



iManager U2000 Unified Network Management System

V100R002C01

Single-Server System Software Installation Guide (SUSE Linux)

Issue 05

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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 .
<i>Italic</i>	Command arguments are in <i>italics</i> .
[]	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 05 (2010-11-19)

The fifth commercial release has the following updates:

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1 Installation Overview

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



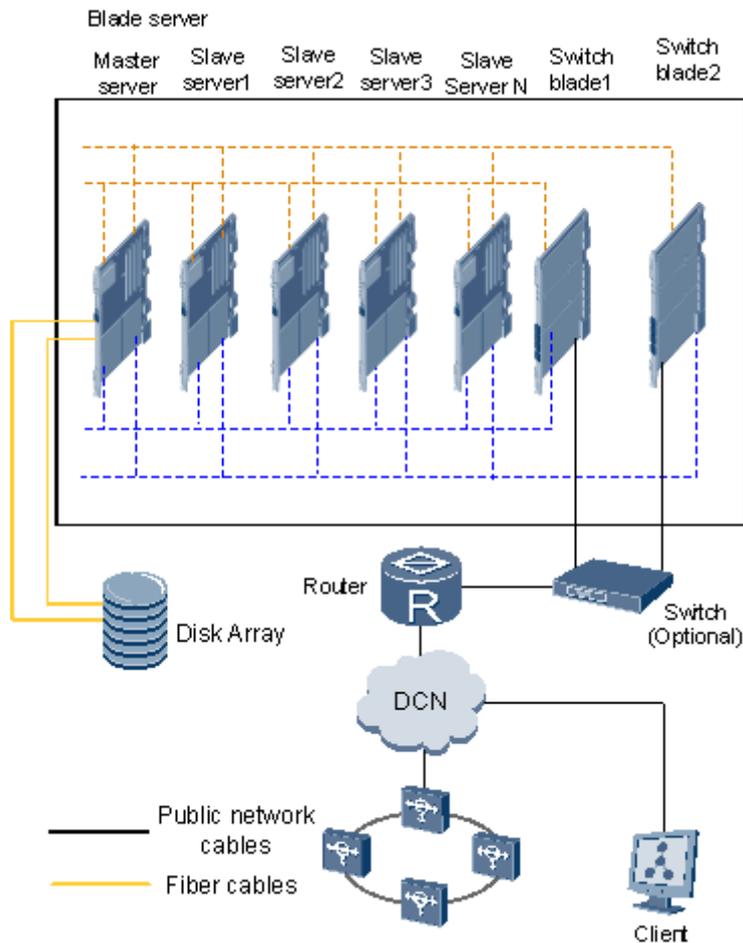
CAUTION

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 SUSE Linux OS.
- **Master server:** A master server refers to the server where the core processes of the U2000 and database service are installed and deployed.
- **Slave server:** It is used for a distributed system. A slave server is used to share the load of the master server. It is placed at the same site of the master server and mounted to the master server of the distributed system.
- **Distributed system:** The distributed system includes the master server and slave server. The master server and slave server constitute a site that takes on the functions of the U2000 server. The master server is the core of the distributed system. The database server and the core components of the U2000 run on the master server. The non-core components of the U2000 are running on the slave server, with the purpose of reducing the CPU usage and memory usage of the master server so that the load on the master and slave servers can be balanced. If the blade server has only one blade, the Slave server is not available.

Figure 1-1 Network diagram of the single-server system (SUSE Linux-distributed)



- 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.

In a distributed system, the deployment packages of a component may be deployed on different computers.

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 Process

This topic describes the process of installing a single-server system (SUSE Linux-distributed) in the Solaris OS, the reference chapters, and the time required for installation.

 **TIP**

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

The following table shows the reference chapters and the time required for installing a single-server system (SUSE Linux-distributed).



CAUTION

The OSs of the master server and slave server can be installed and configured at the same time. If the blade server has only one blade, skip the operation for the slave server.

Table 2-1 Description about the process of installing the single-server system (SUSE Linux-distributed)

Stage	Description	Chapter	Duration (Min)
1	This topic describes how to prepare for installation of a single-server system (SUSE Linux-distributed).	3 Installation Preparations	40
2	This topic describes how to configure server hardware according to the models of the master server and slave server, and how to configure disk array hardware of the master server as required.	4 Configuring Hardware	30
3	This topic describes how to power on the master server and slave server.	5 Powering On a Server	10

Stage	Description	Chapter	Duration (Min)
4	This topic describes how to install the Solaris OS on the master server and slave server.	6 Installing the SUSE Linux OS and Its Patches by Using the Quick Installation CD-ROM	80
5	This topic describes how to install U2000 software. Before starting the U2000 installation program, you must preconfigure the systems of the master server and the slave server.	7 Installing U2000 Software	130
6	This topic describes how to install a U2000 license. Before using the U2000, you must install a U2000.	8 Loading a U2000 License	5
7	This topic describes how to check installation of the single-server system (SUSE Linux-distributed).	9 Verifying Installation of a Single-Server System (SUSE Linux-Distributed)	10

3 Installation Preparations

About This Chapter

This topic describes how to prepare the software, hardware, and environment for the installation of the single-server system (SUSE Linux-distributed).

[3.1 Configuration Requirement](#)

This topic describes hardware and software configuration requirements of the master and slave servers of the single-server system (SUSE Linux-distributed).

[3.2 Networking Structure](#)

This topic describes the networking structure of a distributed system. Before installing a distributed system, you must get familiar with the networking structure.

[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 distributed 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 how to verify that the software meets U2000 installation requirements.

[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 Requirement

This topic describes hardware and software configuration requirements of the master and slave servers of the single-server system (SUSE Linux-distributed).

Hardware Configuration

The single-server system (SUSE Linux-distributed) can run on the SUSE Linux platform. The following table lists the configuration requirements on the hardware of the master and slave servers.

Table 3-1 Configuration requirements on server hardware

Hardware	Description
Blade server	ATAE-T8223 cabinet + BH23C server blade (CPU: 2 x Intel Xeon Quad Core 2.13 GHz, memory: 16 GB, disk: 2 x 146 GB, network port: 4 or more)
	Blade center E cabinet + IBM HS22 (CPU: 2 x Intel Xeon Quad Core 2.4 GHz or greater, memory: 16 GB, disk: 2 x 146 GB, network port: 4 or more)
	Blade center E cabinet + IBM HS21 (CPU: 2 x Intel Xeon Quad Core 2.5 GHz, memory: 16 GB, disk: 2 x 146 GB, network port: 4 or more)
Disk array	OceanStor S2600: 6 x 300 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 (SUSE Linux-distributed).

Software Configuration

The following table lists the configuration requirement on the software of the master and slave servers of the single-server system (SUSE Linux-distributed).

Table 3-2 Configuration requirements on server software

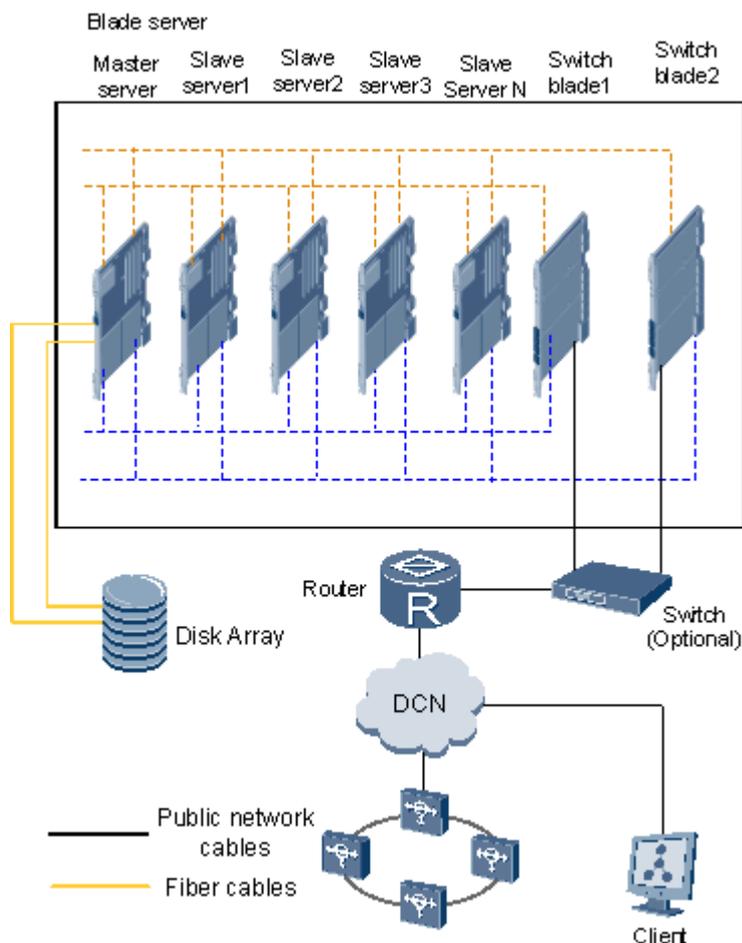
Software	Description
Operating system	SUSE Linux Enterprise Server 10 with SP3
Database	Oracle 11g Enterprise Edition Release 11.1.0.7
NMS software	U2000 software NOTE The U2000 software can be installed on the OS with either the simplified Chinese version or English version.

3.2 Networking Structure

This topic describes the networking structure of a distributed system. Before installing a distributed system, you must get familiar with the networking structure.

The following figure shows the networking structure of a distributed system.

Figure 3-1 Networking diagram for a distributed system



Networking Diagram for a Distributed System

- In actual networking, the cables indicated by dotted lines in the preceding figure do not need to be connected manually, and the connection is implemented inside the server chassis. Details about the structure of a blade server chassis and the communications between a public network and private network are as follows:
 - Two switching planes are inside the chassis of an ATAE blade server: base plane and fabric plane. The ATAE blade server is connected to a public network by the base plane. The fabric plane is used for internal communications inside a distributed system.
 - Four modules are inside the chassis of an IBM blade server: I/O module 1, I/O module 2, I/O module 3, and I/O module 4. The IBM blade server is connected to a public

network by I/O module 1 and I/O module 2. I/O module 3 and I/O module 4 are used for communications inside a distributed system.

- A distributed system communicates with an external network using a public network. For example, the connections to clients and equipment.
- A disk array is used to store database data to improve database performance.
- A maximum number of five slave servers are supported.

Connection Description of Communications in a Distributed System

- The master server and slave server communicate with each other using a private network. By default, the private network is configured with bond to ensure that the master server and slave server communicate with each other properly in the case of a NIC fault.
- The clients of both the U2000 and the network management system maintenance suite communicate with the master server and slave server using a DCN. That is, during the login to the client of either the U2000 or the network management system maintenance suite, the public IP address of the master server is selected. To ensure that the master server and slave server properly communicate with each other on an external network in the case of a NIC fault, the external probe is configured with bond by default.
- Both network elements (NEs) and the upper-layer NMS communicate with the distributed system (including the master server and slave server) through the 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 $3 \times 10^4/m^3$ 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.

Item	Requirement
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 distributed 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
Master server	Masterserver	
Slave serverN	SlaveserverN	

 **NOTE**

In the preceding table, N represents the serial number for a slave server. The host names for slave servers can be increased in sequence along with the increase of the number of slave servers. For example, the host name can be Slaveserver1. A maximum number of five slave servers are supported.

Table 3-5 Controller IP address list

Item	Example	Plan
Blade server	<ul style="list-style-type: none"> ● ATAE blade server: 129.9.1.20/255.255.255.0/12 9.9.1.254 ● IBM blade server: 129.9.1.30/255.255.255.0/12 9.9.1.254 	
Disk array	129.9.1.10/255.255.255.0/129.9.1.254	

Item		Example	Plan
	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.

Table 3-6 System IP address list

Item		Example	Plan
	System network interface	eth0	
	System IP address	<ul style="list-style-type: none"> ● Master server: 129.9.1.30/255.255.255.0/129.9.1.254 ● Slave server: 129.9.1.31/255.255.255.0/129.9.1.254 ● ... ● slave server: 129.9.1.N/ 255.255.255.0/129.9.1.254 	

 **NOTE**

If multiple distributed NMSs are installed in a shelf, ensure that the private network segments of the distributed NMSs are different from one another.

Table 3-7 Private network segment list

Item	Example	Plan
Private network segment 1	192.168.100.0	
Private network segment 2	192.168.101.0	
...	...	

Table 3-8 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 3-9 Time zone and time list

Item	Example	Plan
Time zone	Asia > Shanghai	
Time	14:00	

Table 3-10 List of users and passwords

User	Example	Plan
Password for the root user for the ATAE blade server management board	huaweiosta	
USERID for the user for the IBM blade server management board	PASSWORD NOTE When you enter the initial password, note that the character after letter "W" is a digit "0", but not a letter "O".	
Administrator admin for the OceanStor S2600 disk array	123456	
OS user root	root	
OS user oracle	oracle	
Database supper user	changeme	

User	Example	Plan
Database user	NMSuser	
U2000 user admin	admin123	
network management system maintenance suite user admin	admin	

 **NOTE**

No database user is available for a slave server.

If multiple U2000s are installed in a subrack, setting different passwords for database users is recommended.

Table 3-11 Quantity list of configured components and instances

Example	Plan
<ul style="list-style-type: none"> ● One instance for SDH NE management ● One instance for PTN NE management ● One instance for router NE management ● ... 	

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 [H Planning Disk Partitions](#).

3.5 Checking Required Software

This topic describes how to verify that the software meets U2000 installation requirements.

The U2000 can be installed by using software packages or DVDs, as follows:

- 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 SUSE Linux OS installation DVD and software packages are on-hand.

Perform the following operations:

 **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 you use the download tool (for example, Flashget). If you use Windows Internet Explorer, some software packages may be renamed automatically after being downloaded to the local computer. In this case, you must manually 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.3.12 How to Check Downloaded Software Packages by Using MD5 Software**.
5. Use the WinRAR to decompress the `U2000Version_server_db_sles_x64.part1.rar` and `U2000Version_server_db_sles_x64.part2.rar` software packages. The filename after decompression is `U2000version_server_db_sles_x64.tar`.

 **NOTE**

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

Table 3-12 Software package list

Software	Medium Name	Description
SUSE Linux OS installation DVD	Install the SUSE Linux OS by using the quick installation DVD or the standard installation DVD. <ul style="list-style-type: none"> ● Quick installation DVD: <code>U2000version_server_os_sles_x64_dvd1</code> ● Standard installation DVD: SUSE Linux 10 Enterprise Server 10 SP3 	It must be available. It is used to install the SUSE Linux OS.
Database software package	Database software package: <code>U2000version_server_db_sles_x64.tar</code> NOTE Because the database software package is too large, it is decompressed and divided into the following two packages: <ol style="list-style-type: none"> 1. <code>U2000Version_server_db_sles_x64.part1.rar</code> 2. <code>U2000Version_server_db_sles_x64.part2.rar</code> 	It must be available. It is used to install the database.
U2000 server software	Basic component: <code>U2000version_server_nmsbase_sles_x64.tar</code>	It must be available. It is used to install the U2000.

Software	Medium Name	Description
	Core component:U2000 <i>version</i> _server_nmscore_sles_x64.tar	It must be available. It is used to install the U2000. It must be available.
	Transport component:U2000 <i>version</i> _server_nmstrans_sles_x64.tar	It is required only if the U2000 needs to manage Huawei transport equipment. Huawei transport equipment includes: <ul style="list-style-type: none"> ● MSTP equipment ● WDM equipment ● NA WDM equipment ● Submarine equipment ● RTN equipment ● PTN equipment
	IP component:U2000 <i>version</i> _server_nmsip_sles_x64.tar	It is required only if the U2000 needs to manage Huawei IP equipment. Huawei IP equipment includes: <ul style="list-style-type: none"> ● Routers ● Switches ● Metro service equipment ● Broadband access equipment ● VoIP gateways ● Firewalls ● Service inspection gateway ● SVN equipment
	Access component:U2000 <i>version</i> _server_nmsaccess_sles_x64.tar	It is required only if the U2000 needs to manage Huawei access equipment. Huawei access equipment includes: <ul style="list-style-type: none"> ● FTTx equipment ● MSAN equipment ● DSLAM equipment

Using DVDs

Before installing the U2000 by using DVDs, ensure that the following DVDs are available.

Table 3-13 DVD list

Software	DVD Name
SUSE Linux OS installation DVD	Install the SUSE Linux OS by using the quick installation DVD or the standard installation DVD. <ul style="list-style-type: none">● Quick installation DVD: U2000<code>version</code>_server_os_sles_x64_dvd1● Standard installation DVD: SUSE Linux 10 Enterprise Server 10 SP3
Database software DVD	U2000 <code>version</code> _server_db_sles_x64_dvd3
U2000 server software DVD	U2000 <code>version</code> _server_nms_sles_x64_dvd4

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

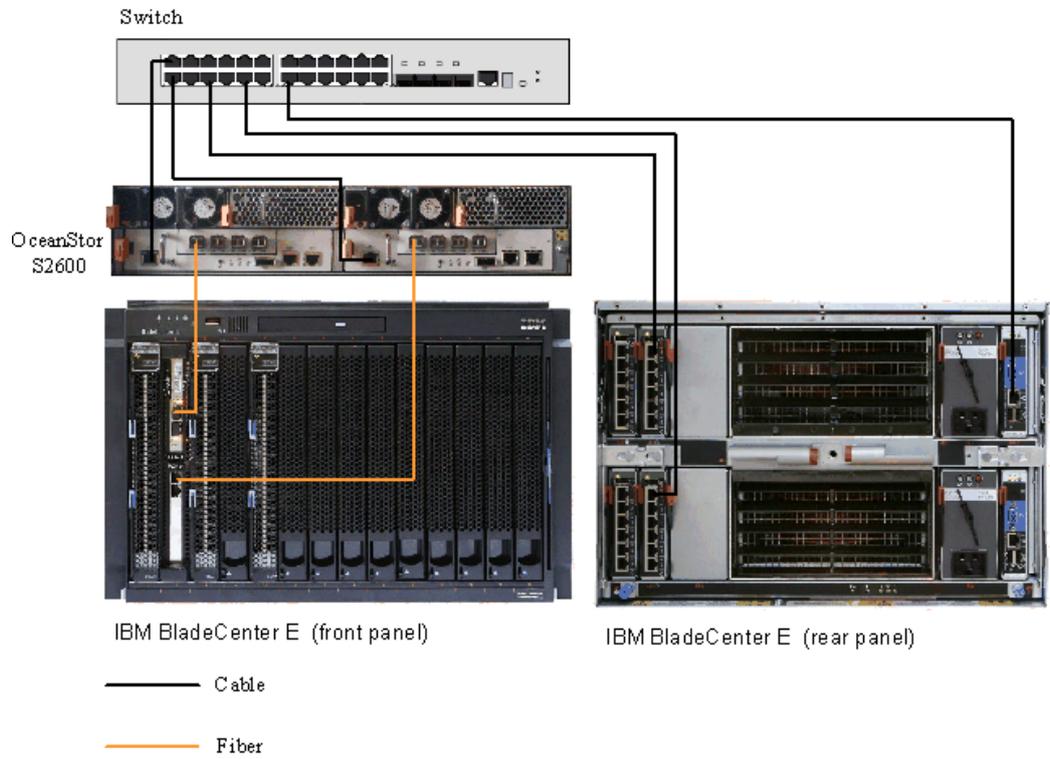
- 1 Ensure that the power cables and ground wires for all components are tightly connected and in good contact and that the polarities are properly placed.
- 2 Ensure that all cables are bundled and free of visible damage.
- 3 Check whether the label (slot x, shelf x) of the associated slot is available on the card.
If not, attach a label (slot x, shelf x) to the card.

 **NOTE**

Labels are used to identify the mappings between cards and slots after U2000 installation.

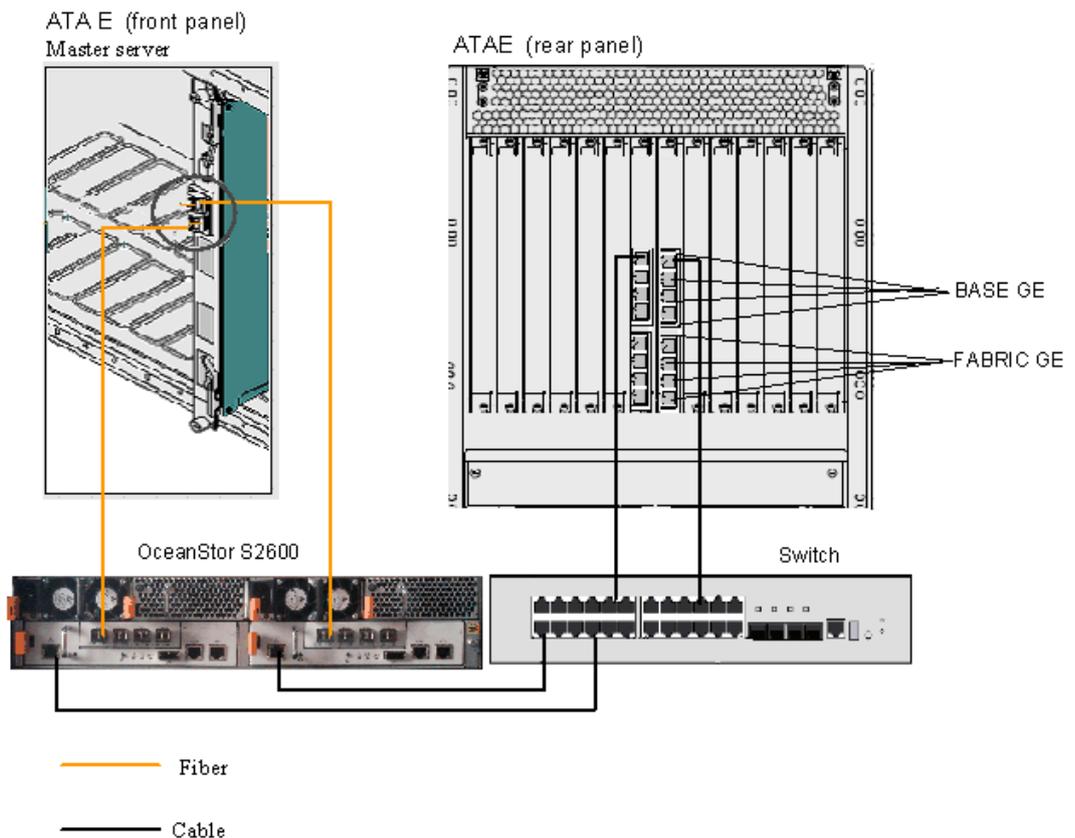
- 4 Check hardware connections and network cable connections according to the hardware connection diagram.
 - If an IBM blade server is used, connect cables according to the following figure.

Figure 3-2 Cable connection for an IBM blade server



- In an ATAE blade server is used, connect cables according to the following figure. The blade server must be connected to an external network through the base plane of a switching board.

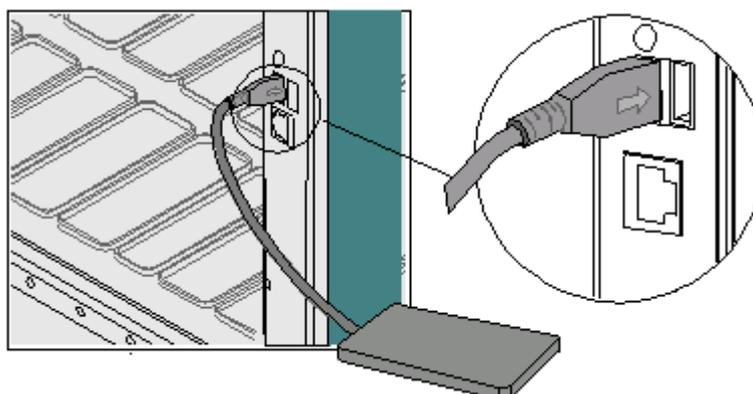
Figure 3-3 Cable connection for an ATAE blade server



- 5 Optional:** If the blade server is the ATAE blade server, check the connection between the ATAE blade server card and the USB drive.

The following figure shows the connection between the ATAE server card and the USB drive. After the card and the USB drive are connected, insert a disk to check the disk reading indicator. If the indicator is green and flashes, the drive works properly.

Figure 3-4 Diagram of the connection between the ATAE server card and the USB drive



- 6 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.
- 7 Ensure that all debris (cable straps, stubs, or moisture-absorbent packets) are picked up.
- 8 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 a U2000 installation DVD. Contact Huawei engineers for the application of a master server license according to the contract number and ESNs of the 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 of the master server.

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

NOTE

Make the following preparations:

- Obtain the ESN tool software package named U2000`version`_ESN_sles_x64.tar.
 - Copy the ESN tool software package to a PC.
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 Hardware

About This Chapter

This topic describes how to configure hardware. Before installing the U2000, you must set IP addresses for the remote management console and the disk array controller on the blade server.

[4.1 Configuring the Remote Management Console of an IBM Blade Server](#)

This topic describes how to configure the remote management console of an IBM blade server. After that, you can remotely maintain and manage the IBM blade server through the Internet Explorer.

[4.2 Configuring the Remote Management Console of an ATAE Blade Server](#)

You can configure the IP address of the network port on the SMM board on an ATAE blade server through a serial port. This facilitates the access to the ATAE blade server management software through the Internet Explorer, thus to manage the ATAE blade server.

[4.3 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.

4.1 Configuring the Remote Management Console of an IBM Blade Server

This topic describes how to configure the remote management console of an IBM blade server. After that, you can remotely maintain and manage the IBM blade server through the Internet Explorer.

Prerequisite

The PC where the Windows OS, and JRE1.4.2_08 or later are installed must be available.

Procedure

- 1 Connect the control network port of the management module of the IBM blade server to the network port on the PC with a network cable, as shown in the following figure.



- 2 On the PC, modify the IP address and subnet mask of the network adapter that is connected to the network port of the management module of the IBM blade server. Modify the IP address to *192.168.70.xx*, for example, *192.168.70.100*, and modify the subnet mask to *255.255.255.0*.
- 3 Open an Internet Explorer window. In the address bar, enter the IP address **http://192.168.70.125**. Then, the login web page of the IBM management module is displayed.
- 4 Enter the default user name **USERID** and initial password **PASSWORD**, and click **Log In**.

CAUTION

When you enter the initial password, note that the character after letter "W" is a number "0", but not a letter "O".

- 5 Click **Exit Wizard** in the **Advanced Management Module Configuration Wizard** dialog box, and the click **OK** and the management page is displayed.
- 6 Choose **MM Control > Network Interfaces**. The configuration page is displayed.
 1. Select **Hide all IPv6 configuration fields when IPv6 is disabled**.
 2. After you set the parameters, click **Save** to save the settings.



- 7 Set the parameters by referring to **Table 4-1**. After you set the parameters, click **Save** to save the settings.

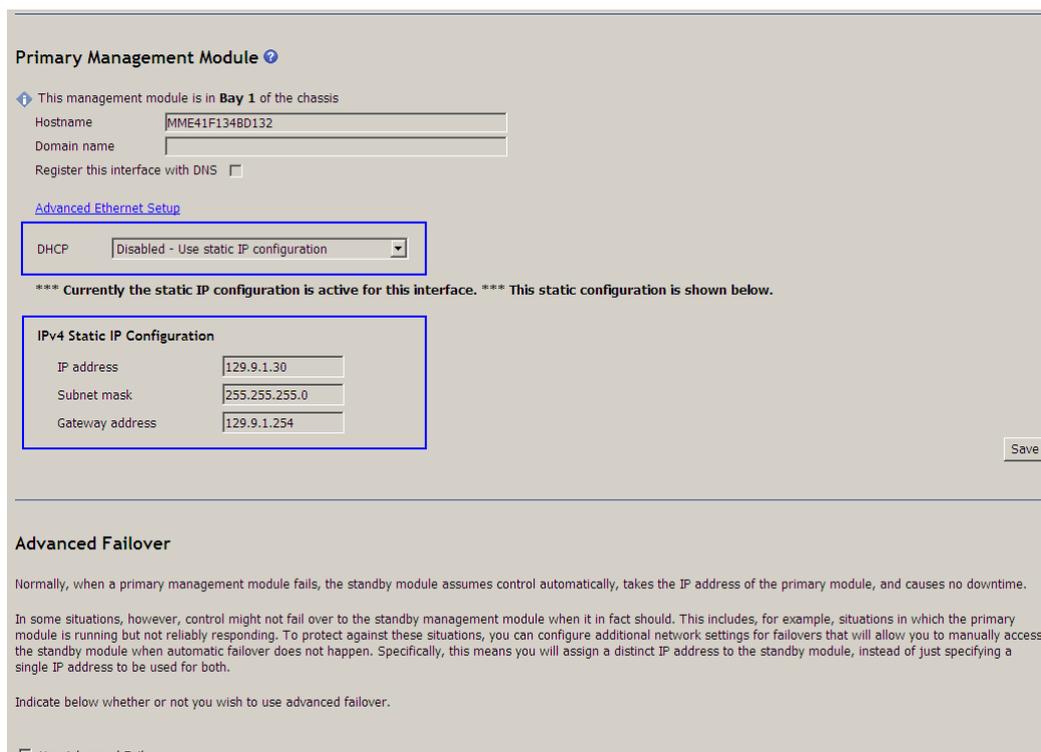


Table 4-1 Parameter settings

Item	Parameter	Description
External Network Interface (eth0)	DHCP	Sets this parameter to Disabled - Use static IP configuration .
Primary Management Module	IP address	Enters the planned IP address of the management module, such as <i>129.9.1.30</i> .
	Subnet mask	Enters the planned subnet mask of the management module, such as <i>255.255.255.0</i> .

Item	Parameter	Description
	Gateway address	Enters the planned route address of the management module, such as <i>129.9.1.254</i> .

- 8 Choose **MM Control** > **Restart MM**. Then, click **Restart**.
- 9 Click **OK** in the confirmation dialog box. Then, the management module restarts.
- 10 Remove the network cable from the control network port of the management module of the IBM blade server, and insert the network cable that is connected to an external network.

---End

4.2 Configuring the Remote Management Console of an ATAE Blade Server

You can configure the IP address of the network port on the SMM board on an ATAE blade server through a serial port. This facilitates the access to the ATAE blade server management software through the Internet Explorer, thus to manage the ATAE blade server.

Prerequisite

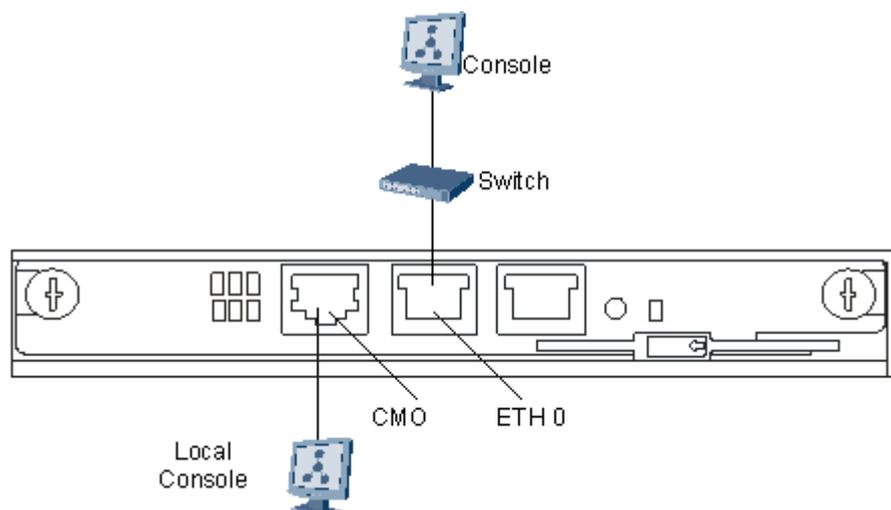
A Windows-based management terminal must be available.

Procedure

- 1 Set up the physical connection between the PC and the server.
 1. Connect the serial port of the local console and the network port on the SMM board (COM) with a serial port cable (DB9-RJ45) to set up the physical connection between the PC and the server.

As shown in the following figure, the RJ-45 connector of the serial port cable is plugged into the network port on the SMM board (COM) the DB-9 connector of the cable is plugged into the serial port (COM1 or COM2) of the PC.
 2. Connect the network interface (Net Mgt port) of the system controller and the switch with a network cable to set up the physical connection between the system controller and the network.

Figure 4-1 Diagram of the connection between the SMM board and the controller



- 2 Set up the logical connection between the PC and the server.
 1. Start the PC to enter the Windows OS.
 2. Choose **Start > Programs (P) > Accessories > Communications > HyperTerminal**.
 3. In the **Connection Description** dialog box, enter the name of the newly created connection, such as **NMS**. Then, click **OK**.
 4. In the dialog box that is displayed, select the serial port of the PC that is used to connect to the server, such as **COM1**. Then, click **OK**.
 5. In the dialog box that is displayed, set the parameters as follows: **Bit/Second: 11520**, **Data Bit: 8**, **Parity Check: null**, **Stop Bit: 1**, and **Data Flow Control: null**. Click **OK**.

 **NOTE**

Set the parameters according to the preceding values. Otherwise, the communication may fail.

6. Click **OK**.
- 3 Enter the user name **root** and the password **huaweiosta**, and press **Enter**.

 **NOTE**

If you change the initial password, enter the new password in this step.

- 4 To configure the IP address of the network port on the SMM board, run the following command:

```
# smmset -l smm -t eth0 -d staticip -v 129.9.1.102 255.255.255.0 129.9.1.254
```



CAUTION

It is recommended that you use the public network IP address as the IP address of the network port on the SMM board. Hence, you can manage the blade server remotely in an easy manner. Restrict the access to the IP address of the management unit (such as SMM) based on the actual situation for security purpose. For example, use the firewall to restrict the access.

----End

4.3 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

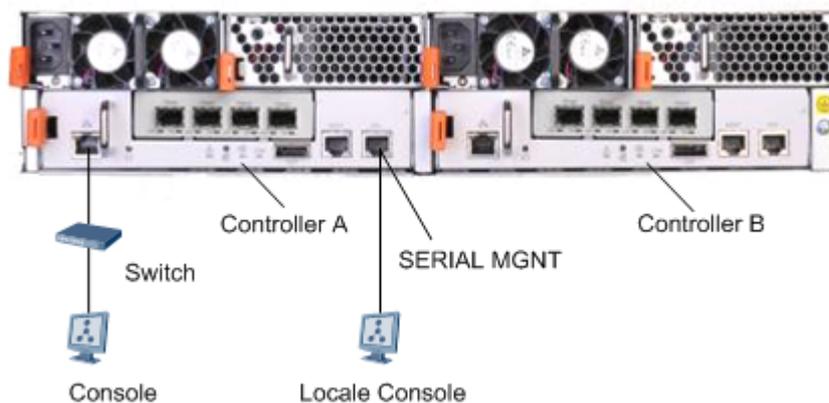
Each OceanStor S2600 disk array has two controllers that need to be configured with management interfaces separately.

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).

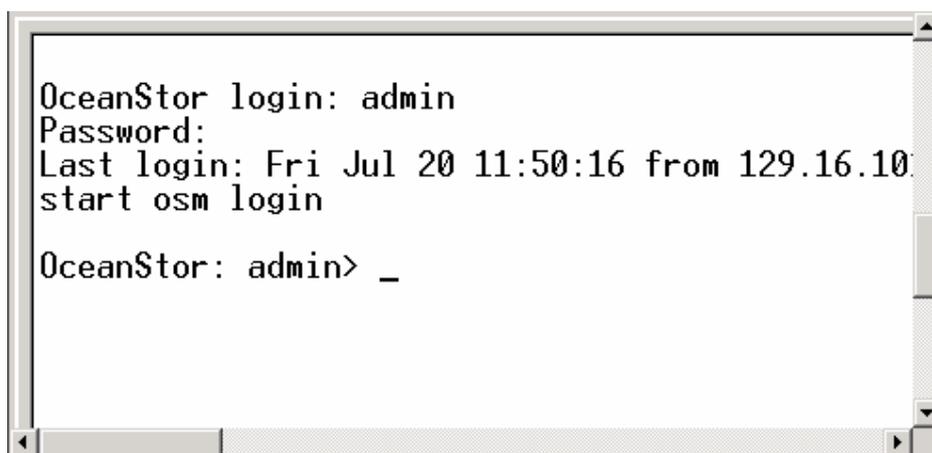


- 2 Set up a logical connection between the computer and controller A.
 1. Start the computer and enter Windows OS.
 2. Choose **start > Programs (P) > Accessories > Communications > HyperTerminal**.
 3. In the **Connection Description** dialog box, enter the name of the new connection, such as **NMS**, 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 4-2](#).

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

Command Format	Parameter Description
chgctrlip -c <i>controller ID</i> { -a <i>IP address</i> -s <i>subnet mask</i> -g <i>gateway</i> }	<ul style="list-style-type: none"> ● -c <i>controller ID</i>: Indicates the controller ID. The value of this parameter is a or b, where a represents controller A and b represents controller B. ● -a <i>IP address</i>: Indicates the IP address of the management network interface of the controller. ● -s <i>subnet mask</i>: Indicates the subnet mask. ● -g <i>gateway</i>: 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 4-3](#) provides the format and parameter description of the **showctrlip** command.

Table 4-3 Command format and parameter description of the **showctrlip** command

Command Format	Parameter Description
showctrlip [-c controller ID]	<ul style="list-style-type: none"> ● -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

5 Powering On a Server

This topic describes how to power on a blade server and disk array when the power supply is normal. Perform associated operations according to the server type and disk array type.

Blade Server

NOTE

The following example describes how to power on an ATAE blade server.

1. Power on the cabinet if available.
2. Switch on the DC PDU in the ATAE blade server chassis.
After the chassis is powered on, all fans work at constant speed rather than at full speed. The fans do not generate abnormal noise during rotation and blow strong air through the ventilation hole on the rear side of the chassis. The HEALTHY indicator on the fan frame is green and constantly on.
3. Raise the ejector lever of the SMM and power on the SMM.
If the following conditions are met, the SMM is powered on properly:
 - The HEALTHY indicator on the active SMM is green and constantly on.
 - The HEALTHY indicator on the standby SMM is green and flashes with the frequency of 0.5 Hz.
4. Raise the ejector lever of the front panel of the switching network card and power on the switching network card.
If the following conditions are met, the switching network card is powered on properly:
 - The HEALTHY indicators on the two switching network cards are green and constantly on.
 - The HOTSWAP indicator is off.
 - The OSS indicator is off.
5. Raise the ejector lever of the server card and power on the server card.
If the following conditions are met, the server card is powered on properly:
 - The HEALTHY indicators on all server cards are green and constantly on.
 - The HOTSWAP indicator is off.
 - The OSS indicator is off.

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 SUSE Linux OS and Its Patches by Using the Quick Installation CD-ROM

This topic describes how to install the SUSE Linux OS and the patches by using the quick installation CD-ROM.

Prerequisite

- The MAC addresses of NICs through which blade servers are connected to the public network must be collected.
 - An ATAE blade server is connected to the public network through the base plane. For details about how to view the MAC address of the base plane of an ATAE blade server, see [F.5 How to View the MAC Address of the Base Plane of an ATAE Blade Server](#).
 - An IBM blade server is connected to the public network through I/O module 1 and I/O module 2. The system IP address of the IBM blade server must be set on the external communication NIC. For details about how to view the MAC address of the external communication NIC of an IBM blade server, see [F.3 How to View the MAC Address of the External Communication NIC of an IBM Blade Server](#).
- The installation CD-ROM must be available.
- For the ATAE server, if the USB drive is connected to the ATAE server card, the indicator of the USB drive is green and flashes.

Context

You can use the quick installation CD-ROM to install the OS and its patches, and partition disks.

NOTE

If the quick installation CD-ROM is not available on the site, manually install the SUSE Linux OS by using the attached SUSE Linux installation CD-ROM. For details, refer to [E Manually Installing the SUSE Linux OS and Its Patches](#).

Procedure

- 1 Optional:** In the case of the ATAE blade server, in BIOS, set the order for starting the OS so that the OS boots from the CD-ROM.

NOTE

This step is applicable only to the ATAE blade server. In the case of other servers, skip this step.

1. Insert the installation disk to the USB drive.
2. **Logging In to the Management Console of an ATAE Blade Server.**
3. In the **Blade >> KVM** panel, select the required board from **Select Blade**, and click **Cold Reset** to restart the blade server.

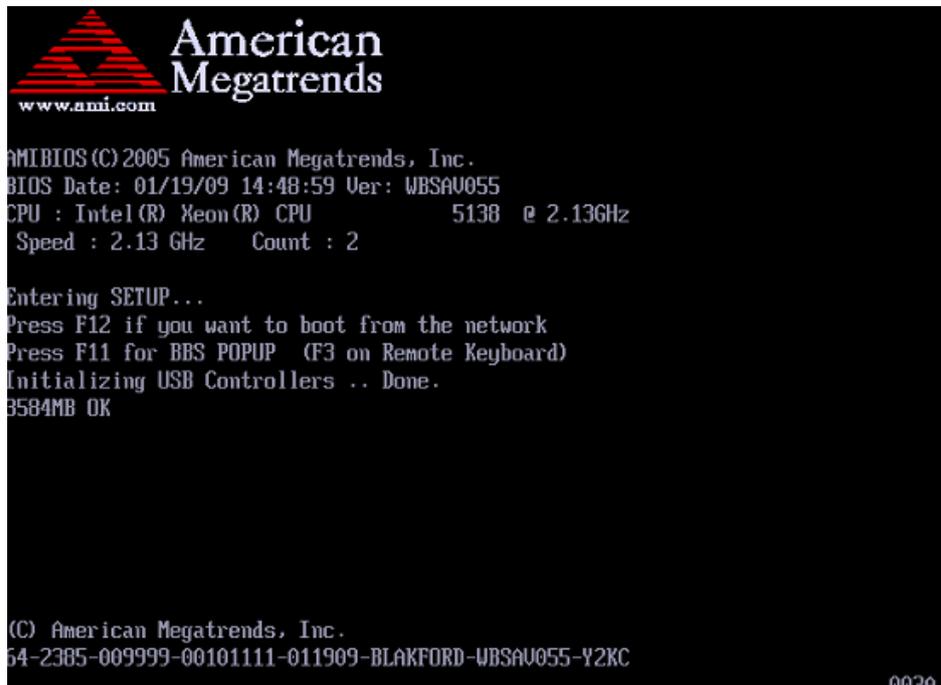
On the toolbar of the **Blade >> KVM** panel, click the icon of the card to be operated to display the related tab page.

● **Blade >> KVM**



TIP

- To enter the full screen mode, click  on the toolbar.
 - To restore from the full screen mode to window, move the mouse to upper middle of the screen, press **Ctrl+Shift+Alt** and click  in the upper portion of the screen.
4. In the process of restarting the blade server, when the **American Megatrends** window is displayed, press **Delete** to display the **BIOS SETUP UTILITY** window.

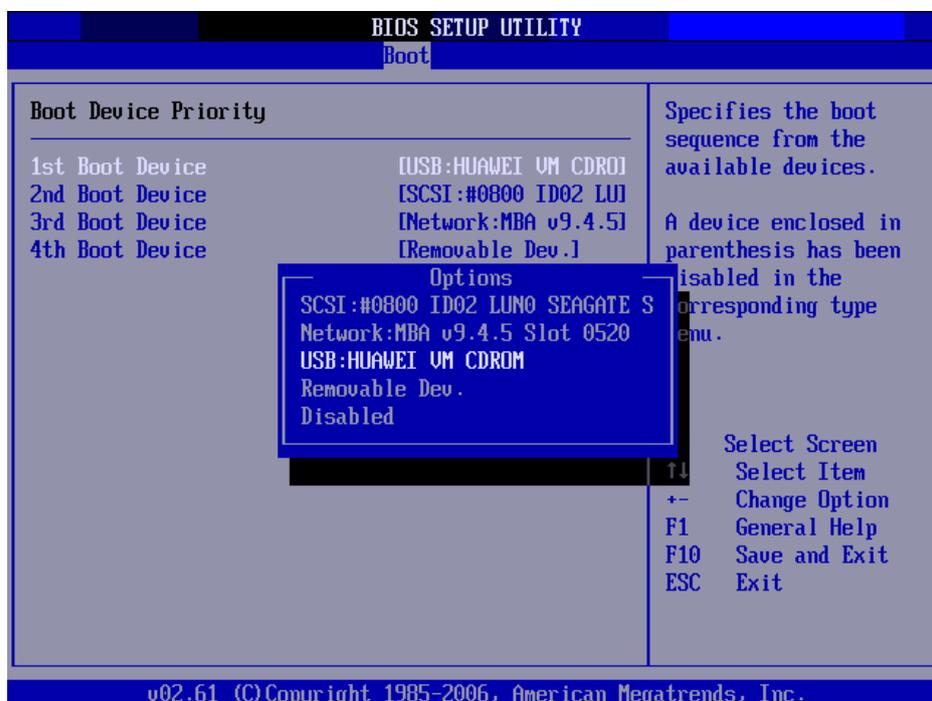


5. In the **BIOS SETUP UTILITY** window, use the left arrow and right arrow keys to choose **Boot** from the main menu.

On the **Boot Settings** tab page, use the up arrow and down arrow keys to select **Boot Device Priority**. Then, press **Enter**.



6. In the **Boot Device Priority** pane, set the order for starting the OS of the blade server so that the OS boots from the USB disk drive.
 - a. Select **1st Boot Device**, and then press **Enter**. The **Options** dialog box is displayed.
 - b. Use the up arrow and down arrow keys to select **USB:HUAWEI VM CDROM**. Then, press **Enter**.



7. Press **F10** after the previous settings, the confirm dialog box is displayed.
 8. Click **OK**, and then press **Enter** to save the settings and exit.
- 2 Optional:** In the case of the IBM HS22 blade server, in BIOS, set the order for starting the OS so that the OS boots from the CD-ROM.

 **NOTE**

This step is applicable only to the IBM HS22 blade server. In the case of other servers, skip this step.

1. **Mount the virtual media of the IBM blade server.**

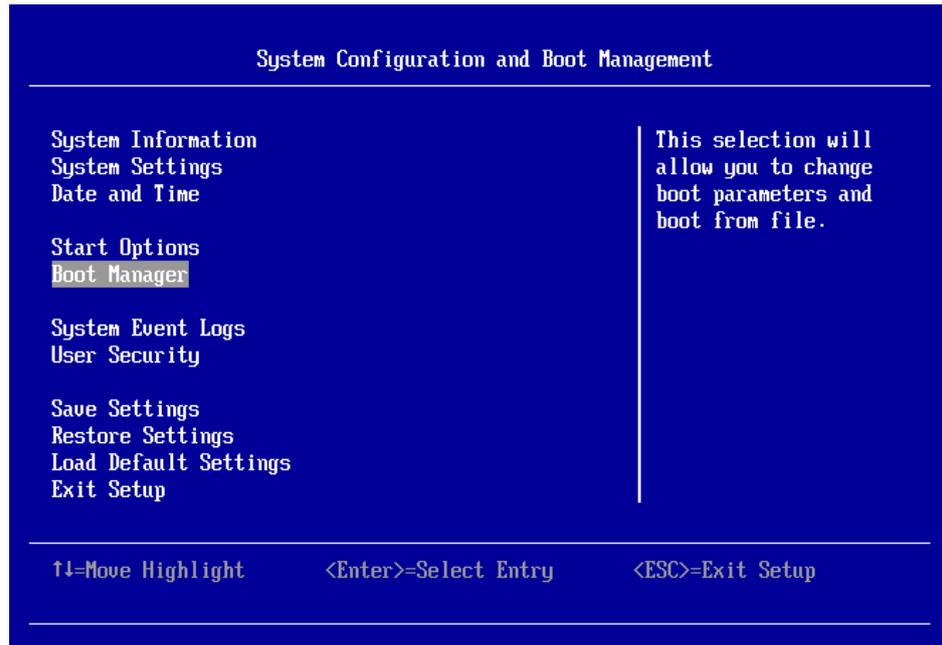
 **NOTE**

- The purpose of mounting the virtual media of the IBM blade server is to mount the CD/DVD drive or ISO file of the PC where the Web console is installed to a blade server, thus implementing remote installation of the OS of the blade server. Alternatively, the default CD/DVD drive of the IBM BladeCenter E can be used to install the OS of the blade server.
- To use the default CD/DVD drive of the IBM BladeCenter E to install an OS on a blade server, you need to insert the OS installation DVD into the default CD/DVD drive of the IBM BladeCenter E and then press **MT** at the middle of the blade server. If the **MT** indicator is on, it indicates that the blade server is connected to the default CD/DVD drive.

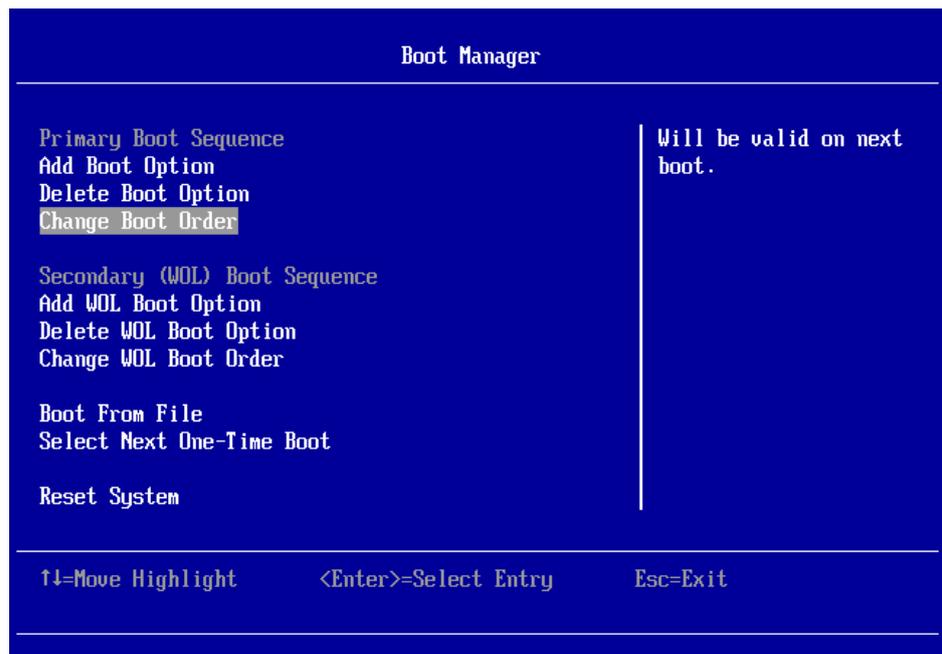
2. In the remote console window, click . Then, select the required card.
3. In the **Power Control** area, select **Restart** to restart the blade server.
4. In the process of restarting the blade server, when the **System x** window is displayed, press **F1** and the **System Configuration and Boot Management** window is displayed.



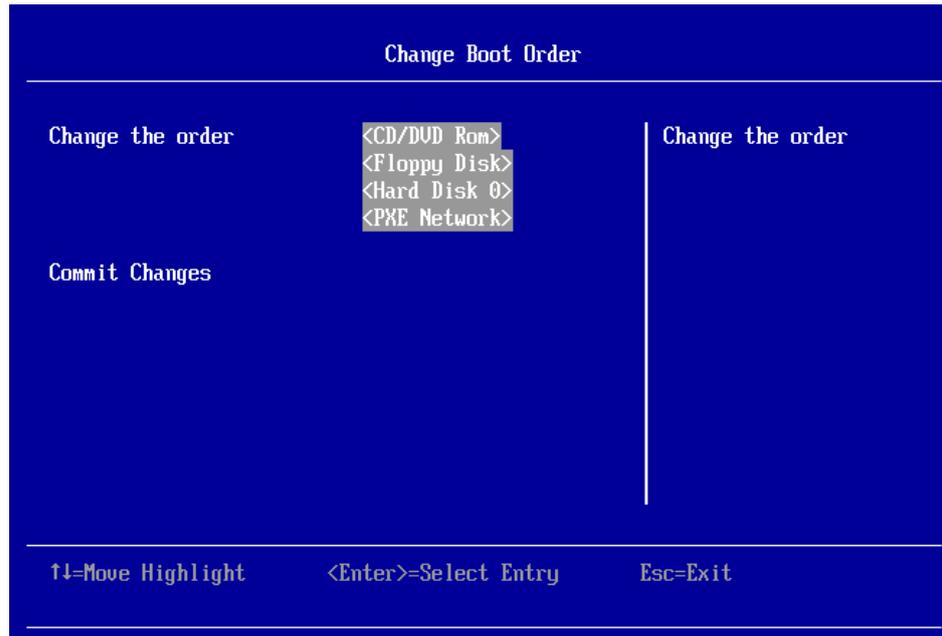
Licensed Materials - Property of IBM Corp. Firmware contains licensed third party modules.
System x Server Firmware © Copyright IBM Corporation 2009 ALL RIGHTS RESERVED.



5. Press an arrow key to choose **Boot Manager** from the main menu. Press **Enter**.



6. Press an arrow key to choose **Change Boot Order** from the **Boot Manager**. Press **Enter**.



7. Press an arrow key to choose **CD/DVD Rom** from the **Change Boot Order**. Press **Enter**.
8. Choose **Save Settings** from the main menu. Press **Enter** twice to save the settings.
9. Choose **Exit Setup** and press **Enter** twice to exit BIOS setting.

3 Optional: In the case of the IBM HS21 blade server, in BIOS, set the order for starting the OS so that the OS boots from the CD-ROM.

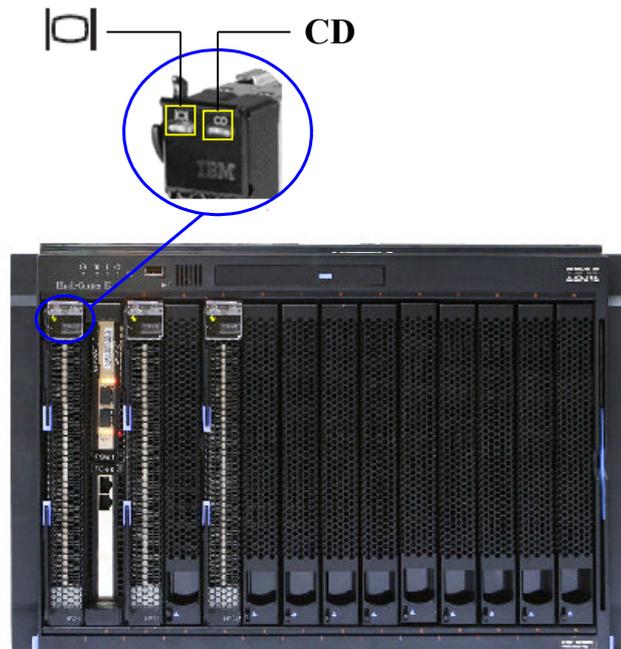
 **NOTE**

This step is applicable only to the IBM HS21 blade server. In the case of other servers, skip this step.

1. **Mount the virtual media of the IBM blade server.**

 **NOTE**

- The purpose of mounting the virtual media of the IBM blade server is to mount the CD/DVD drive or ISO file of the PC where the Web console is installed to a blade server, thus implementing remote installation of the OS of the blade server. Alternatively, the default CD/DVD drive of the IBM BladeCenter E can be used to install the OS of the blade server.
- To use the default CD/DVD drive of the IBM BladeCenter E to install an OS on a blade server, you need to insert the OS installation DVD into the default CD/DVD drive of the IBM BladeCenter E and then press **CD** at the top of the blade server, as shown in the following figure. If the **CD** indicator is on, it indicates that the blade server is connected to the default CD/DVD drive.



2. In the remote console window, click . Then, select the required card.
3. In the **Power Control** area, select **Restart** to restart the blade server.
4. In the process of restarting the blade server, when the **System x** window is displayed, press **F1** and the **Configuration/Setup Utility** window is displayed.



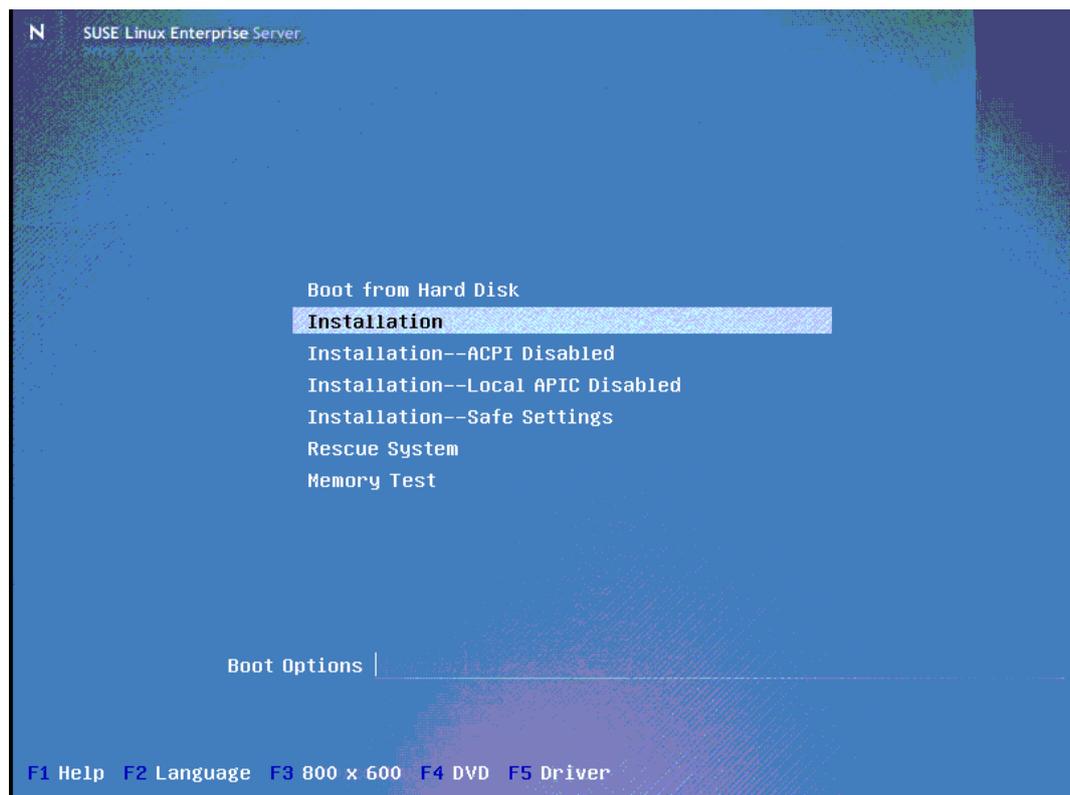
After you complete the settings, press **Esc** twice to return to the main menu.

7. Choose **Save Settings** from the main menu. Press **Enter** twice to save the settings.
 8. Choose **Exit Setup** and press **Enter** twice to exit BIOS setting.
4. Wait about five minutes. The system restarts and the **SUSE Linux Enterprise Server** window is displayed.

NOTE

If the **SUSE Linux Enterprise Server** window is not displayed but the system enters the server OS, do as follows to restart the management module:

1. Choose **MM Control > Restart MM**. Then, click **Restart** in the Web management window.
2. Click **OK** in the confirmation dialog box. Then, the management module restarts.



- 5 Use the up or down arrow key to select **Installation** and press **Enter** to begin to load the Linux core. The system starts the automatic installation of the OS.

NOTE

The installation process and remaining time are displayed in the installation window. The entire OS installation process lasts approximately 40 minutes.

- 6 Do as follows to remove the DVD:
 1. Log in to the OS as **root** user.

To log in to the OS, do as follows:

- Click **Session** in the lower right corner of the login dialog box. In the **Choose a Session** dialog box, select **GNOME**, and then set the session process to **GNOME**.
- The default user name and password for logging in to the OS are both **root**.

NOTE

- By default, the system enables the **root** user to perform remote login and use the FTP tool.
- If you can log in to the SUSE Linux OS as the **root** user, it indicates that the SUSE Linux OS is successfully installed. Otherwise, install the OS again.

2. On the **GNOME** desktop, right-click, and choose **Open Terminal** from the shortcut menu to open the CLI. Then, run the **eject** command to eject the disk.

NOTE

If the IBM blade server is installed by using the drive of the virtual media device, run the **eject *Name_of_the_virtual_media_device*** command to remove the DVD.

Run the following command to check the name of the virtual media equipment:

```
# df -hk
```

If **/dev/sr1 132136 132136 0 100% /media/05_04_2009** is displayed, it indicates that the name of the virtual media equipment is **/dev/sr1**. The equipment name varies according to the actual situation.

7 Set the network of the system.

1. Run the following command to log in to the **YaST2 Control Center**:

```
# yast2
```

2. In the **YaST2 Control Center** dialog box, choose **Network Devices > Network Card**.
3. In the **Network Setup Method** dialog box, select **Traditional Method with ifup** and click **Next**.
4. In the **Network Card Configuration Overview** dialog box, select the NIC to be configured and click **Edit**.

 **NOTE**

- The NIC corresponding to the system IP address must be the NIC through which the blade server is connected to the public network.
 - An ATAE blade server is connected to the public network through the base plane. For details about how to view the MAC address of the base plane of an ATAE blade server, see [F.5 How to View the MAC Address of the Base Plane of an ATAE Blade Server](#).
 - An IBM blade server is connected to the public network through I/O module 1 and I/O module 2. The system IP address of the IBM blade server must be set on the external communication NIC. For details about how to view the MAC address of the external communication NIC of an IBM blade server, see [F.3 How to View the MAC Address of the External Communication NIC of an IBM Blade Server](#).
 - You can view the MAC address of an NIC on the **Address** tab page of the **Network Address Setup** dialog box.
5. In the **Network Address Setup** dialog box, select **Static Address Setup** and set **IP Address** and **Subnet Mask**.
 6. Set default gateway IP address.
 - a. Click **Routing**.
 - b. In the **Routing Configuration** dialog box, enter the default gateway IP address, and then click **OK**.
 7. In the **Network Address Setup** dialog box, click **Next** return to the **Network Card Configuration Overview** dialog box.
 8. In the **Network Card Configuration Overview** dialog box, click **Finish** to complete the setting of the IP address.
 9. Exit **YaST2 Control Center**.

- 8 Run the following command to restart the OS:

```
# sync;sync;sync;sync  
# shutdown -r now
```

- 9 After the OS is restarted, exit the management console of the blade server.

---End

Follow-up Procedure

- To log in to the SUSE Linux OS by using the remote graphical software in the future, enable the remote login right of the software. For details, see [A.1.6 How to Log In to the OS Through the Remote Login Tools?](#)
- After the OS installation is completed by using the quick installation CD-ROM, the default time zone is **Asia > Shanghai**. The local time and time zone can be changed as required. For details, see [A.1.10 How to Change the Time and Time Zone of the SUSE Linux OS?](#)

7 Installing U2000 Software

About This Chapter

This topic describes how to install U2000 software. Before starting the U2000 installation program, you must preconfigure the systems of the master server and the slave server.

[7.1 Uploading and Decompressing 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 Preconfiguring the OS of the Master Server](#)

This topic describes how to preconfigure the OS of the Master Server. Before starting the U2000 installation program, you must configure the OS of the master server. Then, you can use the HWICMR to modify system parameters and network settings and configure disk arrays and disk mirroring.

[7.3 Preconfiguring the OS of the Slave Server](#)

This topic describes how to preconfigure the OS of the Slave Server. You need to pre-configure the OS of the slave server before installing the U2000. Specifically, you need to pre-configure the OS through the DVD or software package. Then, modify the system parameters, modify the network settings of the system, and configure disk mirroring through HWICMR.

[7.4 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 Uploading and Decompressing 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



CAUTION

- "U2000Version_server_db_sles_x64.part1.rar" and "U2000Version_server_db_sles_x64.part2.rar" cannot be uploaded to the server directly. You must use the WinRAR to decompress the U2000Version_server_db_sles_x64.part1.rar and U2000Version_server_db_sles_x64.part2.rar software packages, and then upload the decompressed U2000version_server_db_sles_x64.tar to the master server.
 - All software packages must be uploaded to the master server/**opt/install** path.
 - Only the **Basic components** and **Core components** software packages need to be uploaded to the slave server/**opt/install** path.
-

Procedure

- 1 Do as follows to upload software packages to the **/opt/install** path on the server. For details about software packages to be uploaded, see [3.5 Checking Required Software](#).
 1. Log in to the Linux 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 U2000version_server_nmscore_sles_x64.tar**.

Wait for a moment. When the software packages are uploaded, the system will prompt **Transfer complete**.



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 U2000version_server_nmscore_sles_x64.tar`.

- 3 Run the following command to delete the software packages and free up disk space:

```
# rm Name_of_software_package
```

For example, `rm U2000version_server_nmscore_sles_x64.tar`.

---End

7.2 Preconfiguring the OS of the Master Server

This topic describes how to preconfigure the OS of the Master Server. Before starting the U2000 installation program, you must configure the OS of the master server. Then, you can use the HWICMR to modify system parameters and network settings and configure disk arrays and disk mirroring.

Prerequisite

- Installation software is on-hand. For details, see [7.1 Uploading and Decompressing 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 must be available. For details, see [5 Powering On a Server](#).
- IP addresses must have been assigned to disk array controllers. For details, see [4.3 Configuring the SC IP Address of the OceanStor S2600 Disk Array](#).

Context

The following operations are involved:

- Install **HWNMSJRE**, **HWENGR**, and **HWICMR**.
- Automatically configure disk arrays.

- Automatically configure disk mirroring.
- Set network parameters for the server, such as host name, IP address, and automatic bond configuration.

TIP

- Do not use the integrated numberpad keyboards. This is because **Num Lock** may fail to work when a SUSE Linux OS is installed on certain machines.
- When performing operations described in this topic, do not adjust the size of the command line interface (CLI) to ensure that information can be normally displayed.

**CAUTION**

By default, the installation program configures bindings for public and private networks in a U2000 distributed system. These bindings maintain proper communication in the private network (between the master server and slave server), as well as that in the public network (between the master server or slave server, and NEs and clients) even when the NIC is faulty. A binding configuration requires two network ports. Therefore, in a U2000 distributed system, each blade server needs to be configured with at least four network ports. Otherwise, the U2000 distributed system will malfunction.

Procedure

- 1 Log in to the OS as user **root**.
- 2 Ensure that the language environment variable of the system is **en_US**.
To check the language environment variable, run the following command:

```
# echo $LANG
```


If the displayed information is not **en_US**, change the description about the language environment variable to **RC_LANG="en_US"** in the **/etc/sysconfig/language** file, and then restart the system. Perform the following operations:
 1. Run the following command to log in to the **YaST2 Control Center**:

```
# yast2
```
 2. Choose **System > /etc/sysconfig Editor**. The **/etc/sysconfig Editor** dialog box is displayed.
 3. Choose **System > Environment > Language > RC_LANG**. Enter **en_US** for **Setting of: RC_LANG**.
 4. Choose **System > Environment > Language > ROOT_USES_LANG**. Set **ROOT_USES_LANG** to **yes**.
 5. Click **Finish**.
 6. Run the following commands to restart the OS:

```
# sync;sync;sync;sync  
# shutdown -r now
```
 7. Log in to the OS as the **root** user after the OS is restarted.
- 3 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...
```

```
=====  
* NMS Engineering Directory: /opt/HWENGR  
* NMS Software Lib Directory: /opt/install/  
* NMS Java Runtime Environment: /opt/HWNMSJRE/jre_linux
```

```
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 /media/nms/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...
```

```
=====
* NMS Engineering Directory: /opt/HWENGR
* NMS Software Lib Directory: /opt/install/
* NMS Java Runtime Environment: /opt/HWNMSJRE/jre_linux
```

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

5. Run the following commands to eject the DVD.

```
# cd /
# eject
```

 **NOTE**

If an IBM blade server is installed by means of the drive of the virtual media device, run the **eject *Name_of_the_virtual_media_device*** command to eject the DVD.

Run the following command to check the name of the virtual media device:

```
# df -hk
```

If **/dev/sr1 132136 132136 0 100% /media/05_04_2009** is displayed, the name of the virtual media device is **/dev/sr1**. The device name varies according to the conditions at your site.

- 4 Do as follows to configure disk arrays:

 **NOTE**

The OceanStor S2600 disk array (6 x 300 GB) supports automatic configuration by means of the **HWICMR**. To use disk arrays that do not support automatic configuration, contact Huawei engineers.

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**.



CAUTION

The database installation path may vary according to disk partitions. By default, the database is installed in the **/opt/oracle** 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]:
```

9 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:

```
===== Host Name =====

                Host name is the only ID of the host. It is the name used to indicate the
host in the network. Host name for each host is unique in the network.
Press Enter to use the current host name, or enter a new host name. The new host
name will take into effect after the host reboots.
The host name can contain numerals, letters. It must begin with a letter.
                Enter[Masterserver]:
```

10 Enter the planned host name of the master server. Then, press **Enter**.

A message similar to the following will be displayed:

```
===== IP Address of the Master NIC of bond =====

Enter an IP address for the master NIC.
You need to configure the IP address for the NIC before the server can communicate
with other devices in the network.
The IP address must be unique and not be occupied by any other equipment in the
network. Otherwise, the IP address conflict may cause abnormal communication.
Press Enter to use the default value (The default is the current IP address. If no
default is displayed, you need to enter a valid IP address.)

                Enter[129.9.1.2]:
```

11 Enter the planned system IP address of the master server and press **Enter**.

A message similar to the following will be displayed:

```
===== Subnet Mask of the Master NIC =====

                Enter a subnet mask for the master NIC.
                The subnet mask is a 32-digit value. It defines the network ID and the host
ID. A network can be divided into several subnets by subnet mask.
                The subnet masks of different hosts in one subnet are consistent.
                Press Enter to use the default value. (The default is the subnet mask
configured for the current system. If no default is displayed, you need to enter a
valid subnet mask.)
```


 **NOTE**

If **All operations defined in the task flow have been completed** is displayed, it indicates that the system is successfully configured. If the system configuration fails, send the operation log to 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 Preconfiguring the OS of the Slave Server

This topic describes how to preconfigure the OS of the Slave Server. You need to pre-configure the OS of the slave server before installing the U2000. Specifically, you need to pre-configure the OS through the DVD or software package. Then, modify the system parameters, modify the network settings of the system, and configure disk mirroring through HWICMR.

Prerequisite

- Installation software is on-hand. For details, see [7.1 Uploading and Decompressing 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](#).

Context



CAUTION

- If the blade server has only one blade, skip the operation on the slave server.
- By default, the installation program configures bindings for public and private networks in a U2000 distributed system. These bindings maintain proper communication in the private network (between the master server and slave server), as well as that in the public network (between the master server or slave server, and NEs and clients) even when the NIC is faulty. A binding configuration requires two network ports. Therefore, in a U2000 distributed system, each blade server needs to be configured with at least four network ports. Otherwise, the U2000 distributed system will malfunction.

The following operations are involved:

- Installing the **HWNMSJRE**, **HWENGR**, and **HWICMR**.

- Automatically configure disk mirroring.
- Setting server network parameters: host name, IP address, and automatic bond configuration.

 **TIP**

- Do not use the integrated numberpad keyboards. This is because **Num Lock** may fail to work when a SUSE Linux OS is installed on certain machines.
- When performing operations described in this topic, do not adjust the size of the command line interface (CLI) to ensure that information can be normally displayed.

Procedure

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

2 Ensure that the language environment variable of the system is **en_US**.

To check the language environment variable, run the following command:

```
# echo $LANG
```

If the displayed information is not **en_US**, change the description about the language environment variable to **RC_LANG="en_US"** in the **/etc/sysconfig/language** file, and then restart the system. Perform the following operations:

1. Run the following command to log in to the **YaST2 Control Center**:

```
# yast2
```

2. Choose **System > /etc/sysconfig Editor**. The **/etc/sysconfig Editor** dialog box is displayed.

3. Choose **System > Environment > Language > RC_LANG**. Enter *en_US* for **Setting of: RC_LANG**.

4. Choose **System > Environment > Language > ROOT_USES_LANG**. Set **ROOT_USES_LANG** to *yes*.

5. Click **Finish**.

6. Run the following commands to restart the OS:

```
# sync;sync;sync;sync  
# shutdown -r now
```

7. Log in to the OS as the **root** user after the OS is restarted.

3 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...
```

```

=====
* NMS Engineering Directory: /opt/HWENGR
* NMS Software Lib Directory: /opt/install/
* NMS Java Runtime Environment: /opt/HWNMSJRE/jre_linux
    
```

```
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 /media/nms/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...
```

```
=====  
* NMS Engineering Directory: /opt/HWENGR  
* NMS Software Lib Directory: /opt/install/  
* NMS Java Runtime Environment: /opt/HWNMSJRE/jre_linux
```

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

5. Run the following commands to eject the DVD.

```
# cd /  
# eject
```

 **NOTE**

If an IBM blade server is installed by means of the drive of the virtual media device, run the **eject *Name_of_the_virtual_media_device*** command to eject the DVD.

Run the following command to check the name of the virtual media device:

```
# df -hk
```

If **/dev/sr1 132136 132136 0 100% /media/05_04_2009** is displayed, the name of the virtual media device is **/dev/sr1**. The device name varies according to the conditions at your site.

4. Run the following commands to switch to the directory where the HWICMR resides. Then, run the **install.sh** file to start the HWICMR for system preconfiguration.

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

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 (SUSE Linux-Distributed)  
2. High Availability System (SUSE Linux-Distributed)  
Select[1]:
```

5. Enter **1** to select **Single-Server System (SUSE Linux-Distributed)**, and then press **Enter**.

 **TIP**

If incorrect characters are entered, press **Ctrl+Backspace** to delete them.

A message similar to the following will be displayed:

```
=====  
Server Type =====  
The server type defines the role of the server in the distributed system.  
1. Master Server  
2. Slave Server  
Select[1]:
```

6. Enter **2** to select the slave server, and then press **Enter**.

A message similar to the following will be displayed:

```
=====  
Host Name =====  
Host name is the only ID of the host. It is the name used to indicate the  
host in the network. Host name for each host is unique in the network.  
Press Enter to use the current host name, or enter a new host name. The new host  
name will take into effect after the host reboots.  
The host name can contain numerals, letters. It must begin with a letter.  
Enter[Slaveserver]:
```

7 Enter the planned host name of the slave server, and press **Enter.**

```
===== IP Address of the Master NIC of bond =====
Enter an IP address for the master NIC.
You need to configure the IP address for the NIC before the server can communicate
with other devices in the network.
The IP address must be unique and not be occupied by any other equipment in the
network. Otherwise, the IP address conflict may cause abnormal communication.
Press Enter to use the default value (The default is the current IP address. If no
default is displayed, you need to enter a valid IP address.)
```

```
Enter[129.9.1.2]:
```

8 Enter the planned system IP address of the slave server, and press **Enter.**

```
===== Subnet Mask of the Master NIC =====

Enter a subnet mask for the master NIC.
The subnet mask is a 32-digit value. It defines the network ID and the host
ID. A network can be divided into several subnets by subnet mask.
The subnet masks of different hosts in one subnet are consistent.
Press Enter to use the default value. (The default is the subnet mask
configured for the current system. If no default is displayed, you need to enter a
valid subnet mask.)
```

```
Enter[255.255.255.0]:
```

9 Enter the planned subnet mask of the system IP address of the slave server, and then press **Enter.**

```
Please confirm the following configurations...
*****
IP                129.9.1.2
HOSTNAME          Slaveserver
NETMASK           255.255.255.0
MASTERNIC        bond0
*****
Enter 'y' to apply these values and proceed to the next step, or 'n' to return to
make any changes (y/n):
>
```

10 Enter **y after you confirm that the information is correct and press **Enter**.**

A message similar to the following will be displayed:

```
...
Modifying system network configuration.....
Modifying system parameters.....

...
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. Then, run the **install.sh file to check the HWICMR for system preconfiguration.**

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

A message similar to the following will be displayed:

```
Modifying system network configuration.....
Modifying the system parameters.....
Mounting disk array.....
...
All operations defined in the task flow have been completed.
```

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

 **NOTE**

If **All operations defined in the task flow have been completed** is displayed, it indicates that the system is successfully configured. If the system configuration fails, send the operation log to Huawei engineers for fault locating.

- 14** Run the following commands to start the Network Management System Maintenance Suite process:

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

----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.

7.4 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.

[7.4.1 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 SUSE Linux OS.

[7.4.2 Installing the U2000 Through the CLI](#)

This topic describes how to install the U2000 software on the master server through the CLI. This method is recommended if you cannot log in to the GUI of the OS.

7.4.1 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 SUSE Linux OS.

Prerequisite

- In the scenario where the OSs of the master server and slave server have already been preconfigured, see the [7.2 Preconfiguring the OS of the Master Server](#) and [7.3 Preconfiguring the OS of the Slave Server](#). In the scenario where the OSs of the master server and slave server have not yet been preconfigured, the single-server system (SUSE Linux-distributed) fails to be installed.

- The database software is installed along with the U2000. If the database has already been installed on the master server, you must make sure that the database is started. For details, see [A.2.4 How Can I Start the Oracle Database \(Single-Server System\)?](#).
- The size of the installation directory of the master server and slave server must meet requirements. For example, the free space of the installation directory must be larger than 30 GB for the installation of all components.

 **TIP**

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

- The remote desktop control software is ready.
- The Network Management System Maintenance Suite server of the slave servers is started.

 **NOTE**

If the Network Management System Maintenance Suite process of the slave server server on the is not started, run the following commands to start it:

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

Context



CAUTION

You must install the U2000 software on the master server.

Do not use the integrated numberpad keyboards. This is because the **Num Lock** may not appear to work when a SUSE Linux OS is installed on certain machines.

 **TIP**

To log in to the **GNOME**, perform the following operations: Click **Session** in the lower left corner of the login dialog box of the remote desktop control software. In the **Choose a Session** dialog box, select **GNOME**, and then set the session to **GNOME**.

Procedure

- 1 Log in to the **GNOME** session process of the master server OS as the **root** user.
- 2 On the desktop, right-click and choose **Open Terminal** from the shortcut menu to display a CLI.
- 3 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.

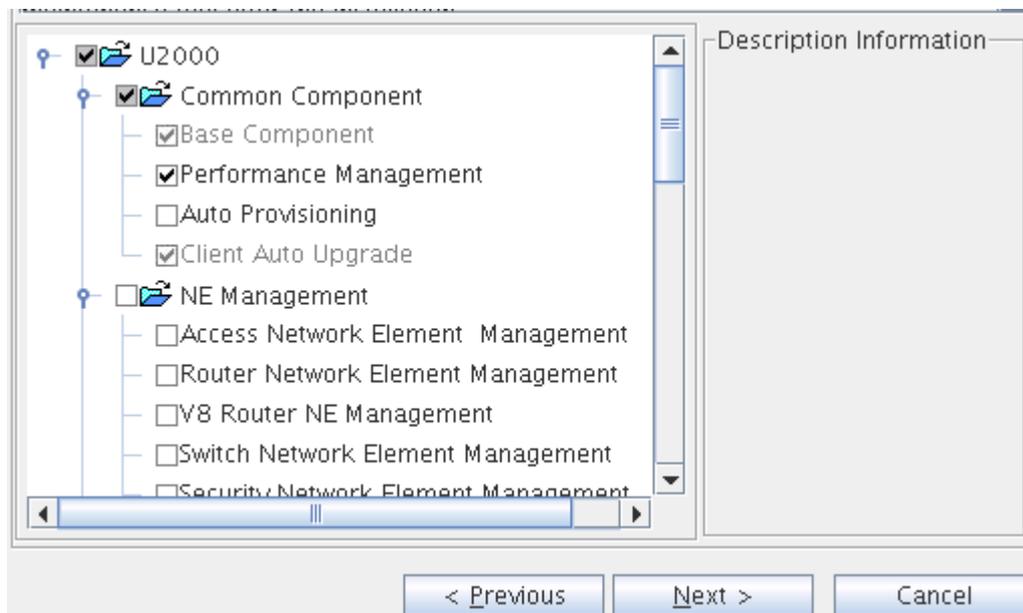
Read the terms of the software license agreement carefully.

- 4 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**.

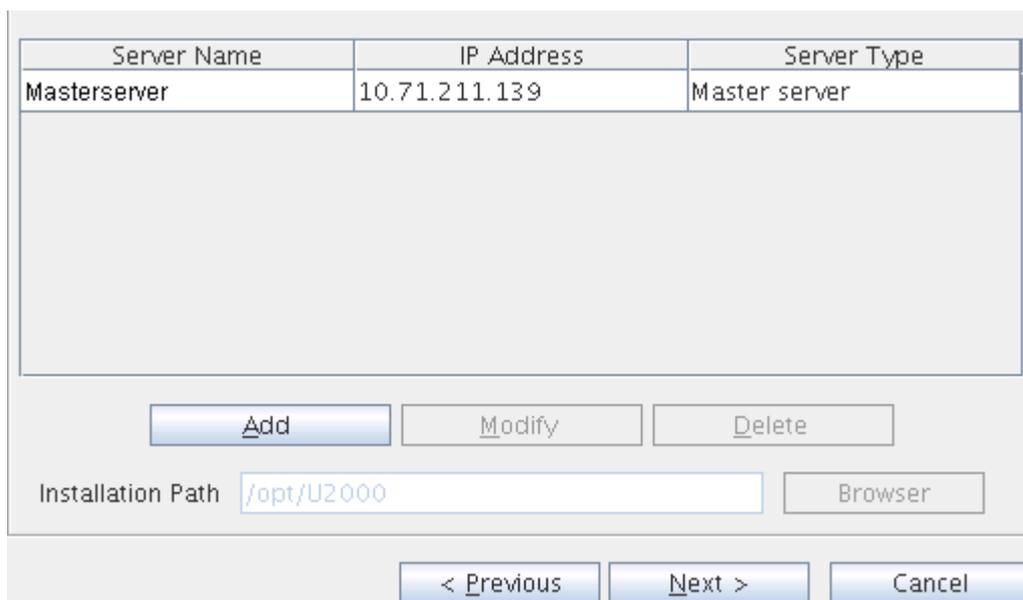
- 5 Select a language as required, such as **English**. Then, click **Next**. The **Select Component** dialog box is displayed.



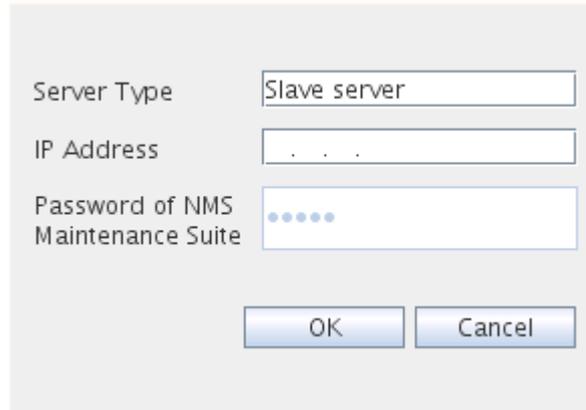
- 6 Select the components according to the type of the equipment to be managed. Then, click **Next**. The **Configure Server** dialog box is displayed.

 **TIP**

Select components according to preinstallation component planning. If component planning is not performed before installation, see **Deployment Planning of NMS Components** in the *iManager U2000 Planning Guide* to perform component planning.



- 7 Do as follows to configure the server:
 1. Click **Add**. The **Add Server** dialog box is displayed.



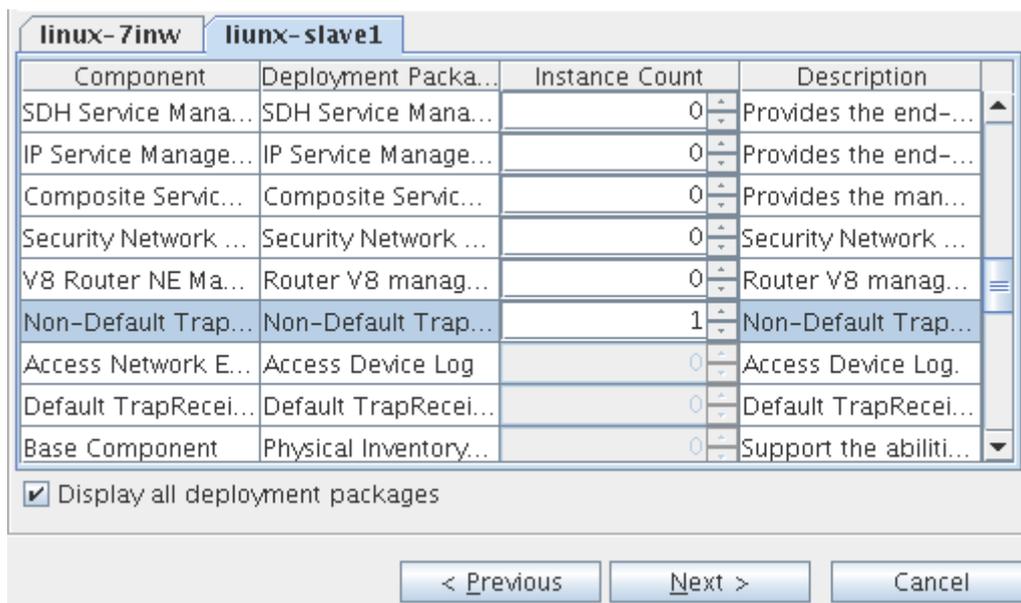
Set the related parameters. The following table shows the parameter description.

Parameter	Description
Server Type	Specifies the type of a slave server. The default value is Slave Server . You do not need to set this parameter.
IP Address	Specifies the IP address of the slave server for external communication.
Password of Network Management System Maintenance Suite	Specifies the password for the admin user on the slave server. The default value is admin . You do not need to set this parameter.

2. Click **OK**. The system returns to the **Configure Server** dialog box.
 - To add multiple slave servers, click **Add**. Set the server type to **Slave Server** to add more slave servers.
 - To modify the server, select the server and click **Modify**. Then, modify the server parameters in the dialog box that is displayed.
3. Click **Next**. The **Deployment Parameters** dialog box is 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.



- 8 Set the number of installed instances for the master server and slave server.

NOTE

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

Select the master server and slave server to view the selected components and the instance numbers related to the components respectively.

- 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.
- The non-default TrapReceiver service component is deployed together with the deployment packages that are applicable to SNMP. Common deployment packages applicable to SNMP include **Access Network Single Element Management Service**, **Switch Network Element Management**, **RouterMgr/SgMgr Component**, and **Security Network Element Management**. For example, if the **Access Network Single Element Management Service** deployment package is deployed on a slave server, you also need to deploy the **Non-Default TrapReceiver Service component** deployment package on this server.
- **DeskTop Service Component** can be deployed only on the master server and only one instance can be deployed.
- **NMS Log Zip Management** needs to be deployed on each server and one instance needs to be deployed on each server.

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

 **NOTE**

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

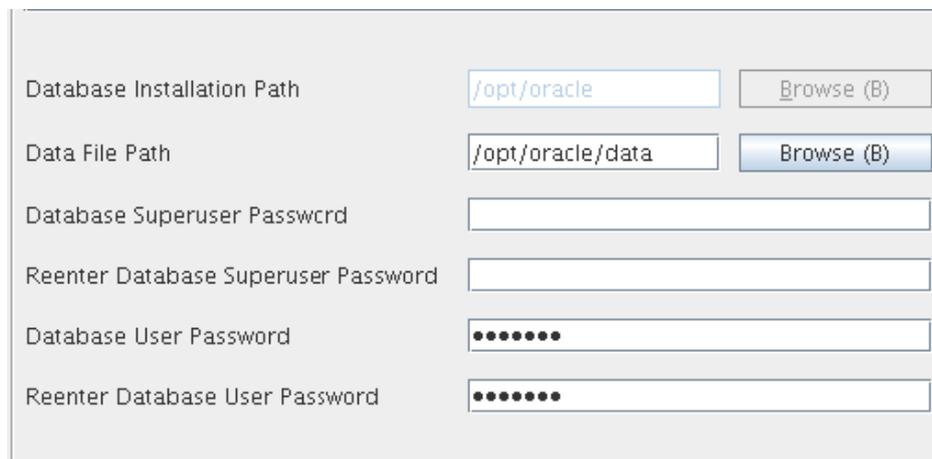
- For the default style, alarms are displayed in the following descending order of severity: **Critical, Major, Minor and Warning**.
- For the North America style, alarms are displayed in the following five levels in descending order of severity: **Critical, Major, Minor, Not Alarmed and Not Reported**.

- 10 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 Oracle database. The default value is /opt/oracle . This parameter does not need to be set.
Data File Path	Specifies the path of the data file. The default value is /opt/oracle/data . This parameter does not need to be set.
Database Superuser Password	Specifies the superuser password of the database. This password cannot be left blank and must be at least six 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.

Parameter	Description
Database User Password	Specifies the password of the database user. This parameter contains a minimum of six characters. The default value is NMSuser .
Reenter Database User Password	Confirms the password of the database user.

- 11 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 **U2000version_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**.

- 12 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.
- If a message indicating an installation failure or interruption is displayed during installation, perform the following operations on each server (including the master server and all slave servers) 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 Step 3 to install the U2000.

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

- 14 Click **Finish** to complete the U2000 installation.

- 15 Run the following commands to restart the OS:



CAUTION

Run the following commands on both the master server and slave server to restart the OS:

```
# sync;sync;sync;sync
# shutdown -r now
```

- 16 After the OS is restarted, log in to each slave server and run the following commands to configure the NFS:

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

A message similar to the following will be displayed:

```
Getting the current working directory...
Working directory:/opt/HWICMR/bin
The server private ip is 192.168.100.18.
Starting service automounter           done
Succeed to enable the autofs.
```

 **NOTE**

If **Succeed to enable the autofs** is displayed, it indicates that the NFS is configured successfully. Run the following commands to check the **/share/ftproot** directory on the slave server:

```
# cd /share/ftproot
# cd /share
# ls
```

---End

Follow-up Procedure

In the NAT networking scenario, you must configure the **ipmap.cfg** file. For details, see [A.3.5 How to Configure the ipmap.cfg Mapping File](#).

7.4.2 Installing the U2000 Through the CLI

This topic describes how to install the U2000 software on the master server through the CLI. This method is recommended if you cannot log in to the GUI of the OS.

Prerequisite

- In the scenario where the OSs of the master server and slave server have already been preconfigured, see the [7.2 Preconfiguring the OS of the Master Server](#) and [7.3 Preconfiguring the OS of the Slave Server](#). In the scenario where the OSs of the master server and slave server have not yet been preconfigured, the single-server system (SUSE Linux-distributed) fails to be installed.
- The database software is installed along with the U2000. If the database has already been installed on the master server, you must make sure that the database is started. For details, see [A.2.4 How Can I Start the Oracle Database \(Single-Server System\)?](#).
- The size of the installation directory of the master server and slave server must meet requirements. For example, the free space of the installation directory must be larger than 30 GB for the installation of all components.

 **TIP**

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

- The Network Management System Maintenance Suite server of the slave servers is started.

 **NOTE**

If the Network Management System Maintenance Suite process of the slave server server on the is not started, run the following commands to start it:

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

Context



CAUTION

You must install the U2000 software on the master server.

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.

Procedure

- 1 Log in to the master server OS as the **root** user.
- 2 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.

- 3 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]:
```

- 4 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]:

5 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]:
```

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

A message similar to the following will be displayed:

```
=====< Select Components >=====
[1: Select Component, 2: Finished select, 1]:
```

7 Enter **1** to select components.

A message similar to the following will be displayed:

```
...
Please select the operation
options[a:Select, b:Deselect, c:Display, d:Reset, e:Select All, f:Finished
configuration, f]:
```

8 Select the components according to the type of the equipment to be managed as prompted. Then, enter **f** to finish selecting the components.

A message similar to the following will be displayed:

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

9 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]:
```

10 Enter **n** to proceed with the next step. Then, press **Enter**.

A message similar to the following will be displayed:

```
=====< Deployment Server >=====
+-----+-----+-----+-----+-----+-----+
+
|Server Name |IP Address|Server Type|Administrator Password|Installation Path|
+-----+-----+-----+-----+-----+-----+
+
|Masterserver|10.111.66.203|Master Server|****                |/opt/U2000
|
+-----+-----+-----+-----+-----+-----+
+
```

```
[1:Add, 2:Modify, 3>Delete 4:Complete, 4]:
```

- To modify the master server, enter **2**, and then press **Enter**. The system modifies the master server parameters as prompted.
- To delete the master server, enter **3**, and then press **Enter**. The system deletes the master server, and then adds the master server again.

11 Add the slave server.

1. Enter **1** to add a server. Then, press **Enter**.

A message similar to the following will be displayed:

```
Server Name[]:
```

2. Enter the name of the slave server. Then, press **Enter**. The default value is the host name of the slave server.

A message similar to the following will be displayed:

```
Server Type[1:Slave Server, 1]:
```

3. Enter **1** to select the slave server. Then, press **Enter**.

A message similar to the following will be displayed:

```
IP Address[]:
```

4. Enter the IP address of the slave server for external communication. Then, press **Enter**.

A message similar to the following will be displayed:

```
=====< Deployment Server >=====
+-----+-----+-----+-----+-----+
+-----+
|Server Name |IP Address|Server Type|Administrator Password|Installation Path|
+-----+-----+-----+-----+-----+
+-----+
|Masterserver|10.111.66.203|Master Server|****                |/opt/
U2000        |
+-----+-----+-----+-----+-----+
+-----+
|Slaveserver |10.111.66.206|Slave Server |****                |/opt/
U2000        |
+-----+-----+-----+-----+-----+
+-----+
```

```
[1:Add, 2:Modify, 3>Delete 4:Complete, 4]:
```

5. Enter **4** to complete installation. Then, press **Enter**.

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:

```
=====< 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]:
```

- 13** 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.
- The non-default TrapReceiver service component is deployed together with the deployment packages that are applicable to SNMP. Common deployment packages applicable to SNMP include **Access Network Single Element Management Service**, **Switch Network Element Management**, **RouterMgr/SgMgr Component**, and **Security Network Element Management**. For example, if the **Access Network Single Element Management Service** deployment package is deployed on a slave server, you also need to deploy the **Non-Default TrapReceiver Service component** deployment package on this server.
- **DeskTop Service Component** can be deployed only on the master server and only one instance can be deployed.
- **NMS Log Zip Management** needs to be deployed on each server and one instance needs to be deployed on each server.

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:

```
=====< 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**.

15 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]:
```

16 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/oracle]
Data File Path [/opt/oracle/data]:
```

17 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/oracle/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 cannot be left blank and must be at least six 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 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**.

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 **U2000version_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]:
```

- 18 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.
- If a message indicating installation failure or abnormal interruption is displayed during installation, perform the following operations on each server (including the master server and all slave servers) 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.

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

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

20 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.
...
```

21 Run the following commands to restart the OS:



Run the following commands on both the master server and slave server to restart the OS:

```
# sync;sync;sync;sync
# shutdown -r now
```

22 After the OS is restarted, log in to each slave server and run the following commands to configure the NFS:

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

A message similar to the following will be displayed:

```
Getting the current working directory...
Working directory:/opt/HWICMR/bin
The server private ip is 192.168.100.18.
Starting service automounter done
Succeed to enable the autofs.
```

 **NOTE**

If **Succeed to enable the autofs** is displayed, it indicates that the NFS is configured successfully. Run the following commands to check the **/share/ftproot** directory on the slave server:

```
# cd /share/ftproot
# cd /share
# ls
```

----End

Follow-up Procedure

In the NAT networking scenario, you must configure the **ipmap.cfg** file. For details, see [A.3.5 How to Configure the ipmap.cfg Mapping File](#).

8 Loading a U2000 License

This topic describes how to load a U2000 license. You must install a U2000 license before using the U2000.

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

Two methods are available for loading a U2000 license.

- Use commands to load the license. In this method, you must upload the license file to the specified path on the server and then run commands on the U2000 server to load the license.
- Load the license in the GUI. In this method, you only need to save the license file to the computer where the U2000 client is installed and use the U2000 client to load the license.



NOTE

You can select a method as required. No matter which method is selected, ensure that the U2000 server process has been started.

Procedure

- 1 Ensure that the network management system maintenance suite process and daemon process on the slave server is started.



NOTE

If there are multiple slave servers, check them respectively.

1. Log in to the OS of the slave server as the **root** user.
2. Do as follows to check whether the network management system maintenance suite process has been 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_linux/bin/java
-server -Dequinox.conf=engineering/conf/installE
```

 **NOTE**

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

If the network management system maintenance suite process has not been started, run the following commands to start it:

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

3. Do as follows to check whether the daem process of the slave server has been started:

```
# ps -ef|grep start
```

Information similar to the following is displayed:

```
root      1702      1  0 20:48 pts/0    00:00:00 /bin/bash ./start_daem -type
StandbyNode
root      1770    1702  1 20:48 pts/0    00:00:00 /opt/U2000/server/3rdTools/
python/bin/python /opt/U2000/server/bin/script/start_daem.py -type StandbyNode
root      1782    1355  0 20:48 pts/0    00:00:00 grep start
```

Or a message similar to the following will be displayed:

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

 **NOTE**

If `/bin/bash ./start_daem -type StandbyNode`, `/opt/U2000/server/3rdTools/python/bin/python`, or `imapsysd -cmd start` is displayed, the daem process of the slave server has been started.

If the daem process has not been started, run the following command to start it:

```
# /etc/init.d/u2kdaem start
```

- 2 Ensure that the network management system maintenance suite process on the master server is started.

1. Log in to the OS of the master server as the **root** user.
2. Do as follows to check whether the network management system maintenance suite process has been 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_linux/bin/java
-server -Dequinox.conf=engineering/conf/installE
```

 **NOTE**

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

If the network management system maintenance suite process has not been started, run the following commands to start it:

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

- 3 Ensure that the database is running.

To check whether the Oracle database is running, run the following command:

```
> ps -ef | grep ora_
```

Information similar to the following is displayed:

```
oracle 4055 1 0 20:00 ? 00:00:00 ora_j000_U2KDB
oracle 4174 4107 0 20:00 pts/1 00:00:00 grep ora_
oracle 23333 1 0 Nov15 ? 00:00:20 ora_pmon_U2KDB
oracle 23335 1 0 Nov15 ? 00:00:00 ora_vktm_U2KDB
oracle 23339 1 0 Nov15 ? 00:00:00 ora_diag_U2KDB
oracle 23341 1 0 Nov15 ? 00:00:00 ora_dbrm_U2KDB
oracle 23343 1 0 Nov15 ? 00:00:01 ora_psp0_U2KDB
oracle 23347 1 0 Nov15 ? 00:03:35 ora_dia0_U2KDB
oracle 23349 1 0 Nov15 ? 00:00:00 ora_mman_U2KDB
oracle 23351 1 0 Nov15 ? 00:00:03 ora_dbw0_U2KDB
oracle 23353 1 0 Nov15 ? 00:00:13 ora_lgwr_U2KDB
oracle 23355 1 0 Nov15 ? 00:00:15 ora_ckpt_U2KDB
oracle 23357 1 0 Nov15 ? 00:00:06 ora_smon_U2KDB
```

...

 **NOTE**

If the displayed information contains the following processes, the database service is started successfully:

- ora_pmon_U2KDB
- ora_dbw0_U2KDB
- ora_lgwr_U2KDB
- ora_ckpt_U2KDB
- ora_smon_U2KDB

To check whether the listener is started, run the following commands:

```
> su - oracle
password:password_of_oracle_user
> lsnrctl status
> exit
```

Information similar to the following is displayed:

```
...
STATUS of the LISTENER
-----
Alias                LISTENER
Version              TNSLSNR for Linux: Version 11.1.0.7.0 - Production
Start Date           17-DEC-2009 20:35:58
Uptime               0 days 0 hr. 5 min. 2 sec
Trace Level          off
Security             ON: Local OS Authentication
SNMP                 OFF
...
```

 **NOTE**

If the displayed information contains **Alias LISTENER**, the listener is started successfully:

To start the Oracle database, run the following commands:

```
> su - oracle
password:password_of_oracle_user
> sqlplus / as sysdba
SQL> startup
ORACLE instance started.

Total System Global Area 1610612736 bytes
Fixed Size                2046264 bytes
Variable Size             385877704 bytes
Database Buffers          1207959552 bytes
Redo Buffers              14729216 bytes
Database mounted.
Database opened.
```

To exit the SQL Server database, run the following command:

```
SQL> exit
```

To start the listener, run the following command:

```
> lsnrctl start
```

To log out as the Oracle user, run the following command:

```
> exit
```

4 On the master server, start U2000 server processes.

1. To check whether U2000 server processes have been started, run the following commands:

```
# cd /opt/U2000/server
# . svc_profile.sh
# daem_ps
```

NOTE

Leave a space between the dot . and the command **svc_profile.sh**.

Information similar to the following is displayed:

```
root 27069      1    0 10:31:39 ?          1:39 imapmrb
   root 27079      1    0 10:31:39 ?          0:00 imapwatchdog -cmd start
   root 27075      1    0 10:31:39 ?          0:50 imapsysd -cmd start
   root 27086      1    0 10:31:39 ?          0:09 imapeventmgr
   root 23679      1    1 17:57:06 pts/8       0:02 imap_sysmonitor -cmd start
   root 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**.

2. If the U2000 processes are not started, run the following command to start U2000 processes:

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

5 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
```

6 Do as follows to load the U2000 license.

Method one: Use commands to load the U2000 license.

1. Send the license file in ASCII codes by FTP to the U2000 installation path **/export/home/nmsuser** as the **root** user. Details are as follows:

- a. Log in to a PC where the license file is stored.
- b. Choose **Start > Run**. Then, enter **ftp system IP address of the server** and click **OK**. An FTP connection is established and a CLI is displayed.
- c. Enter **root** as the name for the OS user.
 User (IP_address:(none)):root
- d. Enter the password for the **root** user.
 Password:
- e. Set the format of the file to be transferred by FTP to ASCII.
 ftp> ascii

- f. Access the path where the license file is stored.
`ftp> lcd PC_directory`
 - g. Navigate to the `/export/home/nmsuser` path.
`ftp> cd /export/home/nmsuser`
 - h. Run the **put** command to upload the license file to the server.
`ftp> put "License_file_name"`
 - i. Exit the FTP program.
`ftp> quit`
2. On the server, open a CLI and run the following commands to make the license take effect:
- ```
cd /opt/U2000/server
. svc_profile.sh
cd /export/home/nmsuser
updateLicense -file License_file_name
```

 **NOTE**

Leave a space between the dot (.) and the command `svc_profile.sh`.

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)

3. Enter **Y**, and then press **Enter**.

**Method two:** Load the U2000 license in the GUI.

1. Log in to the OS of the computer where the U2000 client is installed.
  - If the U2000 client is installed in Windows, log in to the OS as the **administrator** user.
  - If the U2000 client is installed in Solaris, log in to the OS as the **nmsuser** user.
2. Copy and paste the U2000 license file to the computer where the U2000 client is installed.
3. On the desktop, double-click **U2000 Client**. The **Login** dialog box is displayed.
4. In the **Server** drop-down list, select the server (server on the primary site) 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 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, 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 Verifying Installation of a Single-Server System (SUSE Linux-Distributed)

This topic describes how to verify installation of a Single-Server System (SUSE Linux-Distributed). Before using a single-server system (SUSE Linux-distributed) to manage the network, you must make sure that the single-server system (SUSE Linux-distributed) is properly installed.

## Procedure

- 1 Check whether the Network Management System Maintenance Suite process and the daem process of the slave server have been started.

### NOTE

If there are multiple slave servers, check them respectively.

1. Log in to the OS of the slave server as the **root** user.
2. Do as follows to check whether the network management system maintenance suite process has been 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_linux/bin/java
-server -Dequinox.conf=engineering/conf/installE
```

### NOTE

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

If the network management system maintenance suite process has not been started, run the following commands to start it:

```
cd /opt/HWENGR/engineering
./startserver.sh
```

3. Do as follows to check whether the daem process of the slave server has been started:

```
ps -ef|grep start
```

Information similar to the following is displayed:

```
root 1702 1 0 20:48 pts/0 00:00:00 /bin/bash ./start_daem -type
StandbyNode
root 1770 1702 1 20:48 pts/0 00:00:00 /opt/U2000/server/3rdTools/
python/bin/python /opt/U2000/server/bin/script/start_daem.py -type StandbyNode
root 1782 1355 0 20:48 pts/0 00:00:00 grep start
```

Or a message similar to the following will be displayed:

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

 **NOTE**

If `/bin/bash ./start_daem -type StandbyNode`, `/opt/U2000/server/3rdTools/python/bin/python`, or `imapsysd -cmd start` is displayed, the daem process of the slave server has been started.

If the daem process has not been started, run the following command to start it:

```
/etc/init.d/u2kdaem start
```

**2** Check whether the Network Management System Maintenance Suite process of the master server has been started.

1. Log in to the OS of the master server as the **root** user.
2. Do as follows to check whether the network management system maintenance suite process has been 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_linux/bin/java
-server -Dequinox.conf=engineering/conf/installE
```

 **NOTE**

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

If the network management system maintenance suite process has not been started, run the following commands to start it:

```
cd /opt/HWENGR/engineering
./startserver.sh
```

**3** On the master server, do as follows to ensure that the Oracle process and the database listening process have been started:

1. To check whether the Oracle process has been started, run the following command:

```
su - oracle
> ps -ef | grep ora_
```

Information similar to the following is displayed:

```
oracle 4055 1 0 20:00 ? 00:00:00 ora_j000_U2KDB
oracle 4174 4107 0 20:00 pts/1 00:00:00 grep ora_
oracle 23333 1 0 Nov15 ? 00:00:20 ora_pmon_U2KDB
oracle 23335 1 0 Nov15 ? 00:00:00 ora_vktm_U2KDB
oracle 23339 1 0 Nov15 ? 00:00:00 ora_diag_U2KDB
oracle 23341 1 0 Nov15 ? 00:00:00 ora_dbrm_U2KDB
oracle 23343 1 0 Nov15 ? 00:00:01 ora_psp0_U2KDB
oracle 23347 1 0 Nov15 ? 00:03:35 ora_dia0_U2KDB
oracle 23349 1 0 Nov15 ? 00:00:00 ora_mman_U2KDB
oracle 23351 1 0 Nov15 ? 00:00:03 ora_dbw0_U2KDB
oracle 23353 1 0 Nov15 ? 00:00:13 ora_lgwr_U2KDB
oracle 23355 1 0 Nov15 ? 00:00:15 ora_ckpt_U2KDB
oracle 23357 1 0 Nov15 ? 00:00:06 ora_smon_U2KDB
...
```

 **NOTE**

- If the displayed information contains the following five processes, it indicates that the database service is started normally.
  - ora\_pmon\_U2KDB
  - ora\_dbw0\_U2KDB
  - ora\_lgwr\_U2KDB
  - ora\_ckpt\_U2KDB
  - ora\_smon\_U2KDB
- If the database process is not started, run the following commands to start the Oracle database process.
 

```
> sqlplus / as sysdba
SQL> startup
ORACLE instance started.

Total System Global Area 1610612736 bytes
Fixed Size 2046264 bytes
Variable Size 385877704 bytes
Database Buffers 1207959552 bytes
Redo Buffers 14729216 bytes
Database mounted.
Database opened.

Run the following command to exit the SQL Server database.
SQL> exit
```

2. Run the following command to check whether the listener is started.

```
> lsnrctl status
```

Information similar to the following is displayed:

```
...
STATUS of the LISTENER

Alias LISTENER
Version TNSLSNR for Linux: Version 11.1.0.7.0 - Production
Start Date 17-DEC-2009 20:35:58
Uptime 0 days 0 hr. 5 min. 2 sec
Trace Level off
Security ON: Local OS Authentication
SNMP OFF
...

```

 **NOTE**

- If the displayed information contains **Alias LISTENER**, it indicates that the listener is started normally.
- If the listen has not been started, run the following command to start it:
 

```
> lsnrctl start
```

3. Run the following command to log out the Oracle user:

```
> exit
```

4 On the master server, start U2000 server processes.

1. To check whether U2000 server processes have been started, run the following commands:

```
cd /opt/U2000/server
. svc_profile.sh
daem_ps
```

 **NOTE**

Leave a space between the dot . and the command **svc\_profile.sh**.

Information similar to the following is displayed:

```

root 27069 1 0 10:31:39 ? 1:39 imapmrb
root 27079 1 0 10:31:39 ? 0:00 imapwatchdog -cmd start
root 27075 1 0 10:31:39 ? 0:50 imapsysd -cmd start
root 27086 1 0 10:31:39 ? 0:09 imapeventmgr
root 23679 1 1 17:57:06 pts/8 0:02 imap_sysmonitor -cmd start
root 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**.

- If the U2000 processes are not started, run the following command to start U2000 processes:

```

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

```

- On the master server, run the following commands to check running status of each U2000 process:

```

cd /opt/U2000/server
. svc_profile.sh
svc_adm -cmd status -all

```

 **NOTE**

Leave a space between the dot . and the command **svc\_profile.sh**.

Information similar to the following is displayed:

```

.....
.....
.....
Service Agent: trapdispatcher [1 service(s)] pid: 13711
trapdispatcher [running]

Service Agent: trapr_agent [1 service(s)] pid: 9927
TrapReceiver [running]

[All Services: 64] [Running: 64] [Not Running: 0]

```

 **NOTE**

If the value of **Not Running** is **0**, it indicates that the U2000 has been installed successfully. If U2000 processes are abnormal, contact Huawei engineers.

---End

# 10 Handling the Failure to Install U2000 Software

This topic describes how to handle the failure to install U2000 software.

## Procedure

- 1 Log in to the OS of the master server as the **root** user.
- 2 Ensure that the Oracle process is stopped.

To check whether the Oracle database is running, run the following command:

```
> ps -ef | grep ora_
```

Information similar to the following is displayed:

```
oracle 4055 1 0 20:00 ? 00:00:00 ora_j000_U2KDB
oracle 4174 4107 0 20:00 pts/1 00:00:00 grep ora_
oracle 23333 1 0 Nov15 ? 00:00:20 ora_pmon_U2KDB
oracle 23335 1 0 Nov15 ? 00:00:00 ora_vktm_U2KDB
oracle 23339 1 0 Nov15 ? 00:00:00 ora_diag_U2KDB
oracle 23341 1 0 Nov15 ? 00:00:00 ora_dbrm_U2KDB
oracle 23343 1 0 Nov15 ? 00:00:01 ora_psp0_U2KDB
oracle 23347 1 0 Nov15 ? 00:03:35 ora_dia0_U2KDB
oracle 23349 1 0 Nov15 ? 00:00:00 ora_mman_U2KDB
oracle 23351 1 0 Nov15 ? 00:00:03 ora_dbw0_U2KDB
oracle 23353 1 0 Nov15 ? 00:00:13 ora_lgwr_U2KDB
oracle 23355 1 0 Nov15 ? 00:00:15 ora_ckpt_U2KDB
oracle 23357 1 0 Nov15 ? 00:00:06 ora_smon_U2KDB
```

...

### NOTE

If the displayed information contains the following processes, the database service is started successfully:

- ora\_pmon\_U2KDB
- ora\_dbw0\_U2KDB
- ora\_lgwr\_U2KDB
- ora\_ckpt\_U2KDB
- ora\_smon\_U2KDB

To check whether the listener is started, run the following commands:

```
> su - oracle
```

```
password:password_of_oracle_user
> lsnrctl status
> exit
```

Information similar to the following is displayed:

```
...
STATUS of the LISTENER

Alias LISTENER
Version TNSLSNR for Linux: Version 11.1.0.7.0 - Production
Start Date 17-DEC-2009 20:35:58
Uptime 0 days 0 hr. 5 min. 2 sec
Trace Level off
Security ON: Local OS Authentication
SNMP OFF
...
```

 **NOTE**

If the displayed information contains **Alias LISTENER**, the listener is started successfully:

If the Oracle process is started, run the following commands to stop the Oracle process:

```
> su - oracle
password:oracle_user_password
> sqlplus / as sysdba
SQL> shutdown immediate
SQL> exit
> exit
```

### 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/oracle**:

```
rm -rf /opt/U2000
rm -rf /opt/oracle
```

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

```
userdel nmsuser
userdel -rf oracle
```

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

```
groupdel nmsgroup
groupdel oracle
```

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

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

- 8 Run the following commands to delete the temporary file directory of the oracle database:

```
rm -rf /tmp/*oracle
rm -rf /tmp/oracle*
```

- 9 Log in to the OS of the slave server as the **root** user.

 **NOTE**

If there are multiple slave servers, log in to other servers and then do as follows:

- 10 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
```

- 11 Run the following command to delete the installation directory, that is, the **/opt/U2000** directory:

```
rm -rf /opt/U2000
```

- 12 Run the following command to delete the **nmsuser** user:

```
userdel nmsuser
```

- 13 Run the following command to delete the **nmsgroup** user group:

```
groupdel nmsgroup
```

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

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

- 15 Reinstall the U2000 software. For details, see [7.4 Starting the U2000 Installation Program](#).

----End



# A FAQs

---

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

## [A.1 SUSE Linux OS](#)

This topic provides the FAQs occurred in the SUSE Linux OS.

## [A.2 Oracle Database](#)

This topic describes the FAQs about the Oracle database.

## [A.3 U2000 System](#)

This topic covers FAQs about the U2000 system.

## A.1 SUSE Linux OS

This topic provides the FAQs occurred in the SUSE Linux OS.

[A.1.1 How to Start/Stop the FTP, TFTP, SFTP, and Telnet Services](#)

[A.1.2 How to Enable and Disable the FTP/Telnet Authority of the root User in the SUSE Linux OS?](#)

[A.1.3 How to Check Disk Partitions](#)

[A.1.4 How to Check the Remaining Space of a Disk](#)

[A.1.5 How to Monitor System Processes and Application Ports?](#)

[A.1.6 How to Log In to the OS Through the Remote Login Tools?](#)

[A.1.7 How to Query the Process Status](#)

[A.1.8 How to Forcibly End a Process](#)

[A.1.9 How to Use the vi Editor](#)

[A.1.10 How to Change the Time and Time Zone of the SUSE Linux OS?](#)

### A.1.1 How to Start/Stop the FTP, TFTP, SFTP, and Telnet Services

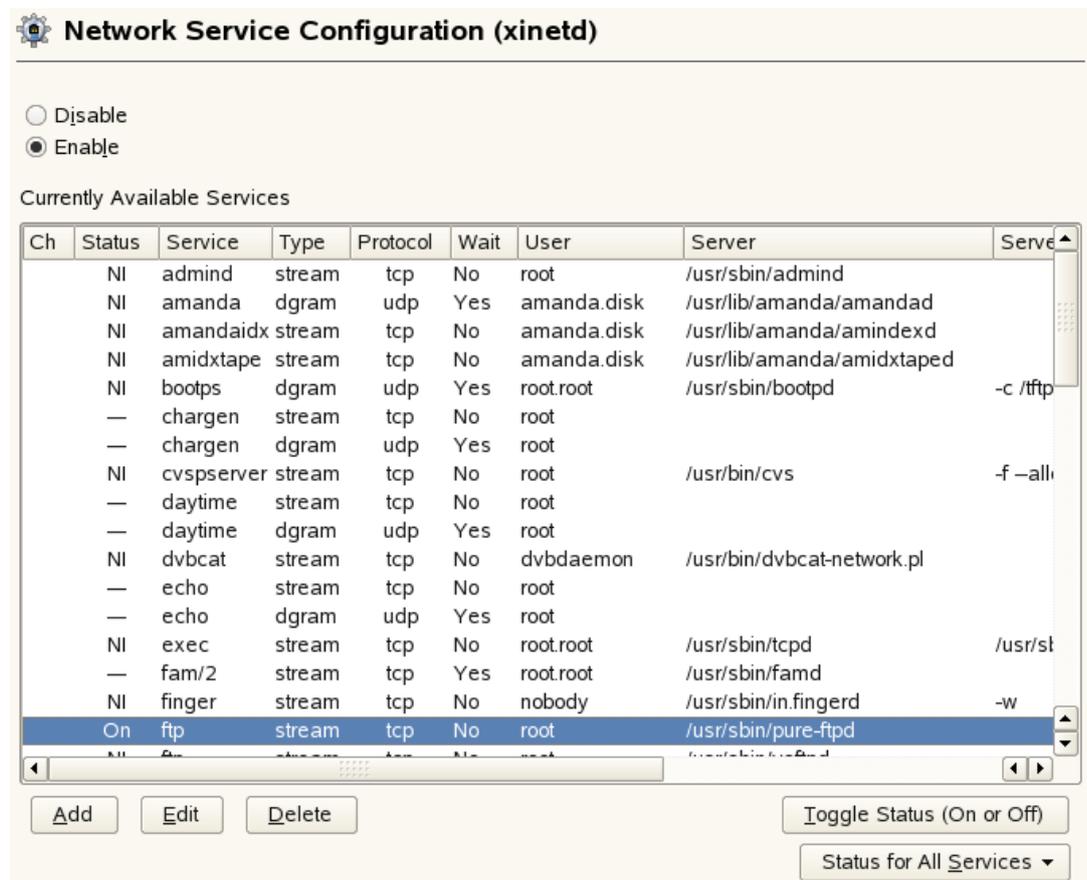
#### Question

How to start/stop the FTP, TFTP, SFTP, and Telnet services in the SUSE Linux OS?

#### Answer

- Perform the following operations for the FTP, TFTP and Telnet services:
  1. Run the following command in the **YaST2 Control Center** window as user **root** to enter the **Network Service Configuration** window:  
**# yast2 inetd**
  2. In the **Currently Available Services** list, select the FTP, TFTP, and Telnet services respectively, the following dialog box is displayed.

**Figure A-1** Starting the FTP, TFTP, and Telnet services



3. Click **Toggle Status (On or Off)** to configure the FTP, TFTP, and Telnet services respectively.

**NOTE**

- If **Status** is **On**, it indicates that the FTP service is started; if **Status** is **-**, it indicates that the FTP service is configured but not started; if **Status** is **NI**, it indicates that the FTP service is not configured.
- When starting the FTP service, insert the OS disk and then click **OK** if the system prompts you to insert the OS disk.

4. Click **Finish**.

- Perform the following operations for the SFTP service:
  - Run the following command to start the SFTP service:  
# **service sshd start**
  - Run the following command to stop the SFTP service:  
# **service sshd stop**

----End

## A.1.2 How to Enable and Disable the FTP/Telnet Authority of the root User in the SUSE Linux OS?

### Question

How to Enable and Disable the FTP/Telnet Authority of the root User in the Solaris OS?

### Answer

- The method of enable the FTP authority of the root user is as follow:
  1. Log in to the SUSE Linux OS as the root user.
  2. Use the text editor to open the **ftputers** file in the **/etc** directory. Add the comment tag (#) to the beginning of the following line in the **ftputers** file to comment out this line:  
`root`
  3. Run the command **wq!** to save and close the **ftputers** file.
- The method of disable the FTP authority of the root user is as follow:
  1. Log in to the SUSE Linux OS as the root user.
  2. Use the text editor to open the **ftputers** file in the **/etc** directory. delete the comment tag (#) to the beginning of the following line in the **ftputers** file:  
`root`
  3. Run the command **wq!** to save and close the **ftputers** file.
- The method of enable the Telnet authority of the root user is as follow:
  1. Log in to the SUSE Linux OS as the root user.
  2. Edit the **/etc/securetty**file, run the following command:  
`# vi /etc/securetty`
  3. Add the following character string to the end of the file:  
**pts/0**  
**pts/1**  
**pts/2**  
**pts/3**  
**pts/4**  
**pts/5**  
**pts/6**  
**pts/7**
  4. Run the command **wq!** to save and close the **securetty** file.
- The method of disable the Telnet authority of the root user is as follow:
  1. Log in to the SUSE Linux OS as the root user.
  2. Edit the **/etc/securetty**file, run the following command:  
`# vi /etc/securetty`
  3. delete the following character string to the end of the file:  
**pts/0**

**pts/1**

**pts/2**

**pts/3**

**pts/4**

**pts/5**

**pts/6**

**pts/7**

4. Run the command **wq!** to save and close the **securetty** file.

----End

## A.1.3 How to Check Disk Partitions

### Question

How do I check disk partitions?

### Answer

- 1 Run the following command in the terminal window to open the **YaST2 Control Center** window.

```
yast2
```

 **NOTE**

If the GUI is unavailable, run the **yast** command to start the **YaST Control Center**.

- 2 Select **System** on the left.
- 3 Select **Partitioner** on the right.
- 4 Carefully read the information in the **Warning** dialog box, and then click **Yes**.
- 5 In the **Expert Partitioner** window, view the disk partition information and check whether the partitions meet the requirements of the U2000 system software.

----End

## A.1.4 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.1.5 How to Monitor System Processes and Application Ports?

### Question

How to monitor system processes and application ports after the SUSE Linux OS is installed?

### Answer

Click the **Computer > More Applications > System > GNOME System Monitor** to manage processes or run the **ps -ef | grep *process name*** command to view processes. You can run the **vmstat** or **top** command to view the usage of the CPU, memory, and I/O bus.

## A.1.6 How to Log In to the OS Through the Remote Login Tools?

### Question

What should I do when I fail to log in to the SUSE Linux OS through the remote login tools?

### Answer

- 1 Log in to the OS as user **root**.
- 2 Run the following command in the terminal window:  

```
yast remote allow set=yes
rxdm restart
```
- 3 Use the remote login tools to log in to the U2000 server again.  
----End

## A.1.7 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.1.8 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.1.9 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 <b>ESC</b> 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                                                                                     |
|----------|----------------------------------------------------------------------------------------------|
| <b>a</b> | Appends text at the cursor (append).                                                         |
| <b>A</b> | Appends text at the end of the line where the cursor locates.                                |
| <b>i</b> | Adds text in front of the cursor (insert).                                                   |
| <b>I</b> | Adds text to the front of the first non-null character in the line where the cursor locates. |
| <b>o</b> | Adds text at the beginning of the next line where the cursor locates (open).                 |
| <b>O</b> | 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                                                                                         |
|----------------------|--------------------------------------------------------------------------------------------------|
| <b>h</b>             | Moves the cursor to the left.                                                                    |
| <b>j</b>             | Moves the cursor downwards.                                                                      |
| <b>k</b>             | Moves the cursor upwards.                                                                        |
| <b>l</b>             | Moves the cursor to the right.                                                                   |
| <b>Line number G</b> | Moves the cursor to a specified line. For example, <b>1G</b> moves the cursor to the first line. |
| <b>G</b>             | 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                                           |
|-----------|----------------------------------------------------|
| <b>x</b>  | Deletes the character where the cursor is located. |
| <b>dd</b> | 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                                             |
|------------|------------------------------------------------------|
| <b>:wq</b> | Saves changes and quits the vi editor.               |
| <b>:q</b>  | Quits the vi editor without saving changes.          |
| <b>:q!</b> | Forcibly quits the vi editor without saving changes. |
| <b>:w</b>  | Saves changes without quitting the vi editor.        |

## A.1.10 How to Change the Time and Time Zone of the SUSE Linux OS?

### Question

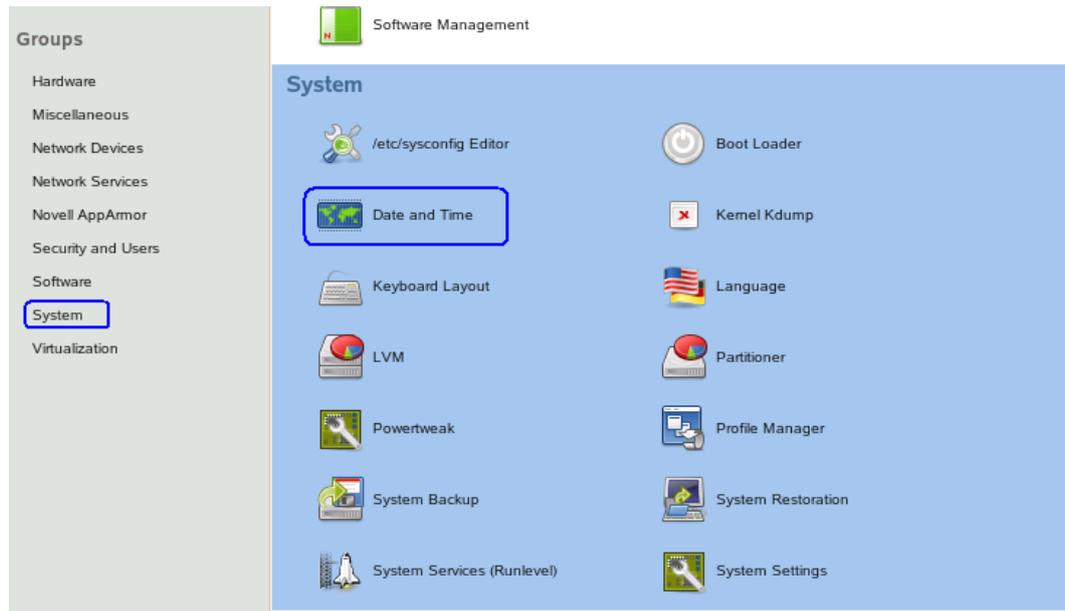
How to change the time and time zone of a SUSE Linux OS where the U2000 is not installed yet?

### Answer

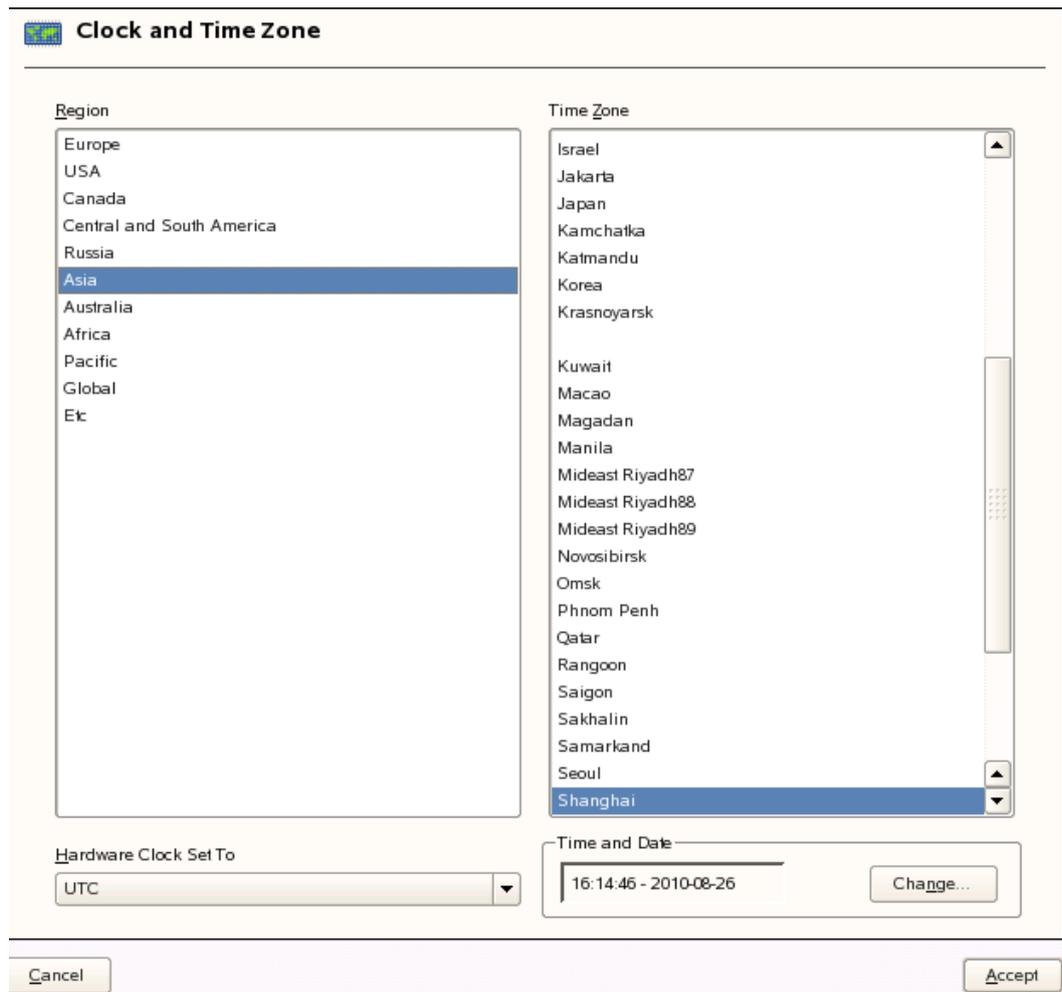
- 1 Log in to the graphical desktop system of the SUSE Linux OS as the **root** user.
- 2 Open the CLI and run the following command to start the YaST2 control center.  

```
yast2
```

3 Choose **System > Date and Time**.



4 In the dialog box that is displayed, set the area and time zone.



- 5 To change the time, click **Change**. In the dialog box that is displayed, set the date and time, and then click **Apply**.
- 6 Click **Accept**.
- 7 To restart the OS ,run the following commands:  
# `sync; sync; sync; sync`  
# `shutdown -r now`  
  
----End

## A.2 Oracle Database

This topic describes the FAQs about the Oracle database.

[A.2.1 How to Check Whether the Oracle Database Has Been Installed](#)

[A.2.2 How to Check the Version of the Oracle Database](#)

[A.2.3 How to Check the Name of the Oracle Database](#)

[A.2.4 How Can I Start the Oracle Database \(Single-Server System\)?](#)

[A.2.5 How Can I Stop the Oracle Database \(Single-Server System\)?](#)

[A.2.6 How Can I Check Whether the Oracle Database Is Started?](#)

[A.2.7 How Can I Check Whether the Oracle Listener Is Started?](#)

### A.2.1 How to Check Whether the Oracle Database Has Been Installed

#### Question

How to check whether the Oracle database has been installed?

#### Answer

##### NOTE

- If the Oracle database has not been installed, when you install the U2000, the Oracle database is automatically installed along with the U2000.
- If the Oracle database has been installed, when you install the U2000, a dialog box is displayed asking you whether to reuse the Oracle database. If you choose to reuse it, you do not need to re-install the Oracle database and thus can save time; if you choose not to reuse it, you need to re-install the Oracle database. Generally, it is recommended that the Oracle database not be reused.
- Consult the PC administrator to learn whether the Oracle database has been installed.
- Check whether the installation directory and file of the Oracle database exist. A sample directory is `/opt/oracle`.
- Check whether the Oracle database has been started and whether the version of the Oracle database is correct. For details, see [A.2.6 How Can I Check Whether the Oracle Database Is Started?](#). For details about how to start the Oracle database, see [A.2.4 How Can I Start the Oracle Database \(Single-Server System\)?](#).

----End

## A.2.2 How to Check the Version of the Oracle Database

### Question

How to check the version of the Oracle database?

### Answer

See [A.2.6 How Can I Check Whether the Oracle Database Is Started?](#).

## A.2.3 How to Check the Name of the Oracle Database

### Question

How to check the name of the Oracle database?

### Answer

- 1 Log in to the SUSE Linux OS as the **oracle** user.

 **NOTE**

The **oracle** user is the user that manages the Oracle database.

- 2 Run the following command to connect to the Oracle database:

```
$ sqlplus / as sysdba
```

- 3 Run the following command to check the name of the Oracle database:

```
SQL> select name from v$database;
```

Information similar to the following is displayed:

```
NAME ----- U2KDB
```

 **NOTE**

Alternatively, you can run the following command to check **db\_name**:

```
SQL> show parameter db
```

---End

## A.2.4 How Can I Start the Oracle Database (Single-Server System)?

### Question

How Can I Start the Oracle Database?

### Answer

- 1 Log in to SUSE Linux as **oracle**.

 **NOTE**

**oracle** is a user who manages the Oracle database.

- 2 In the command prompt window, run the following command to connect to the Oracle database:

```
$ sqlplus / as sysdba
```

- 3 Run the **startup** command to start the Oracle database.

```
> startup
```

The following is a display sample:

```
ORACLE instance started.

Total System Global Area 1610612736 bytes
Fixed Size 2046264 bytes
Variable Size 385877704 bytes
Database Buffers 1207959552 bytes
Redo Buffers 14729216 bytes
Database mounted.
Database opened.
```

**ORACLE instance started**, **Database mounted**, and **Database opened** indicate that the Oracle DB is started properly.

----End

## A.2.5 How Can I Stop the Oracle Database (Single-Server System)?

### Question

How Can I Shut Down the Oracle Database?

### Answer

- 1 Log in to SUSE Linux as **oracle**.

 **NOTE**

**oracle** is a user who manages the Oracle database.

- 2 In the command prompt window, run the following command to connect to the Oracle database:

```
$ sqlplus / as sysdba
```

- 3 Run the **shutdown** command to shut down the Oracle database.

```
> shutdown immediate
```

The following is a display sample:

```
Database closed.
Database dismounted.
ORACLE instance shut down.
```

**Database closed** indicates that the Oracle database is closed successfully. **Database dismounted** indicates that the database is dismounted successfully. **ORACLE instance shut down** indicates that the database instances are closed successfully.

----End

## A.2.6 How Can I Check Whether the Oracle Database Is Started?

### Question

How Can I Check Whether the Oracle Listener Is Started?

## Answer

- 1 Log in to SUSE Linux as **oracle**.

 **NOTE**

**oracle** is a user who manages the Oracle database.

- 2 In the command prompt window, run the following command to connect to the Oracle database:

```
$ sqlplus / as sysdba
```

- 3 On the CLI, run the following command to check whether the Oracle database is installed successfully by viewing the version information:

```
> select * from v$version;
```

The following is a display sample:

```
BANNER

Oracle Database 11g Enterprise Edition Release 11.1.0.7.0 - 64bit Production
PL/SQL Release 11.1.0.7.0 - Production
CORE 11.1.0.7.0 Production
TNS for Linux: Version 11.1.0.7.0 - Production
NLSRTL Version 11.1.0.7.0 - Production
```

The information indicates that the Oracle database is connected and started successfully. You can query data normally.

Otherwise, for single system, see [A.2.4 How Can I Start the Oracle Database \(Single-Server System\)?](#) to start the Oracle database.

---End

## A.2.7 How Can I Check Whether the Oracle Listener Is Started?

### Question

How Can I Check Whether the Oracle Listener Is Started?

### Answer

- 1 Log in to SUSE Linux as **oracle**.

 **NOTE**

**oracle** is a user who manages the Oracle database.

- 2 On the CLI, run the following command to view the state of the Oracle listener:

```
$ lsnrctl status
```

The following is a display sample:

```
STATUS of the LISTENER

Alias LISTENER
Version TNSLSNR for Linux IA64: Version 10.2.0.3.0 - Production
Start Date 23-MAR-2009 10:16:36
```

Here, **STATUS of the LISTENER** indicates that the Oracle listener is already started. If the listener is not restarted, run the following command on the CLI to start the listener:

```
$ lsnrctl start
```

```
----End
```

## A.3 U2000 System

This topic covers FAQs about the U2000 system.

[A.3.1 How to Verify That the U2000 Is Installed](#)

[A.3.2 How to Verify That the Processes of the U2000 Single-Server System \(SUSE Linux-Distributed\) Are Running](#)

[A.3.3 How to Start the Processes of the U2000 Single-Server System \(SUSE Linux-Distributed\)](#)

[A.3.4 How to End the Processes of the U2000 Single-Server System \(SUSE Linux-Distributed\)](#)

[A.3.5 How to Configure the ipmap.cfg Mapping File](#)

[A.3.6 How to Determine Which Types of Software Are Preinstalled](#)

[A.3.7 Which Installation Packages Are Required for U2000 Installation](#)

[A.3.8 How to Handle Messages Indicating That the Port Is Occupied During Installation or Uninstall](#)

[A.3.9 How to Check Whether the daem Process Is Started](#)

[A.3.10 How to Start the daem Process](#)

[A.3.11 How to End the daem Process](#)

[A.3.12 How to Check Downloaded Software Packages by Using MD5 Software](#)

[A.3.13 How to Configure the Communication Mode for a Linux-based U2000 Server?](#)

### 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 **root**.
2. 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 (SUSE Linux-Distributed) Are Running

### Question

How do I verify that processes of the U2000 single-server system (SUSE Linux-distributed) are running?

### Answer

- 1 Log in to the master server as user **nmsuser**.
- 2 Check the U2000 processes.

To check whether U2000 processes are started, run the following commands:

```
cd /opt/U2000/server
. svc_profile.sh
daem_ps
```

#### NOTE

Leave a space between the dot (.) and the command **svc\_profile.sh**.

Information similar to the following is displayed:

```
root 11800 1 0 15:09 ? 00:00:02 /opt/U2000/server/bin/imapmrb
root 11909 1 0 15:09 ? 00:00:00 imapwatchdog -cmd start
root 11902 1 1 15:09 ? 00:00:10 imapsysd -cmd start
root 11906 1 0 15:09 ? 00:00:00 imapeventmgr
root 12479 11909 2 15:09 ? 00:00:11 /opt/U2000/server/bin/
imap_sysmonitor -cmd start >/dev/null 2>&1
root 11948 1 0 15:09 ? 00:00:02 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 (SUSE Linux-Distributed)

### Question

How do I start the processes of the U2000 single-server system (SUSE Linux-distributed)?

### Answer

- 1 Log in to the master server as user **root**.
- 2 On the master server, start U2000 server processes.
  1. To check whether U2000 server processes have been started, run the following commands:

```
cd /opt/U2000/server
. svc_profile.sh
daem_ps
```

#### NOTE

Leave a space between the dot . and the command **svc\_profile.sh**.

Information similar to the following is displayed:

```
root 27069 1 0 10:31:39 ? 1:39 imapmrb
 root 27079 1 0 10:31:39 ? 0:00 imapwatchdog -cmd start
 root 27075 1 0 10:31:39 ? 0:50 imapsysd -cmd start
 root 27086 1 0 10:31:39 ? 0:09 imapeventmgr
 root 23679 1 1 17:57:06 pts/8 0:02 imap_sysmonitor -cmd start
 root 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**.

2. If the U2000 processes are not started, run the following command to start U2000 processes:

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

----End

## A.3.4 How to End the Processes of the U2000 Single-Server System (SUSE Linux-Distributed)

### Question

How do I end the processes of the U2000 single-server system (SUSE Linux-distributed)?

### Answer

- 1 Log in to the master server as user **root**.
- 2 Run the following commands to stop the U2000:

```
cd /opt/U2000/server/bin
./stopnms.sh
```

----End

## A.3.5 How to Configure the ipmap.cfg Mapping File

### Question

If NAT networking is applied in a distributed system, after the U2000 software is installed or the server IP address is changed, the **ipmap.cfg** mapping file need to be manually configured on the master server. How do I configure the **ipmap.cfg** mapping file?

### Answer

- 1 Obtain and record the following IP addresses.

 **TIP**

- You can obtain system IP addresses of servers in the distributed system from the NMS administrator. Alternatively, run the **ifconfig -a** command on the servers. The IP addresses indicated by **bond0** are system IP addresses of the servers.
- To obtain private IP addresses of servers in the distributed system, run the **ifconfig -a** command on the servers. The IP addresses indicated by **bond1** are private IP addresses of the servers.
- You can obtain the public IP address of the NAT server from the NMS administrator.

**Table A-2** Mapping relationship between U2000 IP addresses and NAT server IP addresses

| System IP Addresses of All Servers in the Distributed System     | Private IP Addresses of All Servers in the Distributed System         | Public IP Addresses of the NAT Server                          |
|------------------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------------------|
| System IP address of the master server. For example, 129.9.1.30. | Private IP address of the master server. For example, 192.168.100.20. | Public IP address 1 on the NAT server. For example, 10.1.1.10. |
| System IP address of slave server 1. For example, 129.9.1.31.    | Private IP address of slave server 1. For example, 192.168.100.21.    | Public IP address 2 of the NAT server. For example, 10.1.1.11. |
| System IP address of slave server 2. For example, 129.9.1.32.    | Private IP address of slave server 2. For example, 192.168.100.22.    | Public IP address 3 of the NAT server. For example, 10.1.1.12. |
| ...                                                              | ...                                                                   | ...                                                            |
| System IP address of slave server N:                             | Private IP address of slave server N.                                 | Public IP address N of the NAT server.                         |

- 2 Log in to the master server as user **root**.
- 3 Open a terminal window. Run the associated commands to access the **server/etc/conf** directory in the U2000 installation path. For example, if the default installation path of the U2000 is **/opt/U2000**, run the following command:

```
cd /opt/U2000/server/etc/conf
```

- 4 Run the **vi** command to modify the **ipmap.cfg** file.
  1. If the **ipmap.cfg** file exists in the installation path, run the following command to delete the file. If the **ipmap.cfg** file does not exist in the installation path, directly go to 4.2.
 

```
rm -f ipmap.cfg
```
  2. Create and modify the **ipmap.cfg** file.
 

```
vi ipmap.cfg
```
  3. Run the **vi** command to modify the **ipmap.cfg** file. The following uses the IP address collected in Step 1 as an example.
 

```
internal=129.9.1.30,client=10.1.1.10,server=192.168.100.20
internal=129.9.1.31,client=10.1.1.11,server=192.168.100.21
internal=129.9.1.32,client=10.1.1.12,server=192.168.100.22
```

 **NOTE**

The statement format is as follows: **internal = System IP address of the server, client = Public IP Addresses of the NAT Server**

4. After the **ipmap.cfg** file is modified, save the file and exit.

----End

## A.3.6 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.3.7 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-3** Software required for installation (blade server)

| Software      | Medium Description                                                                                                                                                                                                                                                                                             |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SUSE Linux OS | You can install the SUSE Linux OS by using the quick installation DVD or the common installation DVD. <ul style="list-style-type: none"> <li>● Quick installation DVD: U2000<code>version</code>_server_os_sles_x64_dvd1</li> <li>● Common installation DVD: SUSE Linux 10 Enterprise Server 10 SP3</li> </ul> |
| Database      | Installation DVD or installation package <ul style="list-style-type: none"> <li>● Installation DVD: U2000<code>version</code>_server_db_sles_x64_dvd3</li> <li>● Installation package: U2000<code>version</code>_server_db_sles_x64.tar</li> </ul>                                                             |

| Software              | Medium Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| U2000 server software | <p>Installation DVD or installation package</p> <ul style="list-style-type: none"> <li>● Installation DVD: U2000<code>version</code>_server_nms_sles_x64_dvd4</li> <li>● Installation package:</li> </ul> <p><b>NOTE</b><br/>                     Prepare software packages required by the components to be installed.</p> <ul style="list-style-type: none"> <li>- Basic component:<br/>                         U2000<code>version</code>_server_nmsbase_sles_x64.tar<br/> <b>It must be available.</b> It is used to install the U2000.</li> <li>- Core component:<br/>                         U2000<code>version</code>_server_nmscore_sles_x64.tar<br/> <b>It must be available.</b> It is used to install the U2000.</li> <li>- Transport domain component:<br/>                         U2000<code>version</code>_server_nmstrans_sles_x64.tar<br/> <b>It is required only if the U2000 needs to manage Huawei transport equipment.</b> Huawei transport equipment includes:                         <ul style="list-style-type: none"> <li>- MSTP equipment</li> <li>- WDM equipment</li> <li>- NA WDM equipment</li> <li>- Submarine equipment</li> <li>- RTN equipment</li> <li>- PTN equipment</li> </ul> </li> <li>- IP domain component:<br/>                         U2000<code>version</code>_server_nmsip_sles_x64.tar<br/> <b>It is required only if the U2000 needs to manage Huawei IP equipment.</b> Huawei IP equipment includes:                         <ul style="list-style-type: none"> <li>- Routers</li> <li>- Switches</li> <li>- Metro service equipment</li> <li>- Broadband access equipment</li> <li>- VoIP gateways</li> <li>- Firewalls</li> <li>- Service inspection gateway</li> <li>- SVN equipment</li> </ul> </li> <li>- Access domain component:<br/>                         U2000<code>version</code>_server_nmsaccess_sles_x64.tar<br/> <b>It is required only if the U2000 needs to manage Huawei access equipment.</b> Huawei access equipment includes:                         <ul style="list-style-type: none"> <li>- FTTx equipment</li> <li>- MSAN equipment</li> <li>- DSLAM equipment</li> </ul> </li> </ul> |

## A.3.8 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 SUSE Linux OS, the message is as follows:

The communication port (12212,12213,12214,12215) of the installation framework is used. Run the `/bin/netstat -ant` 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.3.9 How to Check Whether the daem Process Is Started

### Question

The NMS server processes can be started only after the daem process of the slave server is started. In normal cases, the daem process is started along with the SUSE Linux OS. How do I check whether the daem process is started?

### Answer

- 1 Log in to the OS of the server as user `root`.
- 2 Open a terminal window and run the following command:

```
ps -ef|grep start
```

Information similar to the following is displayed:

```
root 1702 1 0 20:48 pts/0 00:00:00 /bin/bash ./start_daem -type
StandbyNode
root 1770 1702 1 20:48 pts/0 00:00:00 /opt/U2000/server/3rdTools/python/
bin/python /opt/U2000/server/bin/script/start_daem.py -type StandbyNode
root 1782 1355 0 20:48 pts/0 00:00:00 grep start
```

Or a message similar to the following will be displayed:

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



**NOTE**

If `/bin/bash ./start_daem -type StandbyNode`, `/opt/U2000/server/3rdTools/python/bin/python`, or `imapsysd -cmd start` is displayed, the daem process of the slave server has been started.

----End

## A.3.10 How to Start the daem Process

### Question

In normal cases, the daem process is started along with the SUSE Linux OS. If the daem process is not started, how do I start it?

### Answer

- 1 Log in to the OS of the server as user **root**.
- 2 Open a terminal window and run the following command:

```
/etc/init.d/u2kdaem start
```

----End

## A.3.11 How to End the daem Process

### Question

How do I end the daem process in the SUSE Linux OS?

### Answer

- 1 Log in to the OS of the server as user **root**.
- 2 Open a terminal window and run the following command:

```
/etc/init.d/u2kdaem stop
```

----End

## A.3.12 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.3.13 How to Configure the Communication Mode for a Linux-based U2000 Server?

#### Question

A Linux-based U2000 server has two communication modes: the normal mode and the security socket layer (SSL) mode. How to configure these two modes?

#### Answer

1. Log in to the master server as user **root** and run the following commands to query the current communication mode.

```
cd /opt/U2000/server
. svc_profile.sh
ssl_adm -cmd query
```

 **NOTE**

In the **. svc\_profile.sh** command, there is a space between **.** and **svc\_profile.sh**.

2. Run the following commands to stop the U2000:

```
cd /opt/U2000/server/bin
./stopnms.sh
```

3. Run the following command to configure the master server communication mode.

```
ssl_adm -cmd setmode mode parameter
```

 **NOTE**

In the preceding command, *mode parameter* can be **normal**, **ssl**, or **both**. The description of each value is as follows:

- **normal**: Indicates that the U2000 server communicates with clients only in normal mode without security assurance.
- **ssl**: Indicates that the U2000 server communicates with clients only in security mode. This mode ensures the communication security.
- **both**: Indicates that both the normal and SSL modes are applicable to the U2000 server to communicate with clients.

**4** Run the following command to configure the slave server communication mode.

 **NOTE**

- If there is no slave server, skip this step.
- If there are multiple slave servers, perform this step on each slave server.

1. Log in to the slave server as user **root** and run the following commands to stop the daemon process.

```
/etc/init.d/u2kdaem stop
```

2. Run the following command to configure the slave server communication mode.

```
ssl_admin -cmd setmode mode parameter
```

 **NOTE**

In the preceding command, *mode parameter* can be **normal**, **ssl**, or **both**. The description of each value is as follows:

- **normal**: Indicates that the U2000 server communicates with clients only in normal mode without security assurance.
- **ssl**: Indicates that the U2000 server communicates with clients only in security mode. This mode ensures the communication security.
- **both**: Indicates that both the normal and SSL modes are applicable to the U2000 server to communicate with clients.

**5** Restart the daemon process.

 **NOTE**

- If there is no slave server, skip this step.
- If there are multiple slave servers, perform this step on each slave server.

```
/etc/init.d/u2kdaem start
```

**6** Run the following command on the master server to start the U2000 process as user **root**.

```
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.

### Prerequisite

The Network Management System Maintenance Suite of the master server and slave server are running.

#### NOTE

Run the following commands to start the Network Management System Maintenance Suite as user **root**.

```
cd /opt/HWENGR/engineering
./startserver.sh
```

### Procedure

- 1 Log out of all running U2000 clients.
- 2 Log in to the OS of the master server as user **root**.
- 3 Run the following commands to stop the U2000:

```
cd /opt/U2000/server/bin
./stopnms.sh
```

- 4 Run the following commands to stop the Network Management System Maintenance Suite:

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

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_linux/bin/java -server -
Dequinox.conf=engineering/conf/installE
```

#### NOTE

If the displayed information does not contain `/opt/HWNMSJRE/jre_linux/bin/java -server`, the Network Management System Maintenance Suite is stopped successfully.

- 5 Ensure that the database is running.

To check whether the Oracle database is running, run the following command:

```
> ps -ef | grep ora_
```

Information similar to the following is displayed:

```
oracle 4055 1 0 20:00 ? 00:00:00 ora_j000_U2KDB
oracle 4174 4107 0 20:00 pts/1 00:00:00 grep ora_
oracle 23333 1 0 Nov15 ? 00:00:20 ora_pmon_U2KDB
oracle 23335 1 0 Nov15 ? 00:00:00 ora_vktm_U2KDB
oracle 23339 1 0 Nov15 ? 00:00:00 ora_diag_U2KDB
oracle 23341 1 0 Nov15 ? 00:00:00 ora_dbrm_U2KDB
oracle 23343 1 0 Nov15 ? 00:00:01 ora_psp0_U2KDB
oracle 23347 1 0 Nov15 ? 00:03:35 ora_dia0_U2KDB
oracle 23349 1 0 Nov15 ? 00:00:00 ora_mman_U2KDB
oracle 23351 1 0 Nov15 ? 00:00:03 ora_dbw0_U2KDB
oracle 23353 1 0 Nov15 ? 00:00:13 ora_lgwr_U2KDB
oracle 23355 1 0 Nov15 ? 00:00:15 ora_ckpt_U2KDB
```

```
oracle 23357 1 0 Nov15 ? 00:00:06 ora_smon_U2KDB
```

...

 **NOTE**

If the displayed information contains the following processes, the database service is started successfully:

- ora\_pmon\_U2KDB
- ora\_dbw0\_U2KDB
- ora\_lgwr\_U2KDB
- ora\_ckpt\_U2KDB
- ora\_smon\_U2KDB

To check whether the listener is started, run the following commands:

```
> su - oracle
password:password_of_oracle_user
> lsnrctl status
> exit
```

Information similar to the following is displayed:

```
...
STATUS of the LISTENER

Alias LISTENER
Version TNSLSNR for Linux: Version 11.1.0.7.0 - Production
Start Date 17-DEC-2009 20:35:58
Uptime 0 days 0 hr. 5 min. 2 sec
Trace Level off
Security ON: Local OS Authentication
SNMP OFF
...
```

 **NOTE**

If the displayed information contains **Alias LISTENER**, the listener is started successfully:

To start the Oracle database, run the following commands:

```
> su - oracle
password:password_of_oracle_user
> sqlplus / as sysdba
SQL> startup
ORACLE instance started.

Total System Global Area 1610612736 bytes
Fixed Size 2046264 bytes
Variable Size 385877704 bytes
Database Buffers 1207959552 bytes
Redo Buffers 14729216 bytes
Database mounted.
Database opened.
```

To exit the SQL Server database, run the following command:

```
SQL> exit
```

To start the listener, run the following command:

```
> lsnrctl start
```

To log out as the Oracle user, run the following command:

```
> exit
```

- 6 Log in to the slave server as user **root**. Open a terminal window and run the following command to stop the daem processes:

```
/etc/init.d/u2kdaem stop
```

 **NOTE**

Perform this step on each slave server.

----End

## B.2 Uninstalling the U2000

This topic describes how to uninstall the U2000 software.

### Prerequisite

Uninstall preparations have been completed.

In the single-server system (SUSE Linux-distributed), ensure that the following requirements are met. Otherwise, the single-server system (SUSE Linux-distributed) cannot be uninstalled successfully.

- The public network and the private network of the master server and slave server are connected.
- The Network Management System Maintenance Suite of the master server is stopped.
- The Network Management System Maintenance Suite of the slave server is started.
- The daem process of the slave server is ended.

### Context

- This operation uninstalls only the U2000. The Oracle 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 **GNOME** session process of the master server OS as the **root** user.
- 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 master 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: user nmsuser does not exist
```

----End



# C Powering Off the Single-Server System (SUSE Linux-Distributed)

---

This topic describes how to shut down the U2000 Single-Server System (SUSE Linux-Distributed).

## 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 master server as the **root** user.
  - 3 Run the following commands to stop the U2000:

```
cd /opt/U2000/server/bin
./stopnms.sh
```
  - 4 Run the following commands to stop the Oracle process.

```
> su - oracle
> sqlplus / as sysdba
SQL> shutdown immediate
SQL> exit
> exit
```
  - 5 Run the following commands to shut down the master server OS.

```
sync;sync;sync;sync
shutdown -h now
```
  - 6 Run the following commands to shut down the slave server OS.

```
sync;sync;sync;sync
shutdown -h now
```
- End



# D Getting Started

This topic describes certain common operations that can be performed on the SUSE Linux workstation. After learning this topic, you can improve the efficiency of the operations in the SUSE Linux OS.

## Syntax Structure of Command Lines

The syntax structure of command lines is as follows:

```
command option parameter
```

The SUSE Linux 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 SUSE Linux 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
```

## Directory Browsing and Control Commands

| Command/Usage                         | Example                    | Description                                          |
|---------------------------------------|----------------------------|------------------------------------------------------|
| <code>cd directory</code>             | <code>cd /opt</code>       | Switches to another directory.                       |
| <code>ls option file directory</code> | <code>ls -al /opt</code>   | Displays the directory contents or file information. |
| <code>mkdir directory</code>          | <code>mkdir install</code> | Creates a directory.                                 |
| <code>pwd</code>                      | <code>pwd</code>           | Displays the current directory of the user.          |
| <code>rm file name</code>             | <code>rm file.tar</code>   | Deletes a file.                                      |
| <code>rmdir directory</code>          | <code>rmdir temp</code>    | Deletes an empty directory.                          |
| <code>fdisk option</code>             | <code>fdisk -l</code>      | Views the quantity of disks.                         |

| Command/Usage | Example | Description          |
|---------------|---------|----------------------|
| q             |         | Exits the man query. |

## Logging In to the SUSE Linux OS Through Remote Login Software

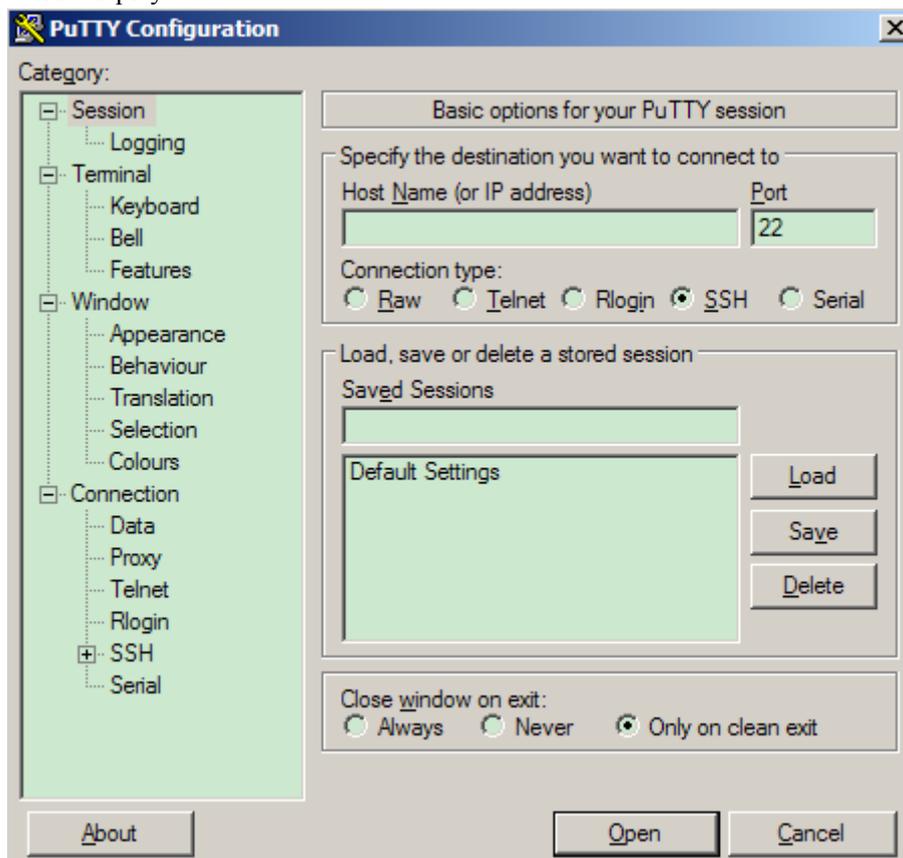
There are many remote login software products, such as the PuTTY. This topic takes the PuTTY as an example. The PuTTY is used to log in to the server from a remote site through command lines.



### 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. |

| Parameter            | Description                                                                                                                      |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Connection type      | Specifies the connection type. You need to select a connection type as required. Generally, select <b>Telnet</b> or <b>SSH</b> . |
| Saved Sessions       | This parameter cannot be set.                                                                                                    |
| Close window on exit | This parameter cannot be set. The default value is <b>Only on clean exit</b> .                                                   |

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 SUSE Linux 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 SUSE Linux OS

Run the following commands to restart the OS:

```
sync;sync;sync;sync
shutdown -r
```

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 SUSE Linux OS and Its Patches

---

This topic describes how to manually install the OS by using the SUSE Linux installation DVD delivered with the product.

## [E.1 Installing the SUSE Linux OS](#)

This topic describes how to install the SUSE Linux OS.

## [E.2 Verifying the Installation and Configuration of the OS](#)

This topic describes how to check the OS version, OS patch, the disk partitioning of the system and the language environment variable of the system.

## E.1 Installing the SUSE Linux OS

This topic describes how to install the SUSE Linux OS.

### Prerequisite

- The MAC addresses of NICs through which blade servers are connected to the public network must be collected.
  - An ATAE blade server is connected to the public network through the base plane. For details about how to view the MAC address of the base plane of an ATAE blade server, see [F.5 How to View the MAC Address of the Base Plane of an ATAE Blade Server](#).
  - An IBM blade server is connected to the public network through I/O module 1 and I/O module 2. The system IP address of the IBM blade server must be set on the external communication NIC. For details about how to view the MAC address of the external communication NIC of an IBM blade server, see [F.3 How to View the MAC Address of the External Communication NIC of an IBM Blade Server](#).
- The installation CD-ROM must be available.
- For the ATAE server, if the USB drive is connected to the ATAE server card, the indicator of the USB drive is green and flashes.

### Context

During the installation, use the keyboard as follows:

- Press **Tab** to switch between buttons, option buttons, and check boxes.
- Press **Enter** to select a button.
- Press an arrow key to select a parameter.
- Press the spacebar to select an option or a button.



#### NOTE

The installation DVD-ROM of the OS is described in the following procedure.

### Procedure

- 1 **Optional:** In the case of the ATAE blade server, in BIOS, set the order for starting the OS so that the OS boots from the CD-ROM.

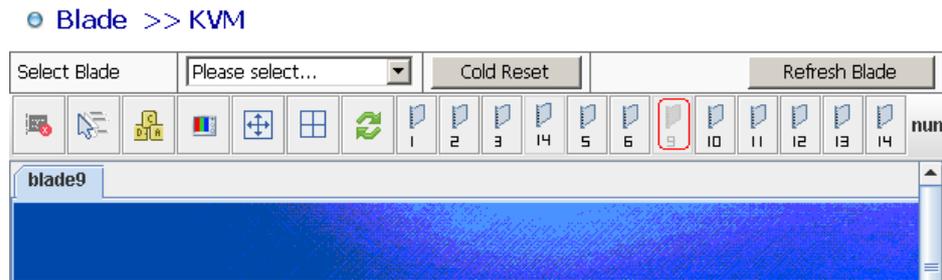


#### NOTE

This step is applicable only to the ATAE blade server. In the case of other servers, skip this step.

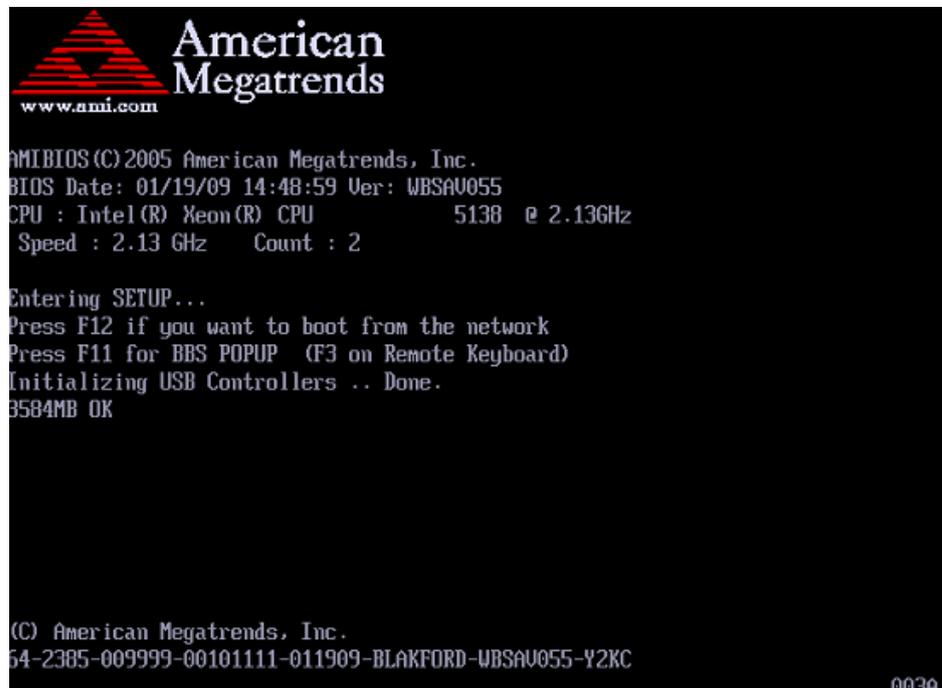
1. Insert the installation disk to the USB drive.
2. [Logging In to the Management Console of an ATAE Blade Server](#).
3. In the **Blade >> KVM** panel, select the required board from **Select Blade**, and click **Cold Reset** to restart the blade server.

On the toolbar of the **Blade >> KVM** panel, click the icon of the card to be operated to display the related tab page.

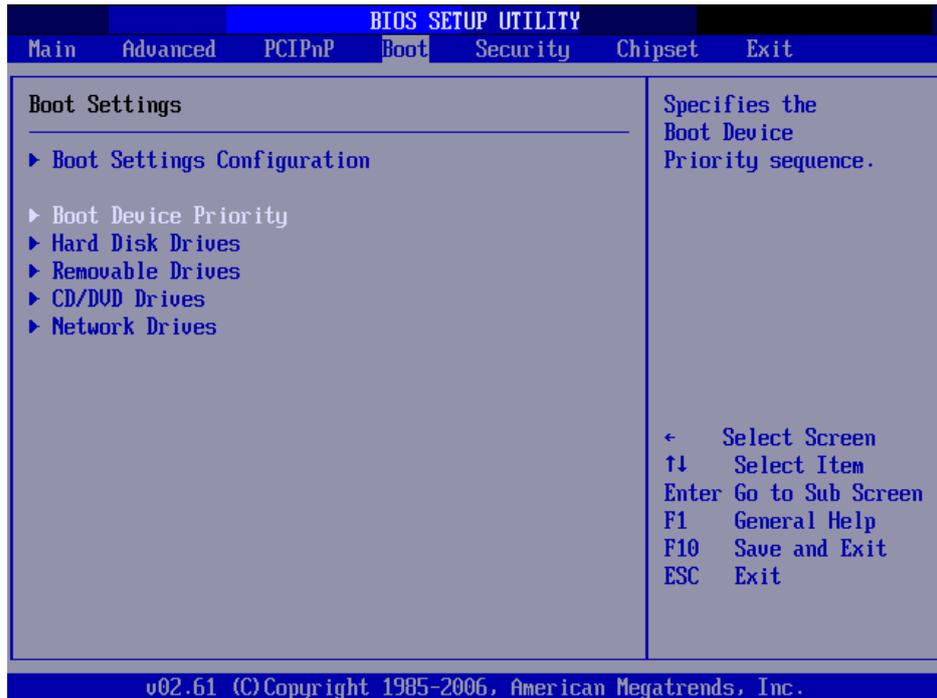


**TIP**

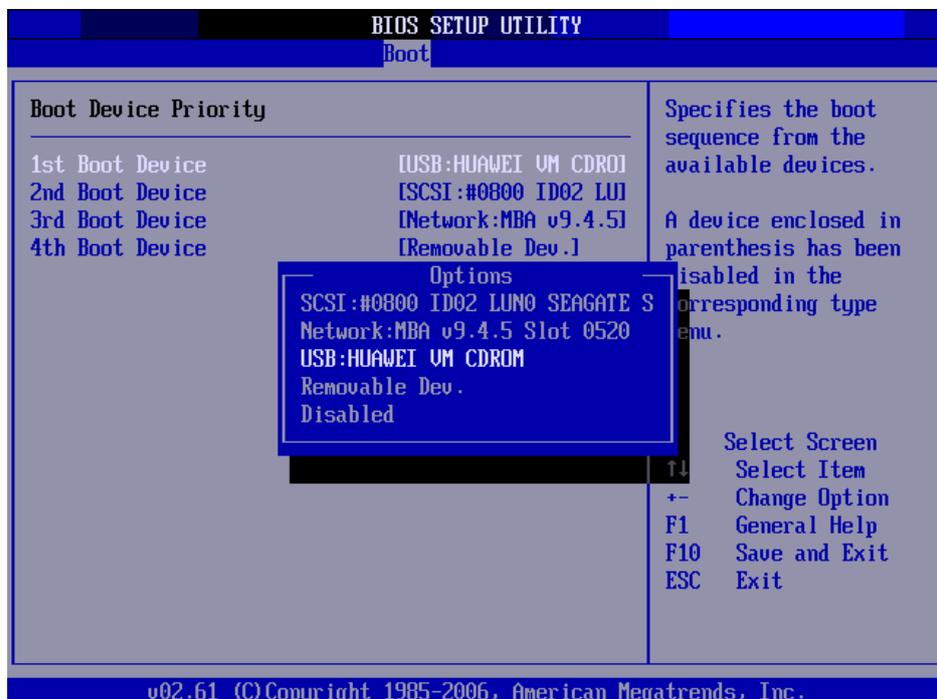
- To enter the full screen mode, click  on the toolbar.
  - To restore from the full screen mode to window, move the mouse to upper middle of the screen, press **Ctrl+Shift+Alt** and click  in the upper portion of the screen.
4. In the process of restarting the blade server, when the **American Megatrends** window is displayed, press **Delete** to display the **BIOS SETUP UTILITY** window.



5. In the **BIOS SETUP UTILITY** window, use the left arrow and right arrow keys to choose **Boot** from the main menu.
- On the **Boot Settings** tab page, use the up arrow and down arrow keys to select **Boot Device Priority**. Then, press **Enter**.



6. In the **Boot Device Priority** pane, set the order for starting the OS of the blade server so that the OS boots from the USB disk drive.
  - a. Select **1st Boot Device**, and then press **Enter**. The **Options** dialog box is displayed.
  - b. Use the up arrow and down arrow keys to select **USB:HUAWEI VM CDROM**. Then, press **Enter**.



7. Press **F10** after the previous settings, the confirm dialog box is displayed.
  8. Click **OK**, and then press **Enter** to save the settings and exit.
- 2 Optional:** In the case of the IBM HS22 blade server, in BIOS, set the order for starting the OS so that the OS boots from the CD-ROM.

 **NOTE**

This step is applicable only to the IBM HS22 blade server. In the case of other servers, skip this step.

1. **Mount the virtual media of the IBM blade server.**

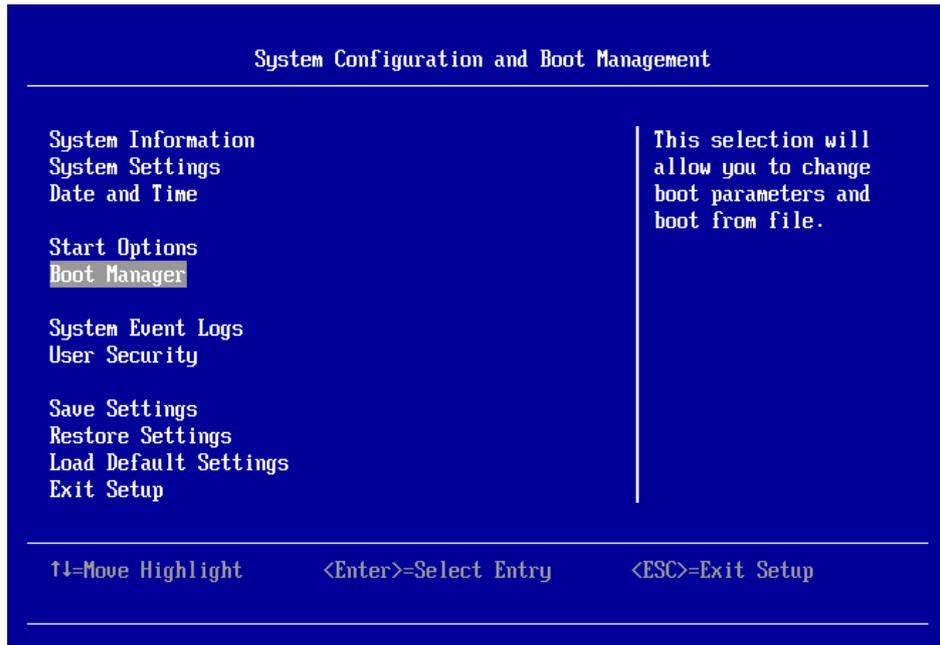
 **NOTE**

- The purpose of mounting the virtual media of the IBM blade server is to mount the CD/DVD drive or ISO file of the PC where the Web console is installed to a blade server, thus implementing remote installation of the OS of the blade server. Alternatively, the default CD/DVD drive of the IBM BladeCenter E can be used to install the OS of the blade server.
- To use the default CD/DVD drive of the IBM BladeCenter E to install an OS on a blade server, you need to insert the OS installation DVD into the default CD/DVD drive of the IBM BladeCenter E and then press **MT** at the middle of the blade server. If the **MT** indicator is on, it indicates that the blade server is connected to the default CD/DVD drive.

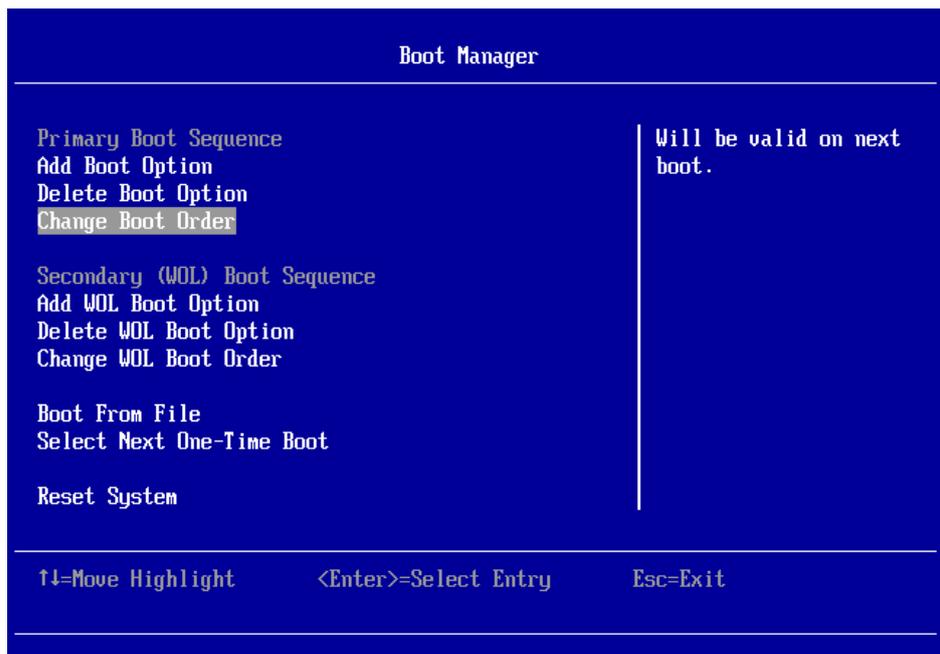
2. In the remote console window, click . Then, select the required card.
3. In the **Power Control** area, select **Restart** to restart the blade server.
4. In the process of restarting the blade server, when the **System x** window is displayed, press **F1** and the **System Configuration and Boot Management** window is displayed.



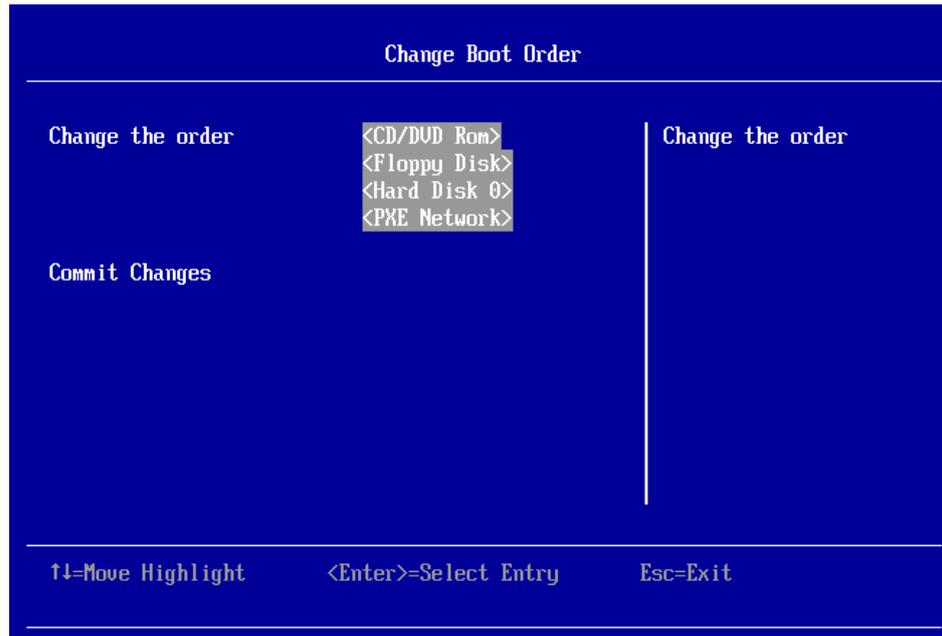
Licensed Materials - Property of IBM Corp. Firmware contains licensed third party modules.  
System x Server Firmware © Copyright IBM Corporation 2009 ALL RIGHTS RESERVED.



5. Press an arrow key to choose **Boot Manager** from the main menu. Press **Enter**.



6. Press an arrow key to choose **Change Boot Order** from the **Boot Manager**. Press **Enter**.



7. Press an arrow key to choose **CD/DVD Rom** from the **Change Boot Order**. Press **Enter**.
8. Choose **Save Settings** from the main menu. Press **Enter** twice to save the settings.
9. Choose **Exit Setup** and press **Enter** twice to exit BIOS setting.

- 3 **Optional:** In the case of the IBM HS21 blade server, in BIOS, set the order for starting the OS so that the OS boots from the CD-ROM.

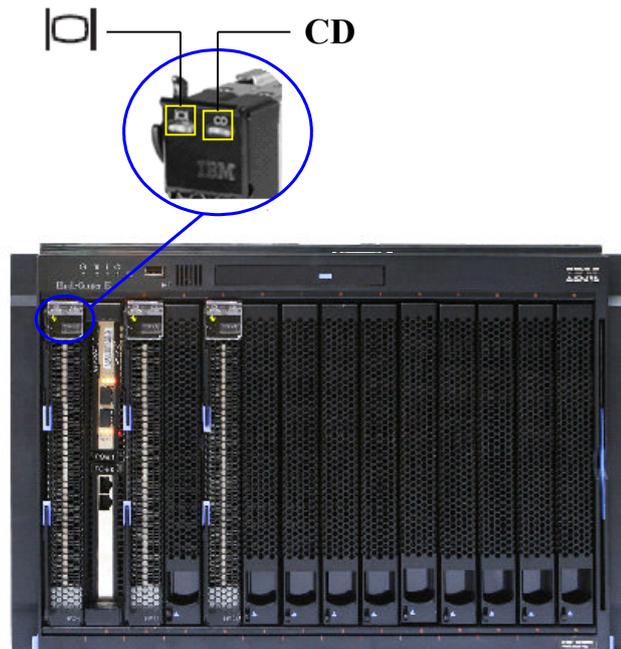
 **NOTE**

This step is applicable only to the IBM HS21 blade server. In the case of other servers, skip this step.

1. **Mount the virtual media of the IBM blade server.**

 **NOTE**

- The purpose of mounting the virtual media of the IBM blade server is to mount the CD/DVD drive or ISO file of the PC where the Web console is installed to a blade server, thus implementing remote installation of the OS of the blade server. Alternatively, the default CD/DVD drive of the IBM BladeCenter E can be used to install the OS of the blade server.
- To use the default CD/DVD drive of the IBM BladeCenter E to install an OS on a blade server, you need to insert the OS installation DVD into the default CD/DVD drive of the IBM BladeCenter E and then press **CD** at the top of the blade server, as shown in the following figure. If the **CD** indicator is on, it indicates that the blade server is connected to the default CD/DVD drive.



2. In the remote console window, click . Then, select the required card.
3. In the **Power Control** area, select **Restart** to restart the blade server.
4. In the process of restarting the blade server, when the **System x** window is displayed, press **F1** and the **Configuration/Setup Utility** window is displayed.





After you complete the settings, press **Esc** twice to return to the main menu.

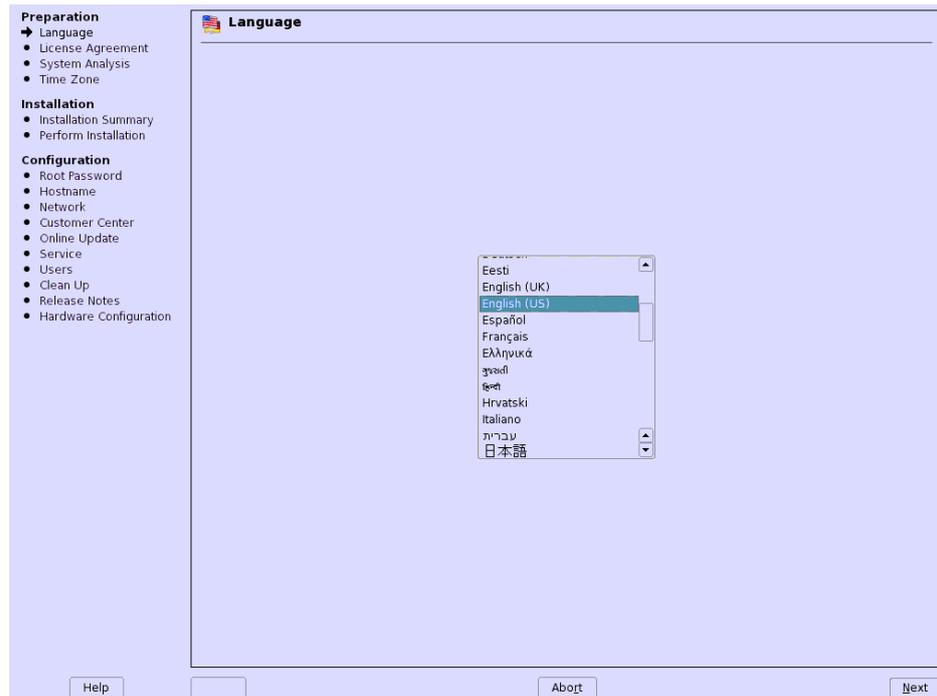
7. Choose **Save Settings** from the main menu. Press **Enter** twice to save the settings.
  8. Choose **Exit Setup** and press **Enter** twice to exit BIOS setting.
- 4 The system restarts automatically.
  - 5 Select an installation mode.

In the **SUSE Linux Enterprise Server** window, press the arrow key to select **Installation**. Then, press **Enter** to load the SUSE Linux kernel.

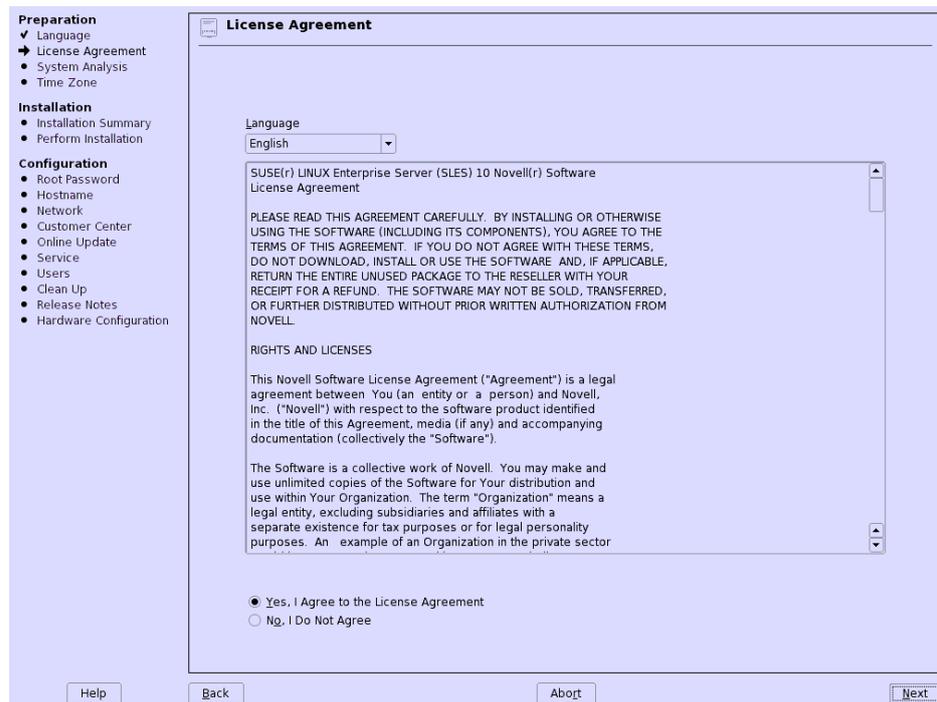
**NOTE**

It takes approximately five minutes to complete the loading of the SUSE Linux kernel.

- 6 Select the setup language, time zone, and installation mode.
  1. In the **Language** dialog box, select **English (US)** and click **Next**.



2. In the **License Agreement** dialog box, select **Yes, I Agree to the License Agreement** and click **Next**.



3. In the **Installation Mode** dialog box, select **New Installation** and click **Next**.

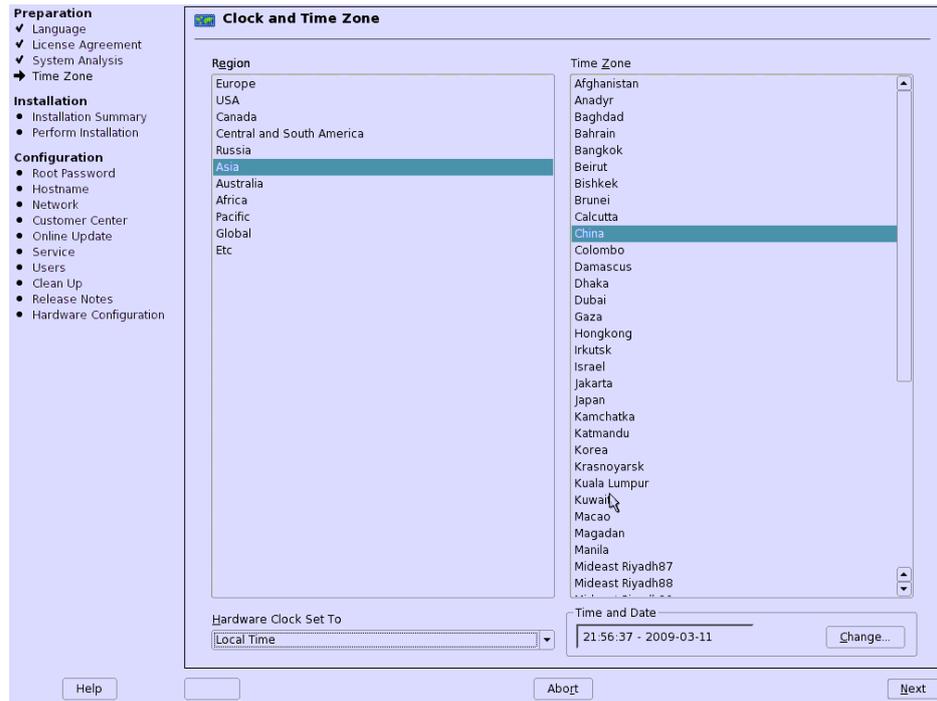


4. In the **Clock and Time Zone** dialog box, set parameters by referring to the following table and click **Next**.

 **NOTE**

The proceeding settings are provided for reference only. During the on-site installation process, set the parameters based on the actual situation.

| Parameter             | Setting                                         |
|-----------------------|-------------------------------------------------|
| Region                | <b>Asia</b>                                     |
| Time Zone             | <b>China</b>                                    |
| Hardware Clock Set to | <b>Local Time</b>                               |
| Time and Date         | Set this parameter to the correct current time. |



## 7 Perform the installation settings.

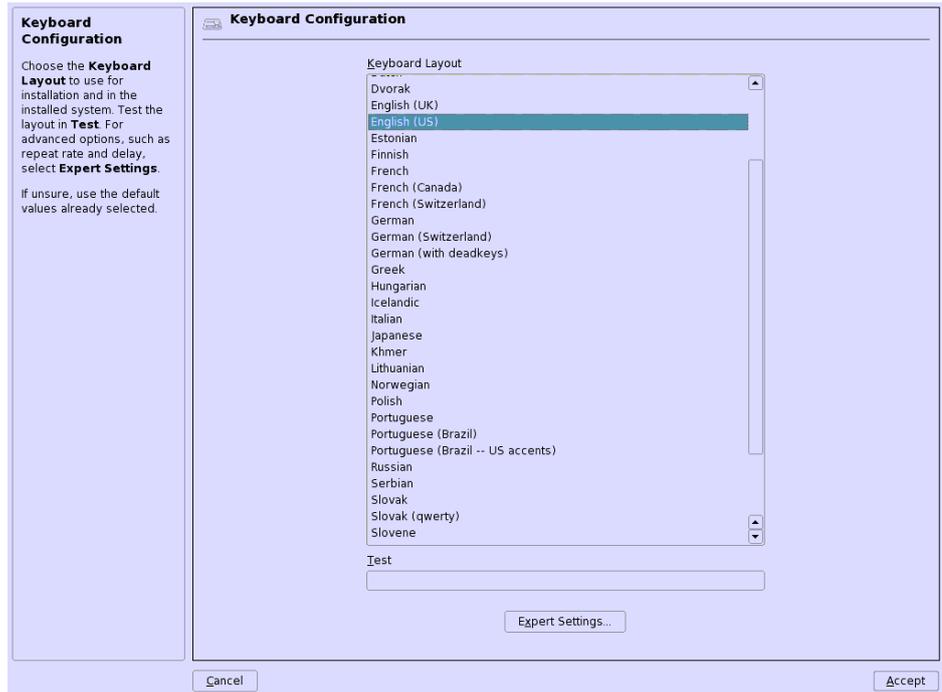
### 1. Set the type of keyboard layout.

- a. In the **Installation Settings** dialog box, select **Keyboard Configuration**, and press **Enter**.

#### NOTE

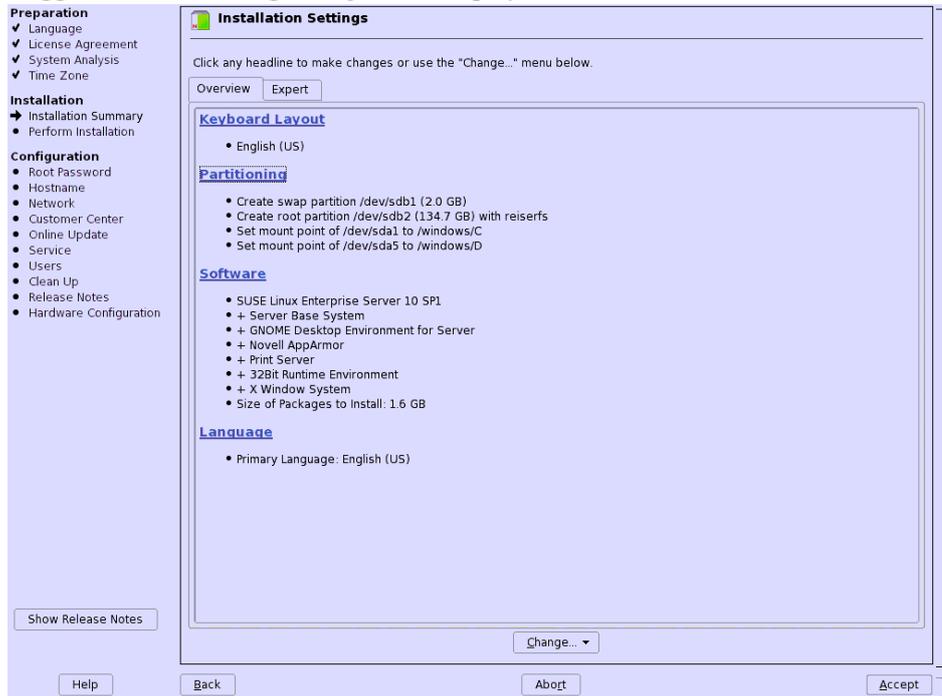
If the installed server is not configured with a mouse, you can use the keyboard to perform the installation as follows:

- Press **Tab** to switch between buttons, option buttons, and check boxes.
  - Press **Enter** to select a button.
  - Press an arrow key to select a parameter.
  - Press the spacebar to select an option or a button.
- b. Select **English (US)** and press **Enter**.

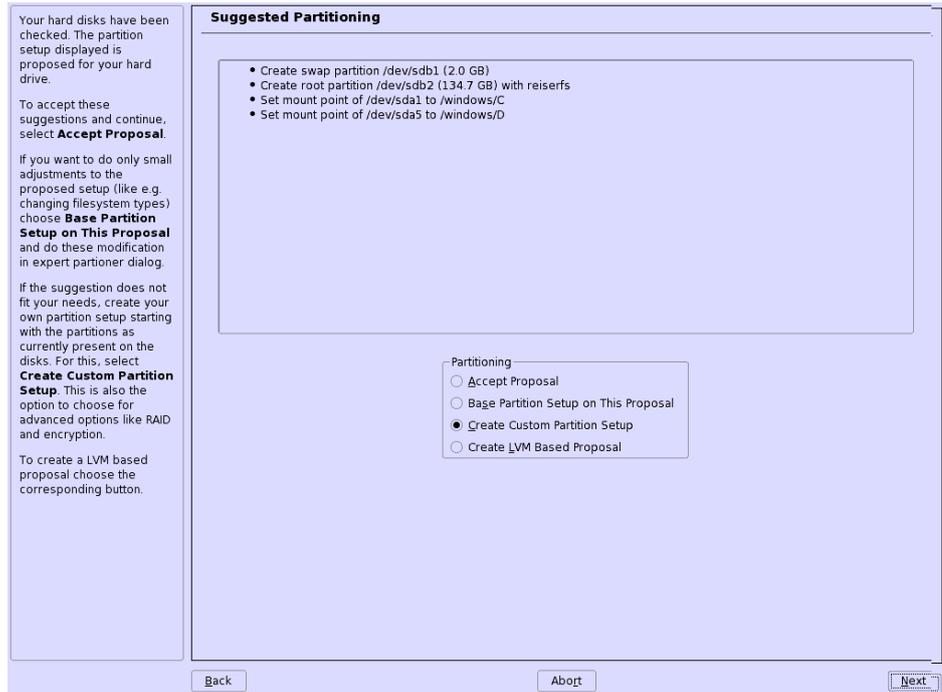


2. Set the size of a partition.

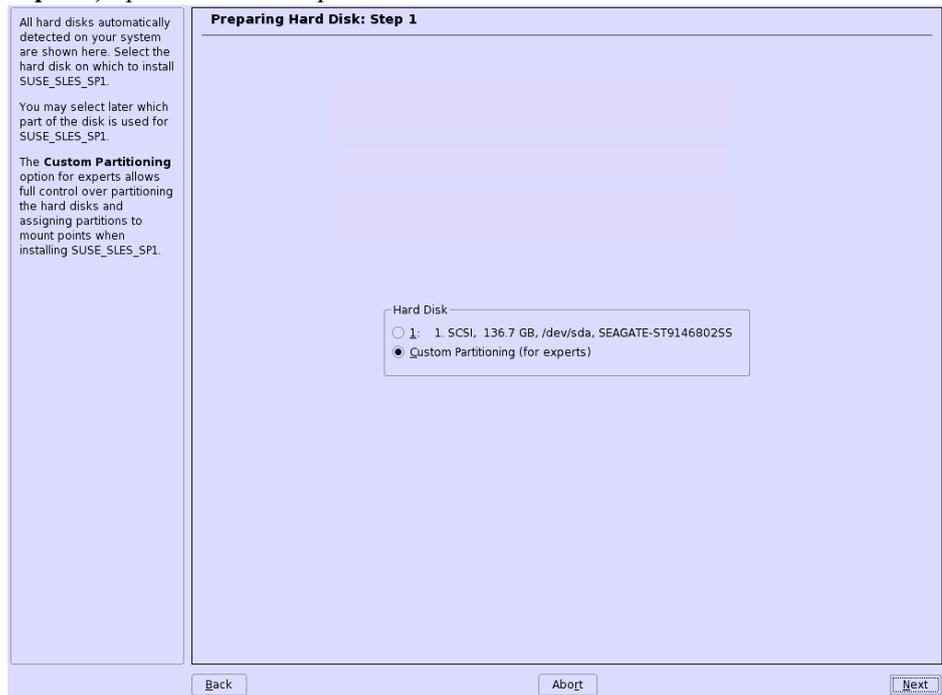
a. In the **Installation Settings** dialog box, select **Partitioning** and press **Enter**. The **Suggested Partitioning** dialog box is displayed.



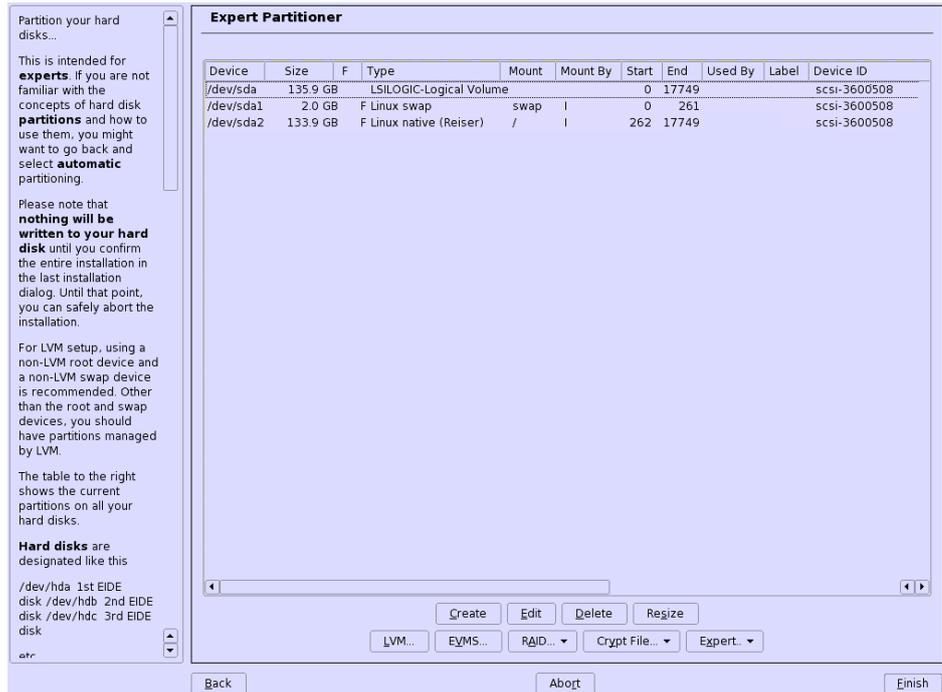
b. In the **Suggested Partitioning** dialog box, select the **Create Custom Partition Setup** option button and press **Enter**.



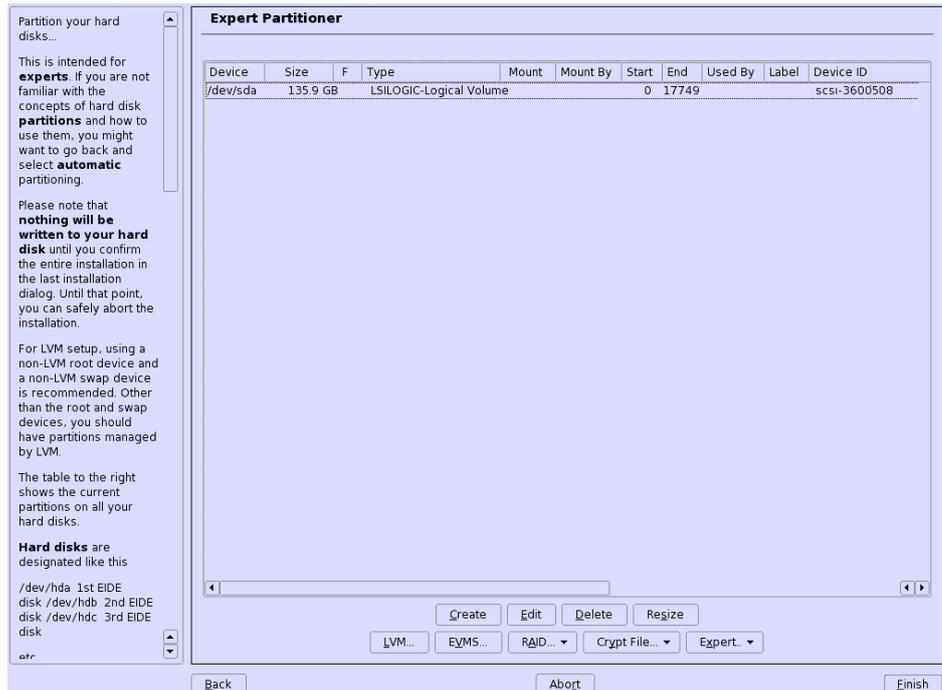
- c. In the **Preparing Hard Disk: Step1** dialog box , select the **Custom Partitioning (for experts)** option button and press **Enter**.



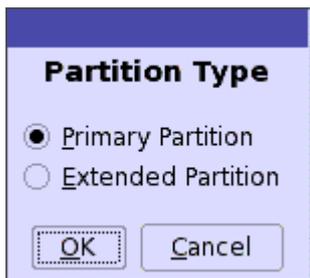
- d. In the **Expert Partitioner** dialog box, select the /dev/sda1 equipment and click **Delete**. Then, delete the /dev/sda2 equipment in the same manner.



- e. In the **Expert Partitioner** dialog box, click **Create**.

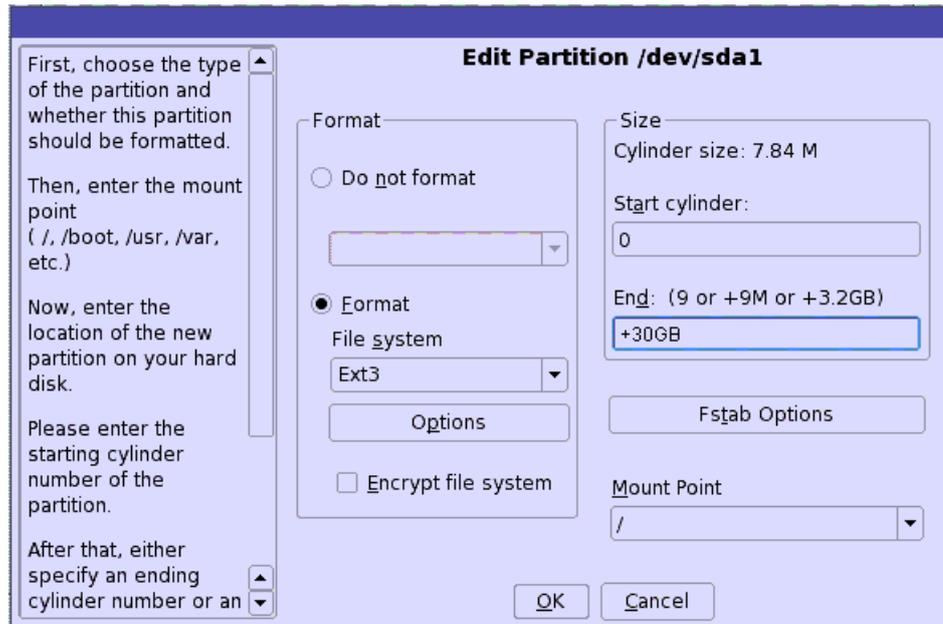


- f. In the **Partition Type** dialog box, select the **Primary Partition** option button and click **OK**.



- g. In the **Create a Primary Partition on /dev/sda** dialog box, set the following parameters. The parameters are described as follows:
- 1) Select the **Format** option button.
  - 2) Set **File system** to *Ext3*.
  - 3) In the text box below **End:(9 or +9M or +3.2GB)**, enter **30 GB** or **+30 GB** to set the size of a partition.
  - 4) Set **Mount Point** to */*.
  - 5) Press **Enter** or click **OK**.

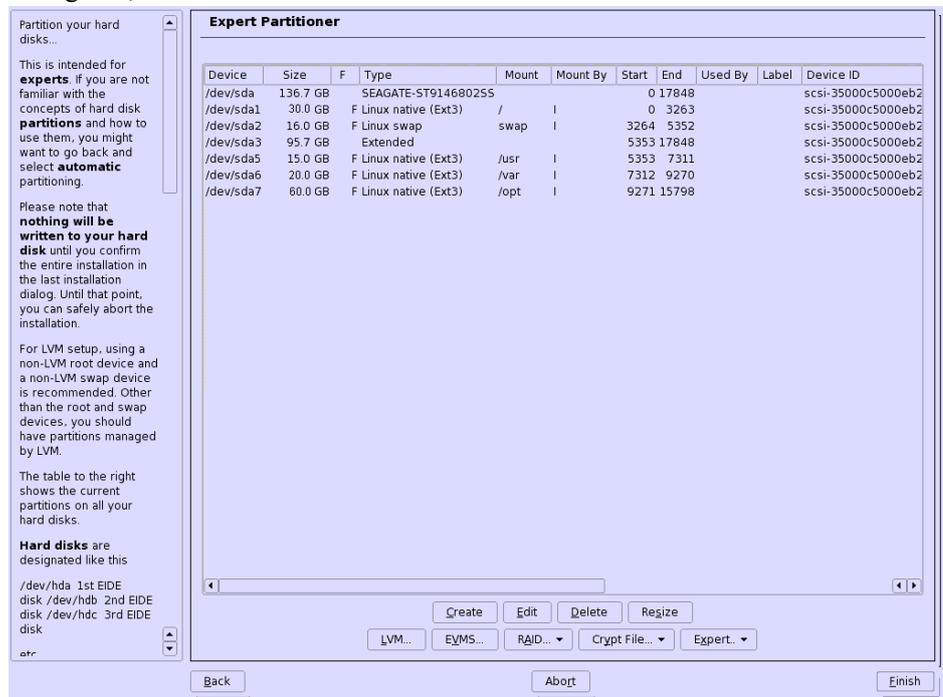
| Parameter                       | Description                                                                                                                                                                                                                    |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Do not format</b>            | This parameter indicates that the hard disk is not to be formatted. Do not select this value at the first installation.                                                                                                        |
| <b>Format</b>                   | This parameter indicates that the hard disk is to be formatted. Select this value at the first installation.                                                                                                                   |
| <b>File system</b>              | This parameter indicates the format of the file system. For details of settings, refer to the "Partition Type" column in <a href="#">H Planning Disk Partitions</a> .                                                          |
| <b>start cylinder</b>           | This parameter indicates the start volume address of the current partition. When this parameter is created, it automatically uses the end volume address of the last partition. In this case, you need not set this parameter. |
| <b>End:(9 or +9M or +3.2GB)</b> | This parameter indicates the end volume address of the current partition. Set this parameter according to the partition size in <a href="#">H Planning Disk Partitions</a> .                                                   |



**NOTE**

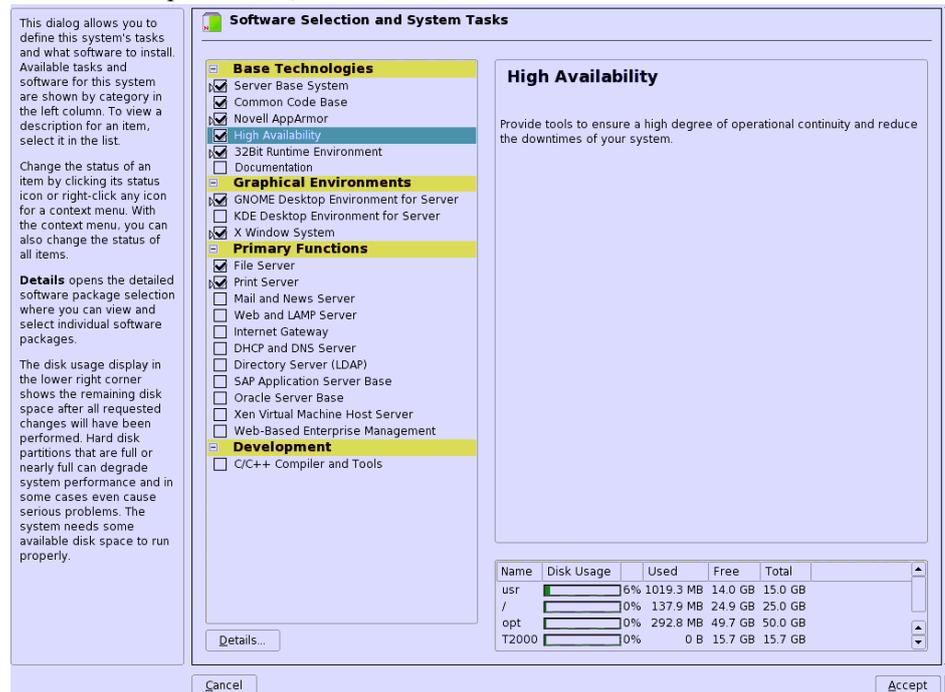
If the information about the partitions exception the /dev/sda partition is not required, select **Delete** to delete the information, or press **Alt+D** to delete the old partition information.

- h. Refer to 7.2.e to 7.2.g to create the **swap**, **/usr**, **/var**, and **/opt** partitions.
- i. The follow dialog box shows after the previous settings. In the **Expert Partitioner** dialog box, click **Finish** to continue.

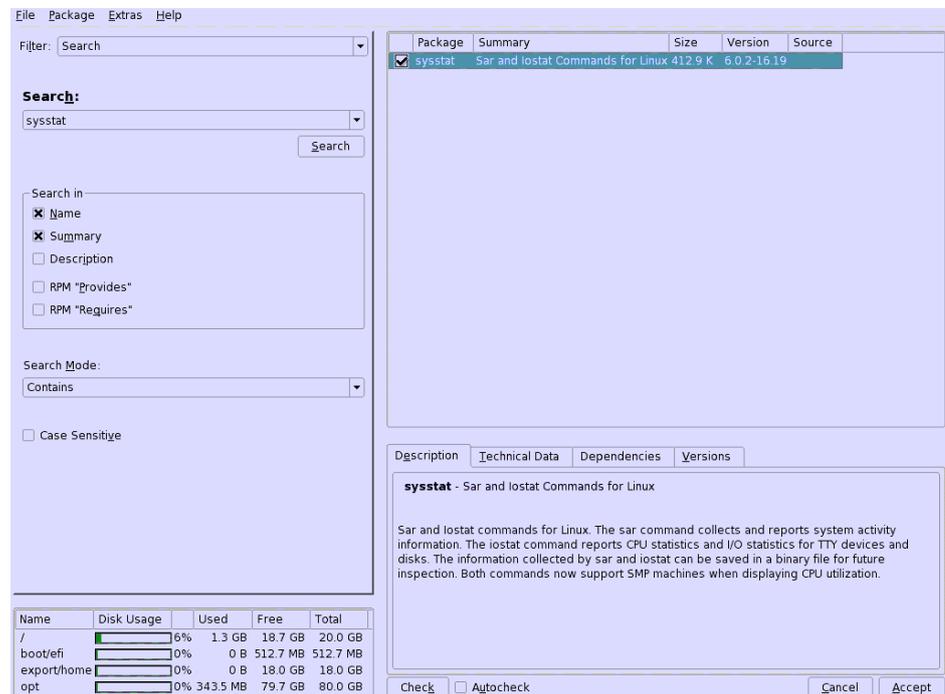


- 3. Set the software to be installed.
  - a. In the **Installation Settings** dialog box, select **Software** and the **Software Selection and System Tasks** dialog box is displayed.
  - b. As shown in the following figure, select the **Server Base System**, **Common Code Base**, **Novell AppArmor**, **High Availability**, **32 Bit Runtime Environment**,

**GNOME Desktop Environment for Server, X Window System, File Server, and Print Server parameters, and then click Details.**

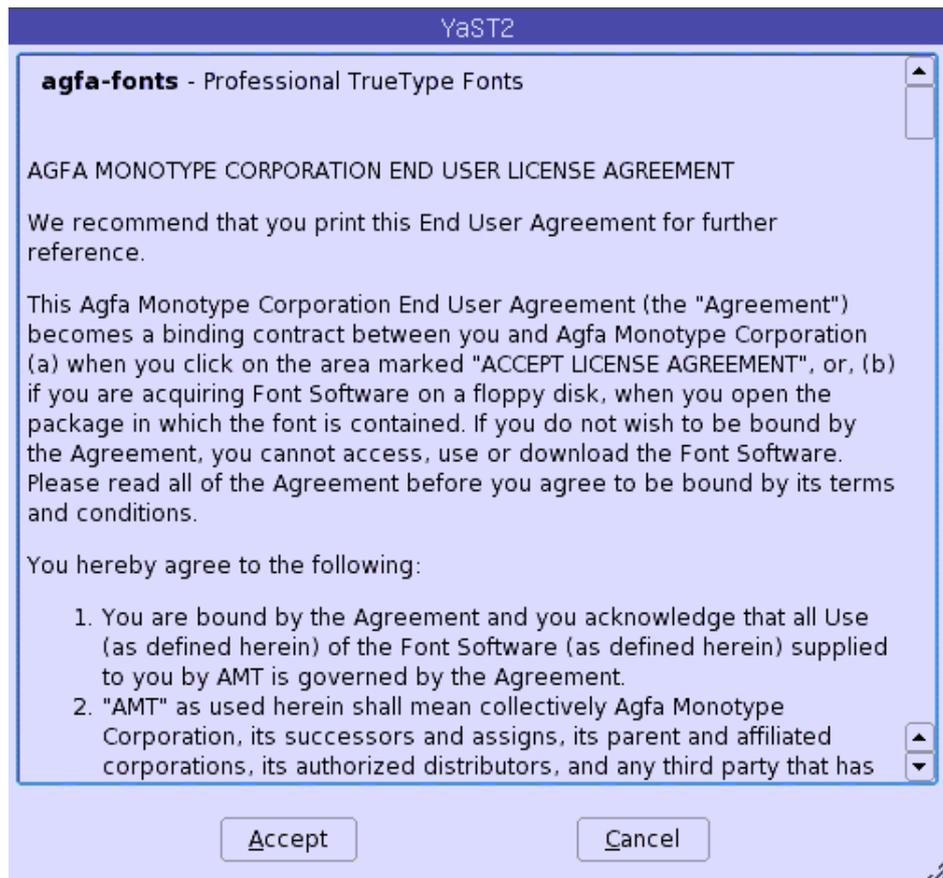


- c. Select *Search* from the **Filter** drop-down list, enter **sysstat** in the *Search* text box, and then click **Search**.

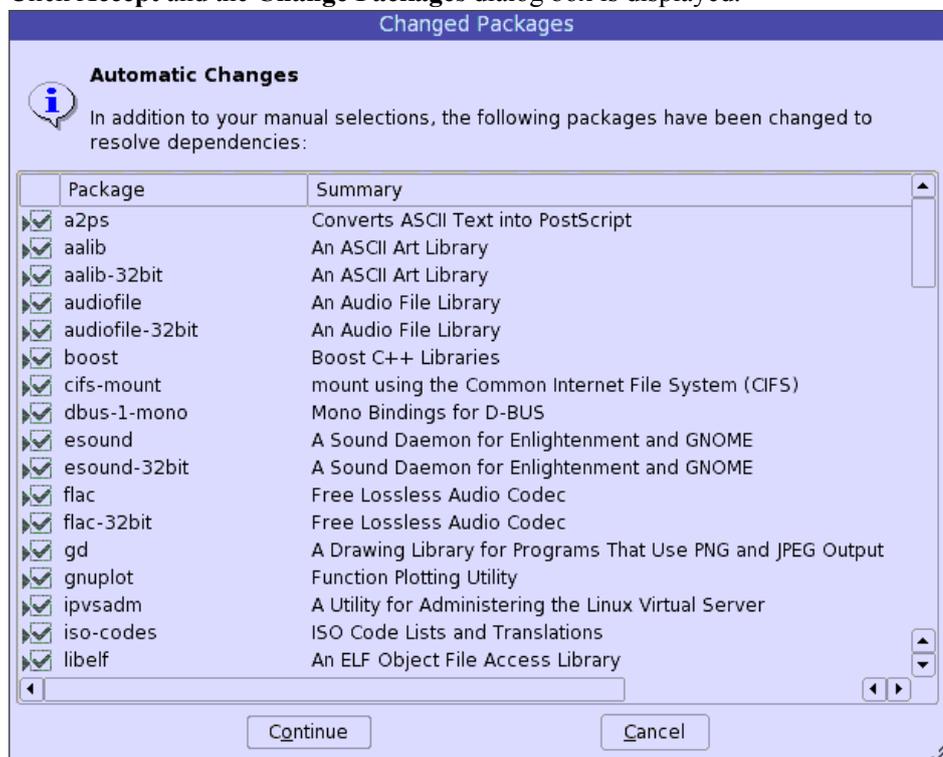


- d. The names of required software packages are displayed in the right-hand pane of the dialog box. Press **Tab** and spacebar or use the mouse to select *sysstat*.
- e. Refer to **7.3.c** to **7.3.d** to install other software. The following lists the software that needs to be installed.
  - 1) sysstat

- 2) iptraf
  - 3) ltrace
  - 4) binutils
  - 5) compat-libstdc++
  - 6) expect
  - 7) gcc
  - 8) gcc-c++
  - 9) glibc
  - 10) glibc-32bit
  - 11) glibc-devel
  - 12) glibc-devel-32bit
  - 13) libaio
  - 14) libaio-32bit
  - 15) libaio-devel
  - 16) libelf
  - 17) libgcc
  - 18) libstdc++
  - 19) libstdc++-devel
  - 20) make
  - 21) unixODBC
  - 22) unixODBC-devel
- f. Click **Accept** and the **YaST2** dialog box is displayed.

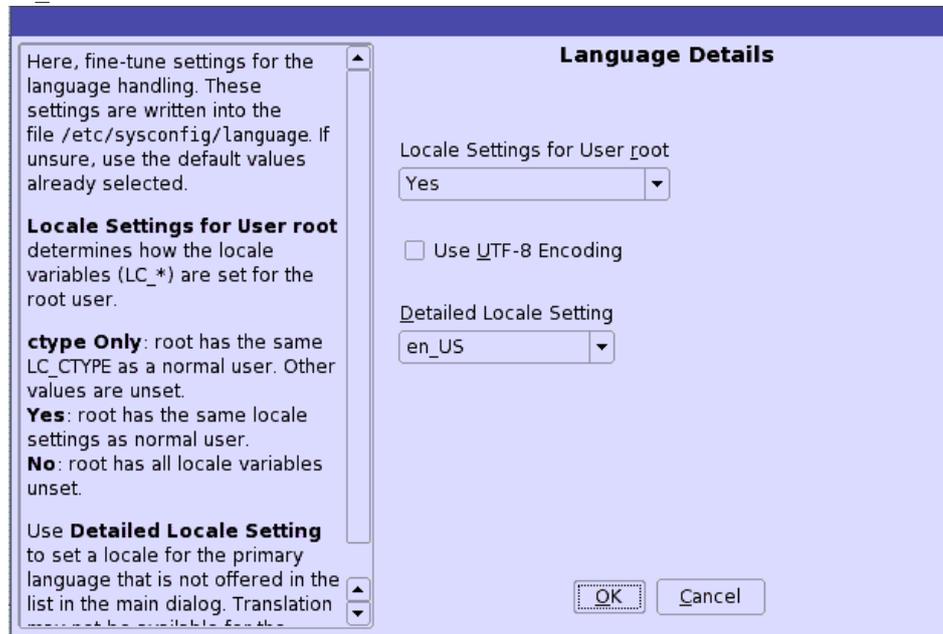


- g. Click **Accept** and the **Change Packages** dialog box is displayed.

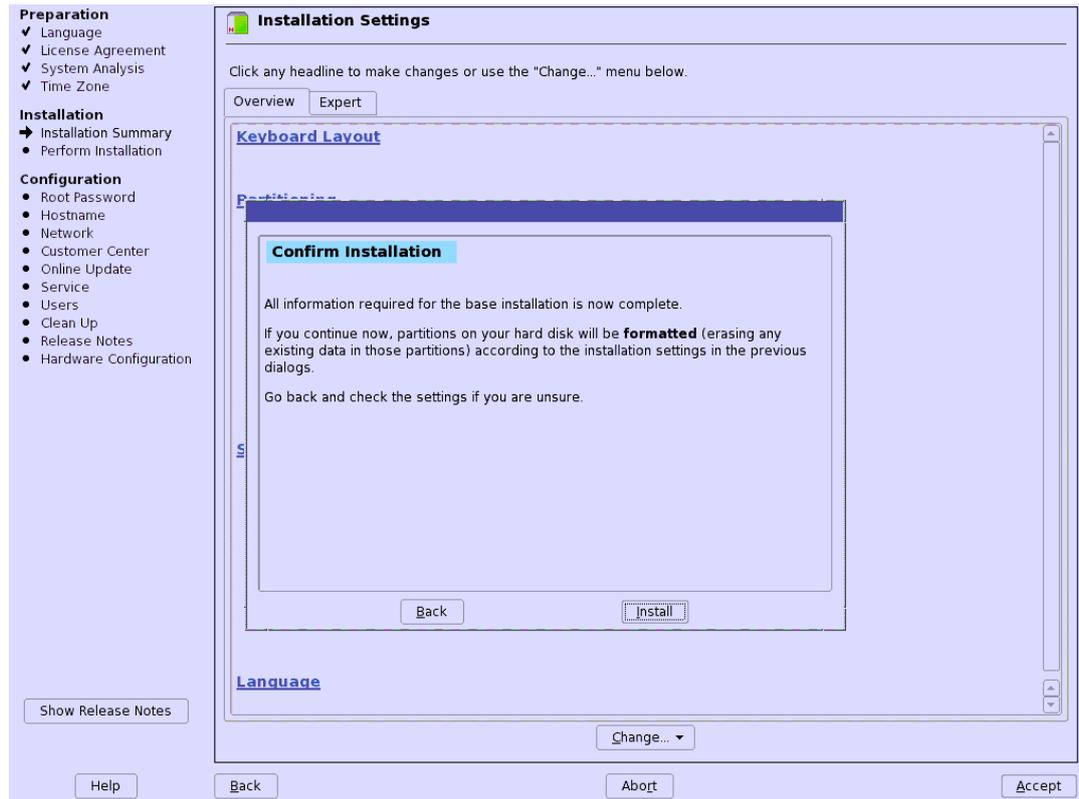


- h. Click **Continue**.
4. Set the setup language of the OS.

- a. In the **Installation Settings** dialog box, click **Language**.
- b. In the **Language** dialog box, set **Primary Language** to *English (US)* and click **Details**.
- c. In the **Language Details** dialog box, set **Local Settings for User root** to *Yes*, clear the **Use UTF-8 Encoding** check box, and then set **Detailed Locale Setting** to *en\_US*.



- d. Click **OK** to return to the **Languages** window.
  - e. Click **OK**.
5. In the **Installation Settings** dialog box, click **Accept**.
- 8 Confirm the installation.
- In the **Confirm Installation** dialog box, click **Install**.



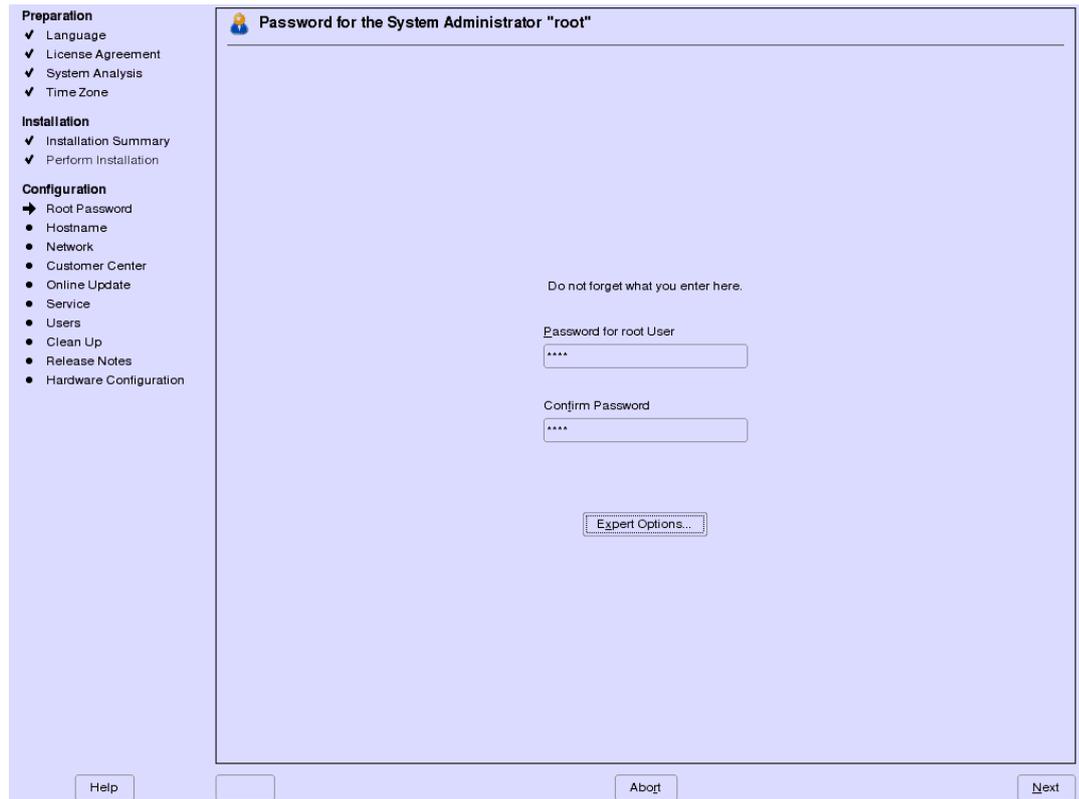
The OS is being installed formally. The installation progress is displayed on the setup program window. It takes approximately 50 minutes to complete the installation.

## 9 Set the password of user **root**.

In the **Password for the System Administrator "root"** window, enter and confirm the password of user **root**, and click **Next**.

### NOTE

- The default password of the super user **root** of the SUSE Linux OS is **root**. You can change the password. The password is often required in the subsequent installation procedure.
- If a message is displayed indicating that the password is too simple, click **Yes** to continue as prompted.



**10** Set the host name and domain name.

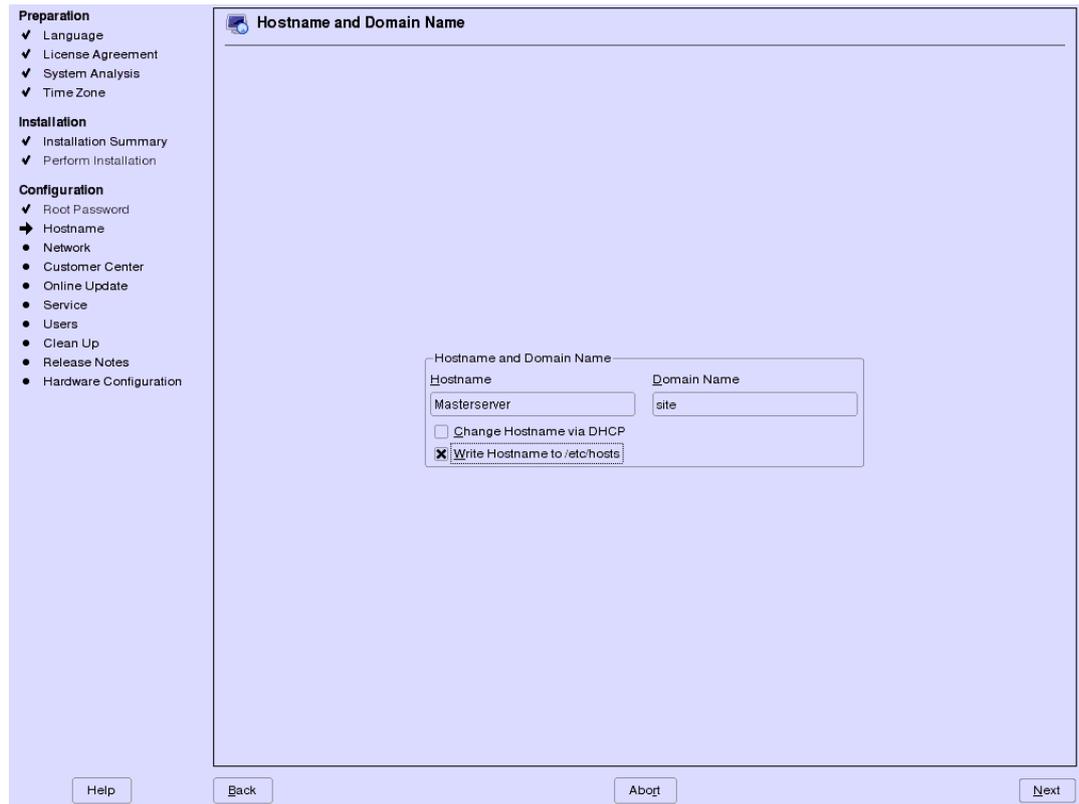
In the **Hostname and Domain Name** dialog box, do as follows:

- Set the host name to Masterserver.
- Clear the **Change Hostname via DHCP** check box.
- Select the **Write Hostname to /etc/hosts** check box.

Click **Next**.

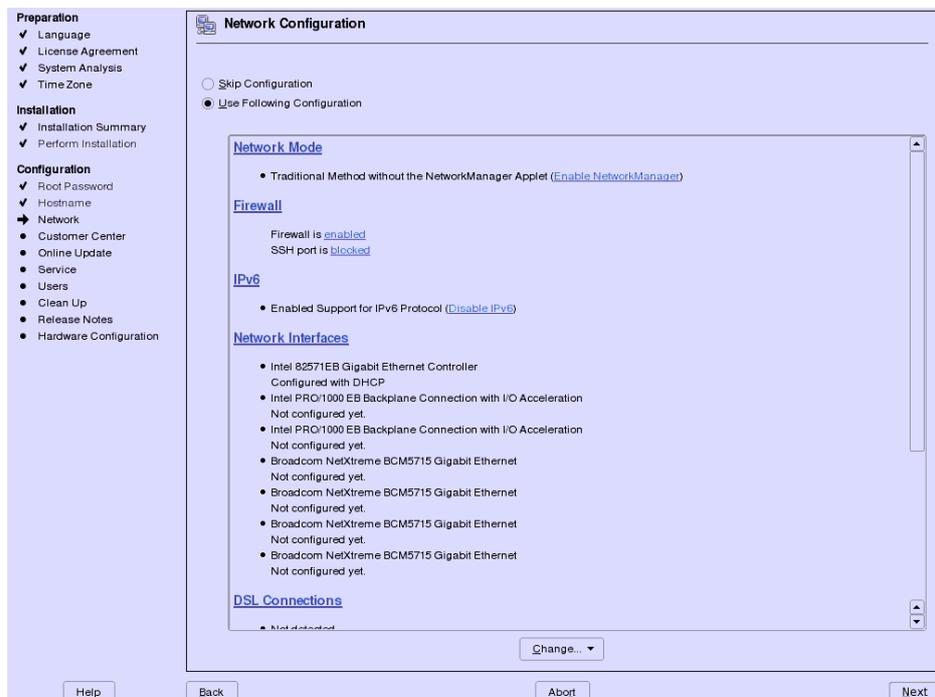
 **NOTE**

Use the default value in the **Domain Name** field.



## 11 Configure the network.

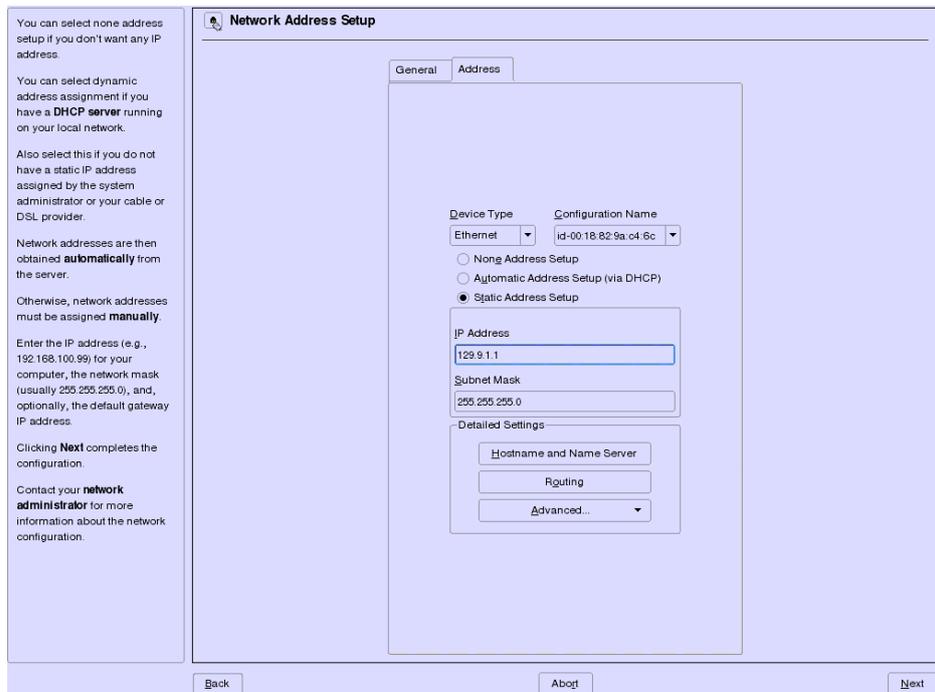
1. In the **Network Configuration** dialog box, select the **Use Following Configuration** option button.
2. Click **enabled** next to **Firewall**, and change **enabled** to **disabled**.



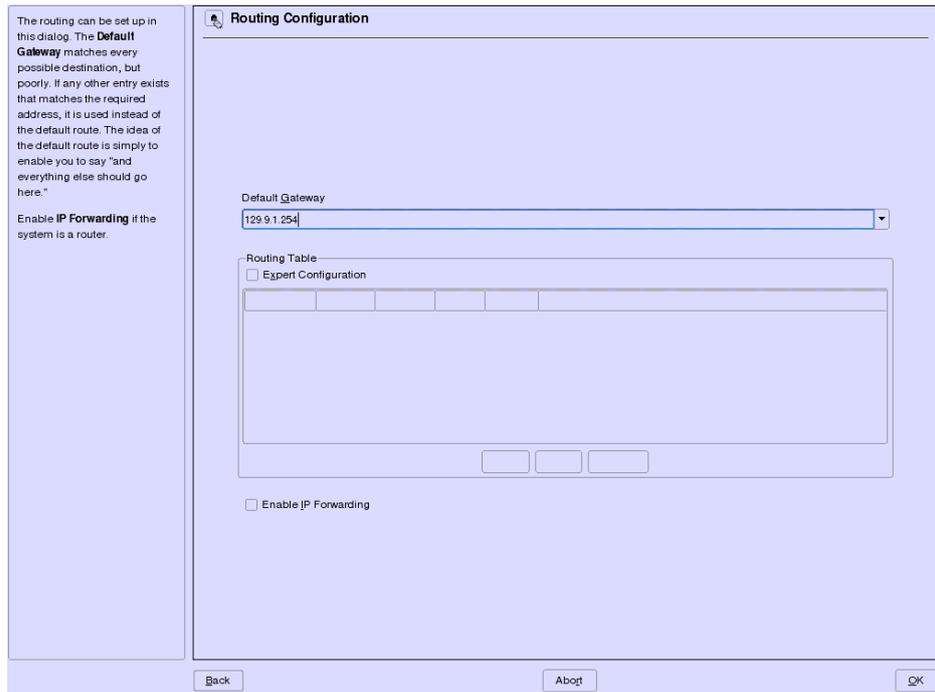
- In the **Network Configuration** dialog box, select **Network Interface**. In the **Network Card Configuration Overview** dialog box that is displayed, select the network adapter that provides the external communication function and click **Edit**.

 **NOTE**

- The NIC corresponding to the system IP address must be the NIC through which the blade server is connected to the public network.
    - An ATAE blade server is connected to the public network through the base plane. For details about how to view the MAC address of the base plane of an ATAE blade server, see [F.5 How to View the MAC Address of the Base Plane of an ATAE Blade Server](#).
    - An IBM blade server is connected to the public network through I/O module 1 and I/O module 2. The system IP address of the IBM blade server must be set on the external communication NIC. For details about how to view the MAC address of the external communication NIC of an IBM blade server, see [F.3 How to View the MAC Address of the External Communication NIC of an IBM Blade Server](#).
  - You can view the MAC address of a NIC on the **Address** tab page of the **Network Address Setup** dialog box.
- In the **Network Address Setup** dialog box, select the **Static Address Setup** option button. Enter **129.9.1.1** in the **IP Address** field, and enter **255.255.255.0** in the **Subnet Mask** field. Click **Routing**.



- In the **Routing Configuration** dialog box, enter **129.9.1.254** in the **Default Gateway** field and click **OK**.

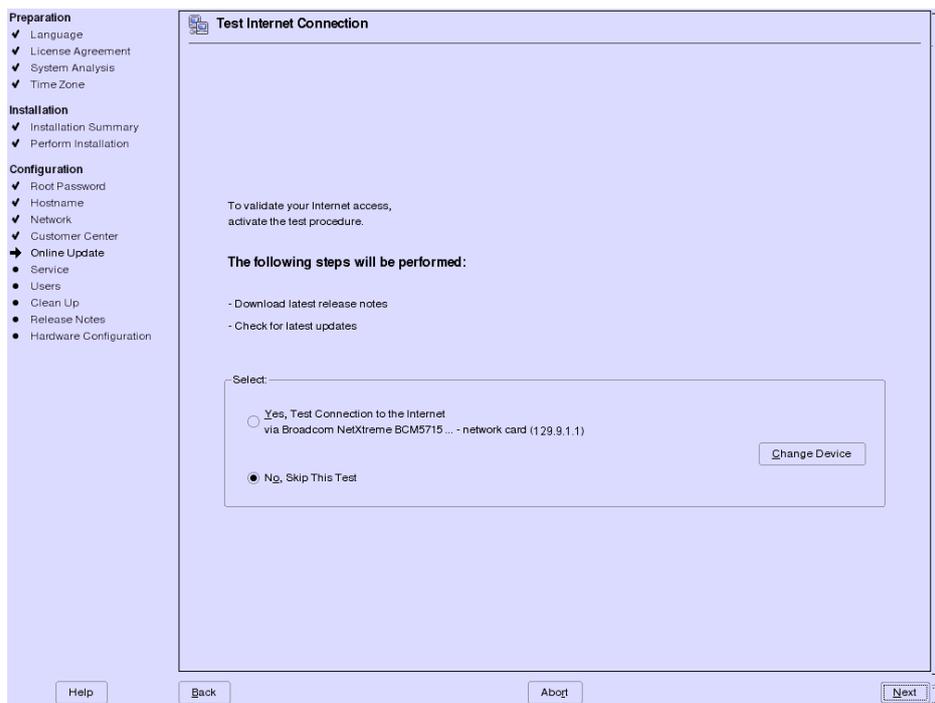


6. In the **Network Address Setup** dialog box, click **Next**.
7. In the **Network Card Configuration Overview** dialog box, click **Next**.

 **NOTE**

If you want to configure multiple network adapters, follow Steps 3 to 6 to configure other network adapters.

8. In the **Network Configuration** dialog box, click **Next**.
9. In the **Test Internet Connection** dialog box, select the **No, Skip This Test** option button and click **Next**.



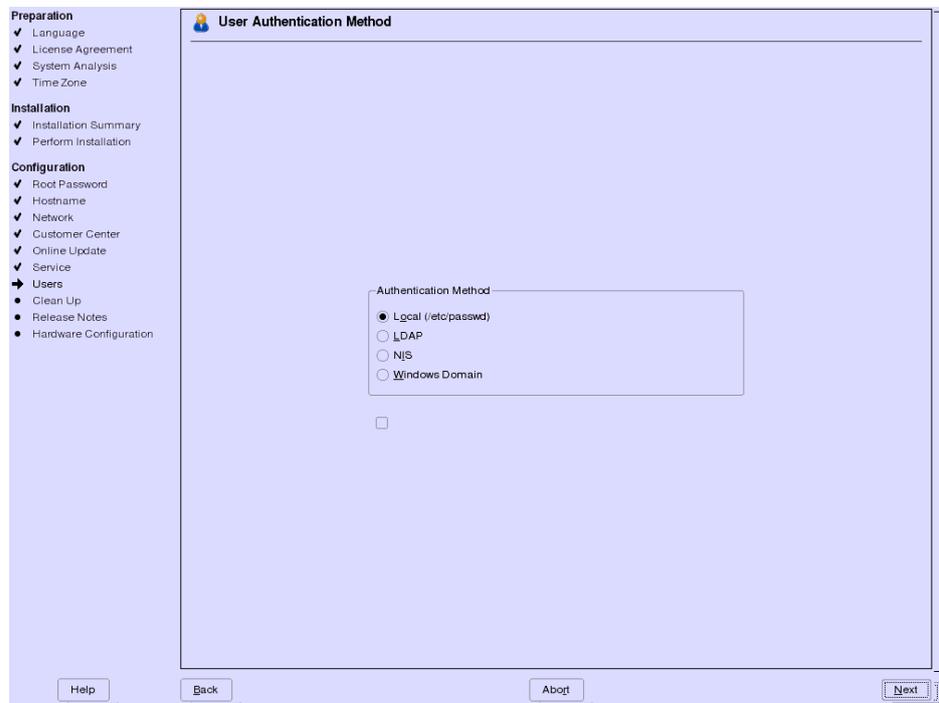
## 12 Configure a service.

In the **Installation Settings** dialog box, use all the default values, and click **Next**.

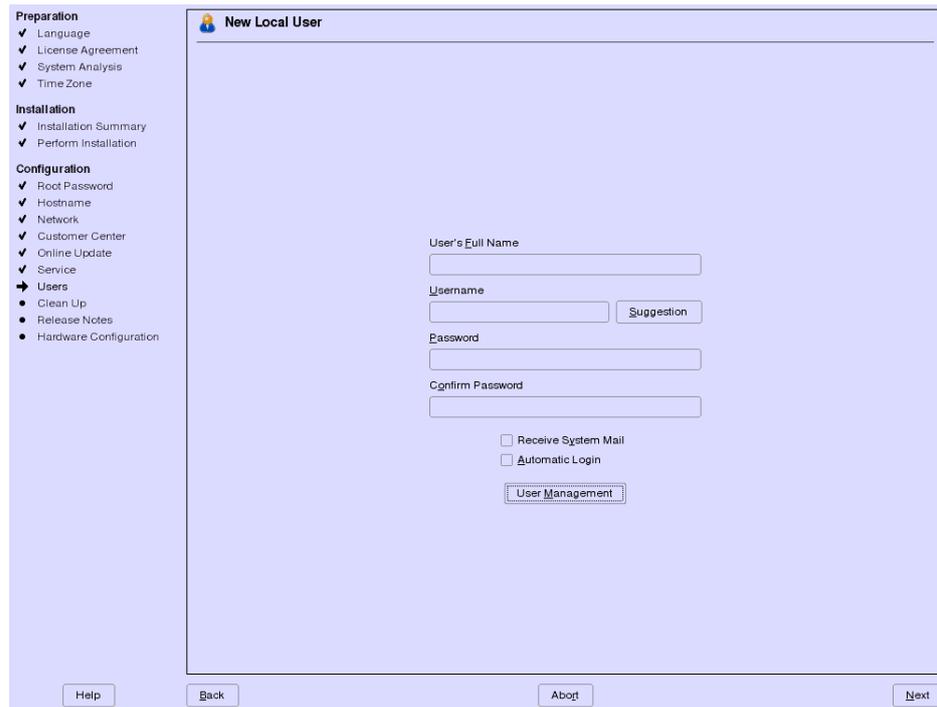


## 13 Configure a user.

1. In the **User Authentication Method** dialog box, select the **Local** option button and click **Next**.

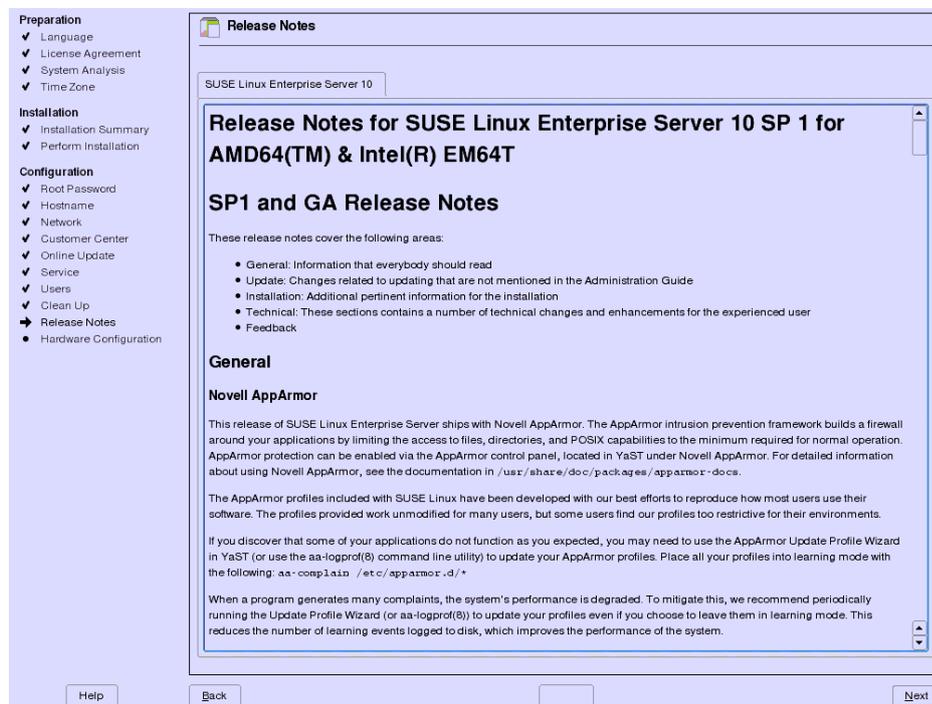


2. In the **New Local User** dialog box, leave all fields blank and click **Next**. A message is displayed indicating that no user is logged in. Click **Yes**.



**14** Confirm the release notes.

In the **Release Notes** dialog box, click **Next**.



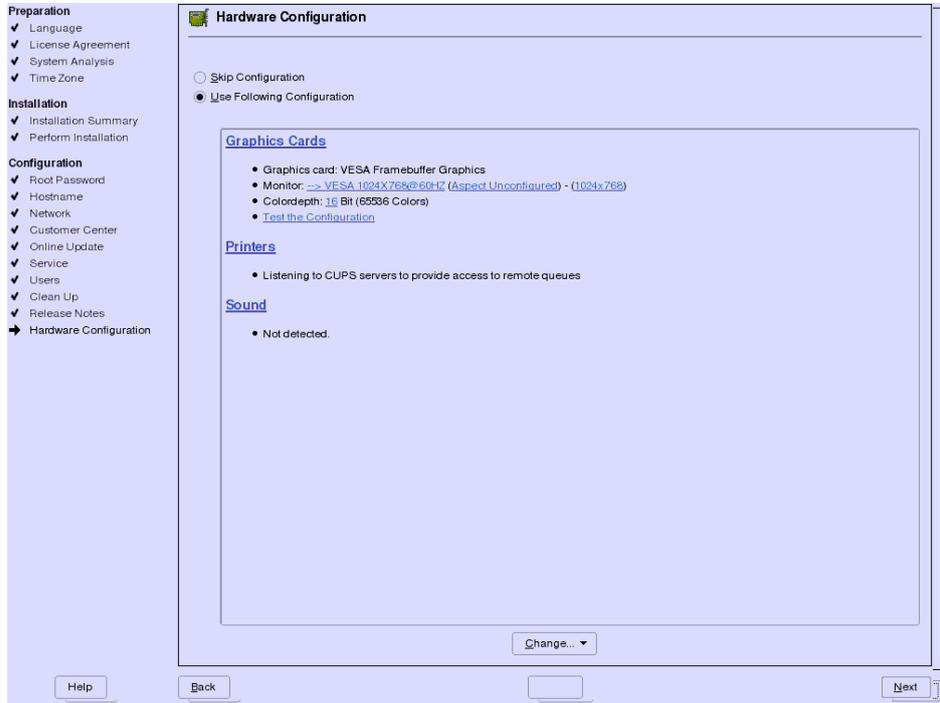
**15** Configure the equipment.

1. In the **Hardware Configuration** dialog box, keep the default value of the **Monitor** and **Colordepth**.
2. Click **Test the Configuration** to test the configuration of the graphic card.

 **NOTE**

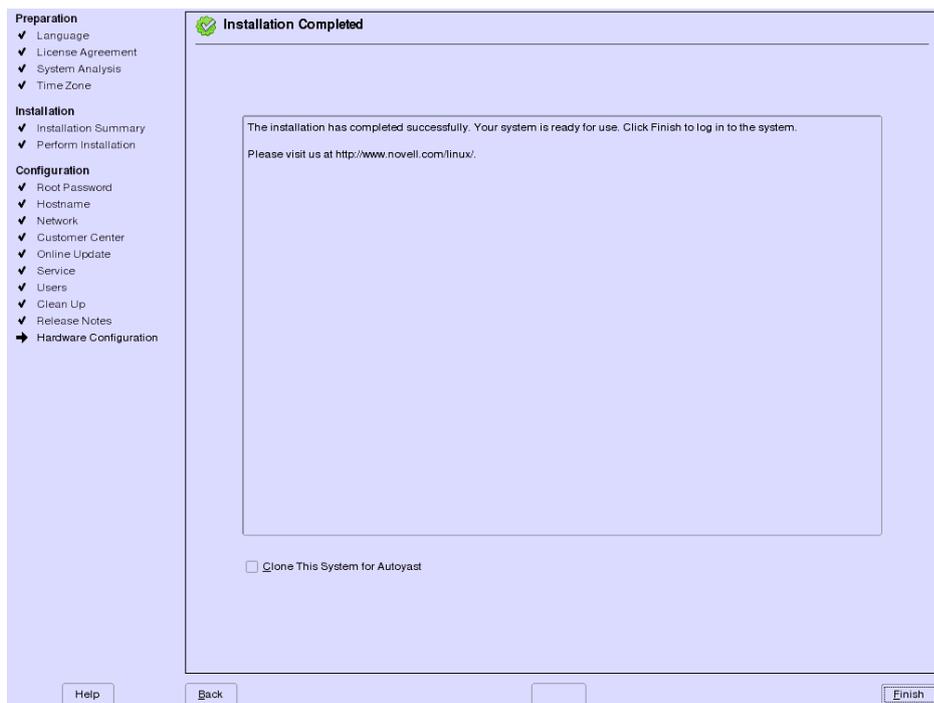
If graphics are displayed, it indicates that the graphic card is configured successfully. Click **Save** to exit.

3. Click **Next**.



16 Complete the installation.

In the **Installation Completed** window, clear the **Clone This System for Autoyast** check box and click **Finish**.



17 log in to the OS and eject the disk.

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

If you can log in to the SUSE Linux OS as the **root** user, it indicates that the SUSE Linux OS is successfully installed. Otherwise, install the OS again.

2. On the **GNOME** desktop, right-click, and choose **Open Terminal** from the shortcut menu to open the CLI. Then, run the **eject** command to eject the disk.

 **NOTE**

If the IBM blade server is installed by using the drive of the virtual media device, run the **eject *Name\_of\_the\_virtual\_media\_device*** command to remove the DVD.

Run the following command to check the name of the virtual media equipment:

```
df -hk
```

If **/dev/sr1 132136 132136 0 100% /media/05\_04\_2009** is displayed, it indicates that the name of the virtual media equipment is **/dev/sr1**. The equipment name varies according to the actual situation.

----End

## Follow-up Procedure

After the SUSE Linux OS installation is completed, you can enable the service to the remote login OS according to the requirements, for details, see [A.1.6 How to Log In to the OS Through the Remote Login Tools?](#).

## E.2 Verifying the Installation and Configuration of the OS

This topic describes how to check the OS version, OS patch, the disk partitioning of the system and the language environment variable of the system.

### Procedure

- 1 Run the following command to view the OS version:

```
cat /etc/SuSE-release
```

If the following information is displayed, it indicates that the SUSE Linux version is correct:

```
SUSE Linux Enterprise Server 10 (x86_64)
VERSION = 10
PATCHLEVEL = 3
```

- 2 Run the following command to view the OS kernel version:

```
uname -rv
```

The information similar to **2.6.16.60-0.54.5** is displayed. Here, **2.6.16.60-0.54.5** indicates the kernel version of the OS.

If the kernel version is **2.6.16.60-0.54.5**, it indicates that the kernel version is correct.

 **NOTE**

If the SUSE Linux version or the kernel version are not correct, obtain the correct installation DVD of OS and install the OS again.

- 3 Ensure that the disk partitioning of the system is correctly.

1. Run the following command to log in to the **YaST2 Control Center**:

```
yast2
```

2. In the **YaST Control Center** dialog box, click **System > Partitioner**.
3. View the disk partitioning information in the dialog box of displayed.

According to the displayed disk partitioning information, check whether the current disk partitioning of the system is consistent with the disk partition planning. If they are inconsistent, you need to reinstall the OS and then partition disks according to the disk partition planning. For the disk partitioning planning, see [H Planning Disk Partitions](#).

4. Ensure that the language environment variable of the system is **en\_US**.

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

```
echo $LANG
```

If **en\_US** is not displayed, change the language environment variable description in the **/etc/sysconfig/language** file to **RC\_LANG="en\_US"**. Perform the following steps:

1. Run the following command to log in to the **YaST2 Control Center**:  

```
yast2
```
2. Choose **System > /etc/sysconfig Editor**. The **/etc/sysconfig Editor** dialog box is displayed.
3. Choose **System > Environment > Language > RC\_LANG**. In **Setting of: RC\_LANG**, enter **en\_US**.
4. Choose **System > Environment > Language > ROOT\_USES\_LANG**. Set **ROOT\_USES\_LANG** to **yes**.
5. Click **Finish**.
6. Run the following commands to restart the OS:

```
sync;sync;sync;sync
shutdown -r now
```

----End

# F Common Operations for the Blade Server

---

This topic describes common operations for the blade server. To learn more details and operations about the blade server, see the manual delivered with the blade server to access the official Web site of the blade server vendor.

## [F.1 Logging In to the Management Console of an IBM Blade Server](#)

You can log in to the management software of the IBM management module to manage a blade server remotely. This topic describes how to log in to the management software of the IBM management module.

## [F.2 Mounting the Virtual Media on the IBM Blade Server](#)

Mounting the virtual media refers to mounting the CD-ROM on the console to a blade server. In this way, the software can be installed remotely. This topic describes how to mount the virtual media on the IBM blade server.

## [F.3 How to View the MAC Address of the External Communication NIC of an IBM Blade Server](#)

## [F.4 Logging In to the Management Console of an ATAE Blade Server](#)

You can log in to the USM-E management software to manage an ATAE blade server remotely. This topic describes how to log in to the USM-E management software.

## [F.5 How to View the MAC Address of the Base Plane of an ATAE Blade Server](#)

## F.1 Logging In to the Management Console of an IBM Blade Server

You can log in to the management software of the IBM management module to manage a blade server remotely. This topic describes how to log in to the management software of the IBM management module.

### Prerequisite

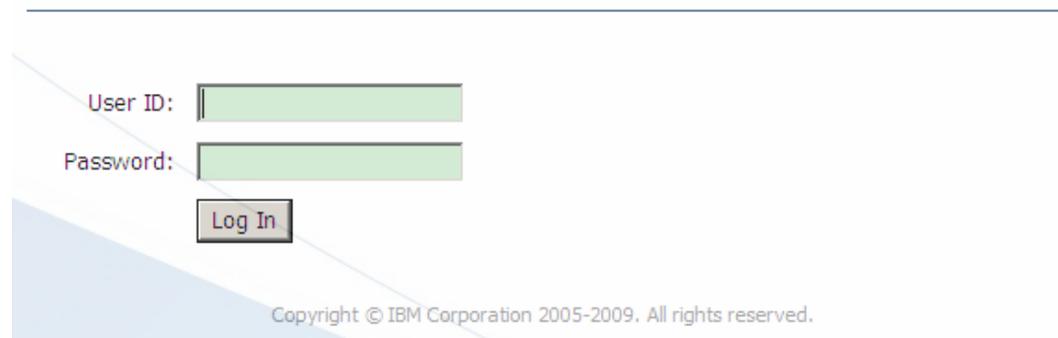
The JRE 1.4.2\_08 or later must be installed on the Windows management terminal.

### Procedure

- 1 Log in to the Windows-based management terminal.
- 2 Open an Internet Explorer window. In the address bar, enter the IP address of the network port on the management module of an IBM blade server, and press **Enter**.

The login dialog box is displayed.

### Welcome to the Advanced Management Module

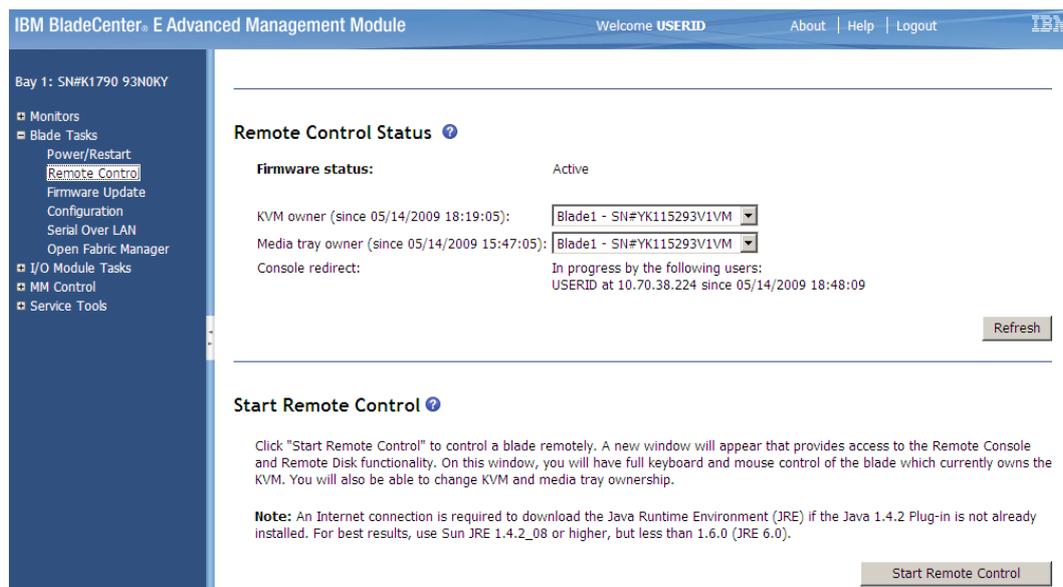


- 3 Enter the user name and password of the management module.  
By default, the login user of the management module of the IBM blade server is **USERID** and the password is **PASSWORD**. Click **Log In**.

### CAUTION

When you enter the initial password, note that the character after letter "W" is a number "0", but not a letter "O".

- 4 Click **Exit Wizard** in the **Advanced Management Module Configuration Wizard** dialog box, and then click **OK** and the management page is displayed.
- 5 In the left-hand pane, click **Blade Tasks > Remote Control**.  
The **Remote Control Status** dialog box is displayed.



6 Click **Start Remote Control**.

The **Warning-Security** dialog box is displayed.



**NOTE**

JRE 1.6.0 is used as an example in this topic. In the case of the JRE of another version, the displayed dialog box is different. Make selection according to the on-screen instructions.

7 Click **Run** to log in to the management console.

----End

## F.2 Mounting the Virtual Media on the IBM Blade Server

Mounting the virtual media refers to mounting the CD-ROM on the console to a blade server. In this way, the software can be installed remotely. This topic describes how to mount the virtual media on the IBM blade server.

## Prerequisite

The JRE1.5\_08 or a later version must be installed on the Windows management terminal.

## Procedure

### 1 Log in to the management console of the IBM blade server.

2 In the remote management console window, click **Remote Drive**. The **Remote Disk** dialog box is displayed.

3 In the **Media Tray** field, select the board to be operated.

4 In the **Available Resources** pane, select the required installation mode.

The installation by using the virtual CD-ROM drive is implemented in two ways: using the virtual CD-ROM drive and using image files.

● If you use the virtual CD-ROM drive for the installation, do as follows:

1. Click **CD-ROM (G:)** and then click **Add**.



#### NOTE

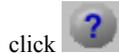
The drive letter after **CD-ROM** varies according to the actual situation.

2. Click **Mount All**.



#### NOTE

For information on how to mount a CD-ROM, see the online help of the remote console. Specifically,



click  to display the online help of the remote console.



#### TIP

You can run the **df -hk** command in the terminal window to query whether the virtual media is successfully mounted.

Run the **df -hk** command in the terminal window repeatedly until the terminal displays **/dev/sr1 132136 132136 0 100% /media/05\_04\_2009**. This message indicates that the virtual media is successfully mounted. **/dev/sr1** indicates the device name. The device name varies according to the actual situation.

3. Insert the installation CD-ROM of the SUSE Linux 10 Enterprise Server 10 SP3 to the CD-ROM drive of the computer where the management console resides.

● If you use the image files for the installation, do as follows:

1. Click **Select Image...** and then click **Add**. The **Open** dialog box is displayed.
2. Select the location of the image files and then click **Open**.



## CAUTION

Make sure that the name of the directory where the image files are saved is short and contains no space, punctuation or non-alphabetic characters.

----End

## Follow-up Procedure

To eject the CD-ROM, do as follows:

1. Run the following command to check the name of the virtual media device:  

```
df -hk
```

If the terminal displays `/dev/sr1 132136 132136 0 100% /media/05_04_2009`, it indicates that the name of the virtual media device is `/dev/sr1`. The device name varies according to the actual situation.
2. Run the following command to eject the CD-ROM:  

```
eject Name of the virtual media device
```

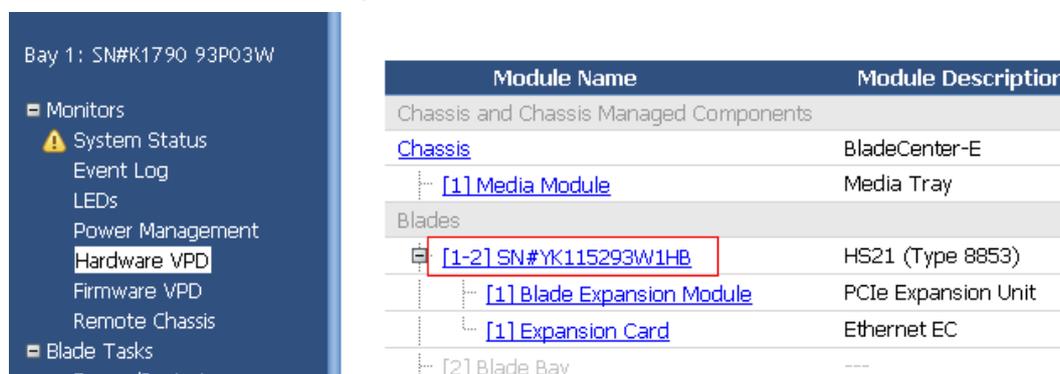
## F.3 How to View the MAC Address of the External Communication NIC of an IBM Blade Server

### Question

An IBM blade server is connected to the public network through I/O module 1 and I/O module 2. The system IP address of the IBM blade server must be set on the external communication NIC. When setting the system IP address, you need to select the NIC based on the MAC address.

### Answer

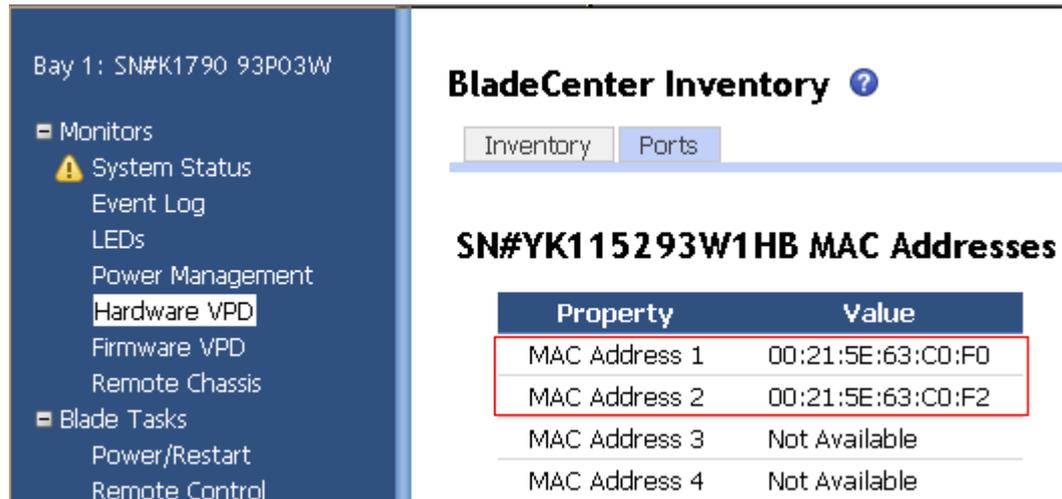
- 1 Log in to the management console of the IBM blade server.
- 2 Choose **Monitors** > **Hardware VPD**.
- 3 On the **Hardware Topology** tab page of the **BladeCenter Hardware Information** window, search for the associated card by card number. Then, click SN number.



The screenshot shows the BladeCenter Hardware Information window. On the left, a navigation menu is visible with 'Hardware VPD' selected. The main area displays a table of modules. The table has two columns: 'Module Name' and 'Module Description'. The table is organized into sections: 'Chassis and Chassis Managed Components', 'Blades', and 'Blade Bay'. The 'Blades' section contains a table with the following data:

| Module Name                                | Module Description  |
|--------------------------------------------|---------------------|
| Chassis and Chassis Managed Components     |                     |
| <a href="#">Chassis</a>                    | BladeCenter-E       |
| <a href="#">[1] Media Module</a>           | Media Tray          |
| Blades                                     |                     |
| <a href="#">[1-2] SN#YK115293W1HB</a>      | HS21 (Type 8853)    |
| <a href="#">[1] Blade Expansion Module</a> | PCIe Expansion Unit |
| <a href="#">[1] Expansion Card</a>         | Ethernet EC         |
| <a href="#">[2] Blade Bay</a>              | ---                 |

- 4 In the **BladeCenter Inventory** window, click the **Ports** tab to view the MAC address of the external communication NIC.



The screenshot shows the BladeCenter Inventory page. On the left is a navigation menu for Bay 1: SN#K1790 93P03W, with 'Hardware VPD' selected. The main content area has tabs for 'Inventory' and 'Ports'. Below the tabs is the title 'SN#YK115293W1HB MAC Addresses' and a table with two columns: 'Property' and 'Value'.

| Property      | Value             |
|---------------|-------------------|
| MAC Address 1 | 00:21:5E:63:C0:F0 |
| MAC Address 2 | 00:21:5E:63:C0:F2 |
| MAC Address 3 | Not Available     |
| MAC Address 4 | Not Available     |

----End

## F.4 Logging In to the Management Console of an ATAE Blade Server

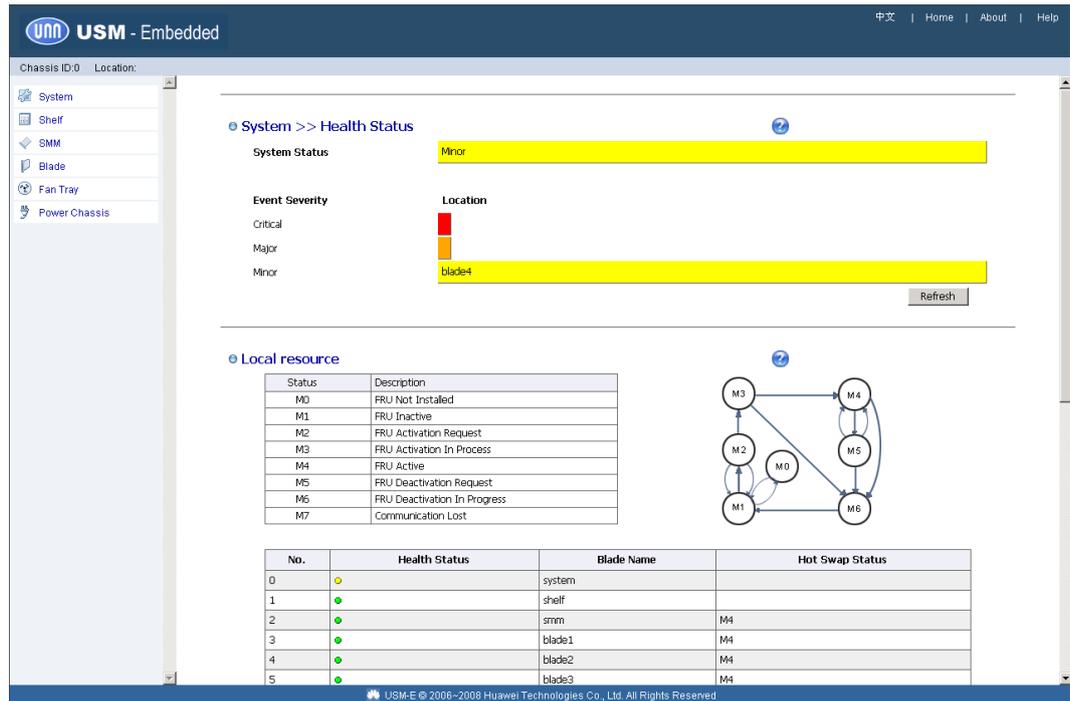
You can log in to the USM-E management software to manage an ATAE blade server remotely. This topic describes how to log in to the USM-E management software.

### Prerequisite

The JRE 1.5\_08 or later must be installed on the Windows management terminal.

### Procedure

- 1 Log in to the Windows-based management terminal.
- 2 Open an Internet Explorer window. In the address bar, enter the IP address of the network port on the management unit of an ATAE blade server, and press **Enter**.  
The login dialog box is displayed.
- 3 Enter the user name **root** and the password **huaweiosta**, and click **OK**.



4 In the left-hand pane, click **Blade > Remote Control**.

The **Warning-Security** dialog box is displayed.

**NOTE**

JRE 1.6.0 is used as an example in this topic. In the case of the JRE of another version, the displayed dialog box is different. Make selection according to the on-screen instructions.

5 Click **Run** to log in to the management console.

Blade >>Virtual Media

Blade >> KVM



6 In the **Blade >> KVM** panel, select the required board.



## CAUTION

Click the board number on the toolbar to select the required board.

### TIP

- To enter the full screen mode, click  on the toolbar.
- To restore from the full screen mode to window, move the mouse to upper middle of the screen, press **Ctrl+Shift+Alt** and click  in the upper portion of the screen.

---End

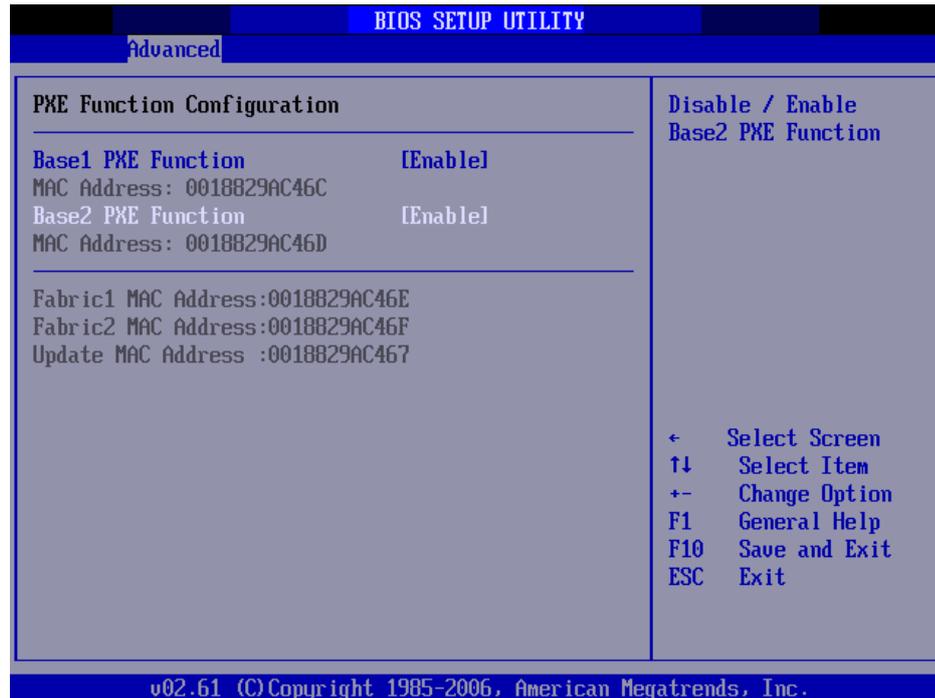
## F.5 How to View the MAC Address of the Base Plane of an ATAE Blade Server

### Question

An ATAE blade server is connected to the public network through the base plane. The system IP address of an ATAE blade server must be set on the NIC of the base plane. When setting the system IP address, you need to select the NIC based on the MAC address.

### Answer

- 1 Log in to the management console of an ATAE blade server.
- 2 In the **Blade >> KVM** panel, select the required board from **Select Blade**, and click **Cold Reset** to restart the blade server.
- 3 In the process of restarting the blade server, when the **American Megatrends** window is displayed, press **Delete** to display the **BIOS SETUP UTILITY** window.
- 4 In the **BIOS SETUP UTILITY** window, press **Tab** to choose **Advanced > PXE Function Configuration** from the main menu.  
The **PXE Function Configuration** window is displayed. Record the MAC addresses of the base plane.



 **TIP**

Record the MAC addresses of the base plane so that you can select the correct NICs for external communication when you set the network.

Press **Esc** to return to the main menu.

----**End**



# G 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. |

| Configure Item      | Settings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Host group and host | Set the host group name to <b>HostGroup001</b> .<br>Set the host name to <b>Masterserver</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| RAID group          | <ul style="list-style-type: none"> <li>● Set the RAID group name to <b>RAID001</b>.</li> <li>● Set the RAID Level to <b>RAID5</b>.</li> <li>● Set the disk type to <b>SAS</b>.</li> <li>● The first five disks serve as the RAID group.</li> </ul>                                                                                                                                                                                                                                                                                                       |
| LUN                 | Configure one LUN as follows: <ul style="list-style-type: none"> <li>● LUN information               <ul style="list-style-type: none"> <li>- Name: LUN001</li> <li>- Capacity: 1000 GB</li> <li>- Stripe unit size: 32 KB</li> <li>- Home controller: controller A</li> </ul> </li> <li>● Cache strategy               <ul style="list-style-type: none"> <li>- Prefetch strategy: intelligent</li> <li>- Write strategy: write back (mirroring)</li> </ul> </li> <li>● Mapping mode<br/>Mapping object: host group name <b>HostGroup001</b></li> </ul> |
| Port                | <ul style="list-style-type: none"> <li>● Set the type to <b>FC</b>.</li> <li>● Set the name associated with the first identifier to <b>port1</b>.</li> <li>● Set the name associated with the second identifier to <b>port2</b>.</li> </ul>                                                                                                                                                                                                                                                                                                              |

## 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.

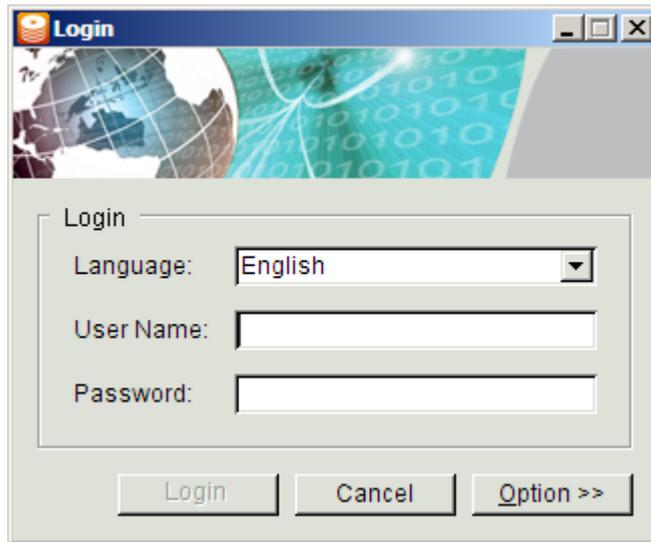


## CAUTION

- 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.

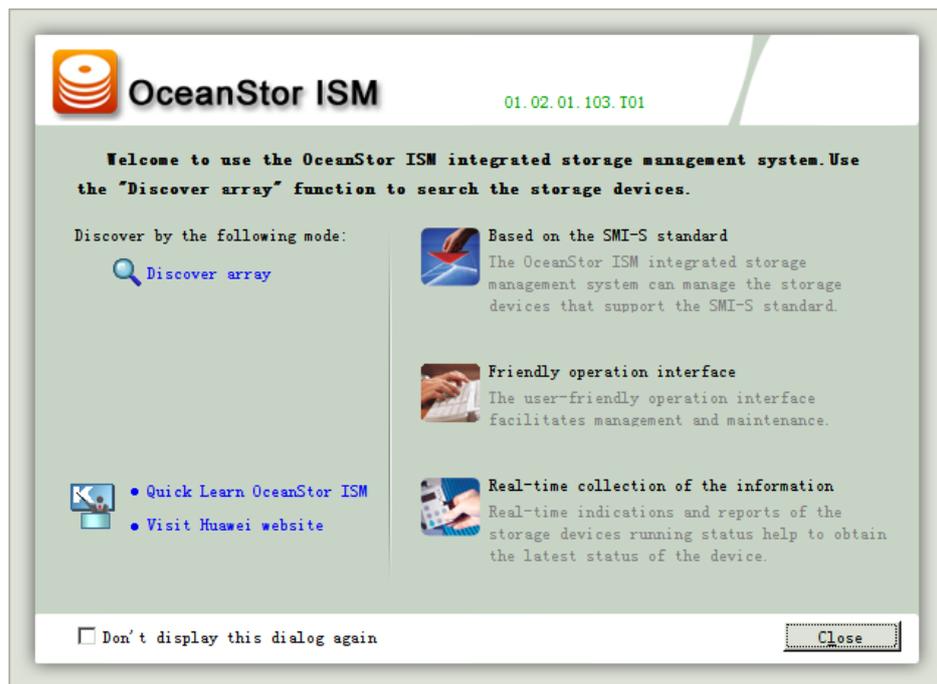
4. In the **Warning - Security** dialog box, select **Always trust content from this publisher** and click **Run**.
5. Decide whether or not to create an ISM shortcut on the desktop and in the Start menu. The system will open the login window of the ISM, as shown in the following figure.



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**

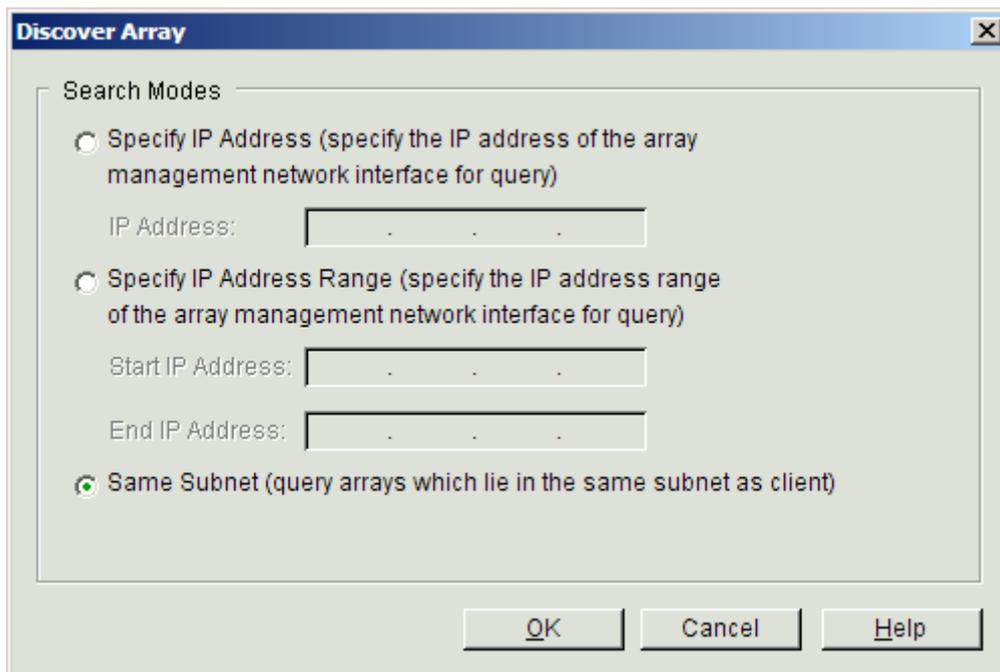
- A disk array can be discovered only when the entered user name and password are the same as those of the disk array.
  - The default user name and password for logging in to the ISM are **admin** and **123456**. After login, change the password immediately and keep the password confidential.
7. Click **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.



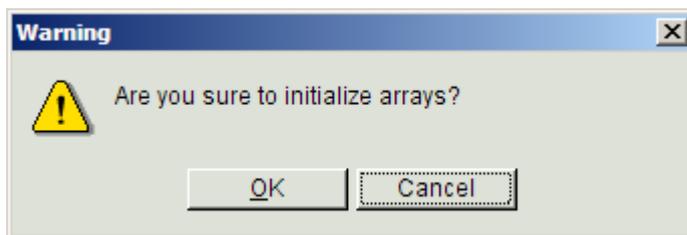
2. Select a mode for discovering disk arrays according to the conditions at your site. [Table G-1](#) describes the parameters for discovering disk arrays.

**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.<br><br>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. <b>Start IP Address</b> and <b>End IP Address</b> 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: <ul style="list-style-type: none"> <li>● The discovery range is the IP subnet segment of the ISM client.</li> <li>● 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.</li> <li>● The start IP address must be smaller than or equal to the end IP address.</li> </ul> |
| 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.

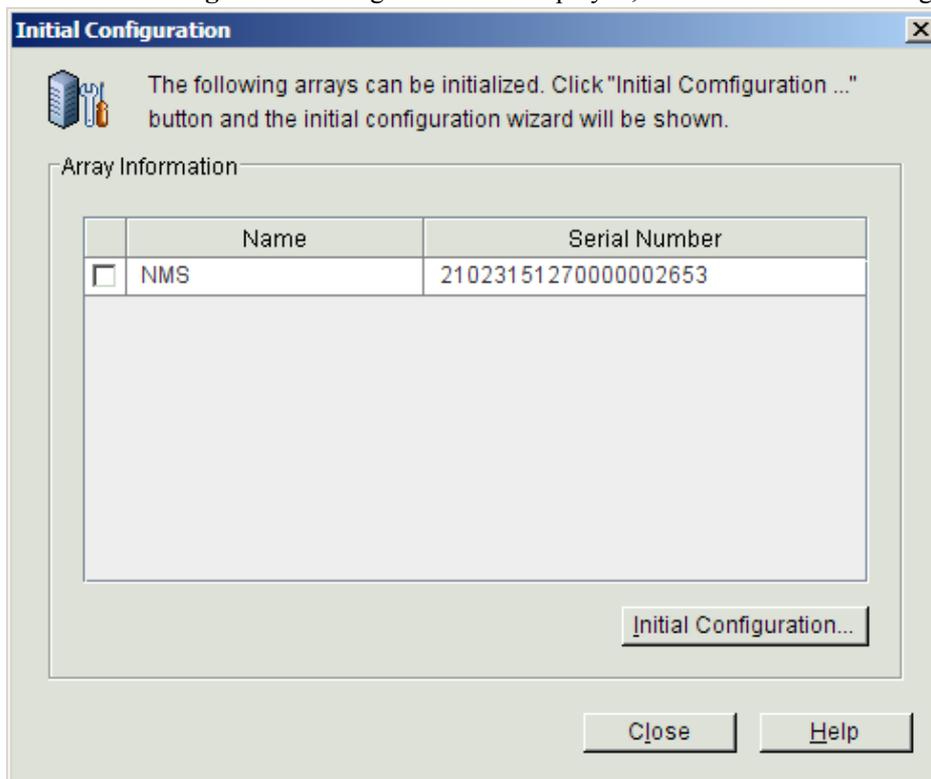
4. Click **OK**. The **Warning** dialog box will be displayed.



- 3 Initialize the configuration.

1. In the **Warning** dialog box, click **OK** to initialize the disk array.

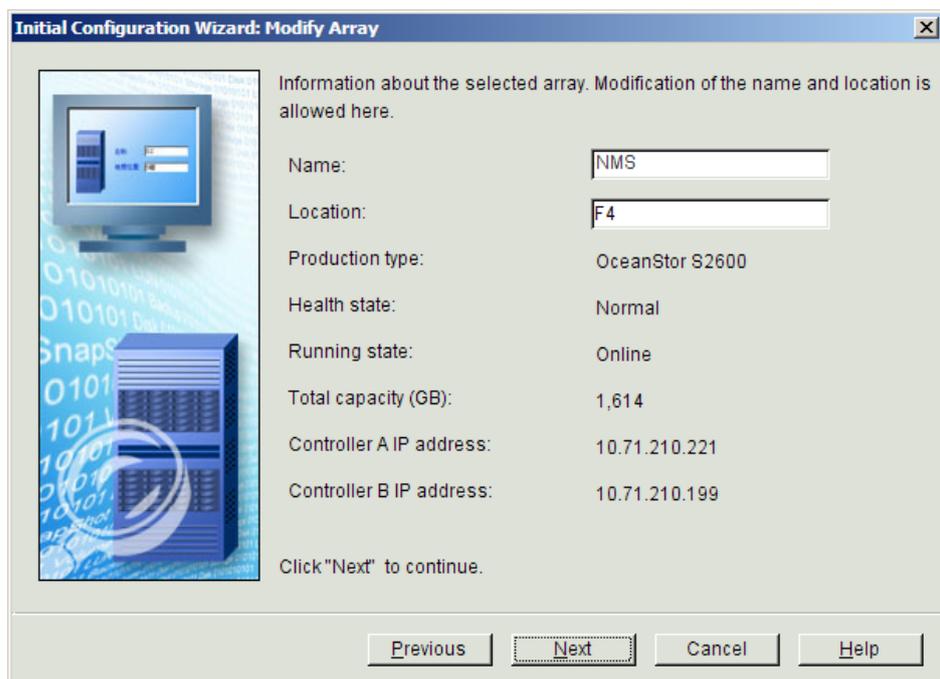
The **Initial Configuration** dialog box will be displayed, as shown in the following figure.



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.

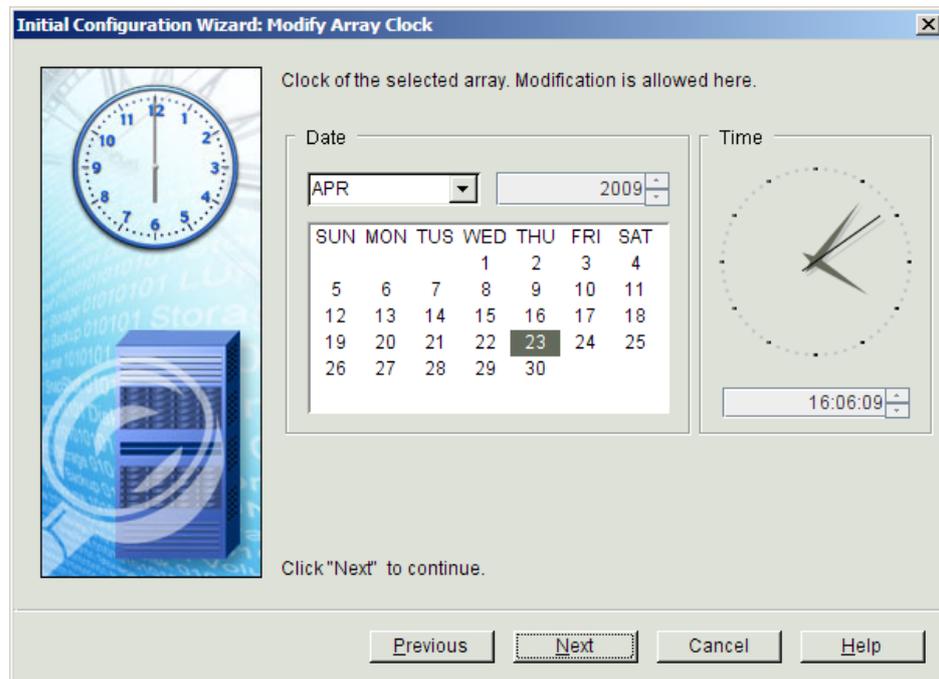


4. Enter the name of the disk array in the **Name** text box and the location information in the **Location** text box. **Table G-2** describes the parameters for modifying a disk array.

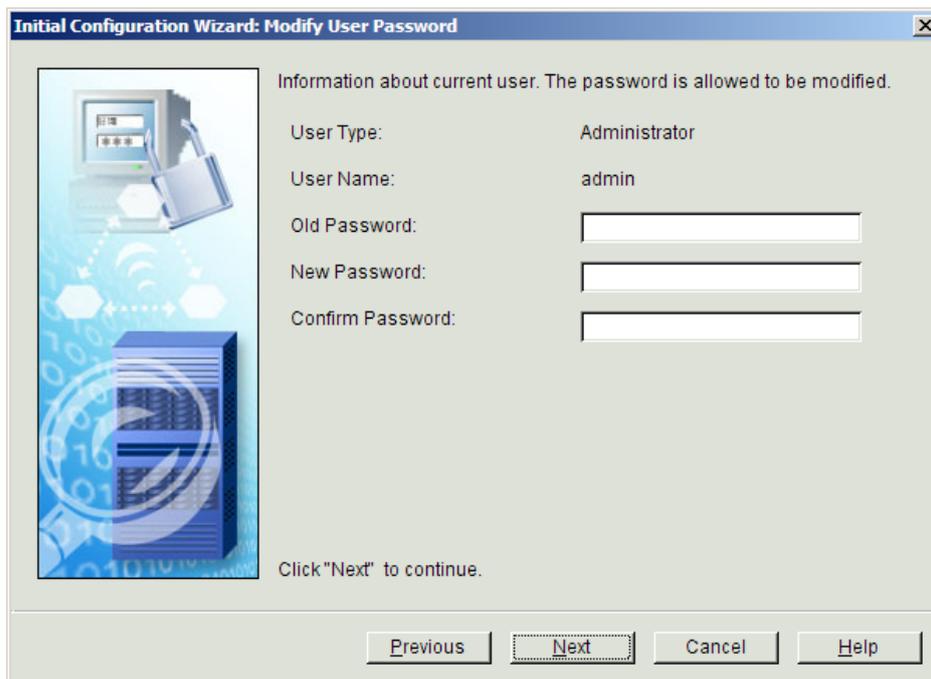
**Table G-2** Parameters for modifying a disk array

| Parameter | Description                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name      | <p>Specifies the name of the OceanStor S2600 disk array to be configured. When setting this parameter, note that:</p> <ul style="list-style-type: none"> <li>● This parameter contains only the characters and numerals in DBC case, underscores (_), en-dash symbols (-), and simplified Chinese characters.</li> <li>● This parameter consists of 1 to 32 characters. A Chinese character counts for two DBC characters.</li> </ul>     |
| Location  | <p>Specifies the location of the OceanStor S2600 disk array to be configured. When setting this parameter, note that:</p> <ul style="list-style-type: none"> <li>● This parameter contains only the characters and numerals in DBC case, underscores (_), en-dash symbols (-), and simplified Chinese characters.</li> <li>● This parameter consists of 1 to 32 characters. A Chinese character counts for two DBC characters.</li> </ul> |

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.



- Change the login password of the user. [Table G-3](#) describes the parameters for changing the user password.

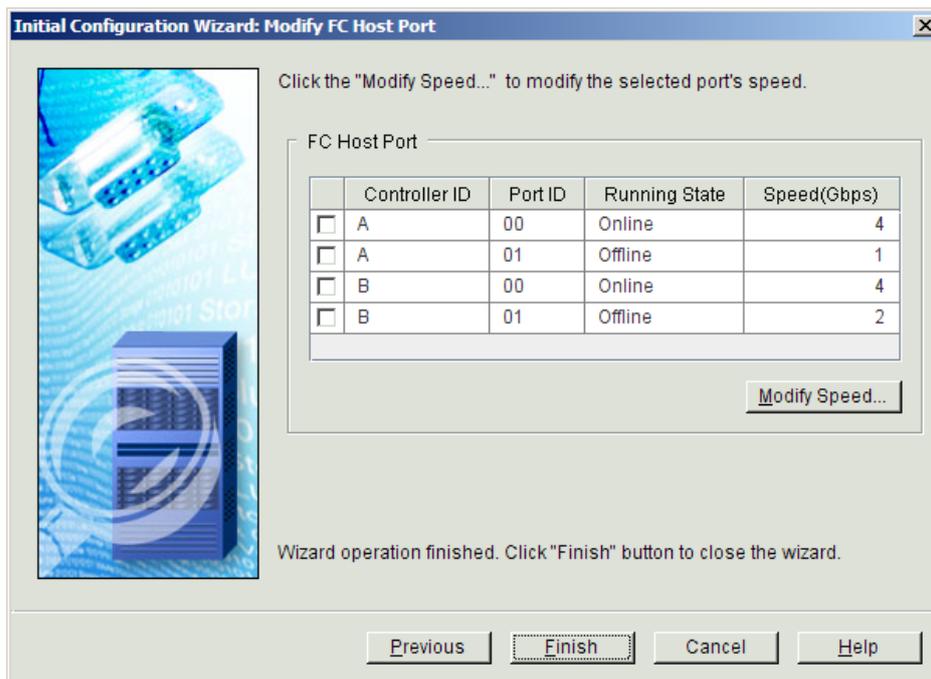
**Table G-3** Parameters for changing the user password

| Parameter        | Description                                                                                                                                                                                                                                                                         |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Old Password     | Specifies the original password. The default password is <b>123456</b> .                                                                                                                                                                                                            |
| 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: <ul style="list-style-type: none"> <li>This parameter ranges from 6 to 16 characters.</li> <li>This parameter value must be the same as the value of <b>New Password</b>.</li> </ul> |

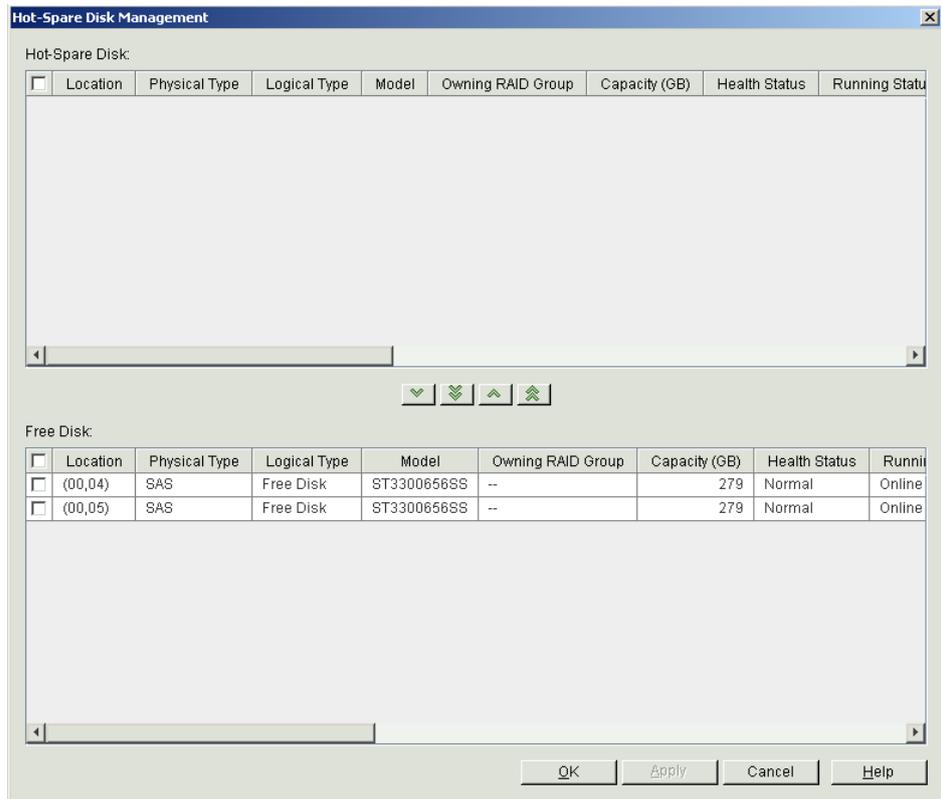
- Click **Next**. The **Initial Configuration Wizard: Modify FC Host Port** dialog box will be displayed.

**NOTE**

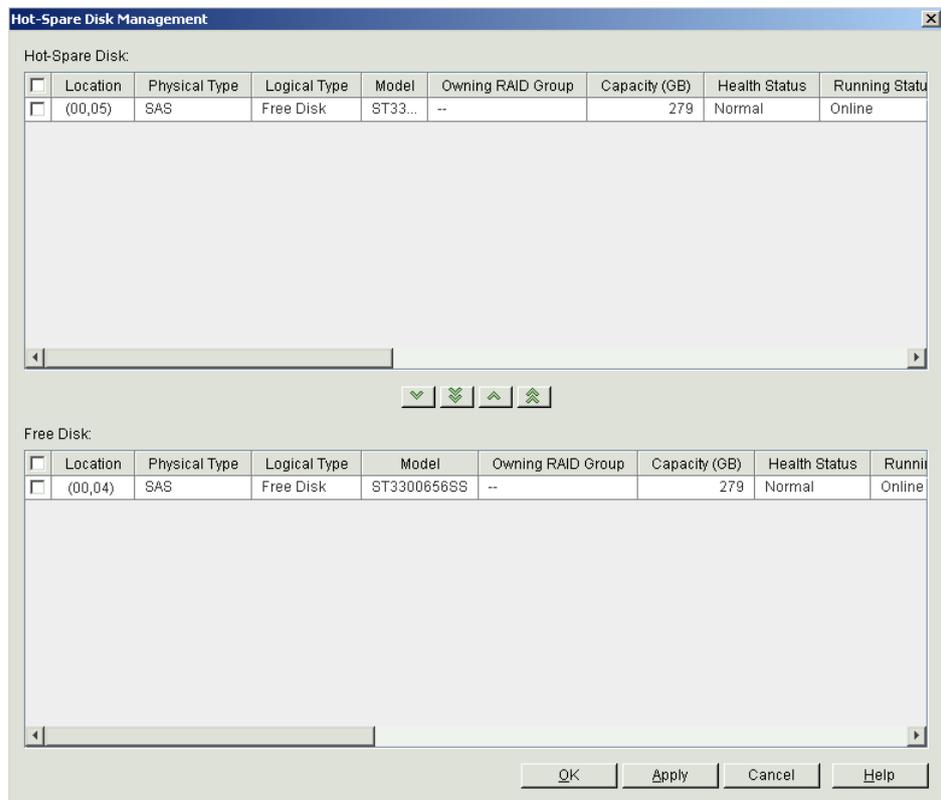
Click **Modify Speed** if the port rate needs to be changed. The default rate of an online port is 4 Gbit/s.



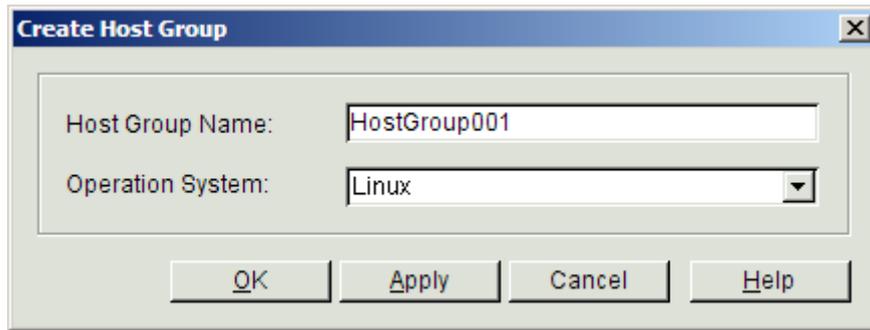
9. Click **Finish** to complete the initial configuration.
  10. Click **Close** to exit.
- 4** Configure the hot-spare disk.
1. Click the **Physical View** tab in the navigation tree, and then select the OceanStor S2600 disk array to be configured.
  2. Choose **Configuration > Hot-Spare Disk Management** 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.

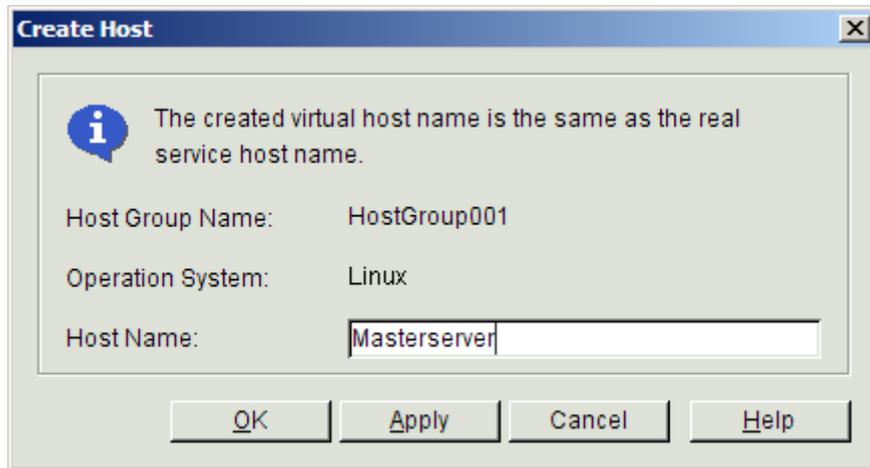


3. Select **Linux**, and then click **OK**.  
The **Info** dialog box is displayed indicating that the operation was completed.

 **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.

**Create RAID Group**

RAID Group Parameters

RAID Group Name: RAID001

RAID Level: RAID 5

Select Disks

Disk Type: SAS

Number of Sub-Groups:

Auto      Number of Disks: 5

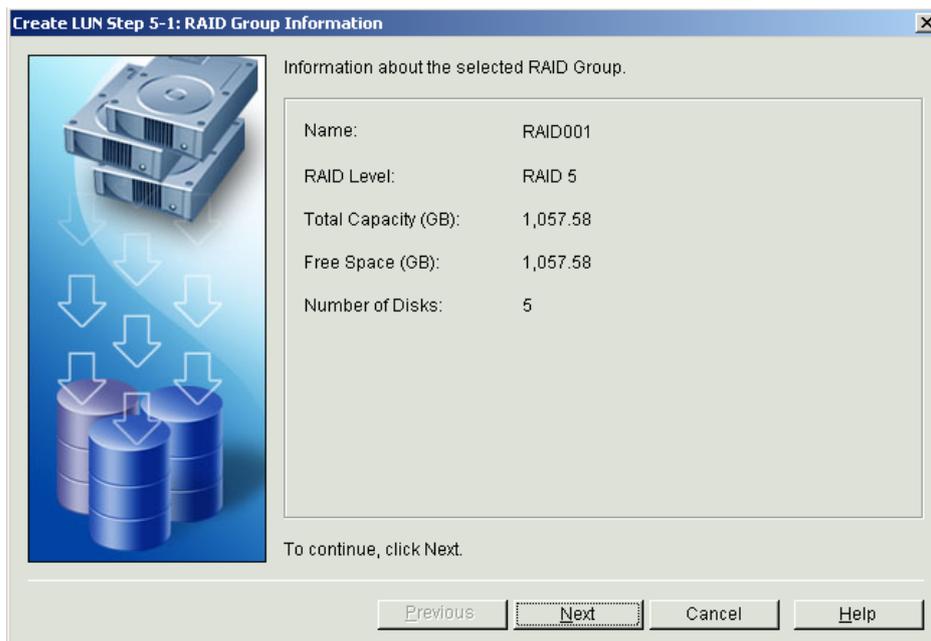
Manual

| <input checked="" type="checkbox"/> | Location | Rotation Speed (rpm) | Capacity (GB) | Type        |
|-------------------------------------|----------|----------------------|---------------|-------------|
| <input checked="" type="checkbox"/> | (00,00)  | 15,000               | 264           | ST3300656SS |
| <input checked="" type="checkbox"/> | (00,01)  | 15,000               | 264           | ST3300656SS |
| <input checked="" type="checkbox"/> | (00,02)  | 15,000               | 264           | ST3300656SS |
| <input checked="" type="checkbox"/> | (00,03)  | 15,000               | 264           | ST3300656SS |
| <input checked="" type="checkbox"/> | (00,04)  | 15,000               | 279           | ST3300656SS |

Remaining Disks: 0    Selected Disks: 5    Total Capacity (GB): 1,335 GB

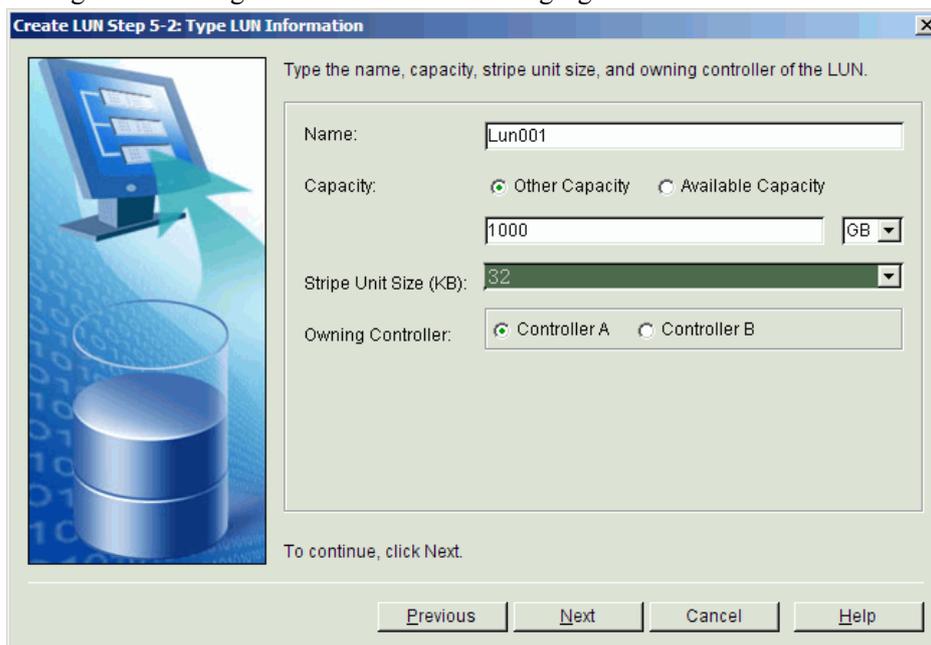
OK    Apply    Cancel    Help

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.



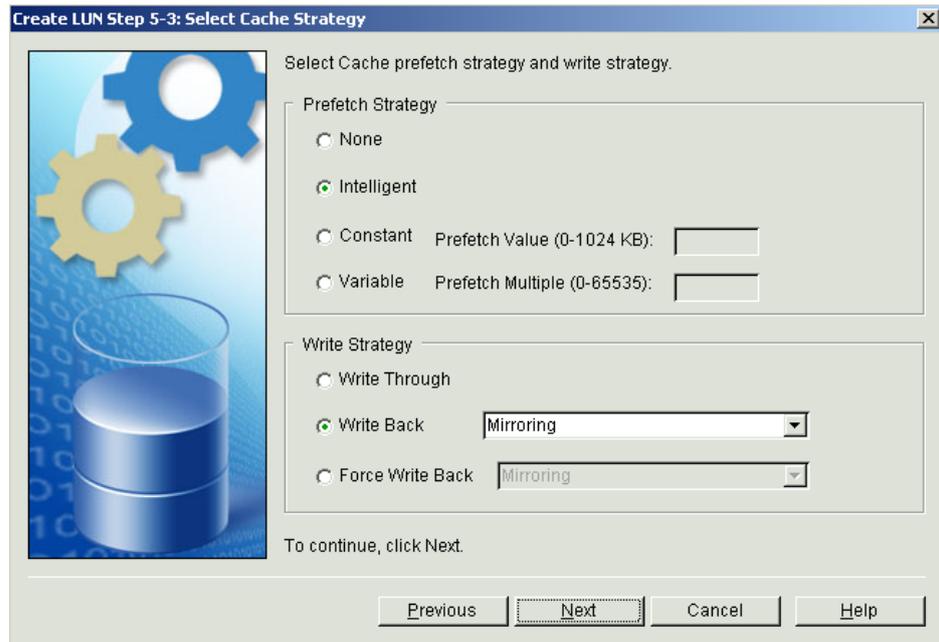
3. Click **Next**. The **Create LUN Step 5-2: Type LUN Information** dialog box will be displayed.

Configure the settings as shown in the following figure.



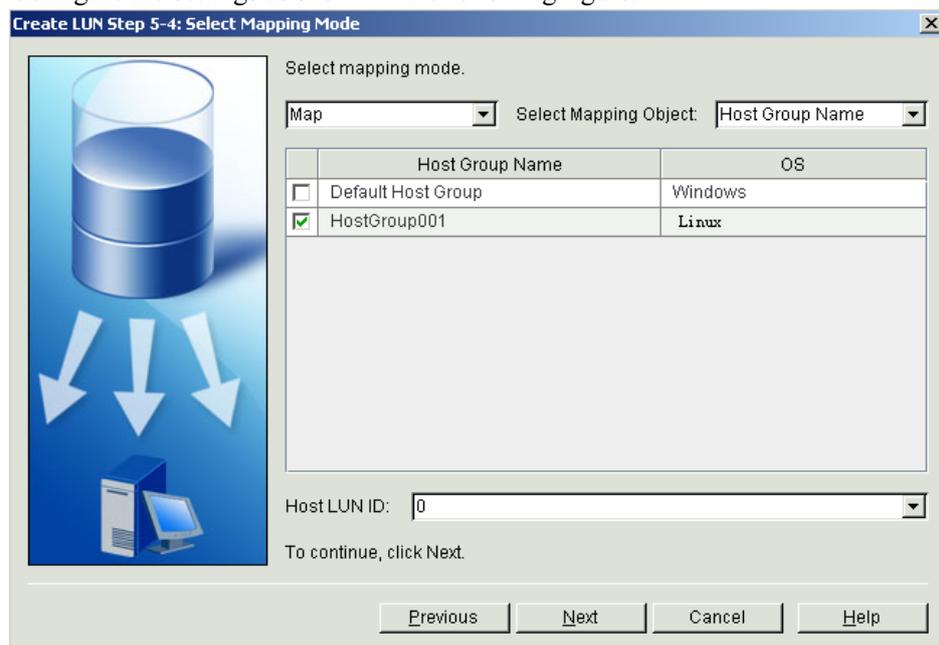
4. Click **Next**. The **Create LUN Step 5-3: Select Cache Strategy** dialog box will be displayed.

Configure the settings as shown in the following figure.

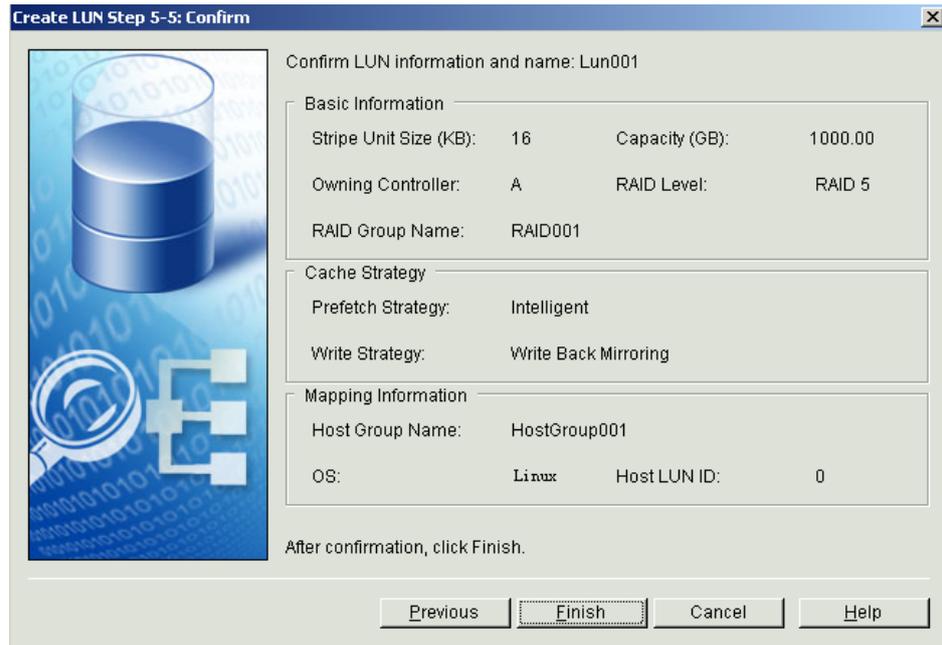


5. Click **Next**. The **Create LUN Step 5-4: Select Mapping Mode** dialog box will be displayed.

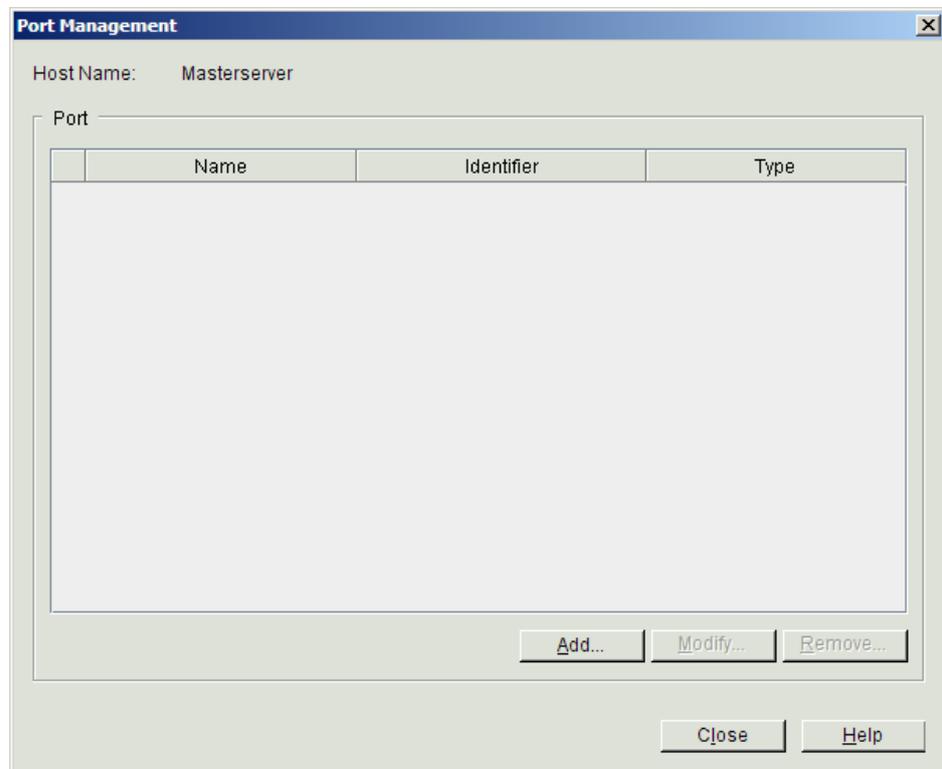
Configure the settings as shown in the following figure.



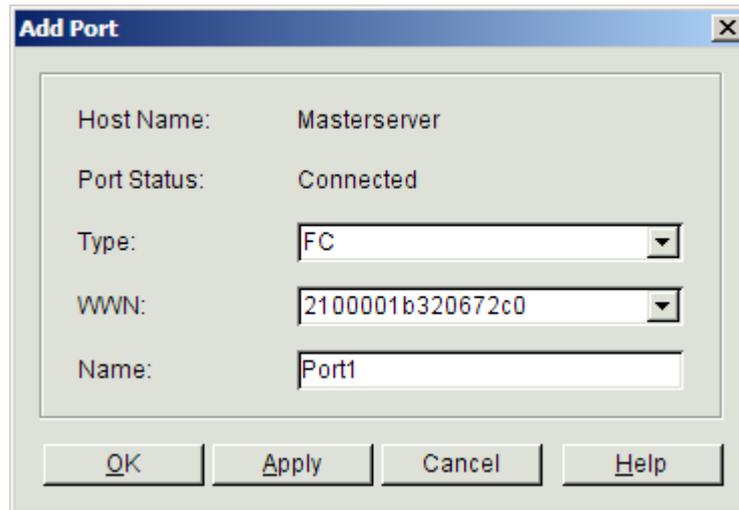
6. Click **Next**. The **Create LUN Step 5-5: Confirm** dialog box will be displayed.  
Configure the settings as shown in the following figure.



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:

```
cd /sys/class/scsi_host/hostport ID
cat state
```

 **NOTE**

In the preceding command, *port ID* indicates the ports through which the disk array connects to the server.

You can run the **lsscsi** 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:

```
lsscsi
```

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:

```
Link Up - Loop
```

 **NOTE**

If the fiber card is not in the **Link Up** 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 -r now`

---End

# H Planning Disk Partitions

This topic describes the disk partitioning scheme that is determined according to the sizes and quantity of the server hard disks.

Before manually installing the OS, you need to specify the disk partitioning scheme. If the OS is installed through the rapid installation DVD, you can skip this part. The installation software automatically performs disk partitioning according to the disk size.

The standard configuration of an SUSE Linux server is two hard disks with the capacity of 146 GB. One of the disks functions as the mirrored disk that need not be partitioned.

**Table H-1** Scheme for disk partition

| Partiti on Type      | Path       | Form atted or Not | Load Poin t | File System | Number of Hard Disks (146 GB) | Description                                                                                                                                                             |
|----------------------|------------|-------------------|-------------|-------------|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Primar y partitio n  | /dev/ sda1 | Yes               | /           | Ext3        | 10                            | It is the root partition.                                                                                                                                               |
|                      | /dev/ sda2 | Yes               | swap        | Swap        | 16                            | It is used for switching data in the system.                                                                                                                            |
| Extend ed partitio n | /dev/ sda3 | Yes               |             | Ext3        |                               | In addition, the size of this partition is for reference and is allocated automatically by the system. Therefore, you need not set the size of this partition manually. |
| Logical partitio n   | /dev/ sda5 | Yes               | /usr        | Ext3        | 10                            | It is a logical partition in the extended partition. This partition is used for storing programs or files of users.                                                     |

| Partiti<br>on<br>Type | Path          | Form<br>atted<br>or<br>Not | Load<br>Poin<br>t        | File<br>System | Number<br>of Hard<br>Disks (146<br>GB) | Description                                                                                          |
|-----------------------|---------------|----------------------------|--------------------------|----------------|----------------------------------------|------------------------------------------------------------------------------------------------------|
|                       | /dev/<br>sda6 | Yes                        | /var                     | Ext3           | 10                                     | It is a logical partition in the extended partition. This partition is used for storing system logs. |
|                       | /dev/<br>sda7 | Yes                        | /opt                     | Ext3           | 80                                     | It is a logical partition in the extended partition.                                                 |
|                       | /dev/<br>sda8 | Yes                        | /<br>expor<br>t/<br>home | Ext3           | 10                                     | It is a logical partition in the extended partition.                                                 |

---

# I Acronyms

---

## A

|              |                                                    |
|--------------|----------------------------------------------------|
| <b>ACL</b>   | Access Control List                                |
| <b>ASCII</b> | American Standard Code for Information Interchange |

## C

|               |                               |
|---------------|-------------------------------|
| <b>CD-ROM</b> | Compact Disc-Read Only Memory |
| <b>CPU</b>    | Central Processing Unit       |

## D

|             |                                     |
|-------------|-------------------------------------|
| <b>DC</b>   | Data Center                         |
| <b>DCN</b>  | Data Communication Network          |
| <b>DHCP</b> | Dynamic Host Configuration Protocol |

## E

|            |                         |
|------------|-------------------------|
| <b>ESN</b> | Equipment Serial Number |
|------------|-------------------------|

## F

|            |                        |
|------------|------------------------|
| <b>FTP</b> | File Transfer Protocol |
|------------|------------------------|

## I

|             |                                            |
|-------------|--------------------------------------------|
| <b>ID</b>   | Identity                                   |
| <b>iMAP</b> | Integrated Management Application Platform |
| <b>IP</b>   | Internet Protocol                          |

|             |                                                        |
|-------------|--------------------------------------------------------|
| <b>IPMP</b> | IP Network Multipathing                                |
| <b>K</b>    |                                                        |
| <b>KVMS</b> | Keyboard, video, mouse (KVM) switch                    |
| <b>L</b>    |                                                        |
| <b>LCT</b>  | Local Craft Terminal                                   |
| <b>LAN</b>  | Local Area Network                                     |
| <b>M</b>    |                                                        |
| <b>MML</b>  | Human-Machine Language (formerly Man-Machine Language) |
| <b>MPLS</b> | MultiProtocol Label Switching                          |
| <b>MA</b>   | Media Service Access                                   |
| <b>MAC</b>  | Media Access Control                                   |
| <b>MAN</b>  | Metropolitan Area Network                              |
| <b>MAU</b>  | Medium Attachment Unit                                 |
| <b>N</b>    |                                                        |
| <b>NBI</b>  | Northbound Interface                                   |
| <b>NE</b>   | Network Element                                        |
| <b>NIC</b>  | Network Information Center                             |
| <b>NMS</b>  | Network Management System                              |
| <b>NTP</b>  | Network Time Protocol                                  |
| <b>O</b>    |                                                        |
| <b>OEM</b>  | Original Equipment Manufacturer                        |
| <b>OS</b>   | Operation System                                       |
| <b>OSS</b>  | Operation Support System                               |
| <b>P</b>    |                                                        |
| <b>PPP</b>  | Peer-Peer Protocol                                     |
| <b>PSTN</b> | Public Switched Telephone Network                      |

|             |                                      |
|-------------|--------------------------------------|
| <b>PVC</b>  | Permanent Virtual Circuit            |
| <b>R</b>    |                                      |
| <b>RAID</b> | Redundant Array of Independent Disks |
| <b>S</b>    |                                      |
| <b>SCSI</b> | Small Computer Systems Interface     |
| <b>SDH</b>  | Synchronous Digital Hierarchy        |
| <b>SNMP</b> | Simple Network Management Protocol   |
| <b>SQL</b>  | Structured Query Language            |
| <b>SSH</b>  | Secure Shell                         |
| <b>T</b>    |                                      |
| <b>TCP</b>  | Transport Control Protocol           |
| <b>TFTP</b> | Trivial File Transfer Protocol       |
| <b>U</b>    |                                      |
| <b>UDP</b>  | User Datagram Protocol               |
| <b>UPS</b>  | Uninterrupted Power Supply           |
| <b>X</b>    |                                      |
| <b>XML</b>  | Extensible Markup Language           |