click  . In the dialog box that is displayed, enter the IP addresses of controller A and controller B to log in to the local console.

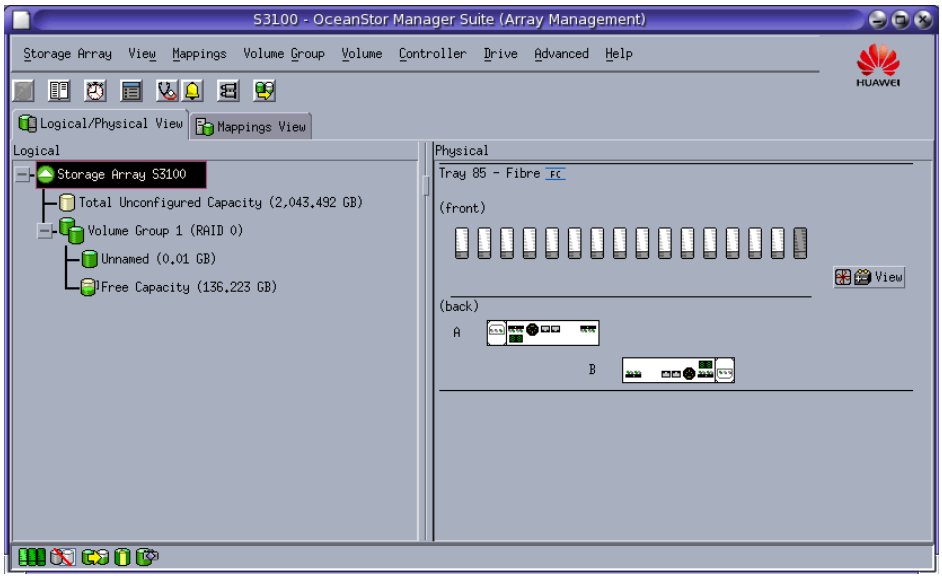


NOTE

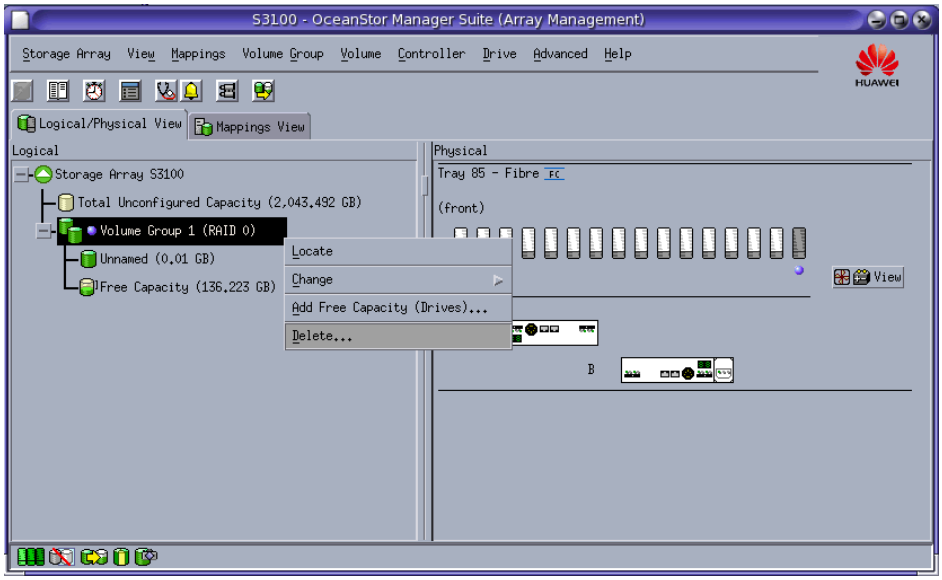
The IP addresses in the preceding figure are used as examples. Enter an appropriate IP address according to the conditions at your site. Before entering the IP addresses, ensure that you can ping through the IP addresses. Enter the IP addresses and click **Add** to add the disk array to the Manager Suite.

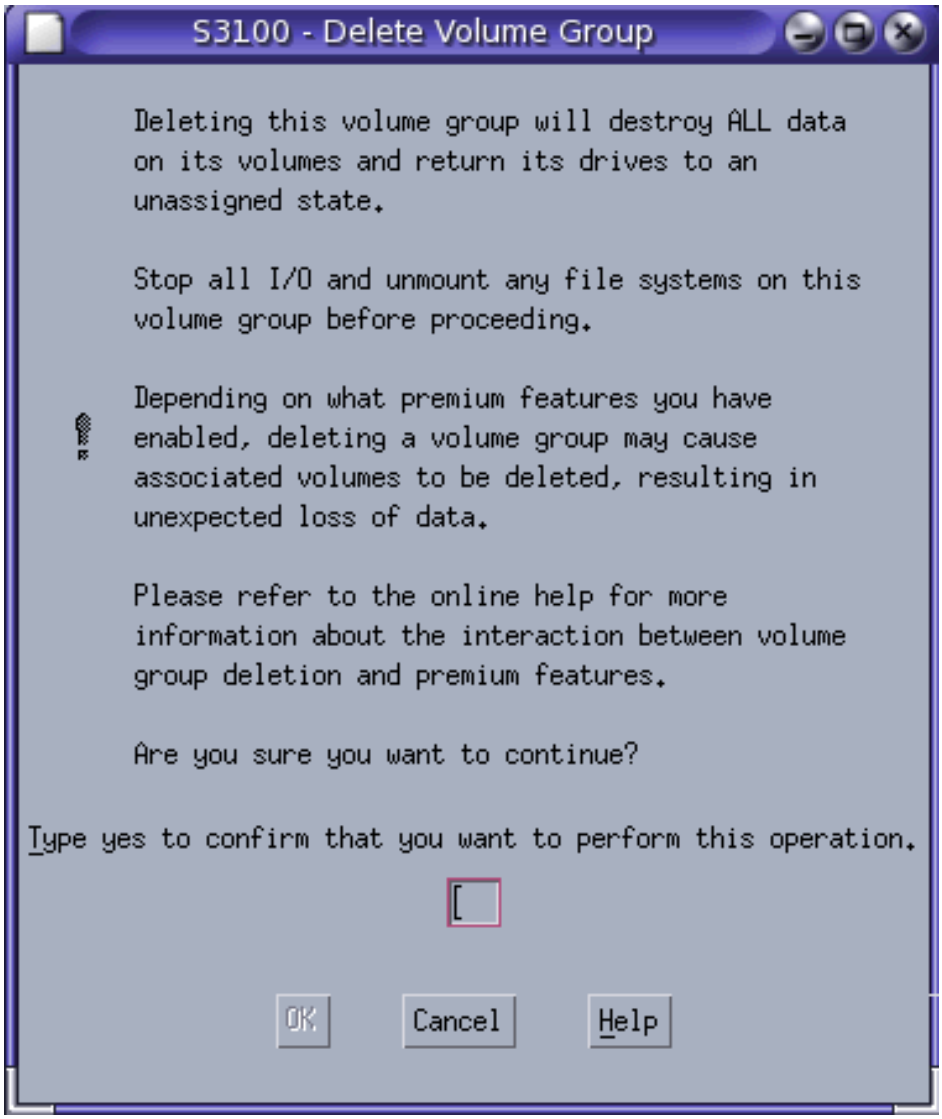


3. Double-click the storage equipment. The storage equipment management window will be displayed.

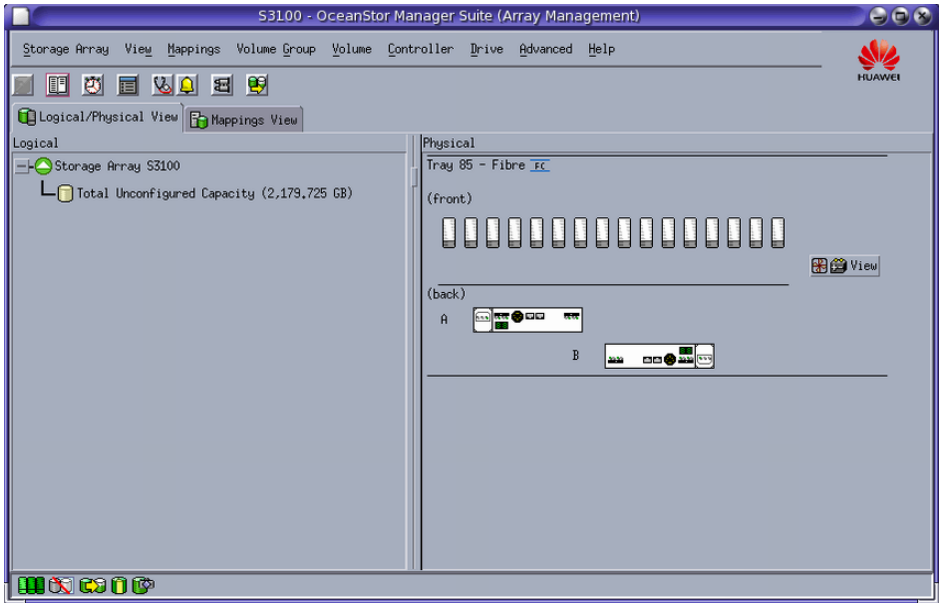


4. Usually, a new disk array has disk RAID0. The system automatically creates disk RAID0 by using a hard disk. Disk RAID0 has a volume of 0.01 GB. Right-click the volume group and choose **Delete** from the shortcut menu.

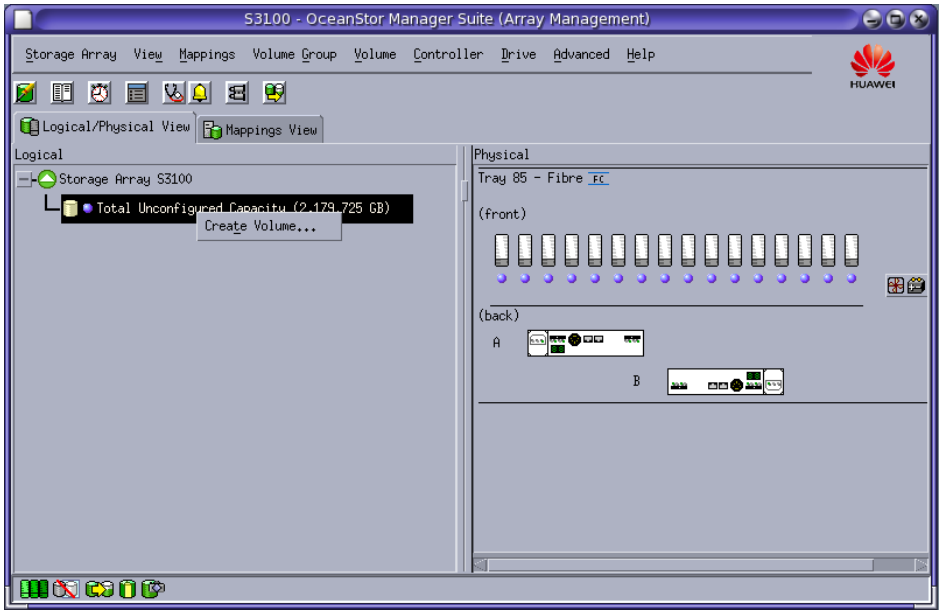


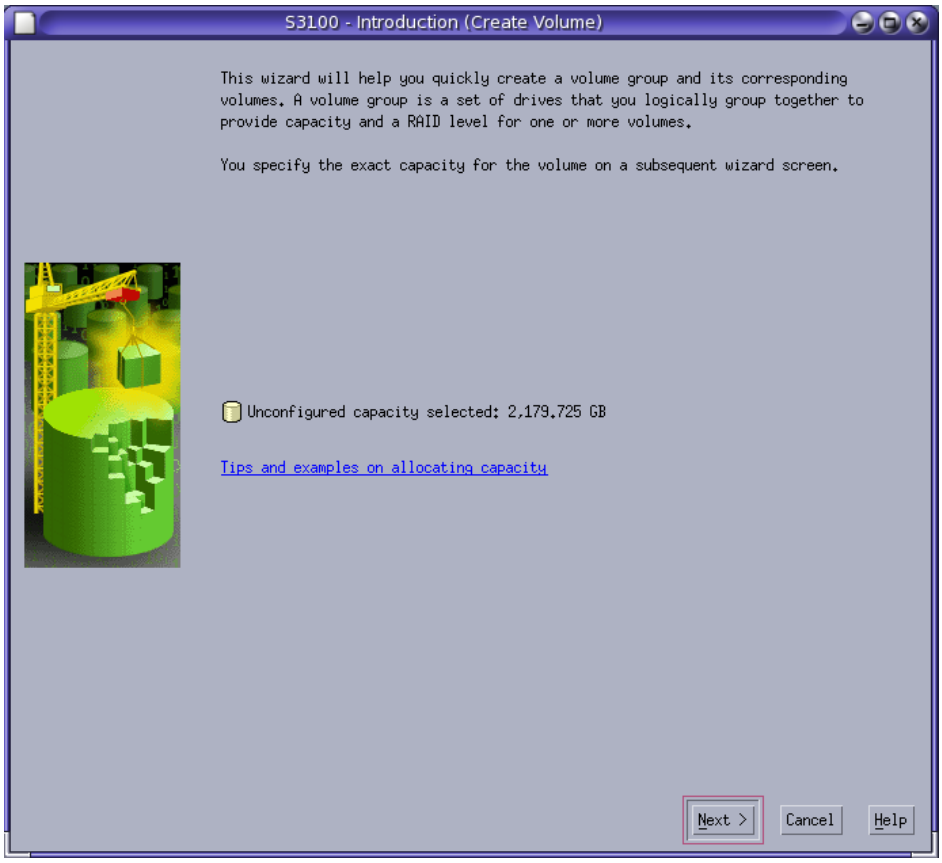


5. Enter **yes** and click **OK** to delete the volume group.

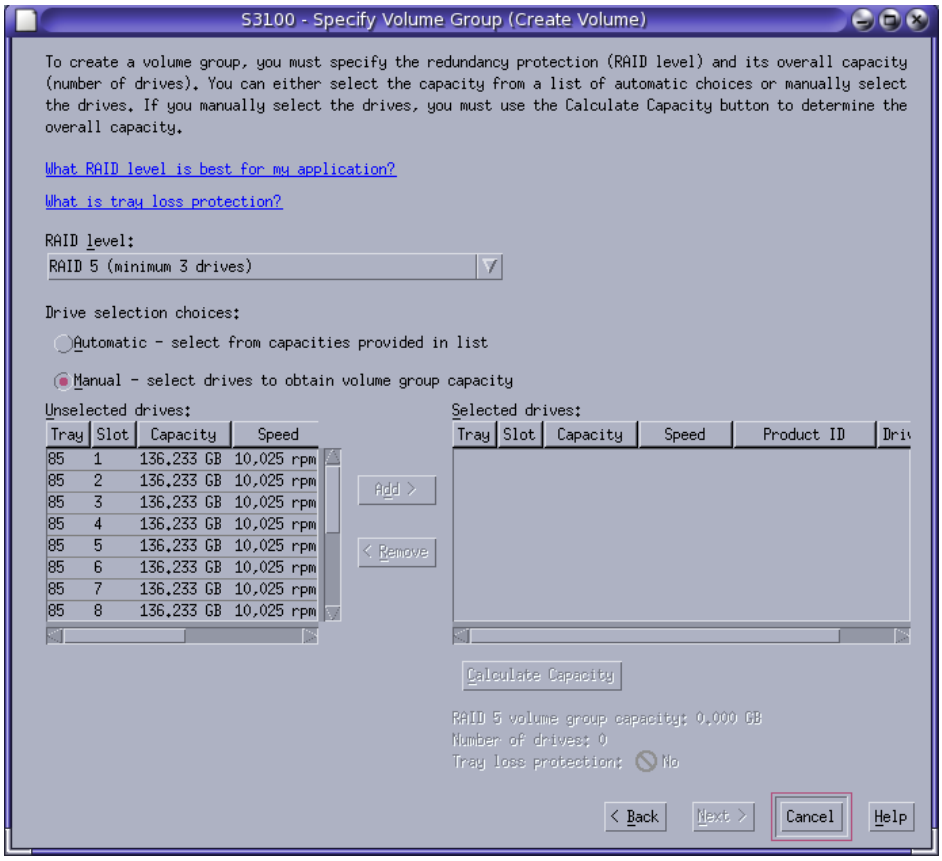


6. Right-click **Total Unconfigured Capacity** and choose **Create Volume** from the shortcut menu.

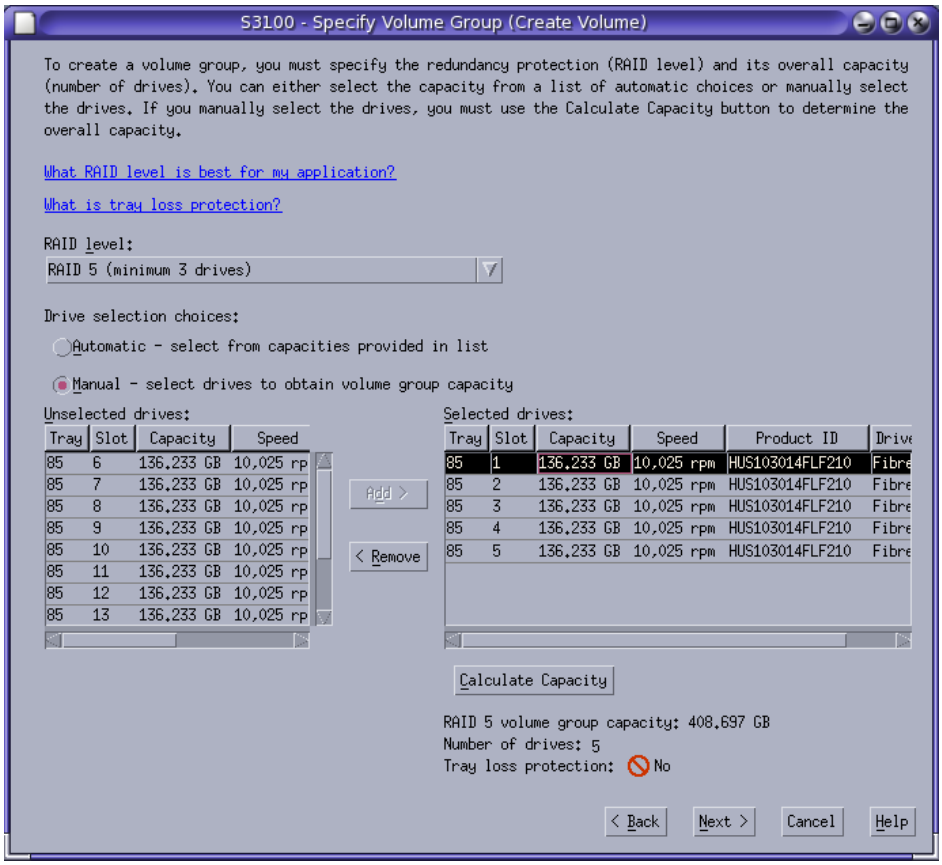




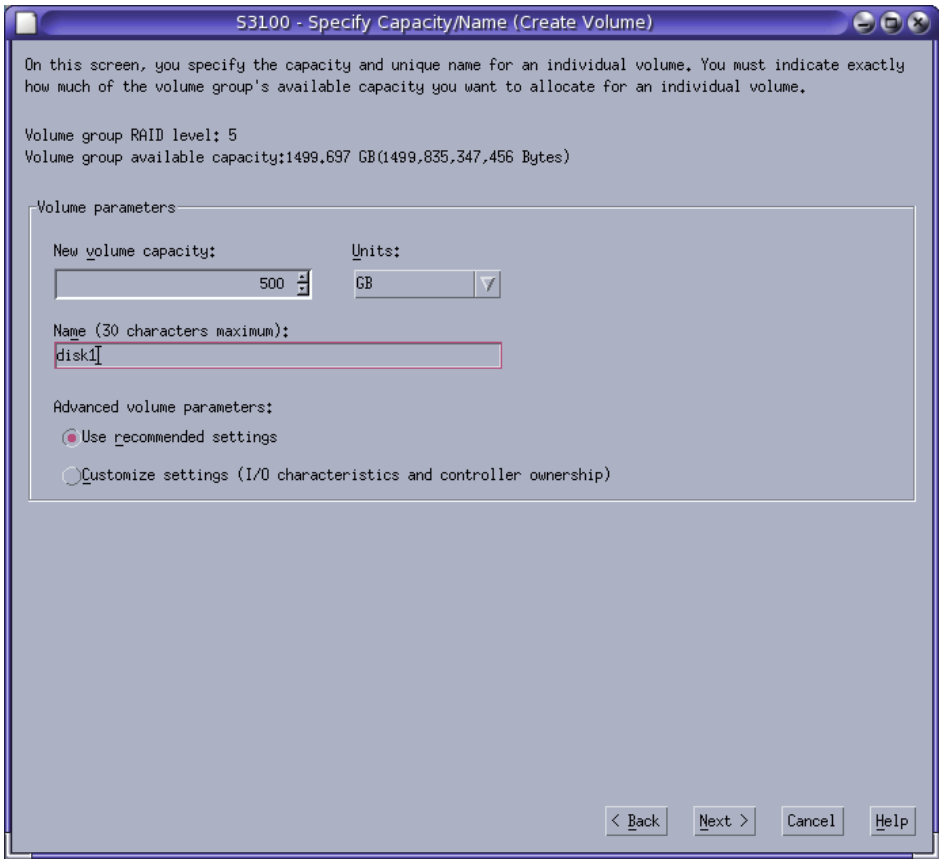
7. Click **Next** to open the dialog box for creating the volume group. Set the parameters as follows:
   - RAID level: **RAID 5 (minimum 3 drives)**
   - Drives selection choices: **Manual-select drives to obtain volume group capacity**



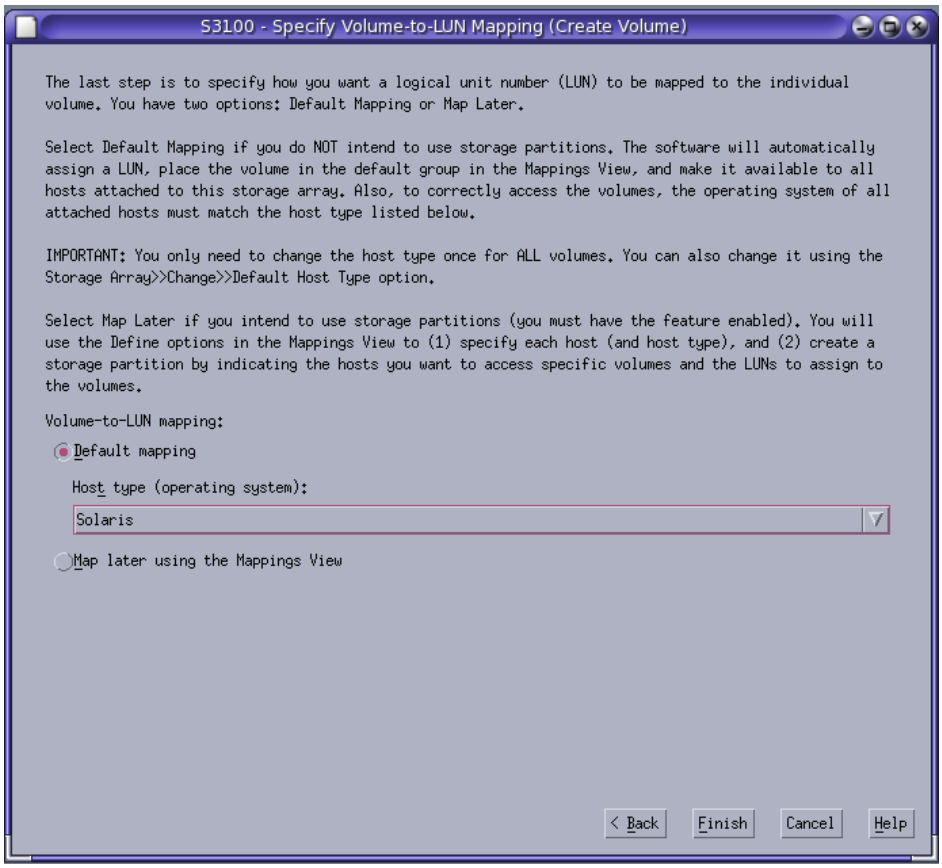
8. Select five disks from **Unselection drives** in the left pane and add them to **Selection drives** in the right pane, as shown in the following figure.



9. Click **Calculate Capacity**.
10. Click **Next>**. In the confirmation dialog box, click **OK**.
11. Set the volume as follows:
    - New volume capacity: **500 GB**
    - Name (30 characters maximum): **disk1**
    - Advanced volume parameters: **Use recommended settings**

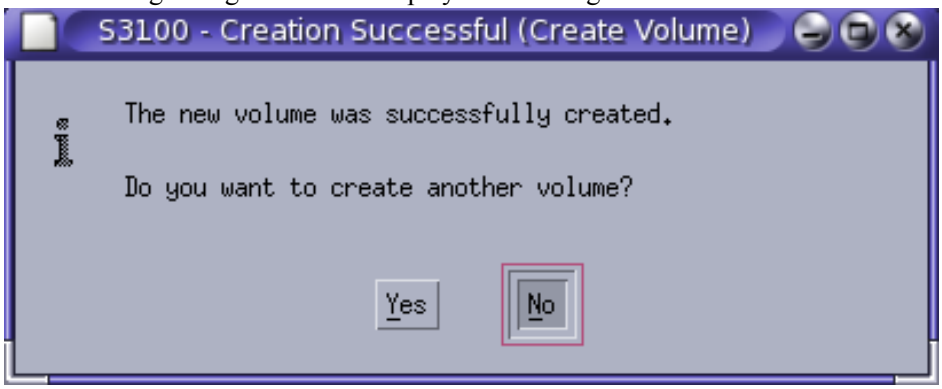


12. Click **Next**.
13. Click the **Default mapping** option button and set **Host type (operating system)** to **Solaris**.



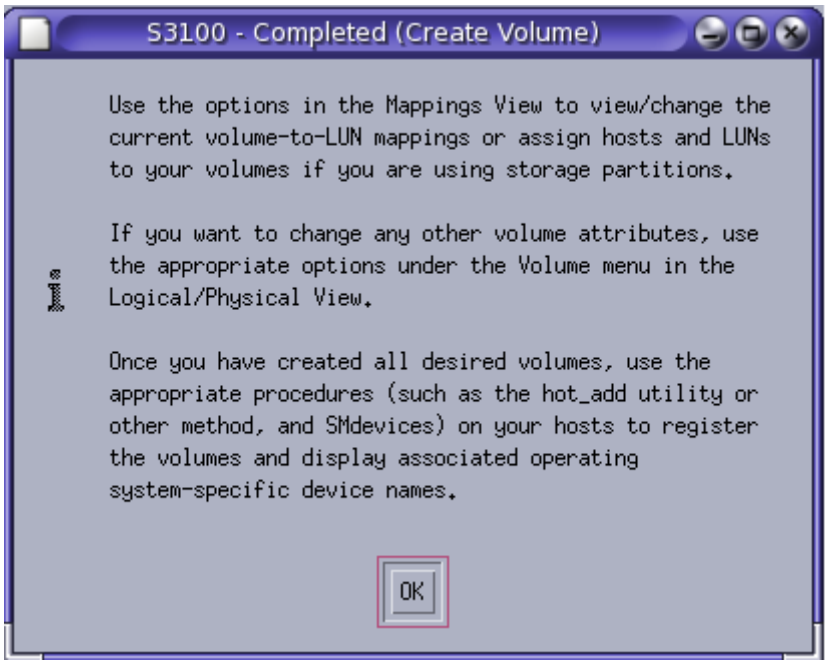
14. Click **Finish**.

    The following dialog box will be displayed indicating that volume disk 1 has been created.

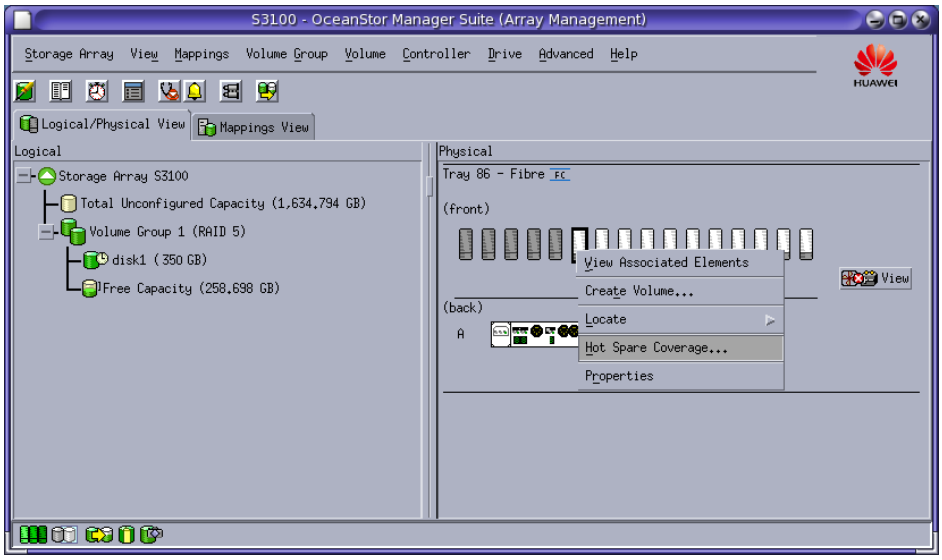


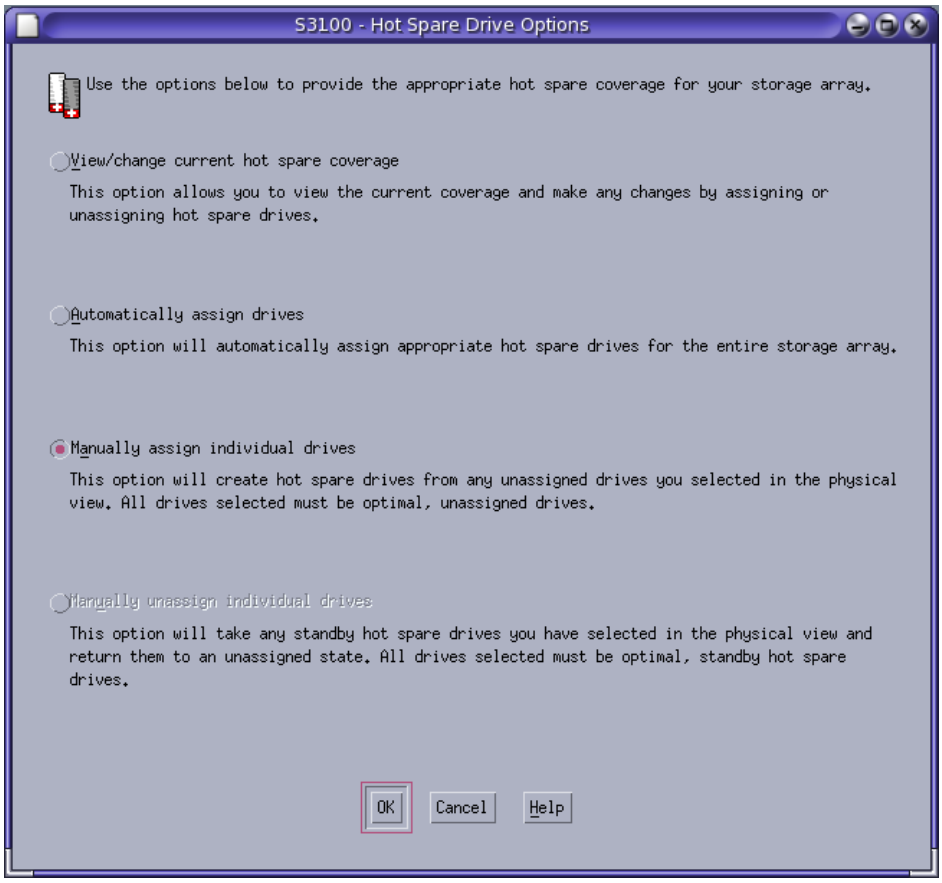
15. Click **No**.

    The **S3100 - Completed (Create Volume)** dialog box will be displayed.



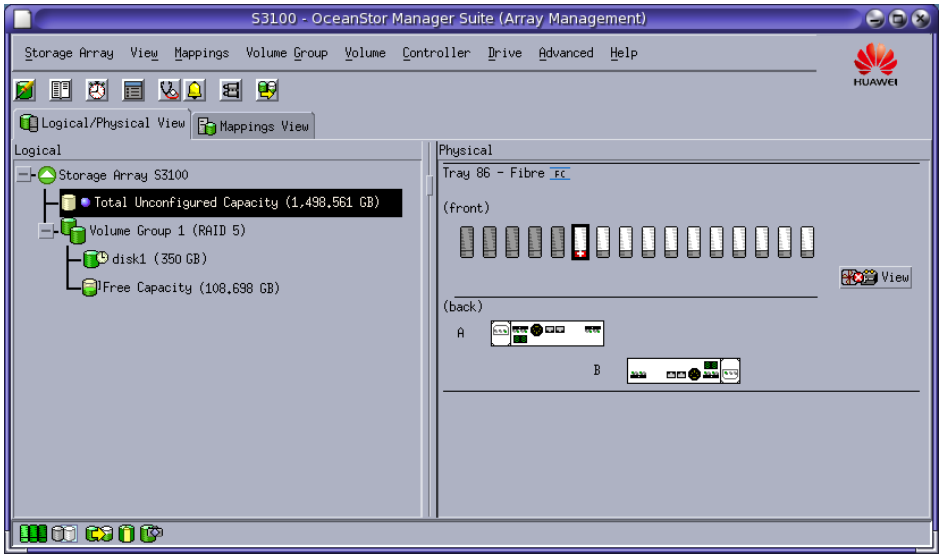
16. Click **OK**.
17. Right-click the sixth disk and choose **Hot Spare Coverage** from the shortcut menu, as shown in the following figure.



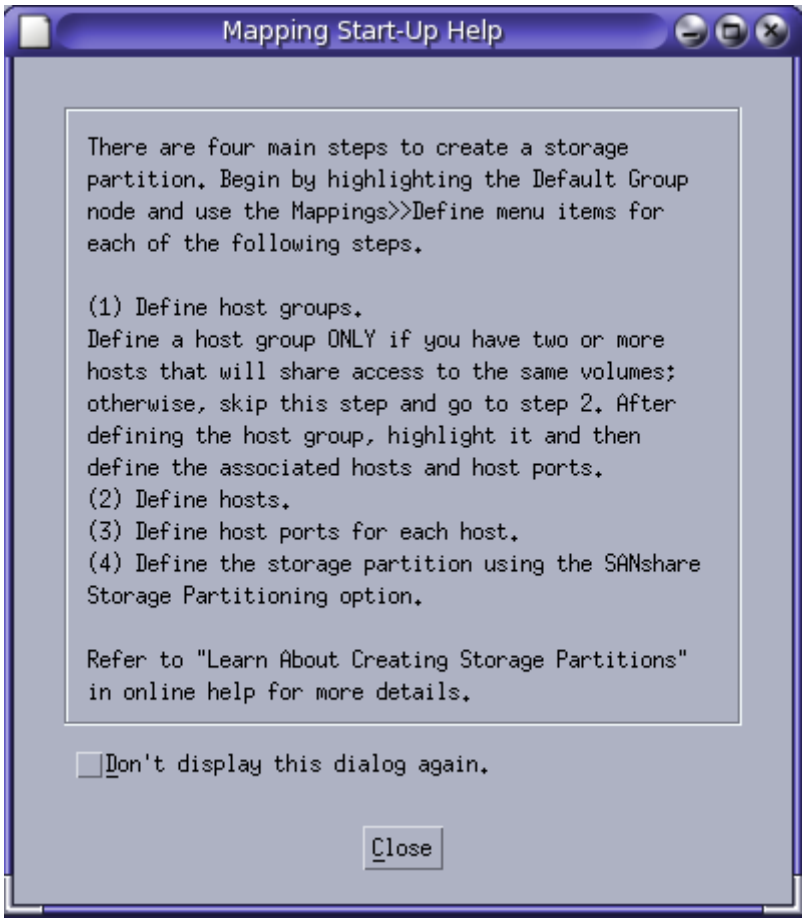


18. Click the **Manually assign individual drives** option button, and click **OK**.

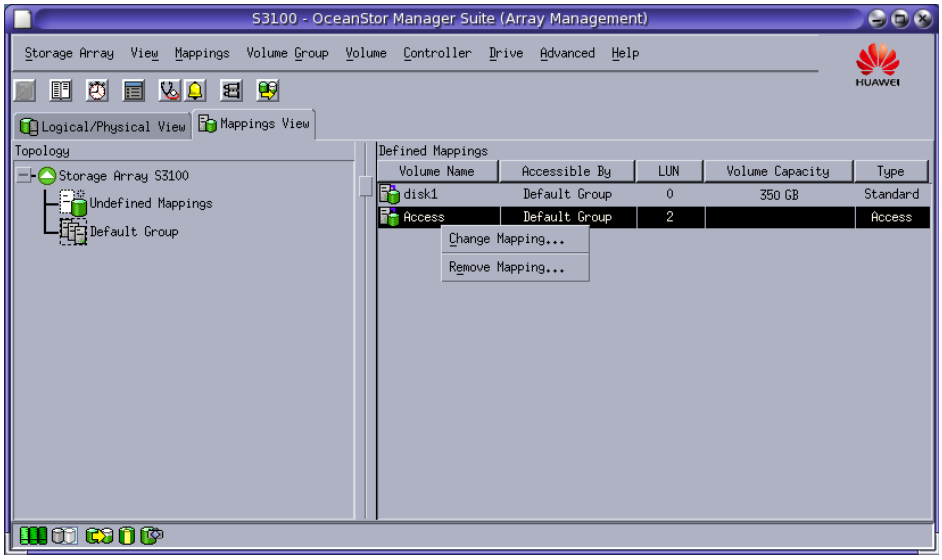
    Configuring the hot-spare disk was successful if a red cross is displayed below the hard disk icon.



19. Click the **Mappings View** tab.



20. In the **Mapping start-up Help** dialog box, click **Close**.
21. **Optional:** If there is a volume named **Access** in the right pane, right-click the volume and choose **Remove Mapping** from the shortcut menu to delete the volume. The configuration is complete.



4 Configure the LUN that maps disk array S3100 on the server.

1. Check the connection of the HBA card.

a. Run the following command to check the connection of the port on the HBA card:
```
# luxadm -e port
```
The following message will be displayed:
```
/devices/pci@0,600000/pci@0/pci@8/pci@0,1/SUNW,qlc@1/fp@0,0:devctl
CONNECTED
/devices/pci@0,600000/pci@0/pci@8/pci@0,1/SUNW,qlc@1,1/fp@0,0:devctl
CONNECTED
```
NOTE

If the HBA card does not work in the connected state, check and ensure the following items:

- The fiber is properly connected to the optical module.
- There is not any damage to the fiber.
- The optical module is properly connected to the HBA card.
- The indicator of the HBA card is functioning properly.

b. Run the following commands to restart the OS of the server and refresh the disk status:
```
# sync;sync;sync;sync
# shutdown -y -g0 -i6
```

c. Run the following command to scan the LUNs that map the S3100 disk array:
```
# format
```
The following message will be displayed:
```
Searching for disks...done

c1t1d0: configured with capacity of 349.99GB
c2t6d0: configured with capacity of 349.99GB


AVAILABLE DISK SELECTIONS:
       0. c0t0d0 <SUN72G cyl 14087 alt 2 hd 24 sec 424>
          /pci@0,600000/pci@0/pci@8/pci@0/scsi@1/sd@0,0
       1. c0t1d0 <SUN72G cyl 14087 alt 2 hd 24 sec 424>
          /pci@0,600000/pci@0/pci@8/pci@0/scsi@1/sd@1,0
       2. c1t1d0 <ENGENIO-INF-01-00-0619 cyl 51198 alt 2 hd 256 sec 64>
          /pci@0,600000/pci@0/pci@8/pci@0,1/SUNW,qlc@1/fp@0,0/
ssd@w200400a0b8329309,0
       3. c2t6d0 <ENGENIO-INF-01-00-0619 cyl 51198 alt 2 hd 256 sec 64>
          /pci@0,600000/pci@0/pci@8/pci@0,1/SUNW,qlc@1,1/fp@0,0/
ssd@w200500a0b832930a,0
Specify disk (enter its number):
```
NOTE

- The displayed disk size varies according to the actual size of the disk.
- The disks identified with **<ENGENIO-INF-01-00-0619 .... >** are the LUNs that map the S3100 disk array.
- The scanned number of disks is the product of: the number of local disks, the number of LUNs that map the S3100 disk array, and the number of fiber paths. After the MPxIO multipathing is enabled, the number of disks scanned by the **format** command is equal to the number of LUNs that map the S3100 disk array.
- If the disks that map the S3100 disk array fail to be scanned, run the **devfsadm -C** command first, and the **format** command to scan the required disks. If the disks still cannot be scanned, ensure that the fiber is properly connected.
- Press **Ctrl**+**D** to exit.

2. Enable multipathing.

a. Run the following command to enable the multi-path function for all the supported ports:
```
# stmsboot -D fp -e
```
The following message will be displayed:

```
WARNING: This operation will require a reboot.
Do you want to continue ? [y/n] (default: y)
```

b. Enter **y**.

```
The changes will come into effect after rebooting the system.
Reboot the system now ? [y/n] (default: y)
```

c. Enter **y** to restart the OS.

NOTE

- Running the **stmsboot -D fp -e** command only enables multipathing of the SCSI HBA (mpt) port without affecting the local SAS disk of the minicomputer.
- If necessary, run the **stmsboot -D mpt -d** command to disable multipathing.
- The system will automatically restart and synchronize the **/etc/vfstab** file after the **stmsboot -D fp -e** is run.

3. Run the following command to check whether multipathing is enabled:

```
# format
```

The following message will be displayed:

```
Searching for disks...done

c3t600A0B800032930800000F4148F4F498d0: configured with capacity of 349.99GB


AVAILABLE DISK SELECTIONS:
       0. c0t0d0 <SUN72G cyl 14087 alt 2 hd 24 sec 424>
          /pci@0,600000/pci@0/pci@8/pci@0/scsi@1/sd@0,0
       1. c0t1d0 <SUN72G cyl 14087 alt 2 hd 24 sec 424>
          /pci@0,600000/pci@0/pci@8/pci@0/scsi@1/sd@1,0
       2. c3t600A0B800032930800000F4148F4F498d0 <ENGENIO-INF-01-00-0619 cyl
51198 alt 2 hd 256 sec 64>
          /scsi_vhci/ssd@g600a0b800032930800000f4148f4f498
Specify disk (enter its number):
```

When multipathing is enabled, only one disk can be queried if the **format** command is run because the MPxIO multipathing masks other paths.

NOTE

- After multipathing is enabled, the displayed drive letters of the LUNs that map to the disk array is a long character string similar to **c3t600A0B800032930800000F4148F4F498d0**.
- Only one disk can be queried on the host if: the networking is that a host is connected to a switch with fibers; the switch is connected to a storage array with fibers; and multipathing is enabled. For example, you can query two disks **c3t124d0** and **c4t124d0** when checking the fiber connection. After multipathing is enabled, you can query only one disk by running the **format** command, that is, **c3t600A0B800032930800000F4148F4F498d0**.
- The disk has not been labeled if the terminal displays a message similar to c3t600A0B800032930800000F4148F4F498d0: configured with capacity of 349.99 GB after displaying `Searching for disks...done`. In this scenario, label the disk by referring to **5**. The disk was labeled if the preceding message is not displayed. Press **Ctrl**+**D** to exit.
- The name of the disk will vary with each site because it is user-generated.

The disk information will be displayed. The number of disks is the sum of local disks and logical disk that is configured for the disk array. Specifically, one disk is configured by the disk array with a capacity of 500 GB. The other disks are local disks.

There are two local disks on Netra 240 or M4000 servers and four local disks on T5220 servers.

5 Label the required disks.

1. Select the disk to be labeled.

The following message will be displayed:

```
selecting c3t600A0B800032930800000F4148F4F498d0
[disk formatted]
Disk not labeled.  Label it now?
```

2. Enter **y** to label the disk.

   The following message will be displayed:

```
FORMAT MENU:
        disk       - select a disk
        type       - select (define) a disk type
        partition  - select (define) a partition table
        current    - describe the current disk
        format     - format and analyze the disk
        repair     - repair a defective sector
        label      - write label to the disk
        analyze    - surface analysis
        defect     - defect list management
        backup     - search for backup labels
        verify     - read and display labels
        save       - save new disk/partition definitions
        inquiry    - show vendor, product and revision
        volname    - set 8-character volume name
        !<cmd>     - execute <cmd>, then return
        quit
format>
```

3. Enter **disk**.

   The following message will be displayed:

```
AVAILABLE DISK SELECTIONS:
0. c0t0d0 <SUN72G cyl 7506 alt 2 hd 19 sec 248>
   /pci@1f,4000/scsi@3/sd@0,0
1. c0t1d0 <SUN72G cyl 7506 alt 2 hd 19 sec 248>
   /pci@1f,4000/scsi@3/sd@1,0
2. c3t600A0B800032930800000F4148F4F498d0 <ENGENIO-INF-01-00-0619 cyl 51198 alt
2 hd 256 sec 64>
   /scsi_vhci/ssd@g600a0b800032930800000f4148f4f498
Specify disk (enter its number)[]:
```

4. Perform 5.1 to 5.3 to label the rest of the disks.
5. Press **Ctrl**+**D** to exit.

----End

H Acronyms

A	
ACL	Access Control List
ASCII	American Standard Code for Information Interchange
C	
CD-ROM	Compact Disc-Read Only Memory
CPU	Central Processing Unit
D	
DC	Data Center
DCN	Data Communication Network
DHCP	Dynamic Host Configuration Protocol
E	
ESN	Equipment Serial Number
F	
FTP	File Transfer Protocol
I	
ID	Identity
iMAP	Integrated Management Application Platform
IP	Internet Protocol

IPMP	IP Network Multipathing
K	
KVMS	Keyboard, video, mouse (KVM) switch
L	
LCT	Local Craft Terminal
LAN	Local Area Network
M	
MML	Human-Machine Language (formerly Man-Machine Language)
MPLS	MultiProtocol Label Switching
MA	Media Service Access
MAC	Media Access Control
MAN	Metropolitan Area Network
MAU	Medium Attachment Unit
N	
NBI	Northbound Interface
NE	Network Element
NIC	Network Information Center
NMS	Network Management System
NTP	Network Time Protocol
O	
OEM	Original Equipment Manufacturer
OS	Operation System
OSS	Operation Support System
P	
PPP	Peer-Peer Protocol
PSTN	Public Switched Telephone Network

PVC	Permanent Virtual Circuit
R	
RAID	Redundant Array of Independent Disks
S	
SCSI	Small Computer Systems Interface
SDH	Synchronous Digital Hierarchy
SNMP	Simple Network Management Protocol
SQL	Structured Query Language
SSH	Secure Shell
T	
TCP	Transport Control Protocol
TFTP	Trivial File Transfer Protocol
U	
UDP	User Datagram Protocol
UPS	Uninterrupted Power Supply
X	
XML	Extensible Markup Language