Dell PowerEdge Systems
Red Hat Enterprise
Linux 4 (x86_64, x86)

Installation Instructions
and
Important Information

Notes and Cautions

✏ **NOTE:** A NOTE indicates important information that helps you make better use of your computer.

⚠ **CAUTION: A CAUTION indicates potential damage to hardware or loss of data if instructions are not followed.**

Contents

This document provides the following information:

- Steps for installing and reinstalling Red Hat Enterprise Linux 4 on your system.

  NOTE: The *Dell Systems Management Tools and Documentation* media contains the latest drivers available at the time of purchase of your system. The media automatically installs drivers and any Dell-specific updates not included on the Red Hat media. Save your *Dell Systems Management Tools and Documentation* media in case you need to reinstall the Red Hat Enterprise Linux operating system.

  NOTE: For information on operating system packages, see **rhn.redhat.com**.

- Information sources that help to solve known issues in the operating system.

If you are installing or reinstalling Red Hat Enterprise Linux Advanced Server (AS), Enterprise Server (ES), or Workstation Server (WS), see "Installing Red Hat Enterprise Linux Using the Red Hat Media" on page 12.

Highlights of the Red Hat Enterprise Linux Product Family

Table 1 lists some of the key features of the Red Hat Enterprise Linux ES and AS operating systems.

Table 1.   Red Hat Enterprise Linux Feature Highlights

Product	Minimum RAM	Maximum RAM	Maximum Physical Processors
ES	256 MB	16 GB	2
AS	256 MB	Defined by hardware	Defined by hardware

NOTE: Dell also installs Red Hat Enterprise Linux WS as part of specific high performance computing cluster (HPCC) applications. For additional information, see the documentation that shipped with your HPCC software package.

Operating System Architecture

Some Dell PowerEdge systems offer processors that include either Intel Extended Memory 64-bit Technology (EM64T) or AMD 64 processor technology. If your processor includes Intel EM64T or AMD64 technology, either the x86 version or the x86_64 version of the Red Hat Enterprise Linux operating system may be installed on your system. If your processor does not include Intel EM64T or AMD64 technology, only the x86 version of the operating system can be installed on your system.

Depending on the operating system version installed on your system and the applications you use, the processors with Intel EM64T or AMD64 run in one of the following three modes:

- Legacy—x86 operating system version installed.
- Compatible—x86_64 operating system installed and a 32-bit application running.
- 64-bit—x86_64 operating system installed and a 64-bit application running.

NOTE: In Legacy mode, all drivers must be 32-bit. In Compatible and 64-bit modes, all drivers must be 64-bit.

NOTE: The latest update to Red Hat Enterprise Linux 4 is Update 9. Red Hat Enterprise Linux 4 Update 9 provides fixes for certain issues found in the previous releases. However, the Dell OpenManage components are supported only on Red Hat Enterprise Linux 4 Update 8.

Completing the Setup of AS, ES, and WS

This section describes the actions required to complete the operating system configuration of Red Hat Enterprise Linux AS, ES, or WS.

You can download updated operating system packages and the latest kernel releases from the Red Hat Network website at **rhn.redhat.com**.

Selecting the Kernel

The **GRand Unified Bootloader** (GRUB) screen is displayed after you boot your system, allowing you to select the kernel that you want to run. The kernel versions that you can select are listed in Table 2.

Table 2. Red Hat Linux Kernels

Kernel Name	Architecture	Kernel Type
Red Hat Enterprise Linux (2.6.9-x.ELhugemem)	i686	Hugemem (more than 16 GB memory)
Red Hat Enterprise Linux (2.6.9-x.ELlargesmp)	x86_64	Largesmp (more than 8 processors)
Red Hat Enterprise Linux (2.6.9-x.EL)	i686/x86_64	Uniprocessor (UP)
Red Hat Enterprise Linux (2.6.9-x.ELsmp)	i686/x86_64	Symmetric Multiprocessor (SMP)

Using the Red Hat Set Up Agent (ES Only)

⚠ **CAUTION: If you configure your mouse using the Red Hat Set Up Agent, your mouse may be erratic and unusable. If this issue occurs, press <Ctrl><Alt><F1> to switch to a virtual terminal. Then, press <Ctrl><Alt><F2> to switch back to the Red Hat Set Up Agent. Your mouse should be usable again.**

After you select the kernel, the operating system loads. Then, the **Red Hat Set Up Agent** loads and a welcome message is displayed.

The **Red Hat Set Up Agent** provides the following windows to help you configure your system:

- Language
- Welcome
- License Agreement
- Keyboard
- Mouse
- Root Password
- Network Setup
- Security Level
- Timezone
- Date and Time
- Display

- Red Hat Login
- Why Register
- Create Login
- Activate
- System User
- Sound Card
- Additional media
- Finish Setup

To apply the configuration steps for each window, click **Next**.

> **NOTE:** It is strongly recommended that you click **Next** in the **Red Hat Set Up Agent Welcome** window to configure your operating system settings.

Disabling the X Window System at Start-Up

To boot into a console login environment instead of the X Window System, edit the **/etc/inittab** file and change `id:5:initdefault:` to `id:3:initdefault:`

To start the X Window System from a console shell prompt, type:

```
startx
```

Configuring Network Settings

You can configure network settings using one of the following methods:

- From a command line
- Within the X Window System

Configuring Network Settings From a Command Line

To configure network settings from a command line, type:

```
netconfig -d ethx
```

where `ethx` is the network interface to be configured.

Configuring Network Settings Within the X Window System

1 Select **System Settings**→ **Network** from the Red Hat Main menu.

The **Network Configuration** window is displayed.

2 Click **New**.

The **Select Device Type** window is displayed.

3 Select **Ethernet Connection** and click **Forward**.

The **Select Ethernet Device** window is displayed.

4 Choose one of the following steps:

- Select the appropriate device and click **Forward**.

  The **Configure Network Settings** window is displayed.

- Select the **Other Ethernet Card** option.

  The **Select Ethernet Adapter** window is displayed. Select an adapter name from the drop-down menu, configure additional settings, and click **Forward**.

  The **Configure Network Settings** window is displayed

5 Configure the network settings for the device according to your preferences and click **Forward**.

The **Create Ethernet Device** window is displayed.

6 Click **Apply**.

The **Network Configuration** window is displayed.

7 Highlight the Ethernet device you just configured and click **Activate**.

8 When prompted, click **Yes** to activate your changes.

Your network is now activated.

9 Click **Close** to close the window.

Enabling the Display of Non-English Characters

In the X Window System, the default language is set to English.

To change the default setting to another language, select
System Settings→ Language at the Red Hat Main menu and select
the appropriate language. Only languages that were installed are available
for selection.

To change the keyboard type, select **System Settings→ Keyboard** at the
Red Hat Main menu and select the appropriate keyboard.

If Japanese or Chinese (Simplified) characters do not display correctly in a
text console, perform the following steps:

1 Log in at the console and at the command prompt, type

   `modprobe vga16fb.`

2 To enable display of Japanese characters, type

   `export LANG=ja_JP.UTF-8.`

   To enable display of Chinese (Simplified) characters, type

   `export LANG=zh_CN.UTF-8.`

3 At the command prompt, type

   `bterm.`

The text-based user interface now displays Japanese or Chinese (Simplified)
characters.

Updating Your System Packages Using Red Hat Network

Red Hat periodically releases software updates to:

- Fix bugs
- Address security issues
- Add new hardware support
- Add new features

You can download updated operating system packages and the latest kernel
releases from **rhn.redhat.com**.

It is strongly recommended that you use the RHN service to update your
system software to the latest revisions before you deploy your system.

Installing and Reinstalling Red Hat Enterprise Linux

Use one of the following methods to install or reinstall Red Hat Enterprise Linux on your system:

- *Dell Systems Management Tools and Documentation* media

  ![NOTE icon] **NOTE:** This is applicable only to Red Hat Enterprise Linux 4.7 and later.

- Custom installation using the Red Hat installation media

- Installation using Dell Unified Server Configuration (USC)

  ![NOTE icon] **NOTE:** This is applicable only to Red Hat Enterprise Linux 4.7 and later.

It is recommended that you use the *Dell Systems Management Tools and Documentation* media to install and reinstall Red Hat Enterprise Linux AS, ES, or WS.

The *Dell Systems Management Tools and Documentation* media provides the following installation benefits:

- Automates the installation process.

- Allows the operating system to deliver additional software or customization specific to PowerEdge systems, including correct device drivers for detected hardware components.

To perform a custom installation using the Red Hat media, you may need to perform additional manual modifications or install additional packages not located on the Red Hat media.

For information about performing manual modifications, see "Important Information" on page 15.

For information on downloading additional software, see **support.dell.com**.

Installing Using the Dell Systems Management Tools and Documentation Media

NOTE: Before you install the operating system using the *Dell Systems Management Tools and Documentation* media, disconnect all USB storage devices that are attached to your system.

Insert the *Dell Systems Management Tools and Documentation* media into your optical drive and reboot your system. Follow the directions on the screen and the instructions in the documentation that came with the media.

Installing Red Hat Enterprise Linux Using the Red Hat Media

To perform a custom installation using the Red Hat media:

1 Insert the media into your optical drive and reboot your system.

   A **Welcome** screen is displayed that gives you several choices for the type of installation to perform.

2 Press <Enter> at the **boot:** prompt to select **Graphical Installation Mode**.

NOTE: If a message is displayed that the operating system cannot detect any disks in the system during the installation process, use a device driver diskette for your storage controller. Download the latest device driver diskette image for your controller from **support.dell.com**, and follow the instructions for using that diskette.

Refer to the notes on the left-hand side of the screen as you proceed through the installation. Also, see the *Installation Guide* on the Red Hat *Documentation* media.

NOTE: If you are installing or reinstalling Red Hat Enterprise Linux on a system with a Dell utility partition, select **Install boot loader on first sector of boot partition** when you are prompted. Performing this action maintains the ability to boot to the utility partition because the system does not overwrite the master boot record.

NOTE: If you have a utility partition, view the existing partitions with Disk Druid in the installer. The utility partition is located on either the **/dev/sda1** or **/dev/hda1** partition.

You can download updated operating system packages and the latest kernel releases from the Red Hat Network website at **rhn.redhat.com**.

Installing With Dell Unified Server Configuration

Dell Unified Server Configuration (USC) provides an **OS Deployment** wizard that assists you with the installation of Red Hat Enterprise Linux 4 Update 7.

NOTE: Dell USC may not provide the latest drivers that are required to complete the installation of the operating system. Download the drivers from the Dell FTP website at **ftp.dell.com**, or use the *Dell Systems Management Tools and Documentation* media.

NOTE: Unified Server Configuration—Lifecycle Controller Enabled (USC-LCE), comes with embedded drivers that are factory installed. It is recommended that you run the **Platform Update** wizard to ensure that you have the latest drivers before you begin installing the operating system. For more information, see the *Dell Unified Server Configurator - Lifecycle Controller Enabled User Guide* at **support.dell.com/manuals**.

To begin installation using the **OS Deployment** wizard:

1 Boot the system and press <F10> within 10 seconds of the Dell Logo being displayed.

2 Click **OS Deployment** in the left pane.

3 Click **Deploy OS** in the right pane.

> **NOTE:** If your system has a RAID controller, you must configure RAID before you continue with the installation of drivers. For more information, see the *Dell Unified Server Configurator - Lifecycle Controller Enabled User Guide* at **support.dell.com/manuals**.

4 From the list of operating systems, select one of the following options and click **Next**:

- **Red Hat Enterprise Linux 4.7 32-bit**
- **Red Hat Enterprise Linux 4.7 64-bit**

Dell USC or USC-LCE extracts the required drivers to an internal USB drive labeled *OEMDRV* under **/oemdrv/*.rpm**.

After the drivers are extracted, Dell USC or USC-LCE prompts you to insert the operating system installation media.

5 Insert the Red Hat media and then click **Next**.

6 Click **Finish** to reboot the system and continue with the operating system installation by booting to the operating system media.

NOTE: Upon reboot, the system prompts you to press a key to boot to the operating system media. If you do not press a key, the system boots to the hard drive.

It is recommended that you update your system with the drivers extracted in step 4, after the operating system installs.

The extracted drivers are located at: **/oemdrv**.

NOTE: All the copied drivers are removed after 18 hours. You must complete the operating system installation within 18 hours. To remove the drivers before 18 hours, reboot the system, press <F10> and re-enter Dell USC.

Use the following command to install the drivers:

```
rpm -UvH *rpm
```

For more information, see the *Dell Unified Server Configurator-Lifecycle Controller Enabled User Guide* at **support.dell.com/manuals**.

Installing Red Hat Enterprise Linux 4 update 9

To install Red Hat Enterprise Linux 4 update 9, download the files from the Red Hat Network (RHN).

NOTE: There is no media available for Red Hat Enterprise Linux 4 update 9.

NOTE: If you already have Red Hat Enterprise Linux 4 update 8 installed, follow the installation procedure given below to install Red Hat Enterprise Linux 4 update 9. If you are a new customer, install the desired version of Red Hat Enterprise Linux 4 update 8 using your preferred method, and then upgrade to Red Hat Enterprise Linux 4 update 9 by following the installation procedure below.

1 Ensure that you have access to the Red Hat Enterprise Linux 4 update 9 files.

2 Ensure that up2date version is at least **up2date-4.9.1-28.el4** and **up2date-gnome-4.9.1-28.el4**. If not, follow the procedure below:

   a Download **up2date-4.9.1-28.el4.<your architecture>.rpm** and **up2date-gnome-4.9.1-28.el4.<your architecture>.rpm** by using the `up2date up2date` command.

   b Execute `rpm -Uvh up2date-4.9.1-28.el4.<your arch>.rpm up2date-gnome-4.9.1-28.el4.<your architecture>.rpm --force`.

3 Create a directory on the local hard drive for the Red Hat Enterprise Linux 4 update 9 files. Copy the Red Hat Enterprise Linux 4 update 9 files to this location, or mount the network share containing the Red Hat Enterprise Linux 4 update 9 files.

4 Modify the **/etc/sysconfig/rhn/sources** file to point to the local directory (or share).

5 Execute up2date -uf to complete the installation procedure.

Obtaining the DKMS Framework for Device Drivers

All Dell add-on device driver packages which are not on the Red Hat media use the Dynamic Kernel Module Support (DKMS) framework. This framework allows the kernel modules to be dynamically built for each kernel on your system and provides a mechanism for driver version control. You can download the DKMS framework and the latest Dell device drivers from **support.dell.com**.

To see which add-on device drivers are installed on your system, type dkms status at the command prompt. For more information on DKMS, view the DKMS man page on your system.

Important Information

This section contains information about software fixes, issues you may encounter, and other information you may need while using Red Hat Enterprise Linux on your Dell system.

General Issues

IPMI Commands Result in High CPU Utilization

On Dell PowerEdge systems managed through IPMI, IPMI commands issued to the BMC could result in the **kipmid** thread consuming high CPU time.

This can be addressed with the driver option – **kipmid_max_busy_us** to the **ipmi_si** driver module.

This option can be set by creating a file **/etc/modprobe.d/ipmi.conf** with the following line and reloading the **ipmi_si** module:

```
options ipmi_si kipmid_max_busy_us=300
```

NOTE: You can download the ipmi driver from **support.dell.com**.

Red Hat Enterprise Linux 4 Might Fail to Detect NUMA Nodes

On PowerEdge systems that support Non-Uniform Memory Access (NUMA) with the node interleaving disabled in the BIOS, Red Hat Enterprise Linux 4 Update 7 and later may fail to recognize the NUMA nodes and display only node 0.

To fix this issue, add the following parameter to the kernel command line when the system boots:

```
numa=acpi
```

C3 Power State is Not Supported on Red Hat Enterprise Linux 4

Processors capable of entering into a sleep state (C3) when idle, can improve the system's power efficiency during periods of decreased activity. Support has been added to the kernel for the C3 power state on the processor series mentioned below, beginning with Red Hat Enterprise Linux 5 update 3.

- Intel Xeon X55xx
- Intel Xeon E55xx
- Intel Xeon L55xx

Red Hat Enterprise Linux 4 does not support the C3 power state.

lspci Command Reports Unknown Devices

When you use the **lspci** command to display information about all the Peripheral Component Interconnect (PCI) buses in the system and all the devices connected to them, the output may contain a few unknown devices.

The issue occurs when the **pci.ids** file does not contain the definition of the latest chipsets, hardware, and so on, of the system.

To resolve the issue, use one of the following methods:

- Download the latest **pci.ids** file from **pciids.sourceforge.net/pci.ids** and save it at **/usr/share/pci.ids**.
- Use the **update-pciids** utility to download the latest **pci.ids** file.

Inconsistent Network Device Enumeration

Linux operating system versions that use the **udev** kernel device manager may enumerate the Network Interface Cards (NICs) differently than earlier Linux versions, that use the **devfs** device manager.

Although this does not affect system functionality when using Red Hat Enterprise Linux 4, NIC1 may be configured as eth1 rather than as eth0, and NIC2 as eth0.

For more information and methods for changing default device enumerations, see the white papers at **linux.dell.com**.

Running kudzu on Your System

The Red Hat Enterprise Linux hardware detection and configuration tool, **kudzu**, runs automatically when you start your system. You can also invoke **kudzu** manually using a command line or the X Window System.

Often **kudzu** may not configure your network devices correctly. If this issue occurs, you can reconfigure your network devices by:

1 Opening a command line or starting the X Window System.

2 Performing the procedures in "Configuring Network Settings" on page 8.

Configuring a PS/2 Mouse Connected to a USB Keyboard

If you have a Dell USB keyboard with a PS/2 mouse attached to the keyboard, configure the mouse as a USB mouse. To do so, type `mouseconfig` at a command prompt.

For a Microsoft mouse, select **Microsoft IntelliMouse (USB)**.

For a Logitech two-button mouse, select **Logitech Mouseman Wheel (USB)**.

Using a USB Diskette Drive

Red Hat Enterprise Linux identifies USB diskette drives as SCSI devices. To use a USB diskette drive:

1 Disconnect the USB diskette drive from the system if it is already connected.

2 Type `cat /proc/partitions` at the command prompt.

   NOTE: The system displays SCSI devices as **sda**, **sdb**, **sdc**, and so on.

3 Plug the USB diskette drive into the system.

4 Type `cat /proc/partitions` at the command prompt.

The final SCSI device in the list is the USB diskette drive.

5 At the command prompt, type:

```
mkdir -p /mnt/floppy
```

```
mount /dev/sdx/mnt/floppy
```

where *sdx* is the SCSI device letter assigned to the diskette drive.

Your system can now access the diskette drive.

Using Dell DKMS Drivers After Kernel Upgrade

If the kernel is upgraded in a system where the DKMS driver is installed, follow the below steps to ensure that the updated dkms driver is installed for the latest kernel.

1 If the module version in the updated kernel is higher than the DKMS driver version, continue using the native driver.

2 If the module version in the updated kernel is less than the DKMS driver version, then use the DKMS driver.

To use the DKMS driver, create a file in **/etc/depmod.d** with filename **dkms_module_name.conf** with an entry as below:

```
override module_name kernel_version
modules_directory
```

For **bnx2** driver, create a file **bnx2.conf** in **/etc.depmod.d/** with the below contents:

```
override bnx2 2.6.9-x.el4 weak-updates
And run depmod -a
```

PowerNow! Does Not Update /proc/cpuinfo on AMD Processor-Based Systems

When running a 32-bit Red Hat Enterprise Linux 4 kernel with demand-based speed enabled in the BIOS, **/proc/cpuinfo** does not display the correct processor speed. To work around this issue, run the following command:

```
cat/sys/devices/system/cpu/cpu*/cpufreq/cpuinfo_cur_f
req
```

This issue will not be fixed in Red Hat Enterprise Linux 4.

Issues Fixed in Red Hat Enterprise Linux 4 Update 1

Bringing Down an Ethernet Channel Bond May Cause Problems

A kernel panic can occur if an Ethernet Channel Bond, which is set up in the 802.3ad Link Aggregation mode, is brought down using the **ifdown** command.

A patch for this issue is available in Red Hat Enterprise Linux 4 Update 1.

Issues Fixed in Red Hat Enterprise Linux 4 Update 3

System Does not Respond During Restart on Systems With Dual-Core Processors

On systems running Red Hat Enterprise Linux 4 Update 1 or Update 2 that support dual-core processors and do not have all processor slots populated, the system may hang when an `init 6` or `reboot` command is issued from the command line at the message **Restarting System**.

This issue has been resolved in Red Hat Enterprise Linux 4 Update 3. Upgrade your system to the latest update.

Issues Fixed in Red Hat Enterprise Linux 4 Update 4

usbfs Messages Appear on Consoles With Red Hat Enterprise Linux 4 and Dell OpenManage Server Administrator Installed

The following message appears on systems running Red Hat Enterprise Linux 4 with Dell OpenManage Server Administrator installed:

```
usb 2-1: usbfs: process 4879 (lsusb) did not claim
interface 0 before use
```

This is caused due to a defect in the `usbutils` package and does not affect the functionality of your system. A fix for this issue is available in Red Hat Enterprise Linux 4 Update 4.

Issues Fixed in Red Hat Enterprise Linux 4 Update 5

System Shutdown/Restart Fails When a Serial Console is Enabled

When the serial console is enabled, the system may fail to shut down or restart. The kernel gets into a loop and prints the following message:

```
drivers/usb/input/hid-core.c: input irq status -71
received
```

This issue occurs because the hid-core driver misunderstands a status received from the ehci-hcd driver and prevents the system from shutting down or rebooting. To work around this issue, run the following line before `exec $command $HALTARGS` in the shutdown script — **/etc/rc.d/init.d/halt**:

```
echo "6 4 1 4" > /proc/sys/kernel/printk
```

This changes the default console log level from 7 to 4 and prevents the message. A fix for this issue is available in Red Hat Enterprise Linux 4 Update 5.

USB Devices May Not Function or May Behave Strangely on AMD Processor-Based Systems

USB devices such as keyboards or mouse may not function or may behave strangely on AMD processor-based systems. This could be either due to the devices not working properly even though it shows up in `lsusb` or the USB hub not reporting devices connected to the system.

This occurs due to an issue in the USB code in Red Hat Enterprise Linux 4 where a 10 ms delay required by the USB 2.0 specification is not implemented.

A fix for this issue is available in Red Hat Enterprise Linux 4 Update 5.

Direct Memory Access is Not Used on Internal CD Drives With AMD Processor-Based Systems

Red Hat Enterprise Linux 4 does not use direct memory access (DMA) on internal CD drives with AMD processor-based systems.

This is because the IDE driver in Red Hat Enterprise Linux 4 does not recognize the IDE controllers on AMD processor-based systems and the IDE controllers are used in legacy mode.

A fix for this issue is available in Red Hat Enterprise Linux 4 Update 5.

Kernel Panic Occurs During Red Hat Enterprise Linux 4 Update 4 Installation on PowerEdge Systems

While installing Red Hat Enterprise Linux 4 Update 4 on PowerEdge 6800 and PowerEdge 6850 systems, a kernel panic may occur.

To work around this issue, start the installation with the following command line option:

```
noapic nolapic
```

When both the parameters are passed, the kernel boots and the installation is completed successfully. The parameters are only required when installing the Red Hat Enterprise Linux 4 Update 4 and can be removed once the installation is complete.

A fix for this issue is available in Red Hat Enterprise Linux 4 Update 5.

System Does not Respond When Running Red Hat Enterprise Linux 4 on SATA Systems With More Than 3 GB of RAM

Red Hat Enterprise Linux 4 systems with SATA disk drives attached to 32-bit-capable disk controllers such as the Intel ICH5, ICH6, and ICH7 onboard SATA controllers using the ata_piix driver, and the CERC SATA 6ch RAID cards using the aacraid driver may experience kernel panics under stress causing potential loss of data. This is due to a defect in the bounce buffer section of the core Red Hat Enterprise Linux 4 Memory Management (mm) kernel code.

A temporary workaround for this issue is to restrict memory of Red Hat Enterprise Linux 4 configuration to less than 3 GB either by physically reducing RAM or passing the `mem=<some value less than 3 GB>` parameter to the kernel command line while booting.

A fix for this issue is available in Red Hat Enterprise Linux 4 Update 5.

Illegal Seek When Rewinding Tape Drive With the tar Utility

Earlier versions of the Red Hat Enterprise Linux 4 st driver removed the **no_llseek** reference to work around the tar utility's deprecated use of the **llseek ioctl**.

A fix for this issue is available in Red Hat Enterprise Linux 4 Update 5.

Kernel Panic on Shutdown

An issue has been identified in which the there may be an intermittent kernel panic during shutdown if running the **snmpd** daemon.

The only workaround for this issue at this time is to manually stop the snmpd daemon before initiating a shutdown.

A fix for this issue is available in Red Hat Enterprise Linux 4 Update 5.

Driver Issue With Integrated 4-Port SATA Controllers

On some PowerEdge systems that have integrated 4-port SATA controllers, I/O errors can occur when the system uses drives that support 48-bit logical block addressing (lba48) with drives that do not support lba48.

A fix for this issue is available in Red Hat Enterprise Linux 4 Update 5.

System Time Might Become Inconsistent With Hardware clock

On certain PowerEdge systems running Red Hat Enterprise Linux 4, the system time may not synchronize with the hardware clock.

A workaround for this problem is to use the kernel boot parameter **nohpet** in **/boot/grub/grub.conf** or use network time protocol (NTP) to synchronize the system time with a reliable time source.

A fix for this issue is available in Red Hat Enterprise Linux 4 Update 5.

Issues Fixed in Red Hat Enterprise Linux 4 Update 7

Wrong Processor Frequency Displayed With Red Hat Enterprise Linux 4 Update 5

On systems that are configured with an Intel Xeon 54XX processor and have Demand Based Switching (DBS) enabled in the BIOS, the commands:

```
/proc/cpuinfo
```

and

```
/sys/devices/system/cpu/cpuX/cpufreq/scaling_cur_freq
```

where X is the number of processor cores, display the wrong processor frequency.

A fix for this issue is available in Red Hat Enterprise Linux 4 Update 7.

System Fails to Boot When the PERC 5/E or PERC 5/I RAID Controller is Replaced

Replacing a Dell PERC 5/E or a PERC 5/I controller may cause the **fsck** utility to fail when the system is turned on. If the **fsck** utility fails, you must enter maintenance mode from the system console to manually run **fsck**. The system may automatically enter maintenance mode after this type of failure.

A fix for this issue is available in Red Hat Enterprise Linux 4 Update 7.

System Stops Responding Intermittently During Initialization of HPET Timer

On certain PowerEdge Systems running the **reboot loop** service, the system may hang during the High Precision Event Timer (HPET) initialization.

The kernel initializes the HPET timer and then performs a verification on the functionality of the timer. This verification may fail and result in a kernel panic.

A fix for this issue is available in Red Hat Enterprise Linux 4 Update 7.

System Hangs When sginfo Command is Issued on a Storage Connected to PERC 3D/I Controller

If the operating system for your PowerEdge system is installed on a storage connected to PERC3D/i controller and configured with RAID 1, issuing a **sginfo –a /dev/sdX** or **sginfo –s /dev/sdX** command results in the system freeze.

To work around this issue, use the **sg_inq /dev/sdX** command that performs the same function as the **sginfo** command.

A fix for this issue is available in Red Hat Enterprise Linux 4 Update 7.

Wrong Processor Core Information Displayed With Red Hat Enterprise Linux 4 Update 5

On systems with an Intel 72XX processor, `/proc/cpuinfo` displays the wrong number of cores.

A fix for this issue is available in Red Hat Enterprise Linux 4 Update 7.

PowerNow! Driver Does not Load on the 32-bit Version of Red Hat Enterprise Linux 4

On systems running the 32-bit version of Red Hat Enterprise Linux 4 and Demand Based Switching (DBS) enabled in the BIOS, the PowerNow! driver does not get loaded automatically. To load the driver manually, use the following commands:

```
modprobe powernow-k8

service cpuspeed start
```

A fix for this issue is available in Red Hat Enterprise Linux 4 Update 7.

Number of USB Devices are Restricted to 8 on Certain AMD Processor-Based Systems

The ehci-hcd driver in Red Hat Enterprise Linux 4 Update 4 can only handle a limited number of USB devices with interrupt pipes. Only 8 USB devices can be connected to the system at one time. Some USB devices may stop working if more than 8 are attached to the system.

A fix for this issue is available in Red Hat Enterprise Linux 4 Update 7.

System May Not Respond After the Installation of Software RAID 1 After Initial Reboot

If data exists in the master boot record (MBR) at installation time, then the GRUB loader is not installed and you cannot boot the system. The workaround for this issue is to overwrite the MBR with zeros:

```
dd if=/dev/zero of=/dev/<disk_name> bs=512 count=1
```

where *<disk_name>* is the device name given by the Linux kernel for the hard drive where the MBR is installed.

A fix for this issue is available in Red Hat Enterprise Linux 4 Update 7.

System May Lock Up While Initializing X Window System

On certain systems, the process of initializing the X Window system may sometimes cause a system lockup.

A fix for this issue is available in Red Hat Enterprise Linux 4 Update 7.

Using IDE Tape Drives

⚠ **CAUTION: Using /dev/st0 devices rewinds the tape after every dump is made and erases the existing data on the next dump. If you want to archive the data, use /dev/nst0 devices and use the mt -f /dev/nst0 [option] command to move between archives.**

If your system uses the GRUB loader, add the following text to each line that begins with kernel in the **/boot/grub/grub.conf** file to ensure that your IDE drive is accessing the correct driver for an IDE tape drive:

```
/dev/ht0=ide-scsi
```

The following example file segment highlights the changed line:

```
title Red Hat Enterprise Linux (2.6.9-x.EL)
```

```
root (hd0,0)

kernel /vmlinux-2.6.9-x.EL ro root=LABEL=/
/dev/ht0=ide-scsi

initrd /initrd-2.6.9-x.EL.img
```

If your system uses the LILO loader, add the following text to the
/etc/lilo.conf file:

```
append="/dev/ht0=ide-scsi"
```

After editing and saving the file, type `lilo` at the command prompt and
press <Enter>.

A fix for this issue is available in Red Hat Enterprise Linux 4 Update 7.

Logging in to X Window System May Cause Errors

An attempt to log in to the X Window System may cause the system to lock
up and produce Processor Internal Error (IERR) events in the system event
logs. This issue occurs due to the improper method of access to the peripheral
component interconnect (PCI) configuration space by the X Window
System. To fix this issue, change the **Xorg** configuration file,
/etc/X11/xorg.conf, as follows:

Edit the configuration file and search for the section `"ServerFlags"`. If
the section does not exist, add the following lines:

```
Section "ServerFlags"
Option "PciOsConfig" "1"
EndSection
```

If the section does exist, add the "`Option`" line following that section as
follows:

```
Option "PciOsConfig" "1"
```

Search for the section, `Section "Device"`, and add the following line in
the middle of that section:

```
Option "NoINT10"
```

NOTE: The fix for this issue was shipped on your system if you purchased the
system with Red Hat Enterprise Linux preinstalled.

NOTE: If the default video driver is set to `vesa`, then you must *not* add the `NoINT10` line to the **Xorg** configuration file. Doing so causes the X Window System to fail at startup.

A fix for this issue is available in Red Hat Enterprise Linux 4 Update 7.

GRUB Installation Fails

The **grub_install** command fails on PowerEdge systems whose BIOS have the No Execute (NX) security feature enabled, which causes the installation to fail with a segmentation fault.

To work around the issue, pass the following parameter to the kernel command line at system boot:

```
noexec=off
```

A fix for this issue is available in Red Hat Enterprise Linux 4 Update 7.

DRAC 4 Virtual CD Drive Reset May Cause System Instability

The use of the default ide-cd driver may cause system lockups when a Dell Remote Access Controller 4 (DRAC 4) reset occurs. A workaround for this issue is to use the ide-scsi driver to control the virtual CD device on systems with the DRAC 4. To do so, pass the following parameter to the kernel command line:

```
hdX=ide-scsi
```

where X identifies the virtual CD device letter. You can find the virtual CD device letter by reading the **/proc/ide/hdX/model** files until you locate the value for VIRTUALCDROM DRIVE.

While using the ide-scsi driver, the operating system can take the CD device offline when a RAC reset occurs. The device can be brought back online, in the usual manner for SCSI devices, by typing the following commands in a console:

```
echo "scsi remove-single-device Y 0 0 0" >
/proc/scsi/scsi
```

```
echo "scsi add-single-device Y 0 0 0" >
/proc/scsi/scsi
```

where Y is the SCSI host number of the virtual CD device, which can be found by reading the **/proc/scsi/scsi** file and finding the line "Host: scsiY" that corresponds to the virtual CD.

> **NOTE:** A defect in the sr_mod (the SCSI CD-ROM driver), which is included with the initial release of Red Hat Enterprise Linux 4, prevents these commands from working correctly. A corrected driver may be available in Red Hat Enterprise Linux 4 Update 2. If the driver is not available, install the DKMS sr_mod driver that was included with your system.

A fix for this issue is available in Red Hat Enterprise Linux 4 Update 7.

Loss of IDE Device Functionality When DRAC 4 is Present

Systems with newer Intel chipsets (ICH6, ICH7, and so on) with a DRAC 4 installed may lose functionality of their IDE devices. A workaround for this problem is to pass the following parameter to the kernel command line at system boot:

```
linux ide2=0x1f0
```

A fix for this issue is available in Red Hat Enterprise Linux 4 Update 7.

Kernel Panic When Unloading ide-scsi Module

If the deprecated ide-scsi module is loaded to use an IDE CD drive, a kernel panic my occur upon unloading the module. To avoid this problem, use the ide-cd module for IDE CD drives.

A fix for this issue is available in Red Hat Enterprise Linux 4 Update 7.

Cannot Input Through DRAC III Console When Keyboard is Not Attached

DRAC III console input does not work properly on systems running Red Hat Enterprise Linux 4 if a keyboard is not connected at system boot. This issue occurs because console redirection on the DRAC III depends on the PS2 driver being loaded, and this driver is not loaded if a keyboard is not present. To fix this issue, manually load the keyboard driver module.

A workaround for this issue is to append the following parameter to the kernel command line at system boot:

```
i8042.dumbkbd=1
```

A fix for this issue is available in Red Hat Enterprise Linux 4 Update 7.

Support of NX Might Cause Segmentation Fault in Third-Party Applications

Some Dell systems support the No Execute (NX) feature offered with some Intel processors. By default, Red Hat Enterprise Linux 4 uses NX support, which might result in unexpected segmentation violations (SEGV) with some third-party applications that you may have installed.

Applications that attempt to execute code on their process stacks or in pages of memory allocated or mapped without the EXEC attribute causes a SEGV signal to be sent to the process.

For systems running these applications, it is necessary to run the systems with NX disabled until the third-party application vendor can supply a version of the application that is compatible with NX. To disable NX, specify `noexec= off` and `noexec32=off` on the kernel parameter line in the **/boot/grub/grub.conf** file.

A fix for this issue is available in Red Hat Enterprise Linux 4 Update 7.

System Does not Respond With Console Redirection Enabled in BIOS and GRUB Set to Use Serial Console

The system may not respond if **Console Redirection after Boot** is enabled in the BIOS and GRUB is configured to use the serial console as the primary console.

To solve this issue, either disable **Console Redirection after Boot** in the BIOS setup or configure GRUB to use the text console only.

A fix for this issue is available in Red Hat Enterprise Linux 4 Update 7.

Lockup on Systems With ATI Display Controllers Using VESA Drivers

On systems with ATI display controllers, the default VESA driver used for X Window System can result in system lockups.

A fix for this issue is available in Red Hat Enterprise Linux 4 Update 7.

Issues Fixed in Red Hat Enterprise Linux 4 Update 8

Installation Fails on System With 10GBase-T Single Port Intel 82598AT Adapter

Installation of Red Hat Enterprise Linux 4 Update 7 fails on PowerEdge systems with 10GBase-T Single Port Intel 82598AT adapter.

This issue occurs when a stack corruption in the NIC driver results in a kernel panic and renders the system unresponsive.

⚠ **CAUTION: The issue also occurs on an installed Red Hat Enterprise Linux 4 Update 7 system if the particular Intel adapter is plugged in and the network capability for the adapter is started. In this environment, the issue may result in data loss because of the driver-initiated kernel panic.**

To work around this issue, download and install the latest network drivers from **support.dell.com**.

A fix for this issue is available in the network drivers of Red Hat Enterprise Linux 4 Update 8.

Red Hat Enterprise Linux 4 Update 7 Snmp Trap Details Not Shown on ITA

In Red Hat Enterprise Linux 4 update 7, the implementation of setting various fields of the trap in **net-snmp** is different. This results in the trap details not being shown when managed from Dell ITA.

A fix for this issue is available in the **net-snmp** package of Red Hat Enterprise Linux 4 Update 8.

Power Capping Not Functional With Red Hat Enterprise Linux 4

In Red Hat Enterprise Linux 4, the integrated Dell Remote Access Controller (iDRAC) is unable to limit the maximum power that the system uses by restricting the maximum frequency at which the processors can operate.

This issue occurs because of a problem in the **cpufreq** drivers in Red Hat Enterprise Linux 4.

A fix for this issue is available in Red Hat Enterprise Linux 4 Update 8.

Unable to Shutdown the System After Bonding in Balance-Alb Mode is Created

Bonding in the balance-alb mode can cause the system to lockup during shutdown.

There is a possibility of the system locking up during shutdown with channel bonding configured in mode 6 (balance-alb). The system would require a cold reboot.

⚠ **CAUTION: There could be potential data loss as the filesystems are still mounted.**

This is caused due to a race condition in the network shutdown scripts and is not dependent on the make or model of the network interface card (NIC).

To workaround this issue, comment the HWADDR field in the **/etc/sysconfig/network-scripts/ifcfg-eth** files of the slave devices.

A fix for this issue is available in Red Hat Enterprise Linux 4 Update 8.

Finding More Information

- To obtain the latest BIOS and firmware versions, see **support.dell.com**.

- For more information on using and administering the Red Hat Enterprise Linux operating system, see the Red Hat Documentation media that was shipped with your system. For more information, see **redhat.com**.

- You can download updated operating system packages and the latest kernel releases and updates by using the following methods:

    - Perform a manual download from **rhn.redhat.com.**

    - Use the **up2date** utility.

- You can download files that are specific to your Dell hardware running the Red Hat Enterprise Linux operating system from **support.dell.com**.

- For more information on the Dell hardware on which you have installed the Red Hat Enterprise Linux operating system, see **support.dell.com/manuals**.

- Dell maintains public mailing lists to promote community involvement. To sign up for mailing lists, see **lists.us.dell.com**. To search for previously posted information that addresses issues that you may encounter, see **lists.us.dell.com/htdig**.