

Support Notes for Red Hat Enterprise Linux 5.2 for HP Integrity Servers

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Support Notes for Red Hat Enterprise Linux 5.2

Announcement

HP has certified Red Hat Enterprise Linux (RHEL) 5.2 for the Intel® Itanium Processor® (kernel 2.6.18-92.el5.i64, glibc-2.5-24.i64) on HP Integrity servers. For a list of the HP servers supported by RHEL 5, see the Linux Integrity certification matrix at the following website:

www.hp.com/go/lxintegritycert



IMPORTANT: The Red Hat Installation Guide is available on the Red Hat media that shipped with your server, or you can download it in PDF, RPM, or HTML format from the following website:

<https://www.redhat.com/docs/manuals/enterprise/>

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Distributions Supported on HP Integrity Servers

For a list of supported Linux distributions on HP integrity servers, see the following website:

www.hp.com/go/lxintegritycert

For additional information on Red Hat products for HP Integrity servers, see the following website:

www.hp.com/go/integrityrhel



IMPORTANT: Do not discard the Red Hat registration card packaged with the Red Hat CDs or DVDs. To receive Red Hat updates and comply with HP support requirements, register the serial number on the card with Red Hat Network. See *Registering Software and Getting Updates from Red Hat Network (page 7)* in this document for more information.

Certification and Support Matrix

Information on the supported and certified versions of the Red Hat Enterprise Server Linux distribution for the HP Integrity servers can be found at the following URL.

HP recommends that customers review this certification and support information for their HP Integrity server prior to any direct download from the Red Hat website.

1. Go to the following website:

www.hp.com/go/lxintegritycert

2. Click on the server name to obtain detailed product information, downloads, documentation, and specific certification information.

Using the HP Smart Setup Application to Prepare for Operating System Installation

Use the HP Smart Setup application to prepare your system for installation of the Linux operating system. The HP Smart Setup application assists with tasks such as configuring storage adapters, upgrading firmware, preparing a system hardware inventory, and installing diagnostics tools. After operating system installation, you can use the HP Support Pack to install additional utilities

and tools such as HP system management software. For instructions, see [Operating System Installation](#) (page 6).

The HP Smart Setup application is part of the HP Integrity Essentials Foundation Pack for Linux,, which ships with your system hardware. It is also available for free download under the **Linux** link at the following website:

<http://www.hp.com/go/integritylinuxessentials>

Documentation

Red Hat provides its own installation guide for operating system installation. It is available on the Red Hat CDs or DVDs that shipped with your server, or you can download it in PDF, RPM, or HTML format from the following website:

<https://www.redhat.com/docs/manuals/enterprise/>

Documentation for the HP Integrity Essentials Foundation Pack for Linux and the HP Smart Setup application come with your system. The [HP Integrity Essentials Foundation Pack for Linux User's Guide](http://www.docs.hp.com/en/5992-3193/index.html) (<http://www.docs.hp.com/en/5992-3193/index.html>) describes how to use HP Smart Setup application to install RHEL 5.2.

The *Installing HP Insight Management Agents on Integrity Servers Running Linux* manual is available at the following website:

<http://www.docs.hp.com/linux>

Operating System Installation

Before installing RHEL 5.2 for the Intel® Itanium® Processor on your Integrity server, use the HP Smart Setup application.



IMPORTANT: Ensure you have the correct firmware version before installing RHEL 5.2.

1. Click on **Software & Drivers** from the following website:
<http://www.hp.com>
2. On the "Software & Drivers" page, click the radio button preceding "Download drivers and software (and firmware)."
3. Enter your server model number in the for product text box.
4. On the "Select operating system" page, click cross operating system (BIOS, Firmware, Diagnostics, etc.)

If your system came with Linux pre-installed, power on your server and configure it as prompted.



NOTE: The functionality provided by the HP Support Pack is NOT included in the preinstallation and will need to be applied if needed.

Use the HP Smart Setup and the Linux Installer media to load the operating system files on the server. After installation, set up the system and update it with the latest firmware, drivers, and patches. For details about installation procedures, see the [HP Integrity Essentials Foundation Pack for Linux User's Guide](http://www.docs.hp.com/en/5992-3193/index.html) (<http://www.docs.hp.com/en/5992-3193/index.html>) .

Recovering your operating system:

The recovery process of your factory-installed operating system is a "cold installation" (installation from the distribution media). For instructions on this type of recovery, see Chapter 3 of the *HP Integrity Essentials Foundation Pack for Linux User's Guide*.

Downloading RHEL from the Red Hat Website

You can choose to download the RHEL operating system directly from the Red Hat website and not receive a media kit from HP containing the software. This scenario occurs when the media option **AJR** is deselected from the order. (The media kit option is always selected by default.)

It is necessary to register at the Red Hat website prior to download. Registration requires the installation number that each customer receives from HP when ordering either RHEL.

You can download RHEL for each available platform as either CD ISO images or DVD ISO images.

Use the following procedure to download RHEL and create the installation media:

1. Register and log in at the following Red Hat website:
www.redhat.com/rhn
2. Click on **channels** and then select **Red Hat Enterprise Linux (v.5 for 64-bit Intel Itanium)**.
3. Select **Downloads** and then download the ISO images of install, compatibility and source disks
Files with **ia64** in the name are for the Itanium platform.
4. Using the yum program Create the CDs or a DVD from the ISO images.



IMPORTANT: Create the CDs or DVD using the contents of the ISO images. Do not create the CDs or DVD by burning the .iso files themselves to CD or DVD. For example, if you are using K3b to burn a CD, click **Tools>CD>Burn CD Image**, select the .iso image, then click **Burn**.

Registering Software and Getting Updates from Red Hat Network

To ensure you have the most current version of software including patches for bug fixes, use the following instructions to obtain updates from Red Hat Network. See the following website:

<http://www.redhat.com>

It is possible that pre-installed software versions is not be up to date.

1. Install Red Hat on your system and reboot.
2. Log in as root on the console.
3. If your system came with Linux pre-installed or you did not enter an Installation Number when you installed RHEL, you should configure your system with the Installation Number before registering. This will ensure that you receive the entitlements enabled by the Installation Number. To configure, copy the Installation Number on your registration card to the file `/etc/sysconfig/rhn/install-num`.
4. If your system has a graphic system console, use the instructions on the registration card to create an account with Red Hat Network and to register your system. If you are using a text-based system console, you will need to use the `rhn_register` command to create an account and register your system.
5. After registering your system you may use `yum update` to update your system or you may configure automatic updates or notifications. Instructions for this are in Chapter 6 of the RHN Reference Guide, available from the **Help** button in the main Red Hat Network Web interface.



NOTE: Red Hat ensures all information transferred is treated as private and confidential. By default, all data sent and received over the network uses the secure sockets layer (SSL).

Red Hat provides more detailed information on the update process in its documentation.

Known Issues

1. HP recommends that you review the latest Red Hat Release Notes for RHEL 5.2 before installation. The most recent copy of that document can be found at the following URL:
<http://www.redhat.com/docs/manuals/enterprise/>
2. For pre-installed RHEL 5.2, HP uses the non-virtualized kernel, kernel-2.6.18-92.el5. HP does not pre-install the virtualized kernel, kernel-xen-2.6.18-92.el5.
3. You can install a RHEL 5.2 virtualized kernel from a media kit or from the Red Hat Network (RHN). For information on installing from the RHN, see the RHEL 5.2 installation guide at:
<http://www.redhat.com/docs/manuals/enterprise/>
4. HP recommends using HP provided drivers for use with HP-branded fibre channel cards. To obtain HP provided drivers:
 - a. From the following website, click on the "Support & Drivers" link:
<http://www.hp.com>
 - b. Click the radio button preceding **Download drivers and software** under the Step 1 section.
 - c. type the product name of the FibreChannel card in the text box under the Step 2 section, and press **Enter**.
 - d. Click "Red Hat Enterprise Linux 5 Server (Itanium)" under the **Select operating system** heading.
 - e. Scroll down the download drivers and software page for your specified card, and click the download button for the required driver.
5. HP recommends backing up all data and doing a cold install of RHEL 5.x if upgrading from v.4, v. 3 or v. 2.1.
6. In the absence of a `console=` argument, RHEL 5.x uses the `primary console` device as the system console. Use the EFI Boot Configuration menu to select the primary console.
7. The installation of RHEL 5.1 or later may fail if using the autopartition function on a server with multiple disks. If you encounter this problem, remove all disks from the server except those on which you are installing RHEL 5. Replace the removed disks when operating system installation on the targeted disks is complete. You may then need to edit the device file name of the `/boot/efi` mount point in the `/etc/fstab` file because the device file may have changed when the disks were replaced.
8. If you are transitioning to Red Hat Enterprise Linux 5 from a previous Red Hat Enterprise Linux release, note that the load order of storage and networking drivers is not always in the same order as the previous release.
9. If using an HP Procurve 4108gl switch with a heavily loaded system, you may experience intermittent data truncation with FTP transfers through the network. To avoid this problem:
 - a. Connect to the HP Procurve 4108gl switch using telnet or serial console and login.
 - b. From the switch command line interface, enter **config**.
 - c. Enter **no int all lacp**.
10. The RHEL 5.1 kernel supports maximum memory of 2 TB, which is also supported by HP.
11. 32-bit emulation is not automatically installed with Red Hat Enterprise Linux 5. Refer to the Red Hat Enterprise Linux 5 Release Notes for instructions on installing the IA32 emulation layer and other IA32 compatibility libraries.
12. Correctable platform events such as single-bit memory errors are routinely logged into NVRAM. To ensure errors are logged into the `/var/log` file, configure the `salinfo` file to start at boot, executing the following commands as root:

- a. Enter `cd /etc/init.d`
 - b. To configure, enter `chkconfig salinfod on`
 - c. To start `salinfod` without rebooting, enter `service salinfod start`
13. If you use `cdrecord` to burn a CD, you may need to eject the CD and reinsert before you can mount it.
14. This issue affects Linux running on the following systems: rx2620, rx2660, rx3600, rx4640, and rx6600.
- The Management Processor UART on these systems does not supply the Carrier Detect signal. This causes applications to hang when opening the UART device, waiting for Carrier Detect, unless they use the `O_NDELAY` or `O_NONBLOCK` flag.
- For example, `echo foo > /dev/ttyS0` hangs.
- This is usually not a problem because `/dev/ttyS0` is usually used as a console, the `agetty` process opens it with `O_NONBLOCK`, and processes spawned by `agetty` generally inherit the already-opened device.
- However, there are some cases where the device must be opened again, and applications will observe the hang.
- You may also need to add the `-L` option to the `agetty` line in the `/etc/inittab` file as shown below to resolve the problem:
- ```
co:2345:respawn:/sbin/agetty -L ttyS0 9600 vt100-nav
```
- After editing the file, signal the `init` process to re-read the `inittab` file with the following command:
- ```
kill -HUP 1
```
- If you are logged in to the console, then exit and log in again to restart the `agetty`.
15. In a text-based installation, the partition displays from either autopartition or disk druid will display filesystems of 1 terabyte or greater without a size suffix such as M or G. These filesystems will appear to be much smaller than they really are.
16. RHEL can be preloaded on the HP Integrity server disk in the factory prior to customer shipment. In the event of a system disk failure, the recovery process of this "factory preloaded OS image" is a "cold install" directly from the Red Hat media kit or the Red Hat Network. For additional instructions on installing Red Hat Enterprise Linux on an Integrity server, consult the [HP Integrity Essentials Foundation Pack for Linux User's Guide](http://www.docs.hp.com/en/5992-3193/index.html) (<http://www.docs.hp.com/en/5992-3193/index.html>).
17. Output from the Management Processor (MP) serial ports may hang due to a failure to reassert a transmit empty interrupt in the MP UART. When used as a serial console, this output hang may lead to a hang during Linux boot. This condition may occur on any low-end Integrity system using the MP console port as the Linux system console. This problem does not exist on mid-range and high-end Integrity platforms.
- When rebooting the system, the user should either manually confirm the system has booted, or use scripts to track the system boot on the serial console and automatically intervene as necessary. The only intervention required to continue the boot process is to send a character to produce a receiver interrupt on the console UART (for example, pressing a key). Note that while experiencing this console hang is rare, it can happen multiple times on the same boot cycle.
18. The `cdrecord` program may hang when burning a CD-RW disk with unsupported media using certain models of CD/DVD-ROM Combo and DVD+RW drives shipped in rx2620 and rx4640 servers.
- Use only approved HP CD-RW media to prevent burn hangs. Try different brands of media if HP media is not available.

19. The ELILO bootloader can pass command-line options to the Linux kernel. The `max_addr=` and `mem=` options limit the amount of memory used by the kernel.

Some versions of the kernel handle these arguments incorrectly, resulting in an MCA that crashes the system during boot. If the system boots successfully, there is no risk of a crash due to this problem.

Booting with `max_addr=` or `mem=` is sometimes useful for debugging problems, but is not a tested feature. A similar effect can be achieved by deconfiguring (with the EFI `dimmconfig` command) or physically removing DIMMs.

20. System panics may occur on Integrity servers running Linux that have fibre channel (FC) storage arrays directly connected.

If you plan to connect FC storage to Integrity Servers running Linux, you must connect through a FC switch.

21. This problem is specific to the LSI1068 SAS I/O controller in the rx2660, BL860c and the BL870c.

The mpt driver included in RHEL 5.2 does not have the necessary agent components required by HP System Insight Manager.

To fix this problem, HP has qualified a special version of the mpt driver, which can be downloaded from the drivers area of www.hp.com.

22. The agent components required by HP System Insight Manager are not currently supported in the Xen kernel of RHEL 5.2. Therefore the special version of the mpt driver is not required when using the RHEL 5.1 Xen kernel on the rx2660, BL860c or BL870c.

23. This problem affects all Integrity servers running RHEL 5.x.

On large multiprocessor machines, an application that opens and closes many block devices can cause enough lock contention to trigger the soft lockup detector.

This does not cause a system crash or affect system operation, but it produces alarming kernel messages.

24. The driver load and disk device file name order during installation may not be the same as that for the final installed system. To avoid mount errors, use either LVM or disk labels.

25. When using the HP Integrity Integrated Lights-Out (iLO 2) Remote Serial Console during RHEL 5.x installation, the firstboot program that runs during the installation may generate large amounts of output and fail. The firstboot program may be re-run after logging in as root without the display problems.

26. When installing using a graphics console, at least the Base group of packages must be selected for IPv4 networking to be operational. If installing using the text-based console, there is no package group that has to be selected for IPv4 networking to be operational.

27. After installing the operating system, the system just installed may not boot or a previously installed system may boot instead. To resolve this problem, enter the following commands in the EFI shell:

```
Shell> reconnect -r
```

```
Shell> map -r
```

Then reboot. This can be done by exiting the shell (using the exit command) and reselecting the EFI boot menu entry.

If this does not resolve the problem, try turning off the boot entry caching with the EFI `ioconfig` command:

```
Shell> ioconfig fast_init off
```

```
Fast initialization: Disabled
```

28. To create a system that can boot either RHEL 4.x or RHEL 5.x, the RHEL 4.x system must be installed and configured before installing the RHEL 5.x system.

29. If you have an AD385A 10GbE card in your configuration, `ethtool` may not always provide the correct link status. In some situations, `ethtool` may indicate that the link for this card is up after it has been taken down. This problem will be fixed in a future release.
30. The `lspci -v` command may on occasion generate a large amount of output. This may be worked around by piping the output of the `lspci` command to the `head` command with the desired number of lines of output. Example for 100 lines of output:

```
# lspci -v | head -n 100
```

31. The HP Integrity Essentials Foundation Pack for Linux (HPIEFPL) Support Pack does not currently support servers running Xen kernels for RHEL 5.2. Installation and configuration of any software packages delivered by the HPIEFPL Support Pack could result in system downtime due to potential kernel panics. To determine whether a server is running within a Xen kernel, execute the command `uname -r` and verify that the kernel string contains the substring "xen" (such as 2.6.18-8.el5xen).
32. The RHEL 5.2 update includes the support of virtualization on Intel Itanium processor-based platforms. HP endorses the use of this virtualization technology for those customers interested in early deployments. HP's recommended reading for customers seeking to use the virtualization technology includes Red Hat's RHEL 5.2 documentation (release notes, installation and virtualization guides). These documents will cover feature updates, known issues, minimum and maximum configuration limits for RHEL 5.2 virtualization on HP Integrity servers.

Red Hat's RHEL 5.2 documentation can be found at:

<http://www.redhat.com/docs/manuals/enterprise/>

33. If you have an AD385A 10GbE card in your configuration, `ethtool` may not always provide the correct link status. In some situations, `ethtool` may indicate that the link for this card is up after it has been taken down. This problem will be fixed in a future release.
34. When Linux boots on an mid-range/high-end (cellular) IA-64 machine with discontinuous memory, a cell may end up in a state where it has 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:

- a. Try changing the memory configuration so that the memory in each cell is equal.
- b. Try changing 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. If there are PDT entries, consider replacing the bad memory.



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