

Support Note for Red Hat Linux Advanced Workstation 2.1 Operating System on Itanium® 2-based Systems

Edition 2



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1 Support Note for Red Hat Linux Advanced Workstation 2.1 Operating System on Itanium® 2-based Systems

Announcement

Red Hat Linux Advanced Workstation 2.1 for the Itanium Processor has been optimized for use with HP Itanium 2-based workstations. Hewlett-Packard has certified Red Hat Advanced Workstation 2.1 and current errata (errata kernel 2.4.18-e.25) on Itanium workstations.

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This Support Note explains how to use the HP Enablement Kit for Linux with your Red Hat Advanced Workstation 2.1 operating system installation CDs. When you are ready to begin installation, see the HP Enablement Kit for Linux CD booklet for instructions and use the accompanying Enablement Kit CD to prepare your system. The enablement kit will prompt you to insert your operating system CDs when your system is ready.

Also included in this Support Note is a description of available tools and firmware requirements. Known problems with Red Hat Advanced Workstation 2.1 on HP Itanium® 2-based systems follow.

Distributions Supported on Itanium 2-Based Workstations

Hewlett-Packard has certified Red Hat Advanced Workstation 2.1 and current errata (errata kernel 2.4.18-e.25) on Itanium 2-based workstations.

You can order Red Hat Advanced Workstation 2.1 at <http://www.software.hp.com>. The HP Enablement Kit for Linux should ship with your Red Hat CDs and is also available at <http://www.software.hp.com>. The enablement kit prepares your system for operating system installation and prompts you to insert Red Hat CDs when ready.

Red Hat provides operating system documentation.

IMPORTANT Do not discard the Red Hat registration card packaged with the Red Hat CDs. Red Hat requires this card to support or replace software.

Documentation for HP's Enablement Kit for Linux, including the kit's CD booklet, Release Notes, and the Support Note for Red Hat Advanced Workstation 2.1 Operating System on Itanium-2 Based Workstations come with your system. These documents, along with the SystemImager manual, are also available at <http://www.docs.hp.com/linux> as well as in the enablement kit CD's /docs directory.

Firmware Requirements and Manageability

Firmware Requirements

System Firmware revision 1.61 or greater is required for Linux to be installed on your Itanium 2-based system. To determine your current version, type "INFO FW" at the EFI Shell prompt. The firmware revision should be 1.61 or later.

For more information on firmware, go to www.hp.com/go/bizsupport. Select "download drivers/software," then click on "workstation" under the "personal computing" heading. Scroll down the page to "hp workstations - Itanium," and click on the appropriate product (e.g. hp workstation zx6000).

Manageability

TopTools

HP TopTools Device Manager (TTDM) is a Web-based tool for IA-32 systems that manages and tracks network resources and monitors performance of machines running the TopTools agents. TTDM runs only on IA-32 systems using Windows NT 4.0, 2000, and Windows XP Professional. You can download TTDM for IA-32 Windows systems at <http://www.hp.com/toptools/> if you want to use such a machine to track resources and monitor performance on an Itanium 2-based system running TopTools agents.

Based on the Simple Network Management Protocol (SNMP), TopTools agents allow you to remotely monitor information about your Itanium 2-based system from any SNMP browser. The SNMP agents for TopTools that enable remote management capabilities on your Itanium 2-based system are available at <http://www.software.hp.com>. For more details on using the SNMP protocol, see <http://net-snmp.sourceforge.net>.

Operating System Installation

Before installing Red Hat Advanced Workstation 2.1, use the HP Enablement Kit CD for Linux (available at <http://www.software.hp.com>), which automates processes such as:

- Configuration of storage controllers
- Disk partitioning
- Installation of service partition content
- Linux installation from distributor media (i.e. CD-Rom)
- Recovery of a pre-installed operating system.

The HP Enablement Kit for Linux CD should arrive with the supported Red Hat Linux software. Please contact your HP sales representative to obtain the enablement kit if it is not with your order. You can order or download the HP Enablement Kit for Linux and updates at <http://www.software.hp.com>.

NOTE The HP Enablement Kit for Linux CD booklet is a short, useful guide for questions you may have while using the enablement kit. We highly suggest you reference it while setting up your system. The CD booklet comes in the box with the Enablement Kit CD-Rom and is also available on the CD's /docs directory. Updates are available online at <http://www.docs.hp.com/linux>.

The booklet explains the automated processes behind each menu option, including hardware discovery, disk partitioning, and storage system options. Also included in the booklet are instructions for setting up a serial console, frequently asked questions and troubleshooting tips for the enablement kit.

The enablement kit menu presents the following options:

1. Restoring the factory pre-configured image
2. Installing Linux from distribution media
3. Installing a golden image over the network
4. Recovery shell (experts only).

To install your operating system:

1. Choose option 2 from the enablement kit menu
2. Complete the steps presented, including selecting a target disk from a list

Operating System Installation

3. Insert the operating system CDs when prompted
4. Follow your operating system's instructions to complete installation.

If your system came with Linux pre-installed, power on your workstation and configure it as prompted. The functionality provided by the enablement kit has already been applied.

Recovering your operating system:

1. Choose option 1 from the enablement kit menu
2. Complete the steps presented, including selecting a target disk from a list
3. Insert the recovery CD
4. Reboot your system when prompted after installation is complete
5. Configure your system as prompted.

Getting Updates from the Red Hat Network

After you install your operating system and reboot, login as root on the console (HP recommends using the graphical console rather than the text console) and run the `rhn_register` command to register your system with Red Hat Network. Use the registration card number that came with your Red Hat CDs to activate this process and create an account on the Red Hat Network.

Communication between your system and Red Hat Network server begins with confirmation of your installed software packages, and optionally, your hardware. The Red Hat Network server notes any necessary updates and sends email to the Red Hat administrator to forward the packages to your system when you request an update.

To update your system, run the `up2date` command on the console (HP recommends using the graphical console rather than the text console) to initiate the process with the Red Hat Network. Follow the instructions Red Hat provides.

NOTE Red Hat ensures all information transferred is treated as private and confidential.

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

Known Problems

Known Problems

1. Graphics card compatibility between Itanium 2-based workstations and IA-32 systems.

Graphics cards for Itanium 2-based workstations are not currently compatible with those on IA-32 systems. HP has tested and validated only the graphics card options that are available for purchase on Itanium 2-based systems. Though other cards may work, HP supports only graphics configurations installed or sold with its systems.

2. Problems with digital connections when installing a system from recovery media.

When installing a system from recovery media, the digital connection from an HP L1820 flat panel to the Nvidia Quadro4-900XGL graphics card does not work. Installation using the analog connection from the panel to the graphics card functions properly. When you have reinstalled the system, you can install the Nvidia accelerated driver and use the digital connection with no problems.

3. Using the XDM login manager.

The XDM login manager has known instabilities. HP currently recommends kdm or gdm as effective alternatives. Leave the default GNOME options from the installation package selected because they will install the utility that provides login functionality without causing system failure. You can also use the kdm login manager provided in the KDE package.

NOTE Pre-installed and recovery images are configured with GNOME as the default, so you should not experience instabilities relative to the XDM window manager.

4. No support for uncertified .rpm packages.

If you add uncertified .rpms to the operating system, it will not be supported. Only .rpms bundled in supported Linux distributions for Itanium 2-based workstations and official Red Hat errata for those distributions are supported.

5. No support for systems with a recompiled kernel.

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, e.g. for kernel source code changes.

Supported customizations:

- a. Modifying configuration options found in `/usr/src/linux-version-versionnumber/configs` to set values or make modules static or dynamically loadable.
 - b. Changing boot-time parameters found in `/usr/share/doc/kernel-doc-2.4.18/kernel-parameters.txt` (with the kernel-doc .rpm) or in `/usr/src/linux-2.4/Documentation/kernel-parameters.txt` (with the kernel-source /rpm.)
6. CDRW software and CD creation with Red Hat Advanced Workstation 2.1 on the zx2000.
- Creating a CD using the CDRW software available in Red Hat Advanced Workstation 2.1 takes more than 12 minutes if using CD speed 24x for a 640MB file. HP recommends using CD speed 12x, which shortens creation time to 10 minutes. The command to change CD speed is: `cdrecord -v speed=12 dev=2,0,0 filename.iso`
- Refer to online help for more details on the `cdrecord` command.
7. IDE support issues.
- a. The zx2000 IDE controller is set to serialized accesses to the two channels (Optical and HDD). HP does not support disabling serialization for the IDE controller.
 - b. IDE HDD operations can take three to four times longer to complete when running simultaneously with CD-RW operation than when running without them.
8. USB conflicts and system reboots.
- Configurations that include a USB 1.1 mass storage device under the same OHCI root hub as the USB keyboard can cause conflicts resulting in system reboot. You can use the "usbview" tool to view the topology of the USB root hubs to avoid such configurations. If improperly configured, refreshing the data in usbview while the USB mass storage device is being accessed may cause your system to reboot.
- To view the topology using usbview:
- a. Launch usbview
 - b. Attach the USB mass storage device
 - c. If usbview shows both the mass storage device and the USB keyboard under the same OHCI root hub, relocate the mass storage device to a different USB port
 - d. Close usbview before using the mass storage device and do not reopen it or any other applications that use `usbdevfs` while using the device.

Known Problems

9. USB-to-PS2 adapter failures.

The A7782 USB-to-PS/2 adapter occasionally fails to connect at EFI when using system firmware revisions 1.44 and earlier. The symptom is the following message, which continues to print dots:

```
"USB Keyboard Not Responding, Searching for another:....."
```

Use the power button to turn the system off and back on again to work around this situation. To avoid the problem completely, connect a USB keyboard directly to the system or update firmware to revision 1.61 or later.

10. Serial console options and recovery.

Serial console options you specify during image recovery with the enablement kit will not be set when the system boots. The recovery image will default to the VGA console. Add serial console options to the ELILO prompt when the system boots to change the default.

NOTE Serial console options appended to the ELILO prompt are automatically added to the configuration file for "elilo" and invoked for all subsequent boots. Therefore, once you enable the serial console, you must edit `/boot/efi/efi/redhat/elilo.conf` or `/boot/efi/redhat/elilo.conf` if you wish to remove this feature.

11. 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 the problem:

- a. Remove any disks you've added since you last booted your system.
- b. Invoke `parted /dev/sdX` where `sdX` is the disk where your root partition resides.
- c. Use `name` command to assign "/" as a LABEL to the root file system. `help name` from inside `parted` explains the syntax you should use, e.g. `name 1 /`
- d. Manually verify `root=LABEL=` is in each image section of the `/boot/efi/efi/redhat/elilo.conf` file.

Ex.:

```
==== sample elilo.conf for mounting root partition by label ====
```

```

prompt
timeout=50
default=linux

image=vmlinuz-2.4.18-e.Nsmp
    label=linux
    initrd=initrd-2.4.18-e.Nsmp.img
    read-only
    root="LABEL=/"
    append="console=ttyS0,115200n8 hdd=ide-scsi"

image=vmlinuz-2.4.18-e.N
    label=linux-up
    initrd=initrd-2.4.18-e.N.img
    read-only
    root="LABEL=/"
    append="console=ttyS0,115200n8 hdd=ide-scsi"
==== sample elilo.conf for mounting root partition by label ====

```

e. Manually verify "LABEL=/" entry is in the `/etc/fstab`.

```

===== sample fstab for mounting root device by label =====
LABEL=/      /           ext2        defaults,errors=remount-ro    1 1
/dev/hda1    /boot/efi   vfat        defaults                       0 0
none        /dev/pts    devpts      gid=5,mode=620                 0 0
none        /proc       proc        defaults                       0 0
none        /dev/shm    tmpfs       defaults                       0 0
/dev/hda3    swap        swap        defaults                       0 0
/dev/hda5    /home       ext2        defaults,errors=remount-ro    0 2
/dev/cdrom   /mnt/cdrom  iso9660     noauto,owner,kudzu,ro        0 0
/dev/cdrom1  /mnt/cdrom1 iso9660     noauto,owner,kudzu,ro        0 0
===== sample fstab for mounting root device by label =====

```

12. SCSI errors and resets 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.

Known Problems

13. Inconsistencies with man page directions for editing `/etc/fstab`.

If you manually edit the `/etc/fstab` file to alter the device partition to be mounted as swap space, follow the `fstab` man page directions. The `swapon` manpages incorrectly describe swap filesystem entries in `/etc/fstab` as being labeled with "sw" when they should be labeled "swap". `swapon` will not throw an error if it encounters an invalid swap entry in `/etc/fstab`.

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