

Red Hat Linux 7.0

The Official Red Hat Linux Installation Guide

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1 Introduction

Welcome to the *Official Red Hat Linux Installation Guide*. This manual will walk you through a typical **workstation-class**¹ installation of Red Hat Linux. Once you have completed the installation as outlined in this manual, you will have a fully functioning Red Hat Linux desktop system.

Throughout this manual, you will find the following symbols:

Tip

Suggestions for installation options and post installation configurations.

Please Note

Additional information that you may find to be helpful during your installation.



Notes that certain choices or configurations could cause problems with your system setup. Please read the text carefully before continuing with the installation.

¹ A workstation-class installation is the perfect solution for a home or desktop machine. It will present you with a graphical environment to work in and all the basic applications you will need to get started.

WARNING

Explains that changes will occur to your current system, such as the removal of existing data. Read carefully to determine if the choice you are making is in your best interest.

1.1 How to Use This Manual

This manual, focusing on a workstation-class installation, is ideal for users new to Red Hat Linux and for those who want a quick and simple installation solution. It will help you prepare your system for the installation, walk you through the installation, and assist you in the configuration of your Red Hat Linux system.

For those of you who need to perform a **server-²** or a **custom-class³** installation, refer to the *Official Red Hat Linux Reference Guide* on the Documentation CD.

Please Note

If you currently use Red Hat Linux 3.0.3 (or greater), you can perform an upgrade. Skim Chapter 3, *Seven Steps to Get You Started* to review the basics, then read Chapter 5, *Installing Red Hat Linux From Start to Finish*, following the directions as you go. Once you have chosen to perform an upgrade in the installation program, refer to Appendix A, *Upgrading Your Current System*.

If you are an experienced user who wants to perform a workstation-class installation, but do not need a review of the basics, you can skip ahead to Chapter 5, *Installing Red Hat Linux From Start to Finish* to begin the installation process.

² A server-class installation sets up a typical server environment. Please note, no graphical environment is installed during a server-class installation.

³ A custom-class installation allows you to choose and configure every option for your system. While this does allow for the most flexible installation, it is not recommended that a new user attempt this installation type.

Tip

Refer to the **Red Hat Frequently Asked Questions** for answers to questions and problems that may occur before, during or after the installation. You'll find the FAQ online at:

www.redhat.com/support/docs/faqs/rhl_general_faq/FAQ.html

1.1.1 We Need Feedback!

If you spot a typo in the Installation Guide, or if you've thought of a way to make this manual better, we'd love to hear from you! Be sure to mention the manual's identifier:

`Inst(EN)-7.0-Print-RHI (2000-07-18T15:39-0400)`

That way we'll know exactly which version of the guide you have.

Please send mail to:

`docs@redhat.com`

If you have a suggestion for improving the documentation, try to be as specific as possible when describing it. If you've found an error, please include the section number and some of the surrounding text so we can find it easily. We may not be able to respond to every message sent to us, but you can be sure that we'll be reading them all!

If you have a support question (for example, if you need help configuring X, or if you aren't sure how to partition you hard drive[s]), please register your product at www.redhat.com/now and use the online support system for those type of requests.

2 New Features of Red Hat Linux 7.0

This chapter describes installation features new to Red Hat Linux 7.0. To learn about non-installation-related new features, please refer to the *Official Red Hat Linux Reference Guide* on the Documentation CD or online at <http://www.redhat.com/support/manuals>.

2.1 Installation-Related Enhancements

Improvements to Red Hat Linux 7.0 which will make installation even easier include:

New Multi-CD Install

As the installation program continues to grow, Red Hat has developed an installation program capable of installing Red Hat Linux from multiple CD-ROMs.

XFree 4.0

Configuration of your X Window System during the installation has never been more thorough. From choosing your monitor and its correct settings, to video card probing, to testing your desired X setup, Xconfigurator will help you set everything just right.

USB Support

Red Hat Linux 7.0 now supports USB devices (mice and keyboards). With USB support, there is no need to reboot when a new device is added -- just attach the device and go.

Help Text Available in Text Mode Installation

Help text has been added to the text mode installation program to further assist you during your installation of Red Hat Linux 7.0. By pressing [F1], you can enable help text for that specific screen. Press [Enter] to close the help text screen.

New GNOME Default Window Manager

The Sawfish window manager has been added as the new default manager for the GNOME desktop interface.

LDAP and Kerberos Configuration

Network security has been enhanced with the addition of LDAP and Kerberos to Red Hat Linux 7.0. For more information on these programs, refer to the *Official Red Hat Linux Reference Guide*.

3 Seven Steps to Get You Started

There are seven steps you should perform prior to installing Red Hat Linux:

3.1 Step 1 - Do You Have the Right Red Hat Linux Components?

If you've purchased the Official Red Hat Linux boxed set, you're ready to go! However, mistakes occasionally happen, so now is a good time to double-check the contents of your boxed set.

In your Red Hat Linux box, there is a red and white **Registration Card**. On the back of that card is a list of the contents of your boxed set version. Please read over this list and check to make sure that you have all the diskettes and manuals that are available with your version.

If you've purchased the Official Red Hat Linux boxed set from Red Hat, Inc. (or one of its distributors), and you're missing one or more of the items listed, please let us know! Contact information is also available on the Registration Card.

How to identify our official boxed set: The bottom of our box has an ISBN number next to one of the bar codes. That ISBN number should be in this form:

1-58569-xx-y

(The *xx* and *y* will be unique numbers.)

Red Hat partners with companies (international and domestic) so that we can make Red Hat Linux available to you in the most convenient form. Because of these partnerships, you might find that your Red Hat Linux boxed set may not have been actually produced by Red Hat.

If your box has a different ISBN number (or none at all), you'll need to contact the company that produced your boxed set. Normally, third-party producers will include their logo and/or contact information on the outside of the box; an official Red Hat Linux boxed set lists only our name and contact information.

3.1.1 Why You Should Register Your Red Hat Linux Boxed Set

If you have purchased an official Red Hat Linux 7.0 boxed set, you should register your product. Registration offers you many useful services, such as installation help support, priority FTP access, and more.

To register your product, go to <http://www.redhat.com/now>. You'll find your *Personal Product ID* on the red and white registration card in your Official Red Hat Linux boxed set. Once registered, you will be able to partake of all the extras Red Hat provides to its registered users.

For more information on registering and the scope of Red Hat's technical support offerings, see Appendix D, *Getting Technical Support*.

3.1.2 No Boxed Set? No Problem!

Of course, not everyone purchases a Red Hat Linux boxed set. It's entirely possible to install Red Hat Linux using a CD created by another company, or even via FTP. In these cases, you may need to create one or more diskettes to get started.

For information on downloading and installing Red Hat Linux via FTP, refer to http://www.redhat.com/download/howto_download.html.

For people installing Red Hat Linux from a CD-ROM not from Red Hat, you may need a boot disk, or if using a PCMCIA device during the installation (such as a laptop), a PCMCIA boot disk. It may also be possible to start the installation directly from the CD. We'll discuss this in more detail when we outline the various installation methods.

For information on making diskettes, see Section 3.5.2, *Making Installation Diskettes*.

3.2 Step 2 - Is Your Hardware Compatible?

Hardware compatibility is particularly important if you have an older system or a system that you may have built yourself. Red Hat Linux 7.0 should be compatible with most hardware in systems that were factory built within the last two years. However, with hardware specifications changing almost daily, it's hard to guarantee that your hardware will be 100% compatible.

First, gather all the system hardware information you can; the *Official Red Hat Linux Reference Guide* on the Documentation CD has instructions in the *Installation-Related Reference*

(including instructions for Windows users) which may assist you. In Chapter 4, *System Requirements Table*, a table is available for you to fill out and reference during the installation.

Second, use Red Hat's online resources to make sure your hardware is compatible and/or supported. The hardware compatibility list is located at: <http://www.redhat.com/hardware>.

3.3 Step 3 - Do You Need Errata?

Occasionally, we find that the installation may fail, and that a revised diskette image is needed for the installation to work properly. In these cases, we make special images available via the Red Hat Linux errata listing. Since this is relatively rare, you will save time if you try to use the standard diskette images first. Review the errata only if you experience problems completing the installation.

Although most of the time it's not necessary to check for errata before the installation, it is also not a bad idea, either.

Red Hat offers updated diskette images, documentation and other errata downloads for your convenience.

There are two ways to review the errata:

1. Online -- <http://www.redhat.com/support/errata>; supplies errata you can read online, and you can download diskette images easily.
2. E-mail -- By sending an empty mail message to errata@redhat.com, you will receive an e-mail containing a text listing of the complete errata of the installation program and related software (if errata exist at that time). Also included are URLs to each updated package and diskette image in the errata. Using these URLs, you can download any necessary diskette images. Please note: use binary mode when transferring a diskette image.

If you experience problems, focus on entries that include new diskette images (the filenames always end in `.img`). If you find an entry that applies to your problem, get a copy of the diskette images, and create them using the instructions in Section 3.5.2, *Making Installation Diskettes*.

Also available are documentation errata. When significant changes are made to the manuals, we make sure to update these online as well. Documentation updates can be found at http://www.redhat.com/support/errata/doc_errata/.

3.4 Step 4 - Do You Have Enough Disk Space?

Nearly every modern-day operating system uses **disk partitions**, and Red Hat Linux is no exception. When installing Red Hat Linux, it may be necessary to work with disk partitions. If you have not worked with disk partitions before (or would like a quick review of the basic concepts) please read *An Introduction to Disk Partitions* in the appendix of the *Official Red Hat Linux Reference Guide* on the Documentation CD before proceeding.

If Red Hat Linux will share your system with another OS, you will need to make sure you have enough available **disk space** on your hard drive(s) for this installation.

This disk space must be separate from the disk space used by other OSes you may have installed on your system, such as Windows, OS/2, or even a different version of Linux. This is done by dedicating one or more partitions to Red Hat Linux.

Before you start the installation process, one of the following conditions must be met:

- Your computer must have enough *unpartitioned* disk space.
- You must have one or more partitions that may be deleted, thereby freeing up enough disk space to install Red Hat Linux.
- You must have a preexisting, formatted FAT (DOS) partition with sufficient disk space, and install using the partitionless installation method (Appendix B, *Installing Without Partitioning*).

Please Note

To perform a partitionless installation, you also must choose the class of installation you want to perform. However, unlike a typical installation, you will not have to worry about losing any information on your system. A partitionless installation will not remove existing partitions. For more information, turn to Appendix B, *Installing Without Partitioning*.

A workstation-class installation requires at least 900MB of free space. This installation size requirement is the same for partitionless installations.

Please Note

To use the automatic partitioning feature of Red Hat Linux you must have enough free disk space available (900MB or more), otherwise this option will not appear during your installation.

If you are not sure that you meet these conditions or want to know how to free up more space for your Red Hat Linux installation, please refer to the partitioning appendix in the *Official Red Hat Linux Reference Guide* on the Documentation CD.

3.5 Step 5 - Can You Install Using the Red Hat Linux CD-ROM?

Although there are several methods that can be used to install Red Hat Linux, this manual only focuses on installing from the CD-ROM. For instructions on alternative installation methods, refer to the *Official Red Hat Linux Reference Guide* on the Documentation CD.

Installing from a CD requires that you have purchased a Red Hat Linux 7.0 boxed set (or have a Red Hat Linux CD-ROM) and have a CD-ROM drive. Most new computers will allow booting from the CD-ROM. With this method, you can easily use the Red Hat Linux CD-ROM to boot the installation program and perform a local CD-ROM installation.

3.5.1 Alternative Boot Methods

There are alternative boot methods available, if you cannot boot from the CD-ROM drive.

Local Boot Disk

You may need a **local boot disk** or a **PCMCIA boot disk**, if you cannot boot from the CD-ROM drive.

Included in your Official Red Hat Linux 7.0 boxed set is a local boot disk. However, if you do not have a local boot disk (for example, you downloaded Red Hat Linux rather than purchasing an official boxed set) you can make one. Refer to Section 3.5.2, *Making Installation Diskettes* for those instructions.

PCMCIA Boot Disk

You may need a PCMCIA boot disk if you are using a PCMCIA device to install Red Hat Linux. If you need a PCMCIA boot disk, you must create one. Refer to Section 3.5.2, *Making Installation Diskettes* for those instructions.

Here's a checklist to help you determine if you'll need to create a PCMCIA boot disk:

- You will install Red Hat Linux from a CD-ROM, and your CD-ROM drive is attached to your computer through a PCMCIA card.
- You will use a PCMCIA network adapter during the installation.

The PCMCIA boot disk image file is `pcmcia.img`, and is located in the `images` directory on your Red Hat Linux/Intel CD. Refer to Section 3.5.2, *Making Installation Diskettes* for more information.

Please Note

Although not required to boot your installation, you may occasionally find that a driver disk is needed for you to continue with the installation. The *Driver Disks* appendix in the *Official Red Hat Linux Reference Guide* (on the Documentation CD) explains why a driver disk may be necessary for your installation, and how to obtain one if needed.

3.5.2 Making Installation Diskettes

It is sometimes necessary to create a diskette from an **image file**; for example, you may need to use updated diskette images obtained from the Red Hat Linux errata page or you may need to create a boot disk.

An image file contains an exact copy (or image) of a diskette's contents. Since a diskette contains filesystem information in addition to the data contained in files, the image file is not usable until it has been written to a diskette.

To start, you'll need a blank, formatted, high-density (1.44MB), 3.5-inch diskette. You'll need access to a computer with a 3.5-inch diskette drive, and capable of running an MS-DOS program, or the `dd` utility found on most Linux-like operating systems.

The `images` directory on your Red Hat Linux CD contains the boot images for Red Hat Linux/Intel. Once you've selected the proper image, transfer the image file onto a diskette.

Making a Diskette Under MS-DOS

To make a diskette under MS-DOS, use the `rawrite` utility included on the Red Hat Linux CD in the `dosutils` directory. First, label a blank, formatted 3.5-inch diskette appropriately (such as "Boot Disk" or "Updates Disk"). Insert it into the diskette drive. Then, use the following commands (assuming your CD is drive `d:`):

```
C:\> d:
D:\> cd \dosutils
D:\dosutils> rawrite
Enter disk image source file name: ..\images\boot.img
Enter target diskette drive: a:
Please insert a formatted diskette into drive A: and
press --ENTER-- : [Enter]
D:\dosutils>
```

First, `rawrite` asks you for the filename of a diskette image; enter the directory and name of the image you wish to write (for example, `..\images\boot.img`). Then `rawrite` asks for a diskette drive to write the image to; enter `a:`. Finally, `rawrite` asks for confirmation that a formatted diskette is in the drive you've selected. After pressing [Enter] to confirm, `rawrite` copies the image file onto the diskette. If you need to make another diskette, label that diskette, and run `rawrite` again, specifying the appropriate image file.

Making a Diskette Under a Linux-Like OS

To make a diskette under Linux (or any other Linux-like operating system), you must have permission to write to the device representing a 3.5-inch diskette drive (known as `/dev/fd0` under Linux).

First, label a blank, formatted diskette appropriately (such as "Boot Disk" or "Updates Disk"). Insert it into the diskette drive (but don't issue a `mount` command). After mounting the Red Hat Linux CD, change directory to the directory containing the desired image file, and use the following command (changing the name of the image file and diskette device as appropriate):

```
# dd if=boot.img of=/dev/fd0 bs=1440k
```

To make another diskette, label that diskette, and run `dd` again, specifying the appropriate image file.

3.6 Step 6 - Is a Workstation-Class Installation Best For You?

Although Red Hat Linux includes four different classes, or types of installations, this manual only discusses workstation-class installations.

3.6.1 What a Workstation-Class Installation Will Do

In choosing automatic partitioning, a workstation-class installation removes all Linux-related partitions on all installed hard drives (and uses all free unpartitioned disk space) to create the following partitions:

- A 64MB swap partition.
- A variable-sized root partition (mounted as `/`) in which all other files are stored (the exact size of this partition is dependent on your available disk space).
- A 16MB partition (mounted as `/boot`) in which the Linux kernel and related files reside.

Please Note

You'll need at least 900MB of free disk space in order to perform a workstation-class installation.

This installation will remove *all* existing Linux partitions on *all* hard drives in your system; non-Linux partitions will not be removed.

A workstation-class installation will install your choice of a GNOME or KDE (or both) desktop environment, and the X Window System.

3.6.2 What a Workstation-Class Installation Will Not Do

A workstation-class installation will not erase your Windows 3.1/95/98 configuration. Instead, it will automatically configure your system to dual-boot using LILO (the Linux LOader).

A workstation-class installation will not allow you to customize your group package selection. If you do not want the installation program to select packages for you, please choose a custom-class installation and refer to the *Official Red Hat Linux Reference Guide* on the Documentation CD.



A workstation-class installation will not install correctly if you plan to create a dual-boot system with Windows NT as the second OS. If you're sharing a system with Windows NT, you will be unable to boot Windows NT. LILO will write over NT's boot loader and you will be unable to boot NT. You must perform a custom-class installation and configure LILO so that it is not installed on the Master Boot Record (MBR).

Please Note

Unlike earlier workstation-class installations, performing a Red Hat Linux 7.0 workstation-class installation will not install the network daemon `xinetd` (inet services). Withholding `xinetd` results in a more secure installation; however, in-bound¹, network-related services such as `finger`, `telnet`, `talk`, and `FTP` will not work. If you require these types of services, choose a server- or a custom-class installation.

¹ In-bound services mean that you can telnet, for instance, out to other systems, but that other systems cannot telnet into your system.

4 System Requirements Table

Use the space provided to fill in your system settings and requirements. This will help you keep a record of your current system, as well as make the installation process easier.

Table 4–1 System Requirements

<i>Hard Drive(s)</i> : Type, label, size; ex: IDE hda=1.2G	1)
<i>Partitions</i> : map of partitions and mount points; ex: /dev/hda1=/home, /dev/hda2=/ (fill this in once you know where they will reside).	2)
<i>Memory</i> : Amount of RAM installed on your system; ex: 64MB, 128MB	3)
<i>CD-ROM</i> : Interface Type; ex: SCSI, IDE (ATAPI)	4)
<i>SCSI Adapter</i> : If present, make and model number; ex: BusLogic SCSI Adapter, Adaptec 2940UW	5)
<i>Network Card</i> : If present, make and model number; ex: Tulip, 3COM 3C590	6)

<i>Mouse:</i> Type, protocol, and number of buttons; ex: generic 3 button PS/2 mouse, MouseMan 2 button serial mouse	7)
<i>Monitor:</i> Make, model, and manufacturer specifications; ex: Optiquest Q53, ViewSonic G773	8)
<i>Video Card:</i> Make, model number and size of VRAM; ex: Creative Labs Graphics Blaster 3D, 8MB	9)
<i>Sound Card:</i> Make, chipset and model number; ex: S3 SonicVibes, Sound Blaster 32/64 AWE	10)
<i>IP, DHCP, and BOOTP Addresses:</i> Four numbers, separated by dots; ex: 10.0.2.15 (<i>contact your netadmin for help</i>)	11)
<i>Netmask:</i> Usually four numbers, separated by dots; ex: 255.255.248.0 (<i>contact your netadmin for help</i>)	12)

<i>Gateway IP address:</i> Four numbers, separated by dots; ex: 10.0.2.245 (<i>contact your netadmin for help</i>)	13)
<i>One or more name server IP Addresses (DNS):</i> Usually one or more sets of dot-separated numbers; ex: 10.0.2.1 (<i>contact your netadmin for help</i>)	14)
<i>Domain name:</i> the name given to your organization; ex: Red Hat's would be redhat.com (<i>contact your netadmin for help</i>)	15)
<i>Hostname:</i> the name of your computer; your personal choice of names ex: cookie, southpark (<i>contact your netadmin for help</i>)	16)

5 Installing Red Hat Linux From Start to Finish

This chapter discusses all steps of a Red Hat Linux workstation-class installation. We'll cover the following areas:

- Getting familiar with the installation program's user interface
- Starting the installation program
- Selecting an installation method
- Configuration steps during the installation (language, keyboard, mouse, etc.)
- Finishing the installation

By the end of this chapter, you will have Red Hat Linux 7.0 installed on your system.

5.1 The Installation Program User Interface

If you've used a **graphical user interface (GUI)** before, you'll be familiar with this process. If not, simply use your mouse to navigate the screens, "click" buttons or enter text fields. You can also navigate through the installation using the [Tab] and [Enter] keys.

If you do not wish to use the GUI installation program, the text mode installation program is also available. To enter text mode, enter the following boot command:

```
boot: text
```

5.1.1 Mouse Not Detected?

If the **Mouse Not Detected** screen (see Figure 5-1, *Mouse Not Detected*) appears, then the installation program was not able to identify your mouse correctly.

You can choose to continue with the GUI installation or use the text mode installation, which does not require using a mouse. If you choose to continue with the GUI installation, you will need to provide the installation program with your mouse configuration information (see Figure 5-4, *Mouse Configuration*).

Figure 5–1 Mouse Not Detected



For text mode workstation-class installation instructions, please refer to Chapter 6, *Text Mode Installations at a Glance*.

For text mode custom installation instructions, please refer to the *Official Red Hat Linux Reference Guide* on the Documentation CD.

5.1.2 A Note About Virtual Consoles

The Red Hat Linux installation program offers more than the dialog boxes of the installation process. Several types of diagnostic messages are available to you, and you're additionally provided a way to enter commands from a shell prompt. This information is presented on five **virtual consoles**, among which you can switch using a single keystroke.

These virtual consoles can be helpful if you encounter a problem while installing Red Hat Linux. Messages displayed on the installation or system consoles can help pinpoint a problem. Please see Table 5–1, *Console, Keystrokes, and Contents* for a listing of the virtual consoles, keystrokes to switch to them, and their contents.

Generally, there's no reason to leave the default console (virtual console #7) unless you are attempting to diagnose installation problems. But if you get curious, feel free to look around.

Table 5–1 Console, Keystrokes, and Contents

Console	Keystrokes	Contents
1	[Ctrl]-[Alt]-[F1]	installation dialog
2	[Ctrl]-[Alt]-[F2]	shell prompt
3	[Ctrl]-[Alt]-[F3]	install log (messages from installation program)
4	[Ctrl]-[Alt]-[F4]	system-related messages
5	[Ctrl]-[Alt]-[F5]	other messages
7	[Ctrl]-[Alt]-[F7]	X graphical display

5.2 Starting the Installation Program

Now it's time to begin installing Red Hat Linux. To start the installation, you must first boot the installation program. Please make sure you have all the resources you'll need for the installation. If you've already read through Chapter 3, *Seven Steps to Get You Started*, and followed the instructions, you should be ready to begin.

Please Note

Occasionally, some hardware components require a **driver disk** during the installation. The driver disk could be produced by Red Hat, it could be a disk made by you, or it could be a disk that a hardware vendor includes with a piece of hardware. Another source for finding driver disks is <http://www.redhat.com/support/errata/>.

If a screen appears prompting you to insert a driver disk, please do so. For more information about driver disks, refer to *Appendix C. Driver Disks* in the *Official Red Hat Linux Reference Guide* on the Documentation CD.

5.2.1 Booting the Installation Program

Please Note

If you need to create a boot disk, please refer to Section 3.5.2, *Making Installation Diskettes*.

Insert the boot disk into your computer's first diskette drive and reboot (or boot using the CD-ROM, if your computer supports this).

Your BIOS settings may need to be changed to allow you to boot from the diskette or CD-ROM.

Tip

To change your BIOS, take note of the instructions given when your computer first begins to boot. Often you will see a line of text telling you to press the [Del] or [F1] key to enter the BIOS settings.

Next, find the section where you can alter your boot sequence. The default is often C, A or A, C (depending on whether you boot from your hard drive [C] or a floppy drive [A]). Change this sequence so that the CD-ROM is first in your boot order and that C or A (whichever is your typical boot default) is second. This instructs the computer to first look at the CD-ROM drive for bootable media; if it cannot be found there, it will look at your hard drive or floppy next.

Save your changes before exiting the BIOS. For more information please refer to the documentation that came with your system.

There are three possible workstation-class boot methods:

- *Bootable CD-ROM* -- your machine supports a bootable CD-ROM drive and you want to perform a local CD-ROM installation.
 - *Local boot disk* -- your machine will not support a bootable CD-ROM and you want to install from a local CD-ROM or a hard drive.
-

- *PCMCIA boot disk* -- use in cases where you need PCMCIA support, but your machine does not support booting from the CD-ROM drive *or* if you need PCMCIA support in order to make use of the CD-ROM drive on your system. This boot disk offers you all installation methods (CD-ROM, hard drive, NFS, FTP, and HTTP).

After a short delay, a screen containing the `boot :` prompt should appear. The screen contains information on a variety of boot options. Each boot option also has one or more help screens associated with it. To access a help screen, press the appropriate function key as listed in the line at the bottom of the screen.

You should keep two things in mind:

- The initial screen will automatically start the installation program if you take no action within the first minute. To disable this feature, press one of the help screen function keys.
- If you press a help screen function key, there will be a slight delay while the help screen is read from the installation media.

Normally, you'll only need to press [Enter] to boot. Watch the boot messages to see whether the Linux kernel detects your hardware. If it does not properly detect your hardware, you may need to restart the installation in "expert" mode. If your hardware is properly detected, please continue to the next section. For more information about "expert" mode, refer to section *Starting the Installation Program* in the chapter *Installing Red Hat Linux via the GUI* in the *Official Red Hat Linux Reference Guide* on the Documentation CD.

Booting without diskettes

Another way to start the installation without using a boot disk depends on whether you have MS-DOS on your system. The following method is specific to Intel-based computers only.

Assuming your CD-ROM is drive `d :`, use the following commands:

```
C:\> d:  
D:\> cd \dosutils  
D:\dosutils> autoboot.bat
```

This method will not work if run in a DOS window -- the `autoboot.bat` file must be executed with DOS as the only operating system. In other words, you should reboot your system and choose to "restart in MS-DOS mode."

If your computer can't boot directly from CD-ROM (and you can't use a DOS-based `autoboot`), you'll have to use a boot diskette to get things started.

5.3 Selecting an Installation Method

Next, you will be asked what type of installation method you wish to use. For our purposes, choose **CD-ROM**. However, you can install Red Hat Linux via any of the following basic methods:

CD-ROM

If you have a CD-ROM drive and the Red Hat Linux CD-ROM. Requires a boot disk, a bootable CD-ROM or a PCMCIA boot disk. Refer to Section 5.4, *Beginning the Installation* for further instructions.

Hard Drive

If you copied the Red Hat Linux files to a local hard drive. Refer to the *Official Red Hat Linux Reference Guide* on the Documentation CD for hard drive installation instructions. Requires a boot disk or a PCMCIA boot disk.

NFS Image

If you are installing from an NFS Image server which is exporting the Red Hat Linux CD-ROM or a mirror image of Red Hat Linux. Requires a network or PCMCIA boot disk. Refer to the *Official Red Hat Linux Reference Guide* on the Documentation CD for network installation instructions. Please note: NFS installations may also be performed in GUI mode.

FTP

If you are installing directly from an FTP server. Requires a network or PCMCIA boot disk. Refer to the *Official Red Hat Linux Reference Guide* on the Documentation CD for FTP installation instructions.

HTTP

If you are installing directly from an HTTP Web server. Requires a network or PCMCIA boot disk. Refer to the *Official Red Hat Linux Reference Guide* on the Documentation CD for HTTP installation instructions.

5.4 Beginning the Installation

If you are planning to install via CD-ROM using the graphical interface, please read on.

Please Note

If you'd rather perform a text mode custom-class installation, reboot your system and at the `boot:` prompt, type **text**. Refer to the *Official Red Hat Linux Reference Guide* on the Documentation CD for further instructions. Text mode workstation-class installation instructions can be found at Chapter 6, *Text Mode Installations at a Glance*.

5.4.1 Installing from CD-ROM

To install Red Hat Linux from CD-ROM, choose **CD-ROM** and select **OK**. When prompted, insert the Red Hat Linux CD into your CD-ROM drive (if you did not boot from the CD-ROM). Select **OK**, and press [Enter].

The installation program will then probe your system and attempt to identify your CD-ROM drive. It will start by looking for an IDE (also known as ATAPI) CD-ROM drive. If found, you will continue to the next stage of the installation process (see Section 5.5, *Language Selection*).

If a drive is not detected, you'll be asked what type of CD-ROM drive you have. Choose from the following types:

SCSI

Select this if your CD-ROM drive is attached to a supported SCSI adapter; the installation program will then ask you to choose a SCSI driver. Choose the driver that most closely resembles your adapter. You may specify options for the driver if necessary; however, most drivers will detect your SCSI adapter automatically.

Other

If your CD-ROM drive is neither an IDE nor a SCSI, it's an "other." Sound cards with proprietary CD-ROM interfaces are good examples of this CD-ROM type. The installation program presents a list of drivers for supported CD-ROM drives -- choose a driver and, if necessary, specify any driver options.

Tip

A partial list of optional parameters for CD-ROM drives can be found in the *Official Red Hat Linux Reference Guide*, in the *General Parameters and Modules* appendix.

What If the IDE CD-ROM Was Not Found?

If the installation program fails to find your IDE (ATAPI) CD-ROM (it asks you what type of CD-ROM drive you have), restart the installation, and at the `boot :` prompt enter **linux hdX=cdrom**. Replace the **X** with one of the following letters, depending on the interface the unit is connected to, and whether it is configured as master or slave:

- a - First IDE controller, master
- b - First IDE controller, slave
- c - Second IDE controller, master
- d - Second IDE controller, slave

(If you have a third and/or fourth controller, simply continue assigning letters in alphabetical order, going from controller to controller, and master to slave.)

Once identified, you will be asked to insert the Red Hat Linux CD into your CD-ROM drive. Select **OK** when you have done so. After a short delay, the next dialog box will appear.

Please Note

To abort the installation process at this time, reboot your machine and eject the boot disk or CD-ROM. You can safely abort the installation at any point before the **About to Install** screen (see Section 5.17, *Preparing to Install*).

5.5 Language Selection

Using your mouse, select the language you would prefer to use for the installation and as the system default (see Figure 5–2, *Language Selection*).

Selecting the appropriate language will also help target your time zone configuration later in the installation. The installation program will try to define the appropriate time zone based on your specification.

Figure 5–2 Language Selection



5.6 Keyboard Configuration

Choose the model that best fits your system (see Figure 5–3, *Keyboard Configuration*). If you cannot find an exact match, choose the best **Generic** match for your keyboard type (for example, **Generic 101-key PC**).

Next, choose the correct layout type for your keyboard (for example, U.S. English).

Creating special characters with multiple keystrokes (such as Ñ, Ô, and Ç) is done using "dead keys" (also known as compose key sequences). Dead keys are enabled by default. If you do not wish to use them, select **Disable dead keys**.

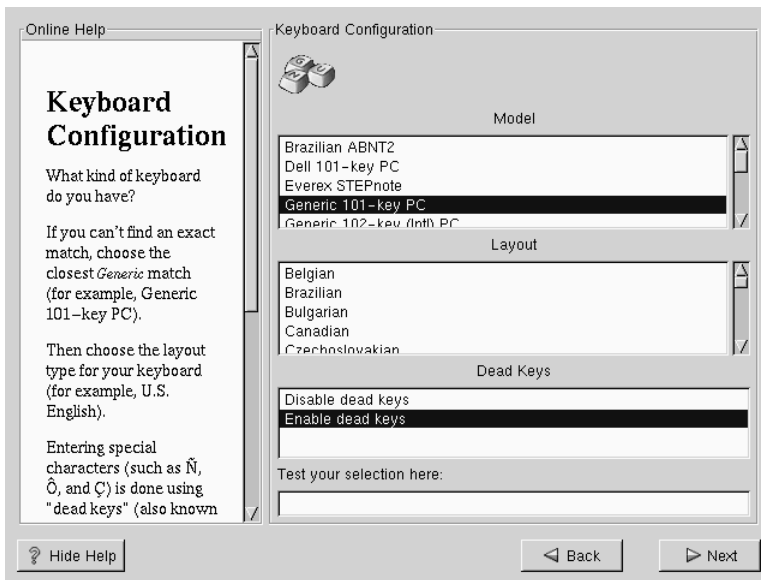
To test your keyboard configuration, use the blank text field at the bottom of the screen to enter text.

Tip

To change your keyboard type post-installation, become **root** and use the `/usr/sbin/kbdconfig` command, or you can type `setup` at the root prompt (seen as `[root@localhost root]#`).

To become root, type **su** at the shell prompt in a terminal window and then press [Enter]. Then, enter the root password and press [Enter].

Figure 5–3 Keyboard Configuration



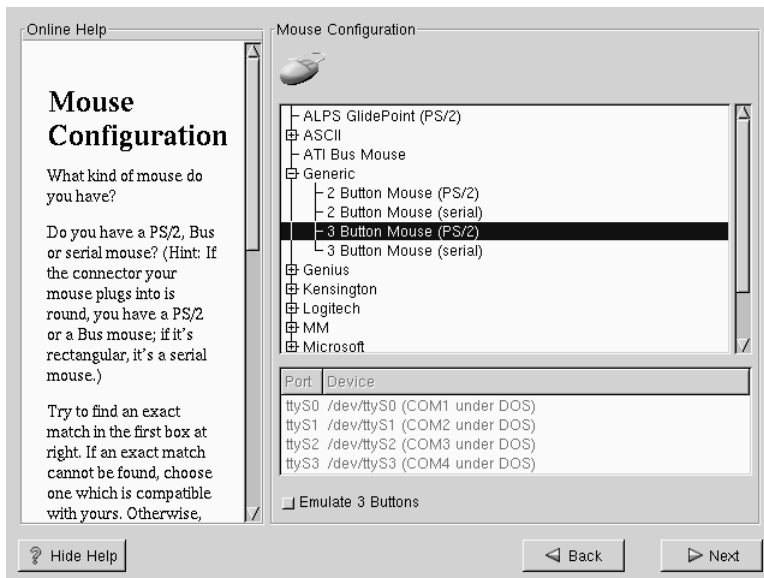
5.7 Mouse Configuration

Choose the correct mouse type for your system. If an exact match cannot be found, choose a mouse type that you are sure is compatible with your system (see Figure 5–4, *Mouse Configuration*).

To determine your mouse's interface, follow the mouse cable back to where it plugs into your system. If the connector at the end of the mouse cable plugs into a rectangular connector, you have a serial mouse; if the connector is round, you have a PS/2 mouse. If you are installing Red Hat Linux on a laptop computer, in most cases the pointing device will be PS/2 compatible.

If you cannot find a mouse that you are sure is compatible with your system, select one of the **Generic** entries, based on your mouse's number of buttons, and its interface.

Figure 5–4 Mouse Configuration



If you have a PS/2 or a Bus mouse, you do not need to pick a port and device. If you have a serial mouse, you should choose the correct port and device that your serial mouse is on.

The **Emulate 3 Buttons** check box allows you to use a two-button mouse as if it had three buttons. If you select this check box, you can emulate a third, "middle" button by pressing both mouse buttons simultaneously. Generally, it's easiest to use the X Window System if you have a three-button mouse.

Tip

To change your mouse configuration post-installation, become root. You can then use the `/usr/sbin/mouseconfig` command from the shell prompt.

To configure your mouse as a left-handed mouse, you can reset the order of the mouse buttons. This can be done after you have booted your Red Hat Linux system, by becoming root and typing `gpm -B 321` at the shell prompt.

5.8 Welcome to Red Hat Linux

The **Welcome** screen (see Figure 5–5, *Welcome to Red Hat Linux*) does not prompt you for any installation input. Please read over the help text in the left panel for additional instructions and information.

Figure 5–5 Welcome to Red Hat Linux



The **help screen** is open by default, but if you do not want to view the help information, click on the **Hide Help** button to minimize the screen.

Click on the **Next** button to continue.

5.9 Install Options

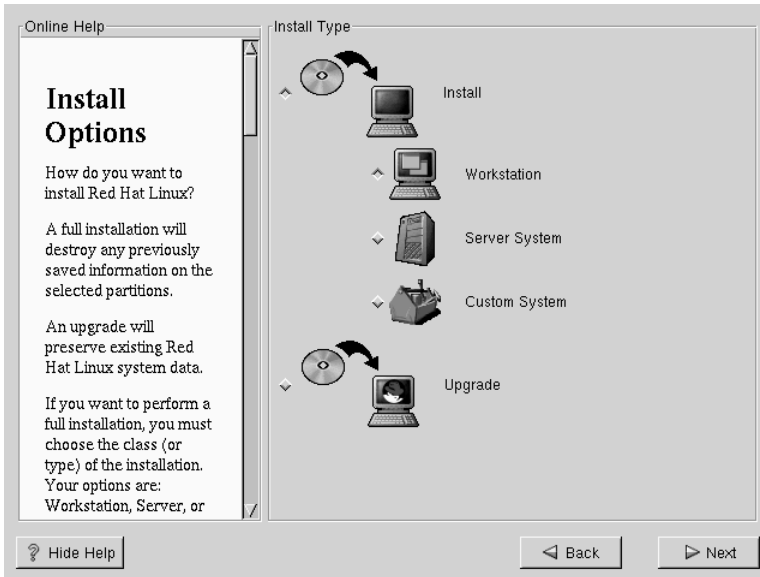
Please Note

Feature: Red Hat Linux 7.0 has a installation method known as a "partitionless" installation. If your system has a FAT (DOS/Windows) partition with sufficient free space, you can install Red Hat Linux without repartitioning your hard drive. This method is perfect for people who are new to Linux, and would like to try Red Hat Linux with a minimum of disruption to their computer. To learn more about this method, refer to Appendix B, *Installing Without Partitioning*.

Red Hat Linux allows you to choose the installation type that best fits your needs. Your options include: **Workstation**, **Server**, **Custom**, or **Upgrade**.

WARNING

Installing Red Hat Linux over another installation of Linux (including Red Hat Linux) does *not* preserve any information (files or data) from a prior installation. Make sure you save any important files! If you are worried about saving the current data on your existing system (without making a backup on your own), you should consider performing an upgrade instead (see Appendix A, *Upgrading Your Current System*).

Figure 5–6 Choosing Install or Upgrade

Choosing your specific installation type also determines where you should go for documentation on that choice.

- Graphical Workstation Installation -- *Official Red Hat Linux Installation Guide*, (this chapter, please continue reading)
- Graphical Server Installation -- *Official Red Hat Linux Reference Guide* on the Documentation CD; Chapter: *Installing Red Hat Linux via the GUI*
- Graphical Custom Installation -- *Official Red Hat Linux Reference Guide* on the Documentation CD; Chapter: *Installing Red Hat Linux via the GUI*
- Text Mode Workstation Installation -- *Official Red Hat Linux Installation Guide*; Chapter *Installing in Text Mode*
- Text Mode Server Installation -- *Official Red Hat Linux Reference Guide* on the Documentation CD; Chapter: *Installing Red Hat Linux via Text Mode*
- Text Mode Custom Installation -- *Official Red Hat Linux Reference Guide* on the Documentation CD; Chapter: *Installing Red Hat Linux via Text Mode*

5.9.1 Choosing a Workstation Installation

WARNING

A workstation-class installation will erase *all information in all Linux-related partitions* from every one of your computer's hard drive(s).

You usually install Red Hat Linux on a clean disk partition or set of partitions, or over another installation of Linux.

WARNING

Do not choose a workstation-class installation if you're sharing a disk with Windows NT; if you do, you will be unable to boot Windows NT. LILO will write over NT's boot loader and you will be unable to boot NT. You must perform a custom-class installation and configure LILO so that it is not installed on the Master Boot Record (MBR).

To create a dual-boot environment on a system that currently has NT, you must install LILO on the first sector of the root partition, not the MBR. Please be sure to create a boot disk. In a case such as this, you will either need to use the boot disk, or configure the NT system loader to boot LILO from the first sector of the root partition. Be sure to check out <http://www.linux-doc.org/HOWTO/mini/Linux+NT-Loader.html> for more information on setting up LILO and NT.

5.10 Automatic Partitioning

Automatic partitioning allows you to perform an installation without having to partition your drive(s) yourself. If you feel uncomfortable about manually partitioning your system, choosing automatic partitioning is the best solution for you.

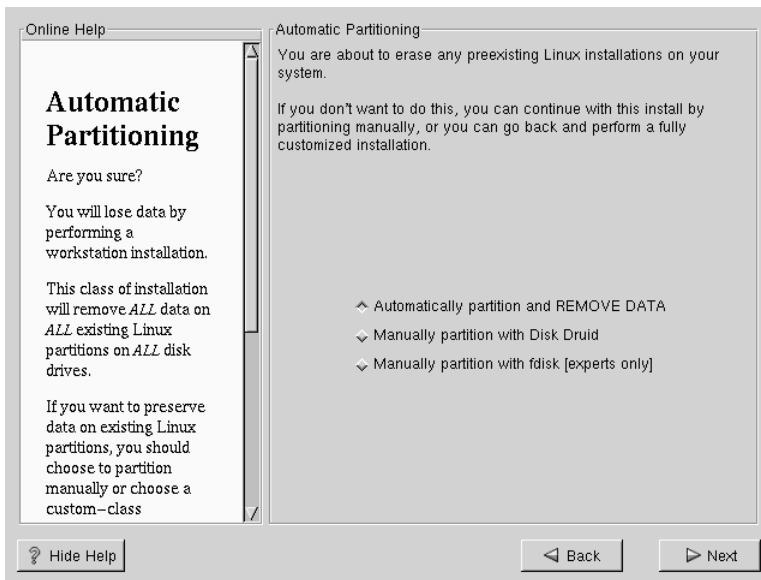
The **Automatic Partitioning** screen is only seen when performing a workstation- or server-class installation.

If you choose to manually partition, refer to the *Official Red Hat Linux Reference Guide* on the Documentation CD; see the Chapter *Installing Red Hat Linux via the GUI*.

Please Note

If the **Automatic Partitioning** screen does not appear, then you do not have enough free space available for this installation option. You can either exit out of the installation program and then make space available, or you can partition manually.

Figure 5–7 Automatic Partitioning



In this screen, you can choose to continue with this installation, to partition manually using Disk Druid, to partition manually using fdisk, or use the **Back** button to choose a different installation method (see Figure 5–7, *Automatic Partitioning*).

Please Note

Manual partitioning using Disk Druid or `fdisk` is outside the scope of this manual. Although Disk Druid will be briefly discussed, detailed information on both Disk Druid and `fdisk` is available in the *Official Red Hat Linux Reference Guide* on the Documentation CD.

Automatic partitioning in a workstation-class installation will create `/` ("root"), `<swap>`, and `/boot` partitions for you in the free space available on your hard drive.

If you do *not* want to lose some or all of your data, you should either choose to partition manually or choose a different installation class.



A workstation-class installation will remove all data on all currently existing Linux partitions.

If you do not want Red Hat Linux to be installed on your master boot record (MBR) or if you want to use a boot manager other than LILO, do not choose this installation method.

If you are unsure how you want your system to be partitioned, please read the chapter on partitioning in the *Official Red Hat Linux Reference Guide*, on the Documentation CD.

5.11 Manually Partitioning Your System

If you chose **Automatic Partitioning**, please skip to Section 5.12, *Network Configuration*.

For information concerning `fdisk`, refer to the *Official Red Hat Linux Reference Guide* on the Documentation CD.

Now it's necessary to let the installation program know where it should install Red Hat Linux. This is done by defining **mount points**¹ for one or more disk partitions in which Red Hat

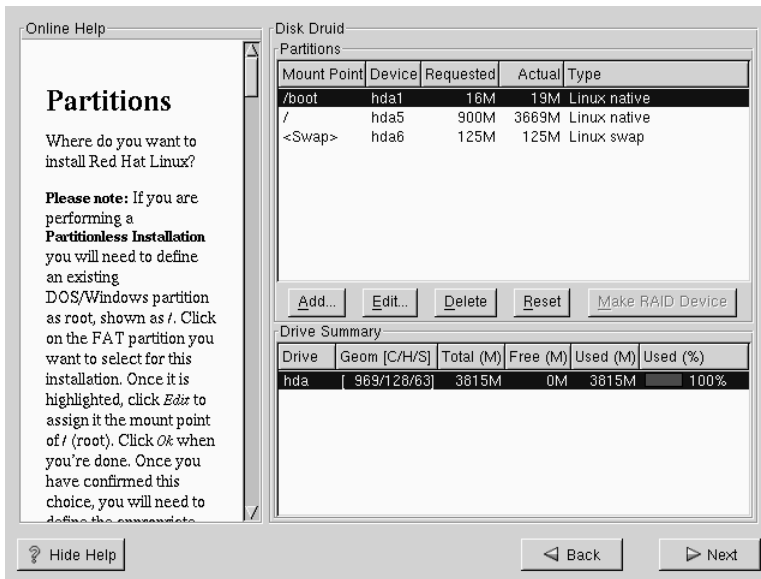
¹ A mount points is defined as the directory, such as `/` (root), under which a filesystem becomes accessible after being mounted.

Linux will be installed. You may also need to create and/or delete partitions at this time (refer to Figure 5–8, *Partitioning with Disk Druid*).

Please Note

If you have not planned how you'll set up your partitions, refer to the partitioning appendix in the *Official Red Hat Linux Reference Guide*. As a bare minimum, you'll need a root partition of 900M, and a swap partition of 16 MB.

Figure 5–8 Partitioning with Disk Druid



The partitioning tool used in Red Hat Linux 7.0 is Disk Druid. With the exception of certain esoteric situations, Disk Druid can handle the partitioning requirements for a typical Red Hat Linux installation.

Unless you have a reason for doing otherwise, we recommend that you create the following partitions:

- A swap partition (at least 16MB) -- Swap partitions are used to support virtual memory. In other words, data is written to a swap partition when there is not enough RAM to store the data your system is processing. If your computer has 16MB of RAM or less, you *must* create a swap partition. Even if you have more memory, a swap partition is still recommended. The minimum size of your swap partition should be equal to the amount of RAM in your system or 16MB (whichever is larger). In Disk Druid, the partition field for swap should look similar to:

```
<Swap> hda2 125M 125M Linux swap
```

- A /boot partition (16MB, maximum) -- The partition mounted on /boot contains the operating system kernel (which allows your system to boot Red Hat Linux), along with files used during the bootstrap process. Due to the limitations of most PC BIOSes, creating a small partition to hold these files is a good idea. This partition should be no larger than 16MB. In Disk Druid, the partition field for /boot should look similar to:

```
/boot hda1 16M 19M Linux native
```

- A root partition (900MB-1.7GB) -- This is where "/" (the root directory) resides. In this setup, all files (except those stored in /boot) reside on the root partition. A 900MB root partition will permit the equivalent of a workstation-class installation (with *very* little free space), while a 1.7GB root partition will let you install every package in Red Hat Linux. In Disk Druid, the partition field for / should look similar to:

```
/ hda2 900M 3669M Linux native
```

5.11.1 Problems When Adding a Partition

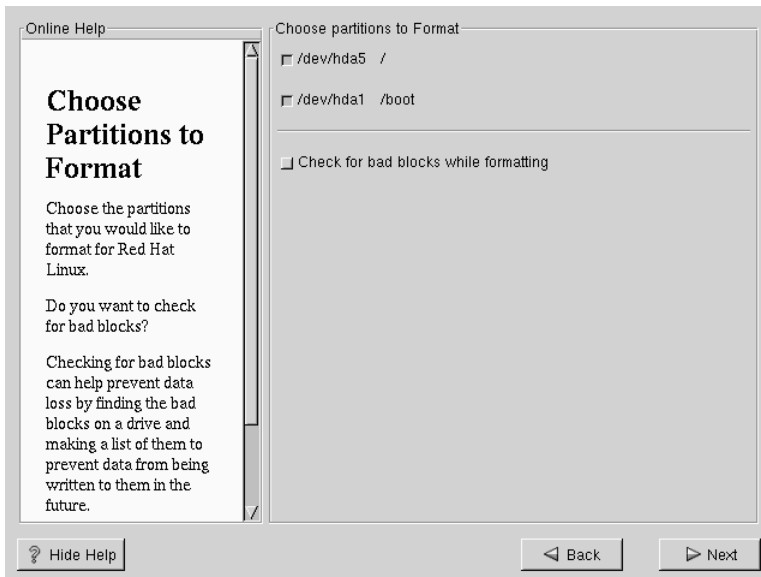
If you attempt to add a partition and Disk Druid can't carry out your request, you'll see a dialog box listing partitions that are currently **unallocated**, along with the reason they could not be allocated. Unallocated partition(s) are also displayed on Disk Druid's main screen (though you may have to scroll through the "Partitions" section to see them).

To fix an unallocated requested partition, you must move the partition to another drive which has the available space, resize the partition to fit on the current drive, or delete the partition entirely. Make changes by selecting a partition and using the **Edit** button or by double-clicking on the partition.

5.11.2 Choose Partitions to Format

Choose partitions that you would like to format. All newly created partitions should be formatted. Any existing partitions that contain data you no longer need should also be formatted (see Figure 5–9, *Choosing Partitions to Format*).

Figure 5–9 Choosing Partitions to Format



Checking for bad blocks can help prevent data loss by locating the bad blocks on a drive and making a list of them to prevent their future use. If you wish to check for bad blocks while formatting each filesystem, please make sure to select the **check for bad blocks** option.

Please Note

Selecting **check for bad blocks** may dramatically increase your total installation time. Since most newer hard drives are quite large in size, checking for bad blocks may take a while depending on the size of your hard drive.

5.12 Network Configuration

If you do not have a network card then you will not see this screen. Please skip ahead to the next section, Section 5.13, *Time Zone Configuration*.

If you have a network card, you now have the opportunity to configure networking (as shown in Figure 5–10, *Network Configuration*).

Choose your device type and whether you would like to configure using **DHCP** (Dynamic Host Configuration Protocol). If you have multiple Ethernet devices, each device will keep the information you have provided. You may switch between devices, for example eth0 and eth1, and the information you give will be specific to each device. If you select **Activate on boot**, your network interface will be started when you boot. If you do not have DHCP client access or are unsure of the proper configuration, please contact your network administrator.

Next enter, where applicable, the **IP Address**, **Netmask**, **Network**, and **Broadcast** addresses. If you are unsure about any of these, please contact your network administrator.

Figure 5–10 Network Configuration

The screenshot shows a window titled "Network Configuration" with a help pane on the left. The help pane contains the text: "Network Configuration. Choose your network card and whether you would like to configure using DHCP. If you have multiple Ethernet devices, each device will have its own configuration screen. You can switch between device screens, (for example eth0 and eth1); the information you give will be specific to each screen. If you select *Activate on boot*, your network card will be started when you boot." The main configuration area is for the interface "eth0". It has two checkboxes: "Configure using DHCP" (unchecked) and "Activate on boot" (checked). Below these are four input fields: "IP Address" (192.168.0.1), "Netmask" (255.255.255.0), "Network" (192.168.0.254), and "Broadcast" (192.168.0.1). A section for DNS settings includes "Hostname" (sparky.redhat.com), "Gateway" (192.168.0.1), "Primary DNS" (207.175.42.153), and empty fields for "Secondary DNS" and "Ternary DNS". At the bottom are "Hide Help", "Back", and "Next" buttons.

eth0	
<input type="checkbox"/> Configure using DHCP	
<input checked="" type="checkbox"/> Activate on boot	
IP Address:	192.168.0.1
Netmask:	255.255.255.0
Network:	192.168.0.254
Broadcast:	192.168.0.1
Hostname:	sparky.redhat.com
Gateway:	192.168.0.1
Primary DNS:	207.175.42.153
Secondary DNS:	
Ternary DNS:	

If you have a network card, enter a fully qualified domain name in this format: *host-name.domain.name*

Tip

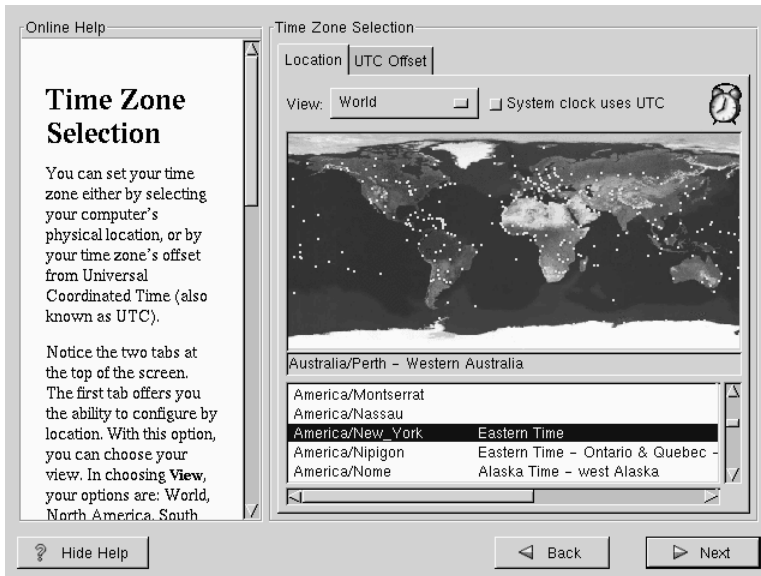
Even if your computer is not part of a network, you can enter a hostname for your system. Take this opportunity to enter in a name; if you do not, your system will be known as `localhost`.

Finally, enter the **Gateway** and **Primary DNS** (and if applicable the **Secondary DNS** and **Tertiary DNS**) addresses.

5.13 Time Zone Configuration

You can set your time zone either by selecting your computer's physical location, or by your time zone's offset from Universal Coordinated Time (also known as UTC).

Figure 5–11 Configuring Time Zone



Notice the two tabs at the top of the screen (see Figure 5–11, *Configuring Time Zone*). The first tab offers you the ability to configure by location. With this option, you can choose your view. In choosing **view**, your options are: **World, North America, South America, Pacific Rim, Europe, Africa, and Asia**.

From the interactive map, you can also click on a specific city, as indicated by the yellow dots; a red **X** will appear indicating your selection. You can also scroll through a list and choose your desired time zone.

The second tab offers you the ability to use the UTC offset. UTC presents you with a list of offsets to choose from, as well as an option to set daylight saving time.

For both tabs, there is the option of selecting **System Clock uses UTC**. Please select this if you know that your system is set to UTC.

Tip

If you wish to change your time zone configuration after you have booted your Red Hat Linux system, become root and use the `/usr/sbin/timeconfig` command.

5.14 Account Configuration

The **Account Configuration** screen allows you to set your root password. Additionally, you can set up user accounts for you to log into once the installation is complete (see Figure 5–12, *Account Creation*).

5.14.1 Setting the Root Password

The installation program will prompt you to set a **root password**² for your system. Entering a root password is required. The installation program will not let you proceed to the next section without entering a root password.

The root password must be at least six characters long; the password you type is not echoed to the screen. You must enter the password twice; if the two passwords do not match, the installation program will ask you to enter them again.

² A root password is the administrative password for your Red Hat Linux system. You should only log in as root when needed for system maintenance. Changes that are made when logged in as root will affect the the system and all users created on the system.

You should make the root password something you can remember, but not something that is easy for someone else to guess. Your name, your phone number, **qwerty**, **password**, **root**, **123456**, and **anteater** are all examples of poor passwords. Good passwords mix numerals with upper and lower case letters and do not contain dictionary words: **Aard387vark** or **429BKttKT**, for example. Remember that the password is case-sensitive. Write down this password and keep it in a secure place.

Please Note

Do not use one of the example passwords offered in this manual. Using one of these password could be considered a security risk.

Figure 5–12 Account Creation

Online Help

Account Configuration

Enter a password for the root account. The password must be at least six characters in length. Confirm the password by re-entering the password in the second entry field. The **Next** button will become enabled once both entry fields match.

Then create a user account.

Enter a user account name. Next, create a

Account Configuration

Root Password:

Confirm:

Root password accepted.

Account Name:

Password: Password (confirm):

User password accepted.

Full Name:

Account Name	Full Name
kath	Katherine E. Brock

Please Note

The **root** user (also known as the **superuser**) has complete access to the entire system; for this reason, logging in as the root user is best done *only* to perform system maintenance or administration.

5.14.2 Setting Up User Accounts

A user account allows you to safely and easily log into your computer without having to be **root** to create other accounts.

Enter an account name. Then enter and confirm a password for that user account. Enter the full name of the account user and press [Enter]. Your account information will be added to the account list, clearing the user account fields so you can add another user.

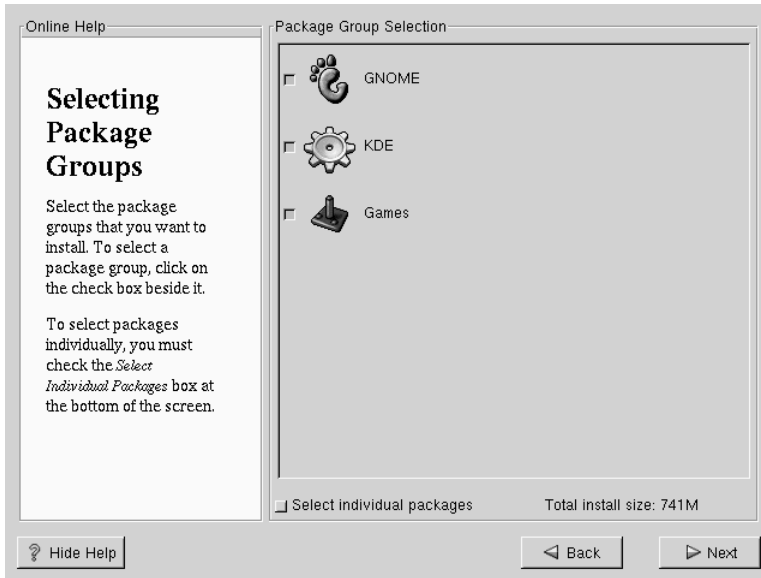
You can also choose **New** to add a new user. Enter the user's information and use the **Add** button to add the user to the account list.

You can also **Edit** or **Delete** the user accounts you have created or no longer want.

5.15 Selecting Package Groups

Although a workstation-class installation will automatically choose most of the packages for you, you must select either GNOME or KDE (or both). You can also choose whether to install the **Games** package.

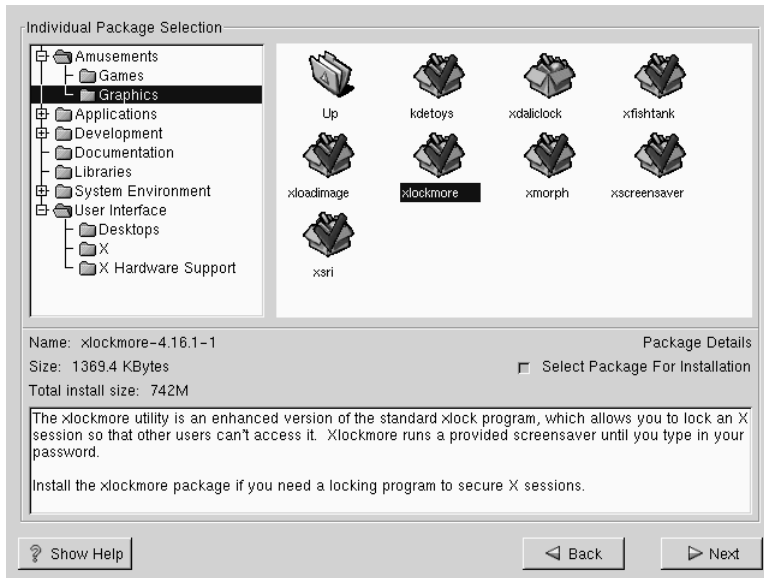
Additionally, if you would like to select individual packages, check **Select Individual Packages** and click **Next**.

Figure 5–13 Package Selection

GNOME and KDE are both graphical **desktop environments**³ that handle the overall look and feel of your system. You must choose one of these to have a default graphical setup, but you can also install both to determine for yourself which you prefer.

If you do not have unlimited space (at least 1.7G) to install both, the following section will help make the choice a little easier for you.

³ A desktop environment in Linux is similar to the environment you might see in other operating systems. However, environments differ in their look and feel and are easily customized for your individual needs.

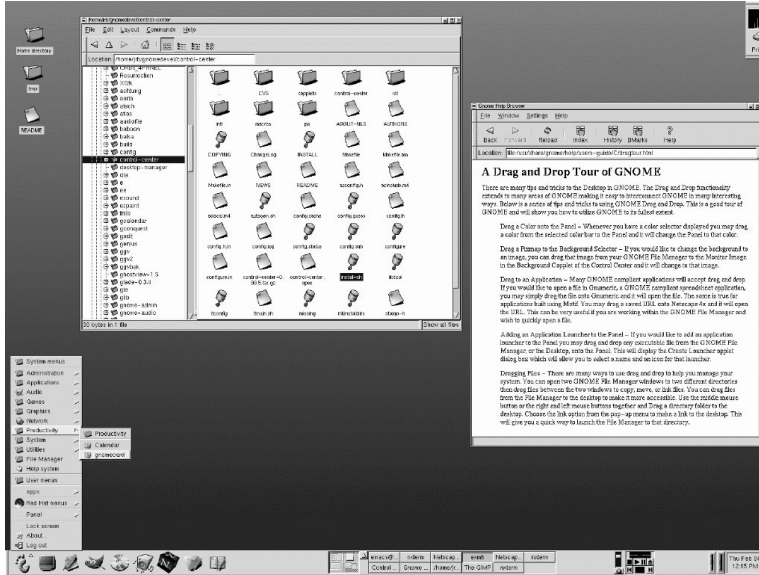
Figure 5–14 Individual Package Selection

5.15.1 A Brief Introduction to GNOME

GNOME is a powerful graphics-driven environment. GNOME includes a panel (for starting applications and displaying status), a desktop (where data and applications can be placed), multiple window managers (which control the look and feel of your desktop), and a standard set of desktop tools and applications.

GNOME allows you to set your desktop the way you want it to look and "feel." GNOME's session manager remembers settings and currently running programs, so once you've set things the way you like they'll stay that way.

Figure 5–15 GNOME User Screen

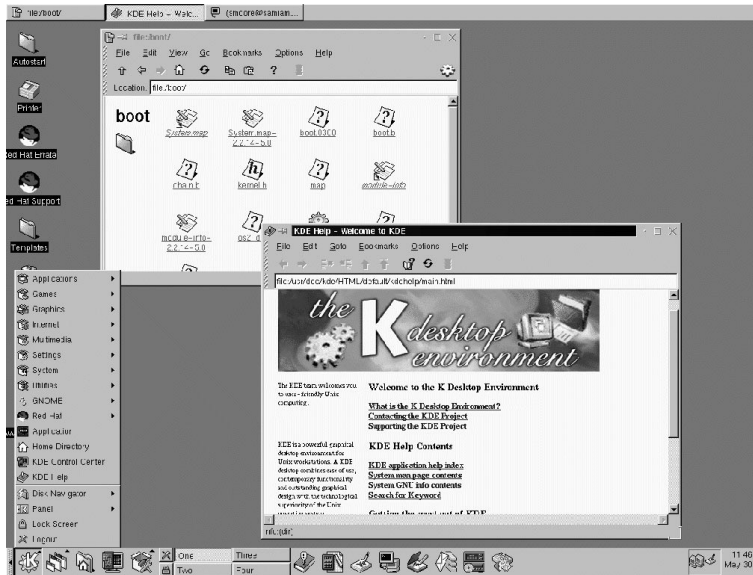


5.15.2 A Brief Introduction to KDE

KDE provides a complete desktop environment, including a file manager, a window manager, an integrated help system, a configuration system, numerous tools and utilities, and an ever increasing number of applications.

KDE offers a contemporary desktop, a searchable help system with convenient access to help on the use of the KDE desktop and its applications, standardized menu and toolbars, keybindings, color schemes, and more.

Figure 5–16 KDE User Screen



5.15.3 Selected Features Chart

The Table 5–2, *Available Features of GNOME and KDE* offers you an opportunity to compare GNOME and KDE for yourself. Key features of both desktop environments have been highlighted, covering a broad range of applications and tools.

Table 5–2 Available Features of GNOME and KDE

Features	GNOME	KDE
highly configurable	yes	yes
multiple window managers	yes	no
Internet applications	yes	yes
changeable desktop themes	yes	yes
panel applications	yes	yes
ability to add/edit panel applications	yes	yes

Features	GNOME	KDE
file manager	yes	yes
drag and drop functionality	yes	yes
online help	yes	yes
multiple desktops	yes	yes
font manager	yes	yes
multimedia applications	yes	yes
text editors	yes	yes
graphics applications	yes	yes
games	yes	yes
network applications	yes	yes
utility applications	yes	yes
spreadsheet	yes	yes
"trashcan" for temporary file removal	yes	yes

5.15.4 Unresolved Dependencies

The **Unresolved Dependencies** screen will only appear if you are missing certain packages that are needed by your selected packages.

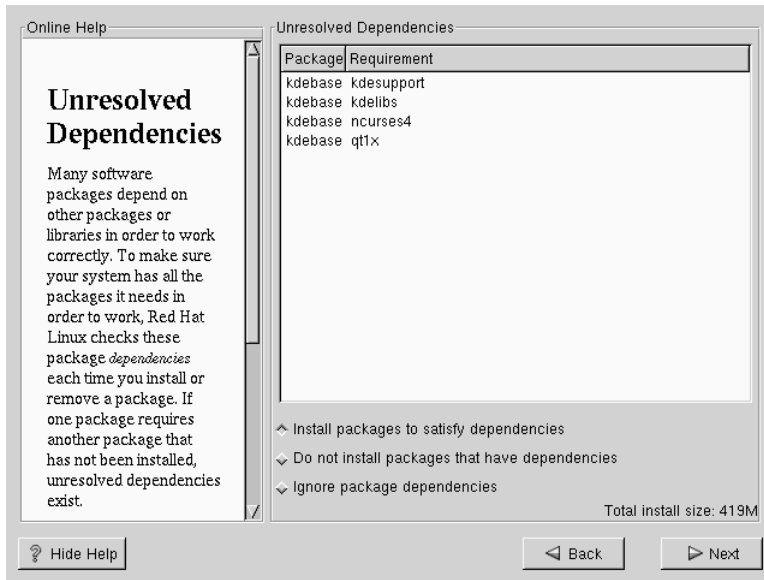
Many software packages, in order to work correctly, depend on other software packages that must be installed on your system. For example, many of the graphical Red Hat system administration tools require the `python` and `pythonlib` packages. To make sure your system has all the packages it needs in order to be fully functional, Red Hat Linux checks these package **dependencies** each time you install or remove software packages.

If any package requires another package which you have not selected to install, the program presents a list of these **unresolved dependencies** and gives you the opportunity to resolve them (see Figure 5–17, *Unresolved Dependencies*).

Under the list of missing packages, there is an **Install packages to satisfy dependencies** check box at the bottom of the screen which is selected by default. If you leave this checked, the

installation program will resolve package dependencies automatically by adding all required packages to the list of selected packages.

Figure 5–17 Unresolved Dependencies



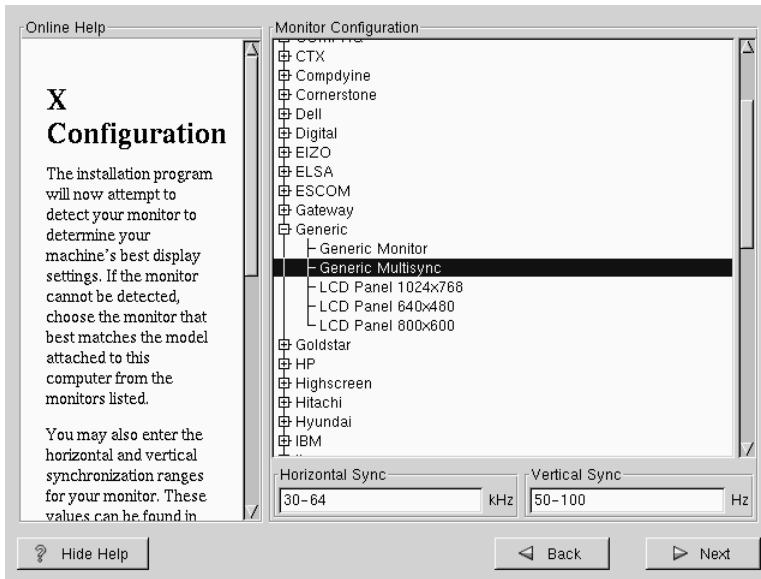
5.16 GUI X Configuration Tool

If you decided to install the X Window System packages, you now have the opportunity to configure an X server for your system. If you did not choose to install the X Window System packages, skip ahead to Section 5.18, *Installing Packages*.

5.16.1 Configuring Your Monitor

Xconfigurator, the X Window System configuration tool, first presents a list of monitors for you to choose from. In the list, you can either use the monitor that is autodetected for you, or choose another monitor.

Figure 5–18 Monitor Selection



If your monitor does not appear on the list, select the most appropriate **Generic** model available. If you do select a **Generic** monitor, Xconfigurator will suggest horizontal and vertical sync ranges. These values are generally available in the documentation which accompanies your monitor, or from your monitor's vendor or manufacturer; please check your documentation to make sure these values are set correctly.



Do not select a monitor *similar* to your monitor unless you are certain that the monitor you are selecting does not exceed the capabilities of your monitor. Doing so may overclock your monitor and damage or destroy it.

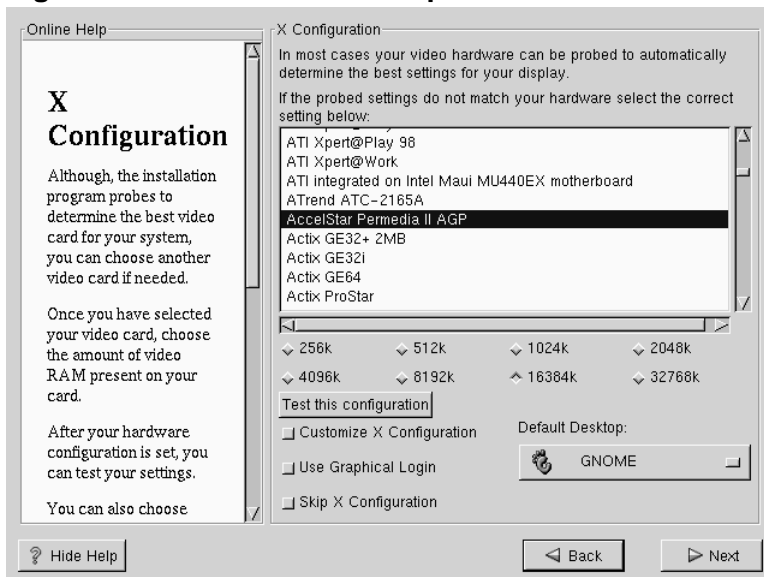
Also presented are the horizontal and vertical ranges that Xconfigurator suggests. Click **Next** when you have finished configuring your monitor.

5.16.2 Video Card Configuration

Xconfigurator will now present a list of video cards for you to choose from.

If your video card does not appear on the list (see Figure 5–19, *Video Card Setup*), X may not support it. However, if you have technical knowledge about your card, you may choose **Unlisted Card** and attempt to configure it by matching your card's video chipset with one of the available X servers.

Figure 5–19 Video Card Setup



Next, enter the amount of video memory installed on your video card. If you are not sure, please consult the documentation accompanying your video card. You will not damage your video card by choosing more memory than is available, but the X server may not start correctly if you do.

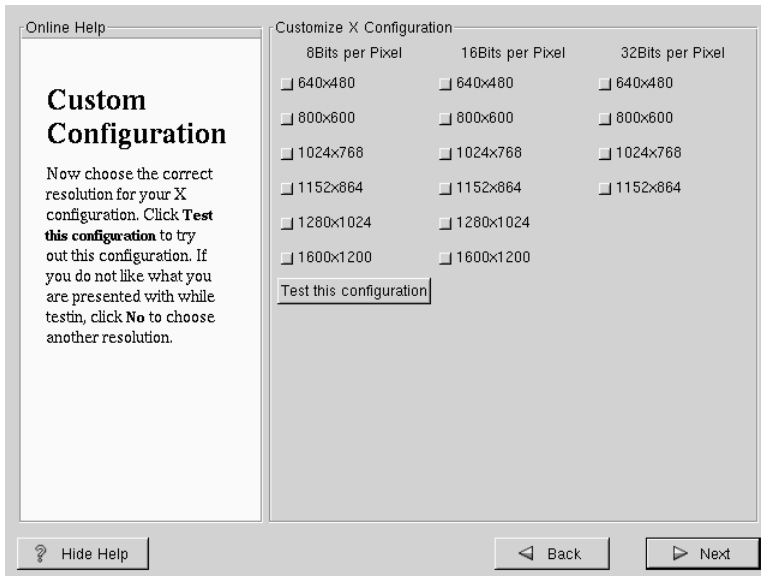
Once your hardware has been identified, you can test the configuration settings. We recommend that you test your configuration, to make sure the resolution and color settings are usable.

If you would like to customize the X configuration, make sure the **Customize X Configuration** button is selected. If you choose to customize, you will be presented with another screen that

lets you select what your resolution should be (see Figure 5–20, *X Customization*). Again, you will have the option of testing the configuration.

Be sure to select either GNOME or KDE as your desktop default, if you installed one or both of them.

Figure 5–20 X Customization



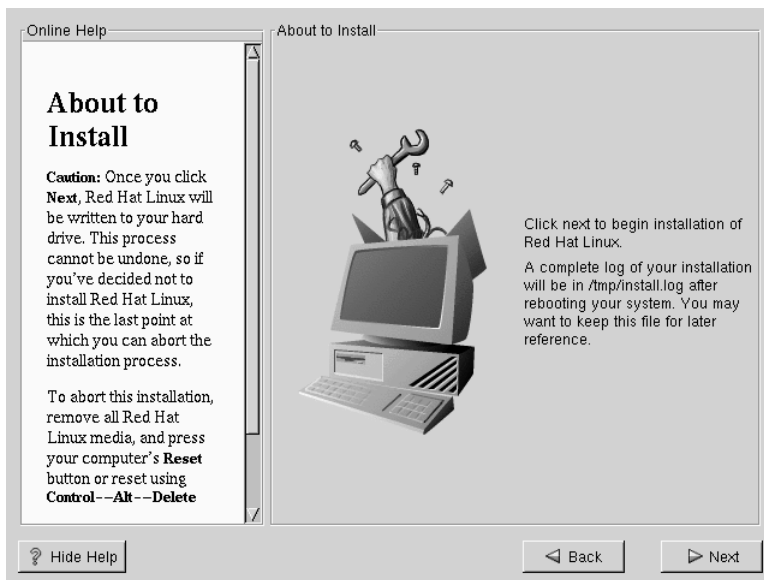
You may also choose to **Skip X Configuration** if you would rather configure X after the installation or not at all.

5.17 Preparing to Install

You will now see a screen preparing you for the installation of Red Hat Linux (see Figure 5–21, *Ready to Install*).

WARNING

If, for some reason, you would rather not continue with the installation process, this is your last opportunity to safely cancel the process and reboot your machine. Once you press the Next button, partitions will be written (writing over any data present on other Linux partitions) and packages will be installed. If you wish to abort the installation, you should reboot now before your hard drive(s) are rewritten.

Figure 5–21 Ready to Install

5.18 Installing Packages

At this point there's nothing left for you to do until all the packages have been installed (see Figure 5–22, *Installing Packages*). How quickly this happens depends on the number

of packages you've selected, your computer's speed and your hard drive size (for formatting and bad block checks).

Figure 5–22 Installing Packages



Additionally, you may be asked to insert another Red Hat Linux CD-ROM for package installation to continue. If you chose a workstation-class installation, and did not select packages individually, you will not have to insert a second CD-ROM.

5.19 Boot Disk Creation

A boot disk can be handy in several situations, including:

- For use when another operating system overwrites LILO⁴ -- Other operating systems may not be as flexible as Red Hat Linux when it comes to supported boot methods. Quite often, installing or updating another operating system can cause the master boot record (originally containing LILO) to be overwritten, making it impossible to boot your Red

⁴ LILO (the Linux LOader) is automatically set up during a workstation installation. LILO enables you to boot Red Hat Linux without having to use a diskette.

Red Hat Linux installation. The boot disk can then be used to boot Red Hat Linux so you can reinstall LILO.

To create a boot disk, you should now insert a blank, formatted diskette into your floppy drive (see Figure 5–23, *Creating Your Boot Disk*).

After a short delay, your boot disk will be created; remove it from your floppy drive and label it clearly. Note that if you would like to create a boot disk after the installation, you'll be able to do so. For more information, please see the `mkbootdisk` man page, by typing `man mkbootdisk` at the shell prompt.

If you make changes to your kernel, and you boot your system with the boot disk (instead of LILO), make sure you create a new boot disk.

Figure 5–23 Creating Your Boot Disk



5.20 Installation Complete

Congratulations! Your Red Hat Linux 7.0 installation is now complete!

Figure 5–24 Installation Complete

The installation program will prompt you to prepare your system for reboot (see Figure 5–24, *Installation Complete*). Don't forget to remove any diskette in the floppy drive or CD in the CD-ROM drive.

After your computer's normal power-up sequence has completed, you should see LILO's graphical prompt, at which point you can do any of the following things:

- Press [Enter] -- Causes LILO's default boot entry (whichever OS is listed as default) to be booted.
- Choose a boot label, followed by [Enter] -- Causes LILO to boot the operating system corresponding to the boot label. (Press [?] at the LILO text `boot :` for a list of valid boot labels.)
- Do nothing -- After LILO's timeout period, (which, by default, is five seconds) LILO will automatically boot the default boot entry.

Do whatever is appropriate to boot Red Hat Linux. You should see one or more screens of messages scroll by. Eventually, you should see a `login :` prompt or a GUI login screen (if you installed the X Window System and chose to start X automatically).

Tip

If for some reason you need to disable the graphical boot screen, you can do so by editing the `lilo.conf` file and then rerunning LILO.

To do this, comment out (or delete) the line which reads `message=/boot/message` in the `lilo.conf` file. To comment a line out, insert the `[#]` character at the beginning of the line. Once you have done this, rerun LILO. To rerun LILO, type `/sbin/lilo -v` which will also save changes you make. The next time you boot, you will see the text `LILO:` prompt, as is seen in previous Red Hat Linux releases.

You may also re-enable the graphical boot screen by adding the above line back into the `lilo.conf` file and rerunning LILO.

Tip

If you're not sure what to do next, we suggest you begin with the *Official Red Hat Linux Getting Started Guide* (available online at <http://www.redhat.com/support/manuals> if not included as part of your boxed set), which covers topics relating to the basics of your system, as an introduction to using Red Hat Linux.

If you are a more experienced user looking for information on system configuration or administration topics, you may find the *Official Red Hat Linux Reference Guide* on the Documentation CD to be more helpful.

6 Text Mode Installations at a Glance

This chapter covers the basics of a CD-ROM text mode, workstation-class installation. If for some reason you are not able to boot into the GUI installation program, or prefer the text mode based installation, these instructions are designed as a quick reference to get you through a basic workstation-class installation.

Please Note

Server- and custom-class installations are not covered in this chapter. For those instructions, please refer to the Documentation CD which contains the *Official Red Hat Linux Reference Guide*. This chapter is only a quick review of the installation program and may not contain all the information you need. It is strongly recommended that you read this chapter as well as the content on the Documentation CD prior to performing a text mode installation of Red Hat Linux.

6.1 Using the Keyboard to Navigate

Navigation through the installation dialogs is performed through a simple set of keystrokes. To move the cursor, use [Left], [Right], [Up], and [Down] arrow keys. Use [Tab], and [Alt]-[Tab] to cycle forward or backward through each widget on the screen. Along the bottom, most screens display a summary of available cursor positioning keys.

To "press" a button, position the cursor over the button (using [Tab], for instance) and press [Space] or [Enter]. To select an item from a list of items, move the cursor to the item you wish to select and press [Enter]. To select an item with a **check box**, move the cursor to the check box and press [Space] to select an item. To deselect, press [Space] a second time.

Pressing [F12] accepts the current values and proceeds to the next dialog; it is equivalent to selecting the **OK** button.

6.2 Text Mode Boot Options

To start the text mode installation program explained here, before pressing [Enter] at the boot prompt, type:

```
boot: text
```

If the installation program does not properly detect your hardware, you may need to restart the installation in "expert" mode. To start an expert mode installation, type:

```
boot: text expert
```

Expert mode disables most hardware probing, and gives you the option of entering options for the drivers loaded during the installation.

Please Note

The initial boot messages will not contain any references to SCSI or network cards. This is normal; these devices are supported by modules that are loaded during the installation process.

Note that the command to start a serial installation has changed. If you must perform the installation in serial mode, type:

```
boot: linux console=<device>
```

Where *<device>* should be the device you are using (such as ttyS0 or ttyS1).

6.3 Installing in Text Mode

Now that you have booted into text mode, you are ready to install Red Hat Linux on your system. The next section has been broken down into basic steps that will take you screen by screen and help you make the correct choices while installing.

This chapter only offers the basic information needed to perform a text mode installation. The content in the *Official Red Hat Linux Reference Guide* on the Documentation CD is more thorough and complete. We recommend that you only use this chapter as a quick reference for the material that is presented in the *Official Red Hat Linux Reference Guide*.

6.4 Language Selection

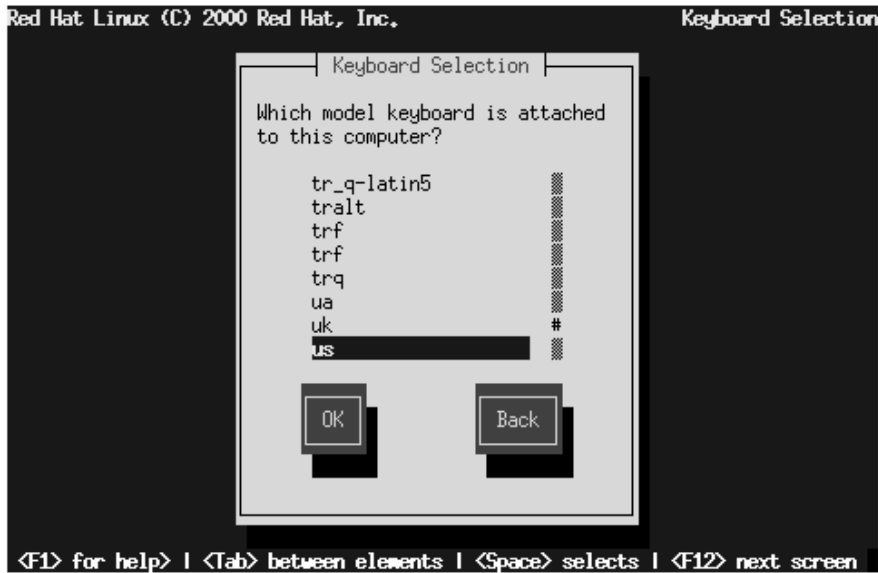
Using the arrow keys, select the appropriate language to use both during the installation and as the system default, and press [Enter].

Figure 6–1 Language Configuration



6.5 Keyboard Configuration

Using the arrow keys, select the appropriate keyboard type to use both during the installation and as the system default, and press [Enter].

Figure 6–2 Keyboard Configuration

6.6 Choosing an Installation Method

If you booted directly from the Red Hat Linux CD-ROM, you'll see the **Welcome** dialog: go to Section 6.7, *Welcome to Red Hat Linux*.

Figure 6–3 Installation Method



If you booted from a local boot disk or PCMCIA boot disk, insert the Red Hat Linux CD-ROM and then select **Local CDROM** (see Figure 6–3, *Installation Method*) and press [Enter].

6.7 Welcome to Red Hat Linux

Figure 6–4 The Welcome Screen

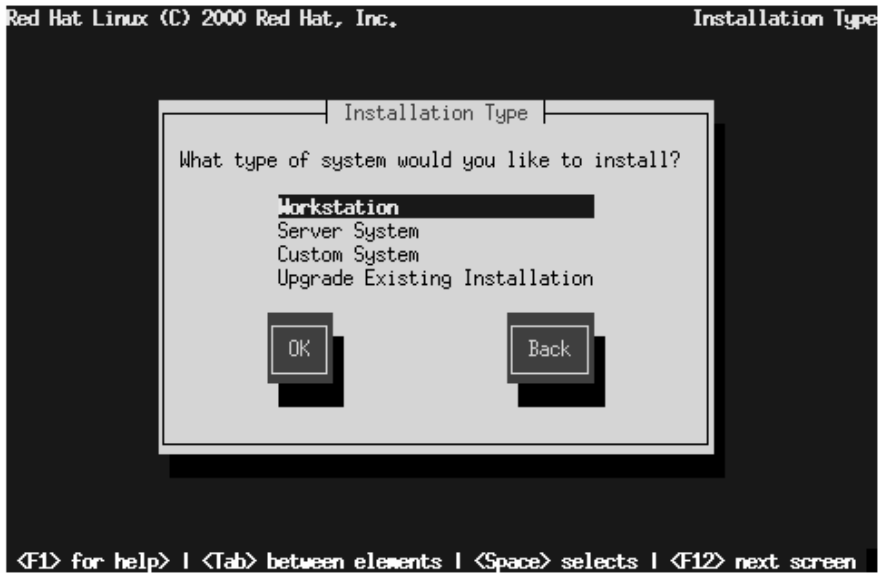


Select **OK** and press [Enter] to continue with the installation.

6.8 Choosing an Installation Type

Select **Workstation** (see Figure 6–5, *Installation Type*) and press [Enter] to continue with the workstation-class installation instructions.

Figure 6–5 Installation Type



Other installation type instructions are discussed in the *Official Red Hat Linux Reference Guide* on the Documentation CD.

6.9 Automatic Partitioning

During a workstation-class installation, the **Automatic Partitioning** screen (Figure 6–6, *Automatic Partitioning*) will appear.

Please Note

If the **Automatic Partitioning** screen does not appear, you may not have enough free disk space for this installation. You can either reboot your system and try to allocate more disk space, or you can choose to partition manually.

Figure 6–6 Automatic Partitioning



Automatic partitioning in a workstation-class installation will create / ("root"), <swap>, and /boot partitions for you in the free space available on your hard drive.

If you would rather partition your system yourself, choose **Manually partition with Disk Druid** or **Manually partition with fdisk**.

6.10 Partitioning with Disk Druid

If you are performing a workstation-class installation and you chose **automatic partitioning**, please skip to Section 6.12, *Network Configuration*.

Please Note

Manual partitioning is outside the scope of this chapter. Although Disk Druid will be briefly covered, `fdisk` will not be discussed. For complete instructions on using Disk Druid or `fdisk`, please refer to the *Official Red Hat Linux Reference Guide* on the Documentation CD.

At this point, it's necessary to let the installation program know where it should install Red Hat Linux. This is done by defining mount points for one or more disk partitions in which Red Hat Linux will be installed. You may also need to create and/or delete partitions at this time (refer to Figure 6–7, *Partitioning with Disk Druid*).

Figure 6–7 Partitioning with Disk Druid



Please Note

If you have not yet planned how you will set up your partitions, refer to the partitioning appendix in the *Official Red Hat Linux Reference Guide* on the Documentation CD. As a bare minimum, you'll need an appropriately-sized¹ root partition, and a swap partition of at least 16 MB.

The partitioning tool used in Red Hat Linux 7.0 is Disk Druid. With the exception of certain esoteric situations, Disk Druid can handle the partitioning requirements for a typical Red Hat Linux installation.

Unless you have a reason for doing otherwise, we recommend that you create the following partitions:

- A swap partition (at least 16MB) -- Swap partitions are used to support **virtual memory**. In other words, data is written to a swap partition when there is not enough RAM to store the data your system is processing. If your computer has 16MB of RAM or less, you *must* create a swap partition. Even if you have more memory, a swap partition is still recommended. The minimum size of your swap partition should be equal to your computer's RAM, or 16MB (whichever is larger). In Disk Druid, the partition field for swap should look similar to:

```
<Swap> hda2 125M 125M Linux swap
```

- A `/boot` partition (16MB, maximum) -- The partition mounted on `/boot` contains the operating system kernel (which allows your system to boot Red Hat Linux), along with files used during the bootstrap process. Due to the limitations of most PC BIOSes, creating a small partition to hold these files is a good idea. This partition should be no larger than 16MB. In Disk Druid, the partition field for `/boot` should look similar to:

```
/boot hda1 16M 19M Linux native
```

- A root partition (900MB-1.7GB) -- This is where `/` (the root directory) resides. In this setup, all files (except those stored in `/boot`) reside on the root partition. A 850MB

¹ Appropriately-sized is best defined by the amount of available space you have to dedicate to Red Hat Linux, the size of the installation you are preparing for, and the space you will physically dedicate to Red Hat Linux. We recommend 900M for a minimum root partition size.

root partition will permit the equivalent of a workstation-class installation (with *very* little free space), while a 1.7GB root partition will let you install every package. In Disk Druid, the partition field for / should look similar to:

```
/ hda2 900M 3669M Linux native
```

6.10.1 Problems When Adding a Partition

If you attempt to add a partition and Disk Druid can't carry out your request, you'll see a dialog box listing partitions that are currently **unallocated**, along with the reason they could not be allocated. Unallocated partition(s) are also displayed on Disk Druid's main screen (though you may have to scroll through the "Partitions" section to see them).

To fix an unallocated requested partition, you must move the partition to another drive which has the available space, resize the partition to fit on the current drive, or delete the partition entirely. Make changes using the **Edit** button or by double clicking on the partition.

6.10.2 Formatting Partitions

Next, select which partitions you want to format (see Figure 6–8, *Formatting Partitions*). You must format all newly created partitions. Partitions containing data that you wish to keep (such as /home or /usr) should not be formatted.

Figure 6–8 Formatting Partitions



When you have selected the partitions to format, press [Space]. If you wish to check for **bad blocks** while formatting each filesystem (recommended for those with older disk drives), select **Check for bad blocks during format**. Select **OK**, and press [Space].

Please Note

Selecting **check for bad blocks** may dramatically increase your total installation time. Since most newer hard drives are quite large in size, checking for bad blocks may take a while depending on the size of your hard drive.

6.11 Hostname Configuration

If you have a network card in your computer, enter a **fully-qualified domain name** in this format: *hostname.domain.name*

Figure 6–9 Entering a Hostname



If your computer is not part of a network, you can enter a hostname for your system. Take this opportunity to enter in a name; if you do not, your system will be known as `localhost`.

6.12 Network Configuration

If you are installing from CD-ROM and have a network card in place, you can now configure your networking information.

Figure 6–10 Entering Network Information

You have two choices in this dialog (see Figure 6–10, *Entering Network Information*):

- Select **Use bootp/dhcp**. In this case, an existing server on your LAN dynamically supplies network-related information needed to add this system to the network at connect-time. (Note that if you do this, the remaining fields in this dialog will be disabled, as DHCP and BOOTP essentially "fill in the blanks" for you.)
- Enter static network information in the fields provided. In this case, the network information you supply is assigned to this system.

6.13 Mouse Configuration

Next, the installation program probes for a mouse. Use the [Up] and [Down] arrow keys to confirm or change the selection as required.

Figure 6–11 Mouse Configuration



Check **Emulate 3 Buttons** to emulate a three-button mouse if your mouse only has two buttons.

6.14 Time Zone

Select your appropriate time zone as seen in the **Time Zone** configuration screen (Figure 6–12, *Time Zone Configuration*)

If you wish to set the hardware (CMOS) clock to GMT (Greenwich Mean Time, also known as UTC, or Universal Coordinated Time), select **Hardware clock set to GMT**. Setting it to GMT means your system will properly handle daylight-saving time, if your time zone uses it.

Figure 6–12 Time Zone Configuration

6.15 Root Password

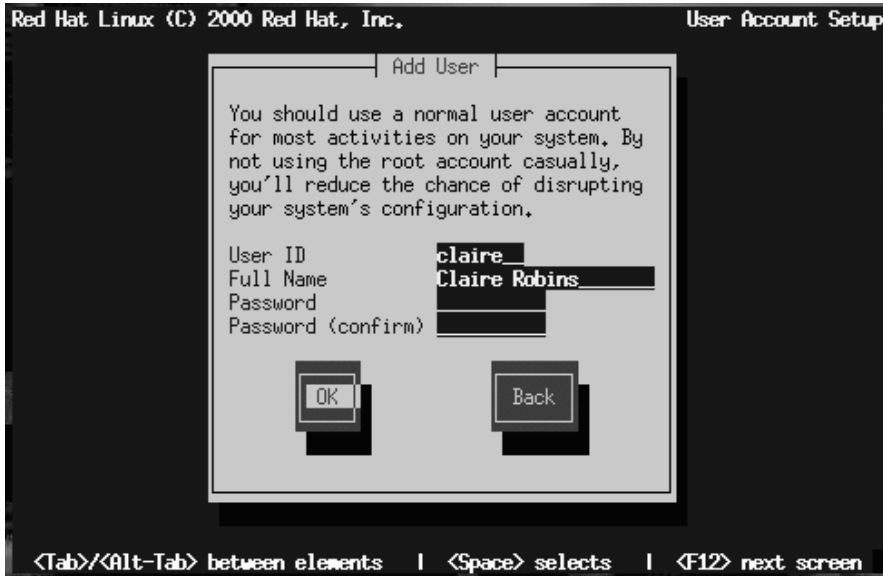
Enter a root password. The password must be at least six characters long; the password you type is not echoed to the screen. You must enter the password twice; if the two passwords do not match, the installation program will prompt you to enter them again.

Figure 6–13 Your Root Password



6.16 Creating User Accounts

Next, create a user account for yourself which is for your everyday use. A user account allows you to safely and easily log into your computer without having to be root. The password you enter must be at least six characters long and is not echoed to the screen. Enter the password twice; if the two passwords do not match, the installation program will prompt you to enter them again.

Figure 6–14 Entering a User Account

6.16.1 Creating Additional User Accounts

To create additional user accounts, select **Add** in the **User Account Setup** dialog (see Figure 6–15, *Entering Additional User Account*), or **OK** to continue with the installation.

Figure 6–15 Entering Additional User Account



6.17 Package Selection

Select the desktop environment (GNOME, KDE or both) you wish to install. You can also choose whether to install games on your system. All other necessary packages are installed automatically by performing a workstation-class installation.

Figure 6–16 Choosing Package Groups



If you are not sure which desktop environment you would like to install, please read Section 5.15, *Selecting Package Groups* for more information.

Check the **Select individual packages** check box to select individual packages.

6.17.1 Individual Package Selection

Figure 6–17 Choosing Individual Packages



To see the list of packages, use the arrow keys to select the group and press [Enter] or [Space]. When a list is selected, the + sign (closed) changes to a - sign (open) and a list of packages in that category appears. An * appears beside currently selected packages. Press the [Enter] or [Space] keys to select or deselect packages.

To see a description of a particular package, make sure that package is highlighted and press [F1].

6.17.2 Unresolved Dependencies

If any package requires another package which you have not selected to install, the program presents a list of these **unresolved dependencies** and gives you the opportunity to resolve them. If you simply press **OK**, the program will resolve them automatically by adding all required packages to the list of selected packages.

Figure 6–18 Unresolved Dependencies



6.18 Configuring Your Video Adapter

The installation program then probes for your video card. If your card is detected, click **OK** to continue.

Figure 6–19 Video Card Confirmation



If the installation program cannot detect your video adapter, you'll see a card list, as in Figure 6–20, *Video Card Selection Dialog*. Select your video card from the list using the arrow keys and [Space]. If your card is not listed, choose **Unlisted Card** and press [Space].

Figure 6–20 Video Card Selection Dialog



6.19 Package Installation

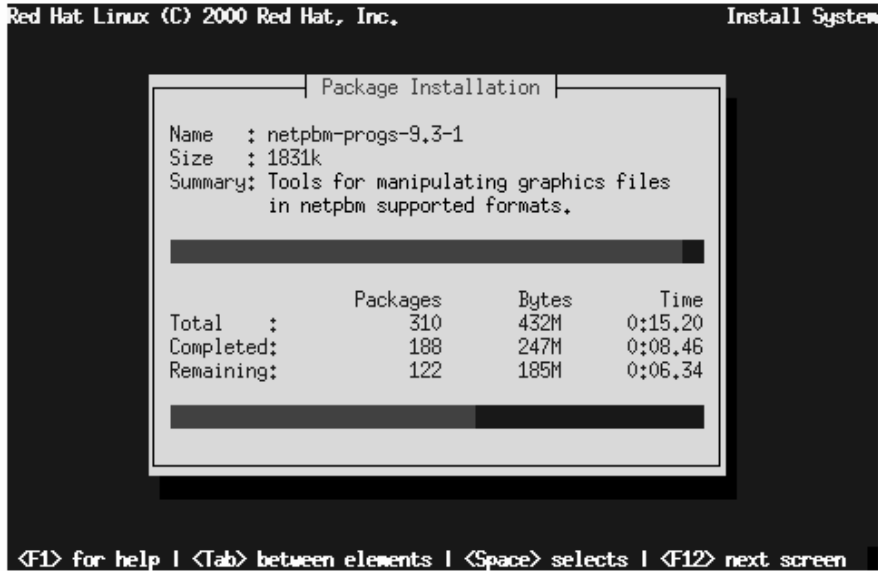
A dialog similar to Figure 6–21, *Installation to Begin Dialog* appears when the installation program is ready to format partitions and load software packages. The installation program names the log file (`/tmp/install.log`) for this Red Hat Linux installation. Select **OK** and press [Space] to continue.

Figure 6–21 Installation to Begin Dialog



While software packages are being installed, a progress screen like Figure 6–22, *Package Installation Status Dialog* appears.

Figure 6–22 Package Installation Status Dialog



6.20 Boot Disk

After package installation, you will be prompted to create a **boot disk**.

If you want to create a boot disk, select **Yes** and press [Space]. If not, select **Skip** and press [Space].

Figure 6–23 Creating a Boot Disk



If you selected **Yes**, insert a blank, formatted diskette when prompted. Select **OK** and press [Space] when ready.

After a short delay, your boot disk will be created; remove it from your floppy drive and label it clearly. Note that if you would like to create a boot disk after the installation, you'll be able to do so. For more information, please see the `mkbootdisk` man page, by typing `man mkbootdisk` at a shell prompt.

6.21 Configuring the X Window System

The `Xconfigurator` utility gives you the opportunity to configure the X server for your system.

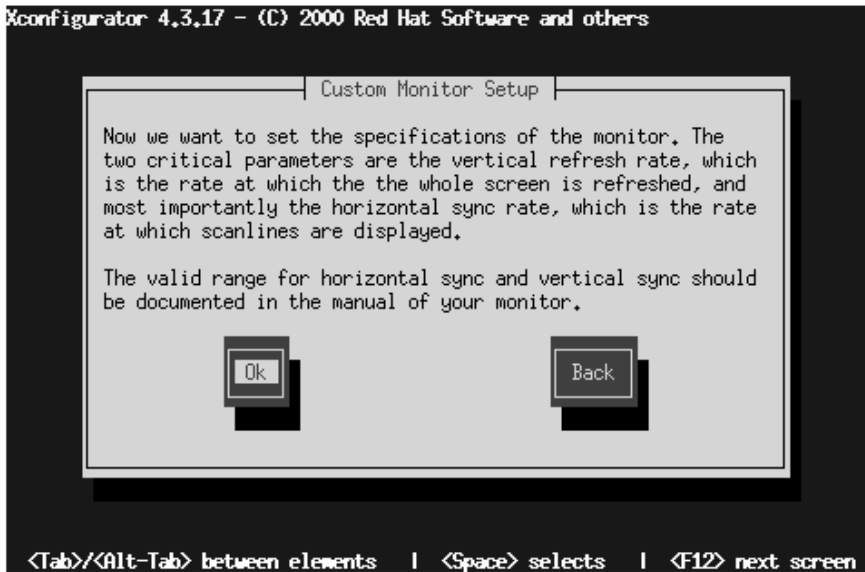
First, `Xconfigurator` presents a list of monitors (see Figure 6–24, *Monitor Setup Dialog*). If your monitor is listed, select it and press [Enter]. Otherwise, select **Custom**.

Figure 6–24 Monitor Setup Dialog

If you select a monitor from the list, you will next enter your video memory, see Figure 6–29, *Video Memory*.

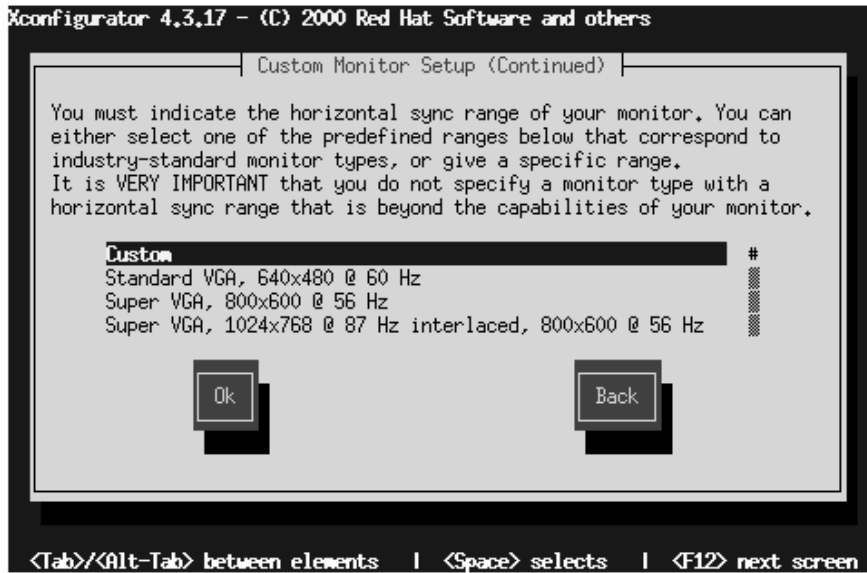
If you select **Custom**, Xconfigurator prompts you to select the horizontal sync range and vertical sync range of your monitor (these values are usually available in the documentation which accompanies your monitor, or from your monitor's vendor or manufacturer).

Figure 6–25 Custom Monitor Setup

**WARNING**

Do not select any range that exceeds the capacity of your monitor. If you do this, it is possible you may overclock your monitor and damage or destroy it.

Choose a horizontal sync range for your monitor (see Figure 6–26, *Custom Monitor Setup - Horizontal Sync*). Be sure *not* to choose a range outside of your monitor's capacity. For custom settings, refer to Figure 6–28, *Custom Monitor Information*.

Figure 6–26 Custom Monitor Setup - Horizontal Sync

Next, choose a vertical sync range.

Figure 6–27 Custom Monitor Setup - Vertical Sync

If you chose to enter custom monitor settings, please enter both the horizontal and vertical sync ranges for your monitor (see Figure 6–28, *Custom Monitor Information*).

Figure 6–28 Custom Monitor Information

After you've selected your monitor (and its settings), you must choose the amount of memory present on your video card (see Figure 6–29, *Video Memory*).

Figure 6–29 Video Memory



If you are not sure how much memory your card has, consult the documentation accompanying your video card. Choosing more memory than is present in your card will not damage it, but may cause the XFree86 server to start incorrectly.

Next, choose a clockchip setting if your video card supports it (if it has one). The recommended choice, for most video cards, is **No Clockchip Setting**, since XFree86 can automatically detect the proper clockchip in most cases.

Figure 6–30 Clockchip Configuration Dialog

The **Probe for Clocks** screen (see Figure 6–31, *Probe for Clocks*) prompts you to allow the installation program to detect what video modes your video card and monitor are capable of using.

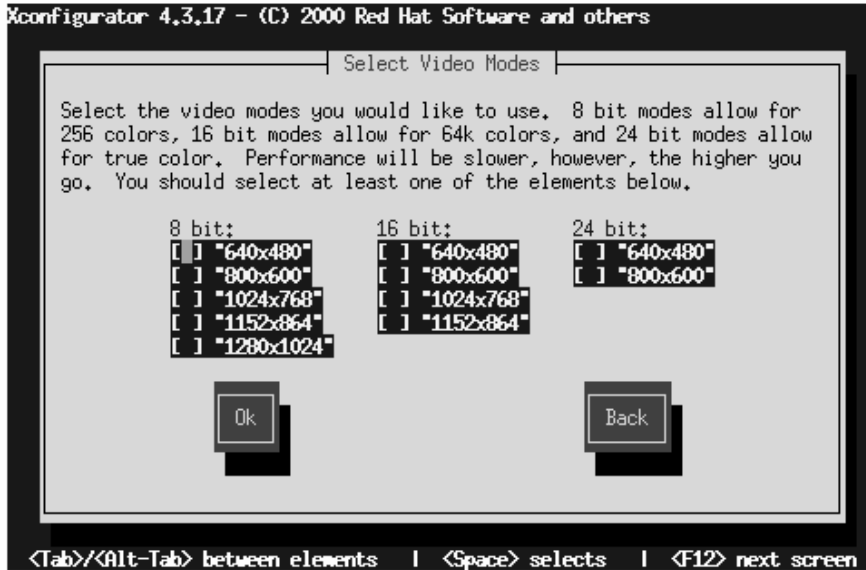
You should select **Probe** for best results. However, if a previous attempt to probe video modes ended with a bad result (such as having to reboot your system), you should choose **Skip** and then choose your preferred video modes (see Figure 6–32, *Select Video Modes*).

Figure 6–31 Probe for Clocks



To choose your preferred display mode (see Figure 6–32, *Select Video Modes*), select one or more modes by pressing [Space].

Figure 6–32 Select Video Modes



Do not select a mode that exceeds the capacity of your monitor.

Tip

Minimum recommended settings for video modes are 16 bit for most applications (video modes set higher than 16 bit tend to run more slowly) in 1024x768.

Once you've either selected the default video mode or specified a different mode, the **Starting X** dialog lets you test your X configuration.

Figure 6–33 Test Your X Configuration



If you select **OK**, you'll have the opportunity to go back and enter different configuration values should there be an error. If there is no error, X will start, and a small display window will ask you if you can read its contents clearly; using the mouse, click **Yes** within ten seconds. Then you will be asked whether you want X to start when the system boots.

In most cases, X configuration is complete at this point, and you'll see the completion screen.

Xconfigurator then saves all of your choices to the configuration file `/etc/X11/XF86Config`. To modify your X configuration after installation, issue the `Xconfigurator` command as root.

6.22 Congratulations! Your Installation is Complete

Figure 6–34 Installation Complete



Remove any diskette from the diskette drive or the Red Hat Linux CD if your system booted from the CD-ROM.

To reboot your newly installed Red Hat Linux system, press [Enter].

After your computer's normal power-up sequence has completed, you should see LILO's graphical prompt, at which point you can do any of the following things:

- Press [Enter] -- Causes LILO's default boot entry (whichever OS is listed as default) to be booted.
- Choose a Boot Label, followed by [Enter] -- Causes LILO to boot the operating system corresponding to the boot label. (Press [?] at the LILO text `boot :` for a list of valid boot labels.
- Do Nothing -- After LILO's timeout period, (which, by default, is five seconds) LILO will automatically boot the default boot entry.

Do whatever is appropriate to boot Red Hat Linux. You should see one or more screens of messages scroll by. Eventually, you should see a `login:` prompt or a GUI login screen (if you installed the X Window System and chose to start X automatically).

Tip

If for some reason you need to disable the graphical boot screen, you can do so by editing the `lilo.conf` file and then rerunning LILO.

To do this, comment out (or delete) the line which reads `message=/boot/message` in the `lilo.conf` file. To comment a line out, insert the `#` character at the beginning of the line. Once you have done this, rerun LILO. The next time you boot, you will see the text `LILLO:` prompt, as is seen in previous Red Hat Linux releases.

You may also re-enable the graphical boot screen by adding the above line back into the `lilo.conf` file and rerunning LILO.

Tip

If you're not sure what to do next, we suggest you begin with the *Official Red Hat Linux Getting Started Guide*, which covers topics relating to the basics of your system, as an introduction to using Red Hat Linux.

If you are a more experienced user looking for information on system configuration or administration topics, you may find the *Official Red Hat Linux Reference Guide* on the Documentation CD to be more helpful.

A Upgrading Your Current System

This appendix walks you through a typical Red Hat Linux 7.0 upgrade.

A.1 What it Means to Upgrade

The installation process for Red Hat Linux 7.0 includes the ability to upgrade from prior versions of Red Hat Linux (version 3.0.3 and later) which are based on RPM technology.

Upgrading your system installs the modular 2.2.x kernel as well as updated versions of the packages which are currently installed on your system.

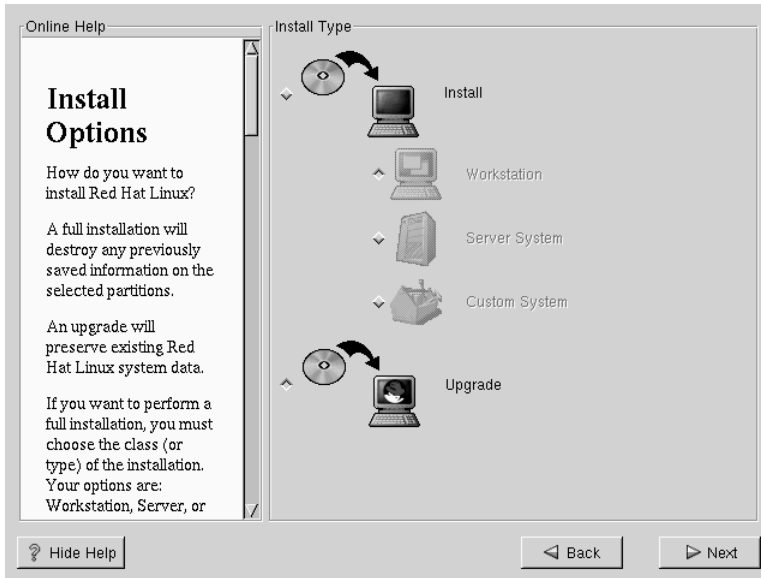
The upgrade process preserves existing configuration files by renaming them using an `.rpm-save` extension (e.g., `sendmail.cf.rpm-save`) and leaves a log of the actions it took in `/tmp/upgrade.log`. As software evolves, configuration file formats can change, so you should carefully compare your original configuration files to the new files before integrating your changes.

Please Note

Some upgraded packages may require that other packages are also installed for proper operation. If you choose to customize your packages to upgrade, you may be required to resolve any *dependency* problems. Otherwise, the upgrade procedure takes care of these dependencies, but it may need to install additional packages which are not on your existing system.

A.2 Upgrading Your System

At this point, you should have chosen **Upgrade** as your preferred installation type (see Figure A-1, *Choosing to Upgrade*).

Figure A–1 Choosing to Upgrade

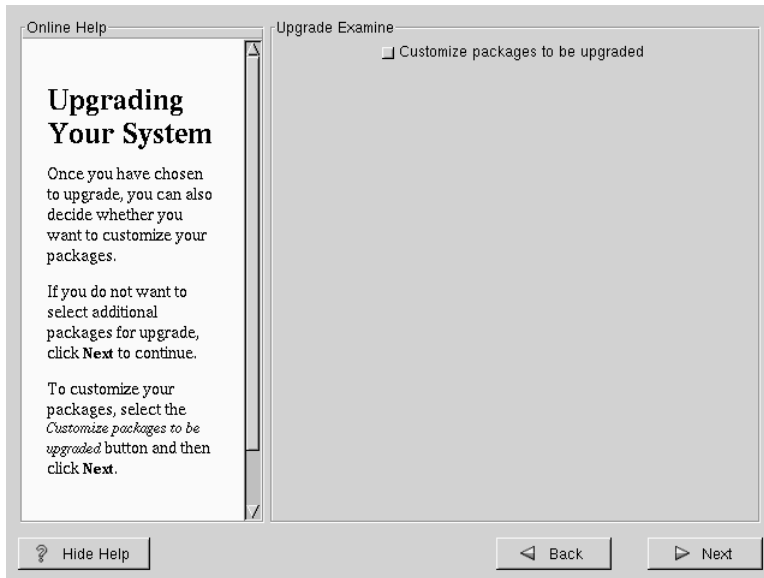
A.3 Customizing Your Upgrade

Do you want to choose your packages to be upgraded or let the installation program perform an automated installation (see Figure A–2, *Upgrade Customization*)?

To let the installation program begin the upgrade process for you, make sure the **Customize packages to upgrade** is *not* selected and click **Next** (see Section A.6, *Upgrading Packages*).

To customize your upgrade packages, select this option and then click **Next**.

Figure A–2 Upgrade Customization



A.4 Selecting Packages to Upgrade

Here, you are given the opportunity to choose which packages you would like to upgrade (see Figure A–3, *Individual Package Selection*).

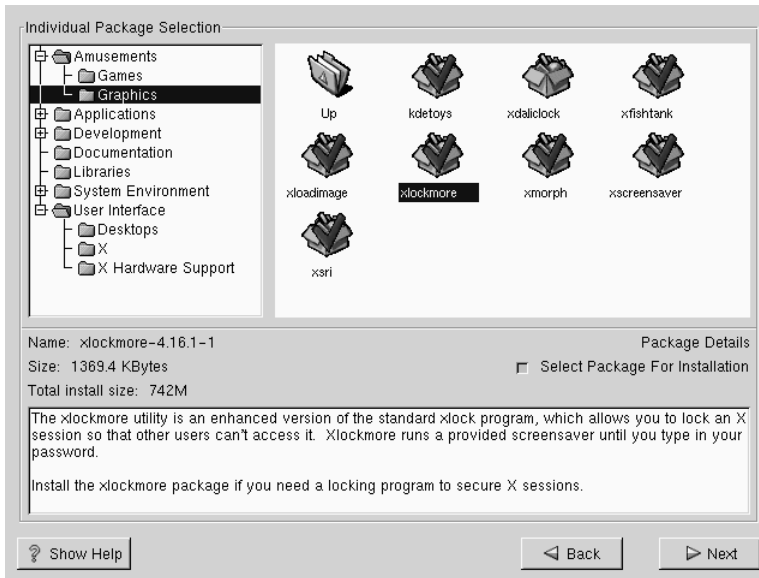
On the left side of the screen you will see a directory listing of various package groups. When you expand this list (double-click to select it) and double-click on a single directory, the list of packages available for installation will appear on the right.

To select an individual package, double-click on it, or click on it once to highlight it and click on the **Select Package For Installation** button below. A red check mark will appear on any of the packages you have selected for installation.

To read information about a particular package before choosing it for installation, left-click on it once to highlight it, and the information will appear at the bottom of the screen along with the name and size of the package.

Some packages (such as the kernel and certain libraries) are required for every Red Hat Linux system and are not available to select or deselect. These **base packages** are selected by default.

Figure A-3 Individual Package Selection

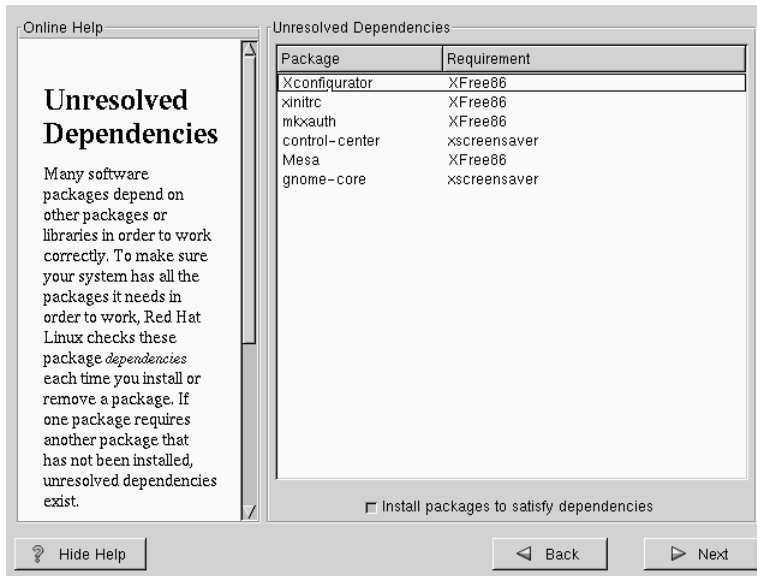


A.4.1 Unresolved Dependencies

If any package requires another package which you have not selected to install, the program presents a list of these **unresolved dependencies** and gives you the opportunity to resolve them (see Figure A-4, *Unresolved Dependencies*).

The **Unresolved Dependencies** screen will only appear if you are missing certain packages that are needed by your customized package selection. Under the list of missing packages, there is an **Install packages to satisfy dependencies** check box at the bottom of the screen which is selected by default. If you leave this checked, the installation program will resolve package dependencies automatically by adding all required packages to the list of selected packages.

Figure A-4 Unresolved Dependencies



A.5 Installing LILO

In order to be able to boot your Red Hat Linux system, you usually need to install LILO (the Linux LOader). You may install LILO in one of two places:

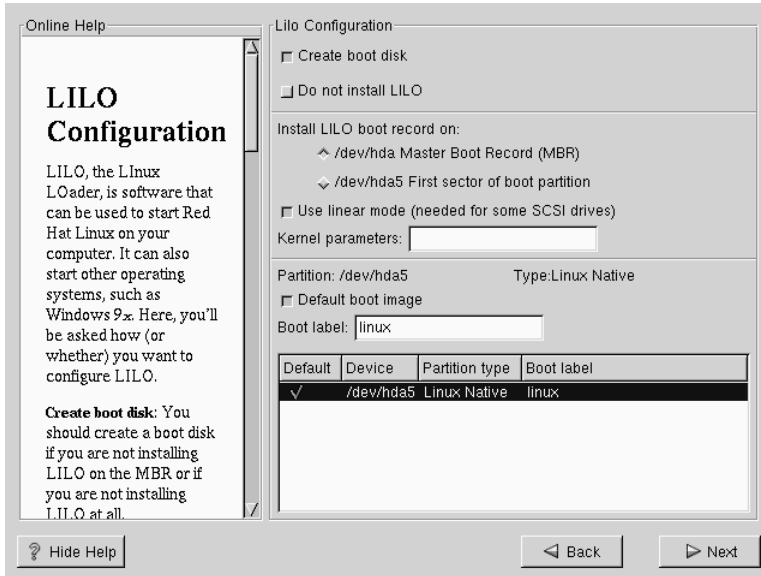
The master boot record (MBR)

The recommended place to install LILO, unless the MBR already starts another operating system loader, such as System Commander or OS/2's Boot Manager. The master boot record is a special area on your hard drive that is automatically loaded by your computer's BIOS, and is the earliest point at which LILO can take control of the boot process. If you install LILO in the MBR, when your machine boots, LILO will present a `boot :` prompt. You can then boot Red Hat Linux or any other operating system you configure LILO to boot.

The first sector of your root partition

Recommended if you are already using another boot loader on your system (such as OS/2's Boot Manager). In this case, your other boot loader will take control first. You can then configure that boot loader to start LILO (which will then boot Red Hat Linux).

Figure A-5 LILO Configuration



If you choose to install LILO, please select where you would like LILO to be installed on your system (see Figure A-5, *LILO Configuration*). If your system will use only Red Hat Linux you should choose the master boot record (MBR). For systems with Win95/98, you also should install LILO to the MBR so that LILO can boot both operating systems.

If you have Windows NT (and you want to install LILO) you should choose to install LILO on the first sector of the root partition, not the MBR. Please be sure to create a boot disk. In a case such as this, you will either need to use the boot disk, or configure the NT system loader to boot LILO from the first sector of the root partition. Be sure to check out <http://www.linuxdoc.org/HOWTO/mini/Linux+NT-Loader.html> for more information on setting up LILO and NT.



If you choose not to install LILO for any reason, you will not be able to boot your Red Hat Linux system directly, and will need to use another boot method (such as a boot diskette). Use this option only if you are sure you have another way of booting your Red Hat Linux system!

The Use `linear` mode button is selected by default. In most cases, linear mode should be enabled; if your computer cannot use linear mode to access your hard drives, deselect this option.

If you wish to add default options to the LILO boot command, enter them into the kernel parameters field. Any options you enter will be passed to the Linux kernel every time it boots.

Bootable Partition -- Every bootable partition is listed, including partitions used by other operating systems. The "Boot label" column will be filled in with the word `linux` on the partition holding your Red Hat Linux system's root filesystem. Other partitions may also have boot labels. If you would like to add boot labels for other partitions (or change an existing boot label), click once on the partition to select it. Once selected, you can change the boot label.

Please Note

The "Boot label" column lists what you must enter at LILO's `boot:` prompt in order to boot the desired operating system. However, if you forget the boot labels defined on your system, you can always press [Tab] at LILO's `boot:` prompt to display a list of defined boot labels.

A.5.1 Configuring LILO

- **Create boot disk** -- The **Create boot disk** option is checked by default. If you do not want to create a boot disk, you should deselect this option. However, we strongly urge you to create a boot disk. A boot disk can be handy for a number of reasons:
-

- Use It Instead of LILO -- You can use a boot disk instead of LILO. This is handy if you're trying Red Hat Linux for the first time, and you'd feel more comfortable if the boot process for your other operating system is left unchanged. With a boot disk, going back to your other operating system is as easy as removing the boot disk and rebooting. If you would rather use a boot disk instead of LILO, make sure you enable the **Do not install LILO** option.
- Use It If Another Operating System Overwrites LILO -- Other operating systems may not be as flexible as Red Hat Linux when it comes to supported boot methods. Quite often, installing or updating another operating system can cause the master boot record (originally containing LILO) to be overwritten, making it impossible to boot your Red Hat Linux installation. The boot disk can then be used to boot Red Hat Linux so you can reinstall LILO.
- **Do not install LILO** -- if you have Windows NT installed on your system, you may not want to install LILO. If you choose not to install LILO for this reason, make sure that you have chosen to create a boot disk; otherwise you will not be able to boot Linux. You can also choose to skip LILO if you do not want to write LILO to your hard drive.

Tip

To use the boot disk with rescue mode, you have several options:

- Using the CD-ROM to boot, type `linux rescue` at the `boot:` prompt.
- Using the network boot disk, type `linux rescue` at the `boot:` prompt. You will then be prompted to pull the rescue image from the network.
- Using the boot disk included with the Red Hat Linux boxed set, type `linux rescue` at the `boot:` prompt. You then pick an installation method and choose a valid installation tree to load from.

For more information regarding rescue mode, refer to the *System Administration* chapter of the *Official Red Hat Linux Reference Guide*.

A.5.2 Alternatives to LILO

If you do not wish to use LILO to boot your Red Hat Linux system, there are several alternatives:

Boot Disk

As previously stated, you can use the boot disk created by the installation program (if you elected to create one).

LOADLIN

You can load Linux from MS-DOS. Unfortunately, it requires a copy of the Linux kernel (and an initial RAM disk, if you have a SCSI adapter) to be available on an MS-DOS partition. The only way to accomplish this is to boot your Red Hat Linux system using some other method (e.g., from LILO on a diskette) and then copy the kernel to an MS-DOS partition. LOADLIN is available from <ftp://metalab.unc.edu/pub/Linux/system/boot/dualboot/> and associated mirror sites.

SYSLINUX

An MS-DOS program very similar to LOADLIN. It is also available from <ftp://metalab.unc.edu/pub/Linux/system/boot/loaders/> and associated mirror sites.

Some commercial bootloaders

For example, System Commander and Partition Magic, which are able to boot Linux (but still require LILO to be installed in your Linux root partition).

A.5.3 SMP Motherboards and LILO

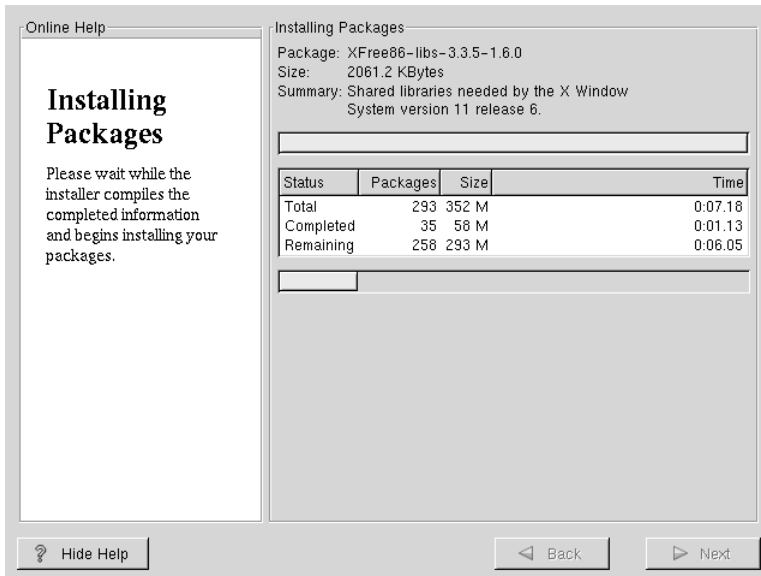
This section is specific to SMP motherboards only. If the installer detects an SMP motherboard on your system, it will automatically create two **lilo.conf** entries, rather than the usual single entry.

One entry will be called **linux** and the other will be called **linux-up**. The *linux* will boot by default. However, if you have trouble with the SMP kernel, you can elect to boot the *linux-up* entry instead. You will retain all the functionality as before, but you will only be operating with a single processor.

A.6 Upgrading Packages

At this point there's nothing left for you to do until all the packages have been upgraded or installed (see Figure A–6, *Installing Packages*).

Figure A–6 Installing Packages



A.7 Upgrade Complete

Congratulations! Your Red Hat Linux 7.0 upgrade is now complete!

You will now be prompted to prepare your system for reboot. Don't forget to remove any diskette in the floppy drive or CD in the CD-ROM drive. If you do not have LILO installed, you'll need to use your boot disk now.

Tip

If you need a quick review of some of the basic concepts of Red Hat Linux refer to the *Official Red Hat Linux Getting Started Guide*.

For information dealing with system configuration and administration, refer to the *Official Red Hat Linux Reference Guide* on the documentation CD-ROM.

Figure A-7 Upgrade Complete

B Installing Without Partitioning

This chapter explains how to install Red Hat Linux 7.0 without creating Linux partitions on your system.

Please Note

Although this is a great way to explore the world of Red Hat Linux without having to put Linux partitions on your system, please note that you will still have to perform a full Red Hat Linux installation as outlined in this manual.

Please Note

You must currently have a formatted DOS (FAT) filesystem in order to perform this type of installation. Users who have Win95/98 should have no problems with this type of installation. Users who have NTFS partitions (such as those using Windows NT) will have to create and format a DOS (FAT) filesystem before this installation can be performed. This installation will not work unless the DOS (FAT) filesystem has been formatted prior starting the Red Hat Linux installation.

B.1 The Ups and Downs of a Partitionless Installation

There may be reasons why you might want to perform a partitionless installation, but there also are some drawbacks (depending on how you look at them). We'll discuss these potential drawbacks below.

Here we will cover the basics of what will happen, both during an installation and as a result of this type of installation, and how your system will be affected.

Basic Installation

You will perform a basic Red Hat Linux installation. However, instead of adding Linux partitions to your system, you will edit an existing, formatted DOS (FAT) partition (that must have enough free space) to be named root (/).

Unlike a typical Red Hat Linux installation, you will not need to format any partitions, since you will not be adding any partitions to your system.

LILLO (*L*inux *L*Oader) and Boot Disk

In a partitionless installation, you will *not* configure LILLO (the LInux LOader). In a typical installation, you are able to choose where you would like LILLO to be installed -- either on the master boot record (MBR) or on the first sector of your root partition -- or you can choose not to install LILLO at all.

You must create a boot disk in order to access Red Hat Linux with a partitionless installation, and you will be prompted to create a boot disk at the end of the installation.

Please Note

In order to boot Red Hat Linux in a partitionless installation using the boot disk, you must have your BIOS configured correctly. Your BIOS must be set to boot from the floppy drive (A) in order for it to use the boot disk.

To change your BIOS settings, you will need to take note of the instructions given when your computer first begins to boot. Often you will see a line of text telling you to press the [Del] or [F1] key to enter the BIOS settings.

Next, you must find the section that allows you to alter your boot sequence. The default is often C, A or A, C (depending if you boot from your hard drive [C] or a floppy drive [A]). Change this sequence so that the floppy drive (A) is first in your boot order and that your hard drive (C) is second. This instructs the computer to first look at the floppy drive for bootable media, if it cannot be found there, it will look at your hard drive next.

Make sure to save your changes before exiting the BIOS. For more information please refer to the documentation that came with your system.

Performance Implications

Red Hat Linux will perform slower than it would if it had its own dedicated partitions. However, for those of you unconcerned with speed, a partitionless installation is a great way of seeing what Red Hat Linux has to offer without having to deal with partitioning your system.

B.2 Performing a Partitionless Installation

If you have a DOS (FAT) filesystem you must first make sure you have a DOS (FAT) partition with enough free space to dedicate to this installation.

B.2.1 How Much Space Do I Need?

Like a typical installation, you will need to have enough available space in order to install Red Hat Linux on your system. To give you an idea, below is a list of installation methods and their *minimum* space requirements.

For more information about these installation classes, see Section 3.6, *Step 6 - Is a Workstation-Class Installation Best For You?*.

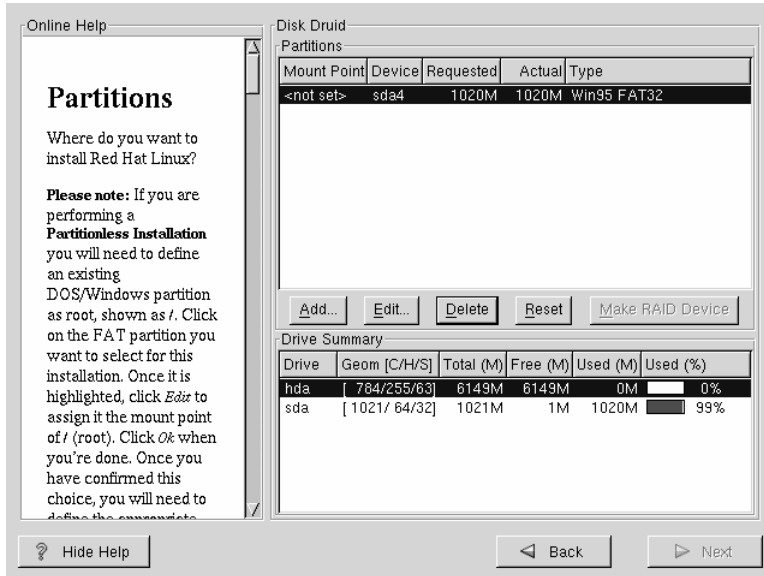
- Workstation - 900MB
- Server - 1.7GB
- Custom (choosing *Everything*) - 1.7GB

B.2.2 Using Disk Druid

Since you will not be adding partitions or creating new partitions, there is relatively little that you actually need to do with Disk Druid (a GUI partitioning tool).

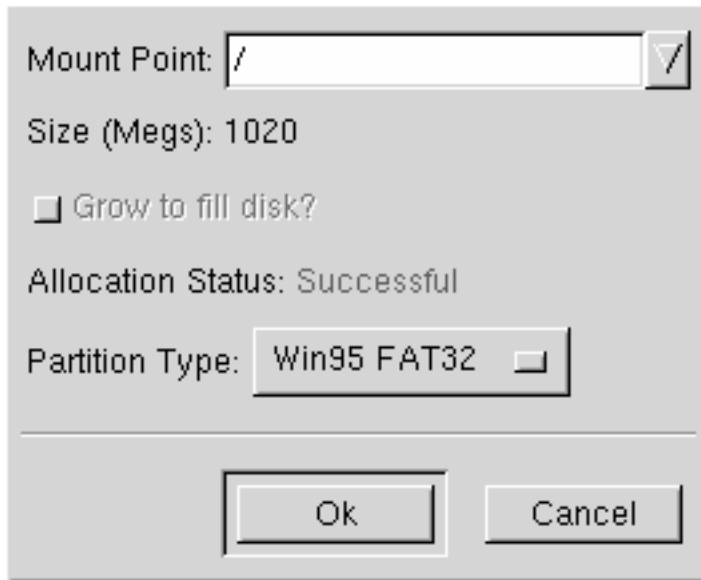
What you should see when Disk Druid's main screen appears is a list of your DOS (FAT) partitions (see Figure B-1, *Choosing DOS (FAT) Partition to Define as /*). Choose a DOS (FAT) partition with enough available free space to install your choice of installation classes. Highlight the partition by clicking on it with your mouse or by using the [Tab], [Up] and [Down] keys.

Figure B–1 Choosing DOS (FAT) Partition to Define as /



Once the desired partition is highlighted, choose **Edit**. A new window will appear allowing you to name this partition (see Figure B–2, *Editing a DOS (FAT) Partition*). In the **mount point** field, label this partition as / (known as root) and click **Enter**.

A confirmation window (see Figure B–3, *Confirmation*) will appear next asking you to confirm that you do want to continue with this installation. It also explains that you cannot have any Linux partitions on your system other than the / labeled DOS partition that you have just created. Click **Yes** to continue.

Figure B–2 Editing a DOS (FAT) Partition

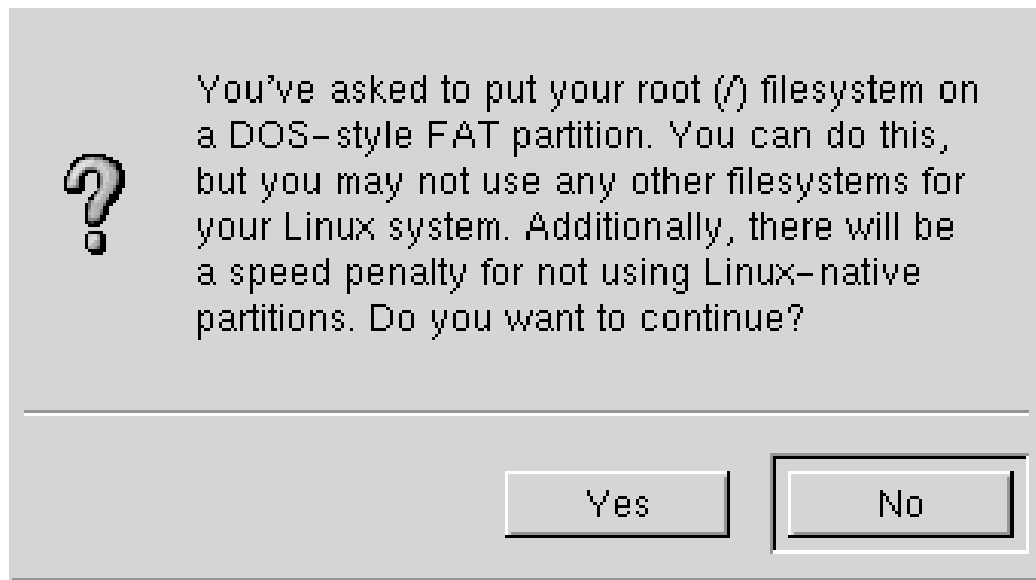
Next, you will be able to determine the root filesystem size and the swap size of this / partition.

The installation program will determine the maximum size for the root filesystem (Figure B–4, *Configuration of Filesystem*). You can make the root filesystem anything you would like, as long as it does not exceed the maximum size recommendation.

The size you create for the root filesystem is the amount of disk space available for the entire filesystem (this means that you need to keep in mind the size of the installation class as well as allow you space to write and save data to).

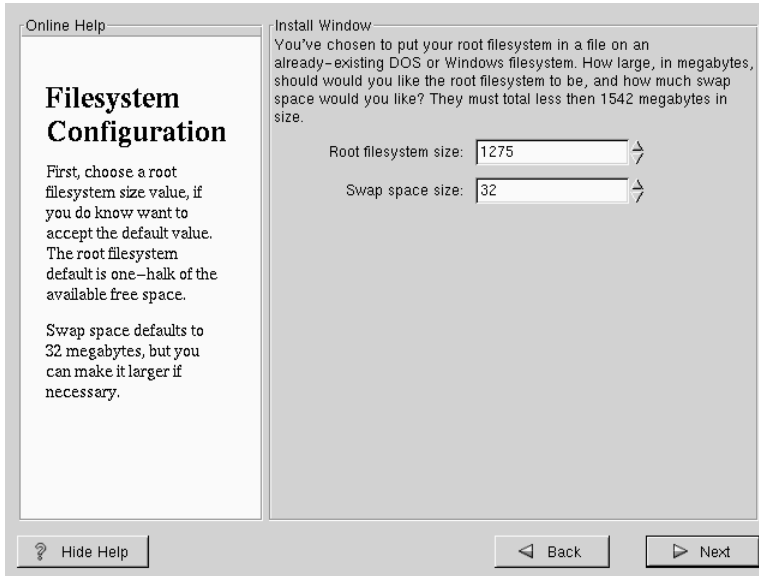
Swap space acts like virtual memory. In other words, data is written to a swap partition when there is not enough RAM to store the data your system is processing. The installation program will set swap to 32MB as a default. You can choose to increase the swap size if desired, but there is no need to create a swap space larger than 256MB.

Figure B-3 Confirmation



From here, you can continue following the main installation chapter (see Section 5.12, *Network Configuration*) for further installation instructions. The only difference you will see from this point is a screen prompting you to create a boot disk. Once you make the boot disk and follow the other instructions, your installation will be complete.

To access Red Hat Linux, make sure the boot disk that you created during the installation is in your floppy drive. When you reboot your system it will enter into Red Hat Linux rather than your other OS. To access your other OS, remove the boot disk and reboot your system.

Figure B-4 Configuration of Filesystem

B.2.3 How to Remove a Partitionless Installation From Your System

To remove this partitionless installation, you will need to delete the following files from your DOS/Windows partition:

```
redhat.img  
rh-swap.img
```

These files can be found in the partition's root directory (known as \ under DOS/Windows.)

Once these files have been removed, Red Hat Linux will no longer boot on your system. Your system will return to its previous state and you will be able to access the space used by Red Hat Linux as you normally would.

C Removing Red Hat Linux

To uninstall Red Hat Linux from your system, you will need to remove the LILO information from your Master Boot Record (MBR).

There are several methods to removing LILO from the master boot record of the machine. Inside of Linux, you can replace the MBR with an earlier saved version of the MBR using the `/sbin/lilo` command:

```
/sbin/lilo -u
```

In DOS, NT, and Windows 95 you can use `fdisk` to create a new MBR with the "undocumented" flag `/mbr`. This will ONLY rewrite the MBR to boot the primary DOS partition. The command should look like:

```
fdisk /mbr
```

If you need to remove Linux from a hard drive, and have attempted to do this with the default DOS `fdisk`, you will experience the "Partitions exist but they don't exist" problem. The best way to remove non-DOS partitions is with a tool that understands partitions other than DOS.

You can perform this with the installation floppy by typing "linux expert" (without the quotes) at the `boot:` prompt.

```
boot:linux expert
```

Select install (versus upgrade) and when it comes to partitioning the drive, choose `fdisk`. In `fdisk` type `[p]` to print out the partition numbers, and remove the Linux partitions with the `[d]` command. When you're satisfied with the changes you have made, you can quit with a `[w]` and the changes will be saved to disk. If you deleted too much, type `[q]` and no changes will occur.

Once you have removed the Linux partitions, you can reboot your computer by pressing `[Control]-[Alt]-[Delete]` instead of continuing with the install.

D Getting Technical Support

D.1 Remember to Sign Up

If you have an official edition of Red Hat Linux 7.0, please remember to sign up for the benefits you're entitled to as a Red Hat customer.

You'll be entitled to any or all of the following benefits, depending upon the Official Red Hat Linux product you purchased:

- Official Red Hat support -- Get help with your installation questions from Red Hat, Inc.'s support team.
- Priority FTP access -- No more late-night visits to congested mirror sites. Owners of Red Hat Linux 7.0 receive free access to priority.redhat.com, Red Hat's preferred customer FTP service, offering high bandwidth connections day and night.
- Red Hat Update Agent -- Receive e-mail directly from Red Hat as soon as updated RPMs are available. Use Update Agent filters to receive notification about only those subjects that interest you.
- Under the Brim: The Official Red Hat E-Newsletter -- Every month, get the latest news and product information directly from Red Hat.

To sign up, go to <http://www.redhat.com/now>. You'll find your **Personal Product ID** on a red and white card in your Official Red Hat Linux boxed set.

D.2 An Overview of Red Hat Support

Red Hat provides installation assistance for Official Red Hat Linux boxed set products and covers installation on a single computer. This assistance is intended to help customers successfully install Red Hat Linux. Assistance with installation is offered via telephone and the Web.

Red Hat Support will attempt to answer any questions you may have before the installation process is initiated. This includes the following:

- Hardware compatibility questions
- Basic hard drive partitioning strategies

Red Hat, Inc. Support can also provide assistance during the installation process:

- Getting any supported hardware recognized by the Red Hat Linux operating system
- Assistance with drive partitioning
- Configuring Red Hat Linux and up to one other operating system (on Intel platforms only) to dual-boot using the Linux boot loader LILO. Please note that third party boot loaders and partitioning software are not supported.

We can also help you with basic post-installation tasks, such as:

- Successfully configuring the X Window System using XF86Setup or Xconfigurator
- Configuring a local parallel port printer to print text
- Configuring a mouse

Our installation assistance service is designed to get you up and running with Red Hat Linux as quickly and as easily as possible. However, there are many other things that you may want to do with your Red Hat Linux system (from compiling a custom kernel to setting up a Web server) which are not covered.

For assistance with these tasks, there is a wealth of on-line information available in the form of HOWTO documents, Linux-related websites, and commercial publications. The Red Hat Linux operating system includes the various Linux HOWTO documents on the installation CD in the `/doc/HOWTO` directory as plain text files that can easily be read from within Red Hat Linux and other operating systems.

A large number of Linux-related websites are available. The best starting point for finding information on Red Hat Linux is the Red Hat, Inc. website at:

<http://www.redhat.com/>

Many Linux-related books are available. If you're new to Linux, a book that covers Linux basics will be invaluable. We can recommend several titles: *Using Linux*, by Bill Ball; *Linux Clearly Explained*, by Bryan Pfaffenberger; *Linux for Dummies*, by Jon "maddog" Hall; and *A Practical Guide to Linux*, by Mark G. Sobell.

Red Hat also offers various incident-based support plans to assist with configuration issues and tasks that are not covered by installation assistance. Please see the Red Hat Support website for more information. The Red Hat technical support website is located at the following URL:

<http://www.redhat.com/support/>

D.3 Scope of Red Hat Support

Red Hat, Inc. can only provide installation assistance to customers who have purchased an Official Red Hat Linux boxed set. If you have obtained Linux from any other company, you must contact that company for support. Examples of such companies are as follows:

- Macmillan
- Sams/Que
- Linux Systems Labs (LSL)
- Mandrake
- CheapBytes

Additionally, Red Hat Linux obtained via any of the following methods does not qualify for support from Red Hat:

- Red Hat Linux PowerTools Archive
- Downloaded via FTP on the Internet
- Included in a package such as Motif or Applixware
- Copied or installed from another user's CD

D.4 The Red Hat Support System

As of October 1999, Red Hat, Inc. has implemented a new technical support system. If you signed up for technical support in the past with Red Hat, it may be necessary for you to sign up again. The new system will implement a unified login and password that will work across the entire Red Hat website. The support system will also automatically route and track service requests.

If you haven't signed up yet, then you should. Instructions for how to sign up are provided next, in Section D.5, *How to Get Technical Support*.

D.5 How to Get Technical Support

In order to receive technical support for your Official Red Hat product, you first have to sign up.

Every Official Red Hat product comes with a Personal Product Identification code: a 16-character alphanumeric string. The Personal Product ID for Red Hat Linux 7.0 is located on a red and white card that can be found inside the box. Your Personal Product ID is on a perforated card that you can punch out and keep in a safe place. You need this code, so don't lose the card!

Please Note

Do not throw away the card with your Personal Product ID. You need the Personal Product ID to get technical support. If you lose the certificate, you may not be able to receive support.

The Personal Product ID is the code that will enable your technical support and any other benefits or services that you purchased from Red Hat, depending upon which Red Hat product you purchased. The Personal Product ID may also enable priority FTP access, depending on the product that you purchased, for a limited amount of time.

D.5.1 Signing up for Technical Support

You'll need to:

1. Create a customer profile at <http://www.redhat.com/now>. You may have already completed this step; if you have, continue to the next step. If you do not already have a customer profile on the Red Hat website, please create a new one.
2. With your login name and password, please login at the Red Hat Support website at <http://www.redhat.com/support>.
3. Update your contact information if necessary.

Please Note

If your e-mail address is not correct, communications regarding your technical support requests CANNOT be delivered to you, and you will not be able to retrieve your login and password by e-mail. Be sure that you give us your correct e-mail address.

If you're worried about your privacy, please see Red Hat's privacy statement at http://www.redhat.com/legal/privacy_statement.html.

4. Add a product to your profile. Please enter the following information:
 - The Personal Product ID for the boxed set product
 - A description of the hardware on which the Red Hat Linux product will be installed
 - The Support Certificate Number or Entitlement Number if the product is a contract
5. Set your customer preferences.
6. Answer the optional customer questionnaire.
7. Submit the form.

If the previous steps were completed successfully, you can now login at <http://www.redhat.com/support> and open a new technical service request. However, you must still use your Personal Product ID in order to obtain technical support via telephone (if the product you purchased came with phone support). Please do not lose your Personal Product ID, or you might not be able to receive support.

D.6 Questions for Technical Support

Technical support is both a science and a mystical art form. In most cases, support technicians must rely on customer observations and communications with the customer in order to diagnose and solve the problem. Therefore, it is extremely important that you are as detailed and clear as possible when you state your questions and report your problems. Examples of what you should include are:

- Symptoms of the problem (for example: "Linux is not able to access my CD-ROM drive. When it tries, I get timeout errors.")
- When the problem began (for example: "My system was working fine until yesterday, when a lightning storm hit my area.")
- Any changes you made to your system (for example: "I added a new hard drive and used 'Partition Wizzo' to add Linux partitions.")
- Other information that may be relevant to your situation, such as the installation method (CD-ROM, NFS, HTTP)

D.6.1 How to Send Support Questions

Please login at <http://www.redhat.com/support> and open a new service request, or call the phone number for support. If your product came with phone support, or you've purchased a

phone support contract, the phone number you'll need to call will be provided to you during the sign up process.

D.7 Support Frequently Asked Questions (FAQ)

D.7.1 Q: E-Mail Messages to support@redhat.com Bounce

I send e-mail to support@redhat.com but my messages bounce back to me. What is the problem?

D.7.2 A: support@redhat.com Is Not Used at This Time

To better serve our customers, Red Hat is re-engineering our e-mail support process. At this time, the support@redhat.com address is not functional. In the meantime, please use support via the Web or by telephone.

D.7.3 Q: System Won't Allow Login

I know that I have already signed up, but the system will not let me log in.

D.7.4 A: Old Logins and Passwords Won't Work

You could be trying to use an old login and password, or simply mistyping your login or password.

E Troubleshooting Your Installation of Red Hat Linux

This appendix discusses some common installation problems you could encounter and solutions to those problems.

E.1 Trouble Booting Red Hat Linux

E.1.1 Trouble Booting from the CD-ROM?

If you cannot boot from your Red Hat Linux CD-ROM, you have two options:

1. You can change your BIOS so that booting from CD-ROM is recognized first, or
2. Boot from the boot diskette included in the boxed set.

To change your BIOS, you should refer to your system manual for the correct keyboard combination that will allow you to access your BIOS, or you can read the key sequence needed while the system begins to boot.

To boot from the boxed set Red Hat Linux boot disk, insert the diskette into your floppy drive and then boot/reboot your computer.

E.1.2 Trouble Booting from the Red Hat Linux Boot Disk?

If you are experiencing difficulties in getting the Red Hat Linux boot disk to boot your system correctly, you may need an updated boot disk.

Check the online errata for updated diskette images and follow the instructions provided to make a new boot disk for your system.

E.1.3 Trouble Booting from a PCMCIA Boot Disk?

If you are experiencing difficulties in getting the PCMCIA boot disk you made to boot your system correctly, you may need an updated boot disk.

Check the online errata for updated diskette images and follow the instructions provided to make a new boot disk for your system.

E.1.4 Trouble Booting from a Network Boot Disk?

If you are experiencing difficulties in getting the network boot disk you made to boot your system correctly, you may need an updated boot disk.

Check the online errata for updated diskette images and follow the instructions provided to make a new boot disk for your system.

E.2 Trouble Beginning the Installation

E.2.1 Trouble Using Options Needed with a PCMCIA Boot Disk?

If you booted using a PCMCIA boot disk and want to install via FTP (or NFS or HTTP), but do not see these installation options, you may have a problem with your network card.

If the network card is not initialized during the boot process, the Red Hat Linux installation program will *not* enable you to configure your system for networking (either at boot time or during the installation itself).

Check the hardware compatibility list (<http://www.redhat.com/support/hardware>) to see if your network card is compatible and/or supported. If your card is not listed, chances are it is not compatible with Red Hat Linux.

E.3 Trouble During the Installation

E.3.1 Trouble Getting the Automatic Partitioning Screen?

If the **Automatic Partitioning** screen does not appear during your installation, you probably do not have enough free space in which to install Red Hat Linux.

If you do not want to partition manually, you should exit out of the installation, which can be done by rebooting your system once you have removed any diskettes or CD-ROMs, and then you can reallocate space for your installation.

E.3.2 Trouble Creating Partitions?

If you are having trouble creating a partition, for instance a root (/) partition, there are a couple of things you should be aware of.

Make sure you are setting it as a Linux Native partition type.

Unless your BIOS supports otherwise, make sure you are not exceeding 1023 cylinders, otherwise you will not be able to create a `/boot` or a `/` partition. Some new systems will allow you to exceed the 1023 limit (with the new LILO version that is available), but most machines with older BIOS will not.

E.3.3 Trouble Completing Partitions?

If you are using Disk Druid to create partitions, but cannot move to the next screen, you probably have not created all the partitions necessary for Disk Druid's dependencies to be satisfied.

You must have the following partitions as a bare minimum:

- `/` (root) partition, Linux native type
- `<swap>` partition, Linux swap type

Tip

By defining a partition type as Linux swap, you do not have to assign it a mount point. Disk Druid will automatically assign the mount point for you.

If your system will be a dual-boot system using LILO, then you also must create:

- `/boot` partition, Linux native type

E.3.4 Trouble Installing Packages?

If you are having trouble installing packages (for example the installation program stalls while reading the packages or you get error messages), you may have a disk or drive problem.

E.4 Trouble After the Installation

E.4.1 Trouble With the Graphical LILO Screen?

If for some reason you need to disable the graphical boot screen, you can do so by editing the `lilo.conf` file and then rerunning LILO.

To do this, comment out (or delete) the line which reads `message=/boot/message` in the `lilo.conf` file. Once you have done this, rerun LILO. The next time you boot, you will see the text `LILO:` prompt, as is seen in previous Red Hat Linux releases.

You may also re-enable the graphical boot screen by adding the above line back into the `lilo.conf` file and rerunning LILO.

E.4.2 Trouble With Server Installations and X?

If you performed a server installation and you are having trouble getting X to start it is because the X Window System is not installed during a server-class installation.

You can have the X Window System interface running with a server class installation by selecting to do an upgrade after the install. During the upgrade, select the X Window System packages, and choose GNOME or KDE (or both).

E.4.3 Trouble Logging In?

If you did not create a user account during the installation you will need to log in as *root* and use the password you assigned to root.

If you cannot remember your root password, you will need to boot your system as **linux single** at the LILO `boot :` prompt. Then at the `#` prompt, you will need to type **passwd root**, which will allow you to enter in a new password for root. At this point you can type **shutdown -r now** and the system will reboot with your new password.

If you cannot remember your user account password, you must become root, then, type **passwd <username>**. This allows you to enter a new password for the specified user account.

If you selected either the custom- or workstation-class installation and do not find the graphical login screen, check your hardware for compatibility issues. The hardware compatibility list can be found at <http://www.redhat.com/support>.

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