

HUAWEI Server OS

Installation Guide

lssue 06 Date 2016-02-05



HUAWEI TECHNOLOGIES CO., LTD.

Copyright © Huawei Technologies Co., Ltd. 2016. All rights reserved.

No part of this document may be reproduced or transmitted in any form or by any means without prior written consent of Huawei Technologies Co., Ltd.

Trademarks and Permissions

All other trademarks and trade names mentioned in this document are the property of their respective holders.

Notice

The purchased products, services and features are stipulated by the contract made between Huawei and the customer. All or part of the products, services and features described in this document may not be within the purchase scope or the usage scope. Unless otherwise specified in the contract, all statements, information, and recommendations in this document are provided "AS IS" without warranties, guarantees or representations of any kind, either express or implied.

The information in this document is subject to change without notice. Every effort has been made in the preparation of this document to ensure accuracy of the contents, but all statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.

Huawei Technologies Co., Ltd.

Address: Huawei Industrial Base Bantian, Longgang Shenzhen 518129 People's Republic of China

Website: <u>http://e.huawei.com</u>

About This Document

Purpose

This document describes the precautions and procedure for installing an operating system (OS) on the Huawei server and application scenarios.

Intended Audience

This document is intended for:

- Server installation personnel
- Server maintenance personnel

Symbol Conventions

The following table lists the symbols that may be found in this document.

Symbol	Description		
	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.		
	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.		
	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.		
	Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance deterioration, or unanticipated results.		
	NOTICE is used to address practices not related to personal injury.		

Symbol	Description
	Calls attention to important information, best practices and tips.
	NOTE is used to address information not related to personal injury, equipment damage, and environment deterioration.

Change History

Changes between document issues are cumulative. The latest document issue contains all the changes made in earlier issues.

Issue 06 (2016-02-05)

This issue is the sixth official release.

Issue 05 (2015-06-15)

This issue is the fifth official release.

The 10 Methods of Locating OS Problems is added.

Issue 04 (2014-09-18)

This issue is the forth official release.

Tecal is deleted.

Issue 03 (2014-06-20)

This issue is the third official release.

The notice of downloading drivers is added.

Issue 02 (2014-04-16)

This issue is the second official release.

The method of checking driver version mapping is updated.

Issue 01 (2014-03-01)

This issue is the first official release.

Contents

About This Document	ii
1 Overview	1
2 Installation Process	
3 Selecting an Installation Method	4
4 Installing an OS by Using the ServiceCD	7
4.1 Preparing for the Installation	
4.1.1 Obtaining OS Installation Materials	
4.1.2 Setting BIOS Parameters	9
4.1.3 Configuring RAID Properties for Hard Disks	
4.2 Installing an OS	
5 Directly Installing an OS	
5.1 Preparing for the Installation	
5.1.1 Obtaining OS Installation Materials	
5.1.2 Setting BIOS Parameters	
5.1.3 Configuring RAID Properties for Hard Disks	
5.2 Installing an OS	
5.3 Precautions for OS Installation on NVMe SSDs	
6 Installing an OS by Loading a RAID Controller Card Driver	
6.1 Preparing for the Installation	
6.1.1 Obtaining OS Installation Materials	
6.1.2 Setting BIOS Parameters	
6.1.3 Configuring RAID Properties for Hard Disks	
6.2 Installing an OS	
7 Installing an OS by Creating an Installation Source	64
7.1 Preparing for the Installation	
7.1.1 Obtaining OS Installation Materials	
7.1.2 Setting BIOS Parameters	
7.1.3 Configuring RAID Properties for Hard Disks	
7.2 Installing an OS	
7.2.1 Installing Solaris by Creating an Installation Source	

7.2.2 Installing Ubuntu by Creating an Installation Source	
7.2.3 Installing an OS by Creating the VMware Installation Source	
8 Installing Drivers	
8.1 Preparing for the Installation	
8.2 Checking Driver Versions	
8.2.1 Checking Driver Versions in the Windows OS	
8.2.2 Checking Driver Versions in the Linux OS	
8.2.3 Checking Driver Versions in the Solaris OS	
8.2.4 Checking Driver Versions in the VMware OS	
8.3 Installing Methods	
8.3.1 Installing Drivers in the Windows OS	
8.3.2 Installing Drivers in the Linux OS	
8.3.3 Installing Drivers in the Solaris OS	
8.3.4 Installing Drivers in the VMware OS	
9 Common Operations	
9.1 Logging In to the Virtual Console	
9.1.1 Logging In by Using the WebUI.	
9.1.2 Logging In by Using the MM910 WebUI	
9.1.3 Logging In by Using the MM620 WebUI	
9.2 Transferring Files Using WinSCP	
10 Methods of Locating OS Problems	
10.1 kdump	
10.1.1 About kdump	
10.1.2 Configuring Kdump	
10.1.2.1 RHEL 6	
10.1.2.2 SLES 11	
10.1.3 Troubleshooting	
10.1.3.1 Failed to Start kdump	
10.1.3.2 Failed to Detect Hard Disks After the kdump Process Starts	
10.1.3.3 System Reporting OOM After the kdump Process Starts	
10.2 Linux System Serial Port Redirection	
10.2.1 Red Hat Enterprise Linux	
10.2.2 SUSE Linux Enterprise Server	
10.3 Changing the Linux System Log Level	
A Obtaining Help	
A.1 Preparations for Contacting Huawei	
A.2 Using CD-ROM and Documents	
A.3 Obtaining Help from Huawei Technical Support Website	
B Glossary	142

B.2 F-J	
B.3 K-O	
B.4 P-T	
B.5 U-Z	

1 Overview

This topic describes the methods for installing an operating system (OS) on a Huawei server.

Installation Methods

You can install an OS on a Huawei server by using one of the methods described in Table 1-1.

Install ation Metho d	Description
Installin g an OS by using the Service CD	 As an operating system (OS) installation wizard tool, the ServiceCD simplifies the installation of OSs and drivers on the local computer. If you choose this method, you can use a physical DVD-ROM drive to read content from the ServiceCD DVD or use a virtual DVD-ROM drive to load the ServiceCD image file. The ServiceCD has the following features: Helps users install mainstream OSs and drivers required by detected hardware. Provides consistent and wizard-based installation processes. Simplifies and accelerates OS deployment on servers.
Installin g an OS by using an OS installat ion DVD or image file	It is a common method to install an OS by using an OS installation DVD or image file. If you choose this method, you can use a physical DVD-ROM drive to read content from the installation DVD or use a virtual DVD-ROM drive to load the image file.

 Table 1-1 OS installation methods

Install ation Metho d	Description
Installin g an OS by loading a RAID controll er card driver	If a server is configured with a redundant array of independent disks (RAID) controller card, you can load the RAID controller card driver to install the OS and the driver at a time. If you choose this method, you can use a virtual DVD-ROM drive to switch between the OS image file and the RAID controller card driver image file.
Installin g an OS by creating an installat ion source	You need to compile an installation file for a special OS to incorporate the required driver into the image file. If you choose this method, you need to use a virtual DVD-ROM drive to load the image file.

Server Login Methods

You can log in to a server by using a PC or keyboard, video, and mouse (KVM).

- If you log in to the Virtual Console on a server by using a PC, you can use the physical DVD-ROM drive and virtual media (including the virtual DVD-ROM drive and virtual floppy disk drive) on the Virtual Console. You can use a PC to log in to a server whose the OS is installed by any method.
- If you log in to a server by using a KVM, you can use only the physical DVD-ROM drive. If no ISO file or server driver package is used during OS installation, you can use the KVM to log in to the server.

2 Installation Process

This topic describes the process for installing an operating system (OS) on a server.

Figure 2-1 shows the process for installing an OS on a server.





3 Selecting an Installation Method

This topic describes how to select a installation method for an operating system (OS).

Scenarios

Select an installation method by referring to the Huawei Server Compatibility Checker.

The operating system (OS) installation method and mezz card drivers to be installed vary according to OS type and mezz card type. Refer to the server compatibility list to determine the OS installation method.

This topic assumes that CentOS 5.7 is to be installed on a RH2285 V2. You need to select an OS installation method depending on the server model and OS type.

Prerequisites

Conditions

No special condition is required for this operation.

Data

Data preparation is not required for this operation.

Tools

You have obtained a client for logging in to the **Huawei Enterprise support website** and server management system (take the iMana 200 for example).

Procedure

Open the Huawei Server Compatibility Checker.

1 Log in to the HUAWEI Server Information Self-Service Platform.

HUAWEI	Huawei Server Compatibility Checker					
	Search OSs	Se	earch Parts			
	* Proc	luct Model			•	
			Part	Туре	Model	
			CPU			
			+Mezz Card	•		
			+RAID Card		•	
			4K Disks			
					Reset Search	

Figure 3-1 Huawei Server Compatibility Checker

Query the OS installation method.

ΠΝΟΤΕ

As technology evolves, hardware components and platforms of Huawei servers will be upgraded. Generally, Huawei upgrades CPUs once per year and upgrades platforms once every two years. To match new hardware products, OS manufacturers will also upgrade their OS versions. This is why OS manufacturers claim that they support a certain hardware platform since a specified version and do not provide technical support for OSs with earlier versions.

2 Choose the target server and click **Search**.

The supported OSs are displayed, as shown in Figure 3-2.

The **Remarks** reflects the OS installation methods.

Figure 3-2 The supported OSs

OS	Description	Certification	Drivers	Notes		
CentOS 5.7	CentOS Linux 5 Update 7 Server for x86/Intel EM64T		Link	See2;See3;		
CentOS 5.8	CentOS Linux 5 Update 8 Server for x86/intel EM64T		Link	See2;See3;		
CentOS 6.2	CentOS Linux 6 Update 2 Server for x86/Intel EM64T		Link	See2;See3;		
CentOS 6.4	CentOS Linux 6 Update 4 Server for Intel EM64T		Link	See2;See3;		
Windows 2012	Microsoft Windows Server 2012	Link	Link	See1;See2;See3;		
Windows 2012 Hyper-v Microsoft Windows Server 2012 hyper-v		Link	Link			
Notes: 1. Install an OS by using the ServiceCD 2. Install an OS directly when config LSI2205 raid card 3. Install an OS directly when config LSI2208 raid card 5. Install an OS must be load LSI2208 driver when config LSI2208 raid card 10. Install an OS by making an installation source when config LSI2208 raid card 11. Install an OS by making an installation source when config LSI2208 raid card 11. Install an OS by making an installation source when config LSI2208 raid card						
Click here if the results do not have the OS you are looking for. See the Huawei Server OS Installation Guide for installation details.						

Install the OS.

3 Install the OS by referring to **5 Directly Installing an OS**.

----End

4 Installing an OS by Using the ServiceCD

About This Chapter

This topic describes how to install an operating system (OS) by using the ServiceCD.

This chapter assumes that Windows Server 2012 is to be installed on the RH2288H V2.

If the OS does not match the document, please contact Huawei for technical support. For details, see **A Obtaining Help**.

4.1 Preparing for the Installation

After determining the installation method, obtain the materials related to the operating system (OS), set basic input/output system (BIOS) parameters, and configure redundant array of independent disks (RAID) properties for hard disks.

4.2 Installing an OS

This topic describes how to install an operating system (OS) by using the ServiceCD.

4.1 Preparing for the Installation

After determining the installation method, obtain the materials related to the operating system (OS), set basic input/output system (BIOS) parameters, and configure redundant array of independent disks (RAID) properties for hard disks.

4.1.1 Obtaining OS Installation Materials

Scenarios

Obtain materials required for operating system (OS) installation.

Prerequisites

Conditions

No special condition is required for this operation.

Data

Data preparation is not required for this operation.

Tools

No tool is required for this operation.

Documents

Server-specific compatibility list

Procedure

Obtain the OS installation DVD or image file.

Prepare the OS installation DVD or image file yourself.

Query compatible OSs.

- 1 Open Huawei Server Compatibility Checker.
- 2 Search for OSs compatible with a specific server.

Download the Driver Version Mapping.

- 3 Log in to Huawei Enterprise support website.
- 4 On the menu bar, choose **Support > Downloads > IT > FusionServer > Solution and Software > APP Server > FusionServer iDriver**.
- The version list is displayed. 5 Choose the target version.
- 6 Download the *Driver Version Mapping*.
 - The driver version mapping describes the mapping between OSs and drivers, as shown in Figure 4-1.

Driver Version Mapping lists the server components and their drivers in different OSs. If the driver file of a component is not displayed, the component uses the driver integrated in the OS.

External	System Ver:	Driver File	Onboard ISO Driver	Card Name	Driver Versio	FW Version	Chip	Device_ID:Vendor_I	Remarks
Driver Version 💌	-	-	contain Files	•	•	-	¥	•	•
FusionServe r iDriver- CentOS-	centos5.8	2208_centos5.8 _x86_64_06.705 .06.00.iso		BC11ESMD(SR220) BC01ESMD(RU220)	06.705.06.00	general	LSI 2208	VID:1000 DID:005b	Raid card driver for 64bit OS
Driver-V304		onboard_driver _centos5.8.iso	2208_centos5.8_x86_64_ 06.705.06.00.rpm	BC11ESMD(SR220) BC01ESMD(RU220)	06.705.06.00	general	LSI 2208	VID:1000 DID:005b	Raid card driver for 64bit OS
			I350&82580_centos5.8_5 .2.15.tar.gz	BC11FGEB (SM211) BC01QGMC (MU212)	5. 2. 15	general	intel 1350/82580	VID:8086 DID:150e / VID:8086 DID:1521 / VID:8086	nic driver
			x540&82599_centos5.8_4 .0.3.tar	BC11FXEB(SM231) BC11FGED(SM233) BC01TGMA(MU230)	4. 0. 3	general	Intel 82599/Intel X540	DID:1523 VID:8086 DID:10fb / VID:8086 DID:1528 / VID:8086 DID:10f8	nic driver
				MXEK (MZ312) MXEM (MZ310) MXEL (MZ912_eth)	4. 0. 3	DOS:4040.4 040 OS:4.4- 0/0x800006 d5	Intel 82599	10f8:8086	nic driver
			be3_iscsi=4.6.345.0=1=	MXEC (MZ510)	4.6.345.0	4.6.442.8	Emulex BE3	0712:19a2	iscsi driver

Figure 4-1 Mapping between OSs and drivers

Download the driver installation package.

- 7 Log in to Huawei Enterprise support website.
- 8 On the menu bar, choose Support > Downloads > IT > FusionServer > Solution and Software > APP Server > FusionServer iDriver. The correction list is displayed

The version list is displayed.

- 9 Choose the target version.
- 10 Download the driver package of the OS to be installed.

If the driver package does not contain the required driver, check the **Huawei Server Compatibility Checker**, and find the link to download the required driver.

----End

4.1.2 Setting BIOS Parameters

Scenarios

Set basic input/output system (BIOS) parameters so that an operating system (OS) can be successfully installed on a server.

Impact on the System

The system time and system boot sequence of the server will be changed after this operation.

Prerequisites

Conditions

No special condition is required for this operation.

Data

You have obtained the IP address, user name, and password for logging in to the server. **Tools**

You have obtained a client for logging in to the Virtual Console (take the iMana 200 for example) of the server.

Procedure

Log in to the Virtual Console of the server.

The login method varies according to server type. For details, see the following topics:

- 9.1.1 Logging In by Using the WebUI
- 9.1.2 Logging In by Using the MM910 WebUI
- 9.1.3 Logging In by Using the MM620 WebUI

Restart the server.

- 1 On the toolbar, click . The confirmation dialog box is displayed.
- 2 Click Yes. The server restarts.

Configure the basic input/output system (BIOS).

3 Press Del during server startup, and enter a password when prompted.**Imnote**

The default BIOS password is Huawei12#\$.

4 On the menu bar, select the **Main** tab. See **Figure 4-2**.

Figure 4-2 Main tab page

	InsydeH20 Setup Utility	Rev. 3.7
Main Advanced Security	Boot Exit	
Version Product Name Build Date System Number Processor Type Node Number	RMISV033 RH2288H V2 12L 09/13/2012 030MAJ10B4001297-3 Genuine Intel(R) CPU @ 2.30GHz 2	This is the help for the hour, minute, second field. Valid range is from 0 to 23, 0 to 59, 0 to 59. INCREASE/REDUCE : +/
Total Memory	12288 MB	
System Memory Speed	1066 MHz	
System Time System Date	[08:23:00] [09/18/2012]	
Fl Help †∔ Select Item Esc Exit ↔ Select Menu	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit

Before installing the OS, set the system time and date in the BIOS to the current time and date respectively. Otherwise, some software packages may fail to be installed during OS installation.

Set **System Time** to a value in the format of *hh:mm:ss* in the 24-hour format (*hh, mm*, and *ss* indicate the hour, minute, and second respectively). To switch among the hour, minute, and second, press **Enter**. To change the time, use the following method:

- Press + to increase the value by 1.
- Press to decrease the value by 1.
- Press a number key to change a value directly.
- 6 Set **System Date** to a value in the format of *month/day/year*. To switch among the month, day, and year, press **Enter**. To change the date, use the following method:
 - Press + to increase the value by 1.
 - Press to decrease the value by 1.
 - Press a number key to change a value directly.
- 7 On the menu bar, choose Exit > Save Change Without Exit and press Enter.
- 8 In the displayed dialog box, select **Yes** and press **Enter** to save the settings.
- 9 On the menu bar, choose **Boot** > **Legacy** and press **Enter**.

The Boot Device Priority screen is displayed, as shown in Figure 4-3.

		InsydeH2O Setup Utility Boot	Rev. 3.7
Boot Devi	ce Priority		Change Boot Type Order
▶Boot Typ ▶Hard Dis ▶DVD-ROH ▶PXE ▶Others	e Order k Drive Drive		
F1 Help Esc Exit	14 Select Item ⇔ Select Menu	F5/F6 Change Values Enter Select ► SubHenu	F9 Setup Defaults F10 Save and Exit

10 Select Boot Type Order and press Enter.

ΠΝΟΤΕ

The default boot sequence is as follows: Hard Disk Drive, DVD-ROM Drive, PXE, and Others.

11 Select **Hard Disk Drive** and press **F5** or **F6** to move **Hard Disk Drive** to the top of the boot option list.

The first boot device of KunLun mission-critical servers must be set to DVD-ROM Drive.

- To move a boot option down, press **F5**.
- To move a boot option up, press **F6**.

ΠΝΟΤΕ

The option at the top of the boot option list is the first boot option, and the one at the bottom is the last boot option.

12 Press F10.

The Exit Saving changes? dialog box is displayed.

13 Select Yes and press Enter to save the settings and restart the server.

----End

4.1.3 Configuring RAID Properties for Hard Disks

Scenarios

Configure redundant array of independent disks (RAID) properties for the hard disks on a server.

Prerequisites

Conditions

No special condition is required for this operation.

Data

Data preparation is not required for this operation.

Tools

You have obtained a client for logging in to the Virtual Console (take the iMana 200 for example) of the server.

Documents

You have obtained the HUAWEI Server RAID Controller Card User Guide.

Procedure

Log in to the Virtual Console of the server.

The login method varies according to server type. For details, see the following topics:

- 9.1.1 Logging In by Using the WebUI
- 9.1.2 Logging In by Using the MM910 WebUI
- 9.1.3 Logging In by Using the MM620 WebUI

Configure redundant array of independent disks (RAID) properties.

For details, see HUAWEI Server RAID Controller Card User Guide.

Configure the boot device

After configuring multiple RAID grous, you must to set boot options; otherwise, OSs cannot be installed properly.

For details, see HUAWEI Server RAID Controller Card User Guide.

----End

4.2 Installing an OS

This topic describes how to install an operating system (OS) by using the ServiceCD.

Scenarios

Install an OS by using the ServiceCD DVD or ISO file.

Prerequisites

Conditions

- You have set basic input/output system (BIOS) parameters. For details, see **4.1.2 Setting BIOS Parameters**.
- You have configured redundant array of independent disks (RAID) properties for hard disks.

For details, see 4.1.3 Configuring RAID Properties for Hard Disks.

• You have obtained the compatibility list.

For details, see 3 Selecting an Installation Method.

Data

You have obtained the IP address, user name, and password for logging in to the Virtual Console (take the iMana 200 for example) of the server.

Tools

- You have obtained a client for logged in to the server iMana.
- The server is configured with a physical DVD-ROM drive if you want to install the OS by using a DVD.
- The server iMana supports the virtual DVD-ROM drive if you want to install the OS by using an ISO file.

Software

You have obtained the OS installation DVD or ISO file.

Procedure

Download the ServiceCD file.

- 1 Determine whether a ServiceCD DVD is available.
 - If yes, go to **5** to install the OS by using the DVD.
 - If no, go to **2**.
- 2 Log in to Huawei Enterprise support website.
- 3 On the menu bar, choose Support > Product Support > IT > FusionServer > Solution and Software > FusionServer Tools > Downloads.

4 Select the required version and download the latest ServiceCD file.

Application	For				Whether			
Scenario	Business	Release Date	2015-03-16		expired	Active		
Last Updated		Working life		Pa	tch Attributes			
Version Issue	06 Before	NE Software						
Period	TR4	Code			version type			
Applicable to								
Description								
Publish	Code Defect							
Deserve	Code Defect							
Version and P	atch Software							
Version and P To download (] Software Nar	atch Software oversized files, ne	click the software r	name to go to the down	load page an Downloads	d download th Size	e software. Release Date	Downle	
Version and P To download o Software Nar	atch Software oversized files, ne r Tools-ElabelT	click the software r ool-V100.zip 🔒	name to go to the down	load page an Downloads 1	d download th Size 6.10MB	Release Date	Downle	
Version and P To download o Software Nar FusionServer	atch Software oversized files, me r Tools-ElabelT	click the software r ool-V100.zip 🚘 CD2.0-V102.zip	name to go to the down	load page an Downloads 1 1336	d download th Size 6.10MB 1.12GB	e software. Release Date 2015-03-16 2015-03-16	Downle Eng	
Version and P To download (Software Nar FusionServer FusionServer SusionServer	atch Software oversized files, me r Tools-ElabelT r Tools-Servicer	click the software r ool-V100.zip 🚔 CD2.0-V102.zip /101.zip	name to go to the down	load page an Downloads 1 1336 492	d download th Size 6.10MB 1.12GB 218.99MB	e software. Release Date 2015-03-16 2015-03-16 2015-03-16	Downle Real	
Version and P To download (Software Nar FusionServer FusionServer FusionServer FusionServer FusionServer FusionServer FusionServer	atch Software oversized files, me r Tools-ElabelT r Tools-Serviced r Tools-Toolkit-1 r Tools-Undate-L	click the software r ool-V100.zip 🚔 CD2.0-V102.zip /101.zip inux-V105.tar.gz	name to go to the down	load page an Downloads 1 1336 492 178	d download th Size 6.10MB 1.12GB 218.99MB 58.13MB	Release Date 2015-03-16 2015-03-16 2015-03-16 2015-03-16		

Figure 4-4 Downloading the ServiceCD file

Obtain the ServiceCD product document.

5

Download the FusionServer Tools V100R002 ServiceCD2.0 User Guide.

Install the OS.

6 Install the OS by referring to *FusionServer Tools V100R002 ServiceCD2.0 User Guide*.

----End

Additional Information

Related Tasks

When the OS is installed by using the ServiceCD, the mezz card drivers are automatically installed.

After the OS is installed, you can refer to **8.2 Checking Driver Versions** to check the installed mezz card drivers and their version numbers. For details about the mezz card drivers supported by different OSs, see *Driver Version Mapping*.

For details about how to obtain the *Driver Version Mapping*, see **Downloading the** *Driver Version Mapping*.

Related Concepts None

5 Directly Installing an OS

About This Chapter

Directly install an operating system (OS) by using the OS installation DVD or ISO file. You do not need to install drivers or compile the installation source during the installation.

This chapter describes how to install SUSE Linux Enterprise Server (SLES) 11 SP2 on the RH2288H V2.

The methods of installing OSs may vary according to OS versions. For example, before install SUSE11 SP3, you must set **Boot Type** to **EFI** on the server; however, you can install SUSE11 SP2 without any setting.

5.1 Preparing for the Installation

After determining the installation method, obtain the materials related to the operating system (OS), set basic input/output system (BIOS) parameters, and configure redundant array of independent disks (RAID) properties for hard disks.

5.2 Installing an OS

This topic describes how to install an operating system (OS) by using the installation DVD or ISO file.

5.3 Precautions for OS Installation on NVMe SSDs

5.1 Preparing for the Installation

After determining the installation method, obtain the materials related to the operating system (OS), set basic input/output system (BIOS) parameters, and configure redundant array of independent disks (RAID) properties for hard disks.

5.1.1 Obtaining OS Installation Materials

Scenarios

Obtain materials required for operating system (OS) installation.

Prerequisites

Conditions

No special condition is required for this operation.

Data

Data preparation is not required for this operation.

Tools

No tool is required for this operation.

Documents

Server-specific compatibility list

Procedure

Obtain the OS installation DVD or image file.

Prepare the OS installation DVD or image file yourself.

Query compatible OSs.

- 1 Open Huawei Server Compatibility Checker.
- 2 Search for OSs compatible with a specific server.

Download the Driver Version Mapping.

- 3 Log in to Huawei Enterprise support website.
- 4 On the menu bar, choose **Support > Downloads > IT > FusionServer > Solution and Software > APP Server > FusionServer iDriver**.
- The version list is displayed. 5 Choose the target version.
- 6 Download the *Driver Version Mapping*.

The driver version mapping describes the mapping between OSs and drivers, as shown in **Figure 5-1**.

Driver Version Mapping lists the server components and their drivers in different OSs. If the driver file of a component is not displayed, the component uses the driver integrated in the OS.

External	System V	ers	Driver File	Onboard ISO Driver	Card Name	Driver Versi	FW Version	Chip	Device_ID:Vendor_I	Remarks
Driver Version		•	•	contain Files 💌						
FusionServe r iDriver- CentOS-	centos5.	8	2208_centos5.8 _x86_64_06.705 .06.00.iso		BC11ESMD(SR220) BC01ESMD(RU220)	06.705.06.00	general	LSI 2208	VID:1000 DID:005b	Raid card driver for 64bit OS
Driver-V304			onboard_driver _centos5.8.iso	2208_centos5.8_x86_64_ 06.705.06.00.rpm	BC11ESMD(SR220) BC01ESMD(RU220)	06.705.06.00	general	LSI 2208	VID:1000 DID:005b	Raid card driver for 64bit OS
				I350&82580_centos5.8_5 .2.15.tar.gz	BC11FGEB (SM211) BC01QGMC (MU212)	5. 2. 15	general	intel 1350/82580	VID:8086 DID:150e / VID:8086 DID:1521 / VID:8086 DID:1523	nic driver
				x540&82599_centos5.8_4 .0.3.tar	BC11FXEB (SM231) BC11FGED (SM233) BC01TGMA (MU230)	4. 0. 3	general	Intel 82599/Intel X540	VID:8086 DID:10fb / VID:8086 DID:1528 / VID:8086 DID:10f8	nic driver
					MXEK (MZ312) MXEM (MZ310) MXEL (MZ912_eth)	4.0.3	DOS:4040.4 040 OS:4.4- 0/0x800006 d5	Intel 82599	10f8:8086	nic driver
				be3_iscsi=4.6.345.0=1=	MXEC (MZ510)	4.6.345.0	4.6.442.8	Emulex BE3	0712:19a2	iscsi driver

Figure 5-1 Mapping between OSs and drivers

Download the driver installation package.

- 7 Log in to Huawei Enterprise support website.
- 8 On the menu bar, choose Support > Downloads > IT > FusionServer > Solution and Software > APP Server > FusionServer iDriver. The correction list is displayed

The version list is displayed.

- 9 Choose the target version.
- 10 Download the driver package of the OS to be installed.

ΠΝΟΤΕ

If the driver package does not contain the required driver, check the **Huawei Server Compatibility Checker**, and find the link to download the required driver.

----End

5.1.2 Setting BIOS Parameters

Scenarios

Set basic input/output system (BIOS) parameters so that an operating system (OS) can be successfully installed on a server.

Impact on the System

The system time and system boot sequence of the server will be changed after this operation.

Prerequisites

Conditions

No special condition is required for this operation.

Data

You have obtained the IP address, user name, and password for logging in to the server. **Tools**

You have obtained a client for logging in to the Virtual Console (take the iMana 200 for example) of the server.

Procedure

Log in to the Virtual Console of the server.

The login method varies according to server type. For details, see the following topics:

- 9.1.1 Logging In by Using the WebUI
- 9.1.2 Logging In by Using the MM910 WebUI
- 9.1.3 Logging In by Using the MM620 WebUI

Restart the server.

- 1 On the toolbar, click . The confirmation dialog box is displayed.
- 2 Click Yes. The server restarts.

Configure the basic input/output system (BIOS).

3 Press Del during server startup, and enter a password when prompted.**Imnote**

The default BIOS password is Huawei12#\$.

4 On the menu bar, select the **Main** tab. See **Figure 5-2**.

Figure 5-2 Main tab page

	InsydeH2O Setup Utility	Rev. 3.7
Main Advanced Securit	y Boot Exit	
Version Product Name Build Date System Number	RHISV033 RH2288H V2 12L 09/13/2012 030HAJ10B4001297-3	This is the help for the hour, minute, second field. Valid range is from 0 to 23, 0 to 59, 0 to 59.
Processor Type	Genuine Intel(R) CPU @ 2.30GHz	INCREASE/REDUCE : +/
Node Number	2	
Total Memory System Memory Speed	12288 MB 1066 MHz	
System Time System Date	[08:23:00] [09/18/2012]	
F1 Help – 14 Select Ite Esc Exit → Select Men	m F5/F6 Change Values u Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit

Before installing the OS, set the system time and date in the BIOS to the current time and date respectively. Otherwise, some software packages may fail to be installed during OS installation.

Set **System Time** to a value in the format of *hh:mm:ss* in the 24-hour format (*hh, mm*, and *ss* indicate the hour, minute, and second respectively). To switch among the hour, minute, and second, press **Enter**. To change the time, use the following method:

- Press + to increase the value by 1.
- Press to decrease the value by 1.
- Press a number key to change a value directly.
- 6 Set **System Date** to a value in the format of *month/day/year*. To switch among the month, day, and year, press **Enter**. To change the date, use the following method:
 - Press + to increase the value by 1.
 - Press to decrease the value by 1.
 - Press a number key to change a value directly.
- 7 On the menu bar, choose Exit > Save Change Without Exit and press Enter.
- 8 In the displayed dialog box, select **Yes** and press **Enter** to save the settings.
- 9 On the menu bar, choose **Boot** > **Legacy** and press **Enter**.

The Boot Device Priority screen is displayed, as shown in Figure 5-3.

	InsydeH20 Setup Utility	Rev. 3.7
	Boot	
Boot Device Priority		Change Boot Type Order
▶Boot Type Order ▶Hard Disk Drive ▶DVD-ROM Drive ▶PXE ▶Others		
Fl Help 14 Selectiter Esc Exit ↔ SelectMen	n F5/F6 Change Values ⊔ Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit

10 Select Boot Type Order and press Enter.

ΠΝΟΤΕ

The default boot sequence is as follows: Hard Disk Drive, DVD-ROM Drive, PXE, and Others.

11 Select **Hard Disk Drive** and press **F5** or **F6** to move **Hard Disk Drive** to the top of the boot option list.

The first boot device of KunLun mission-critical servers must be set to DVD-ROM Drive.

- To move a boot option down, press **F5**.
- To move a boot option up, press **F6**.

ΠΝΟΤΕ

The option at the top of the boot option list is the first boot option, and the one at the bottom is the last boot option.

12 Press F10.

The Exit Saving changes? dialog box is displayed.

13 Select Yes and press Enter to save the settings and restart the server.

----End

5.1.3 Configuring RAID Properties for Hard Disks

Scenarios

Configure redundant array of independent disks (RAID) properties for the hard disks on a server.

Prerequisites

Conditions

No special condition is required for this operation.

Data

Data preparation is not required for this operation.

Tools

You have obtained a client for logging in to the Virtual Console (take the iMana 200 for example) of the server.

Documents

You have obtained the HUAWEI Server RAID Controller Card User Guide.

Procedure

Log in to the Virtual Console of the server.

The login method varies according to server type. For details, see the following topics:

- 9.1.1 Logging In by Using the WebUI
- 9.1.2 Logging In by Using the MM910 WebUI
- 9.1.3 Logging In by Using the MM620 WebUI

Configure redundant array of independent disks (RAID) properties.

For details, see HUAWEI Server RAID Controller Card User Guide.

Configure the boot device

After configuring multiple RAID grous, you must to set boot options; otherwise, OSs cannot be installed properly.

For details, see HUAWEI Server RAID Controller Card User Guide.

----End

5.2 Installing an OS

This topic describes how to install an operating system (OS) by using the installation DVD or ISO file.

Scenarios

Directly install an OS by using the installation DVD or ISO file.

Prerequisites

Conditions

- You have set basic input/output system (BIOS) parameters. For details, see **6.1.2 Setting BIOS Parameters**.
- You have configured redundant array of independent disks (RAID) properties for hard disks.

For details, see 5.1.3 Configuring RAID Properties for Hard Disks.

• You have obtained the OS installation DVD or ISO file.

Data

You have obtained the IP address, user name, and password for logging in to the Virtual Console (take the iMana 200 for example) of the server.

Tools

- You have obtained a client for logging in to the Virtual Console of the server.
- The server is configured with a physical DVD-ROM drive.

Software

You have obtained the SUSE Linux Enterprise Server (SLES) 11 SP2 installation DVD or ISO file.

Procedure

Log in to the Virtual Console of the server.

The login method varies according to server type. For details, see the following topics:

- 9.1.1 Logging In by Using the WebUI
- 9.1.2 Logging In by Using the MM910 WebUI
- 9.1.3 Logging In by Using the MM620 WebUI

Load the OS installation DVD or ISO file.

- 1 Perform one of the following operations based on the installation media:
 - If you use an installation DVD, insert the DVD into the physical DVD-ROM drive and go to 6.

- If you use an ISO file, go to 2.
- 2 On the toolbar of the **Remote Control** command window, click . The virtual DVD-ROM drive dialog box is displayed, as shown in **Figure 5-4**.

Figure 5-4 Virtual DVD-ROM drive dialog box

CD/DVD	F: 🔻		Connect
🔘 Image File		Browse	Eject
Directory		Browse	

- 3 Click the **Image File** option button, and then click **Browse**. The **Open** dialog box is displayed.
- 4 Select the OS ISO file and click **Open**.
- 5 In the virtual DVD-ROM drive dialog box, click **Connect**.

When **Connect** changes to **Disconnect** (as shown in **Figure 5-5**), the virtual DVD-ROM drive is successfully connected to the server.

Figure 5-5 Successful connection between the virtual DVD-ROM drive and the server

🔘 CD/DVD	F: 🔻		Disconnect
Image File	i.O V100.iso	Browse	Eject
Directory		Browse	

Restart the server.

- 6 On the toolbar, click <a>[A].The confirmation dialog box is displayed.
- 7 Click **Yes**. The server restarts.

Choose a boot device.

8 Press **F11** upon server boot.

The Boot Manager screen is displayed.

Figure 5-6 Selecting the boot device

Boot Manager
Boot Option Menu
EFI CD ROM EFI USB Device (Virtual DVD-ROM VM 1.1.0)
^ and ${\downarrow}$ to change option, ENTER to select an option, ESC to exit

9 Select the DVD-ROM drive or virtual DVD-ROM from which you want to boot, and press **Enter**.

The OS boot screen is displayed, as shown in Figure 5-7.

Figure 5-7 OS boot screen



Install the OS.

10 Select Installation.

The Welcome window is displayed, as shown in Figure 5-8.

Figure 5-8 Welcome window



- 11 In the **Welcome** window, set the parameters as follows:
 - Select a language from the Language drop-down list. English (US) is recommended.
 - Select a keyboard layout from the **Keyboard Layout** drop-down list. **English (US)** is recommended.
 - In the License Agreement area, select I Agree to the License Terms.
- 12 Click Next.

The Media Check window is displayed, as shown in Figure 5-9.

Figure 5-9 Media Check window

600	Media Check
SUSE. Linux Enterprise	We recommend you check all installation media to avoid installation problems.
Preparation	CD or DVD Drive
► Welcome	TEAC DV-28S-W (/dev/sr0) 🔻 Start Check Eject
System Analysis	Check ISO File
• Time Zone	
Installation	Status Information
Server Scenario	
Installation Summary	
Perform Installation	
Configuration	
Check Installation	
• Hostname	
Network	
Customer Center	
 Online Update 	
Service	Promos
Clean Up	FIND COD
Release Notes	
 Hardware Configuration 	Cancel
	Help Abort Back Next

After ensuring that the DVD and DVD-ROM drive are correct, click Next. The Installation Mode window is displayed, as shown in Figure 5-10.

Figure 5-10 Installation Mode window

6~2	📮 Installation Mode
SUSE Linux Enterprise	
Preparation	
🗸 Welcome	
► System Analysis	
Ime Zone Installation	
Server Scenario Installation Summary Perform Installation Configuration	Select Mode
Check Installation Hostname Network	○ Update an Existing System
Customer Center Online Update Service Clean Up Delace	Regair Installed System
Kelease Notes Hardware Configuration	Include Add-on Products from Separate Media
	Help Abort Back Next

14 Select New Installation and click Next.

The Clock and Time Zone window is displayed, as shown in Figure 5-11.



Figure 5-11 Clock and Time Zone window

15 Select a region and time zone based on site requirements and click Next.

Deselect Hardware Clock Set To UTC.

The Server Base Scenario window is displayed, as shown in Figure 5-12.

	= 10	a	D	a .	• •
HIGHTE	5-12	Nerver	Base	Scenario	window
IIguit	J-14		Duse	Sconario	w mao w



16 Select Physical Machine (also for Fully Virtualized Guests) and click Next. The Installation Settings window is displayed, as shown in Figure 5-13.



Figure 5-13 Installation Settings window

17 Click Change and choose Partitioning from the displayed menu.The Preparing Hard Disk window is displayed, as shown in Figure 5-14.

Figure 5-14 Preparing Hard Disk window



18 Select Custom Partitioning (for experts) and click Next.The Expert Partitioner window is displayed, as shown in Figure 5-15.

GAG	S Expert Partitione	r						
SUSE. Linux Enterprise	<u>S</u> ystem View	🧟 Availa	ble Stora	ge on l	linux			
Preparation	= 🤮 linux	Device	Size	F Enc	Туре	FS Type	Label	Mount Pe
Enterprise Preparation Veloome System Analysis Time Zone Installation Server Scenario Installation Summary Perform Installation Configuration Check Installation Hostname Network Customer Center Online Update Service Service Clean Up Release Notes Hardware Configuration	system view Imax Imax Imax AlD Volume Managemen Crypt Files WrS Btrfs Unused Devices Installation Summary Settings	Device /dev/sda /dev/sda	Size 465.76 GB 20.00 GB	F Enc	Type Stypsoud20A4 C Linux native Linux swap	FS Type Ext3 Swap	Label	Mount Po
		R <u>e</u> scan	Devices	Impor	t Mount Points		Confi	, gure ▼
	Help				At	ort	Back	Accept

Figure 5-15 Expert Partitioner window

- 19 Create the root partition and swap partition based on site requirements.
 - If the existing partitions meet site requirements, go to 20.
 - If the existing partitions do not meet site requirements, delete and create partitions. For details, see **Table 5-1**.

If the OS is to be installed on the sda disk, create partitions on the sda disk.

 Table 5-1 describes how to create and delete disk partitions.

Task	Action				
Create the root partition.	 Double-click Hard Disks to expand the hard disk list. See Figure 5-16. 				
	2. Select the hard disk where the root partition is to be created, and click Add .				
	3. Select Primary Partition as the partition type and click Next .				
	4. Set Custom Size to an appropriate value, for example, 20GB . Then click Next .				
	 Retain the default value Format partition for Formatting Options and the default value Ext3 for File System. 				
	 Retain the default value Mount partition for Mounting Options and the default value / for Mount Point. 				
	7. Click Finish.				
Create the swap partition.	1. Select the hard disk where the swap partition is to be created, and click Add .				
	2. Select Extended Partition as the partition type and click Next .				
	3. Set Custom Size to an appropriate value, for example, 4GB . Then click Next .				
	4. Retain the default value Format partition for Formatting Options and set File System to Swap.				
	 Retain the default value Mount partition for Mounting Options and set Mount Point to Swap. 				
	6. Click Finish.				
(Optional) Delete existing partitions.	Select the hard disk and click Delete to delete the existing partitions from the hard disk.				

 Table 5-1 Creating and deleting disk partitions
nterprise	System View		🚬 Hard	Disk: /d	ev/sda			
reparation	🕂 💭 line	ux	<u>0</u> ver	view	E	artitions		
reparation	ē- 🥵	Hard Disks	sda2	1910		Unpartitio	ned	800 A.
Welcome	Ē	sda	99.66 GB	3		458.91 G	B	
System Analysis		sda1	Denire	Cine.	E	Ture	E 6 7 mg	Label
Time Zone		RAID	Device	Size	P Enc	iype	rs type	Label
stallation		Volume Manag	/dev/sdal	350.00 MB		B HPFS/	NTES NTES	System
Server Scenario		Crypt Files	/dev/sda2	99.66 GB		U HPFS/	NTFS NTFS	
Installation Summary		Device Mapper						
Perform Installation		NFS						
onfiguration	- 6	Btrfs						
	- É	tmpfs						
Check Installation		Unused Device						
Hostname		tallation Summa						
Network		ttinge						
Customer Center		cungs						
Online Update			•				11	1
Service					1			
Clean Up			A <u>d</u> d	Edit	Mo	ve		
Release Notes	4	•	Resize	. Del	ete		Ex	pert `

Figure 5-16 Expanding the hard disk list

20 Click Accept.

The Installation Settings window is displayed, as shown in Figure 5-13.

21 Click **Change** and choose **Software** from the displayed menu.

The **Software Selection and System Tasks** window is displayed, as shown in **Figure 5-17**.



Figure 5-17 Software Selection and System Tasks window

22 Select or deselect software options based on site requirements, and click OK.



You must select C/C++ Compiler and Tools; otherwise, some NICs of special types are incompatible.

The **Confirm Package License:agfa-fonts** dialog box is displayed, as shown in **Figure 5-18**.



/aST2								
Confirm Package License: agfa-fonts								
AGFA MONOTYPE CORPORATION END USER LICENSE AGREEMENT								
We recommend that you print this End User Agreement for further reference.								
This Agfa Monotype Corporation End User Agreement (the "Agreement") becomes a binding contract between you and Agfa Monotype Corporation (a) when you click on the area marked "ACCEPT LICENSE AGREEMENT", or, (b) if you are acquiring Font Software on a floppy disk, when you open the package in which the font is contained. If you do not wish to be bound by the Agreement, you cannot access, use or download the Font Software. Please read all of the Agreement before you agree to be bound by its terms and conditions.								
You hereby agree to the following:								
 You are bound by the Agreement and you acknowledge that all Use (as defined herein) of the Font Software (as defined herein) supplied to you by AMT is governed by the Agreement. "AMT" as used herein shall mean collectively Agfa Monotype Corporation, its successors and assigns, its parent and affiliated corporations, its authorized distributors, and any third party that has licensed to AMT any or all of the components of the Font Software supplied to you pursuant to the Agreement. "Font Software" as used herein shall mean software which, when used on an appropriate device or devices, generates typeface and typographic designs and ornaments. Font Software shall include all bitmap representations of typeface and typographic designs and ornaments created by or derived from the Font Software. Font Software includes upgrades, updates, related files, permitted modifications, permitted copies, and related 								
Help I Agree I Disagre	e							

23 Click I Agree.

The Installation Settings window is displayed, as shown in Figure 5-13.

24 Click Install.

The installation confirmation dialog box is displayed.

25 Click Install.

The Package Installation window is displayed, as shown in Figure 5-19.

Figure 5-19 Package Installation window

	📮 Perform Installation	
SUSE. Linux	Actions performed:	
Enterprise		
Preparation ✓ Welcome ✓ System Analysis	Deleting partition /dev/sda2 Deleting partition /dev/sda1 Creating volume /dev/sda1 Creating volume /dev/sda2	
✓ Time Zone	Formatting partition /dev/sda2 to 82	
Installation	i omating partition (actional (20100 cb) millions	
✓ Server Scenario		
Installation Summary		
► Perform Installation		
Configuration		
Check Installation		
• Hostname		
Network		
Customer Center		
 Online Update 		
Service	Formatting partition /dev/sda1 (20.00 GB) with ext3	
• Clean Up	07%	
 Release Notes 		
 Hardware Configuration 	Preparing disks	
	8%	
	Help	Abort Back Next

Replace the installation DVDs as prompted to complete basic installation.When the basic installation is complete, the system restarts and the Password for the System Administrator "root" window is displayed, as shown in Figure 5-20.

Figure 5-20 Password for the System Administrator "root" window

SUSE. Linux Enterprise Preparation • Weicome • System Analysis • Time Zone Installation	Password for the System.	Administrator "root"
Server Scenario Installation Summary Perform Installation Configuration		Do not forget what you enter here. Password for root User
root Password Check Installation Hostname Network Customer Center Online Update Service Users Clean Up Release Notes		Confirm Password Test Keyboard Layout
Hardware Configuration		Expert Options
	Help	Abo <u>t</u> Back Next

27 Set a password for user root, and click Next.The Hostname and Domain Name window is displayed, as shown in Figure 5-21.



Figure 5-21 Hostname and Domain Name window

28 Set Hostname and Domain Name for the server, and click Next.

You need to set the parameters based on site requirements. You are not advised to retain the default values.

The Network Configuration window is displayed, as shown in Figure 5-22.



Figure 5-22 Network Configuration window

29 Retain the default values and click Next.

It is recommended that you change the Firewall and SSH settings as required on the screen shown in **Figure 5-22**.

The Test Internet Connection window is displayed, as shown in Figure 5-23.



Figure 5-23 Test Internet Connection window

30 Select No, Skip This Test, and click Next. The Network Services Configuration window is displayed, as shown in Figure 5-24.

Figure 5	5-24 N	letwork	Servi	ces C	onfig	uration	wind	low
			~ • • • • •		8			



Retain the default values and click Next.The User Authentication Method window is displayed, as shown in Figure 5-25.



Figure 5-25 User Authentication Method window

32 Select Local (/etc/passwd) and click Next.The New Local User window is displayed, as shown in Figure 5-26.



Figure 5-26 New Local User window

- 33 Create a user based on site requirements and click Next.The Release Notes window is displayed.
- 34 Click Next.
 - The countdown dialog box is displayed.
- 35 Click OK.

The Hardware Configuration window is displayed, as shown in Figure 5-27.



Figure 5-27 Hardware Configuration window

- Retain the default values and click Next.The Installation Completed window is displayed.
- 37 Click Finish.A dialog box is displayed.
- 38 Click Continue to proceed with the installation.

When the installation is complete, the system login dialog box is displayed, as shown in **Figure 5-28**.

Figure 5-28 System login dialog box

SUSE Linux Enterprise Server 11 (x86_64) root2	
Username:	
II Suspend SRestart Shut Down Cancel	

----End

Additional Information

Related Tasks

After the OS is installed, check whether the existing driver versions match the server. If the driver versions do not match, install the drivers of the required versions.

For details, see 8 Installing Drivers.

Related Concepts

5.3 Precautions for OS Installation on NVMe SSDs

OSs supported by NVMe SSDs are RHEL 7.0 and RHEL 7.1.

Observe the following precautions when installing an OS on an NVMe SSD.

BIOS Boot Mode

Before installing an OS, enter the BIOS setup and set **Boot Type** or **Boot mode select** to **UEFI**, as shown in **Figure 5-29**.

ΠΝΟΤΕ

The setting screen varies according to the platform. For details, see the following:

- HUAWEI Server Romley Platform BIOS Parameter Reference
- HUAWEI Server Brickland Platform BIOS Parameter Reference
- HUAWEI Server Grantley Platform BIOS Parameter Reference 03
- HUAWEI Server Denlow Platform BIOS Parameter Reference

	-	
	InsydeH20 Setup Utility	Rev. 5.0
Main Advanced Security Boot	Exit	
Boot Type Quick Boot Quiet Boot PXE Only PXE Boot capability EFI Device First Video Card Selected No-Boot Reset ▶Boot Type Order	 <uef1 boot="" type=""></uef1> <enabled></enabled> <disabled></disabled> <disabled></disabled> <disabled></disabled> <disabled></disabled> 	Select boot type to Dual type, Legacy type or UEFI type
Fl Help 14 Select Item	F5/F6 Change Values	F9 Setup Defaults
Esc Exit 😁 Select Menu	Enter Select 🕨 SubMenu	F10 Save and Exit

Figure 5-29 Setting the Boot Type

Installation Procedure

1. In **Boot Manager**, select a virtual DVD-ROM drive from which you want to boot, as shown in **Figure 5-30**. For details, see **Choose a boot device** in **5.2 Installing an OS**.

Figure 5-30 Selecting a boot device

Boot Manager						
Boot Option Menu						
EFI USB Device (Virtual DVD-ROM VM 1.1.0)						
\uparrow and \downarrow to change option, ENTER to select an option, ESC to exit						

2. During the installation, follow the instructions of the installation wizard and select an NVMe SSD as the installation disk.

6 Installing an OS by Loading a RAID Controller Card Driver

About This Chapter

This topic describes how to install an operating system (OS) by loading a redundant array of independent disks (RAID) controller card driver.

This chapter describes how to install Red Hat Enterprise Linux (RHEL) 6U5 on the RH2288 V3.

If the OS does not match the document, please contact Huawei for technical support. For details, see **A Obtaining Help**.

6.1 Preparing for the Installation

After determining the installation method, obtain the materials related to the operating system (OS), set basic input/output system (BIOS) parameters, and configure redundant array of independent disks (RAID) properties for hard disks.

6.2 Installing an OS

This topic describes how to install an operating system (OS) by loading a redundant array of independent disks (RAID) controller card driver.

6.1 Preparing for the Installation

After determining the installation method, obtain the materials related to the operating system (OS), set basic input/output system (BIOS) parameters, and configure redundant array of independent disks (RAID) properties for hard disks.

6.1.1 Obtaining OS Installation Materials

Scenarios

Obtain materials required for operating system (OS) installation.

Prerequisites

Conditions

No special condition is required for this operation.

Data

Data preparation is not required for this operation.

Tools

No tool is required for this operation.

Documents

Server-specific compatibility list

Procedure

Obtain the OS installation DVD or image file.

Prepare the OS installation DVD or image file yourself.

Query compatible OSs.

- 1 Open Huawei Server Compatibility Checker.
- 2 Search for OSs compatible with a specific server.

Download the Driver Version Mapping.

- 3 Log in to Huawei Enterprise support website.
- 4 On the menu bar, choose Support > Downloads > IT > FusionServer > Solution and Software > APP Server > FusionServer iDriver.
- The version list is displayed.
- 5 Choose the target version.
- 6 Download the *Driver Version Mapping*.

The driver version mapping describes the mapping between OSs and drivers, as shown in **Figure 6-1**.

ΠΝΟΤΕ

Driver Version Mapping lists the server components and their drivers in different OSs. If the driver file of a component is not displayed, the component uses the driver integrated in the OS.

External	System Vers	Driver File	Onboard ISO Driver	Card Name	Driver Versio	FW Version	Chip	Device_ID:Vendor_I	Remarks
Oriver Version 💌	-	-	contain Files 💌	-	•	-	•	•	
FusionServe r iDriver- CentOS-	centos5.8	2208_centos5.8 _x86_64_06.705 .06.00.iso		BC11ESMD(SR220) BC01ESMD(RU220)	06.705.06.00	general	LSI 2208	VID:1000 DID:005b	Raid card driver for 64bit OS
Driver-V304		onboard_driver _centos5.8.iso	2208_centos5.8_x86_64_ 06.705.06.00.rpm	BC11ESMD(SR220) BC01ESMD(RU220)	06.705.06.00	general	LSI 2208	VID:1000 DID:005b	Raid card driver for 64bit OS
			I350882580_centos5.8_5 .2.15.tar.gz x540882599_centos5.8_4 .0.3.tar	BC11FGEB (SM211) BC01QGMC (MU212) BC11FXEB (SM231) BC11FGED (SM233) BC01FGGED (SM233)	5. 2. 15	general general	intel 1350/82580 Intel 82599/Intel X540	VID:8086 DID:150e / VID:8086 DID:1521 / VID:8086 DID:1523 VID:8086 DID:10fb /	nic driver nic driver
				MXEK (MZ312) MXEM (MZ310) MXEL (MZ912_eth)	4. 0. 3	DOS:4040.4 040 0S:4.4- 0/0x800006 d5	Intel 82399	/ VID:8086 DID:1528 / VID:8086 DID:10f8 10f8:8086	nic driver
			be3_iscsi=4.6.345.0=1=	MXEC (MZ510)	4.6.345.0	4.6.442.8	Emulex BE3	0712:19a2	iscsi driver

Figure 6-1 Mapping between OSs and drivers

Download the driver installation package.

- 7 Log in to Huawei Enterprise support website.
- 8 On the menu bar, choose Support > Downloads > IT > FusionServer > Solution and Software > APP Server > FusionServer iDriver. The conview list is displayed

The version list is displayed.

- 9 Choose the target version.
- 10 Download the driver package of the OS to be installed.

If the driver package does not contain the required driver, check the **Huawei Server Compatibility Checker**, and find the link to download the required driver.

----End

6.1.2 Setting BIOS Parameters

Scenarios

Set basic input/output system (BIOS) parameters so that an operating system (OS) can be successfully installed on a server.

Impact on the System

The system time and system boot sequence of the server will be changed after this operation.

Prerequisites

Conditions

No special condition is required for this operation.

Data

You have obtained the IP address, user name, and password for logging in to the server. **Tools**

You have obtained a client for logging in to the Virtual Console (take the iMana 200 for example) of the server.

Procedure

Log in to the Virtual Console of the server.

The login method varies according to server type. For details, see the following topics:

- 9.1.1 Logging In by Using the WebUI
- 9.1.2 Logging In by Using the MM910 WebUI
- 9.1.3 Logging In by Using the MM620 WebUI

Restart the server.

1 On the toolbar, click 🕢.

The confirmation dialog box is displayed.

2 Click Yes.

The server restarts.

Configure the basic input/output system (BIOS).

3 Press **Del** during server startup, and enter a password when prompted.

The default BIOS password is Huawei12#\$.

4 On the menu bar, select the **Main** tab. See **Figure 6-2**.

Figure 6-2 Main tab page

	InsydeH20 Setup Utility	Rev. 5.0
Main Advanced Security Boot	Exit	
Version Build Date	1.52 06/27/2015	Select the current default language used by the InsydeH20.
Product Name System Number	RH2288 V3 To be filled by O.E.M.	
Processor Type	Intel(R) Xeon(R) CPU E5-2620 v3 @ 2.40GHz 2	
System Memory Speed Total Memory	1867 MHz 16384 MB	
Language System Time System Date	<english> [14:45:52] [07/14/2015]</english>	
F1 Help	F5/F6 Change Values Enter Select ⊨ SubMenu	F9 Setup Defaults F10 Save and Exit

Before installing the OS, set the system time and date in the BIOS to the current time and date respectively. Otherwise, some software packages may fail to be installed during OS installation.

Set **System Time** to a value in the format of *hh:mm:ss* in the 24-hour format (*hh, mm*, and *ss* indicate the hour, minute, and second respectively). To switch among the hour, minute, and second, press **Enter**. To change the time, use the following method:

- Press + to increase the value by 1.
- Press to decrease the value by 1.
- Press a number key to change a value directly.
- 6 Set **System Date** to a value in the format of *month/day/year*. To switch among the month, day, and year, press **Enter**. To change the date, use the following method:
 - Press + to increase the value by 1.
 - Press to decrease the value by 1.
 - Press a number key to change a value directly.
- 7 On the menu bar, choose Exit > Save Change Without Exit and press Enter.
- 8 In the displayed dialog box, select **Yes** and press **Enter** to save the settings.
- 9 On the menu bar, choose **Boot**.

The Boot screen is displayed, as shown in Figure 6-3.

Figure 6-3 Boot screen

	Rev. 5.		
Main Advanced Security Boot	Exit		
Boot Type Quick Boot Quiet Boot PXE Only EFI Device First Video Card Selected No-Boot Reset ⊁Legacy	<legacy boot="" type=""> <enabled> <disabled> <disabled> <disabled> <onboard card="" video=""> <disabled></disabled></onboard></disabled></disabled></disabled></enabled></legacy>	Select boot type to Dual type, Legacy type or UEF1 type	
F1 Help	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit	

- 10 Select Boot Type and press Enter.
- 11 Select Legacy Type Order and press Enter.
- 12 Select Legacy > Boot Type Order and press Enter.

The Boot Type Order screen is displayed.

The default boot sequence is as follows: Hard Disk Drive, CD/DVD-ROM Drive, BEV, and finally Others.

13 Select **Hard Disk Drive** and press **F5** or **F6** to move **Hard Disk Drive** to the top of the boot option list.

The first boot device of KunLun mission-critical servers must be set to CD/DVD-ROM Drive.

- To move a boot option down, press **F5**.
- To move a boot option up, press **F6**.

The option at the top of the boot option list is the first boot option, and the one at the bottom is the last boot option.

14 Press F10.

The Exit Saving changes? dialog box is displayed.

15 Select Yes and press Enter to save the settings and restart the server.

----End

6.1.3 Configuring RAID Properties for Hard Disks

Scenarios

Configure redundant array of independent disks (RAID) properties for the hard disks on a server.

Prerequisites

Conditions

No special condition is required for this operation.

Data

Data preparation is not required for this operation.

Tools

You have obtained a client for logging in to the Virtual Console (take the iMana 200 for example) of the server.

Documents

You have obtained the HUAWEI Server RAID Controller Card User Guide.

Procedure

Log in to the Virtual Console of the server.

The login method varies according to server type. For details, see the following topics:

- 9.1.1 Logging In by Using the WebUI
- 9.1.2 Logging In by Using the MM910 WebUI
- 9.1.3 Logging In by Using the MM620 WebUI

Configure redundant array of independent disks (RAID) properties.

For details, see HUAWEI Server RAID Controller Card User Guide.

Configure the boot device

After configuring multiple RAID grous, you must to set boot options; otherwise, OSs cannot be installed properly.

For details, see HUAWEI Server RAID Controller Card User Guide.

----End

6.2 Installing an OS

This topic describes how to install an operating system (OS) by loading a redundant array of independent disks (RAID) controller card driver.

Scenarios

Install an OS by loading a RAID controller card driver.

If the configured RAID controller card is softRAID, set a boot parameter to blacklist the AHCI driver before entering the installation program.

- If the OS to be installed is **SUSE 11.3**, enter **brokenmodules=ahci** in the **Boot Options** text box, as shown in **Figure 6-4**.
- If the OS to be installed is **RHEL 6.5**, press **Tab** to edit **Options** and enter **linux dd blacklist=ahci nodmraid**, as shown in **Figure 6-5**.
- If the OS to be installed is **RHEL 7**, press **Tab** to edit **Options** and enter **linux dd modprobe.blacklist=ahci nodmraid**, as shown in **Figure 6-6**.

Figure 6-4 SUSE 11.3 boot screen







Figure 6-6 RHEL 7 boot screen



Prerequisites

Conditions

- You have set basic input/output system (BIOS) parameters. For details, see **6.1.2 Setting BIOS Parameters**.
- You have configured redundant array of independent disks (RAID) properties for hard disks.

For details, see 6.1.3 Configuring RAID Properties for Hard Disks.

- You have obtained the OS installation DVD or ISO file.
 For example, Red Hat Enterprise Linux Server 6.5 installation DVD-ROM or ISO file.
- You have downloaded the driver installation package for the SoftRAID controller card,
 - for example, **megasr-16.02.2014.0811-1-rhel65-ga-x86_64.img**. For details about how to obtain the driver installation package, see **Downloading the Driver Installation Package**.

Data

You have obtained the IP address, user name, and password for logging in to the Virtual Console (take the iMana 200 for example) of the server.

Tools

- You have obtained a client for logging in to the Virtual Console of the server.
- The server is configured with a physical DVD-ROM drive.

Procedure

Log in to the Virtual Console of the server.

The login method varies according to the server type. For details, see the following topics:

- 9.1.1 Logging In by Using the WebUI
- 9.1.2 Logging In by Using the MM910 WebUI
- 9.1.3 Logging In by Using the MM620 WebUI

Load the OS installation DVD or ISO file.

- 1 Perform one of the following operations based on the installation media:
 - If you use an installation DVD, insert the DVD into the physical DVD-ROM drive and go to **3**.
 - If you use an ISO file, go to **2**.
- 2 Mount the virtual DVD-ROM drive.
 - On the toolbar of the Remote Control command window, click .
 The virtual DVD-ROM drive dialog box is displayed, as shown in Figure 6-7.

Figure 6-7 Virtual DVD-ROM drive dialog box

OD/DVD	F: 🔻		Connect
🔘 Image File		Browse	Eject
Directory		Browse	

- b. Click the Image File option button, and then click Browse. The Open dialog box is displayed.
- c. Select the OS ISO file and click **Open**.
- d. In the virtual DVD-ROM drive dialog box, click **Connect**.

When **Connect** changes to **Disconnect** (as shown in **Figure 6-8**), the virtual DVD-ROM drive is successfully connected to the server.

Figure 6-8 Successful connection between the virtual DVD-ROM drive and the server

O CD/DVD	F: 🔻		Disconnect
Image File	i.O V100.iso	Browse	Eject
O Directory		Browse	

- 3 Mount the virtual floppy disk drive (FDD).
 - a. On the toolbar of the **Remote Control** command window, click **See** The virtual FDD dialog box is displayed, as shown in **Figure 6-9**.

Figure 6-9 Virtual FDD dialog box



- b. Click the Image File option button, and then click Browse.The Open dialog box is displayed.
- c. Select the driver installation package for the RAID controller card, and click **Open**.
- d. In the virtual FDD dialog box, click **Connect**.

When **Connect** changes to **Disconnect**, the virtual FDD is connected to the server.

Restart the server.

- 4 On the toolbar, click . The confirmation dialog box is displayed.
- 5 Click Yes. The server restarts.

Install the OS.

6 Press F11 in the power-on self-test (POST) phase.

The screen shown in Figure 6-10 is displayed, prompting you to choose a boot device.

Figure 6-10 Choosing a boot device



7 Choose HUAWEI DVD-ROM VM1.1.0, and press Enter.

The Welcome to Red Hat Enterprise Linux 6.5 screen is displayed as shown in Figure 6-11.

Figure 6-11 RHEL 6.5 boot screen



8 Press **Tab** to edit **Options**.

Type linux dd blacklist=ahci nodmraid and press Enter.

After a while, the welcome screen is displayed, as shown in Figure 6-12.



Welcome to Red Hat Enterprise Linux	
Driver disk Do you have a driver disk? Yes No	
<tab>/<alt-tab> between elements <space> selects <f12> next</f12></space></alt-tab></tab>	screen

9 In the Driver disk dialog box, select Yes and press Enter.The Driver Disk Source dialog box is displayed, as shown in Figure 6-13.

Figure 6-13 Driver Disk Source dialog box



- Select the virtual FDD sda, select OK, and press Enter.The Insert Driver Disk dialog box is displayed.
- Select OK and press Enter.The More Driver Disks dialog box is displayed.
- 12 Select No and press Enter.

The system automatically loads the driver. About 1 minute later, the driver loading is complete and the **Disk Found** dialog box is displayed, as shown in **Figure 6-14**.

Figure 6-14 Disk Found dialog box



13 Select Skip and press Enter.

The welcome window is displayed.

- 14 Click Next.The language selection window is displayed.
- 15 Select English (English) and click Next.The keyboard layout selection window is displayed.
- 16 Select U.S. English and click Next.

The installation device selection window is displayed, as shown in Figure 6-15.

Figure 6-15 Selecting a device for installation

What type of devices will your installation involve?
 Basic Storage Devices Installs or upgrades to typical types of storage devices. If you're not sure which option is right for you, this is probably it.
Specialized Storage Devices Installs or upgrades to enterprise devices such as Storage Area Networks (SANs). This option will allow you to add FCoE / iSCSI / zFCP disks and to filter out devices the installer should ignore.
◆ <u>B</u> ack ▶ <u>N</u> ext

17 Select Basic Storage Devices and click Next.

After the device is initialized, the host name setting window is displayed, as shown in **Figure 6-16**.



Please name this computer. The hostname identifies the computer on a network.		
Hostname: localhost.localdomain		
Configure Network		
	◆ <u>N</u> e	xt

18 Enter the host name and click Next.

The time zone setting window is displayed, as shown in Figure 6-17.





- 19 Select a city and click Next.
 - If **System clock uses UTC** is selected, the UTC is used as the system time.
 - If **System clock uses UTC** is deselected, the local time is used as the system time.

The window shown in **Figure 6-18** is displayed, prompting you to set the password for the root user.

Figure 6-18 Setting the root user password

The root account is used for administering the system. Enter a password for the root user.	
Root <u>P</u> assword:	
<u>C</u> onfirm:	
·	
	♦ Back

20 Enter the root user password twice and click Next.

The installation method selection window is displayed, as shown in Figure 6-19.

Figure 6-19 Selecting an installation method

	Use All Space Removes all partitions on the selected device(s). This includes partitions created by other operating systems.	
	Tip: This option will remove data from the selected device(s). Make sure you have backups.	
	Replace Existing Linux System(s) Removes only Linux partitions (created from a previous Linux installation). This does not remove other partitions you may have on your storage device(s) (such as VFAT or FAT32).	
	Tip: This option will remove data from the selected device(s). Make sure you have backups.	
	Shrink Current System Shrinks existing partitions to create free space for the default layout.	
	Use Free Space Retains your current data and partitions and uses only the unpartitioned space on the selected device (s), assuming you have enough free space available.	
2	Create Custom Layout Manually create your own custom layout on the selected device(s) using our partitioning tool.	
<u>E</u> ncryp	t system	
-	and modify partitioning layout	

- 21 Select Create Custom Layout and click Next.
- 22 Create disk partitions.

If the OS is to be installed on the sda disk, create partitions on the sda disk.

 Table 6-1 describes how to create and delete disk partitions.

 Table 6-1 Creating and deleting disk partitions

Task	Action
Create the root partition.	1. Select the hard disk where the root partition is to be created, and click Create .
	2. In the Create Storage dialog box, select Standard Partition and click Create .
	3. Set Mount Point to /, File System Type to Ext4, and the capacity to 20 GB.
	4. Click OK .
Create the swap partition.	1. Select the hard disk where the swap partition is to be created, and click Create .
	2. In the Create Storage dialog box, select Standard Partition and click Create .
	3. Set File System Type to Swap, and the capacity to 4 GB.
	4. Set Mount Point to swap.
	5. Click OK .
(Optional) Delete existing partitions.	Select the hard disk and click Delete to delete the existing partitions from the hard disk.

23 Click Next.

The Format Warnings dialog box is displayed.

24 Click Format.

The Writing storage configuration to disk dialog box is displayed, as shown in Figure 6-20.

Figure 6-20 Confirming the configuration



25 Click Write changes to disk.

The partition list is displayed.

26 Click Next.

The boot loader selection window is displayed, as shown in Figure 6-21.

✓ Instal	l boot loader on /dev/so	la. Change device		
□ <u>U</u> se a	boot loader password	Change <u>p</u> assword		
Boot loa	ader operating syste	em list		
Default	Label	Device		Add
۲	Red Hat Enterprise Line	ux /dev/sdal		<u>E</u> dit
				Delete
			e Back	(<u>N</u> e

27 Select Install boot loader on /dev/sda and click Next.

The software selection window is displayed, as shown in Figure 6-22.



and the second sec		and the second	
The default installation of Red Hat Enterprise optionally select a different set of software i	e Linux is a basic server install. You can now.		
O Basic Server			_
 Database Server 			
 Web Server 			=
 Virtual Host 			
 Desktop 			
Software Development Workstation			
 Minimal 			
Please select any additional repositories that	t you want to use for software installation	n.	
✓ Driver Disk 0			<u> </u>
High Availability			=
Load Balancer			
Ded Hat Determine Linus			~
+ Add additional software repositories	Modify repository]	
You can further customize the software select management application. Customize later <u>C</u> ustomize now	ction now, or after install via the software	1	
		Back	▶ <u>N</u> ext

28 In the upper section, select the software to be installed as required.



In this step, select Software Development Workstation.

- 29 Select **Customize later** at the lower left corner.
- 30 Click Next.

The file copying progress is displayed, as shown in Figure 6-23.

Figure 6-23 Copying file



After the copying is complete, click **Reboot** in the restart confirmation window.After the restart is complete, the **Welcome** window is displayed, as shown in Figure 6-24.

Figure 6-24 Welcome screen

 Welcome License Information Set Up Software Updates 	Welcome There are a few more steps to take before your system is ready to use. The Setup Agent will now guide you through some basic configuration. Please click the "Forward" button in the lower right corner to continue
Create User Date and Time Kdump	
	<u>B</u> ack <u>Eorward</u>

32 Click Forward.

The License Information window is displayed.

- 33 Select Yes, I agree to the License Agreement.
- 34 Click Forward.The Set Up Software Updates window is displayed.
- 35 Select No, I prefer to register at a later time. and click Forward.

The operation confirmation dialog box is displayed.

- 36 Click Register Later.The Finish Updates Setup window is displayed.
- 37 Click Forward.The Create User window is displayed, as shown in Figure 6-25.

Figure 6-25 Creating a User

Welcome License	Create User
Information Set Up Software Updates	You must create a 'username' for regular (non-administrative) use of your system. To create a system 'username', please provide the information requested below.
Create User	Username:
Date and Time	Full Name:
Kdump	Password:
	Confir <u>m</u> Password:
	If you need to use network authentication, such as Kerberos or NIS, please click the Use Network Login button.
	Use Network Login
	If you need more control when creating the user (specifying home directory, and/or UID), please click the Advanced button.
	Advanced
	<u>B</u> ack <u>F</u> orward

38 Set user information and click Forward.

The Date and Time window is displayed, as shown in Figure 6-26.

Figure 6-26 Setting the date and time

Welcome License Information	Date and T	ime	
Set Up Software Updates	Please set the date and time	for the system.	
Create User	Date and <u>T</u> ime		
→ Date and Time Kdump	Current date and time: Thu	25 Nov 2010 10:05:37 AM CST e over the network	
	Manually set the date and time of your system:		
	<u>D</u> ate	Time	
	< November >	< 2010 > <u>H</u> our : 9 ♀	
	Sun Mon Tue Wed Thu	Fri Sat <u>M</u> inute : 56 🗘	
	31 1 2 3 4 7 8 9 10 11	5 6 12 13 <u>S</u> econd : 45 ♀	
	14 15 16 17 18	19 20	
	21 22 23 24 25	26 27	
	28 29 30 1 2	3 4	
	5 6 7 8 9	10 11	
		<u>B</u> ack <u>F</u> orward	

39 Set the date and time and click **Forward**.

The Kdump window is displayed, as shown in Figure 6-27.

Figure 6-27 Configuring kdump

Welcome License Information Set Up Software Updates Create User	Kdump is a kernel crash dumping mechanism. In the event of a system crash, kdump will capture information from your system that can be invaluable in determining the cause of the crash. Note that kdump does require reserving a portion of system memory that will be unavailable for other uses.		
Date and Time	☑ <u>E</u> nable kdump?		
⊁ Kdump	<u>T</u> otal System Memory (MB):	7991	
	<u>K</u> dump Memory (MB):		
	<u>U</u> sable System Memory (MB):	7863 <u>B</u> ack <u>Finish</u>	

- 40 Deselect Enable Kdump and set the parameter based on site requirements.
- 41 Click Finish.

A confirmation dialog box is displayed.

42 Click Yes.

The system restarts. After the restart is complete, the **RHEL 6.5** operating system is displayed.

----End

Additional Information

Related Tasks

After the OS is installed, check whether the existing driver versions match the server. If the driver versions do not match, install the drivers of the required versions.

For details, see 8 Installing Drivers.

Related Concepts

None

7 Installing an OS by Creating an Installation

Source

About This Chapter

This topic describes how to install an operating system (OS) by manually compiling an installation file.

This chapter describes how to create and install Solaris, UbuntuOS, and VMware installation source on the RH2285 V2.

If the OS does not match the document, please contact Huawei for technical support. For details, see **A Obtaining Help**.

7.1 Preparing for the Installation

After determining the installation method, obtain the materials related to the operating system (OS), set basic input/output system (BIOS) parameters, and configure redundant array of independent disks (RAID) properties for hard disks.

7.2 Installing an OS

This topic describes how to create an installation file to install the operating system (OS). The installation file must contain the OS installation program and required driver installation packages.

7.1 Preparing for the Installation

After determining the installation method, obtain the materials related to the operating system (OS), set basic input/output system (BIOS) parameters, and configure redundant array of independent disks (RAID) properties for hard disks.

7.1.1 Obtaining OS Installation Materials

Scenarios

Obtain materials required for operating system (OS) installation.

Prerequisites

Conditions

No special condition is required for this operation.

Data

Data preparation is not required for this operation.

Tools

No tool is required for this operation.

Documents

Server-specific compatibility list

Procedure

Obtain the OS installation DVD or image file.

Prepare the OS installation DVD or image file yourself.

Query compatible OSs.

- 1 Open Huawei Server Compatibility Checker.
- 2 Search for OSs compatible with a specific server.

Download the Driver Version Mapping.

- 3 Log in to Huawei Enterprise support website.
- 4 On the menu bar, choose **Support > Downloads > IT > FusionServer > Solution and Software > APP Server > FusionServer iDriver**.
- The version list is displayed. 5 Choose the target version.
- 6 Download the *Driver Version Mapping*.
 - The driver version mapping describes the mapping between OSs and drivers, as shown in **Figure 7-1**.

Driver Version Mapping lists the server components and their drivers in different OSs. If the driver file of a component is not displayed, the component uses the driver integrated in the OS.
External	System Vers	Driver File	Onboard ISO Driver	Card Name	Driver Versio	FW Version	Chip	Device_ID:Vendor_I	Remarks
Driver Version 💌	-	-	contain Files 🔽	•	•	-	•	•	•
PusionServe r iDriver- CentOS-	centos5.8	2208_centos5.8 _x86_64_06.705 .06.00.iso		BC11ESMD(SR220) BC01ESMD(RU220)	06.705.06.00	general	LSI 2208	VID:1000 DID:005b	Raid card driver for 64bit OS
Driver-V304		onboard_driver _centos5.8.iso	2208_centos5.8_x86_64_ 06.705.06.00.rpm	BC11ESMD(SR220) BC01ESMD(RU220)	06.705.06.00	general	LSI 2208	VID:1000 DID:005b	Raid card driver for 64bit OS
			I350&82580_centos5.8_5 .2.15.tar.gz	BC11FGEB(SM211) BC01QGMC(MU212)	5. 2. 15	general	intel 1350/82580	VID:8086 DID:150e / VID:8086 DID:1521 / VID:8086 DID:1523	nic driver
			x540&82599_centos5.8_4 .0.3.tar	BC11FXEB(SM231) BC11FGED(SM233) BC01TGMA(MU230)	4.0.3	general	Intel 82599/Intel X540	VID:8086 DID:10fb / VID:8086 DID:1528 / VID:8086 DID:10f8	nic driver
				MXEK (MZ312) MXEM (MZ310) MXEL (MZ912_eth)	4. 0. 3	DOS:4040.4 040 OS:4.4- 0/0x800006 d5	Intel 82599	10f8:8086	nic driver
			be3_iscsi=4.6.345.0=1=	MXEC (MZ510)	4.6.345.0	4.6.442.8	Emulex BE3	0712:19a2	iscsi driver

Figure 7-1 Mapping between OSs and drivers

Download the driver installation package.

- 7 Log in to Huawei Enterprise support website.
- 8 On the menu bar, choose Support > Downloads > IT > FusionServer > Solution and Software > APP Server > FusionServer iDriver. The conview list is displayed

The version list is displayed.

- 9 Choose the target version.
- 10 Download the driver package of the OS to be installed.

If the driver package does not contain the required driver, check the **Huawei Server Compatibility Checker**, and find the link to download the required driver.

----End

7.1.2 Setting BIOS Parameters

Scenarios

Set basic input/output system (BIOS) parameters so that an operating system (OS) can be successfully installed on a server.

Impact on the System

The system time and system boot sequence of the server will be changed after this operation.

Prerequisites

Conditions

No special condition is required for this operation.

Data

You have obtained the IP address, user name, and password for logging in to the server. **Tools**

You have obtained a client for logging in to the Virtual Console (take the iMana 200 for example) of the server.

Procedure

Log in to the Virtual Console of the server.

The login method varies according to server type. For details, see the following topics:

- 9.1.1 Logging In by Using the WebUI
- 9.1.2 Logging In by Using the MM910 WebUI
- 9.1.3 Logging In by Using the MM620 WebUI

Restart the server.

- 1 On the toolbar, click . The confirmation dialog box is displayed.
- 2 Click Yes. The server restarts.

Configure the basic input/output system (BIOS).

3 Press Del during server startup, and enter a password when prompted.**Imnote**

The default BIOS password is Huawei12#\$.

4 On the menu bar, select the **Main** tab. See **Figure 7-2**.

Figure 7-2 Main tab page

	InsydeH20 Setup Utility	Rev. 3.7
Main Advanced Security	Boot Exit	
Version Product Name Build Date System Number Processor Type Node Number	RMISV033 RH2288H V2 12L 09/13/2012 030MAJ10B4001297-3 Genuine Intel(R) CPU @ 2.30GHz 2	This is the help for the hour, minute, second field. Valid range is from 0 to 23, 0 to 59, 0 to 59. INCREASE/REDUCE : +/
Total Memory	12288 MB	
System Memory Speed	1066 MHz	
System Time System Date	[08:23:00] [09/18/2012]	
Fl Help †∔ Select Item Esc Exit ↔ Select Menu	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit

Before installing the OS, set the system time and date in the BIOS to the current time and date respectively. Otherwise, some software packages may fail to be installed during OS installation.

Set **System Time** to a value in the format of *hh:mm:ss* in the 24-hour format (*hh, mm*, and *ss* indicate the hour, minute, and second respectively). To switch among the hour, minute, and second, press **Enter**. To change the time, use the following method:

- Press + to increase the value by 1.
- Press to decrease the value by 1.
- Press a number key to change a value directly.
- 6 Set **System Date** to a value in the format of *month/day/year*. To switch among the month, day, and year, press **Enter**. To change the date, use the following method:
 - Press + to increase the value by 1.
 - Press to decrease the value by 1.
 - Press a number key to change a value directly.
- 7 On the menu bar, choose Exit > Save Change Without Exit and press Enter.
- 8 In the displayed dialog box, select Yes and press Enter to save the settings.
- 9 On the menu bar, choose **Boot** > **Legacy** and press **Enter**.

The Boot Device Priority screen is displayed, as shown in Figure 7-3.

Figure 7-3 Boot I	Device Priority screen
-------------------	------------------------

	Insy Boot	/deH2O Setup Utility t	Rev. 3.7
Boot Device Priori	ty		Change Boot Type Order
▶Boot Type Order ▶Hard Disk Drive ▶DVD-ROM Drive ▶PXE ▶Others			
F1 Help 14 Sele	ctitem Fi	5/F6 Change Values	F9 Setup Defaults

10 Select Boot Type Order and press Enter.

The default boot sequence is as follows: Hard Disk Drive, DVD-ROM Drive, PXE, and Others.

11 Select **Hard Disk Drive** and press **F5** or **F6** to move **Hard Disk Drive** to the top of the boot option list.

The first boot device of KunLun mission-critical servers must be set to DVD-ROM Drive.

- To move a boot option down, press **F5**.
- To move a boot option up, press **F6**.

ΠΝΟΤΕ

The option at the top of the boot option list is the first boot option, and the one at the bottom is the last boot option.

12 Press F10.

The Exit Saving changes? dialog box is displayed.

13 Select Yes and press Enter to save the settings and restart the server.

----End

7.1.3 Configuring RAID Properties for Hard Disks

Scenarios

Configure redundant array of independent disks (RAID) properties for the hard disks on a server.

Prerequisites

Conditions

No special condition is required for this operation.

Data

Data preparation is not required for this operation.

Tools

You have obtained a client for logging in to the Virtual Console (take the iMana 200 for example) of the server.

Documents

You have obtained the HUAWEI Server RAID Controller Card User Guide.

Procedure

Log in to the Virtual Console of the server.

The login method varies according to server type. For details, see the following topics:

- 9.1.1 Logging In by Using the WebUI
- 9.1.2 Logging In by Using the MM910 WebUI
- 9.1.3 Logging In by Using the MM620 WebUI

Configure redundant array of independent disks (RAID) properties.

For details, see HUAWEI Server RAID Controller Card User Guide.

Configure the boot device

After configuring multiple RAID grous, you must to set boot options; otherwise, OSs cannot be installed properly.

For details, see HUAWEI Server RAID Controller Card User Guide.

----End

7.2 Installing an OS

This topic describes how to create an installation file to install the operating system (OS). The installation file must contain the OS installation program and required driver installation packages.

7.2.1 Installing Solaris by Creating an Installation Source

Scenarios

Install the Solaris operating system (OS) by manually compiling an installation file.

Prerequisites

Conditions

- You have set basic input/output system (BIOS) parameters.
 - For details, see 7.1.2 Setting BIOS Parameters.
- You have configured redundant array of independent disks (RAID) properties for hard disks.

For details, see 7.1.3 Configuring RAID Properties for Hard Disks.

• The server is configured with a DVD-ROM drive.

Data

You have obtained the IP address, user name, and password for logging in to the Virtual Console (take the iMana 200 for example) of the server.

Tools

You have obtained a client for logging in to the Virtual Console of the server. The Solaris OS (for example, Solaris 10) has been installed on the client, and the client has the DVD burning function.

Software

• You have obtained the Solaris installation DVD or ISO file.

You can download the Solaris ISO file (for example, **sol-10-u8-ga-x86-dvd.iso**) from the Solaris website.

• You have obtained the driver installation package to be incorporated, for example, LSISAS2208 controller card driver package MR_Solaris_Driver_6.600.12.00.tgz.

For details, see 5.1.1 Obtaining OS Installation Materials.

Procedure

Configure the installation source.

- 1 Log in to the Solaris client using the **root** user.
- 2 Configure a Solaris installation source.

You can use either the ISO file or the installation DVD to configure a Solaris installation source. The two methods slightly differ:

- If you use the ISO file, perform the following operations:
 - i. Upload the ISO file (for example, sol-10-u8-ga-x86-dvd.iso) to /export/home.
 - ii. Run the following commands to configure the Solaris installation source:

This process takes about 10 minutes. After this process ends, the installation source is in /export/home/install.

```
#usr/sbin/lofiadm -a /export/home/sol-10-u8-ga-x86-dvd.iso
#mount -F hsfs /dev/lofi/1 /mnt
# cd /mnt/Solaris_10/Tools
#./setup install server /export/home/install
```

- If you use the installation DVD, perform the following operations:
 - i. Insert the installation DVD into the DVD-RW drive.

The DVD-RW drive is automatically mounted to /cdrom.

 Run the following commands to configure the Solaris installation source: d /cdrom/sol_10_108_x86/Solaris_10/Tools #./setup install server /export/home/install

Create an AMD x86 driver.

3 Unpack the **miniroot** file.

Run the following commands:

- # cd /export/home/install/boot
- # /boot/solaris/bin/root_archive unpack ./x86.miniroot /export/home/unpacked

4 Unlock the **miniroot** file.

Run the following command: #rm /export/home/unpacked/tmp/*.lck

5 Remove the LSISAS2208 controller card driver.

Run the following command:

rem_drv -b /export/home/unpacked mr_sas

- 6 Upload the driver installation package to be incorporated to the server, and decompress the package.
- 7 Upload the driver directory generated after the decompression to /export/home/ unpacked/kernel/drv/.

Run the following commands:

```
# cp Driver directory/reloc/kernel/drv/mr_sas /export/home/unpacked/
kernel/drv/
```

```
# cp Driver directory/reloc/kernel/drv/mr_sas.confg /export/home/unpacked/
kernel/drv/
```


In the commands, *Driver directory* is **mrsas**, which is generated after the following packages are decompressed in sequence:

LSISAS2208 controller card driver installation package MR_Solaris_Driver_6.600.12.00.tgz > componets.tgz package in intel\Solaris10-u8\ > mr_sas.tar.Z package

8 Add the new LSISAS2208 controller card driver.

Run the following command:

```
# add_drv -b /export/home/unpacked -n -v -m '* 0600 root sys' -i
'"pci1000,78" "pciex1000,78" "pci1000,79" "pciex1000,79" "pci1000,5b"
```

```
"pciex1000,5b" "pci1000,5d" "pciex1000,5d" "pci1000,5f" "pciex1000,5f"' -c scsi mr sas
```

Create an AMD x64 driver.

9 Unpack the **miniroot** file.

```
Run the following commands:
```

```
# cd /export/home/install/boot/amd64/
```

```
# /boot/solaris/bin/root_archive unpack ./x86.miniroot /export/home/unpacked64
```

10 Unlock the **miniroot** file.

Run the following command:
rm /export/home/unpacked64/tmp/*.lck

11 Remove the LSISAS2208 controller card driver.

Run the following command:

rem_drv -b /export/home/unpacked64 mr_sas

12 Upload the driver directory generated after the decompression in 6 to /export/home/ unpacked/kernel/drv/.

Run the following commands:

```
# cp Driver directory/reloc/kernel/drv/amd64/mr_sas /export/home/unpacked64/
kernel/drv/amd64/
# cp Driver directory/reloc/kernel/drv/mr_sas.conf /export/home/unpacked64/
kernel/drv/
# cp Driver directory/reloc/kernel/drv/mr_sas /export/home/unpacked64/
kernel/drv/
```


In the commands, *Driver directory* is **mrsas**, which is generated after the following packages are decompressed in sequence:

LSISAS2208 controller card driver installation package MR_Solaris_Driver_6.600.12.00.tgz > componets.tgz package in intel\Solaris10-u8\ > mr_sas.tar.Z package

13 Add the new LSISAS2208 controller card driver.

Run the following command:

```
# add_drv -b /export/home/unpacked64 -n -v -m '* 0600 root sys' -i
'"pci1000,78" "pciex1000,78" "pci1000,79" "pciex1000,79" "pci1000,5b"
"pciex1000,5b" "pci1000,5d" "pciex1000,5d" "pci1000,5f" "pciex1000,5f" -c
scsi mr_sas
```

Repack the miniroot file.

14 Repack the **miniroot** file to which the LSISAS2208 controller card driver has been added.

Run the following commands:

```
# cd /export/home/install/boot
```

```
# mv ./x86.miniroot /tmp
```

- # /boot/solaris/bin/root_archive pack ./x86.miniroot /export/home/unpacked
- # cd /export/home/install/boot/amd64
- # mv ./x86.miniroot /tmp
- # /boot/solaris/bin/root_archive pack ./x86.miniroot /export/home/unpacked64

15 Copy the driver to /**Product**.

Run the following commands:

```
# cd /export/home/install/Solaris_10/Product/SUNWmrsas
# rm -r *
```

cp -r Driver directory/* ./

Modify the checkinstall, pkgmap, and pkginfo scripts.

16 Modify the checkinstall script.

In the checkinstall script, change exit 3 in two positions to exit 0.

```
if ["$var1" = "0" -o "$var2" = "0" ]
```

```
then
       if [ !$var1]
       then
                pre ver='pkgparam mrsas VERSION'
                echo "A previous instance of mrsas driver $pre_ver found in
the system."
                echo "Use 'pkgrm mrsas' to remove the previous mrsas package
and then do a pkgadd."
       elif [ !$var2 ]
        then
                pre ver='pkgparam SUNWmrsas VERSION'
                echo "A previous instance of SUNWmrsas driver $pre ver found
in the system."
                echo "Use 'pkgrm SUNWmrsas' to remove the previous mrsas
package and then do a pkgadd."
       fi
       sleep l
        exit 0 # Suspend
else
       pre ver='(modinfo | grep mr sas | cut -fll -d' ')'
        echo "A previous instance of mrsas driver $pre ver found in the
system."
        echo "Remove the previously installed mrsas driver files and then re-
issue pkgadd."
       sleep l
        exit 0 # Suspend
fi
        . . . . . .
```

17 Modify the **pkginfo** script.

In the pkginfo script, change PKG=mrsas to PKG=SUNWmrsas.

```
.....

PKG=SUNWmrsas

NAME=LSI MegaRAID SAS 2.0 HBA driver

ARCH=i386

.....
```

18 Query the sizes and verification values of the checkinstall and pkginfo scripts.

Run the **wc** -**c** command to query the file size and run the **sum** command to query the checksum value.

```
bash -3.00# wc -c checkinstall
1391 checkinstall
bash -3.00# sum checkinstall
47873 3 checkinstall
bash -3.00# wc -c pkginfo
424 pkginfo
bash -3.00# sum checkinstall
32049 1 pkginfo
```

19 Modify the **pkgmap** script.

Change the sizes and verification values of the **checkinstall** and **pkginfo** scripts in the **pkgmap** script based on the results queried in **18**.

.

The numbers behind **checkinstall** and **pkginfo** indicate the sizes and verification values of the two scripts respectively.

```
: 1 1304
1 d none boot 0755 sys root
1 d none boot/solaris 0755 sys root
1 d none boot/solaris/devicedb 0755 sys root
1 e master boot/solaris/devicedb/master 0644 sys sys 710 51978 1363131785
1 i checkinstall 1391 47873 1363131785
1 i copyright 73 5708 1363131785
1 i depand 875 7013 1363131785
1 i i.master 1390 24059 1363131785
1 d none kernel 0755 sys root
1 d none kernel/drv 0755 sys root
```

1 d none kernel/drv/amd64 0755 sys root
1 f none kernel/drv/amd64/mr_sas 0755 sys root 404144 12917 1363131784
1 f none kernel/drv/mr_sas 0755 sys root 203480 47893 1363131784
1 f none kernel/drv/mr_sas.conf 0644 sys root 415 34932 1363131784
1 i pkginfo 424 32049 1363131785
1 i postinstall 2466 44351 1363131785
1 i postremove 303 21727 1363131785
1 i r.master 1109 6734 1363131785
.....

Generate the ISO file.

- 20 Run the following command to generate the customized ISO file sol_10u8_mod22.iso. # mkisofs -o sol_10u8_mod22.iso -b boot/grub/stage2_eltorito -c .catalog -noemul-boot -boot-load-size 4 -boot-info-table -relaxed-filenames -N -l -r -J d -D -V SOL_10U8_MOD22 /export/home/install
- 21 Use the customized ISO file **sol_10u8_mod22.iso** to burn a DVD.

Install the OS.

22 Log in to the Virtual Console of the server.

The login method varies according to server type. For details, see the following topics:

- 9.1.1 Logging In by Using the WebUI
- 9.1.2 Logging In by Using the MM910 WebUI
- 9.1.3 Logging In by Using the MM620 WebUI
- 23 Configure the server to boot from the DVD-ROM drive.
- 24 Insert the installation DVD burnt in 21 into the DVD-ROM drive on the server.
- 25 Install the OS by following on-screen instructions.

----End

Additional Information

Related Tasks

After the OS is installed, check whether the existing driver versions match the server. If the driver versions do not match, install the drivers of the required versions.

For details, see 8 Installing Drivers.

Related Concepts

For more information, visit Solaris website.

7.2.2 Installing Ubuntu by Creating an Installation Source

Scenarios

Install the Ubuntu operating system (OS) by manually compiling an installation file.

Prerequisites

Conditions

- You have set basic input/output system (BIOS) parameters. For details, see **7.1.2 Setting BIOS Parameters**.
- You have configured redundant array of independent disks (RAID) properties for hard disks.

For details, see 7.1.3 Configuring RAID Properties for Hard Disks.

• The server is configured with a DVD-ROM drive.

Data

You have obtained the IP address, user name, and password for logging in to the Virtual Console (take the iMana 200 for example) of the server.

Tools

You have obtained a client for logging in to the Virtual Console of the server. **Software**

- ubuntu 10.04.03 installation DVD or image file
- Driver installation package:
 - megaraid_sas_ub_10.04.3_32.img (32-bit, non-PAE kernel)
 - megaraid_sas_ub_10.04.3_32_pae.img (32-bit, PAE-kernel)
 - megaraid_sas_ub_10.04.3_64.img (64-bit)

Procedure

Log in to the Virtual Console of the server.

The login method varies according to server type. For details, see the following topics:

- 9.1.1 Logging In by Using the WebUI
- 9.1.2 Logging In by Using the MM910 WebUI
- 9.1.3 Logging In by Using the MM620 WebUI

Load the OS installation DVD or image file.

- 1 Perform one of the following operations based on the installation media:
 - If you use an installation DVD, insert the DVD into the physical DVD-ROM drive and go to 6.
 - If you use an image file, go to 2.
- 2 On the toolbar of the **Remote Control** command window, click . The virtual DVD-ROM drive dialog box is displayed, as shown in **Figure 7-4**.

Figure 7-4 Virtual DVD-ROM drive dialog box

CD/DVD	F: •		Connect
🔘 Image File		Browse	Eject
⑦ Directory		Browse	

- 3 Click the **Image File** option button, and then click **Browse**. The **Open** dialog box is displayed.
- 4 Select the OS image file and click **Open**.
- 5 In the virtual DVD-ROM drive dialog box, click Connect.

When **Connect** changes to **Disconnect** (as shown in **Figure 7-5**), the virtual DVD-ROM drive is successfully connected to the server.

CD/DVD	F: •		Disconnect
Image File	i.O V100.iso	Browse	Eject
Directory		Browse	

Figure 7-5 Successful connection between the virtual DVD-ROM drive and the server

Restart the server.

- 6 On the toolbar, click . The confirmation dialog box is displayed.
- 7 Click **Yes**. The server restarts.

Choose a boot device.

8 Press F11 upon server startup.The Boot Manager screen is displayed, as shown in Figure 7-6.

Figure 7-6 Boot Manager screen

Boot Manager
Boot Option Menu
#0500 ID09 LUNO SEAGATE ST93006
TEAC DV-28S-W HUAWEI DVD-ROM VM 1.1.0 IBA GE Slot 0100 v1395
↑ and ↓ to change option, ENTER to select an option, ESC to exit

Select the virtual DVD-ROM drive (for example, HUAWEI DVD-ROM VM 1.1.0) from which you want to boot, and press Enter.
 The system boots from the DVD-ROM drive.

Install the OS.

10 In the Language window, select English.

- 11 In the displayed window, select Install Ubuntu.
- 12 Install the Ubuntu OS by following on-screen instructions.
- 13 If the **Keyboard layout** window shown in **Figure 7-7** is displayed, press **CTRL+ALT** +**F2** to open the text console.

Figure 7-7 Keyboard layout window

	is most similar t	o your keyboar	a?
Suggeste	d option: USA		
Guess ke	ymap: Guess	5	
Choose y	our own:		
Turkey		*	USA
Turkmen	istan	ſ	USA - Alternative international (form
USA		h	USA - Cherokee
Ukraine		=	USA - Classic Dvorak
United K	ingdom		USA Colomak

- 14 In the text console, enter the **sudo su** command to switch to user **root**. ubuntu@ubuntu:~\$ **sudo su**
- 15 Mount the image file for the LSISAS2208 controller card driver to the server by using the virtual floppy disk drive (FDD).

The method for mounting the image file by using the virtual FDD is similar to that for mounting the image file by using the virtual DVD-ROM drive except that you must select A: in 2 if you use the virtual FDD.

- For the 32-bit OS, select megaraid_sas_ub_10.04.3_32.img or megaraid_sas_ub_10.04.3_32_pae.img.
- For the 64-bit OS, select megaraid_sas_ub_10.04.3_64.img.
- 16 In the text console, enter the following commands:

```
mkdir /floppy /save
mount /dev/sda /floppy
cp /floppy/megaraid_sas.ko /save
cp /floppy/modules.alias.bin /save
umount /floppy
```

- 17 Disconnect from the virtual FDD.
- 18 Load the driver.

In the text console, enter the **insmod** /save/megaraid_sas.ko command. The information shown in Figure 7-8 is displayed.

Figure 7-8 Loading the driver

ubuntu@ubuntu:~\$ sudo su
root@ubuntu:/home/ubuntu# mkdir /floppy /save
root@ubuntu:/home/ubuntu# mount /dev/sda /floppy/
mount: block device /dev/sda is write-protected, mounting read-only
root@ubuntu:/home/ubuntu# cp /floppy/megaraid_sas.ko /save
root@ubuntu:/home/ubuntu# cp /floppy/modules.alias.bin /save
root@ubuntu:/home/ubuntu# umount /floppy/
root@ubuntu:/home/ubuntu# insmod /save/megaraid_sas.ko
[2055.844854] megasas:IOC Init cmd success
[2055.860855] megasas: INIT adapter done
root@ubuntu:/home/ubuntu# fdisk -1
0isk /dev/sda: 79.0 GB, 78999715840 bytes
255 heads, 63 sectors/track, 9604 cylinders

Units = cylinders of 16065 * 512 = 8225280 bytes Sector size (logical/physical): 512 bytes / 512 bytes I/O size (minimum/optimal): 512 bytes / 512 bytes Oisk identifier: 0x00000000

```
Disk /dev/sda doesn't contain a valid partition table
root@ubuntu:/home/ubuntu#
```

- 19 Run the fdisk -l command to check whether the hard disk is detected.
 - If yes, go to **20**.
 - If no, contact Huawei technical support.
- 20 Press ALT+F7.

The **Keyboard layout** window is displayed.

21 Proceed with the installation by following on-screen instructions.When the OS installation is complete, the **Installation Complete** dialog box is displayed.



Do not restart the system in this dialog box.

Load the driver.

- 22 Press CTRL+ALT+F2 to open the text console.
- 23 Perform the following operations for the 64-bit OS:

ΠΝΟΤΕ

Perform the same operations for the 32-bit OS with a non-PAE kernel as for the 64-bit OS.

```
cp /save/megaraid_sas.ko /target/root
cp /save/modules.alias.bin /target/root
chroot /target
cd /root
mkdir initrd
cd initrd
zcat /boot/initrd.img-2.6.32-33-generic |cpio -i
cp /root/megaraid_sas.ko lib/modules/2.6.32-33-generic/kernel/driver/scsi/
megaraid/
```

```
cp /root/modules.alias.bin lib/modules/2.6.32-33-generic
find . | cpio -H newc -o | gzip > /boot/initrd.img-2.6.32-33-generic
exit
```

- 24 Perform the following operations for the 32-bit OS:
 - a. Determine the OS kernel type.

Run the ls /target/boot/ command.

- If the command output contains "initrd.img-*-pae", the OS uses a PAE kernel. Go to the next step.
- If the command output does not contains "initrd.img-*-pae", the OS uses a non-PAE kernel. Go to 23.
- b. Run the following commands:

```
mount /dev/sdb /floppy
cp /floppy/megaraid_sas.ko /target/root
cp /floppy/modules.alias.bin /target/root
chroot /target
cd /root
mkdir initrd
cd initrd
zcat /boot/initrd.img-2.6.32-33-generic-pae |cpio -i
cp /root/megaraid_sas.ko lib/modules/2.6.32-33-generic-pae/kernel/
drivers/scsi/megaraid/
cp /root/modules.alias.bin lib/modules/2.6.32-33-generic-pae
find . | cpio -H newc -o | gzip > /boot/initrd.img-2.6.32-33-generic-pae
exit
```

25 Press CTRL+ALT+F7.

The Installation Complete dialog box is displayed.

26 Click Restart Now.

The server restarts.

----End

Additional Information

Related Tasks

After the OS is installed, check whether the existing driver versions match the server. If the driver versions do not match, install the drivers of the required versions.

For details, see 8 Installing Drivers.

Related Concepts None

None

7.2.3 Installing an OS by Creating the VMware Installation Source

Scenarios

Use an ISO file customized by Huawei to install an operating system (OS) on a server.

Prerequisites

Conditions

• You have set basic input/output system (BIOS) parameters.

For details, see 7.1.2 Setting BIOS Parameters.

• You have configured redundant array of independent disks (RAID) properties for hard disks.

For details, see 7.1.3 Configuring RAID Properties for Hard Disks.

Data

You have obtained the IP address, user name, and password for logging in to the Virtual Console (take the iMana 200 for example) of the server.

Tools

You have obtained a client for logging in to the Virtual Console of the server.

Software

You have obtained the following files:

• Customized software ESXi-Customizer-v2.7.1.exe

You can download the customized software from the **HUAWEI Enterprise Support Community**.

• VMware ESXi 5.x ISO file, for example, VMware-VMvisor-Installer-5.0.0-469512.x86_64.iso

You can download the ISO file from the VMware website.

• Driver installation package to be incorporated

For details about how to obtain the driver installation package, see **Downloading the Driver Installation Package**.

Procedure

Create an installation source.

- Copy the customized software ESXi-Customizer-v2.7.1.exe, VMware ESXi 5.x ISO file, and driver installation package to the same directory (for example, D:\Custom_OS \) on the client.
- 2 Run the customized software ESXi-Customizer-v2.7.1.exe.

Set the software decompression directory to D:\Custom_OS\. After the decompression, the ESXi-Customizer-v2.7.1 directory is generated in D:\Custom_OS\.

D:\Custom_OS\ must contain the files and directories shown in Figure 7-9.

Figure 7-9 Files and directories generated after the decompression

ESXi-Customizer-v2.7.1	2012/7/16 0:10
5719_ESXi5.0_3.124c.vib	2012/9/14 1:30
esxi-Customizer-v2.7.1	2014/4/14 14:46
VMware-VMvisor-Installer-5.0.0-469512.x86_64	2002/1/8 17:34

3 Go to the **ESXi-Customizer-v2.7.1** directory and run the **ESXi-Customizer.cmd** file. The window shown in **Figure 7-10** is displayed.

Figure 7-10 ESXi-Customizer window

🕙 ESXi-Customizer - ESXi-Customizer.v-front.de					
Select the original VMware ESXi ISO:					
Browse :\Custom_OS\VMware=VMvisor=Installer=5.0.0=469512.x86_64.iso					
Select an OEM.tgz file, a VIB file or an Offline Bundle:					
Browse :\Custom_OS\5719_ESXi5.0_3.124c.vib					
Select the working directory (needs to be on a local					
Browse D:\Custom_OS					
Choose TGZ repacking option (only for TGZ files, see tooltips for further informat					
Do not touch Source repacking Force repacking and pause for adv. ed:					
Create (V)EFI-bootable ISO (ESXi 5.0 only)					
🕼 Enable automatic update check (requires working Internet connection)					
Run! Cancel					

- 4 Set customization parameters.
 - Click **Browse** under **Select the original VMware ESXi ISO**. In the displayed dialog box, select the VMware ESXi 5.x ISO file copied in **1**.
 - Click **Browse** under **Select an OEM.tgz file, a VIB file or an Offline Bundle**. In the displayed dialog box, select the driver installation package.

The driver installation package is a .vib file in the directory generated after the decompression in **2**.

- Click **Browse** under **Select the working directory**. In the displayed dialog box, select a path to the customized ISO file to be generated.
- 5 Click **Run!**.

A warning dialog box is displayed in 1 minute.

6 Click **OK**.

The message "Do you want to add the VIB?" is displayed in 1 minute.

7 Click Yes.

The message "All done" is displayed in 1 minute.

8 Click OK.

You can see the customized ISO file in the path specified in 4. This ISO file incorporates the driver required by the server. See **Figure 7-11**.

Figure 7-11 Customized ISO file

ESXi-Customizer-v2.7.1	2014/4/14 15:21
5719_ESXi5.0_3.124c.vib	2012/9/14 1:30
ESXi-5.x-Custom	2014/4/14 15:21
ESXi-Customizer	2014/4/14 15:21
esxi-Customizer-v2.7.1	2014/4/14 14:46
VMware-VMvisor-Installer-5.0.0-469512.x86_64	2002/1/8 17:34

Log in to the Virtual Console of the server.

The login method varies according to server type. For details, see the following topics:

- 9.1.1 Logging In by Using the WebUI
- 9.1.2 Logging In by Using the MM910 WebUI
- 9.1.3 Logging In by Using the MM620 WebUI

Load the OS ISO file.

9 On the toolbar of the Remote Control command window, click .
 The virtual DVD-ROM drive dialog box is displayed, as shown in Figure 7-12.

Figure 7-12 Virtual DVD-ROM drive dialog box

CD/DVD	F: •		Connect
🔘 Image File		Browse	Eject
Directory		Browse	

- 10 Click the Image File option button, and then click Browse.The Open dialog box is displayed.
- 11 Select the customized ISO file and click **Open**.
- 12 In the virtual DVD-ROM drive dialog box, click Connect.

When **Connect** changes to **Disconnect** (as shown in **Figure 7-13**), the virtual DVD-ROM drive is successfully connected to the server.

Figure 7-13 Successful connection between the virtual DVD-ROM drive and the server

🔘 CD/DVD	F: 🔻		Disconnect
Image File	i.O V100.iso	Browse	Eject
O Directory		Browse	

Restart the server.

- 13 On the toolbar, click <a>A.The confirmation dialog box is displayed.
- 14 Click **Yes**. The server restarts.

Choose a boot device.

15 Press **F11** upon server startup.

The Boot Manager screen is displayed, as shown in Figure 7-14.

Figure 7-14 Boot Manager screen

Boot Manager
Boot Option Menu
#0500 ID09 LLNO SEAGATE ST93006 TEAC DV-28S-W HUAWEI DVD-ROM VM 1.1.0 IBA GE Slot 0100 v1395
↑ and ↓ to change option, ENTER to select an option, ESC to exit

Select the virtual DVD-ROM drive (for example, HUAWEI DVD-ROM VM 1.1.0) from which you want to boot, and press Enter.
 About 10 seconds later, the ESXi-5.0.0-469512-standard Boot Menu screen is displayed, as shown in Figure 7-15.



Figure 7-15 ESXi-5.0.0-469512-standard Boot Menu screen

Install the OS.

- Select ESXi-5.0.0-469512-standard Installer and press Enter.
 The Loading ESXi installer screen is displayed. About 30 seconds later, the Welcome to the VMware ESXi 5.0.0 Installation screen is displayed.
- 18 Press Enter.The End User License Agreement (EULA) screen is displayed.
- 19 Press **F11** to accept the license agreement.

The Select a Disk to Install or Upgrade screen is displayed, as shown in Figure 7-16.

	Select a Disk to	o Install or Upg	rade			
* Contains a VMFS partition						
Storage Device			Capacity			
Local: Local: LSI (naa.6234567890abcde01a13c580271f0f29) 278.46 GiB Remote: (none)						
(Esc) Cancel	(F1) Details	(F5) Refresh	(Enter) Continue			

Figure 7-16 Selecting a hard disk

20 Select a hard disk and press **Enter**. If the hard disk has partitions, the **Confirm Disk Selection** dialog box is displayed. Press **Enter**.

The Please select a keyboard layout screen is displayed.

21 Select US Default and press Enter.

The **Please enter a root password (recommended)** screen is displayed, as shown in **Figure 7-17**.





22 Set **Root password** and **Confirm password** to the password for OS user **root** and press **Enter**. (The password must contain at least seven characters.)

The Confirm Install screen is displayed.

23 Press F11 to install the OS.

The installation takes about 10 minutes. When the installation is complete, the **Installation Complete** screen is displayed, as shown in **Figure 7-18**.

Figure 7-18 Installation Complete screen



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

After the OS restarts, the VMware management screen is displayed, as shown in **Figure 7-19**.





ΠΝΟΤΕ

VMware ESXi 5.x obtains an IP address for the server over the Dynamic Host Configuration Protocol (DHCP) by default, for example, **169.254.152.64** shown in **Figure 7-19**.

If an IP address fails to be obtained, press F2 and enter the user name and password. On the System Customization screen, manually set an IP address.

View network port information.

The network interface card (NIC) driver is incorporated into the VMware ESXi 5.x installation package **Custom vmware 5.x V100.iso**. If the OS is successfully installed, the NIC driver is also successfully installed.

25 On the VM ware management screen, press F2.

The Authentication Required dialog box is displayed.

26 Enter the user name and password.

The System Customization screen is displayed, as shown in Figure 7-20.

System Customization	Configure Password
Configure Password Configure Lockdown Mode Configure Management Network Restart Management Network Test Management Network Network Restore Options	Set To prevent unauthor password for the use
Configure Keyboard Troubleshooting Options View System Logs	
View Support Information Reset System Configuration	

27 Select Configure Management Network and press Enter.

The Configure Management Network screen is displayed, as shown in Figure 7-21.

Configure Management NetworkNetwork AdaptersNetwork Adaptersvmnic0 (00:e0:fc:15:VLAN (optional)The adapters listed
connection to and fr
are used, connection
traffic will be load

Figure 7-21 Configure Management Network screen

28 Select Network Adapters and press Enter.

The Network Adapters screen is displayed, as shown in Figure 7-22.

Figure 7-22 Network Adapters screen

Network Adapters						
Select the adapt	Select the adapters for this host's default management network					
connection. Use	connection. Use two or more adapters for fault-tolerance and					
load-balancing.	load-balancing.					
Device Name	Hardware Label (MAC Address)	Status				
[X] vmnic0	N/A (00:e0:fc:15:46:01)	Disconnected				
[] vmnic1	N/A (00:e0:fc:15:49:02)	Disconnected				
[] vmnic2	N/A (00:e0:fc:15:50:03)	Disconnected				
[] vmnic3	N/A (00:e0:fc:15:51:04)	Disconnected				
<d></d> View Details	<pre>Space> Toggle Selected</pre>	<pre><enter> OK <esc> Cance1</esc></enter></pre>				

29 View network port information.

If the **Network Adapters** screen displays network port information of the server, the NIC driver is successfully installed.

----End

Additional Information

Related Tasks

After the OS is installed, check whether the existing driver versions match the server. If the driver versions do not match, install the drivers of the required versions.

For details, see 8 Installing Drivers.

Related Concepts None

8 Installing Drivers

About This Chapter

This topic describes how to install drivers.

If you want to install drivers that are not described in this document, contact Huawei technical support. For details about how to contact Huawei technical support, see **A Obtaining Help**.

8.1 Preparing for the Installation

Before installing drivers, you need to download the drivers and *Driver Version Mapping*, and query driver versions.

8.2 Checking Driver Versions

Before installing drivers, you need to check the existing driver versions to determine whether to upgrade or install the drivers.

8.3 Installing Methods

This topic describes how to install drivers in different operating systems (OSs).

8.1 Preparing for the Installation

Before installing drivers, you need to download the drivers and *Driver Version Mapping*, and query driver versions.

- Obtain the driver software of a version that suits the server hardware configuration by referring to the *Driver Version Mapping*. Pay special attention to network adapters with Lancer or BE3 chips. These adapters have strict requirments for the firmware version.
- Obtain the required drivers and *Driver Version Mapping* based on server hardware configuration.
- You do not need to install drivers for the hardware devices that have not been configured on the server.
- If the required drivers cannot be obtained by using the following method, contact **Huawei** technical support.
- If the server fails to identify hardware devices after the drivers are installed by using the following method, contact **Huawei technical support**.

Download the driver installation package.

- 1 Log in to Huawei Enterprise support website.
- 2 On the menu bar, choose Support > Downloads > IT > FusionServer > Solution and Software > APP Server > FusionServer iDriver.

The version list is displayed.

- 3 Choose the target version.
- 4 Download the driver package of the OS to be installed.

If the driver package does not contain the required driver, check the **Huawei Server Compatibility Checker**, and find the link to download the required driver.

Download the Driver Version Mapping.

- 5 Log in to Huawei Enterprise support website.
- 6 On the menu bar, choose **Support > Downloads > IT > FusionServer > Solution and Software > APP Server > FusionServer iDriver**.

The version list is displayed.

- 7 Choose the target version.
- 8 Download the Driver Version Mapping.

The driver version mapping describes the mapping between OSs and drivers, as shown in **Figure 8-1**.

Driver Version Mapping lists the server components and their drivers in different OSs. If the driver file of a component is not displayed, the component uses the driver integrated in the OS.

ternal	System Ver:	Driver File	Onboard ISO Driver	Card Name	Driver Versio	FW Version	Chip	Device_ID:Vendor_1	Remarks	
rsion 💌	-		contain Files	•		•	•	-		•
sionServe iDriver- ntOS-	centos5.8	2208_centos5.8 _x86_64_06.705 .06.00.iso		BC11ESMD(SR220) BC01ESMD(RU220)	06. 705. 06. 00	general	LSI 2208	VID:1000 DID:005b	Raid card driver for 64bit OS	
iver-V304		onboard_driver _centos5.8.iso	2208_centos5.8_x86_64_ 06.705.06.00.rpm	BC11ESMD(SR220) BC01ESMD(RU220)	06.705.06.00	general	LSI 2208	VID:1000 DID:005b	Raid card driver for 64bit OS	
			I350282580_centos5.8_5 .2.15.tar.gz	BC11FGEB (SM211) BC01QGMC (MU212)	5. 2. 15	general	intel 1350/82580	VID:8086 DID:150e / VID:8086 DID:1521 / VID:8086 DID:1523	nic driver	
			x540&82599_centos5.8_4 .0.3.tar	BC11FXEB(SM231) BC11FGED(SM233) BC01TGMA(MU230)	4. 0. 3	general	Intel 82599/Intel X540	VID:8086 DID:10fb / VID:8086 DID:1528 / VID:8086 DID:10f8	nic driver	
				MXEK (MZ312) MXEM (MZ310) MXEL (MZ912_eth)	4.0.3	DOS:4040.4 040 0S:4.4- 0/0x800006	Intel 82599	10f8:8086	nic driver	

be3_iscsi-4.6.345.0-1- <u>MXEC (MZ510)</u> 4.6.345.0 4.6.442.8 Emulex BE3

8 Installing Drivers

iscsi driver

0712:19a2

----End

8.2 Checking Driver Versions

Before installing drivers, you need to check the existing driver versions to determine whether to upgrade or install the drivers.

8.2.1 Checking Driver Versions in the Windows OS

Scenarios

Check the existing driver versions in the Windows operating system (OS) to determine whether to install drivers of the required versions.

This topic describes how to check the network interface card (NIC) driver version in Windows Server 2012 R2.

Impact on the System

None

Prerequisites

Conditions

- Windows Server 2012 R2 has been installed on the server.
- The Driver Version Mapping has been downloaded.

Data

You have obtained the IP address, user name, and password for logging in to the Virtual Console (take the iMana 200 for example) of the server.

Tools

You have obtained a client for logging in to the Virtual Console of the server.

Procedure

- Step 1 Log in to the server OS.
- Step 2 Choose Start, right-click Computer, and choose Properties from the shortcut menu. The System window is displayed, as shown in Figure 8-2.

Figure 8-2 System window

1 <u>2</u>	Sy	rstem	_ 🗆 X		
🕆 🖓 👘 🕆 🕎 🕨 Control Par	nel 🔸 System and Security 🕨 Sy	y stem ∨ ⊘ Search Control	Panel 🔎		
Control Panel Home	Control Panel Home View basic information about your computer				
😵 Remote settings	Windows Server 2012 Stan	dard Evaluation			
😵 Advanced system settings	© 2012 Microsoft Corporation. All rights reserved.				
	System				
	Processor:	Intel(R) Xeon(R) CPU L5609 @ 1.87GHz 1.87	GHz		
	Installed memory (RAM):	4.00 GB			
	System type: 64-bit Operating System, x64-based processor				
	Pen and Touch:	No Pen or Touch Input is available for this Display			
	Computer name, domain, and	workgroup settings			
	Computer name:	fuzhu1R2	🚱 Change settings		
	Full computer name:	fuzhu1R2.huawei.com			
	Computer description:				
	Domain:	huawei.com			
	Windows activation				
	Windows is not activated.	View details in Windows Activation			
See also	Product ID: 00183-90000-00001-4A422				
Action Center					
Windows Update					

Step 3 Click Device Manager.

The Device Manager window is displayed, as shown in Figure 8-3.

Figure 8-3 Device Manager window



- Step 4 Expand Network adapters.
- Step 5 Double-click the NIC to be viewed.The NIC properties dialog box is displayed, as shown in Figure 8-4.

I(R) 82576 Gigat	oit Dual Port No	etwork Cor	nection
Events	Resources	Power Management	
General	Advanced	Driver	Details
Intel(R) 82576	Gigabit Dual Port N	etwork Connec	tion
Driver Provide	r: Microsoft		
Driver Date:	2/29/2012		
Driver Version	: 12.0.150.0		
Digital Signer:	Microsoft Wind	dows	
Driver Details To view details about the driver files. Update Driver To update the driver software for this device.			
Roll Back Driver	If the device fails back to the previ	after updating ously installed	the driver, roll driver.
Disable Disables the selected device.			
Uninstall	To uninstall the d	iriver (Advance	d).
		ОК	Cance

Figure 8-4 NIC properties dialog box

Step 6 Click the Driver tab to view the NIC driver information.

- Step 7 Check whether the driver version is the one specified in the Driver Version Mapping.
 - If yes, no further action is required.
 - If no, install the driver of the required version.

----End

8.2.2 Checking Driver Versions in the Linux OS

Scenarios

Check the existing driver versions in the Linux operating system (OS) to determine whether to install drivers of the required versions.

This topic describes how to check the LSISAS2208 controller card driver version in the SLES11 SP1 OS.

Impact on the System

None

Prerequisites

Conditions

- The Linux OS has been installed on the server.
- The driver version mapping check script (contained in the driver package) has been downloaded.

Data

You have obtained the IP address, user name, and password for logging in to the Virtual Console (take the iMana 200 for example) of the server.

Tools

- A client for logging in to the Virtual Console of the server
- Driver version mapping check script

Procedure

Step 1 Log in to the Virtual Console of the server.

The login method varies according to server type. For details, see the following topics:

- 9.1.1 Logging In by Using the WebUI
- 9.1.2 Logging In by Using the MM910 WebUI
- 9.1.3 Logging In by Using the MM620 WebUI

Step 2 Mount the driver ISO file, for example, onboard_driver_sles11sp1.iso.

On the toolbar of the **Remote Control** command window, click .
 The virtual DVD-ROM drive dialog box is displayed, as shown in Figure 8-5.

Figure 8-5 Virtual DVD-ROM drive dialog box

CD/DVD	F: 🔻		Connect
🔘 Image File		Browse	Eject
⑦ Directory		Browse	

- Click the Image File option button, and then click Browse. The Open dialog box is displayed.
- 3. Select the ISO file and click **Open**.
- 4. In the virtual DVD-ROM drive dialog box, click **Connect**.

When **Connect** changes to **Disconnect** (as shown in **Figure 8-6**), the virtual DVD-ROM drive is successfully connected to the server.

Figure 8-6 Successful connection between the virtual DVD-ROM drive and the server

🔘 CD/DVD	F: 🔻		Disconnect
Image File	i.O V100.iso	Browse	Eject
Directory		Browse	

For a non-GUI OS, run the **mount** command to manually mount the ISO file, for example, **mount** /dev/ sr0 /mnt/.

- Step 3 Log in to the server OS as user root.
- Step 4 Run the cp command to copy all the files in the onboard_driver folder generated after the ISO file is mounted to any directory in the OS, for example, /tmp/driver.
- Step 5 Go to /tmp/driver.
- Step 6 Run the sh install_driver command.

The following information is displayed:

Step 7 Enter 3.

The script checks whether the current hardware driver versions are compatible with each other and displays the check result.

- If yes, enter **q** to exit. No further action is required.
- If yes, press any key, and enter 1 to upgrade the driver.

After the driver is upgraded, enter **3** to check the compatibility again.

----End

8.2.3 Checking Driver Versions in the Solaris OS

Scenarios

Check the existing driver versions in the Solaris operating system (OS) to determine whether to install drivers of the required versions.

This topic describes how to check the LSISAS2208 controller card driver version in the Solaris OS.

Impact on the System

None

Prerequisites

Conditions

- The Solaris OS has been installed on the server.
- The *Driver Version Mapping* has been downloaded.

Data

You have obtained the IP address, user name, and password for logging in to the Virtual Console (take the iMana 200 for example) of the server.

Tools

You have obtained a client for logging in to the Virtual Console of the server.

Procedure

Step 1 Log in to the server OS as user root.

Step 2 Run the modinfo command to view the version of the driver used by the server.

shows that the version of the LSISAS2208 controller card driver is (6.600.12.00).

- Step 3 Check whether the driver version is the one specified in the Driver Version Mapping.
 - If yes, no further action is required.
 - If no, install the driver of the required version.
 - ----End

8.2.4 Checking Driver Versions in the VMware OS

Scenarios

Check the existing driver versions in the VMware operating system (OS) to determine whether to install drivers of the required versions.

This topic describes how to check driver versions in VMware 5.0.

Impact on the System

None

Prerequisites

Conditions

- VMware ESXi 5.0 has been installed on the server.
- The driver version mapping check script (contained in the driver package) has been downloaded.

Data

You have obtained the IP address, user name, and password for logging in to the Virtual Console (take the iMana 200 for example) of the server.

Tools

- A client for logging in to the Virtual Console of the server
- Driver version mapping check script

Procedure

- Step 1 Log in to the server OS.
- Step 2 Press F2, and enter the user name and password.

The System Customization screen is displayed, as shown in Figure 8-7.

Figure 8-7 System Customization screen

System Customization	Troubleshooting Options
Configure Password Configure Lockdown Mode	То view various troubleshooting mode options like Enable ESXi Shell, Enable SSH and Restart Agents.
Configure Management Network Restart Management Network Test Management Network Network Restore Options	
Configure Keyboard Troubleshooting Options	
View System Logs	
View Support Information	
Reset System Configuration	

Step 3 Select Troubleshooting Options and press Enter.

The Troubleshooting Mode Options screen is displayed, as shown in Figure 8-8.

Figure 8-8 Troubleshooting Mode Options screen

Troubleshooting Mode Options	ESXi Shell	
Enable ESXi Shell Enable SSH Modify ESXi Shell and SSH timeouts Restart Management Agents	ESXi Shell is Disabled Change current state of the ESXi Shell	



- Step 5 Select Enable ESXi Shell and press Enter.
- Step 6 Log in to the server operating system (OS) over Secure Shell (SSH).
- Step 7 Upload the driver file to /tmp on the server.For details, see 8.3.4 Installing Drivers in the VMware OS.
- Step 8 Go to /tmp.
- Step 9 Run the sh Install.sh command.

The following information is displayed:

1)Automatically install or update all of the drivers 2)Install or update the required drivers 3)Check module information and driver version H)Help Q)exit

Please input your choice [1,2,3,H or Q]:

Step 10 Enter 3.

The script checks whether the current hardware driver versions are compatible with each other and displays the check result.

- If yes, enter **q** to exit. No further action is required.
- If no, enter **q** to exit. Then run the **sh Install.sh** command, and enter **1** to upgrade the driver.

After the driver is upgraded, enter **3** to check the compatibility again.

----End

8.3 Installing Methods

This topic describes how to install drivers in different operating systems (OSs).

8.3.1 Installing Drivers in the Windows OS

Scenarios

If the existing driver versions on a server are not those specified in the *Driver Version Mapping*, install the drivers of the required versions. Otherwise, the server may operate abnormally.

This topic describes how to install the drivers in Windows Server 2012.

Impact on the System

None

Prerequisites

Conditions

Windows Server 2012 has been installed on the server.

Data

You have obtained the IP address, user name, and password for logging in to the Virtual Console (take the iMana 200 for example) of the server.

Tools

You have obtained a client for logging in to the Virtual Console of the server.

Software

You have downloaded the driver installation package for Windows, for example, **Windows_Drivers_V200.zip**.

ΠΝΟΤΕ

If the driver package does not contain the required driver, check the compatibility list of the server, and find the link to download the required driver.

Procedure

Step 1 Decompress the driver installation package.

- 1. Decompress the downloaded driver installation package Windows_Drivers_V200.zip.
- 2. Go to the **win2k12** directory and locate the driver file **onborad_driver_win2k12.iso** file to be installed.

See Figure 8-9.

Figure 8-9 Files in the win2k12 directory

MegaSR_windows8_ws2012_x64_15.02.2013.041	4 2013/5/16 10:26
onboard_driver_win2k12	2014/4/1 21:02
📄 readme	2014/4/10 10:25

Step 2 Log in to the Virtual Console of the server.

The login method varies according to server type. For details, see the following topics:

- 9.1.1 Logging In by Using the WebUI
- 9.1.2 Logging In by Using the MM910 WebUI
- 9.1.3 Logging In by Using the MM620 WebUI

Step 3 Mount the ISO file.

On the toolbar of the **Remote Control** command window, click .
 The virtual DVD-ROM drive dialog box is displayed, as shown in Figure 8-10.

Figure 8-10 Virtual DVD-ROM drive dialog box

OD/DVD	F: 🔻		Connect
🔘 Image File		Browse	Eject
⑦ Directory		Browse	

- Click the Image File option button, and then click Browse. The Open dialog box is displayed.
- 3. Select the ISO file and click **Open**.
- 4. In the virtual DVD-ROM drive dialog box, click **Connect**.

When **Connect** changes to **Disconnect** (as shown in **Figure 8-11**), the virtual DVD-ROM drive is successfully connected to the server.

Figure 8-11 Successful connection between the virtual DVD-ROM drive and the server

CD/DVD	F: 🔻		Disconnect
Image File	i.O V100.iso	Browse	Eject
Directory		Browse	

Step 4 Install drivers.

 Click the dialog box as prompted. The menu shown in Figure 8-12 is displayed.

Figure 8-12 Operation menu



2. Click **Open folder to view files**.

The virtual DVD-ROM drive dialog box is displayed, as shown in Figure 8-13.

Figure 8-13 Virtual DVD-ROM drive dialog box

Name	Date modified	Туре	Size
 Files Currently on the Disc (4) 			
🍌 chipset_9.3.2.1015	4/1/2014 6:01 AM	File folder	
퉬 mei_9.4.0.1005.0	4/1/2014 6:01 AM	File folder	
325998x540_win2k12_x86_64_3.4.47.0	6/27/2013 9:03 AM	Application	34,601 KB
scu&ahci_win2012_3.5.1.1009	9/25/2012 10:30 AM	Application	28,895 KB
3. Go to the mei_9.4.0.1005.0 directory. See Figure 8-14.

Figure 8-14 Files in the SPS_MEI_DRV_... directory

Name	Date modified	Туре	Size
 Files Currently on the Disc (13) 			
📕 All	4/1/2014 6:01 AM	File folder	
🐌 ia64	4/1/2014 6:01 AM	File folder	
👪 Lang	4/1/2014 6:01 AM	File folder	
WIN7	4/1/2014 6:01 AM	File folder	
퉬 хб4	4/1/2014 6:01 AM	File folder	
SVer.dll	5/14/2012 7:27 PM	Application extens	52 KB
🚳 difxapi.dll	5/10/2012 2:34 PM	Application extens	316 KB
📋 Help	9/15/2006 12:10 PM	Text Document	1 KB
IIF2	2/12/2008 3:26 PM	Configuration sett	1 KB
IIF2v	4/15/2011 5:31 PM	Configuration sett	272 KB
INTEL_SOFTWARE_LICENSE_AGREEMEN	9/4/2012 2:22 AM	PDF File	125 KB
📄 readme	10/19/2012 5:01 AM	Text Document	71 KB
🚮 Setup	10/19/2012 3:24 AM	Application	934 KB

4. Double-click the **Setup.exe** file.

The driver installation wizard starts, as shown in Figure 8-15.

Figure 8-15 Driver installation wizard

Intel® Chipset D	evice Softw	are	– – X
Intel® Chipset Device Softw	vare		(intel)
Welcome to the Setup Program			
This setup program will install the Intel® Chipset strongly recommended that you exit all programs	Device Softwar before continu	re onto this com ling.	nputer. It is
	< <u>B</u> ack	<u>N</u> ext >	Cancel
		Intel® Insta	llation Framework

5. Click Next repeatedly as prompted.

When the window shown in Figure 8-16 is displayed, the installation is complete.

Figure 8-16 Completing the installation



The setup program successfully installed the Intel® Chipset Device Software onto this computer. Click Finish to complete the setup process.



_ Intel® Installation Framework

6. Click Finish.

----End

8.3.2 Installing Drivers in the Linux OS

Scenarios

If the existing driver versions on a server are not those specified in the *Driver Version Mapping*, install the drivers of the required versions. Otherwise, the server may operate abnormally.

This topic describes how to install the BCM5719 network interface card (NIC) driver in the SLES11 SP1 OS.

Impact on the System

None

Prerequisites

Conditions

- The SLES11 SP1 OS has been installed on the server.
- The BCM5719 NIC has been installed on the server.

Data

You have obtained the IP address, user name, and password for logging in to the Virtual Console (take the iMana 200 for example) of the server.

Tools

- A client for logging in to the Virtual Console of the server.
- Driver version installation script (contained in the driver package)

Software

The driver installation package, for example, onboard_driver_sles11sp1.iso.

If the driver package does not contain the required driver, check the compatibility list of the server, and find the link to download the required driver.

Procedure

Step 1 Log in to the Virtual Console of the server.

The login method varies according to server type. For details, see the following topics:

- 9.1.1 Logging In by Using the WebUI
- 9.1.2 Logging In by Using the MM910 WebUI
- 9.1.3 Logging In by Using the MM620 WebUI

Step 2 Mount the ISO file, just as onboard_driver_sles11sp1.iso.

 On the toolbar of the Remote Control command window, click . The virtual DVD-ROM drive dialog box is displayed, as shown in Figure 8-17.

Figure 8-17 Virtual DVD-ROM drive dialog box

CD/DVD	F: 🔻		Connect
🔘 Image File		Browse	Eject
Directory		Browse	

- 2. Click the **Image File** option button, and then click **Browse**. The **Open** dialog box is displayed.
- 3. Select the ISO file and click **Open**.
- 4. In the virtual DVD-ROM drive dialog box, click Connect.

When **Connect** changes to **Disconnect** (as shown in **Figure 8-18**), the virtual DVD-ROM drive is successfully connected to the server.

Figure 8-18 Successful connection between the virtual DVD-ROM drive and the server

O CD/DVD	F: -		Disconnect
Image File	i.O V100.iso	Browse	Eject
O Directory		Browse	

For a non-GUI OS, run the **mount** command to manually mount the ISO file, for example, **mount** /dev/ sr0 /mnt/.

Step 3 Log in to the server OS as user root.



- It is recommended that you use the Virtual Console to log in to the OS.
- If you log in to the OS using service network port and the driver installation involves the network adapter used for login, network will be interrupted and the driver installation will fail.
- **Step 4** Run the **cp** command to copy all the files in the **onboard_driver** folder generated after the ISO file is mounted to any directory in the OS, for example, /**tmp/driver**.
- Step 5 Go to /tmp/driver.
- Step 6 Run the sh install_driver command.

The following information is displayed:



- Step 7 Enter 1. The script upgrade the driver.
- Step 8 Reboot the OS.

----End

8.3.3 Installing Drivers in the Solaris OS

Scenarios

If the existing driver versions on a server are not those specified in the *Driver Version Mapping*, install the drivers of the required versions. Otherwise, the server may operate abnormally.

This topic describes how to install the BCM5719 network interface card (NIC) driver in Solaris 10 U8.

Impact on the System

None

Prerequisites

Conditions

- Solaris 10 U8 has been installed on the server.
- The BCM5719 NIC has been installed on the server.

Data

You have obtained the IP address, user name, and password for logging in to the Virtual Console (take the iMana 200 for example) of the server.

Tools

You have obtained a client for logging in to the Virtual Console of the server.

Software

The required driver installation package has been downloaded.

If the driver package does not contain the required driver, check the compatibility list of the server, and find the link to download the required driver.

Procedure

Step 1 Log in to the Virtual Console of the server.

The login method varies according to server type. For details, see the following topics:

- 9.1.1 Logging In by Using the WebUI
- 9.1.2 Logging In by Using the MM910 WebUI
- 9.1.3 Logging In by Using the MM620 WebUI

Step 2 Log in to the server OS as user root.

- It is recommended that you use the Virtual Console to log in to the OS.
- If you log in to the OS using service network port and the driver installation involves the network adapter used for login, network will be interrupted and the driver installation will fail.

Step 3 Decompress the NIC driver installation package on the client.

- Step 4 After the decompression, locate the BRCMbge-*splatform*-*sarch*-*X*.*Y.Z.*tar.Z file in the solaris10u8 directory, and upload this file to /tmp on the server.
- Step 5 Install the driver.

```
Run the following commands:
# uncompress BRCMbge-<platform>-<arch>-X.Y.Z.tar.Z
# tar -xvf BRCMbge-<platform>-<arch>-X.Y.Z.tar
# pkgadd -d BRCMbge
```

Step 6 After the installation confirmation information is displayed, enter y.

----End

8.3.4 Installing Drivers in the VMware OS

Scenarios

If the existing driver versions on a server are not those specified in the *Driver Version Mapping*, install the drivers of the required versions. Otherwise, the server may operate abnormally.

This topic describes how to install the Fibre Channel (FC) network interface card (NIC) driver in VMware OS.

VMware ESXi 5.0 does not support the hot swap of Peripheral Component Interconnect Express (PCIe) devices.

Impact on the System

None

Prerequisites

Conditions

- VMware ESXi 5.0 has been installed on the server.
- The FC NIC has been installed on the server.

Data

You have obtained the IP address, user name, and password for logging in to the Virtual Console (take the iMana 200 for example) of the server.

Tools

- A client for logging in to the Virtual Console of the server
- Driver version installation script (contained in the driver package)

Software

The required driver installation package has been downloaded.

If the driver package does not contain the required driver, check the compatibility list of the server, and find the link to download the required driver.

Procedure

Step 1 Decompress the NIC driver installation package, for example, vmware_drivers_V200.zip. Figure 8-19 shows the directories generated after the decompression.

Figure 8-19 Directories generated after the decompression

🚞 vmware5.0	
🚞 vmware5. 1	

Step 2 Go to the vmware5.0 directory and decompress all .zip files.Figure 8-20 shows the files generated after the decompression.

Figure 8-20 Files generated after the decompression

2208_ESXi5.0_5.34.vib	VIB 文件
5719_ESXi5.0_3.124c.vib	VIB 文件
be2net_ESXi5.0_4.4.231.0.vib	VIB 文件
be2net_iscsi_ESXi5.0_4.4.221.0.vib	VIB 文件
be2net_lpfc_ESXi5.0_820-8.2.4.146.59	VIB 文件
2 Check	SH 文件
Driver_config	CFG 文件
I350_ESXi5.0_3.4.7.3.vib	VIB 文件
2 Install	SH 文件
📄 readme	文本文档
x540_ESXi5.0_3.14.3.vib	VIB 文件

- Step 3 Log in to the server operating system (OS) over Secure Shell (SSH).
- Step 4 Upload all files generated after the decompression in Step 2 to /tmp on the server.
- **Step 5** Go to /**tmp** and install the driver.
- **Step 6** Run the **sh Install.sh** command. The following information is displayed:



Step 7 Enter 1.

The script automatically installs the required hardware drivers.

Step 8 Reboot the OS.

----End

9 Common Operations

About This Chapter

This topic describes the common operations involved in installing an operating system (OS), for example, login to the Virtual Console web user interface (WebUI) and using WinSCP to transfer files.

- 9.1 Logging In to the Virtual Console
- 9.2 Transferring Files Using WinSCP

9.1 Logging In to the Virtual Console

This topic describes how to log in to the Virtual Console by iMana WebUI or MM910 WebUI.

9.1.1 Logging In by Using the WebUI

Scenarios

Log in to the Virtual Console (take the iMana 200 for example) of a rack server or an X series high-density server.

Prerequisites

Conditions

The operating system (OS), web browser, and Java Runtime Environment (JRE) of the required versions have been installed on the client so that the remote control function is available.

Table 9-1 describes the client software requirements.

Table 9-1 C	Client software	requirements
-------------	-----------------	--------------

OS	Software		Version
Windows XP	ws XP Web browser Internet Explorer		8.0
		Mozilla Firefox	9.0/23.0
		Google Chrome	13.0/31.0
	JRE		1.6.0 U25/1.7.0 U40
• Windows 7 32-	Web browser	Internet Explorer	8.0/10.0
Windows 8 32-		Mozilla Firefox	9.0/23.0
bit		Google Chrome	13.0/31.0
• Windows Server 2008 32-bit	JRE		1.6.0 U25/1.7.0 U40 (32-bit)
• Windows 7 64-	Web browser	Internet Explorer	8.0/10.0
Windows 8 64-		Mozilla Firefox	9.0/23.0
bit		Google Chrome	13.0/31.0
 Windows Server 2008 R2 64-bit 	JRE		1.6.0 U25/1.7.0 U40 (64-bit)
• Windows Server 2012 64-bit			
• Red Hat 4.3 64- bit	Web browser	Mozilla Firefox	9.0/23.0

OS	Software		Version
• Red Hat 6.0 64- bit	JRE		1.6.0 U25/1.7.0 U40
MAC X v10.7	Web browser	Safari	5.1
	Mozilla Firefox		9.0/23.0
	JRE		1.6.0 U25/1.7.0 U40

Data

You have obtained the following data:

- IP address and subnet mask for the iMana management network port
- User name and password for logging in to the iMana

Procedure

Configure a login environment.

- 1 Connect the network port on a PC to the iMana management network port of the server by using a network cable.
- Set an IP address for the PC. Ensure that this IP address is on the same network segment as the IP address for the iMana management network port.
 For example, set the IP address to 192.168.2.10 and the subnet mask to 255.255.255.0.

Set properties for the web browser.

- 3 On the menu bar of Internet Explorer, choose **Tools** > **Internet Options**. The **Internet Options** dialog box is displayed.
- 4 Click the Connections tab, and then click LAN Settings.The Local Area Network (LAN) Settings dialog box is displayed.
- 5 In the **Proxy server** area, deselect **Use a proxy server for your LAN**.
- 6 Click **OK**.
 - The Local Area Network (LAN) Settings dialog box closes.
- 7 Click **OK**.
 - The Internet Options dialog box closes.

Log in to the iMana WebUI.

8 Open Internet Explorer, enter http://IP address for the iMana management network port in the address box, and press Enter.

The Certificate Error: Navigation Blocked page is displayed.

9 Click Continue to this website (not recommended).

The login page is displayed, as shown in **Figure 9-1**.

Figure 9-1 iMana login page

iMana 200	[简体中文] 🛛 🕕 🥐
User Login s	Jummary
User Name: Password: Log on to: This iMana Log In Reset	
Copyright © Huawei Technologies Co., Ltd. 2011-20:	12. All rights reserved.

- 10 On the login page, set the parameters as follows:
 - a. Select a language.
 - b. Enter a user name. The default user name is **root**.
 - c. Enter a password. The default password is **Huawei12#\$** or **root**.
 - d. Select This iMana from the Log on to drop-down list.
 - e. Click Log In.

The iMana web user interface (WebUI) is displayed, as shown in **Figure 9-2**. You can click **Reset** to reset the information.

Figure 9-2 iMana WebUI

iMana 🕺	200	0					👮 root 🛛 👘 Ha	me îiAbout ℬLogOu 🎱o एs 🔺
i Overview		Overview						3
📳 System Information	۲	Overview						
Remote Control								
PS Management	۲	System Sta	tus			Common Operations		
	0	Device Stat	us	Power On			100	5 🚳
Events and Logs	۲	CPU		0			upgrode	5
Real-time Monitoring	۲	Memory		0		Remote Control	Firmware Upgrade	Power Control
🐚 Diagnose and Location	۲	HDD				~	A	
T Download Data		PS		0		-83	<u> </u>	
Secondary motion	Ø	Fan		V		Network	User	
		Mana Inform IP Address Host Name Firmware V Web Sessio Timeout Number of Users	ersion in Login	192.168.59.107 hostname (U1029)3.61 50 Minutes 4	More	System Configuration Device Serial Number System Boot Option Power Restore Polocy Graceful Poweroff Timeout Period GUID	Stay Off 180 Seconds 28D684DA-F0E5-11E1-8A31	More
		Severity	Genera	ation Time	Sensor	Event Description	ı	Status
		A	2012-0	9-18 08:37:28	Management Subsystem Health (Mngmnt Health)	Sensor access degra	aded or unavailable,#3	Generated
		V	2012-0	9-18 08:37:24	Slot / Connector(FAN1 F Statu	s) Fault status		Generated
		V	2012-0	9-18 08:37:24	Slot / Connector(FAN1 R Statu	s) Fault status		Generated
		V	2012-0	9-18 08:37:24	Slot / Connector(FAN2 F Statu	s) Fault status		Generated
		V	2012-0	9-18 08:37:22	Cooling Device(FAN4 R Presence	e) Device removed		Generated
		Note:	к	A Minor	🔻 Major 🛛 🥸 Crit	tical 🔍 Not in	istalled 🗢 Scanning disal	bled

Open the Virtual Console.

11 In the navigation tree, choose Remote Control.The Remote Control page is displayed, as shown in Figure 9-3.

Figure 9-3 Remote Control page

Remote Control	
Remote Control	
KVM Properties	
Maximum Sessions	2
Active Sessions	0
Virtual Media Properties	
Maximum Sessions	1
Active Sessions	0
Remote Withus Concole (charad made)	

Remote Virtual Console (private mode)

12 On the **Remote Control** page, click **Remote Virtual Console (requiring JRE)**. The Virtual Console screen is displayed, as shown in **Figure 9-4**.

Figure 9-4 Virtual Console screen

ø	CI DIR ↔ nu	m 🗖 caps 🔳 sc	r 0 11 🔳 🎑 🕹	🍃 🕢 🔬 🕐 🖕	
	OD/DVD	F: •		Connect	
	🔘 Image File		Browse	Eject	
	⑦ Directory		Browse		

----End

9.1.2 Logging In by Using the MM910 WebUI

Scenarios

Log in to the MM910 web user interface (WebUI) of an E9000 server, and then log in to the Virtual Console of a compute node on the E9000 server in remote control mode.

Prerequisites

Conditions

Issue 06 (2016-02-05)

The operating system (OS), web browser, and Java Runtime Environment (JRE) of the required versions have been installed on the client so that the remote control function is available.

 Table 9-2 describes the client software requirements.

Software		Version	
OS		Windows XP 32-bit Windows 7 32-bit	
Web browser	Internet Explorer	8.0	
	Mozilla Firefox	3.0	
JRE		1.6 or later	

Table 9-2 Client software requirements

Data

You have obtained the following data:

- IP address and subnet mask for the MM910 management network port
- User name and password for logging in to the MM910

Procedure

Log in to the MM910 WebUI.

1 Connect the Ethernet port on a PC to a port on a switch module over the local area network (LAN).

The MM910 management network port is connected to a port on the switch module in slot **2X** or **3X** through the midplane by default, and then connected to an external network through the switch module. The mapping between switch modules and ports is as follows:

- CX110 and CX91x series switch modules: GE electrical ports
- CX31*x* series switch modules: 10GE optical ports

Run the **outportmode** command on the command-line interface (CLI) to use the MGMT network port on the MM910 panel to connect to an external network.

- 2 Set the IP address and subnet mask or route information for the PC so that the PC can properly communicate with the MM910.
- 3 On the menu bar of Internet Explorer, choose **Tools** > **Internet Options**.

The Internet Options dialog box is displayed.

ΠΝΟΤΕ

This task uses Windows 7 with Internet Explorer 8 as an example.

4 Click the **Connections** tab, and then click **LAN Settings**.

The Local Area Network (LAN) Settings dialog box is displayed.

- 5 In the Proxy server area, deselect Use a proxy server for your LAN.
- 6 Click **OK**.

The Local Area Network (LAN) Settings dialog box closes.

7 Click OK.

The Internet Options dialog box closes.

8 Reopen Internet Explorer, enter https://MM910 IP address in the address box, and press Enter.

To log in to the WebUI of the active MM910, enter the static IP address of the active MM910 or the floating IP address. To log in to the WebUI of the standby MM910, enter the static IP address of the standby MM910.

For example, enter https://10.85.4.77 in the address box.

The message "There is a problem with this website's security certificate" is displayed.

9 Click **Continue to this website (not recommended)**.

The HMM Web login page is displayed.

- 10 Set the login parameters. See Figure 9-5.
 - Language: Select English.
 - User name: Enter the user name used for login.
 - **Password**: Enter the password.

Figure 9-5 HMM Web login page

Language	English	-	
Account			
Password			HMM Web
	Login		

11 Click Log In.

The HMM Web page is displayed, as shown in Figure 9-6.

Figure 9-6 HMM Web page



Log in to the real-time desktop of the compute node.

12 In the navigation tree, choose System Management > Remote Control. The Remote Control page is displayed, as shown in Figure 9-7.



🛱 KVM via SMM		
Note: 1 This mode is applied to the KVM and VMM; 2 Both the console and server connect to the SMM.	All the data transmitted between	the console and the server is relayed by the SMM;

13 Click KVM via SMM.

System Management>>Remote Control

The Security Alert dialog box is displayed.

14 Click Yes.

The Warning-Security dialog box is displayed.

15 Click Yes.

The remote keyboard, video, and mouse (KVM) page is displayed.

16 Click the serial number of a compute node.

The real-time desktop of the compute node is displayed.

----End

9.1.3 Logging In by Using the MM620 WebUI

Scenarios

This topic describes how to log in to the MM620 web user interface (WebUI) of an E6000 server, and then log in to the Virtual Console of a server blade on the E6000 server in remote control mode.

Prerequisites

Conditions

The operating system (OS), web browser, and Java Runtime Environment (JRE) of the required versions have been installed on the client so that the remote control function is available.

 Table 9-3 describes the client software requirements.

	-		
OS	Software		Version
Windows XP	Web browser	Internet Explorer	8.0
		Mozilla Firefox	9.0/23.0
		Google Chrome	13.0/31.0
	JRE		1.6.0 U25/1.7.0 U40

Table 9-3 Client software requirements

OS	Software		Version		
• Windows 7 32-	Web browser	Internet Explorer	8.0/10.0		
 bit Windows 8 32- 		Mozilla Firefox	9.0/23.0		
bit		Google Chrome	13.0/31.0		
• Windows Server 2008 32-bit	JRE		1.6.0 U25/1.7.0 U40 (32-bit)		
• Windows 7 64-	Web browser	Internet Explorer	8.0/10.0		
 bit Windows 8 64- 		Mozilla Firefox	9.0/23.0		
bit		Google Chrome	13.0/31.0		
 Windows Server 2008 R2 64-bit 	JRE		1.6.0 U25/1.7.0 U40 (64-bit)		
• Windows Server 2012 64-bit					
• Red Hat 4.3 64-	Web browser	Mozilla Firefox	9.0/23.0		
 Red Hat 6.0 64- bit 	JRE		1.6.0 U25/1.7.0 U40		
MAC X v10.7	Web browser	Safari	5.1		
		Mozilla Firefox	9.0/23.0		
	JRE		1.6.0 U25/1.7.0 U40		

Data

You have obtained the following data:

- IP address and subnet mask for the MM620 management network port on the server
- User name and password for logging in to the MM620

Procedure

Log in to the MM620 WebUI.

- 1 Connect the client to the MM620 management network port by using a network cable.
- 2 Set an IP address for the client, and ensure that the client can properly communicate with the MM620.
- On the client, open a web browser, enter https://IP address for the MM620 management network port in the address box, and press Enter.
 The security warning dialog box is displayed.
- 4 Click Continue to this website (not recommended).The MM620 login page is displayed, as shown in Figure 9-8.

Figure 9-8 Logging in to the MM620

	5	Summary Information
HMM Web 1.0		
Language: English 💙		
User name:		
Password:		
Log on to: This computer 💌		HUAWEI
Log In Reset		

Copyright © Huawei Technologies Co., Ltd. 2010. All rights reserved.

- 5 Set the login parameters, and click Log In.
 - Language: Select English.
 - User Name: Enter the user name used for login.
 - **Password**: Enter the password.
 - Log on to: Select This computer.

The HMM Web 1.0 page is displayed, as shown in Figure 9-9.

Figure 9-9 HMM Web 1.0 page

WHMM Web 1.	0				付 Home	i About	🗃 Logout
HUAWEI			🛚 0 🔻 З	<u> </u>	IP Address:192.168.10	0.11 Log	in User:root
Basic Information P System Hanagement P Thermal Hanagement P A Power SupplyMimit Hanagement P Banagement P Basic P	sic Informati Blad PS Fau Status Alarm Device Stat Chassis Typ	on>MM>>Status el Blade2 Blade3 B2 NEMA1 NEMA2 K Version Vetwork Info us e	ade4 Blad	e5 Blad PRU Dat PRU Dat Power On E6000	Le6 Blade7 Blade2	Blade9	2 BladelO
	MM1			Active, Pr	resent*		
	MM2			Standby, I	Present		
	Alarms						
	Severity	Time	Sensor		Description		
	<u> </u>	Fri Jun 21 07:18:18 2013	SMM1 Inlet 3	Гemp	Above upper minor th	reshold Asser	tion: Minor
	V	Fri Jun 21 09:20:21 2013	SMM2 Inlet ?	Гemp	Above upper major th	reshold Asser	tion: Major
	Note: The in	formation with * indicates OK <mark>A</mark> Minor	the MM that y	ou have 1 Major	ogged in to. 8 Critical		Refresh

Set an IP address for the iMana management network port on the server blade.

6 In the navigation tree, choose **System Management** > **Network Management**. Then click the **Blade** tab on the right.

The page for setting an IP address for the iMana management network port is displayed, as shown in **Figure 9-10**.

	Veb 1.0				€	°o ⊽3,	1 IP Add	🕂 Home 👔
Basic Information System Management - Remote Control	System Manageme: MM Blac IP Address	nt>>Network Management> le <u>NEM</u> <u>IPv6</u> Address DDNS	>Blade>>1	IP Address ap				
- Network Management	Batch Set	First IP Addre	55	Subnet Mask		Default Gate	way I	P Mode
- Firmware Upgrade	A11					· · ·		no sele 👻
- SEL Information								ОК
- User Management								
- Basic Configuratio	B1 ade	IP Address	Subnet	Mask	Default	Gateway	IP Mode	MAC Address
- Status Monitoring	🗌 blade1		1.1		1.1		~	
- iMana Web	blade2						~	
Thermal Management	blade3						~	
Fower Supply@Limit Management Email	blade4						~	
	blade5						~	
	🗌 blade6		1.1				~	
	blade7		1.1				~	
	blade8						~	
	📃 blade9	192, 168, 100, 50	255, 2	255.255.0	192.16	8.100.1	Static 💌	CC-CC-81-F6-DE-60
	🔲 blade10	192.168.1.51	255, 2	255.255.0	192, 16	8.1.1	Static 🛩	FC-48-EF-C3-5A-B9
	II A11						ОК	Reset
								Refresh

Figure 9-10 Setting an IP address for the iMana management network port

7 Set an IP address for the iMana management network port by following on-screen instructions.

Log in to the real-time desktop of the server blade.

8 In the navigation tree, choose **System Management** > **iMana Web**. The **iMana Web** page is displayed, as shown in **Figure 9-11**.

Figure 9-11 iMana Web page

Basic Information	System Manageme	nt≫iMana Web		
≥System Management				
- Remote Control	Blade	IP Address	Host Domain	Status
- Network Management	blade1			
- Firmware Upgrade	blade2			
- SEL Information	blade3			•
- User Management	blade4			•
- Basic Configuration	blade5			•
- Status Monitoring	blade6			•
- iMana Web	blade7			•
Thermal Management	blade8			•
Power Supply@Limit Management	blade9	192.168.100.50	huawei, huawei	0
Email	blade10	192.168.1.51	huawei.test11	()

9 Click the IP address or domain name of the server blade.The iMana WebUI login page is displayed, as shown in Figure 9-12.

Figure 9-12 Logging in to the iMana WebUI

iMana 200	[简体中文] 🛛 🕣 😨
User Login	Summary
User Name: Password: Log on to: This iMana	
Log In	Reset
Copyright © Huawei Technologies Co	., Ltd. 2011-2012. All rights reserved.

Log in to the iMana WebUI.

- 10 On the login page, set the parameters as follows:
 - a. Select a language.
 - b. Enter a user name. The default user name is **root**.
 - c. Enter a password. The default password is **Huawei12#\$** or **root**.
 - d. Select This iMana from the Log on to drop-down list.
 - e. Click Log In.

The iMana WebUI is displayed, as shown in **Figure 9-13**. You can click **Reset** to reset the information.

Figure 9-13 iMana WebUI

iMana	200)					🕱 root 🛛 🛣 Ha	me ííAbout Đ∮Log ⊗n Vs ∕
Cverview		Overview						2
1 System Information	۲	Overview						
Remote Control								
PS Management	۲	System Sta	tus			Common Operations		
Events and Leas	8	Device Stat	us	Power On		The	1.81	۵ 🕋
Events and Logs	0	CPU		0		-3	upgrade	1
Real-time Monitoring	۲	Memory		0		Remote Control	Firmware Upgrade	Power Control
Nagnose and Location	۲	HDD		\bigcirc		S		
📳 Download Data		PS		0		Notwork	Licer.	
X Configuration	۲	Fan		V		Network	User	
	•	IP Address Host Name Firmware V Web Sessio Timeout Number of Users	IP Address 192.168.59.107 Host Name hostname Firmware Version (U1029)3.61 Web Sesion 50 Minutes Timeout S0 Minutes Number of Login 4			Device Serial Number System Boot Option Power Restore Policy Stay Off Grade II Power Timeout Period GUID 2BD66HDA-F065-11E1-8A31-07		-0759F0821800
		Severity	Generat	ion Time	Sensor	Event Description		Status
		▲	2012-09	18 08:37:28	Management Subsystem Health (Mngmnt Health)	Sensor access degra	ded or unavailable,#3	Generated
		V	2012-09-	18 08:37:24	Slot / Connector(FAN1 F Status) Fault status		Generated
		V	2012-09	18 08:37:24	Slot / Connector(FAN1 R Status) Fault status		Generated
		V	2012-09	18 08:37:24	Slot / Connector(FAN2 F Status) Fault status		Generated
			2012.00	18 08:37:22	Cooling Device(FAN4 & Presence	Device removed		Generated

Open the Virtual Console.

11 In the navigation tree, choose Remote Control.The Remote Control page is displayed, as shown in Figure 9-14.

Figure 9-14 Remote Control page

Ren	Remote Control			
Ren	Remote Control			
	KVM Properties			
	Maximum Sessions	2		
	Active Sessions	0		
	Virtual Media Properties			
	Maximum Sessions	1		
	Active Sessions	0		
Į	Remote Virtual Console (shared mode)			

Remote Virtual Console (private mode)

12 On the Remote Control page, click Remote Virtual Console (requiring JRE). The Virtual Console screen is displayed, as shown in Figure 9-15.



----End

9.2 Transferring Files Using WinSCP

Scenarios

Transfer files on the local computer using WinSCP.

Prerequisites

Conditions

The SFTP service has been enabled on the destination device.

Data

The following data has been obtained:

- IP address of the server to be connected
- User name and password for logging in to the server to be connected

Procedure

Step 1 Open the WinSCP folder, and double-click WinSCP.exe.

The WinSCP Login dialog box is displayed, as shown in Figure 9-16.

ΠΝΟΤΕ

If the operating system (OS) is not an English system. Click Languages to set the displayed language.

Figure 9-16 WinSCP login

inSCP Login				? ×
Session Stored sessions Environment Directories SSH Preferences	Session Host name User name Private key file Protocol File protocol	SFTP	Password	Po <u>r</u> t number 22 -
Advanced options				
About Langu	ages	Login	<u>S</u> ave	Close

Step 2 Set the login parameters.

The parameter descriptions are displayed as follows:

- Host name: Specifies the IP address of the device to be connected. For example: **191.100.34.32**.
- Port number: The default value is **22**.
- User name: Specifies the username. For example: admin123
- Password: Specifies the password. For example: admin123
- Private key file: The default value is **None**. Do not change the default value.
- Protocol: Select the default value is SFTP, and then select Allow SCP fallback.

Step 3 Click Login.

The **WinSCP** file transfer page is displayed.

- If a key file was not selected during the first login, a warning **Continue connecting and add host key to cache** is displayed. Click **Yes**. The **WinSCP** file transfer page is displayed.
- If Windows 7 is used, in the left pane of the page, open the C:\Users\Administrator\Documents directory, the device's /root directory is opened in the right pane by default.
- **Step 4** In the left and right panes, create or delete folders, or copy folders between the left and right panes.

----End

10 Methods of Locating OS Problems

About This Chapter

This topic uses Red Hat Enterprise Linux 6 and SUSE Linux Enterprise 11 standard kernel versions as examples to describe the methods of locating operating system (OS) problems. For the methods for other OS types, contact the corresponding OS manufacturers for detailed instructions.

- 10.1 kdump
- 10.2 Linux System Serial Port Redirection
- 10.3 Changing the Linux System Log Level

10.1 kdump

10.1.1 About kdump

Linux kernel is a rather robust entity. It is stable and fault-tolerable and usually does not suffer irrecoverable faults that crash the entire system. However, these types of problems are known as kernel crashes and cannot be completely avoided.

kdump is a tool developed by Linux for detecting, collecting, and analyzing kernel crashes. It can be used to find the root cause of a problem and the methods for solving critical bugs.

The following describes how to configure and use kdump to dump core memory information to a hard disk and check crash information.

The kdump mechanism involves two types of kernel:

- Standard kernel (production kernel): kernel used for running services.
- Crash kernel (capture kernel): kernel specially used for collecting crash dumps.

kdump has two components: kexec and kdump.

kexec

Generally, a system uses BIOS to boot a Linux kernel, which is very time consuming. kexec is a fastboot mechanism that allows a Linux kernel to boot from the context of an already running kernel without going through BIOS. This fastboot mechanism is time-saving, especially for mainframes or servers with a large number of peripherals.

kdump

kdump is a new and reliable kernel crash dumping mechanism. kdump uses kexec to capture a crash dump from the context of a freshly booted kernel and not from the context of the crashed kernel.

kdump boots with very little memory and captures the dump image. This small section of memory is the standard kernel preserves for the kexec to boot the crashed kernel, which is essentially the kernel crash dump.

Currently, kdump is installed by default along with mainstream Linux OSs, such as Red Hat Enterprise Linux (RHEL) 6 and SUSE Linux Enterprise Server (SLES) 11.

- RHEL 6
 - a. **Figure 10-1** shows the default options of kdump during RHEL 6 installation. Change the value of **Kdump Memory** to **512**.

Welcome License Information Set Up Software Updates Create User	Kdump is a kernel crash dumping me crash, kdump will capture informatio invaluable in determining the cause require reserving a portion of system other uses.	chanism. In the event of a sys n from your system that can b of the crash. Note that kdump n memory that will be unavaila
Date and Time	☑ <u>E</u> nable kdump?	
→ Kdump	<u>T</u> otal System Memory (MB):	7991
	Kdump Memory (MB):	128
	Usable System Memory (MB):	7863

Figure 10-1 Default kdump options (RHEL 6)

b. Click **Finish**. Information shown in **Figure 10-2** is displayed. Perform operations based on site requirements.

Figure 10-2 Configuration tip (RHEL 6)



- SLES 11
 - a. **Figure 10-3** shows the default options of kdump during SLES 11 installation. Click **Change**.

Figure 10-3 Default kdump options (SLES 11)



b. On the configuration page shown in **Figure 10-4**, change the value of **Kdump Memory** to **512**.

Figure 10-4 Changing the value of Kdump Memory

Start-Up	Kdump Start-Up
- Dump Filtering - Dump Target	Enable/Disable Kdump
-Email Notification	Enable Kdymp
- Expert Settings	O Disable Kdump
	- Kilumo Mamory
	Total System Memory IMBI: 16384
	Usable Memory [MB]: 16256
	Kdump Memory [MB]
	128
	-
	1

10.1.2 Configuring Kdump

10.1.2.1 RHEL 6

Related Files

For Red Hat Enterprise Linux 6 (RHEL 6) (RHEL 6.1 in this example), kdump involves the following files:

- File for boot options: /boot/grub/menu.lst
- Configuration file: /etc/sysconfig/kdump
- Configuration file: /etc/kdump.conf
- Service startup script: /etc/init.d/kdump

Configuring kdump (User root)

1. Configuring GRUB

- File to be modified
 - /boot/grub/menu.lst
- Configuration description

Configure GRUB to pass a parameter to the standard kernel during the boot process to inform the standard kernel of the memory space to be reserved for the crash kernel. Please configure the parameter according to the size of memory capacity.

Fable 10-1	Memory	space to	be	reserve	d
------------	--------	----------	----	---------	---

Memory Capacity	Reserved Capacity
0 to 12 GB	64 MB
12 to 48 GB	128 MB
48 to 128 GB	512 MG
128 to 256 GB	896 MB/768 MB/512 MB

For example:

crashkernel=512M

```
Example

root (hd0,6)

kernel /boot/vmlinuz-2.6.32-131.0.15.el6.x86_64 ro

root=UUID=af778c81-55ff-4b4e-b893-b31480695fcf rd_NO_LUKS rd_NO_LVM

rd_NO_MD rd_NO_DM

LANG=en_US.UTF-8 SYSFONT=latarcyrheb-sun16 KEYBOARDTYPE=pc KEYTABLE=us

crashkernel=512M rhgb quiet

initrd /boot/initramfs-2.6.32-131.0.15.el6.x86_64.img
```

2. Configuring Parameters

- Files to be modified

/etc/kdump.conf

/etc/sysconfig/kdump

Configuration description

RHEL kdump have two configuration files: /etc/kdump.conf for configuring crash file storage and /etc/sysconfig/kdump for configuring additional parameters.

Configure the following parameters:

```
/etc/kdump.conf
path /var/crash --- vmcore save path (This directory must
contain at least 20 GB space.)
```

 default reboot
 --- Indicates whether reboot is required after a crash dump.

 Image: Note If /var/crash has more than 20 GB available space, it can save information about at least

If **/var/crash** has more than 20 GB available space, it can save information about at leas two vmcores.

/etc/sysconfig/kdump
KDUMP_COMMANDLINE_APPEND="irqpoll maxcpus=1 reset_devices
cgroup disable=memory" --- Advanced parameter

Starting the kdump Service

Restarting the kdump service can generate a new initrd(sys)-kdump file.

```
[root@fdj-rhel61-64 boot]# rm initrd-2.6.32-131.0.15.el6.x86_64kdump.img
rm: remove regular file `initrd-2.6.32-131.0.15.el6.x86_64kdump.img'? y
[root@fdj-rhel61-64 boot]# /etc/init.d/kdump restart
Stopping kdump: [ OK ]
No kdump initial ramdisk found. [WARNING]
Starting kdump: [ OK ]
[root@fdj-rhel61-64 boot]# reboot
```

Restarting the OS for the Configurations to Take Effect

Use the reboot command to reboot the OS.

Verifying the Configuration Result



This operation will cause an OS restart and must be performed with caution.

Run the echo c > /proc/sysrq-trigger command to force to system to crash so that the system can restart the kdump kernel and access the kdump process. After a period of time, restart the OS and check whether vmcore files are generated in /var/crash.

By default, vmcore files (vmcore and vmcore-dmesg.txt) are stored in /var/crash/%HOST-%DATE/.

10.1.2.2 SLES 11

Configuring kdump (User root)

- 1. Configuring GRUB
 - File to be modified

/boot/grub/menu.lst

Configuration description

Configure GRUB to pass a parameter to the standard kernel during the boot process to inform the standard kernel of the memory space to be reserved for the crash kernel. Please configure the parameter according to the size of memory capacity.

Memory Capacity	Reserved Capacity
0 to 12 GB	64 MB
12 to 48 GB	128 MB
48 to 128 GB	512 MG
128 to 256 GB	896 MB/768 MB/512 MB

Table 10-2 Memory space to be reserved

For example:

crashkernel=512M

- Example

```
root (hd0,0)
kernel /boot/vmlinuz-2.6.32.45-0.3-default
root=/dev/disk/by-id/scsi-3600508e000000008fdb0976c18e7c01-part1
resume=/dev/disk/by-id/scsi-3600508e000000008fdb0976c18e7c01-part2
splash=silent
crashkernel=512M showopts vga=0x317 console=tty0 console=ttyS0,115200
initrd /boot/initrd-2.6.32.45-0.3-default
```

2. Configuring parameters

Run the command **vi** /**etc**/**sysconfig**/**kdump** and modify the parameter settings as follows:

```
      KDUMP_IMMEDIATE_REBOOT="yes"
      --- Indicates whether to reboot

      immediately.
      --- Directory that stores dump files.

      KDUMP_SAVEDIR="file:///var/crash"
      --- Directory that stores dump files.

      KDUMP_COPY_KERNEL="yes"
      --- Indicates whether to copy the kernel

      during dump file generation.
      --- Maximum number of dump files to be

      preserved.
      --- Format of a dump file.

      KDUMP_DUMPFORMAT="compressed"
      --- Log level.
```

Starting the kdump Service

Restarting the kdump service can generate a new **initrd(sys)-kdump** file.

```
linux:~ # rm /boot/initrd-2.6.32.12-0.7-default-kdump
linux:~ # rckdump restart
Unloading kdump
done
Loading kdump
Regenerating kdump initrd ...
done
linux:~ # ll /boot/initrd-2.6.32.12-0.7-default-kdump
-rw------ 1 root root 16556311 Nov 18 11:52 /boot/initrd-2.6.32.12-0.7-default-
kdump
linux:~ # reboot
```

Restarting the OS for the Configurations to Take Effect

Use the **reboot** command to reboot the OS.

Verifying the Configuration Result

This operation will cause an OS restart and must be performed with caution.

Run the echo c > /proc/sysrq-trigger command to force to system to crash so that the system can restart the kdump kernel and access the kdump process. After a period of time, restart the OS and check whether vmcore files are generated in /var/crash.

creating acore mores with aneo
mount: devpts already mounted or /dev/pts busy
mount: according to mtab, deupts is already mounted on /deu/pts
Boot logging started on /dev/tty1(/dev/console) at Fri Nov 18 12:22:16 2011
Trying manual resume from /dev/disk/by-id/scsi-3600508e000000008fdb0976c18e7c01-part2
Invoking userspace resume from /dev/disk/by-id/scsi-3600508e000000008fdb0976c18e7c01-part2
resume: libgcrypt version: 1.4.1
Trying manual resume from /dev/disk/by-id/scsi-3600508e000000008fdb0976c18e7c01-part2
Invoking in-kernel resume from /dev/disk/by-id/scsi-3600508e000000008fdb0976c18e7c01-part2
Waiting for device /dev/disk/by-id/scsi-3600508e000000008fdb0976c18e7c01-part1 to appear: ok
Mounting root /dev/disk/by-id/scsi-3600508e000000008fdb0976c18e7c01-part1
mount -o rw,acl,user_xattr -t ext3 /dev/disk/by-id/scsi-3600508e000000008fdb0976c18e7c01-part1 /root
INFO: Deleting 2011-11-09-12:38.
Saving dump using makedumpfile
Excluding unnecessary pages : [32.2]

By default, vmcore files (vmcore and vmcore-dmesg.txt) are stored in /var/crash/%HOST-%DATE/.

10.1.3 Troubleshooting

10.1.3.1 Failed to Start kdump

Symptom

In Oracle Linux 6.2, run the echo c > /proc/srq-trigger command to force the system to crash. After the kdump process starts, the system does not respond. See Figure 10-5.

Figure 10-5 System not responding

Cause Analysis

In Red Hat Enterprise Linux 6 and SUSE Linux Enterprise Server 11, the kdump process can start properly. In Oracle Linux 6.2, the kdump process cannot start properly due to certain performance settings in Oracle Linux 6.2.

Solution

Expected Result

If kdump is triggered after OS installation, the kdump process can start properly based on the default system configuration.

Parameters to Be Modified

Change the value of **KDUMP_COMMANDLINE_APPEND** to **noapic** for Oracle Linux 6.2 on an x86 server (64-bit), and change the value of **Inter@VT** for **Directed I/O(VT-D)** in BIOS to **disabled**.

----End

10.1.3.2 Failed to Detect Hard Disks After the kdump Process Starts

Symptom

Run the echo c > /proc/srq-trigger command to force the system to crash. After the kdump process starts, the system does not respond, and no hard disk can be detected. See Figure 10-6.

Figure 10-6 Failed to detect hard disks

Cause Analysis

- If this problem occurs after a kernel upgrade, the possible cause is that the driver version of the RAID controller card is earlier than the expected one.
- If this problem occurs due to a system internal error, the possible cause is that the interruption control mode of the IOAPIC used by kdump is incorrect.

Solution

Problem Occurs After a Kernel Upgrade

Upgrade the RAID controller card driver to the latest version and check whether the problem is resolved:

- If yes, no further action is required.
- If no, contact Huawei technical support.

Problem Occurs due to a System Internal Error

Open /etc/sysconfig/kdump, add the noapic parameter to KDUMP_COMMANDLINE_APPEND, and generate the kdump file initrd again. Check whether the problem is resolved:

- If yes, no further action is required.
- If no, contact Huawei technical support.

----End

10.1.3.3 System Reporting OOM After the kdump Process Starts

Symptom

The system indicates out of memory (OOM) after the kdump process starts.

Cause Analysis

The memory space is insufficient, and the memory space needs to be reallocated (the value of **crashkernel** needs to be adjusted).

The crashkernel parameter is in the format of crashkernel=X@Y.

For i386/x86_64, set **X** to **128M**. For PowerPC, set **X** to **256M**. For Red Hat Enterprise Linux 6 and SUSE Linux Enterprise Server 11, set **X** to **512M** in most cases.

Solution

Step 1 Open /boot/grub/menu.lst and increase the value of X for crashkernel. crashkernel=512M@256M

----End

10.2 Linux System Serial Port Redirection

During server testing or daily system usage, critical errors such as Linux kernel panic, Oops, or hardware machine check exceptions (MCEs) occasionally occur. When such errors occur, fault information cannot be fully displayed due to the screen or KVM display constraints.

If the fault information cannot be fully displayed, you can use the Linux system serial port redirection function to obtain all the fault information from the kernel.

10.2.1 Red Hat Enterprise Linux

Files to Be Modified

For Red Hat Enterprise Linux (RHEL), serial port redirection involves the modifications of the following files:

- /boot/grub/menu.lst
- /etc/inittab
- /etc/securetty

Configuring Serial Port Redirection

1. Configuring GRUB

- File to be modified

/boot/grub/menu.lst

- Configuration description

Configure GRUB, comment out the configuration item **splashimage**, and add the configuration items **serial** and **terminal**:

```
serial --unit=0 --speed=115200
terminal --timeout=15 serial console
```

```
Example
# grub.conf generated by anaconda
# Note that you do not have to rerun grub after making changes to this
file
# NOTICE: You do not have a /boot partition. This means that
           all kernel and initrd paths are relative to /, eg.
           root (hd0,0)
           kernel /boot/vmlinuz-version ro root=/dev/sda1
           initrd /boot/initrd-version.img
#boot=/dev/sda
default=0
timeout=5
#splashimage=(hd0,0)/boot/grub/splash.xpm.gz
hiddenmenu
serial --unit=0 --speed=115200
terminal --timeout=15 serial console
title Red Hat Enterprise Linux Server (2.6.18-8.el5xen)
    root (hd0,0)
    kernel /boot/xen.gz-2.6.18-8.el5
    module /boot/vmlinuz-2.6.18-8.el5xen ro root=LABEL=/ rhgb quiet
    module /boot/initrd-2.6.18-8.el5xen.img
```


To comment out a configuration item, add # on the right of the configuration item.

2. Configuring kernel

- File to be modified

/boot/grub/menu.lst

- Configuration description

Add the following parameters to the **kernel** line to configure the first serial port of the system as the serial console:

console=tty0 console=ttyS0,115200n8

```
Example
# grub.conf generated by anaconda
#
# Note that you do not have to rerun grub after making changes to this
file
# NOTICE: You do not have a /boot partition. This means that
          all kernel and initrd paths are relative to /, eg.
           root (hd0,0)
           kernel /boot/vmlinuz-version ro root=/dev/sda1
           initrd /boot/initrd-version.img
#boot=/dev/sda
default=0
timeout=10
#splashimage=(hd0,0)/boot/grub/splash.xpm.gz
serial --unit=0 --speed=115200
terminal --timeout=15 serial console
title Red Hat Enterprise Linux Server(2.6.18-92.el5)
    root (hd0,0)
    kernel /boot/ vmlinuz-2.6.18-92.el5 ro root=LABEL=/ console=tty0
console=ttyS0,115200n8
   initrd /boot/ initrd-2.6.18-92.el5.img
```

3. Configuring inittab

- File to be modified
 - /etc/inittab

- Configuration description

Add the following information:

co:2345:respawn:/sbin/agetty -L 115200 ttyS0 ansi

- Example

```
# Run gettys in standard runlevels
1:2345:respawn:/sbin/mingetty tty1
2:2345:respawn:/sbin/mingetty tty2
3:2345:respawn:/sbin/mingetty tty3
4:2345:respawn:/sbin/mingetty tty4
5:2345:respawn:/sbin/mingetty tty5
6:2345:respawn:/sbin/mingetty tty6
co:2345:respawn:/sbin/agetty -L 115200 ttyS0 ansi
.....
```

- 4. Configuring securetty
 - File to be modified

/etc/securetty

- Configuration description

Add the following line to **/etc/securetty** to configure the specified serial port as the secure port so that the **root** user can log in to the OS through this serial port:

ttyS0

Example

```
vc/11
ttyS0
tty1
```

10.2.2 SUSE Linux Enterprise Server

This topic applies to SUSE Linux Enterprise Server 11 (SLES 11).

Files to Be Modified

For SLES 11, serial port redirection involves the modifications of the following files:

- /boot/grub/menu.lst
- /etc/inittab
- /etc/securetty

Configuring Serial Port Redirection

- 1. Configuring GRUB
 - File to be modified
 - /boot/grub/menu.lst
 - Configuration description

Configure GRUB, comment out the configuration items **color** and **gfxmenu**, and add the configuration items **serial** and **terminal**:

serial --unit=0 --speed=115200
terminal --timeout=15 serial console

- Example

To comment out a configuration item, add # on the right of the configuration item.

2. Configuring kernel

- File to be modified

/boot/grub/menu.lst

- Configuration description

Add the following parameters to the **kernel** line to configure the first serial port of the system as the serial console:

console=ttyS0,115200 console=tty0

- Example

3. Configuring inittab

- File to be modified

/etc/inittab

- Configuration description

Add the following information:

- SLES 9: s0:12345:respawn:/sbin/agetty -L 115200 ttyS0 ansi
- SLES 10: s0:12345:respawn:/sbin/agetty -L 115200 ttyS0 ansi
```
SLES 11:
S0:12345:respawn:/sbin/agetty -L 115200 ttyS0 ansi
```

Example

```
# getty-programs for the normal runlevels
# <id>:<runlevels>:<action>:<process>
# The "id" field MUST be the same as the last
# characters of the device (after "tty").
1:2345:respawn:/sbin/mingetty --noclear tty1
2:2345:respawn:/sbin/mingetty tty2
3:2345:respawn:/sbin/mingetty tty3
4:2345:respawn:/sbin/mingetty tty4
5:2345:respawn:/sbin/mingetty tty5
6:2345:respawn:/sbin/mingetty tty6
#
#s0:12345:respawn:/sbin/agetty -L 9600 ttyS0 vt102
s0:12345:respawn:/sbin/agetty -L 115200 ttyS0 ansi
.....
```

```
4. Configuring securetty
```

- File to be modified

/etc/securetty

- Configuration description

Add the following line to /etc/securetty to configure the serial port as the secure port so that the **root** user can log in to this serial port:

ttyS0

Example tty6 tty80

```
# for devfs:
vc/1
```

10.3 Changing the Linux System Log Level

If a system recovers after a crash, a large number of system logs are recorded, and it is difficult to obtain key information from the logs. In such a scenario, you can change the system log level to narrow down system logs for information obtaining.

Querying the Serial Port Log Level

Run the command **cat** /**proc**/**sys**/**kernel**/**printk** in the OS. The first number (first 1) in the command output indicates the serial port log level.

Changing the Serial Port Log Level

ΠΝΟΤΕ

The change of a serial port log level takes effect only for the current runtime. After the OS is restarted, the serial port log level is restored to the default level **3**.

In the OS, run the command echo N > /proc/sys/kernel/printk. The variable N indicates the serial port log level to be configured. For details about serial port log levels, see Table 10-3.

linux-70u8:~ # echo 7 > /proc/sys/kernel/printk

```
linux-70u8:~ # cat /proc/sys/kernel/printk
7
4
1
7
```

Severity	Kernel Log Level	Description
0	KERN_EMERG	Emergent messages: These messages indicate system unavailability, which are reported before a system breakdown.
1	KERN_ALERT	Report messages (alerts): These messages indicate that immediate measures must be taken.
2	KERN_CRIT	Critical messages: These messages usually indicate critical hardware or software operation failures.
3	KERN_ERR	Error messages: This is the default serial port log level. Driver programs usually use this log level to report hardware errors.
4	KERN_WARNING	Warnings: These messages indicate that problems may occur.
5	KERN_NOTICE	Normal but important information: These messages indicate security-related information.
6	KERN_INFO	Information: for example, hardware information recorded during driver startup.
7	KERN_DEBUG	Debugging messages: If this log level is enabled, the system records all logs.



This topic describes how to contact Huawei for technical support if a problem persists during routine maintenance or troubleshooting.

- A.1 Preparations for Contacting Huawei
- A.2 Using CD-ROM and Documents
- A.3 Obtaining Help from Huawei Technical Support Website

A.1 Preparations for Contacting Huawei

If a problem persists during routine maintenance or troubleshooting, contact Huawei for technical support.

To better solve the problem, make the following preparations before you contact Huawei.

Collecting Fault Information

The collected information includes:

- Detailed name and address of the customer
- Name and telephone number of the contact
- Time when the fault occurred
- Detailed description of the symptom
- Device type and software version
- Measures taken after the fault occurred and related results
- Problem severity and required deadline for solving the problem

Making Commissioning Preparations

When you seek for technical support, Huawei technical engineers may help you perform some operations to further collect the fault information or rectify the fault. Therefore, you need to make certain preparations before seeking for technical support. You need to prepare the things that may be used, such as the spare parts of each component, screwdriver, screws, serial cables, and network cables.

A.2 Using CD-ROM and Documents

Huawei provides documentation CD-ROM and documents shipped with the device. Using the documentation CD-ROM and documents, you can solve the problems that occur during routine maintenance or troubleshooting.

To better solve problems, read the documentation CD-ROM and documents before you contact Huawei for technical support.

CD-ROM Description

The ServiceCD and driver software package CD provide the ServiceCD installation wizard, driver software package, and product documents.

To use the CDs, the following software requirements must be met:

- Windows 98, Windows 2000, Windows 2003, or Windows XP
- Microsoft Internet Explorer 5.5 or later
- Acrobat Reader 5.0 or later

Product Documents

You can obtain the product documents from the documentation CD-ROM shipped with the device to read the documents conveniently. By reading these product documents, you can be familiar with how to install, operate, and maintain the product.

The ServiceCD and driver software package CD provide the *FusionServer Tools V100R001 ServiceCD2.0 User Guide*. This document helps you to understand the functions and features of the ServiceCD as well as how to install the OSs and drivers by using the ServiceCD.

A.3 Obtaining Help from Huawei Technical Support Website

Huawei provides users with timely and efficient technical support through the regional offices, secondary technical support system, telephone technical support, remote technical support, and onsite technical support.

Huawei technical support system consists of:

- Technical support department at Huawei headquarters
- Technical support centers in local branch offices
- Huawei Enterprise support website
- Customer service center

Huawei Enterprise support website: http://enterprise.huawei.com

ΠΝΟΤΕ

You can also find the latest product manual by entering the keyword in the **Search** text box in the upper right corner on the page.

B_{Glossary}

This describes the glossaries appeared in the document.

B.1 A-EB.2 F-JB.3 K-OB.4 P-TB.5 U-Z

В.1 А-Е

B

basic input/output system	Firmware stored on the computer motherboard that contains basic input/output control programs, power-on self test (POST) programs, bootstraps, and system setting information. The BIOS provides hardware setting and control functions for the computer.
BIOS	See basic input/output system
С	
CD	See compact disc
CD-ROM	See compact disc read-only memory
CLI	See command-line interface
command-line interface	A means of communication between a program and its user, based solely on textual input and output. Commands are input with the help of a keyboard or similar device and are interpreted and executed by the program. Results are output as text or graphics to the terminal.
compact disc	Compact Disc (also known as a CD) is an optical disc used to store digital data. It was originally developed to store sound recordings exclusively, but later it also allowed the preservation of other types of data.
compact disc read-only memory	A form of storage characterized by high capacity (roughly 650 megabytes) and the use of laser optics rather than magnetic means for reading data.
D	
DHCP	See Dynamic Host Configuration Protocol
DVD-ROM drive	An electromechancial device that reads data on CD-ROMs. Most CD-ROM drives have a SCSI interface, although some are connected to a PC via a controller for a disk drive. Data is read through a small laser that is focused on the surface of the CD-ROM through optical mirrors in the read/write head. A spindle and drive motor revolve the CD-ROM, so all data, which is stored in spirals from the center, can be read. CD- ROM drives vary in the access time to locate a track on the CD-ROM and the seek time to move the read/write head. See the illustration. Also called: CD drive. See also CD-ROM, compact disc.

Dynamic HostA client-server networking protocol. A DHCP server provides configurationConfiguration Protocolparameters specific to the DHCP client host requesting information the host requires
to participate on the Internet network. DHCP also provides a mechanism for allocating
IP addresses to hosts.

B.2 F-J

G

graphical user interface	A visual computer environment that represents programs, files, and options with graphical images, such as icons, menus, and dialog boxes, on the screen.
GUI	See graphical user interface
I	
IE	See Internet Explorer
Internet Explorer	Microsoft's Web browsing software. Introduced in October 1995, the latest versions of Internet Explorer include many features that allow you to customize your experience on the Web. Internet Explorer is also available for the Macintosh and UNIX platforms.
ISO	See Isolation
Isolation	An ISO file is an image file generated by copying all information on the CD-ROM drive, and is usually an .iso file.

B.3 K-O

K

keyboard, video, and mouse	A hardware device installed in the integrated configuration cabinet. KVM serves as the input and output device for the components inside the cabinet. It consists of a screen, a keyboard, and a mouse.
KVM	See keyboard, video, and mouse
L	
LAN	See local area network
local area network	A network formed by the computers and workstations within the coverage of a few square kilometers or within a single building, featuring high speed and low error rate. Current LANs are generally based on switched Ethernet or Wi-Fi technology and run at 1,000 Mbit/s (that is, 1 Gbit/s).
Μ	
MAC	See Media Access Control
Management Module	The MM centrally manages server nodes. It provides various management features, such as Name Intelligent Platform Management Interface (IPMI) 2.0, Serial Over LAN (SOL), keyboard, video, and mouse (KVM) over IP, and virtual media.

Media Access Control	A protocol at the media access control sublayer. The protocol is at the lower part of the data link layer in the OSI model and is mainly responsible for controlling and connecting the physical media at the physical layer. When transmitting data, the MAC protocol checks whether to be able to transmit data. If the data can be transmitted, certain control information is added to the data, and then the data and the control information are transmitted in a specified format to the physical layer. When receiving data, the MAC protocol checks whether the information is correct and whether the data is transmitted correctly. If the information is correct and the data is transmitted to the LLC layer.
MM	See Management Module
0	
OS	operating system

B.4 P-T

Р

PC	See personal computer
PCIe	See Peripheral Component Interconnect Express
Peripheral Component Interconnect Express	A high-speed serial computer expansion bus standard designed to replace the older PCI, PCI-X, and AGP bus standards. PCIe has numerous improvements over the aforementioned bus standards, including higher maximum system bus throughput, lower I/O pin count and smaller physical footprint, better performance-scaling for bus devices, a more detailed error detection and reporting mechanism (Advanced Error Reporting), and native hot-plug functionality. More recent revisions of the PCIe standard support hardware I/O virtualization.
personal computer	A computer used by an individual at a time in a business, a school, or at home.
preboot execution environment	A technology that enables computers to boot from the network. This technology is the successor of Remote Initial Program Load (RPL). The PXE works in client/server mode. The PXE client resides in the ROM of a network adapter. When the computer is booted, the BIOS invokes the PXE client to the memory, and the PXE client obtains an IP address from the DHCP server and downloads the operating system from the remote server using TFTP.
PXE	See preboot execution environment
R	
RAID	See redundant array of independent disks

redundant array of independent disks	A data storage scheme that allows data to be stored and replicated in a hardware disk group (logical hard disk) consisting of multiple hard disks (physical hard disks). When multiple physical disks are set up to use the RAID technique, they are said to be in a RAID array. The hard disks in a RAID array provides higher data reliability and input/output performance. There are various defined levels of RAID, each offering differing trade-offs among access speed, reliability, and cost. At present, there are seven basic RAID levels from RAID 0 to RAID 6. These basic RAID levels can be further combined to form new RAID levels, such as RAID 10 (a combination of RAID 0 and RAID 1) and RAID 50 (a combination of RAID 0 and RAID 5).
S	
Secure File Transfer Protocol	A network protocol designed to provide secure file transfer over SSH.
SFTP	See Secure File Transfer Protocol
Shelf Management Module	A shelf management module provides the device management, sensor or event management, user management, fan module or power supply unit management, IPMI protocol processing, remote maintenance, and switchover.
SMM	See Shelf Management Module

B.5 U-Z

U

Universal Serial Bus	A serial bus standard to interface devices. It was designed for computers such as PCs and the Apple Macintosh, but its popularity has prompted it to also become commonplace on video game consoles and PDAs.
Universal Serial Bus	A serial bus standard to interface devices. It was designed for computers such as PCs and the Apple Macintosh, but its popularity has prompted it to also become commonplace on video game consoles and PDAs.
USB	See Universal Serial Bus
USB	See Universal Serial Bus
W	
web user interface	A Web-based interface that enables you to connect to the server through a browser to perform maintenance and monitoring. With the WebUI, you need not install a dedicated client application on your local PC.
WebUI	See web user interface