Red Hat Linux 6.2

The Official Red Hat Linux Installation Guide

Contents

Red Hat Linux 6.2

1 New Features of Red Hat Linux 6.2

This chapter describes features that are new to the Red Hat Linux 6.2 graphical installation process. To learn about non-installation-related new features, please refer to the *Official Red Hat Linux Reference Guide*.

1.1 Installation-Related Enhancements

Improvements to Red Hat Linux 6.2 which will make installation even easier include:

Partitionless Installation

> This new installation type allows a user with an existing, formatted DOS (FAT) filesystem to install Red Hat Linux 6.2 on their current system without having to worry about making Linux partitions. For more information about this installation process, refer to Appendix B, *Installing Without Partitioning*.

Improved X Configuration

> 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.

Additional GUI Partitioning Tool

> Previously available only in expert mode, fdisk has been added to the GUI installation. You can now choose to partition with Disk Druid or fdisk, depending on your level of skill and personal preference.

Rescue Disk Improvements

> New and improved options make using the rescue disk even more powerful than before. Improvements include mtools and RAID tools, and pico as the new default editor.

Software RAID Configuration in Kickstart Installations

> New to kickstart installations is the ability to configure RAID.

RAID Upgrades

> New to the installation program is the ability to perform RAID upgrades.

ATAPI Zip Drive Recognition

ATAPI Zip drives are now recognized by the installation program and automatically configured to use SCSI emulation. If you add an ATAPI Zip drive after the installation, the hardware recognition program kudzu will recognize it once you reboot your system. The installation program will also create device files for Jaz drives as well.

2   Before You Begin

This chapter explains how to prepare for the Red Hat Linux installation. It's divided into two main sections:

- Seven steps to get you ready for the installation (such as checking for errata, hardware compatibility, making diskettes and more);
- System requirements table for gathering your hardware information.

While installing Red Hat Linux is a fairly straightforward process, taking time to prepare for it will make things go much more smoothly. In this chapter, we'll discuss the steps you should perform prior to the installation.

Please Note

If you currently use Red Hat Linux 2.0 (or greater), you can perform an upgrade. Skim this chapter to review the basics then read Chapter 3, *Starting the Installation*, following the directions as you go. The upgrade procedure starts out identically to the installation procedure. Once you have chosen to perform an upgrade please refer to Chapter 5, *Upgrading Your Current System*.

If you are an experienced user and do not need a review of the basics, you can skip ahead to Chapter 3, *Starting the Installation* to begin the installation process.

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: http://www.red-hat.com/support/docs/faqs/rhl_general_faq/FAQ.html

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2.1 Seven Steps to Get You Started

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

2.1.1 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 `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.) If your box has an ISBN number in this form, and you're missing something, please use the contact information included in the boxed set.

Keep in mind is that 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 this, 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.

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 *Making Installation Diskettes* in Section 2.1.6.

2.1.2 Step 2 - Is Your Hardware Compatible with Red Hat Linux 6.2?

Hardware compatibility is particularly important to those of you with older systems or systems that you may have built yourself. Red Hat Linux 6.2 should be compatible with most hardware in systems that were factory built within the last two years. However, with hardware specifications changing and improving almost daily, it is hard to guarantee that your hardware will be 100% compatible.

First, use Red Hat's online resources to make sure your hardware is compatible and/or supported. You'll find the hardware compatibility list at: http://www.redhat.com/hardware.

Second, gather all the system hardware information you can; the *Official Red Hat Linux Reference Guide* has instructions on doing this in the *Installation-Related Reference* (including instructions for Windows users). At the end of this chapter, a system requirements table (see Section 2.2, *System Requirements Table*) is available for you to fill out and reference during the installation.

2.1.3 Step 3 - Have You Checked for Errata?

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 software itself (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.

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.

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 *Making Installation Diskettes* in Section 2.1.6.

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/.

2.1.4 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* before proceeding.

If you are not performing a "fresh" installation, in which Red Hat Linux will be the only OS on your system, and you are not performing an upgrade, 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 available to install Red Hat Linux.

- Your computer 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 partition, and install using the partitionless installation method (Appendix B, *Installing Without Partitioning*).

To give you an idea of how much space you'll need, below is a list of installation methods and their *minimum* space requirements. This includes partitionless installation requirements.

- GNOME Workstation - 700MB

- KDE Workstation - 700MB

- Server - 1.7GB

- Custom (choosing *Everything*) - 1.7GB

For more information about these installation classes, see Section 2.1.7, *Step 7 - Which Installation Type is Best For You?*

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*.

2.1.5 Step 5 - How Do You Want to Install Red Hat Linux?

Next, you must decide which type of installation best fits your needs. Options include:

CD-ROM

> If you purchased a Red Hat Linux 6.2 boxed set (or have a Red Hat Linux CD-ROM) and have a CD-ROM drive. This method requires a boot disk, a bootable CD-ROM, or a PCMCIA boot disk.

Hard Drive

> If you have copied the Red Hat Linux files to a local hard drive. This method requires a boot disk or 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.

FTP

> If you are installing directly from an FTP server. Requires a network or PCMCIA boot disk.

HTTP

> If you are installing directly from an HTTP Web server. Requires a network or PCM-CIA boot disk.

2.1.6 Step 6 - How Do You Want to Start the Installation?

Depending on the installation method you chose in Step 5, you must decide how you want to start the installation process itself. What **boot media** will you use?

Bootable CD-ROM

> If your system will allow you to boot from your CD-ROM drive, you can use the Red Hat Linux CD-ROM to boot into the installation program to perform a local CD-ROM installation.

Local Media Boot Disk

> If you purchased an Official Red Hat Linux 6.2 boxed set, you will find a **local boot disk** in the box. This diskette can be used for CD-ROM installations for which your CD-ROM drive is not bootable, or for a hard drive installation.

Network Boot Disk

> If you are performing an installation via FTP, HTTP, or NFS you must create your own **network boot disk**. The network boot disk image file is bootnet.img, and is located in the images directory on your Red Hat Linux/Intel CD.

PCMCIA Boot Disk

> Here's a checklist to help you determine if you'll need to create a **PCMCIA boot disk**:
>
> • If you'll be installing Red Hat Linux from a CD-ROM, and your CD-ROM drive is attached to your computer through a PCMCIA card, you'll need a PCMCIA boot disk.
>
> • If you will be using a PCMCIA network adapter during the installation, you may need a PCMCIA boot disk.
>
> If you need a PCMCIA boot disk, you must make one. The PCMCIA boot disk image file is pcmcia.img, and is located in the images directory on your Red Hat Linux/Intel CD.

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, it's time to 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," "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
```

If you need to make another diskette, label that diskette, and run dd again, specifying the appropriate image file.

2.1.7 Step 7 - Which Installation Type is Best For You?

Red Hat Linux includes four different classes, or types of installations. They are:

- Workstation -- A workstation-class installation is most appropriate if you are new to the world of Linux, and would like to give it a try. By answering a few installation questions, you can be up and running Red Hat Linux in no time!

- Server -- A server-class installation is most appropriate for you if you'd like your system to function as a Linux-based server, and you don't want to heavily customize your system configuration.

- Custom -- A custom-class installation allows you the greatest flexibility during your installation. You choose your partitioning scheme, which packages you want and more. Custom-class installations are most appropriate for those users more familiar with Red Hat Linux installations and for those afraid of losing complete flexibility.

- Upgrade -- If you already have a version of Red Hat Linux 2.0 (or greater) running on your system and you want to quickly update to the latest packages and kernel version, then an upgrade is most appropriate for you.

Please Note

The custom-class installation allows you the most flexibility. The workstation- and server-class installations go through the installation process for you and omit certain steps. However, partition flexibility has been added to workstation- and server-class installations, so you can now partition your drives manually.

These classes give you the option of simplifying the installation process (with some potential for loss of configuration flexibility), or retaining flexibility with a slightly more complex installation process. Let's take a detailed look at each class, so you can see which one is right for you.

Please Note

If you are planning to perform a partitionless installation, you will also need to choose what class of installation you want to perform. However, unlike the warnings for users performing a typical installation, you will not have to worry about losing any information on your system. A partitionless installation will not remove existing partitions.

The Workstation-Class Installation

There are two types of workstation-class installations for you to choose:

- **GNOME Workstation** -- Installs on a system that will be used primarily as a workstation. Loads the GNOME GUI and configures the system to start GNOME when the system boots. If you choose not to manually partition, the installation program deletes all data in all existing Linux partitions, decides how to partition the disk for the new version, and chooses which software packages to load.

- **KDE Workstation** -- Installs on a system that will be used primarily as a workstation. Loads the KDE GUI and configures the system to start KDE when the system boots. If you choose not to manually partition, the installation program deletes all data in all existing Linux partitions, decides how to partition the disk for the new version, and chooses which software packages to load.

Please Note

Unlike previous workstation-class installations, performing a Red Hat Linux 6.2 workstation-class installation will not install the network daemon inetd. Not installing inetd results in a more secure installation; however, 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.

What Does It Do?

If you choose *not* to partition manually, 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 (the exact size is dependent on your available disk space) root partition (mounted as `/`) in which all other files are stored.

- A 16MB partition (mounted as `/boot`) in which the Linux kernel and related files reside.

This approach to disk partitioning results in the simplest filesystem configuration possible.

Please Note

You will need at least 700MB of free disk space in order to perform a workstation-class installation.

If your system already runs Windows (Windows 3.1/95/98/NT), a workstation-class installation will automatically configure your system to dual-boot using LILO (the LInux LOader).

CAUTION

A workstation-class installation will remove *all* existing Linux partition on all hard drives in your system. It will also attempt to set up a dual boot environment automatically on your system, if another OS is present.

The Server-Class Installation

During the server-class installation, the X Window System is *not configured* and *no GUI will be loaded* when the system boots. The installation program deletes all data in all existing partitions of any kind, decides how to partition the disk for the new version, and chooses which software packages to load.

What Does It Do?

If you choose *not* to partition manually, a server-class installation removes *ALL existing partitions* on *ALL installed hard drives*, so choose this installation class only if you're sure you have nothing you want saved! When the installation is complete, you'll find the following partitions:

- A 64MB swap partition.
- A 256MB partition (mounted as /).
- A partition of at least 512MB (mounted as /usr).
- A partition of at least 512MB (mounted as /home).
- A 256MB partition (mounted as /var).
- A 16MB partition (mounted as /boot) in which the Linux kernel and related files are kept.

This approach to disk partitioning results in a reasonably flexible filesystem configuration for most server-class tasks.

Please Note

You will need at least 1.7GB of free disk space in order to perform a server-class installation.

CAUTION

A server-class installation will remove *ALL existing partitions of ANY type on ALL existing hard drives of your system*. All drives will be erased of all information and existing operating systems, regardless if they are Linux partitions or not!

The Custom-Class Installation

As you might guess from the name, a custom-class installation puts the emphasis on flexibility. During a custom-class installation, *you* can choose how disk space should be partitioned. You have complete control over which packages will be installed on your system. You also determine whether you'll use LILO (the LInux LOader) to boot your system.

Behind the Scenes of a Custom-Class Installation

This section covers those installation steps that are *only* seen when performing a custom-class installation.

This may help those of you who are trying to decide which installation class will better suit your needs. If you think you'll have trouble performing any of the tasks on this list, you should not perform a custom-class installation without reading through this manual and clarifying any questions you may have.

- Creating Partitions -- In the custom-class installation it is necessary for you to specify where you want Red Hat Linux to be installed. (This is no longer specific to custom-class installations because you now have the *option* to manually partition in the workstation- and server-class installations.)

- Formatting Partitions -- All newly created partitions must be formatted. Any partitions that contain old data (data you no longer need or want) should be formatted. (If you chose to manually partition your workstation- or server-class installation, you will need to choose which partitions to format.)

- Selecting and Installing Packages -- This is performed after your partitions have been configured and selected for formatting. Here you may select groups of packages, individual packages, a combination of the two, or choose an "everything" install.

- LILO Configuration -- In a custom-class installation, you are able to choose where you would like LILO 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 LILO at all.

Upgrading Your System

Upgrading Red Hat Linux 2.0 (or greater) will not delete any existing data. The installation program updates the modular 2.2.x kernel and all currently installed software packages. See Chapter 3, *Starting the Installation* and Chapter 5, *Upgrading Your Current System* for those instructions.

2.2 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 2–1   System Requirements

Hard Drive(s): Number, size, type; ex: IDE hda=1.2G	1)
Partitions: map of partitions and mount points; ex: `/dev/hda1=/home`, `/dev/hda2=/` (fill this in once you know where they will reside).	2)
Memory: Amount of RAM installed on your system; ex: 64MB, 128MB	3)

CD-ROM: Interface Type; ex: SCSI, IDE (ATAPI)	4)
SCSI Adapter: If present, make and model number; ex: BusLogic SCSI Adapter, Adaptec 2940UW	5)
Network Card: If present, make and model number; ex: Tulip, 3COM 3C590	6)
Mouse: Type, protocol, and number of buttons; ex: generic 3 button PS/2 mouse, MouseMan 2 button serial mouse	7)
Monitor: Make, model, and manufacturer specifications; ex: Optiquest Q53, ViewSonic G773	8)
Video Card: Make, model number and VRAM; ex: Creative Labs Graphics Blaster 3D, 8MB	9)

Sound Card: Make, chipset and model number; ex: S3 SonicVibes, Sound Blaster 32/64 AWE	10)
IP Address: Four numbers, separated by dots; ex: 10.0.2.15 (*contact your netadmin for help*)	11)
Netmask: Usually four numbers, separated by dots; ex: 255.255.248.0 (*contact your netadmin for help*)	12)
Gateway IP address: Four numbers, separated by dots; ex: 10.0.2.245 (*contact your netadmin for help*)	13)
One or more name server IP Addresses: Usually one or more sets of dot-separated numbers; ex: 10.0.2.1 (*contact your netadmin for help*)	14)

Domain name: the name given to your organization; ex: Red Hat's would be `redhat.com` (*contact your netadmin for help*)	15)
Hostname: the name of your computer; your personal choice of names ex: `cookie`, `southpark`.	16)

3 Starting the Installation

This chapter explains how to start the Red Hat Linux installation process. We'll cover the following areas:

- Getting familiar with the installation program's user interface;
- Starting the installation program;
- Selecting an installation method;
- Beginning the installation.

By the end of this chapter, the installation program will be running on your system, and you will have begun the process of either installing or upgrading to Red Hat Linux 6.2.

3.1 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.

Please Note

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
```

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

3.1.1 A Note about Virtual Consoles

The Red Hat Linux installation program offers more than the dialog boxes of the installation process. Several different kinds of diagnostic messages are available to you, in addition to giving you a way to enter commands from a shell prompt. It presents this information 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 3–1, *Console, Keystrokes, and Contents* for a listing of the virtual consoles, keystrokes to switch to them, and their contents.

Table 3–1   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

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.

3.2 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 2, *Before You Begin*, and followed the instructions, you should be ready to begin.

3.2.1 Booting the Installation Program

Please Note

If you need to create a boot disk, please refer to Section 2.1.6, *Step 6 - How Do You Want to Start the Installation?*.

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 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] key to enter the BIOS settings. Once you have done whatever process is needed to enter your computer's BIOS, you can then change the boot order to allow your computer to boot from the CD-ROM drive or diskette drive first when bootable software is detected. For more information, please refer to the documentation that came with your system.

There are four possible 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.

- *Network boot disk* -- use to install from NFS, FTP and HTTP installation methods.

- *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 diskette.

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.

Expert mode can be entered using the following boot command:

```
boot: linux expert
```

Please Note

If you do not wish to perform a CD-ROM GUI installation, you can choose to perform a text mode installation by using the following boot command:

```
boot: text
```

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

The command to start a **serial installation** has changed. If you need to 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).

Please Note

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

Options can also be passed to the kernel.

For example, to instruct the kernel to use all the RAM in a 128MB system, enter:

```
boot: linux mem=128M
```

After entering any options, press [Enter] to boot using those options.

If you do need to specify boot options to identify your hardware, please make note of them -- they will be needed during the LILO configuration portion of the installation (please see Section 4.6, *Installing LILO* for more information).

Booting without diskettes

The Red Hat Linux/Intel CD-ROM can also be booted by computers that support bootable CD-ROMs. Not all computers support this feature, so if yours can't boot from the CD-ROM, there is one other way to start the installation without using a boot disk. The following method is specific to Intel-based computers only.

If you have MS-DOS installed on your system, you can boot directly from the CD-ROM drive without using a boot disk.

To do this (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, Windows cannot be running.

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.

3.3 Selecting an Installation Method

Next, you will be asked what type of installation method you wish to use. You can install Red Hat Linux via 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.

Hard Drive

If you copied the Red Hat Linux files to a local hard drive. Refer to the *Official Red Hat Linux Reference Guide* 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* 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* for FTP installation instructions.

HTTP

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

3.4 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 installation, reboot your system and at the boot: prompt, type **text**. Refer to the *Official Red Hat Linux Reference Guide* for further instructions.

3.4.1 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). Once done, 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 3.5, *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 hd***X***=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.

After booting, the installation program begins by displaying the language screen.

Please Note

If you wish to abort the installation process at this time, simply re-boot your machine then eject the boot diskette or CD-ROM. You can safely cancel the installation at any point before the **About to Install** screen, see Section 4.13, *Preparing to Install*.

3.5 Language Selection

Using your mouse, select the language you would prefer to use for the installation and as the system default (see Figure 3–1, *Language Selection*).

Figure 3–1   Language Selection
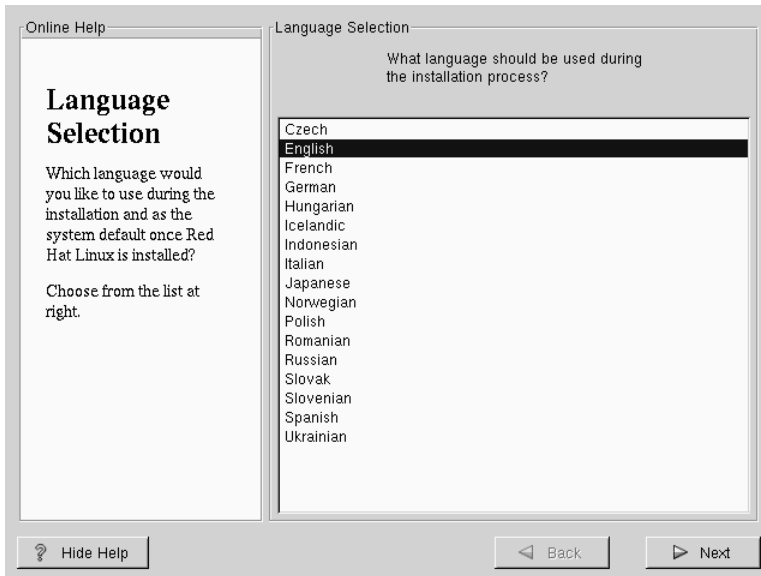
3.6 Keyboard Configuration

Choose the model that best fits your system (see Figure 3–2, *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 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.

Figure 3–2   Keyboard Configuration
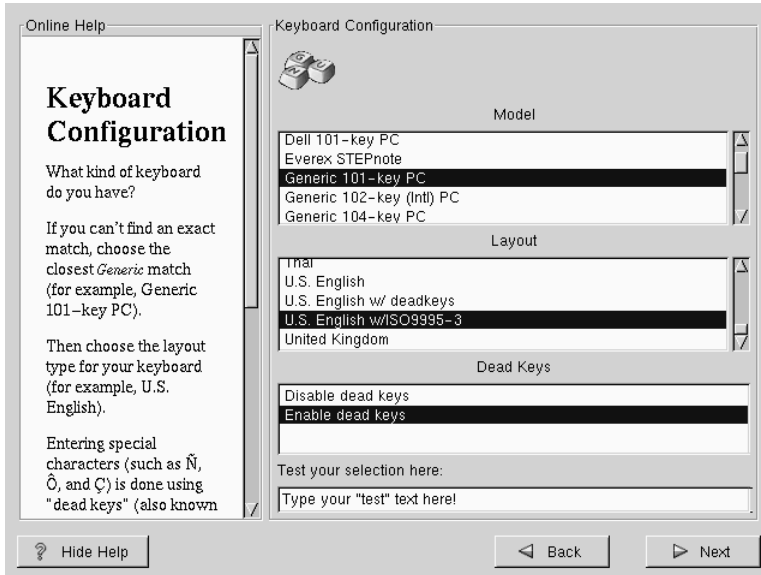
3.7 Mouse Configuration

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 3–3, *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 3–3   Mouse Configuration
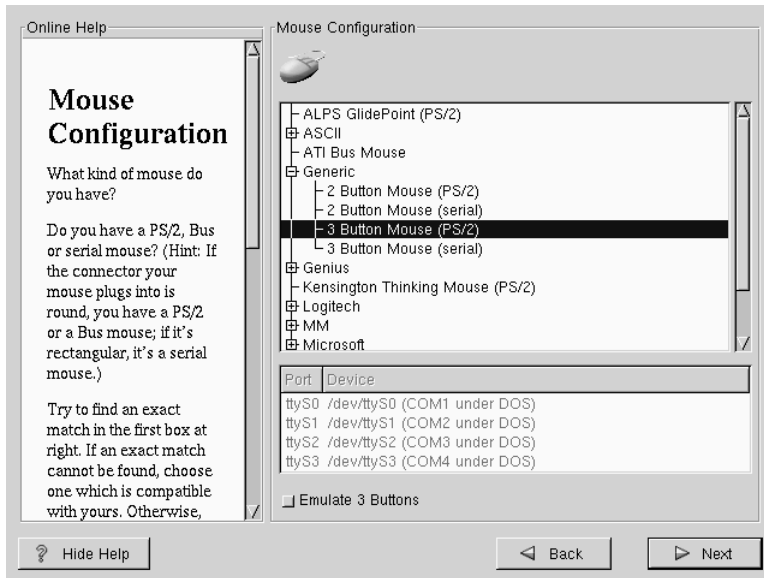
If you have a PS/2 or a Bus mouse, you do not need to pick a port and device. If you have a serial mouse, you should choose the correct port and device that your serial mouse is on.

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

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 typing `gpm -B 321` at the shell prompt.

3.8 Welcome to Red Hat Linux

The "Welcome" screen (see Figure 3–4, *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 on where to register your Official Red Hat Linux product.

Figure 3–4   Welcome to Red Hat Linux

Please notice the **Hide Help** button at the bottom left corner of the screen. The help screen is open by default, but if you do not want to view the help information, click on the **Hide Help** to minimize the screen.

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

3.9 Install Options

Please Note

New Feature: Red Hat Linux 6.2 has a new 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*.

Choose whether you would like to perform a full installation or an upgrade (see Figure 3–5, *Choosing Install or Upgrade*).

In the top right-hand corner of the **Install Type** screen there is a box you may select if you wish to partition using fdisk. Note that fdisk is not as intuitive to use as Disk Druid and is not selected by default. If you have not used fdisk before, you should read about both fdisk and Disk Druid to determine which will best suit your needs.

Figure 3–5   Choosing Install or Upgrade
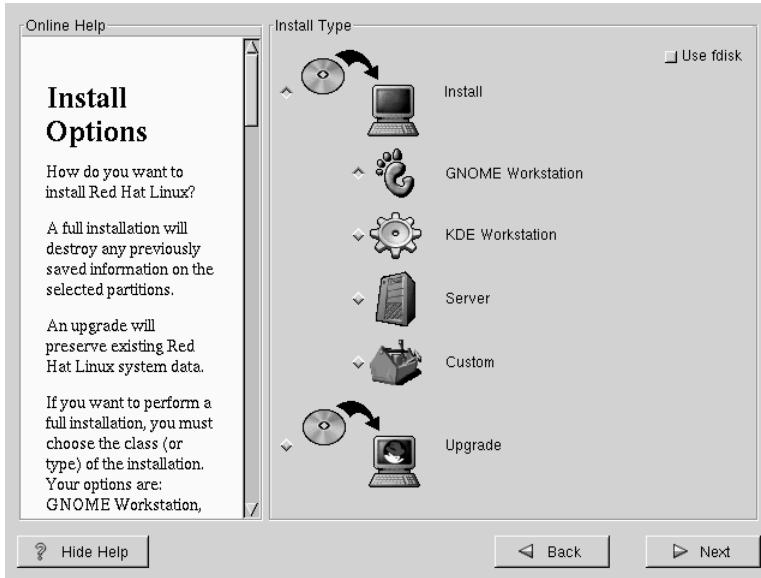
To perform a full GUI installation, please refer to Chapter 4, *Installing Red Hat Linux 6.2* for those instructions.

To perform an upgrade, please refer to Chapter 5, *Upgrading Your Current System*.

4 Installing Red Hat Linux 6.2

Once you have finished this chapter, you will have completed a full installation of Red Hat Linux 6.2.

If you need information about performing an upgrade, please refer to Chapter 5, *Upgrading Your Current System* for those instructions.

4.1 Continuing the Installation

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

> **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 Chapter 5, *Upgrading Your Current System*).**

In choosing a full installation, you must also choose the class of the installation. Your options include: **GNOME Workstation**, **KDE Workstation**, **Server** or **Custom**.

Most suitable for new users, the workstation-class installation will install your choice of a GNOME or KDE desktop environment, and the X Window System.

WARNING

Do not choose this method 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.

WARNING

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

Please Note

Unlike previous workstation-class installations, performing a Red Hat Linux 6.2 workstation-class installation will not install the network daemon inetd. Not installing inetd results in a more secure installation; however, network-related services such as finger, telnet, talk, and FTP will not work. If you require these types of services, please go back and choose a server- or a custom-class installation.

A server-class installation is most appropriate for you if you'd like your system to function as a Linux-based server, and you don't want to heavily customize your system configuration.

WARNING

A server-class installation will erase *all partitions* **(both Linux and non-Linux) from** *every one* **of your computer's hard drive(s).**

The *custom-class installation* allows you the most flexibility during your installation. The workstation-class and server-class installations automatically go through the installation process for you and omit certain steps. During a custom-class installation, it is up to *you* how disk space should be partitioned. You have complete control over the packages that will be installed on your system. You can also determine whether you'll use LILO (the LInux LOader) to boot your system. Unless you have prior Linux experience, you should not select the custom-class installation method.

If you would like to know what steps are omitted by not performing a custom-class installation please refer to *Behind the Scenes of a Custom-Class Installation* in Section 2.1.7.

4.2 Partitioning with fdisk

CAUTION

Unless you have previously used fdisk and understand how it works, we do not recommend that you use it. Disk Druid is an easier and friendlier partitioning tool for those new to partitioning their system. To exit fdisk click **Back** to return to the previous screen, deselect fdisk, and then click **Next**.

This section applies only if you chose to use fdisk to partition your system. If are not using fdisk, please skip to Section 4.3, *Automatic Partitioning* for automatic partitioning or Section 4.4, *Partitioning Your System* for partitioning with Disk Druid.

If you have chosen to use fdisk, the next screen (see Figure 4–1, fdisk) will prompt you to select a drive to partition using fdisk.

Figure 4–1   fdisk
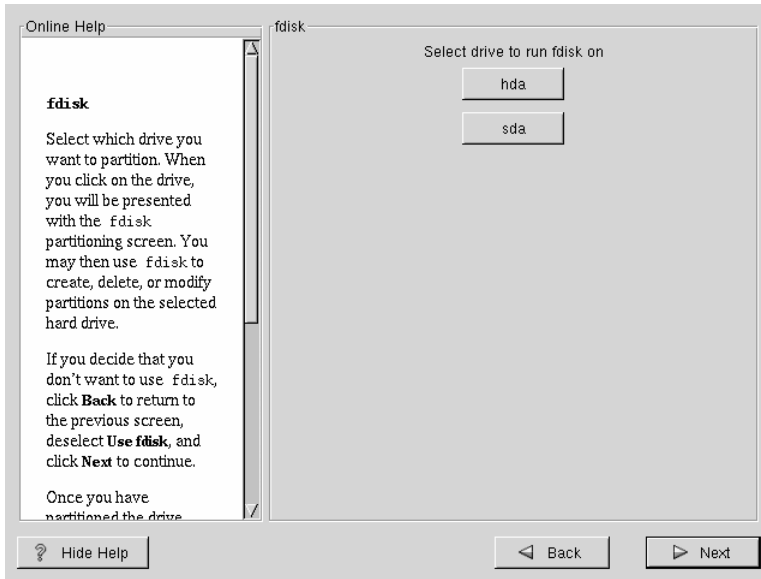
Once you have chosen which drive to partition, you will be presented with the fdisk command screen (see Figure 4–2, *Partitioning with* fdisk). If you are unsure as to what command you should use, type [m] at the prompt for help. Please refer to the *Official Red Hat Linux Reference Guide* for an overview of fdisk. When you've finished making partitions, type w to save your changes and quit. You will be taken back to the original fdisk screen where you can choose to partition another drive or continue with your installation.

Figure 4–2   Partitioning with fdisk
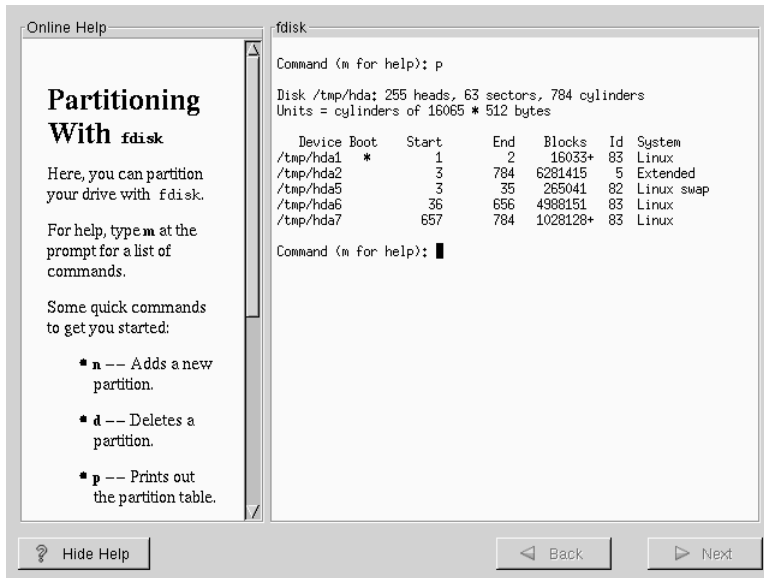
After you have partitioned your drive(s), click **Next**. You will then use Disk Druid to assign **mount points** to your partitions.

You will not be able to add new partitions using Disk Druid, but you will be able to edit those you have already created.

Figure 4–3   Editing with Disk Druid
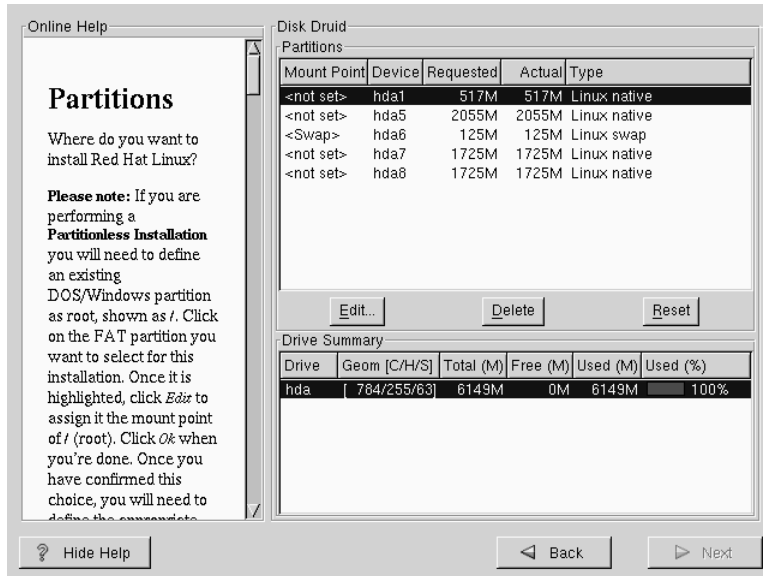
Skip to Section 4.5, *Choose Partitions to Format* for further installation instructions.

4.3 Automatic Partitioning

Automatic Partitioning allows you to perform an installation without having to partition your drive(s) yourself. If you do not feel comfortable with partitioning your system, it is recommended that *do not* choose to partition manually and instead let the installation program partition for you.

The Automatic Partitioning screen is only seen when performing a workstation- or server-class installation. If you are performing a custom-class installation, or choose to manually partition, please refer to Section 4.4, *Partitioning Your System*.

In this screen, you can choose to continue with this installation, to partition manually, or use the **Back** button to choose a different installation method (see Figure 4–4, *Automatic Partitioning*).

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.

Figure 4–4   Automatic Partitioning

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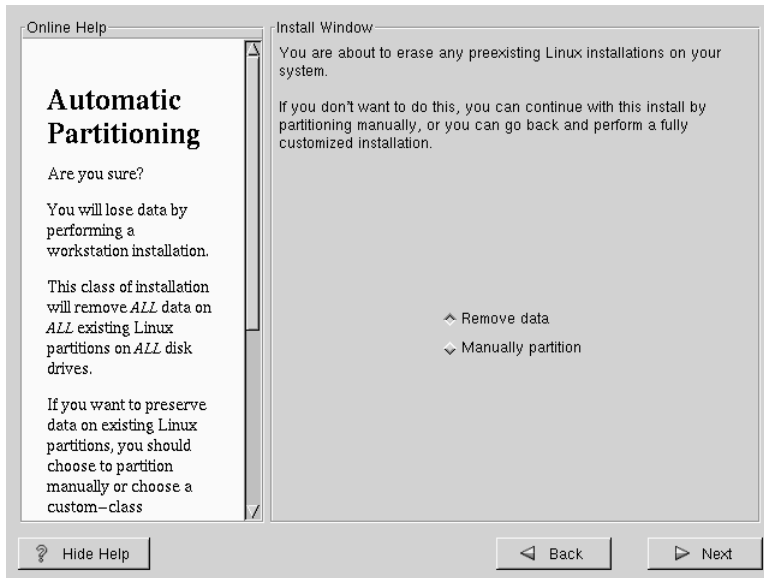
A workstation-class installation will remove all data on all currently existing Linux partitions.

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.

CAUTION

A server-class installation will remove all data on all partitions of all hard drives.

If you have another OS on your system that you wish to keep installed, 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*.

4.4 Partitioning Your System

If you are performing a workstation- or server-class installation and you chose *not* to partition manually, please skip to Section 4.7, *Network Configuration*.

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 4–5, *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*. As a bare minimum, you'll need an appropriately-sized root partition, and a swap partition of at least 16 MB.

Figure 4–5   Partitioning with Disk Druid
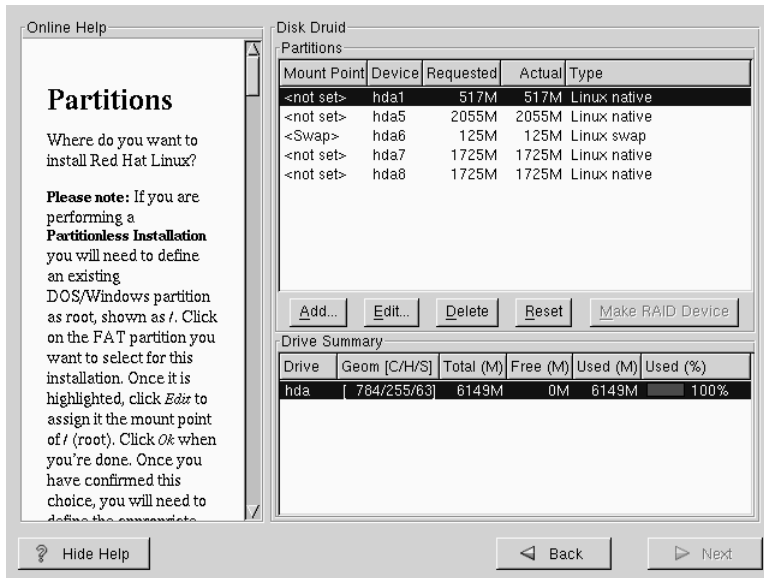
The partitioning tool used in Red Hat Linux 6.2 is Disk Druid. With the exception of certain esoteric situations, Disk Druid can handle the partitioning requirements for a typical Red Hat Linux installation.

4.4.1 Partition Fields

Each line in the "Partitions" section represents a disk partition. Each line in this section has five different fields:

Mount Point:

> A mount point is the location within the directory hierarchy at which a volume exists. The volume is said to be mounted at this location. This field indicates where the partition will be mounted. If a partition exists, but is "not set" you need to define its mount point. Double-click on the partition or use the **Edit** key.

> 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).

- 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.

- A root partition (700MB-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 700MB 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.

Device:

This field displays the partition's device name.

Requested:

This field shows the partition's original size. To re-define the size, you must delete the current partition and recreate it using the **Add** button.

Actual:

This field shows the space currently allocated to the partition.

Type:

This field shows the partition's type (such as Linux Native or DOS).

4.4.2 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).

As you scroll through the **Partitions** section, you might see an "Unallocated Requested Parti-
tion" message (in red text), followed by one or more partitions. A common reason for this is
a lack of sufficient free space for the partition. In any case, the reason the partition remains
unallocated will be displayed after the partition's requested mount point.

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.

4.4.3 Drive Summaries

Each line in the **Drive Summaries** section represents a hard disk on your system. Each line
has the following fields:

Drive:

>   This field shows the hard disk's device name.

Geom [C/H/S]:

>   This field shows the hard disk's **geometry**. The geometry consists of three numbers
>   representing the number of cylinders, heads and sectors as reported by the hard disk.

Total:

>   This field shows the total available space on the hard disk.

Free:

>   This field shows how much of the hard disk's space is still unallocated.

Used:

>   These fields show how much of the hard disk's space is currently allocated to partitions,
>   in megabytes and percentage.

The **Drive Summaries** section is displayed only to indicate your computer's disk configura-
tion. It is not meant to be used as a means of specifying the target hard drive for a given
partition. That is done using the **Allowable Drives** field in Section 4.4.5, *Adding Partitions*.

4.4.4 Disk Druid's Buttons

These buttons control Disk Druid's actions. They are used to add and delete partitions, and to
change partition attributes. There are also buttons that are used to accept the changes you've
made, or to exit Disk Druid. Let's take a look at each button in order.

Add:

> used to request a new partition. When selected, a dialog box will appear containing fields (such as mount point and size) that must be filled in.

Edit:

> used to modify attributes of the partition currently selected in the "Partitions" section. Selecting **Edit** will open up a dialog box. Some or all of the fields can be edited, depending on whether the partition information has already been written to disk.

Delete:

> used to remove the partition currently highlighted in the **Current Disk Partitions** section. You'll be asked to confirm the deletion of any partition.

Reset:

> used to restore Disk Druid to its original state. All changes made will be lost if you **Reset** the partitions.

Make RAID Device:

> **Make RAID Device** can be used if you want to provide redundancy to any or all disk partitions. *It should only be used if you have experience using RAID.* To read more about RAID, please refer to the *Official Red Hat Linux Reference Guide*.
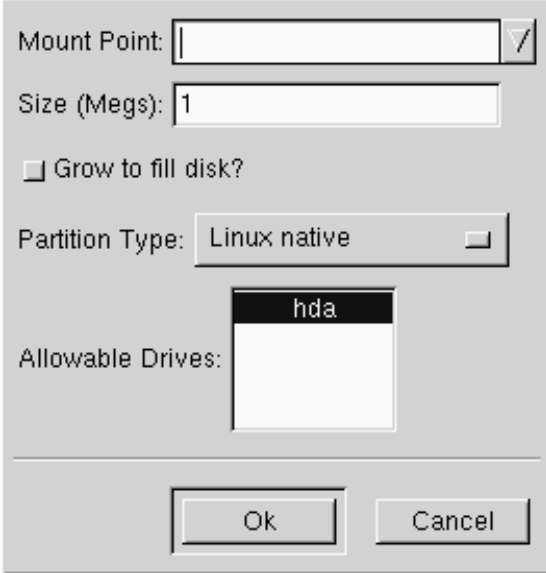
4.4.5 Adding Partitions

To add a new partition, select the **Add** button. A dialog box will appear (see Figure 4–6, *Adding a Partition*).

Please Note

You will need to dedicate at least one partition to Red Hat Linux, and optionally more. This is discussed more completely in Appendix C in the *Official Red Hat Linux Reference Guide*.

Figure 4–6   Adding a Partition

- **Mount Point**: Highlight and enter the partition's mount point. For example, if this partition should be the root partition, enter /; enter /boot for the /boot partition, and so on. You can also use the pull-down menu to choose the correct mount point for your partition.

- **Size (Megs)**: Enter the size (in megabytes) of the partition. Note this field starts with a "1" in it; unless changed you'll end up with a 1 MB partition.

- **Grow to fill disk**: This check box indicates if the size you entered in the previous field is to be considered the partition's exact size, or its minimum size. When selected, the partition will grow to fill all available space on the hard disk. The partition's size will expand and contract as other partitions are modified. You can make multiple partitions growable; if you do, the additional free space will be shared among all growable partitions.

- **Partition Type**: This field contains a list of different partition types (such as Linux Native or DOS). Select the appropriate partition type by using the mouse.

- **Allowable Drives**: This field contains a list of the hard disks installed on your system. If a hard disk's box is highlighted, then a desired partition can be created on that hard disk.

If the box is *not* checked, then the partition will *never* be created on that hard disk. By using different check box settings, you can direct Disk Druid to place partitions as you see fit, or let Disk Druid decide where partitions should go.

- **Ok**: Select **Ok** once you're satisfied with the settings, and wish to create the partition.

- **Cancel**: Select **Cancel** if you don't want to create the partition.

4.4.6 Editing Partitions

To edit a partition, select the **Edit** button or double-click on the existing partition (see Figure 4–7, *Editing a Partition*).

Figure 4–7   Editing a Partition
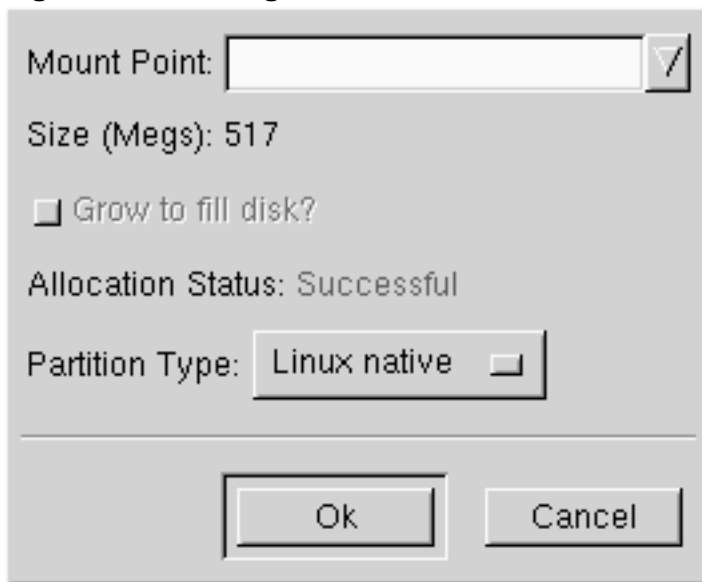
Please Note

If the partition already existed on your hard disk, you will only be able to change the partition's mount point. If you want to make any other changes, you will need to delete the partition and recreate it.

4.4.7 Deleting a Partition

To delete a partition, highlight it in the "Partitions" section and double-click the **Delete** button. You will be asked to confirm the deletion.

4.5 Choose Partitions to Format

Choose the partitions that you would like to format. All newly created partitions should be formatted. In addition, any existing partitions that contain data you no longer need should be formatted. However, partitions such as /home or /usr/local must not be formatted if they contain data you wish to keep (see Figure 4–8, *Choosing Partitions to Format*).

Figure 4–8   Choosing Partitions to Format
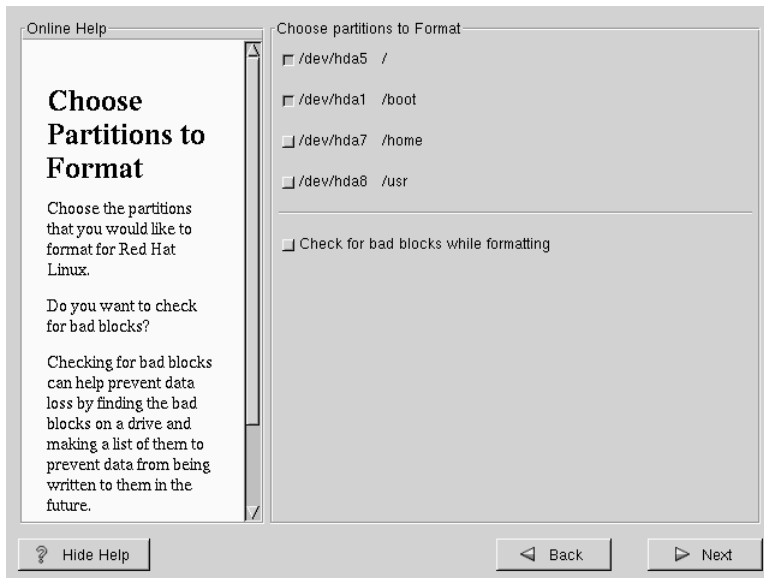
If you wish to check for bad blocks while formatting each filesystem, please make sure to select the **check for bad blocks** option.

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 using them in the future.

4.6 Installing LILO

If you're performing a workstation- or server-class installation, please skip ahead to Section 4.8, *Time Zone Configuration*.

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 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).

If you choose to install LILO, please select where you would like LILO to be installed on your system (see Figure 4–9, *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.lin-uxdoc.org/HOWTO/mini/Linux+NT-Loader.html for more information on setting up LILO and NT.

<div style="text-align:center">

~~~~~~~~~~~~~~~
CAUTION
~~~~~~~~~~~~~~~

</div>

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.

Figure 4–9   LILO Configuration
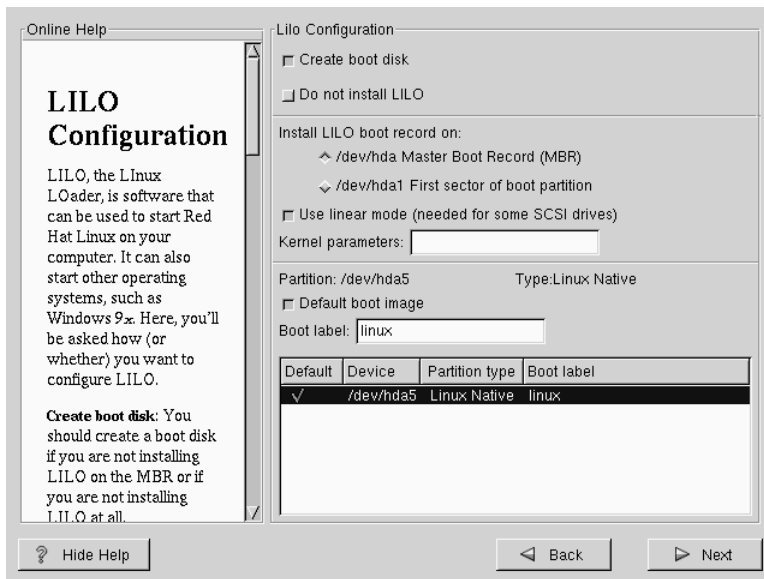
If you wish to add default options to the LILO boot command, enter them into the kernel parameters field. Any options you enter will be passed to the Linux kernel every time it boots.

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.

4.6.1 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.

    - 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*.

4.6.2 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://meta-lab.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).

4.6.3 SMP Motherboards and LILO

This section is specific to SMP motherboards only. If the installer detects an SMP mother-board 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.

4.7 Network Configuration

If you have a network card and have not already configured your networking information, you now have the opportunity to configure networking (as shown in Figure 4–10, *Network Configuration*).

Choose your device type and whether you would like to configure using DHCP. 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 as to what this information is, 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 4–10   Network Configuration

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 **Ternary DNS**) addresses.

4.8 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 4–11   Configuring Time Zone
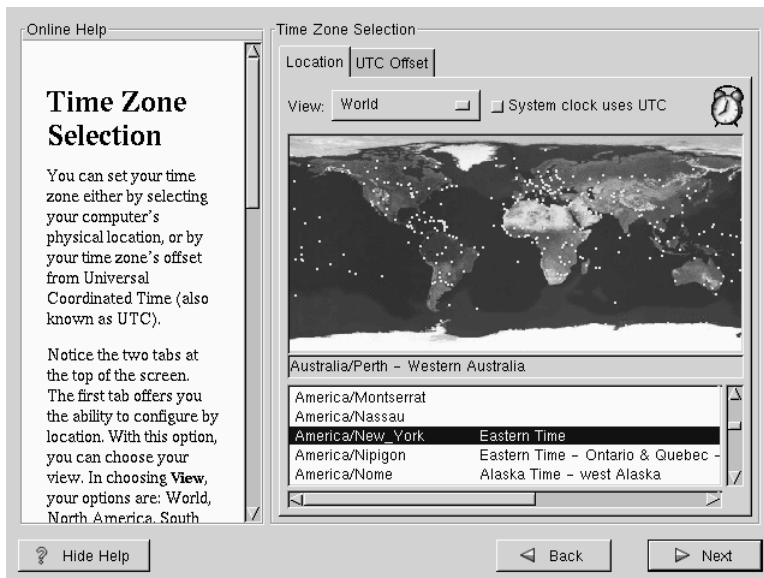
Notice the two tabs at the top of the screen (see Figure 4–11, *Configuring Time Zone*). The first tab offers you the ability to configure by location. With this option, you can choose your

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.

4.9 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 4–12, *Account Creation*).

Figure 4–12   Account Creation

4.9.1 Setting the Root Password

The installation program will prompt you to set a **root password** for your system.

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.

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 **420BMttNT**, for example. Remember that the password is case-sensitive. Write down this password and keep it in a secure place.

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.

4.9.2 Setting Up User Accounts

If you choose to create a user account now, you will have an account to log in to once the
installation has completed. This allows you to safely and easily log into your computer with-
out 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.

4.10 Authentication Configuration

If you are performing a workstation-class installation, please skip ahead to Section 4.12, *GUI
X Configuration Tool*.

If you are performing a server-class installation, please skip ahead to Section 4.13, *Preparing
to Install*.

You may skip this section if you will not be setting up network passwords. If you are unsure
as to whether you should do this, please ask your system administrator for assistance.

Unless you are setting up **NIS** authentication, you will notice that both **MD5** and **shadow** pass-
words are selected (see Figure 4–13, *Authentication Configuration*). We recommend you use
both to make your machine as secure as possible.

To configure the NIS option, you must be connected to an NIS network. If you are unsure
whether you are connected to an NIS network, please ask your system administrator.

Figure 4–13   Authentication Configuration
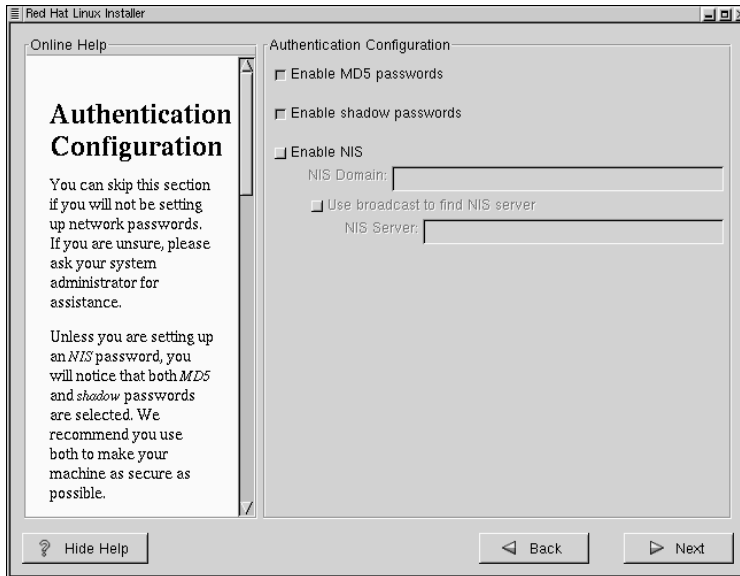
- **MD5 Password** -- allows a long password to be used (up to 256 characters), instead of the standard eight letters or less.

- **Shadow Password** -- provides a secure method of retaining passwords. The passwords are stored in /etc/shadow, which is readable only by root.

- **Enable NIS** -- allows you to run a group of computers in the same Network Information Service domain with a common password and group file. There are two options to choose from here:

    - **NIS Domain** -- this option allows you to specify which domain or group of computers your system belongs to.

    - **NIS Server** -- this option causes your computer to use a specific NIS server, rather than "broadcasting" a message to the local area network asking for any available server to host your system.

4.11 Package Group Selection

After your partitions have been selected and configured for formatting, you are ready to select packages for installation.

You can select **components**, which group packages together according to function (for example, `C Development`, `Networked Workstation`, or `Web Server`), **individual packages**, or a combination of the two.

To select a component, click on the check box beside it (see Figure 4–14, *Package Group Selection*).

Figure 4–14   Package Group Selection
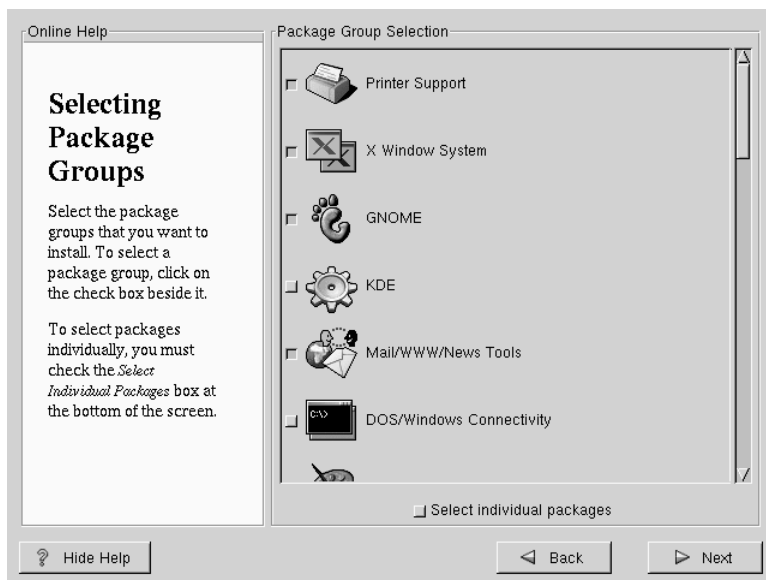
Select each component you wish to install. Selecting `Everything` (which can be found at the end of the component list) installs all packages included with Red Hat Linux. Selecting every package will require close to 1.7GB of free disk space.

To select packages individually, check the **Select Individual Packages** box at the bottom of the screen.

4.11.1 Selecting Individual Packages

After selecting the components you wish to install, you can select or deselect individual packages. The installation program presents a list of the packages in that group, which you can select or deselect using your mouse (see Figure 4–15, *Selecting Individual Packages*).

Figure 4–15   Selecting Individual Packages

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.

Please Note

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.

4.11.2 Unresolved Dependencies

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 4–16, *Unresolved Dependencies*).

The **Unresolved Dependencies** screen will only appear if you are missing certain packages that are needed by your selected packages. 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 4–16   Unresolved Dependencies
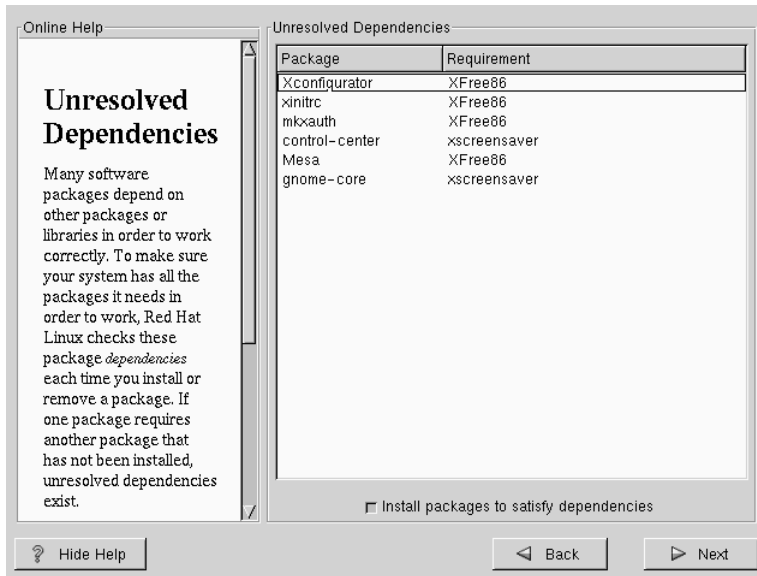
4.12 GUI X Configuration Tool

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 4.14, *Installing Packages*.

4.12.1 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 4–17   Monitor Selection
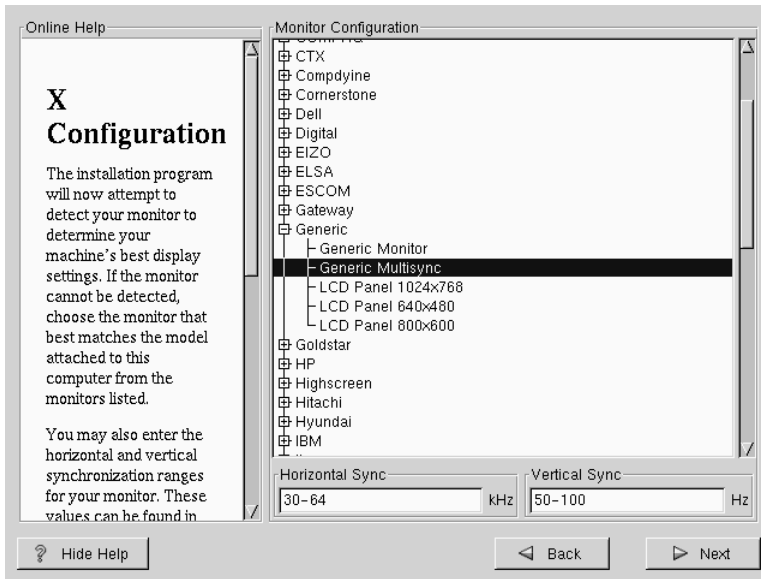
If your monitor does not appear on the list, select the most appropriate **Generic** model avail-able. If you do select a **Generic** monitor, Xconfigurator will suggest horizontal and vertical sync ranges. These values are generally available in the documentation which accompanies your monitor, or from your monitor's vendor or manufacturer; please check your documen-tation to make sure these values are set correctly.

⬖CAUTION⬖

Do not select a monitor *similar* to your monitor unless you are cer-tain that the monitor you are selecting does not exceed the capabil-ities 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 configuration of your monitor.

4.12.2 Video Hardware Configuration

Next, Xconfigurator will probe for any video hardware you have (see Figure 4–18, *Videocard Setup*). Failing that, Xconfigurator will present a list of video cards and monitors for you to select from.

If your video card does not appear on the list, **XFree86** 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 4–18   Videocard Setup
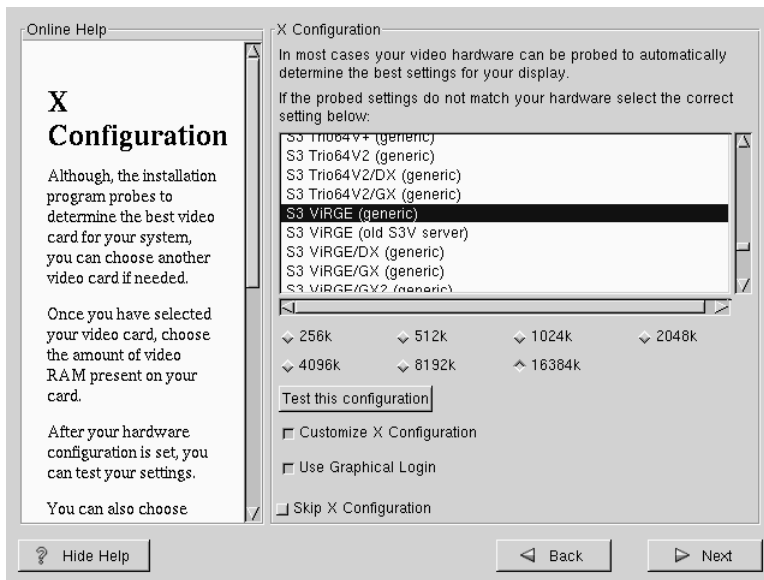
Next, Xconfigurator prompts you for the amount of video memory installed on your video card. If you are not sure, please consult the documentation accompanying your video card. You will not damage your video card by choosing more memory than is available, but the XFree86 server may not start correctly if you do.

Once your hardware has been determined, you can test the configuration settings. We recommend that you do test your configuration to make sure that the resolution and color is what you want to work with.

If you would like to customize the X configuration, please 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 4–19, *X Customization*). Again, you will have the option of testing the configuration.

Figure 4–19   X Customization
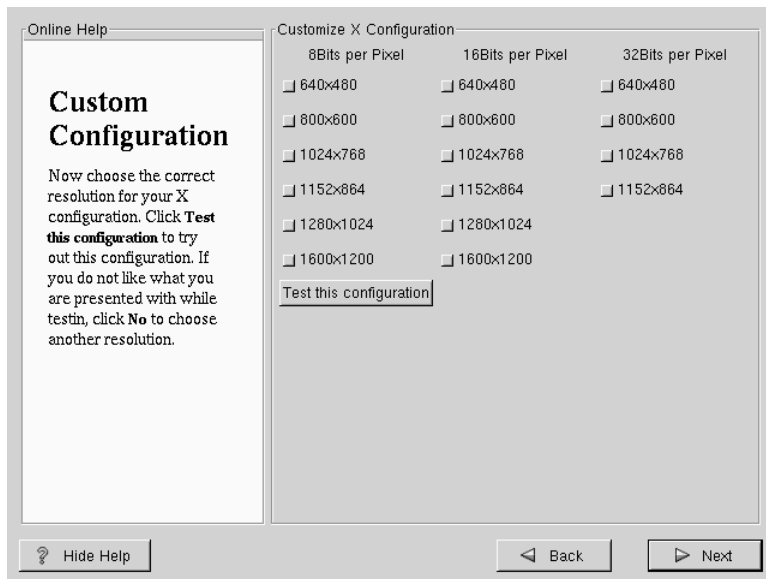
You may also choose to **Skip X Configuration** if you would rather configure X after the install or not at all.

4.13 Preparing to Install

You will now see a screen preparing you for the installation of Red Hat Linux (see Figure 4–20, *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 and packages will be installed. If you wish to abort the installation, you should reboot now before your hard drive(s) are rewritten.

Figure 4–20   Ready to Install
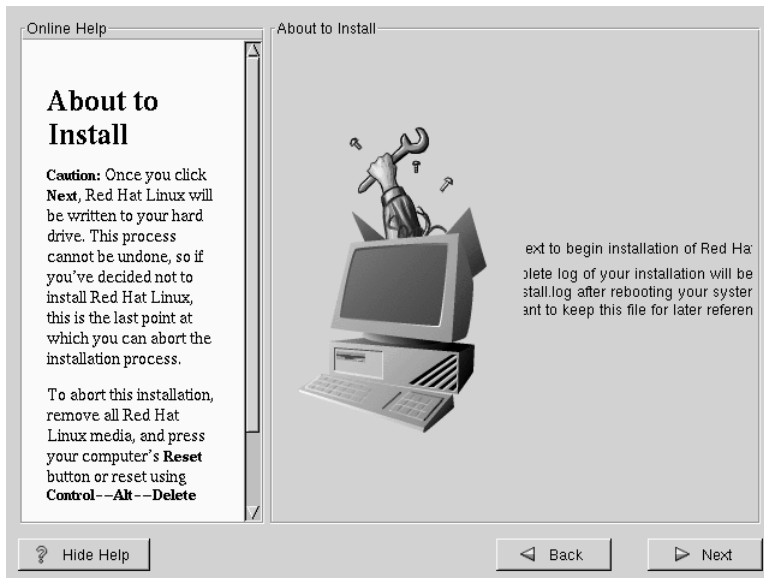
4.14 Installing Packages

At this point there's nothing left for you to do until all the packages have been installed (see Figure 4–21, *Installing Packages*). How quickly this happens depends on the number of packages you've selected, and your computer's speed.

Figure 4–21   Installing Packages
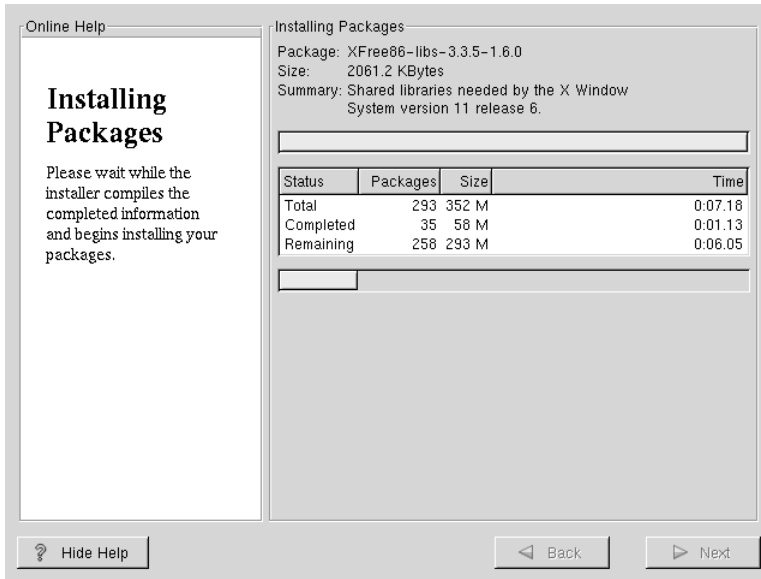
4.15 Boot Disk Creation

If you chose to to create a boot disk, you should now insert a blank, formatted diskette into your floppy drive (see Figure 4–22, *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 boot your system with the boot disk (instead of LILO), make sure you create a new boot disk if you make any changes to your kernel.

Figure 4–22   Creating Your Boot Disk

4.16 Installation Complete

Congratulations! Your Red Hat Linux 6.2 installation is now complete!

The installation program will prompt you to prepare your system for reboot (see Figure 4–23, *Installation Complete*). Don't forget to remove any diskette in the floppy drive or CD in the CD-ROM drive. If you did not install LILO, you'll need to use your boot disk now.

After your computer's normal power-up sequence has completed, you should see LILO's standard prompt, which is boot:. At the boot: prompt, you can do any of the following things:

- Press [Enter] -- Causes LILO's default boot entry to be booted.

- Enter a Boot Label, followed by [Enter] -- Causes LILO to boot the operating system corresponding to the boot label. (Press [?] at the 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.

Figure 4–23   Installation Complete

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

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* to be more helpful.

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5 Upgrading Your Current System

This chapter explains those steps you'll see while performing an upgrade of Red Hat Linux 6.2.

5.1 What it Means to Upgrade

The installation process for Red Hat Linux 6.2 includes the ability to upgrade from prior versions of Red Hat Linux (version 2.0 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 machine. The upgrade process preserves existing configuration files by renaming them using an `.rpmsave` extension (e.g., `sendmail.cf.rpmsave`) 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.

5.2 Upgrading Your System

At this point, you should have chosen **Upgrade** as your preferred installation type (see Figure 5–1, *Choosing to Upgrade*).

Figure 5–1   Choosing to Upgrade
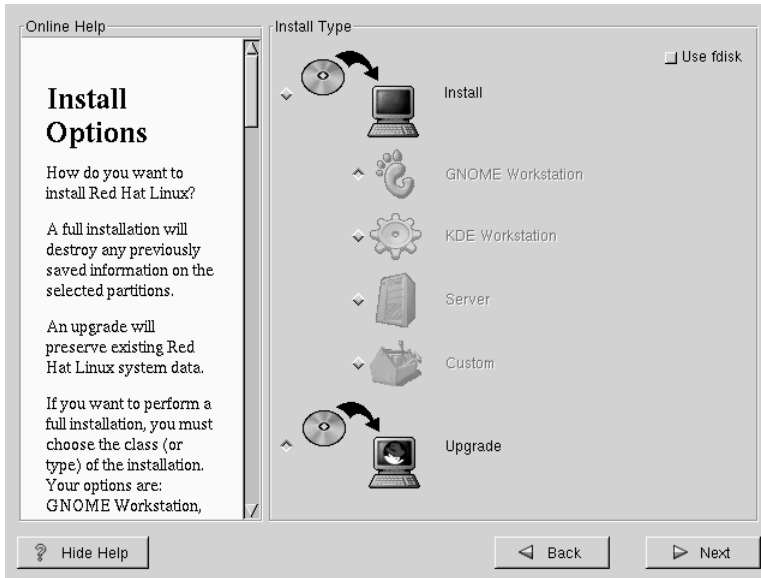
5.3 Customizing Your Upgrade

Next, you must choose whether to let the installation program upgrade your system for you or if you would like to customize your packages to be upgraded (see Figure 5–2, *Upgrade Customization*).

If you click **Next** and the **Customize packages to upgrade** button is not selected, your system will automatically begin the upgrade process (see Section 5.5, *Upgrading Packages*).

If you want to customize your upgrade packages, select this option and then click **Next**.

Figure 5–2   Upgrade Customization
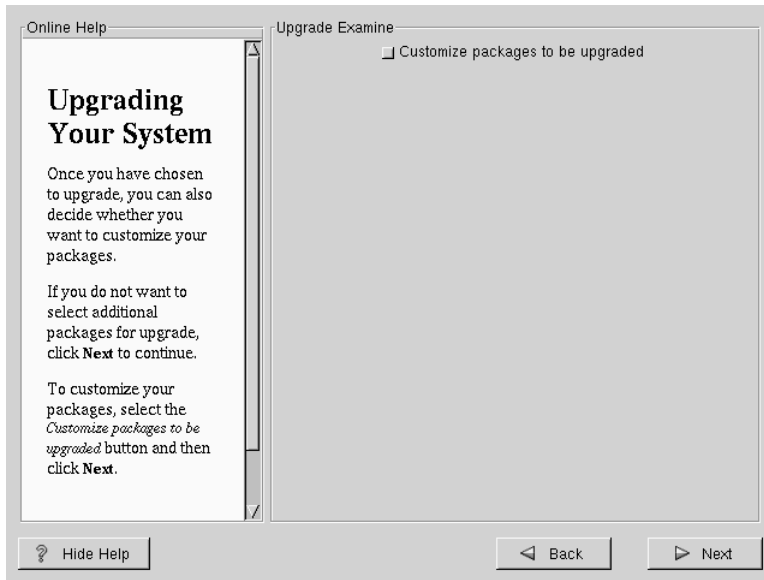
5.4 Selecting Packages to Upgrade

Here, you are given the opportunity to choose which packages you would like to upgrade (see Figure 5–3, *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.

Please Note

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 5–3   Individual Package Selection
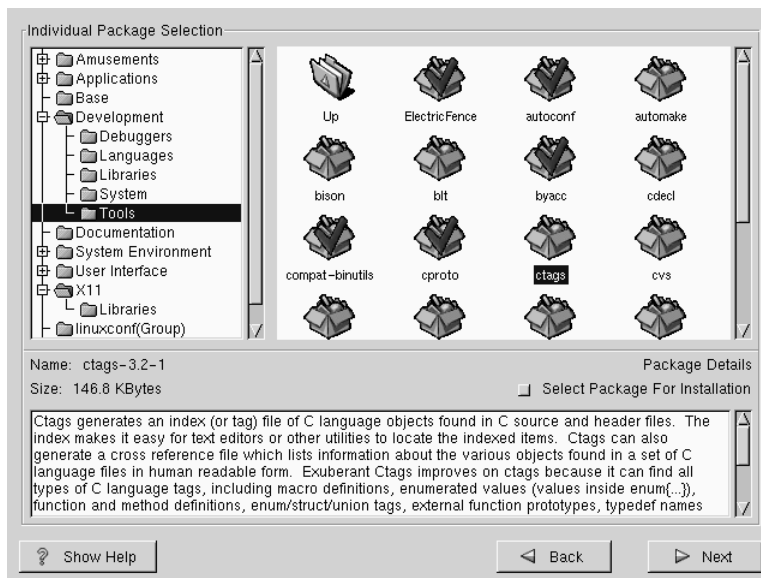
5.4.1 Unresolved Dependencies

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 5–4, *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 5–4   Unresolved Dependencies
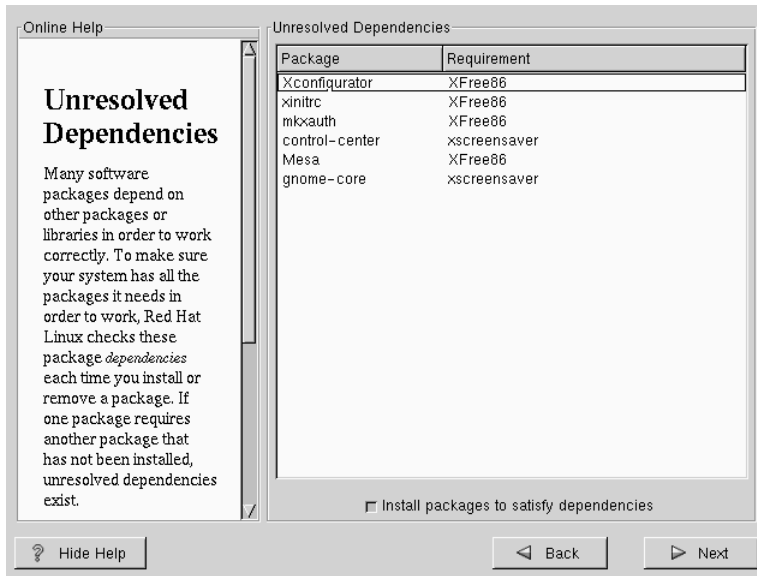
5.5 Upgrading Packages

At this point there's nothing left for you to do until all the packages have been upgraded or installed (see Figure 5–5, *Installing Packages*).

Figure 5–5   Installing Packages
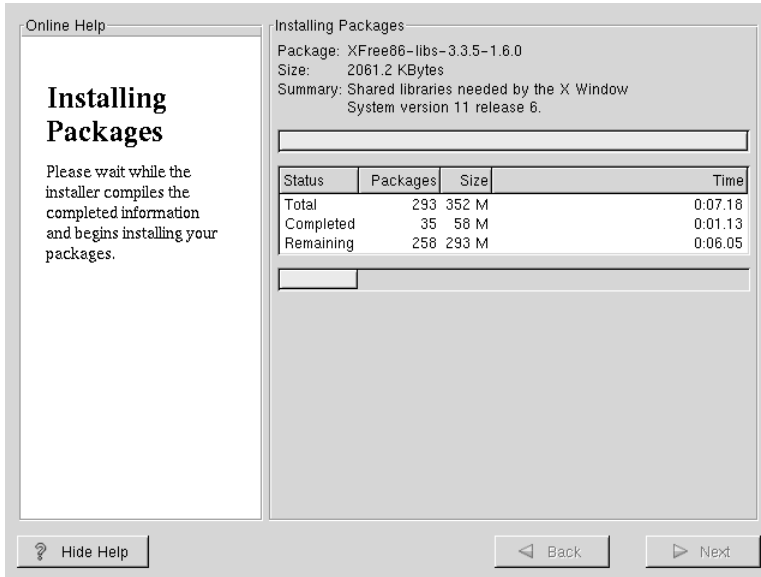
5.6 Upgrade Complete

Congratulations! Your Red Hat Linux 6.2 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*.

Figure 5–6   Upgrade Complete

A   Getting Technical Support

A.1 Remember to Sign Up

If you have an official edition of Red Hat Linux 6.2, 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 6.2 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 box.

A.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/
```

A.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

A.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 A.5, *How to Get Technical Support*.

A.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 6.2 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.

A.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.red-hat.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.

A.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)

A.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.

A.7 Support Frequently Asked Questions (FAQ)

A.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?

A.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.

A.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.

A.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.

B Installing Without Partitioning

This chapter explains how to install Red Hat Linux 6.2 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).

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.

LILO (*LI*nux *LO*ader) and Boot Disk

In a partitionless installation, you will not configure LILO (the LInux LOader). In a typical installation, you are able to choose where you would like LILO 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 LILO 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.

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 2.1.7, *Step 7 - Which Installation Type is Best For You?*.

- GNOME Workstation - 700MB

- KDE Workstation - 700MB

- 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).

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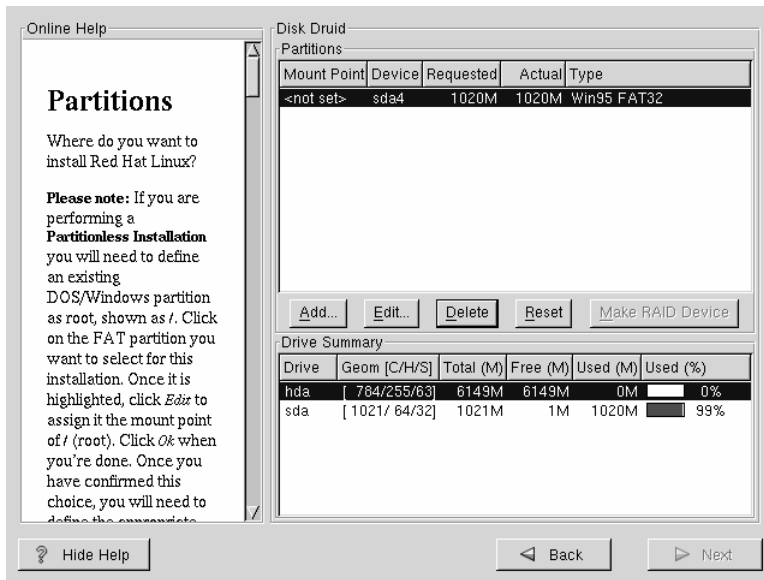
What you should see when Disk Druid's main screen appears is a list of your DOS (FAT) partitions (see Figure B–1, *Choosing DOS (FAT) Partition to Define as /*). Choose a DOS (FAT) partition with enough available free space to install your choice of installation classes. Highlight the partition by clicking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

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**.

Figure B–2   Editing a DOS (FAT) Partition
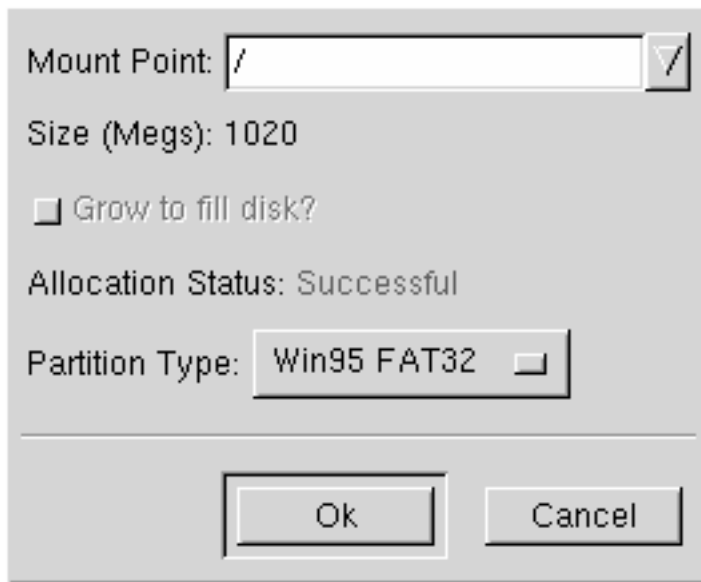
A confirmation window (see Figure B–3, *Confirmation*) will appear next asking you to confirm that you do want to continue with this installation. It also explains that you cannot have any Linux partitions on your system other than the / labeled DOS partition that you have just created. Click **Yes** to continue.

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).

Figure B–3   Confirmation
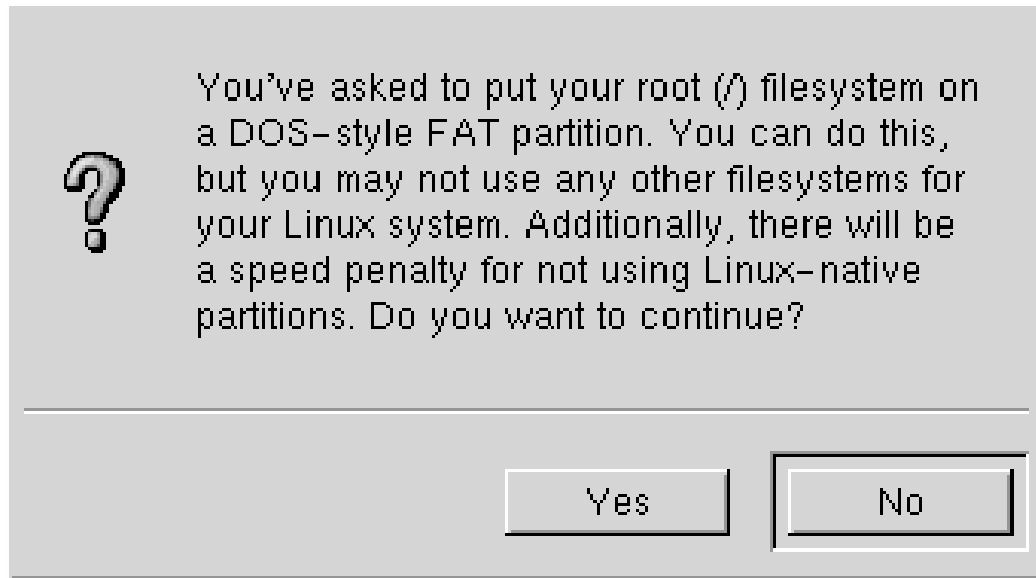
Swap space acts like virtual memory. In other words, data is written to a swap partition when there is not enough RAM to store the data your system is processing. The installation program will set swap to 32MB as a default. You can choose to increase the swap size if desired, but there is no need to create a swap space larger than 256MB.

From here, you can continue following the main installation chapter (see Section 4.7, *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
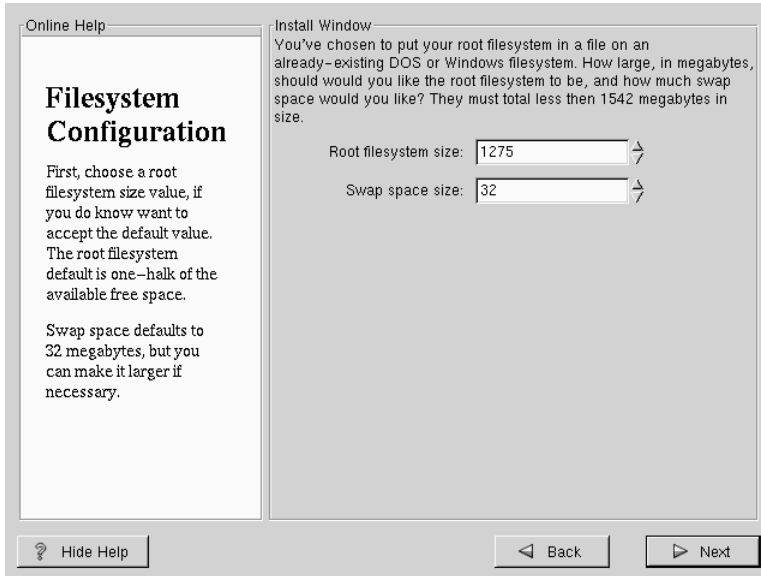
B.2.3 How to Remove a Partitionless Installation From Your System

To remove this partitionless installation, you will need to delete the following files:

```
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.

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