Installing UnitedLinux 1.0 on ProLiant servers

HOWTO, 2nd Edition

Abstract

ProLiant servers provide an excellent platform for Linux. ProLiant servers are engineered from the ground up to provide performance, reliability, and scalability using industry-standard components.

This HOWTO provides details for installing Conectiva Linux Enterprise Edition, SCO Linux 4.0, SuSE Linux Enterprise 8, and Turbolinux 8 all powered by UnitedLinux 1.0 on all ProLiant servers.

Supported products

HP works with key Linux distribution vendors and software partners in the development phase to test daily software builds, tune the operating system, build in support for hardware features, and provide continuous feedback and fixes. All this testing means that applications running on ProLiant servers with UnitedLinux 1.0 are more stable and work better.

The following sections include descriptions of and recommendations for supported utilities, drivers, and other ProLiant value-add software running on ProLiant servers.

ProLiant servers

HP supports Linux on a wide range of ProLiant server models. No other industry-standard server has been tested, retested, certified, and optimized for Linux applications the way the ProLiant server has. And the testing does not end at the walls of the legendary HP engineering facilities. HP's major Linux distribution partners also test and certify ProLiant servers, ensuring that their applications run right and run true, right out of the box.

In the Server Certification Matrix, the ProLiant servers that have been certified for Linux are listed by server model and supported Linux distribution and version. To view this matrix, visit http://h18000.www1.hp.com/products/servers/linux/hplinuxcert.html.

Descriptions of ProLiant servers are located at www.hp.com/servers/proliant.

Array configuration

For ProLiant servers with an array controller, press **F8** during the Power-On Self Test (POST) after the controller initializes. This procedure allows you to set up the drive arrays using Option ROM Configuration for Arrays (ORCA).

ROM-Based Setup Utility

ROM-Based Setup Utility (RBSU) is a utility that allows users to easily configure ProLiant servers. It allows a user to set the date and time, boot controller order, hardware interrupts, and advanced system settings.

The first time you power up the server, the system will prompt you to enter RBSU, select an operating system, and select a language. Default configuration settings are made at this time and can be changed later. To load RBSU, press **F9** when prompted to do so during POST.

For servers without RBSU, refer to the archived documentation located at http://h18000.www1.hp.com/products/servers/linux/archived-howto.html.

Installation process

This section outlines several generalized procedures for installing UnitedLinux 1.0 on ProLiant servers. For other Linux distributions, refer to the appropriate HOWTO located on the Linux documentation page, http://h18000.www1.hp.com/products/servers/linux/documentation.html.

Note

HP also provides additional installation information for the ProLiant BL, DL, and ML server lines in the form of server install guides. These guides can be found on the ProLiant Linux Documentation site at http://h18000.www1.hp.com/products/servers/linux/documentation.html.

Before beginning UnitedLinux 1.0 installation, view the Server Certification Matrix, http://h18000.www1.hp.com/products/servers/linux/hplinuxcert.html, to ensure that this OS version is supported on your ProLiant server.

Installing the base OS and service packs

To install UnitedLinux 1.0 and associated service packs, follow the instructions provided in the following sections.

General installation

1. Configure the drive arrays using ORCA, if applicable. When prompted, press **F8** at POST to create the logical drive.

2. Configure the server using RBSU.

   - When prompted, press **F9** at POST.
   - Select **System Options** and set OS Selection to **Linux**.
   - Set the Controller Boot order, if applicable.
   - Press **F10** to save and exit RBSU.

3. Insert the latest service pack CD into the CD-ROM drive and boot the OS from the CD. This procedure allows for the use of the latest drivers and kernel during installation.

4. Follow the instructions provided with the service pack to install UnitedLinux 1.0.

5. Additionally, follow the steps provided in the "Service pack installation" section of this HOWTO to complete the installation of UnitedLinux 1.0.

6. After installing the operating system, upgrade the drivers by running the ProLiant Support Pack located here: http://h18000.www1.hp.com/support/files/server/us/locate/7183.html.

integrated Lights-Out virtual media installation

To install UnitedLinux 1.0 using the integrated Lights-Out Virtual Media option, follow the instructions detailed below.

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1. Insert the latest service pack CD into the CD-ROM drive of the local machine. This procedure allows for the use of the latest drivers and kernel during installation.

2. Connect to the iLO Web page of the target server.

3. Click on **virtual media** from the Virtual Devices tab. Accept any certificates that pop up.

4. In the local CD-ROM Drive drop down box, choose the driver letter that corresponds with the local machine's CD-ROM drive.

5. Click the **Connect** button under the Virtual CD-ROM heading. Do not close this window.

6. Click the **Virtual Power** tab.

7. Power the target server on if it is currently off; otherwise, reboot the target server using the option provided in the virtual power window.

8. Choose **remote console** from the Remote Console tab. Accept any certificates that pop up. A new window will be opened at this time.

9. The target server will boot up to a screen requiring input. Highlight **Installation** and press **Enter**. A red dialog box will display the following message: "Could not find the UnitedLinux Installation CD. Activating manual setup program." Click **OK**.

10. Select your language and click **OK**.

11. Highlight **select kernel modules (hardware drivers)** and press **Enter**.

12. Select **Load USB modules** and press **Enter**. Then, select **usb-storage** and press **Enter**. Press **Enter** again when asked for kernel parameters. Click **OK**.

13. Select **Load USB modules** and press **Enter**. Then, select **usb-ohci** and press **Enter**. (This option may be loaded already.) Click **OK**.

14. Click the **Back** button.

15. Highlight **Start installation / system** and press **Enter**.

16. Highlight **Start installation / update** and press **Enter**.

17. Choose **CD-ROM** when asked for the type of install.

18. Proceed with the installation as you would do in a traditional CD install setting. If asked to switch CDs, switch them in the local machine. No further interaction with the iLO virtual media window is necessary at this time. When rebooting, the kernel parameter "pci=noacpi", "acpi=oldboot", or "acpi=off" may be required to complete the installation depending on the server configuration.

19. Follow the steps in the "Service pack installation" section to complete the installation of UnitedLinux 1.0.

20. When the installation completes, click **Disconnect** within the iLO virtual media window. You may now close this window.

21. After installing the operating system, upgrade the drivers by running the ProLiant Support Pack located here: http://h18000.www1.hp.com/support/files/server/us/locate/7183.html.

Service pack installation

1. If UnitedLinux 1.0 is not installed, install the OS using one of the previously-mentioned install methods.

2. Ensure that the yast2-online-update package is installed by running:

```
rpm -q yast2-online-update
```

Use the latest version of the package, which is provided on the service pack CD.

3. Execute **yast2** from a command prompt.

4. Choose **Patch CD Update** from the Software heading. Follow the on screen directions to install the service pack.

Special considerations

When installing on a server configured with multiple array controllers, follow these steps:

1. Go to http://h18023.www1.hp.com/support/files/server/us/download/17029.html to download the required floppy image.

2. Create a floppy with the downloaded floppy image using dd or rawrite.exe.

3. Insert the installation CD-ROM and boot the system.

4. When the Bootloader appears (Installation, Installation – Save Settings, etc.), press the **ALT** key. The following message will appear:

Please get your DriverUpdate Floppy ready.

5. Follow the online directions presented in step 3. Then, select the type of installation, and press **Enter**. The kernel will be loaded and the following message will appear:

Please insert the DriverUpdate floppy/CDROM.

6. Insert the DriverUpdate media, as directed. The kernel will boot and the installation subsystem will read the updated drivers and/or modules from the floppy.

7. Press any key to continue.

Installing additional options

After base OS and service pack installation completes, follow the instructions provided in the following sections to install additional options.

Storage controllers

Before installing a storage option:

1. Verify support of this controller for the ProLiant server at www.hp.com/servers/proliant.

2. Verify that the controller is supported on the operating system by visiting http://h18000.www1.hp.com/products/servers/linux/options-matrix-all.html.

3. After inserting the new storage controller(s) into the ProLiant server, find the appropriate storage driver here: http://h18023.www1.hp.com/support/files/server/us/locoscat/98_61.html.

4. Select the latest version of the appropriate storage driver and download the file from this site. Follow the online instructions for installing the software.

Network interface controllers

Before installing a network interface controller (NIC):

1. Verify support of this controller for the ProLiant server at www.hp.com/servers/proliant.

2. Verify that the controller is supported on the operating system by visiting http://h18000.www1.hp.com/products/servers/linux/options-matrix-all.html.

3. After inserting the new NIC into the ProLiant server, find the appropriate NIC driver here: http://h18023.www1.hp.com/support/files/server/us/locoscat/98_58.html.

4. Select the latest version of the appropriate NIC driver and download the file from this site. Follow the online instructions for installing the software.

Remote Insight Lights-Out Edition adapter

Before installing a Remote Insight Lights-Out Edition (RILOE) or RILOE II adapter:

1. Verify support of this controller for the ProLiant server at www.hp.com/servers/proliant.

2. Download software to optimize the performance of the adapter, if desired.

> **Note**
>
> The adapter itself operates without any additional drivers (for example, the Remote Log In and Virtual Floppy features are available). HP provides software called HP Lights-Out Drivers and Agents that enhance the capabilities of the adapter. This software is available for download at http://h18023.www1.hp.com/support/files/server/us/locate/7175.html.

3. Select the latest version of this package and download the file from this site. Follow the online instructions for installing the software.

Troubleshooting

This section describes common issues that might occur during installation. In this case, the problem statement and resolution is described in Table 1.

Table 1. Known issues

Issue 1	**Lite-ON 48x CD-ROM may hang during OS installation**	
	Problem	When using the Lite-ON 48x CD-ROM (Part number: 176135-E30) to install your OS, the installation may hang before completion on any ProLiant server using the CSB5 or CSB6 chipsets. This issue will also occur with any CD-ROM configured to run in Programmed Input/Output (PIO) mode. The issue occurs because Linux attempts to enable Direct Memory Access (DMA) on the CD-ROM instead of using the PIO mode, which is configured by default in the CD-ROM.
	Resolution	Add the "ide=nodma" parameter to the boot sequence to force Linux to disable DMA mode. This will pass the "nodma" option to the kernel for the current session only. To disable DMA permanently, modify the boot sequence in either grub.conf or lilo.conf to include this parameter.
Issue 2	**After upgrading the kernel, the system hangs while booting**	
	Problem	This issue can be caused by incorrect interrupt mapping by ACPI.

Resolution	At the initial GRUB screen, perform the following steps:
	1. Highlight the kernel you want to boot and press the **e** key.
	2. At the end of the line, add one of the following:
	• pci=noacpi
	• acpi=oldboot
	• acpi=off
	3. Press **Enter**.

For more information

The following links contain valuable information regarding Linux, ProLiant servers, software downloads, and additional technical documentation.

Table 2. HP web resources

Resource description	Web address
Linux at HP offers industry-defining technology, break-through performance, high availability, and easy serviceability.	www.hp.com/linux
Linux for ProLiant website contains software, hardware certification matrices, and documentation for ProLiant servers running Linux.	http://h18000.www1.hp.com/products/servers/linux/index.html
Linux Server Certification Matrix contains the latest tested, supported, and certified information about Linux operating systems supported on ProLiant servers.	http://h18000.www1.hp.com/products/servers/linux/hplinuxcert.html
Linux Options Support Matrix includes the latest Options Support Matrix and discusses products supported by Linux.	http://h18000.www1.hp.com/products/servers/linux/options-matrix-all.html
Linux Support Software provides support software, device drivers, agents, utilities and links to comprehensive support software listings for all supported Linux distributions.	http://h18000.www1.hp.com/products/servers/linux/softwaredrivers.html
Opensource.hp.com hosts a number of Open Source software projects running on various HP systems.	http://opensource.hp.com/
Manageability provides tools, guides, and information to reduce expense, minimize complexity, and speed execution.	www.hp.com/servers/manage
E-Commerce Solution Sizer is automated tool assisting the user with sizing hp hardware for E-Commerce and Web Server applications.	http://vcmproapp02.compaq.com/aasizercode/aasizer.asp?L=no&SizerCountry=UnitedStates&SizerName=E_Catalog

The following links contain additional information for UnitedLinux.

Table 3. UnitedLinux web resources

Resource description	Web address
The **UnitedLinux website** contains white papers, press releases, and partner information about the UnitedLinux operating system.	www.unitedlinux.com/

Call to action

To help us better understand and meet your needs for ISS technology information, please send comments about this paper to: TechCom@HP.com.

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