

Performing a basic Red Hat Linux 9 installation.

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Target audience: anyone who wants to install and run a Red Hat Linux system on bare metal or dual bootable with a Microsoft Windows operating system. You don't need to have prior knowledge of Linux to get started.

Description: this document will try to guide you through a basic, graphical installation of Red Hat Linux 9 on the Intel platform without making it too technical. It is especially intended for people who don't have experience at all at installing Linux. Don't be afraid. Installing a Linux distribution is as simple as a Microsoft Windows installation these days.

Note: this document is not about upgrading Red Hat Linux. For this, consult the Red Hat Linux 9 release notes.

Before you start...

Most Linux distributions allow you to install the distribution either by FTP, HTTP, NFS, CDROM media, ... The source from where you do your installation from doesn't change almost anything to the installation process. This document will describe a graphical installation of Red Hat Linux 9 from CDROM media, so at this point you should have already a three CD set ready.

If you do not have the Red Hat Linux 9 disks at this point, you have two options:

- Order the CD set from Red Hat. You can find Red Hat at <http://www.redhat.com>.
- Download the ISO images of the Red Hat operating system from one of the local Red Hat mirrors and burn them to disk.

Where to get the ISO files?

The best place to get started is the official mirror page of Red Hat. You can find this page on <http://www.redhat.com/download/mirror.html>. For people in Belgium (.be), some quick mirror sites are: <ftp.belnet.be>, <ftp.easynet.be> and <ftp.redhat.skynet.be>. After you have downloaded the ISO images, burn them to disk using common utilities like Nero Burning Rom or Easy CD creator...

Also, know more or less the hardware that is present in your system. If you don't know what is present at this point in your pc, open up the case or lookup some information at the "system" tab in your configuration panel if you have a running Windows operating system on the host you want to install Red Hat Linux on. Don't worry if you can't find it all, the chances that you will need this sort of detailed information are low – if your hardware is not too exotic. Red Hat 9 has a more or less decent automatic hardware recognition.

If you need more information on hardware compatibility, check the Red Hat Linux Hardware Compatibility List at <http://hardware.redhat.com/hcl/>.

Keep your local network configuration (or the information provided by your Internet Service Provider (ISP)) close at hand: IP address and subnet mask, default gateway, primary and secondary DNS servers, DHCP, proxy servers, ...

Last note before you start: take backups of your data if you do not have a spare computer to play with. Also; don't forget to test your backups before continuing the installation.

Hardware Requirements.

Before starting, you should be aware of the fact that a graphical installation of Red Hat Linux requires at least ('at least' = if you want to run smoothly) a Pentium II 400 MHz or better with 192 MB RAM, but it is not required to run Red Hat Linux. The minimal, official requirements to run Red Hat Linux 9 (in text mode) are a Pentium-class CPU with 64 MB RAM. You will need 1.7 to 2.1 GB hard disk space for a (default) personal desktop or (default) workstation installation. You can always try to run it in text mode on slower hardware.

The hardware used during the test consisted of a:

- Intel Pentium III.
- 512 MB SDRAM.
- 20 gig IDE hard disk.
- Logitech optical USB mouse.
- ATI graphical card.

Red Hat Linux 9 should be compatible with most hardware build during the last two years and should include support for graphical cards like ATI Radeon series, Intel i8xx series and NVIDIA GeForce4, nForce, ...

Installation.

You will install Red Hat Linux from CDROM so make sure that your BIOS is instructed to boot from it.

When you start up your pc you will note a splash screen from Red Hat. At the end of the screen you will see a prompt: "boot: _". Red Hat offers you the opportunity to give some options to the installer (when you should need them). E.g. if you would like to do a text only installation, enter "text" and confirm your input.

Before every installation, you should check your installation media. As a general rule: corrupted media will result in a corrupted operating system.

To check your media, press F2 at the menu. Your screen will flip into the "Installer Boot Options". Input and confirm "linux mediacheck" to start this check on your installation media.

Linux will start booting and some seconds later you will face a blue text screen that reports: "CD found". Select "OK" and "Test" to start the media check on the current disk. Make sure that all your disks are verified sane.

After the disk check, initial probing of hardware will start and a graphical "welcome" screen will pop up. Choose "next". Here you are able to read through the release notes of Red Hat 9 and to choose the preferred language during the installation (Dutch is available). Configure your preferred keyboard layout on the next screen. Belgian people will prefer "Belgian (be-latin1)". Select your mouse type (e.g. "Wheel Mouse (USB)") and optional three mouse button emulation.

After this, the Red Hat installer will try to locate any existing Linux installations on your PC. When another Red Hat Linux system is detected, it will offer you the choice to perform an upgrade of an existing Linux system or to perform a new Red Hat Linux installation. You will not see this screen if you have an empty hard disk.

Next, you will need to choose your installation type that will best meet your required needs. You have the choice between "Personal Desktop", "Workstation", "Server" or "Custom". If you are new to Linux, your choice will probably be limited amongst "Personal Desktop" and "Workstation".

A "Personal Desktop" is the most appropriate setup for people that want to give Linux a try and it will create a graphical desktop environment for your desktop or laptop. The "Workstation" will also provide you with a graphical desktop environment and will include additional software development tools. I would recommend to go for a default "Workstation" installation – even if you are new to the Linux world, as it contains interesting utilities, compilers, A "custom" installation is for more experienced users, giving more flexibility during the installation: choose your boot loader, choose your packages, ...

Partitioning.

After you made your choices, disk partitioning will take place. Go for "Automatically partition". Red Hat will try to determine the best layout for your partitions, asking you to:

- remove all Linux partitions on the current system. The option to choose if you have already a Linux system that you want to preserve.
- remove all partitions on the current system. This will remove everything present on the hard drive (yes, everything).
- keep all partitions and use existing free space. The option to choose if you have already a working Microsoft Windows installation that you want to preserve so that you can choose what to boot on start up (the "dual boot configuration").

In our case, starting from scratch, choose "remove all partitions on the current system". If you create a dual boot configuration, choose to keep all partitions and to use existing free space (make sure that you have allocated before the installation free space for your Linux system using tools like Partition Magic).

If you have some knowledge of partitioning, select the "review" option. This option will allow you to check the proposed partitioning scheme before writing the configuration to disk (recommended, most of the time not necessary).

A warning screen appears, asking confirmation to remove all Linux partitions and ALL DATA on it. It will probably mark drive "/dev/hda", your first IDE hard disk. Choose yes if you are sure.

If you have chosen to review the proposed partitioning scheme, you might note that "ext3" is the proposed partition type. Ext3 is the default recommended type as it is a journaling file system and will allow your file system to recover more quickly when a crash would have occurred.

Having agreed on your partitioning scheme, you will need to configure your boot loader. You have the choice between GRUB, LILO or no boot loader. If you are installing from scratch, or if you have an already existing Windows installation that you want to preserve, choose GRUB. GRUB is the default boot loader these days and it is ok to use. Don't worry too much about it.

If you have a Microsoft Windows operating system present, you will note two labels at this point: one for Red Hat Linux and one for DOS (your Windows installation). Default settings should be ok to continue.

Initial network configuration.

Red Hat Linux will show all detected NICs (Network Interface Cards). You can either configure them to become active at boot time using a static IP configuration or DHCP (recommended). Configure your hostname to be set through DHCP or give your host a name at this very moment (depends on your network or on the information provided by your ISP).

Red Hat gives you the opportunity to deploy pre-configured firewall rule bases. If you are directly hooked to the Internet (or even a local network), it is wise to go for a high security level. A high security level will only allow incoming DNS replies, DHCP. All other services like IRC DCC file transfers, Real Audio, remote X clients and active

FTP will not allowed (passive FTP will still work). You can always change your firewall rule base if you have more experience with Linux-based firewalls (Netfilter in the Linux 2.4.x kernels).

Package installation.

When you have finished the basic network configuration, you will need to choose the default language for the system once the installation has been completed ("additional language support"). You can choose to install multiple languages. After your language configuration, select the correct time zone ("time zone selection").

After the time zone selection, you will be asked to set the root password. Choose a password that is not easy to guess and one that consists of at least 8 characters (uppercase, lowercase, special signs, numeric characters,...). Choose a strong password, as it is often the key to the entire system. Also note that Linux is case sensitive.

After having set the root password, you need to tell the Red Hat installer which software should be installed at this point. A default workstation environment would include the default desktop (GNOME), an office suite (OpenOffice), a web browser (Mozilla), an email client (Evolution), instant messaging software (GAIM), several sound and video applications, games, software development tools (this will not be present on a "personal desktop") and administration tools. Go for the default options unless you have some experience with Linux packages and applications. If you want to choose your packages separately, select the "customize" option to choose additional software packages for your system. That's it. Select "next" to start the installation.

Note: never use the root account to perform daily, routine operations. Only use the root account for system administration tasks.

When all packages are installed, the installer will ask you if you want to create a boot disk. It is recommended as it allows you to boot your Linux system from a floppy diskette and might help you when your boot loader configuration or your system should stop working for some reason (recovery).

Graphical interface (X) configuration.

Although the installation program probes to determine the best video card for your system, you can choose to use another video card (when needed). Also, make sure that you select the exact amount of video RAM. After this, hit "next" to continue.

The installer will also try to detect your monitor to set the best display settings. If your monitor is not on the list, try to choose the model that best matches your model. Note that it is also not advised to change the horizontal and vertical synchronization ranges for your monitor unless you are really sure. Using values outside the capabilities of your equipment can damage your display. Also set the requested colour depth and screen resolution on the next screen.

Reboot your system. After reboot, X will start and another graphical welcome screen will pop up. You're almost done.

Welcome to Red Hat Linux 9.

In the new graphical window, you will need to create a user account that you will use for normal (non-administrative) use. You will also be asked to set your current time and date and if you want to register your system with the Red Hat Network. It is recommended to register to the Red Hat Network as it provides you with the necessary (security) updates and early notification of problems with your system and release. It is very easy to use and manage. You can find more information about the Red Hat Network on <http://rhn.redhat.com>. A subscription to the Red Hat Network Basic Service is currently free (you will need to reply on some periodical email from Red Hat to prove that your account is still in use). At the final stage, you also have the possibility to install additional packages.

That's it. Have fun with your fresh Red Hat Linux system.

Related Links.

- Red Hat, <http://www.redhat.com>.
- Red Hat mirrors, <http://www.redhat.com/download/mirror.html>.
- Information on downloading Red Hat, http://www.redhat.com/download/howto_download.html.
- Red Hat Hardware Compatibility List, <http://hardware.redhat.com/hcl/>.
- Red Hat Linux x86 Installation Guide, <http://www.redhat.com/docs/manuals/linux/>
- Red Hat Frequently Asked Questions (FAQ), http://www.redhat.com/support/docs/faqs/rhl_general_faq.
- Red Hat Network, <http://rhn.redhat.com>.
- Red Hat 9 Release notes.