

# SUSE Linux Enterprise Server 11 Support Notes for HP Integrity Servers

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# About This Document

This document provides information specific to the installation and support of SUSE Linux Enterprise Server 11 on HP Integrity Servers.

## Intended Audience

This document is intended for system administrators responsible for installing, configuring, and managing Linux. Administrators must have knowledge of operating system concepts, commands, and configuration. Knowledge of Extensible Firmware Interface (EFI) concepts is also helpful.

## Typographic Conventions

This document uses the following typographical conventions.

`Command`

A command name or qualified command phrase.

`ComputerOut`

Text displayed by the computer.

### Key

The name of a keyboard key. **Return** and **Enter** both refer to the same key.

### UserInput

Commands and other text that you type.

*Variable*

The name of a placeholder in a command, function, or other syntax display that you replace with an actual value.

## Publishing History

The document publishing date and part number indicate the current edition of the document. The publishing date changes when a new edition is printed. Minor changes might be made at reprint without changing the publishing date. The document part number changes when extensive changes are made. Document updates might be issued between editions to correct errors or document product changes. To ensure that you receive the updated or new editions, subscribe to the appropriate product support service. See your HP sales representative for details. For the latest version of this document online, see *SUSE Linux Enterprise Server 11 Support Notes for HP Integrity Servers*:

<http://www.docs.hp.com/en/5992-6176/index.html>

Manufacturing Part Number	Supported OS	Supported Versions	Edition Number	Publication Date
5992-6176	SUSE Linux Enterprise Server	11	1	April 2009

## Related Information

- The Novell website:  
<http://www.novell.com>
- The Novell SUSE Linux Enterprise Server 11 documentation website:  
<http://www.novell.com/documentation/sles11/index.html>
- The Novell Customer Center website:  
<http://www.novell.com/customercenter/>

- The HP SUSE Linux Enterprise Server 11 for HP ProLiant, BladeSystem & Integrity Servers website:  
[www.hp.com/go/integritysles](http://www.hp.com/go/integritysles)
- The HP Integrity Essentials Foundation Pack for Linux website:  
<http://www.hp.com/go/integritylinuxessentials>
- The HP Integrity Essentials Foundation Pack for Linux documentation website:  
<http://docs.hp.com/en/linuxredhat.html#HP%20Integrity%20Essentials%20Foundation%20Pack%20for%20Linux>
- The Intel® EFI website:  
<http://developer.intel.com/technology/efi/>
- The HP Systems Insight Manager website:  
<http://www.hp.com/go/hpsim>
- The HP Business Support Center website that contains HP Integrity server technical support information:  
<http://www.hp.com/support/itaniumservers/>
- The Single Point of Connectivity Knowledge (SPOCK) website:  
<http://www.hp.com/storage/spock>
- For additional information on HP products and services, see the HP website:  
<http://www.hp.com>

## Contact HP

### Sales Contacts

For the location of the nearest sales office, call:

In the United States: +1 800 637 7740

In Canada: +1 905 206 4725

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In Latin America: +1 305 267 4220

In Australia/New Zealand: +61 3 9272 2895

In Asia Pacific: +8522 599 7777

In Europe/Africa/Middle East: +41 22 780 81 11

For product information, contact any of the HP worldwide sales offices or HP Channel Partners (in the United States, call 1 800 637 7740).

### Support Contacts

To obtain product or technical support for SLES on HP Integrity servers, refer to the contact information provided on your HP support agreement. To expedite the support process, please be prepared to provide your Service Agreement Identifier (SAID) number, which can be found on your HP support agreement and verifies your support entitlement to SLES. Your HP support agreement (including your SAID number) is sent to you within 30 days of the purchase of your SLES subscription. If you are unable locate your HP support agreement or require support before you have received it, you can obtain the local customer service numbers from the Contact HP Worldwide website:

[http://welcome.hp.com/country/us/en/wwcontact\\_us.html](http://welcome.hp.com/country/us/en/wwcontact_us.html)

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# 1 Support for SUSE Linux Enterprise Server 11

This support note provides the additional installation and support information for the use of SUSE Linux Enterprise Server (SLES) 11 on HP Integrity servers.

This chapter provides the support and certification information related to SLES 11 on HP Integrity servers.

## SLES 11 Certification and Support Information

HP has certified SLES 11 for the Intel Itanium Processor (glibc-2.9-13.2 and kernel-default-2.6.27.19-5.1) on HP Integrity servers.



**IMPORTANT:** Do not discard the Novell registration card packaged with the Novell media. To receive SLES updates and comply with HP support requirements, register the serial number on the card with Novell. For specific information, see “Registering the SLES 11 Software” (page 9).

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## Ensure Support for SLES on HP Integrity Servers

HP recommends that you review the SLES certification and support matrix for your HP Integrity servers prior to downloading SLES from the Novell Customer Center website. You should ensure that the distribution of SLES that you want to install is both certified and supported on your server.

Use the following steps to review information about the supported and certified distributions of the SLES distributions for HP Integrity servers:

1. Go to the Linux certification and support matrix - HP Integrity servers website:

[www.hp.com/go/lxintegritycert](http://www.hp.com/go/lxintegritycert)

2. On the **Novell SUSE** tab, locate the server name of interest, and then click the link. Detailed product information, downloads, documentation, and specific certification information is provided in a categorized listing.

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## 2 Operating System Installation

This chapter describes how to prepare your server for operating system (OS) installation, install the SLES 11 OS on your HP Integrity server, and obtain OS updates directly from Novell.

### Installation Preparation

Before you begin installing SLES 11 OS on your HP Integrity server, ensure that you have obtained:

- all necessary installation documentation, and
- the SLES 11 for the Intel Itanium Processor installation media set.

The following sections describe how to prepare for your OS installation.

### Installation Documentation

HP encourages you to review each of the following documents before you begin installing SLES 11:

#### OS Installation Guide and additional documentation

Novell provides comprehensive OS installation instructions in the *SUSE Linux Enterprise Server 11 Deployment Guide*.

Additionally, a number of other useful documents are provided by Novell addressing topics, such as release notes, security, tuning, system administration, and storage administration.

These documents are available on the Novell media that shipped with your server and are at the Novell Documentation website:

<http://www.novell.com/documentation/sles11/index.html>

#### HP Integrity Essentials Foundation Pack for Linux

Documentation for the HP Integrity Essentials Foundation Pack for Linux, including the HP Smart Setup application and all complimentary HP value-added server management software in the HP Support Pack, are shipped on media with your system. The *HP Integrity Essentials Foundation Pack for Linux User's Guide* describes how to use HP Smart Setup utility to install SLES 11, install and use the server management software, and download the product and is found:

<http://www.docs.hp.com/en/5992-3193/index.html>

#### Recommendations and Known Issues

The "Recommendations" (page 11) and "Known Issues" (page 12) sections provide information that is helpful to be aware of prior to installing SLES 11.

### Downloading SLES from the Novell Website

To create a copy of the SLES 11 media, you must download the SLES operating system directly from the Novell Customer Center website.



**NOTE:** It is necessary to register at the Novell Customer Center website prior to download, which requires the registration code that you received from HP when ordering SLES.

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Register and log in at the Novell Customer Center website:

<http://www.novell.com/customercenter/>

Follow the instructions provided to download and use the SLES 11 ISO images for the 64-bit Intel Itanium architecture. To obtain the SLES 11 documentation, see the Novell Documentation website:

<http://www.novell.com/documentation/sles11/index.html>



# Methods of Operating System Installation

There are two methods that can be used to install SLES 11 on your HP Integrity server as follows.



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**NOTE:** Installation of SLES 11 on your HP Integrity server by the factory is not offered.

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## Installing Using HP Smart Setup

Before installing SLES 11 on your HP Integrity server, use the HP Smart Setup application.

The HP Smart Setup utility and HP Support Pack are part of the HP Integrity Essentials Foundation Pack for Linux, which ships with your system hardware. You can use HP Smart Setup to prepare your system for installation of the SLES operating system, and install and configure the OS. HP Smart Setup assists with tasks such as configuring storage adapters, upgrading firmware, preparing a system hardware inventory, and installing diagnostics tools.

Install SLES 11 using the installation procedure described in the *HP Integrity Essentials Foundation Pack for Linux User's Guide*:

<http://www.docs.hp.com/en/5992-3193/index.html>

## Installing Without Using HP Smart Setup

Use the following steps to install SLES 11:

1. Ensure you have the correct server firmware versions before installing SLES 11 by going to the HP website at <http://www.hp.com> and selecting **Software & Driver Downloads**.
2. Under the section **Support for your products**, perform the following substeps:
  - a. Click the **Download drivers and software (and firmware)** option.
  - b. In the product field, enter the model number of the server (for example, rx8640).
  - c. Press **Enter**.
3. Select **cross operating system (BIOS, Firmware, Diagnostics, etc.)** from the list of operating systems.
4. If your server does not have the current firmware, locate it in the categorized list displayed, and then click the adjacent **Download** button to download the tar file.
5. Install any firmware updates.
6. Install and configure SLES 11 using the installation procedure described in the *SUSE Linux Enterprise Server 11 Deployment Guide*.

## Completing the Installation

Once you have installed SLES 11 using one of the previously described options, you can now register your product with Novell and receive any updates that are available, see “Registering the SLES 11 Software” (page 9)

After you install SLES 11 using any of the installation methods, HP encourages you to install and use the server management tools that are provided in the HP Support Pack as described in the *HP Integrity Essentials Foundation Pack for Linux User's Guide*:

<http://www.docs.hp.com/en/5992-3193/index.html>

## Registering the SLES 11 Software

1. Browse to the Novell Customer Center:  
<http://www.novell.com/customercenter/>
2. Log in to or create an account.
3. Select **My Products**→**Activate Product** to enter your registration code and activate your SLES product.

## Obtaining Updates from Novell

Updating your server is simple using Novell's openSUSE Updater, YaST, which is installed and configured by default. For detailed instructions on how to use YaST to update SLES 11 on your server, see the *SUSE Linux Enterprise Server 11 Administration Guide*:

<http://www.novell.com/documentation/sles11/index.html>

## Restoring the Operating System to Factory Defaults

The process of restoring your system to the factory-installed operating system is a **cold installation** (installation from the distribution media). For instructions on this type of recovery, see the *HP Integrity Essentials Foundation Pack for Linux User's Guide*:

<http://www.docs.hp.com/en/5992-3193/index.html>

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## 3 Recommendations, Limitations, and Known Issues

This chapter contains recommendations, limitations, and known issues with the use of SLES 11 on HP Integrity servers.

### Recommendations

The following recommendations from HP for using SLES 11 on HP Integrity servers should be observed.

- **Review the SLES 11 release notes**

HP encourages you to review the Novell *Release Notes for SUSE Linux Enterprise Server 11* for the current status on items such as the Reiserfs filesystem at the Novell SLES 11 documentation website:

<http://www.novell.com/documentation/sles11/index.html>

- **Upgrading from earlier SLES versions**

The only recommend upgrade method from one SLES distribution to another is to execute a full cold installation. This is the only upgrade path supported by HP.

- **Use of LSI 1068 controller on BL860c, BL870c, or rx2660 servers**

If you are upgrading from SLES 10 on an existing BL860c, BL870c, or rx2660 server or purchasing one of these servers, HP does not recommend the use of the LSI 1068 controller with SLES 11. There is no remote monitoring support available for the LSI 1068 controller with SLES 11 so HP recommends the use of any of the other Fibre Channel HBA or Smart Array controllers.

- **Reduce installation time on systems with numerous LUNs (storage)**

While the number of LUNs for a running system is virtually unlimited, HP recommends that you do not have more than 64 LUNs online during the SLES 11 installation to reduce the time to initialize and scan the devices thus reducing the installation time.

### Limitations

The following section describes the limitations of SLES 11 on HP Integrity servers.

- **Uncertified RPM packages support**

If you add uncertified RPM packages to the operating system (for example, from an open source development repository), it will not be supported by Novell. Only RPM packages bundled in supported Linux distributions for HP Integrity servers and official SLES Service Packs for those distributions are supported by Novell . HP supports only the Linux software it distributes.

- **Systems with a recompiled kernel support**

Although you may recompile your kernel to change configuration parameters, HP does not support systems on which you have recompiled your kernel for any other reason. For example, for kernel source code changes.

The following are the only supported customizations:

- Modifying configuration options found in `/usr/src/linux-version-versionnumber/configs` to set values or make modules static or dynamically loadable.
- Changing boot parameters found in `/usr/src/linux/Documentation/kernel-parameters.txt` (with the kernel-source /rpm).

- **PCI Express Active State Power Management support**  
PCI Express Active State Power Management is not supported on HP Integrity servers.
- **Transfer of Control should not be used**  
The Kernel Debugger (KDB) is included in SLES 11. When a Transfer of Control (TOC) is issued, instead of producing a dump the SLES 11 kernel enters the KDB. This process may cause issues so HP recommends that you do not use TOC.

## Known Issues

This section contains known issues with the SLES 11 on HP Integrity servers, which undergoes rigorous testing before each release. From HP test activities to date, the following issues have been discovered.

## Installation

- **Improperly set system clock causes installation failure**  
A package will fail to install if the system clock is not set properly. Ensure the system clock is set properly before attempting any installs.
- **New installation boot record not found after installing OS**  
After installing the OS it is possible that the system firmware may not find the new boot record, which results in a message similar to the following being displayed:  
Loading.: SUSE Linux Enterprise Server Load of SUSE Linux Enterprise 11 failed: Not Found Press any key to continue  
The following the steps update the cache so that the boot disk can be found and resolves the boot error:
  1. From the EFI shell, enter:  
# **reconnect -r**
  2. Regenerate all mappings:  
# **map -r**
  3. Reboot the server by exiting the shell using the `exit`, and the select the new EFI boot menu entry.
- **Non-critical errors when installing using Virtual Network Computing**  
Messages similar to the following may occur during network installations when Virtual Network Computing is used:  
Xvnc: Unaligned access to xxx  
These messages may be ignored.
- **Avoid the erroneous formatting of hard drives**  
The *autoinst.xml* file written by YaST after installation may format drives even if they were not used during the installation of the system. You should review and modify this file to handle the system hard disks appropriately before attempting to use this file.

## Kernel

- **Avoid kernel dump errors on PCI Express servers**

The Kdump (kernel dump) feature of `kexec` can be used on PCI Express servers though PCI Express errors may occur. To avoid error messages, boot with the `pci=noaer`.

## Hardware

- **System panics occur if fibre channel storage arrays are directly connected**

System panics may occur on HP Integrity servers running Linux that have fibre channel storage arrays directly connected.

If you want to connect fibre channel storage to HP Integrity Servers running Linux, you must connect through a fibre channel switch.

For the BL860c BladeSystem server, you must use either the fibre channel switch module (AE370A/AE371A/AE372A) or an external fibre channel switch.

- **System is unbootable after adding new disks**

When you add new disks, the system may fail with one of the following messages:

```
init=
```

```
or
```

```
VFS root not found
```

To fix this issue, the use of persistent device names must be configured *before* adding new storage devices.

To switch to persistent device names on a system that has already been installed, you should use the YaST2 partitioner as follows:

1. For each partition, select **Edit**, and then select **FStab Options**.  
Any mount option except `Device name` provides you persistent device names.
2. Rerun the boot loader module in YaST to switch the bootloader to using the persistent device name.
3. Start the module.
4. Select **Finish** to write the new proposed configuration to disk.

You must execute these steps before adding new storage devices. For further information, see the Persistent Storage Device Names article at the openSUSE website:

[http://en.opensuse.org/Persistent\\_Storage\\_Device\\_Names](http://en.opensuse.org/Persistent_Storage_Device_Names)

- **SCSI errors cause system failures**

SCSI errors and resets for any reason cause system failures. For example, if your disks have a problem, such as a parity or disk error that causes a SCSI reset, the system will fail.

Combining a Seagate drive with the ds2100 disk carrier causes electrical problems on the SCSI bus and subsequent reset attempts that also result in system failure. Do not use Seagate drives with this disk carrier.

## Software

- **MCA errors on servers with discontinuous memory**

When Linux boots on an mid-range/high-end (cellular) HP Integrity server with discontinuous memory, a cell may be in a state in which too little contiguous memory available and could cause an MCA.

If you experience this issue, try one of the following methods to resolve the problem:

- Change the memory configuration so that the memory in each cell is equal.
- Change the CLM (Cell Local Memory) setting to increase the size of contiguous memory.

If the system was working previously, try the `pdt` command at the EFI prompt to locate any potential bad memory cells. If there are PDT entries, consider replacing the bad memory.

- **Enabling rx7640 or rx8640 servers to power off**

The normal behavior on rx7640 and rx8640 servers is for an nPartition to be made inactive (all cells are in a boot-is-blocked state) when `shutdown -h` or `poweroff` is issued from the SLES command line. This behavior is established with the `acpiconfig disable powerdown` setting, which is the normal setting for the `single-pci-domain` ACPI configuration.

On HP Integrity Superdome servers, an nPartition is always made inactive when halted from the operating system (for example, after `shutdown -h`), and this behavior cannot be changed.

When `softpowerdown` is enabled on an rx7640 and rx8640 server, if one nPartition is defined in the server then halting the operating system powers off the server cabinet (including all cells and I/O chassis). On an rx7640 and rx8640 server with multiple nPartitions, halting the operating system from an nPartition with `softpowerdown` enabled causes only the resources on the local nPartition to be powered off.

You can run the `acpiconfig` command with no arguments to check the current setting and the `softpowerdown` setting; however, `softpowerdown` information is displayed only when different from normal behavior.

If you want an rx7640 and rx8640 server to power off when using either the `shutdown -h` or `poweroff` command, run the `acpiconfig enable softpowerdown` command from the EFI shell, and then reset the nPartition to ensure the new ACPI configuration takes effect.

To power on hardware that has been powered off, use the `PE` command from the management processor command menu. To make an inactive nPartition active, use the management processor `BO` command to boot the nPartition past the boot-is-blocked state.



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