Introduction

Red Hat Linux 7.3 For Dummies is designed to help you get Red Hat Linux working quickly and efficiently. This book shows you how to do fun and interesting — to say nothing of useful — things with Red Hat Linux. The book is also designed to be an effective doorstop or coffee cup coaster. Whatever you use it for, we hope that you have fun.

About This Book

This book is designed to be a helping-hands tutorial. It provides a place to turn to for help and solace in those moments when, after two hours of trying to get your network connection working, your 5-year-old tells you that you need to use the eth0 and not the eth1 Ethernet interface.

We tried our hardest to fill up this book with the things you need to know about, such as:

- Installing Red Hat Linux
- Getting connected to the Internet
- Getting connected to your local network
- Building a simple firewall
- Using Red Hat Linux to do useful things, such as playing CDs, MP3s, and listening to the world’s radio stations
- Understanding the GNOME desktop environment
- Using useful and usable applications, such as the StarOffice desktop productivity suite from Sun Microsystems, Inc. and RealPlayer from RealAudio, Inc.
- Working with the StarOffice desktop productivity suite to satisfy your word processing, calculating, and presentation needs
- Knowing where to go for help
- Managing your Red Hat Linux workstation

You’ll see troubleshooting tips throughout the book (Chapter 19 is devoted to the subject). It’s not that Red Hat Linux is all that much trouble, but we want you to be prepared in case you run into bad luck.
Foolish Assumptions

You know what they say about people who make assumptions, but this book would never have been written if we didn’t make a few. This book is for you if:

✔ You want to use the Linux operating system to build your personal workstation. Surprise, the CD-ROMs included with this book contain the Red Hat Linux distribution.
✔ You have a computer.
✔ You want to put the Red Hat Linux operating system and the computer together, and using duct tape hasn’t worked.
✔ You don’t want to become a Red Hat Linux guru — at least not yet.

Conventions Used in This Book

At computer conventions, thousands of computer people get together and talk about deep technical issues such as:

✔ What is the best hardware for running Red Hat Linux?
✔ Is Coke better than Pepsi?
✔ Could Superman beat Batman?

But these aren’t the types of conventions we’re talking about here. Our conventions are shorthand ways of designating specific information, such as what is and isn’t a command or the meaning of certain funny looking symbols.

Typing code

Commands in the text are shown like this. Commands not shown in the text, but set off on lines by themselves, look like this:

[lidia@veracruz lidia]$pwd
/home/lidia

See the [lidia@veracruz lidia] in the preceding? You won’t necessarily see that on your system, unless you’re happen to be my wife’s mirror image who also likes Veracruz, Mexico very much. But you will see something similar depending on what your computer and username are. The first name — lidia — is replaced by whatever your user name is. The second name is your computer name. The final one is the directory that you are working from, which in this case is lidia’s home directory. Therefore, if your user name is zoot and computer name is wishbone, then your prompt is
When you see stuff in boldface, it means it’s something you should type. For example:

Type **man chown** at the command prompt and press Enter.

If we tell you to type something in a bolded step, the text you type won’t be bold. As in

1. **Type** *man chown* **at the command prompt and press Enter**.

Here’s a rundown of the command syntax in Linux:

- ✓ Text *not* surrounded by [ ] or { } brackets must be typed exactly as shown.
- ✓ Text inside brackets [ ] is optional.
- ✓ Text in *italics* must be replaced with appropriate text.
- ✓ Text inside braces { } indicates that you must choose one of the values that are inside the braces and separated by the | sign.
- ✓ An ellipsis ( . . . ) means *and so on* or to repeat the preceding command line as needed.

Don’t concern yourself with this too much now. For most of the book, you don’t need to know these particulars. And when you do need to know something about a particular syntax, come back here for a refresher course.

**Keystrokes and such**

Keystrokes are shown with a plus sign between the keys. For example, Ctrl+Alt+Delete means you should press the Ctrl key, Alt key, and Delete key all at the same time. (No, we don’t make you press any more than three keys at the same time.)

Most of the applications and utilities that we describe in this book use graphical user interfaces (GUI) such as GNOME, which allow you to control your computer by pointing and clicking with your mouse. Occasionally, however, we give non-graphical instructions that require pressing keys on your keyboard. In those situations, we often simplify the instructions by saying, "select OK". That generally means that you press the Tab key, which moves the cursor to the OK button, and then press the Enter key. That two-step process is equivalent to clicking an OK button in a GUI.
How This Book Is Organized

Like all proper For Dummies books, this book is organized into independent parts. You can read the parts in any order. Heck, try reading them backwards for a real challenge. This book is not meant to be read from front cover to back; rather, it was meant to be a reference book that helps you find what you’re looking for when you’re looking for it. Between the Contents at a Glance page, the Table of Contents, and the Index, you should have no problem finding what you need.

If you do read the book in order, you encounter the useful and interesting things first and the more technical items last. For instance, after installing Red Hat Linux in Part I, you may want to immediately proceed to Part II to see how to connect Linux to the Internet or your local network. From there, you can use your new workstation to surf the Internet and use e-mail.

The following sections describe each part.

Part I: Installing Red Hat Linux

In Part I, you find out what Linux is and how to prepare your computer to install Red Hat Linux. We then walk you through installation and show you the basics of working with Red Hat Linux.

Part II: Got Net?

In Part II, you find out about connecting to the Internet and local networks. You see how to jump on the Internet with your everyday modem or high-speed (broadband) DSL or cable modem. We also show you how to connect to an existing network. If that local network has a high-speed Internet connection, then you can use it as your portal to the wonderful world of surfing. The Internet can be dangerous, so we include instructions on creating your own firewall. Finally, we show you how to use Mozilla to satisfy your browsing and e-mail needs.

Part III: Linux, Huh! What Is It Good For? Absolutely Everything!

Part III guides you through the glorious particulars of actually doing something with Red Hat Linux. You’re introduced to the GNOME desktop window environment. You’re taken through its paces by moving, resizing, hiding,
closing windows, using the file manager, and much more. Two chapters are devoted to using the Red Hat Linux multimedia capabilities. You can listen to CDs and MP3s, as well as rip and record them. The world’s radio stations are now available to you with streaming media technology. The full-featured StarOffice desktop productivity suite is described in some detail. You can use StarOffice with your Red Hat Linux machine to do all your writing and other work-related functions. You can even write a book with it! Finally, you see how to get organized with Red Hat Linux.

**Part IV: Revenge of the Nerds**

In Part IV, you’re guided through the processes necessary to care for and feed your new Linux computer. It’s real nerd city but fun in its own way. Topics such as file management are introduced. We also introduce the software package management system — called RPM. We also devote an entire chapter to the art of troubleshooting and take you through the process of configuring the X Window System, which is the basis for all Linux graphics.

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### Martha Stewart we’re not: Other uses for CD-ROMs

Where computers abound, so do CD-ROMs. Eventually these CD-ROMs become obsolete or are never installed — that’s the case with software products that arrive as unwanted advertising. What can ecologically minded people do with these CDs so that they don’t fill up landfills?

- Use those defunct CDs as coasters for drinks.
- Make pretty mobiles out of castaway CDs. (The sun shining off the CD-ROMs makes wonderful rainbows on the wall.)
- Make CD-ROM clocks and give them to all your friends at the holidays. Just purchase inexpensive quartz crystal clock motors (complete with hands) and use the CD-ROM as the face of the clock. I have four of these clocks made out of Windows NT CD-ROMs — hey, can you imagine a better use for them?
- Make a nice flowerpot. Just use a high heat to melt a CD-ROM around the base of a water tumbler, or, plug the hole and make an ashtray. Of course, if you try this at work you could cause some consternation among management, particularly after they find out that one of the more expensive programs they’ve purchased has ended up at the bottom of a flowerpot.

For now, please keep your *Red Hat Linux 7.3 For Dummies* CD-ROMs in a safe place, such as the sleeve in the back of the book, when you’re not using it.
Part V: The Part of Tens

A *For Dummies* book just isn’t complete without The Part of Tens, where you can find ten all-important resources and answers to the ten most bothersome questions people have after installing Red Hat Linux. (The folks at Red Hat Software provided these questions.)

Part VI: Appendixes

Finally, the appendixes. Appendix A describes how to find out about the details of your computer’s individual pieces of hardware; this is sometimes helpful when installing Red Hat Linux. Appendix B revisits the Red Hat Linux installation system using the *Text* mode. The nongraphical installation system — known as the Text mode — is described there in case the installation system can’t use your graphics driver. In Appendix C, instructions are given for using the de facto Linux text editor *vi*. In Appendix D, you find out all you need to know about the Linux man pages. Appendix E finishes by describing what you can find on the companion CD-ROMs.

What You’re Not to Read

Heck, you don’t have to read any of the book if you don’t want to, but why did you buy it? (Not that we’re complaining.) Part I has background information. If you don’t want it, you don’t read it. Also, text in sidebars is optional, although often helpful. If you’re on the fast track to using Linux, you could skip the sidebars and the text with a technical stuff icon. But we suggest instead that you slow down a bit and enjoy the experience.

Icons in This Book

Nifty little shortcuts and timesavers. Red Hat Linux is a powerful operating system, and you can save unbelievable amounts of time and energy by utilizing its tools and programs. We hope our tips show you how.

Don’t let this happen to you! We hope that our experiences with Red Hat Linux will help you avoid the mistakes we made.
Recall information that is given here for later use.

This is particularly nerdy, technical information. You may skip it, but you may find it interesting if you’re of a geekier bent.

This icon flags discussions that relate to the CD-ROMs. The CD-ROMs contain a copy of the latest Red Hat Linux distribution available at publishing time.

**Where to Go from Here**

You’re about to join the legions of people who have been using and developing Linux. We’ve been using Unix for more than 20 years, Linux for more than 10 years, and Red Hat Linux for 8 years. We’ve found Red Hat Linux to be a flexible, powerful operating system, capable of solving most problems even without a large set of commercial software. The future of the Linux, and Red Hat Linux in particular, operating system is bright. The time and energy you expend in becoming familiar with it will be worthwhile. Carpe Linuxum.
Part I
Installing
Red Hat Linux

The 5th Wave  By Rich Tennant

WANDA HAD THE DISTINCT FEELING HER HUSBAND'S NEW SOFTWARE PROGRAM WAS ABOUT TO BECOME INTERACTIVE.

©RICH TENNANT
In this part . . .

You’re about to embark on a journey through the Red Hat Linux installation program. Perhaps you know nothing about setting up the operating system on your computer. That’s okay. The Red Hat Linux installation system is savvy and helpful. Plus, we guide you through the installation.

In Chapter 1, you begin to discover what Red Hat Linux is all about and what it can do for you. Chapter 2 helps you to get ready to install Red Hat Linux. The real fun begins in Chapter 3 when you install your own Penguin. (Linus Torvalds — the inventor of Linux — loves penguins and they’ve been adopted as Linux’s mascot.) Finally, Chapter 4 gives you a brief, but important, introduction to working with Red Hat Linux.
Chapter 1

And in the Opposite Corner . . .
a Penguin?

In This Chapter

- Napping through a bit of Linux history
- Finding out what Red Hat Linux can do
- Checking out how you can use Red Hat Linux

We see a penguin in your future. He's an unassuming fellow who’s taking on a rather big foe — that other operating system — in the battle for the hearts, minds, and desktops of computer users. Red Hat Linux, with its splashy brand name and notorious logo, is undeniably one of the driving forces behind the Linux revolution.

This chapter introduces you to the latest and greatest Red Hat release: Red Hat Linux 7.3. This book covers all the bases — well, a good number of bases at least — about how to use Red Hat Linux as a desktop productivity tool, Internet portal, and multimedia workstation. You can do lots of things with Red Hat Linux, and this chapter gives you a good overview of the possibilities, as well as a brief look at the history of Linux.

History of the World (err, Linux) Part 2

In the beginning of computerdom (said in a booming, thunderous voice), the world was filled with hulking mainframes. These slothful beasts lumbered through large corporations; required a special species of ultra-nerds to keep them happy; and ate up huge chunks of space, power, and money. Then came the IBM PC and Windows, and the world changed. Power to the people — sort of.
In 1991, a student at the University of Helsinki named Linus Torvalds found himself dissatisfied with his current operating system. Torvalds thought that the Unix operating system might be better suited to help him accomplish his task. Unix was expensive, however, so he began writing his own version of Unix. After formulating the basic parts himself, Torvalds recruited a team of talented programmers, and together they created a new operating system, or kernel, now called Linux.

One of the most important decisions that Torvalds made in the early days of Linux was to freely distribute the Linux kernel code for anyone to do with as they wished. These free Linux distributions were and still are available in several forms — mainly online.

The only restriction that Linus imposed to the free distribution of his creation: No version of the software can be made proprietary. (Proprietary software is software that is owned and developed under wraps by private companies. Open source code is for the people — anyone can develop it without breaking the law.) You can modify the heck out of it and distribute it for fun (and for profit, if you wish). What you can’t do is stop anyone else from using, modifying, and distributing even your modified version of the software — freely or for profit.

The lack of proprietary restrictions has led to drastic improvements in the technology. We can’t overstate how important it’s been to the Linux operating system that its source code is freely available; the Linux operating system continues to improve rapidly — even organically — because it is constantly being tweaked by a lot of really smart people. (In contrast, operating systems like Microsoft Windows are tweaked every once in awhile by a smaller group of smart people.)

By the early spring of 1994, the first real version of Linux (Version 1.0) was available for public use. Even then it was an impressive operating system that ran smartly on computers with less than 2MB of RAM and a simple 386 microprocessor. Linux 1.0 also included free features that other operating systems charged hundreds of dollars for. Nowadays, tens of millions of users enjoy Linux at home and work.

By the way, if you’re wondering about the whole penguin thing, the answer is actually disappointingly simple. The reason the friendly penguin (whose name is Tux, by the way) symbolizes All Things Linux is because Linus Torvalds, the inventor of the Linux operating system, loves penguins. Some mystery, eh?
Knowing What You Can Do with Red Hat Linux

Linux is freely available software. The source code for Linux, which is the heart and soul of the operating system, is also publicly available. Red Hat Linux is an integrated product, meaning that Red Hat, Inc. combines the basic Linux operating system with software (some made by others, some made by Red Hat) to produce a package whose value is greater than the sum of its parts. That combination is known as a distribution of Linux.

So that you can get up and running with Red Hat Linux 7.3 as quickly as possible, we’ve been sweet enough to include the Publisher’s edition operating system on the CDs that comes with this book. See Chapters 2 and 3 if you’re chomping at the bit to install the new version.

Initially the sole domain of business and university servers, Red Hat Linux is now used by businesses, individuals, and governments to cut costs, improve performance, and just plain get work done. You can use Red Hat Linux as a desktop workstation, a server system, an Internet gateway, a firewall, the basis of an embedded system (such as a smart VCR or a robot), or even as a supercomputer. And thanks to the thousands of people working on different parts of Linux, Red Hat Linux becomes more flexible and capable with each release.

The following list includes some of the cooler features of Red Hat Linux:

- **Fully protected multitasking:** That’s a nerdy mouth-full. This is just a way of saying that Linux processes (when you run an e-mail client, for instance, you are running a process) are automatically prevented from interfering with each other. That means that more than one application can be run safely at the same time without your system crashing every five minutes. This feature prevents problems such as the dreaded Blue Screen of Death (where Windows tells you it’s messed up and that you have no choice but to reboot and like it). Fully protected multitasking also means that a slew of people can access a Red Hat Linux computer at one time.

- **Large file support:** Red Hat Linux can handle large files and programs. In fact, the Intel Pentium processor can handle files as large as 2GB. That’s big. If you work with large databases, for example, you can store them on your own workstation if you have a large enough hard drive.

- **Graphical user interface (GUI):** Red Hat Linux includes a sophisticated interface called the X Window System, also known as X, and the GNOME desktop manager (and even K Desktop Environment, or KDE, if you want to use it instead of or in addition to GNOME). Together, X and GNOME give you a powerful and very stable graphical workstation.
File sharing: Red Hat Linux can share files with Windows, OS/2, Macintosh, most other distributions of Linux, and of course Unix computers. Its file sharing capabilities give your network flexibility. For example, if you run both Red Hat Linux and Windows on the same computer, you can retrieve Microsoft Word files from your Windows partition so that you can read them with StarOffice and Abiware.

Boosting your personal workstation

With Red Hat Linux, you can easily create your own inexpensive, flexible, and powerful personal workstation. Linux provides the platform for most of the applications that you need to get your work done. Many applications come bundled with Red Hat Linux, from address books and text editors to checkbook balancers and Web browsers.

You can also download products such as Sun Microsystems’ StarOffice office productivity suite (which is Office 97/2000 compatible) to satisfy your word-processing, spreadsheet-editing, and other desktop publishing needs.

The following list describes just a few of the major categories of free software that are available for Linux, along with some examples of popular programs.

Linux is everywhere

The Linux operating system has been ported (or converted) from the 32-bit Intel architecture to a number of other architectures, including Alpha, MIPS, PowerPC, and SPARC. This conversion gives users a choice of hardware manufacturers and keeps the Linux kernel flexible for new processors. Linux now handles symmetric multiprocessing (more than one CPU or mathematical and logical programming unit per system box). In addition, projects are in the works to provide sophisticated processing capabilities, such as:

- **Real-time programming**: Controlling machinery or testing equipment
- **High availability**: Running a reliable computer all the time
- **Journaled file systems**: Linux uses journaled file systems that can “heal” much more quickly and reliably than nonjournaled ones
- ** Scalability**: Boosting computer power by adding more system boxes rather than faster CPUs

This last capability, known as Extreme Linux systems, and Beowulf clusters enable research organizations to create machines with supercomputer capabilities at a fraction of the price of supercomputers. In certain cases, Extreme Linux systems have been made from obsolete PCs, costing the organizations that make them nothing in material costs.
Office suites: Complete desktop productivity suites, such as StarOffice and Applixware, include advanced word processors that can read and write Microsoft Word files (as can the open source AbiWord word processor), HTML editors, spreadsheet editors, and graphics editors. For simple, no-frills word processing, you can use the well-known AbiWord word processor. For more information on office productivity applications, see Chapter 14.

Streaming multimedia players: You can download products like RealNetwork’s RealPlayer to listen to radio stations across the world and watch video streams. The open source xmms MP3 player lets you listen to CDs and other multimedia on your computer and the Internet. The Internet is going multimedia, and streaming players let you get in on the action.

Freely distributable and freeware programs: These are programs that you can download from the Internet and use without paying to register the product. Literally dozens of software packages are available on the CDs that come with this book, including (but by no means limited to) the pine text-based e-mail reader, the zip data-compression program (which compresses files using the same format as WinZip), the Gimp graphics manipulation program, the Mozilla Web browser, and the AbiWord word processor.

Web browsers: The familiar Netscape Communicator 4.78 and its open source brother, Mozilla are included with Red Hat Linux 7.3. Red Hat Linux also provides the lynx and links text-based Web browsers, which do not show graphics but are otherwise fully functional Web browsers. The text-based Web browsers come in handy when using an older, slower modem because they don’t require as much speed as Mozilla does. For more info on Mozilla, see Chapter 9.

Not all the software in the preceding list is included on the CDs with this book. StarOffice and Netscape Communicator, for instance, are only available for download over the Internet or on CD.

Accessing intranets and the Internet

Unix systems are at the forefront of the Web development projects that are making all kinds of networks (from the Internet to private networks and intranets) so flexible and functional. Of course, Linux shares many benefits of its Unix heritage. Both the Internet and intranets require similar services, such as the following:
FTP (File Transfer Protocol) clients: FTP enables you to transfer files to/from FTP servers. You can download Red Hat software from their FTP server at ftp://ftp.redhat.com (URLs for FTP sites all start with ftp://).

OpenSSH: The open source version of Secure Shell enables you to securely communicate across the Internet. Secure Shell is much safer than Telnet because Secure Shell encrypts your communication when you log in (even when you log in to other computers), making the chance that others can discover your passwords and other sensitive information much slimmer. OpenSSH also provides other authentication and security features and lets you securely copy files from machine to machine. With OpenSSH, you can prevent people from listening to your communication. (You can download a great SSH client that works on Windows system from www.chiark.greenend.org.uk/~sgtatham/putty/. Putty works great!)

Internet accessing utilities: Red Hat Linux provides several configuration utilities that help you connect to the Internet. The utilities help you to configure DSL, cable modems, and plain old telephone modems to connect to the Internet. They also help you to connect to local area networks (LAN) using Ethernet adapters.

Firewalls: A firewall is a system that controls access to your private network from any outside network (in this case, the Internet) and to control access from your private network to the outside world. To keep the bad guys out, Red Hat Linux provides protection by giving you the tools to build your own firewall. Red Hat Linux is very flexible in this regard and many software packages are available, including the popular and simple to use Netfilter/iptables filtering software, which is included on the accompanying CD-ROMs. We discuss how to build a firewall in Chapter 8.