
Red Hat Linux 9 Release Notes

Copyright © 2003 Red Hat, Inc.

Table of Contents

Hardware Requirements	1
Installation-Related Notes	1
General Notes	3
Package Changes	8
Kernel Notes	11

Hardware Requirements

The following information represents the minimum hardware requirements necessary to successfully install Red Hat Linux 9:

CPU:

- Minimum: Pentium-class
- Recommended for text-mode: 200 MHz Pentium-class or better
- Recommended for graphical: 400 MHz Pentium II or better

Hard Disk Space (NOTE: Additional space will be required for user data):

- Custom Installation (minimum): 475MB
- Server (minimum): 850MB
- Personal Desktop: 1.7GB
- Workstation: 2.1GB
- Custom Installation (everything): 5.0GB

Memory:

- Minimum for text-mode: 64MB
- Minimum for graphical: 128MB
- Recommended for graphical: 192MB

Note that the compatibility/availability of other hardware components (such as video and network cards) may be required for specific installation modes and/or post-installation usage. For more information about hardware compatibility, see the Red Hat Linux Hardware Compatibility List at <http://hardware.redhat.com/hcl/>

Installation-Related Notes

This section outlines those issues that are related to Anaconda (the Red Hat Linux installation program) and installing Red Hat Linux 9 in general.

- The Red Hat Linux installation program has the ability to test the integrity of the installation media. It works with the CD, DVD, hard drive ISO, and NFS ISO installation methods. Red Hat recommends that you test all installation media before starting the installation process, and before reporting any installation-related bugs (many of the bugs reported are actually due to improperly-burned CDs). To use this test, type **linux mediacheck** at the `boot:` prompt.
- While most present-day computers are able to start the installation process by booting directly from the first Red Hat Linux distribution CD, some hardware configurations require the use of a boot diskette. If your hardware requires a boot diskette, you should be aware of the following change.

Red Hat Linux 9 uses a different boot diskette layout than previous releases of Red Hat Linux. There is now a single boot diskette image file (`bootdisk.img`) that is used to boot all systems requiring a boot diskette.

If you are performing anything other than an installation from an IDE or USB device, you will be asked to insert a driver diskette created from one of the following image files:

`D1-drvnet.img` — For network installations

- `drvblock.img` — For SCSI installations

- `pcmciaadd.img` — For PCMCIA installations

As with previous releases of Red Hat Linux, these image files can be found in the `images/` directory on the first installation CD.

- Also in the `images/` directory is the `boot.iso` file. This file is an ISO image that can be used to boot the Red Hat Linux installation program. It is a handy way to start network-based installations without having to use multiple diskettes. To use `boot.iso`, your computer must be able to boot from its CD-ROM drive, and its BIOS settings must be configured to do so. You must then burn `boot.iso` onto a recordable/rewriteable CD-ROM.
- The rescue mode environment (accessed by booting with the "**linux rescue**" boot-time command) has been enhanced. Numerous requested utilities have been added, and there is now support for activating network interfaces. Commands needed for SCSI tape support are also available. Please test this environment and send us your feedback.

If you chose to mount an existing installation in rescue mode and you have man pages installed on that existing installation, the **man** command will work while in rescue mode.

- The Red Hat Linux installation program now detects existing Red Hat products on your system, and will prompt you to select the product you would like to upgrade. You will also have the option of performing a complete re-installation of the system instead of upgrading. Please report any problems you may experience with this new feature.

If the contents of your `/etc/redhat-release` file has been changed from the default, your Red Hat Linux installation may not be found when attempting an upgrade to Red Hat Linux 9.

You can relax some of the checks against this file by entering the following at the **boot:** prompt:
D1linux upgradeany

Use the **upgradeany** option only if your existing Red Hat Linux installation was not detected.

- **isolinux** is now used for booting the Red Hat Linux installation CD. If you have problems booting from the CD, you can write the `images/bootdisk.img` image to a diskette according to the directions in the *Red Hat Linux Installation Guide*.
- During a graphical installation, you can now press **SHIFT-Print Screen** and a screenshot of the current installation screen will be taken. These are stored in the following directory:

```
/root/anaconda-screenshots/
```

The screenshots can be accessed once the newly-installed system is rebooted.

- The **parted** disk partition manipulation program has been upgraded to version 1.6.
- Users of Red Hat Linux 6.2 that want to upgrade their system to Red Hat Linux 9 must first have all errata updates applied before starting the upgrade process. The most straightforward way to accomplish this is to use Red Hat Network. A Red Hat Linux 6.2 system that is not completely up-to-date will *not* upgrade successfully to Red Hat Linux 9.
- Text mode installations using a serial terminal work best when the terminal supports UTF-8. Under UNIX and Linux, Kermit supports UTF-8. For Windows, Kermit '95 works well. Non-UTF-8 capable terminals will work as long as only English is used during installation. An enhanced serial display can be used by passing "**utf8**" as a boot-time option to the installation program. For example:

```
linux console=ttyS0 utf8
```

General Notes

This section describes post-installation issues.

- There have been issues observed when upgrading Red Hat Linux 6.<x>, 7.<x>, 8.0, and 9 systems running Ximian GNOME. The issue is caused by version overlap between the official Red Hat Linux RPMs and the Ximian RPMs. This configuration is not supported by Red Hat. You have several choices in resolving this issue:

1) You may remove Ximian GNOME from your Red Hat Linux system prior to upgrading Red Hat Linux.

2) You may upgrade Red Hat Linux, and then immediately reinstall Ximian GNOME.

D13) You may upgrade Red Hat Linux, and then immediately remove all remaining Ximian RPMs, and replace them with the corresponding Red Hat Linux RPMs.

You *must* resolve the version overlap using one of the above choices. Failure to do so will result in an unstable GNOME configuration.

- There has been some confusion regarding font-related issues under the X Window System in recent versions of Red Hat Linux. At the present time, there are two font subsystems, each with different characteristics:

- The original (15+ year old) subsystem is referred to as the "core X font subsystem". Fonts rendered by this subsystem are not anti-aliased, are handled by the X server, and have names like:

-misc-fixed-medium-r-normal--10-100-75-75-c-60-iso8859-1

D1The newer font subsystem is known as "fontconfig", and allows applications direct access to the font files. Fontconfig is often used along with the "Xft" library, which allows applications to render fontconfig fonts to the screen with antialiasing. Fontconfig uses more human-friendly names like:

Luxi Sans-10

Over time, fontconfig/Xft will replace the core X font subsystem. At the present time, applications using the Qt 3 or GTK 2 toolkits (which would include KDE and GNOME applications) use the fontconfig and Xft font subsystem; most everything else uses the core X fonts.

In the future, Red Hat may support only fontconfig/Xft in place of the XFS font server as the default local font access method.

NOTE: Two exceptions to the font subsystem usage outlined above are OpenOffice.org (which uses its own font rendering technology), and Mozilla (which uses fontconfig, but not GTK 2).

If you wish to add new fonts to your Red Hat Linux 9 system, you must be aware that the steps necessary depend on which font subsystem is to use the new fonts. For the core X font subsystem, you must:

1. Create the `/usr/share/fonts/local/` directory (if it doesn't already exist):

`mkdir /usr/share/fonts/local/`

If you had to create `/usr/share/fonts/local/`, you must then add it to the X font server (xfs) path:

`chkfontpath --add /usr/share/fonts/local/`

2. Copy the new font file into `/usr/share/fonts/local/`

3. Update the font information by issuing the following command:

```
ttmkfdir -d /usr/share/fonts/local/ -o /usr/share/fonts/local/fonts.scale
```

4. Reload the xfs font server using the following command:

```
service xfs reload
```

Adding new fonts to the fontconfig font subsystem is more straightforward; the new font file only needs to be copied into the `/usr/share/fonts/` directory (individual users can modify their personal font configuration by copying the font file into the `~/.fonts/` directory).

After the new font has been copied, use **fc-cache** to update the font information cache:

```
fc-cache <directory>
```

(Where **<directory>** would be either the `/usr/share/fonts/` or `~/.fonts/` directories.)

Individual users may also install fonts graphically, by browsing **fonts:///** in Nautilus, and dragging the new font files there.

NOTE: If the font filename ends with ".gz", it has been compressed with **gzip**, and must be decompressed (with the **gunzip** command) before the fontconfig font subsystem can use the font.

- Due to the transition to the new font system based on fontconfig/Xft, GTK+ 1.2 applications are not affected by any changes made via the Font Preferences dialog. For these applications, a font can be configured by adding the following lines to the file `~/.gtkrc.mine`:

```
style "user-font" {
```

```
fontset = "<font-specification>"  
D1}
```

```
widget_class "*" style "user-font"
```

(Where **<font-specification>** represents a font specification in the style used by traditional X applications, such as `"-adobe-helvetica-medium-r-normal--*-120-*-*-*-*-*"`.)

- New features in XFree86 include:

- Xcursor — New mouse cursor code, allowing color, antialiased, alpha blended (translucency), animated, themeable, multi-size mouse pointers to be used.

- ATI Radeon 9000, 9100, FireGL 8700, 8800 3D/2D/Xv support is now available. ATI Radeon 9500 Pro and 9700 Pro, as well as ATI FireGL X1 and Z1 are now supported 2D-only. Support for over 30 additional ATI Rage 128 chipsets have been added to this release, which should cover all existing Rage 128 chipsets now.

- D1- Intel i845, i852, i855, and i865 integrated video support (2D/3D/Xvideo), and improved Intel i830 video support. The Intel video driver has been completely restructured and largely rewritten to be much more robust, and support more hardware. Many bugs have been fixed, as well as many workarounds for broken laptop and motherboard BIOSs that limit memory to 1Mb.

- New support for NVIDIA GeForce 4, nForce, GeForce 2 Go, and various other NVIDIA hardware. Also, the **nv** driver has been enhanced to attempt to autodetect unknown NVIDIA chips that aren't officially supported, but can probably be coaxed to work anyway (albeit not officially supported) by treating them similarly to one of the other supported chips in the same family. The **nv** driver, as in previous releases, remains 2D only.

- At the time these release notes were finalized, NVIDIA's binary-only accelerated 3D drivers are not currently compatible with Red Hat Linux 9. NVIDIA is aware of the problem; watch the NVIDIA website for updates regarding this situation.

- Updated Savage driver which supports the newest Savage video chipsets, and fixes various bugs.

- A brand new driver for the National Semiconductor Geode chipset, **nsc**, is provided.

- Many other video driver updates and improvements have been made.

- Many new input drivers including **fpit**, **palmax**, **ur98** and others have been added.

- By default, the Sendmail mail transport agent (MTA) does not accept network connections from any host other than the local computer. If you want to configure Sendmail as a server for other clients, you must edit `/etc/mail/sendmail.mc` and change the `DAEMON_OPTIONS` line to also listen on network devices (or comment out this option entirely using the **dnl** comment delimiter). You must then regenerate `/etc/mail/sendmail.cf` by running the following command (as root):

make -C /etc/mail

Note that you must have the `sendmail-cf` package installed for this to work.

- CUPS is now the default print spooler, and **redhat-config-printer** is the recommended tool for configuring it. It may be launched from the System Settings menu, using the Printing menu entry. LPRng is still provided, and upgrades from previous installations using LPRng will continue to use it.
- GNOME Print Manager, a simple graphical print queue management tool, is now included. It may be launched from the System Tools menu, using the Print Manager menu entry. In addition, when a print job is in the queue, an icon will appear in the panel's system notification area.

- Red Hat Linux 9 includes the Native POSIX Thread Library (NPTL), a new implementation of POSIX threads for Linux. This library provides performance improvements and increased scalability for i686 or better processors.

This thread library is designed to be binary compatible with the old LinuxThreads implementation; however, applications that rely on the places where the LinuxThreads implementation deviates from the POSIX standard will need to be fixed. Notable differences include:

- Signal handling has changed from per-thread signal handling to POSIX process signal handling. D1- **getpid()** returns the same value in all threads.
- Thread handlers registered with **pthread_atfork** are not run if **vfork()** is used.
- No manager thread.

Applications that are known to have problems using NPTL include:

- Sun JRE prior to version 1.4.1
- IBM JRE

If an application does not work properly with NPTL, it can be run using the old LinuxThreads implementation by setting the following environment variable:

LD_ASSUME_KERNEL=<kernel-version>

The following versions are available:

- 2.4.1 — Linuxthreads with floating stacks
- 2.2.5 — Linuxthreads without floating stacks

NPTL support for all dynamically-linked applications can be disabled by using the following boot-time option:

nosysinfo

- A new system message has been added to Red Hat Linux 9:

```
application bug: <app-name>(<app-pid>) has SIGCHLD set to SIG_IGN but calls wait().  
(see the NOTES section of 'man 2 wait'). Workaround activated.
```

This message (which is displayed on the system console and/or in the system log files) indicates that the application is not completely standards compliant with respect to its handling of child processes. If you see this message, you should alert the application's developers.

- Python has been compiled with UCS4 support (Unicode characters represented on 4 bytes) as opposed to UCS2. UCS4 allows one to represent characters outside of the Basic Multilingual Plane. Certain third-party libraries may stop working because of this change; recompiling these libraries should be sufficient to resolve the problem. Please note that "pure" python modules (whose code is written in python) or compiled modules that do not directly use Unicode are not affected by this change.
- The **fileutils**, **textutils**, **sh-utils**, and **stat** packages have been replaced by the newer **coreutils** package.

- The RPMs containing the Network Administration Tool have changed names and functions. The RPM `redhat-config-network` contains the tool's graphical user interface, while `redhat-config-network-tui` contains the tool itself (along with its text-based user interface).
- Support for XHTML1 — the reformulation of HTML in XML — has been improved. This has been done by adding the `xhtml1-dtd` package, installing the DTDs in the system catalog, and adding native support in the `libxml2` and `xsltproc` tools.
- The `redhat-switchmail` command and package have been renamed `redhat-switch-mail`. The `redhat-switchmail-gnome` package has been renamed `redhat-switch-mail-gnome`.
- The Oprofile system-wide profiler has been added to Red Hat Linux 9. OProfile is a programmer's tool for analyzing system performance, using special hardware built into many modern computers. Documentation for OProfile exists in the `oprofile` package; after installing Red Hat Linux 9, issue the command `rpm -qd oprofile` to obtain a listing of the available documentation. See the OProfile website at <http://oprofile.sourceforge.net> for more details.
- GDB has been enhanced to allow debugging information for applications to be read from separate files. This makes it possible to extract debugging information from binaries and place them in a supplemental package. During the development of Red Hat Linux 9, "debuginfo" packages were generated for nearly every package by implementing special RPM macros. By default, the RPM macro configuration in Red Hat Linux @VERSION@ generates "debuginfo" packages. If you are building packages and do not want to generate "debuginfo" packages, add the following to your `~/ .rpmmacros` file:

```
%define debug_package %{nil}
```
- The default FTP server, `vsftpd`, has been changed to a SysV service instead of an `xinetd` service.

Package Changes

The following packages have been added to Red Hat Linux 9:

- `bluez-libs` — Libraries for Bluetooth™ utility programs
- `bluez-utils` — Bluetooth utility programs
- `bogl` — Graphics library for framebuffer; used by the Red Hat Linux installation program
- `ckernit` — Replaces `gkernit`
- `coreutils` — Replaces `fileutils`, `textutils`, `sh-utils` and `stat`
- `desktop-printing` — Drag-and-drop printing and print job icon
- `devlabel` — Support for persistent storage device access
- `elfutils` — Replaces `libelf`
- `fontilus` — Font viewer for Nautilus
- `fonts-hebrew` — Hebrew fonts

- gnome-icon-theme — Icons for base GNOME environment
- gnome-themes — Collection of themes for GNOME environment
- gstreamer — Multimedia framework library
- gstreamer-plugins — Input and output plugins for gstreamer
- gthumb — Graphics viewer
- hpoj — HP OfficeJet support
- jwhois — Replaces whois
- libgnomeprint22 — Updated libraries
- libgnomeprintui22 — Updated libraries
- libgsf — Library for reading/writing structured files
- nautilus-cd-burner — CD burning support for Nautilus
- nautilus-media — Audio playing support for Nautilus
- openssl096b — Compatibility maintenance package
- postgresql-odbc — ODBC support for PostgreSQL
- postgresql72-libs — PostgreSQL 7.2 compatibility libraries
- printman — Print queue management
- pyorbit — Replaces orbit-python
- redhat-config-samba — Samba configuration tool
- redhat-switch-mail — Renamed from redhat-switchmail
- soup — SOAP implementation library
- startup-notification — Support for busy cursor
- subversion — Version control system
- tsclient — GUI client for VNS and Windows Terminal Server
- ttmkfdir — Separated from XFree86
- vconfig — VLAN (802.1q) configuration program
- xhtml1-dtds — XHTML1 support

The following packages have been removed from Red Hat Linux 9:

- WindowMaker — Developer resource constraints
- Xft — Integrated into XFree86
- Xtest — No longer required by Anaconda
- anonftp — functionality pulled into vsftpd package
- bdf flush — No longer required (needed by 2.2 kernels only)
- fileutils — Replaced by coreutils
- fortune-mod — Unclear copyright status
- gkermit — Replaced by ckermit
- ipvsadm — No longer part of Red Hat Linux product profile
- kbdconfig — Replaced by redhat-config-keyboard
- kernel-uml — Experimental package, removed
- ksymbols — No longer required by kernel
- libelf — Replaced by elfutils
- librpm404 — No longer required compatibility library
- libxml10 — No longer required compatibility library
- mouseconfig — Replaced by redhat-config-mouse
- openldap12 — No longer required compatibility library
- openssl095a — No longer required compatibility library
- orbit-python — Replaced by pyorbit
- php-dbg-base — Not used within distribution
- php-dbg-client — Not used within distribution
- php-dbg-server — Not used within distribution
- redhat-switchmail — Renamed to redhat-switch-mail
- rhmask — Red Hat no longer distributes rhmask files
- rpm2html — Deprecated by author
- sh-utils — Replaced by coreutils
- stat — Replaced by coreutils

- `textutils` — Replaced by `coreutils`
- `timeconfig` — Replaced by `redhat-config-date`
- `whois` — Replaced by `jwhois`
- `wine` — Developer resource constraints
- `wmapm` — Part of Windowmaker removal
- `wmclock` — Part of Windowmaker removal
- `wmix` — Part of Windowmaker removal
- `wu-ftp` — `vsftpd` is the recommended FTP daemon
- `xtoolwait` — Not used within distribution

The following packages have been deprecated, and may be removed from a future release of Red Hat Linux:

- `pine` — License-related issues
- `LPRng` — CUPS is the recommended printing solution
- `Glide3` — Multi-platform issues
- `lilo` — GRUB is the recommended bootloader
- `sndconfig` — No longer required by mainstream hardware
- `ncpfs` — No longer part of Red Hat Linux product profile
- `mars-nwe` — No longer part of Red Hat Linux product profile

Kernel Notes

This section covers issues that are related to the Red Hat Linux 9 kernel.

- *Special Note:* The ACL support added to the kernel in the first two public beta releases proved to be unstable and caused the kernel to regress. Red Hat has therefore removed that ACL support from the kernel for Red Hat Linux 9. Kernel engineers will continue work on improving the ACL support, which will be available in a future release. The `attr` and `acl` packages needed to support ACLs are still included to make it easier for users and developers who wish to test ACLs. Red Hat may, at our discretion, provide ACL support for this release of Red Hat Linux by means of an upgrade, if future testing demonstrates that the ACL support has sufficiently improved in quality.

- The **apic** boot-time option allowing installation on systems with the Intel 440GX chipset has been removed because it caused a conflict with many newer systems: it caused SMM (System Management Mode) not to function, or to function incorrectly, causing installation on those systems to fail. Removing the **apic** boot-time option enables these newer systems to install successfully.

A different workaround has been provided that allows at least some systems with the Intel 440GX chipset to boot; this workaround is automatically enabled, and requires no action on your part. If you have an Intel 440GX-based system and are unable to install Red Hat Linux 9 but a previous release of Red Hat Linux installs correctly, please file a bug report, and include the output (running on the previous release, of course) of the **dmidecode** program, run as root, with your bug report. Note however, that it will not be possible to install Red Hat Linux 9 at all.

Systems with the 440GX chipset are supported only on a best-effort basis. Therefore, we welcome bug reports regarding systems with the 440GX chipset, but may or may not be able to resolve them.

- The kernel support for the new NPTL feature changes several internal kernel programming interfaces significantly. As a result, several external kernel modules may not compile without modifications to match the new interfaces. Examples currently include the NVIDIA and ATI 3D modules, as well as any other modules that use kernel threads and/or signals.