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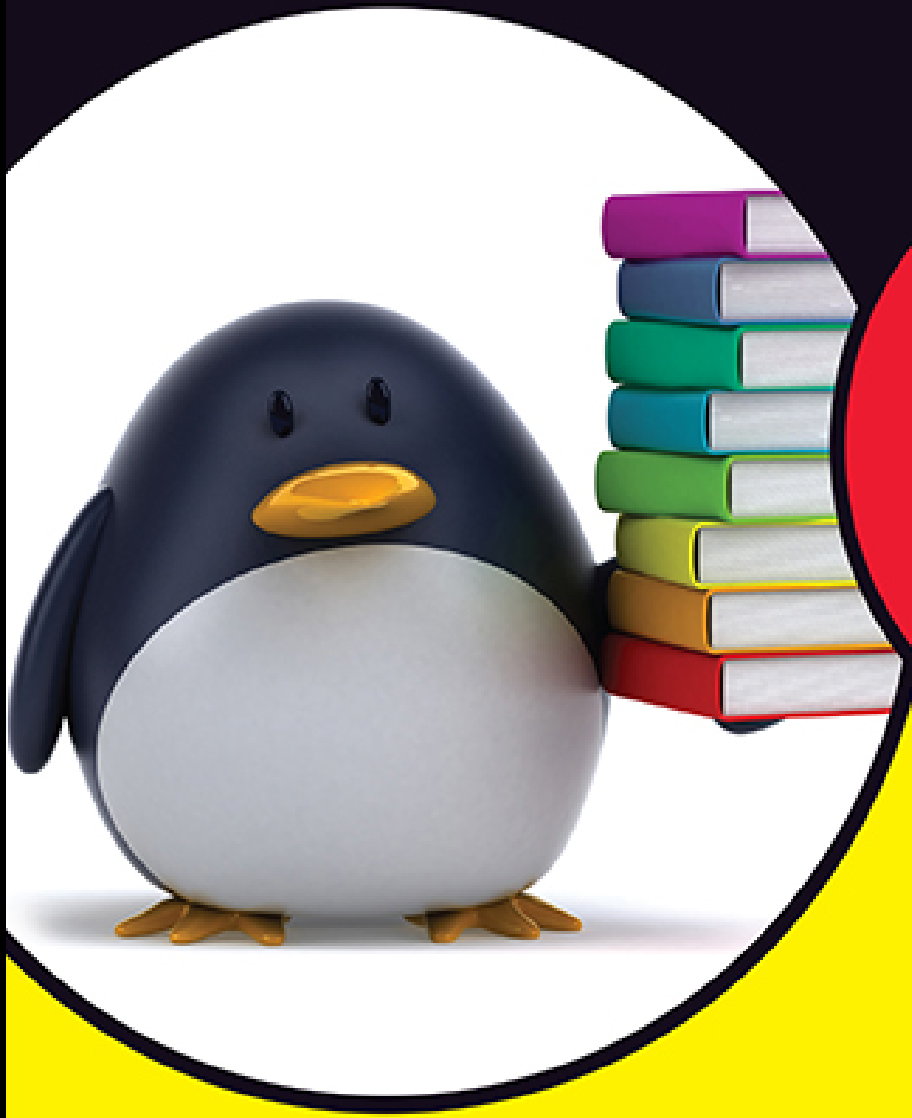

8 Books in one!

Richard Blum

Has used Linux since the days when it took 55 floppy disks to load it

Linux®

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7th Edition

by Richard Blum

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Linux® All-in-One For Dummies®

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Introduction

Linux is truly amazing when you consider how it originated and how it continues to evolve. From its modest beginning as the hobby of one person — Linus Torvalds of Finland — Linux has grown into a full-fledged operating system with features that rival those of any commercial Unix operating system. To top it off, Linux — with all its source code — is available free to anyone. All you have to do is download it from a website or get it on a USB flash drive, CD, or DVD for a nominal fee from one of many Linux CD vendors.

Linux certainly is an exception to the rule that "you get what you pay for." Even though Linux is free, it's no slouch when it comes to performance, features, and reliability. The robustness of Linux has to do with the way it is developed and updated. Developers around the world collaborate to add features. Incremental versions are continually downloaded by users and tested in a variety of system configurations. Linux revisions go through much more rigorous beta testing than any commercial software does.

If you're beginning to use Linux, what you need is a practical guide that not only gets you going with Linux installation and setup but also shows you how to use Linux for a specific task. You may also want to try out different Linux distributions before settling on one.

About This Book

Linux All-in-One For Dummies gives you eight quick-reference guides in a single book. Taken together, these eight minibooks provide detailed information on

installing, configuring, and using Linux, as well as pointers for passing the vendor-neutral certification exams available from CompTIA and the Linux Professional Institute (LPI) to authenticate your skills.

What you'll like most about this book is that you don't have to sequentially read the whole thing chapter by chapter — or even read through each section in a chapter. You can pretty much turn to the topic you want and quickly get the answer to your pressing questions about Linux, whether they're about using the LibreOffice.org word processor, setting up the Apache web server, or a wide range of topics.

Topics that correspond to the certification objectives are important after you've become comfortable enough with the operating system to consider taking the certification exams. As I discuss the material, Tips draw your attention to the key concepts and topics tested in the CompTIA Linux+ or LPI LPIC-1 exams. Note, though, that not all Tips indicate material that's on the exams; I also share other types of information in Tips.

If you are a novice to Linux, ignore the certification objective information as you read. Only after you become comfortable with the operating system and are considering authenticating your skills by taking the CompTIA or LPI exams should you revisit the book and look for this information.

Each minibook zeros in on a specific task area — such as using the Internet or running Internet servers — and then provides hands-on instructions on how to perform a series of related tasks. You can jump right to a section and read about a specific task. You don't have to read anything but the few paragraphs or the list of steps that relate to your question. Use the Table of Contents or the Index to locate the pages relevant to your question.

You can safely ignore text next to the Technical Stuff icons, as well as text in sidebars. However, if you're the kind of person who likes to know some of the hidden details of how Linux works, then, by all means, dig into the Technical Stuff icons and the sidebars.

Within this book, you may note that some web addresses break across two lines of text. If you're reading this book in print and want to visit one of these web pages, simply key in the web address exactly as it's noted in the text, pretending as though the line break doesn't exist. If you're reading this as an e-book, you've got it easy — just click the web address to be taken directly to the web page.

Foolish Assumptions

I assume that you're familiar with a PC — you know how to turn it on and off and you've dabbled with Windows. (Considering that most new PCs come preloaded with Windows, this assumption is safe, right?) And I assume that you know how to use some Windows applications, such as Microsoft Office.

When installing Linux on your PC, you may want to retain your Windows installations. I assume that you don't mind shrinking the Windows partition to make room for Linux. For this procedure, you can invest in a good disk-partitioning tool or use one of the partitioning tools included with most Linux distributions.

I also assume that you're willing to accept the risk that when you try to install Linux, some things may not quite work. Problems can happen if you have some uncommon types of hardware. If you're afraid of ruining your system, try finding a slightly older, spare PC that you can sacrifice and then install Linux on that PC. Alternatively,

you can install a virtual server software package such as Oracle's VirtualBox and install Linux as a virtual machine inside your Windows desktop.

Linux All-in-One Desk Reference For Dummies has eight minibooks, each of which focuses on a small set of related topics. If you're looking for information on a specific topic, check the minibook names on the thumb tabs or consult the Table of Contents.

Icons Used in This Book

Following the time-honored tradition of the *All-in-One For Dummies* series, I use icons to help you quickly pinpoint useful information. The icons include the following:

REMEMBER The Remember icon marks a general, interesting fact — something that you want to know and remember as you work with Linux. You might even find interesting trivia worth bringing up at an evening dinner party.

TIP When you see the Tip icon, you're about to read about something you can do to make your job easier. Long after you've finished with the first reading of this book, you can skim the book, looking for only the tips.

WARNING I use the Warning icon to highlight potential pitfalls. With this icon, I'm telling you: "Watch out! Whatever is being discussed could hurt your system." They say that those who are forewarned are forearmed, so I hope these entities will save you some frustration.

TECHNICAL STUFF The Technical Stuff icon marks technical information that could be of interest to an advanced user (or those aspiring to be advanced users).

Beyond the Book

In addition to the book you have in your hands, you can access some helpful extra content online. Check out the free Cheat Sheet by going to www.dummies.com and entering **Linux All-in-One For Dummies** in the Search box. You'll find common Linux commands and where to go for more help with Linux.

Occasionally, we have updates to our technology books. If this book does have any technical updates, they'll be posted at www.dummies.com.

Where to Go from Here

It's time to get started on your Linux adventure. Turn to any chapter and let the fun begin. Use the Table of Contents and the Index to figure out where you want to go. Before you know it, you'll become an expert at Linux!

I hope you enjoy consulting this book as much as I enjoyed writing it!

Book 1

Getting Started with Linux

Contents at a Glance

Installing New Software

Chapter 1
Introducing Linux

IN THIS CHAPTER

- **Getting acquainted with Linux**
- **Discovering Linux distributions**

The Linux operating system has become one of the most widely used operating systems, popular among researchers, application developers, and hobbyists alike. These days, the Linux operating system can be found in an amazing range of computer environments, from mobile phones to satellites.

This chapter examines just what the Linux operating system is and why there are so many different Linux distributions available to choose from. With this information, you can select the right Linux distribution for your environment.

What Is Linux?

If you've never worked with Linux before, you may be confused as to why there are so many different versions of it available. You've most likely come across terms such as *distribution, LiveDVD,* and *GNU* when looking at Linux packages, and you may have been confused. This section takes some of the mystery out of the Linux system for you.

Although people usually refer to the Linux operating system as just "Linux," in reality there are quite a few

parts that make up a complete Linux system. The four main parts of a Linux system are

- The Linux kernel
- The GNU utilities
- The user interface
- Application software

Each of these four parts has a specific job in the Linux system. Although each of the parts by itself isn't very useful, put together, they create what people refer to as "Linux." Figure 1-1 shows the basic diagram of how these parts fit together to create the overall Linux system.

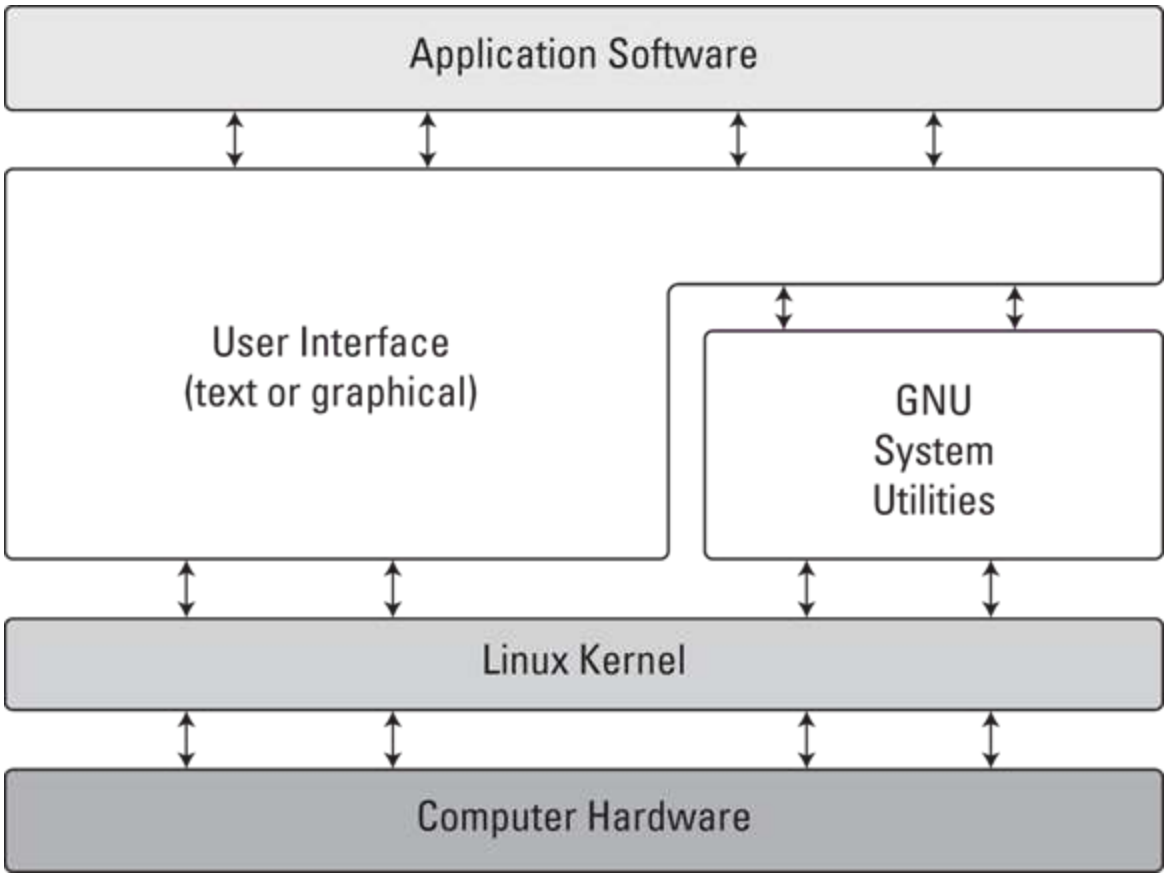

FIGURE 1-1: The Linux system.

The following sections describe these four parts in detail and give you an overview of how they work together to create a complete Linux system.

The Linux kernel

The core of the Linux system is the *kernel.* The kernel controls all the hardware and software on the computer system, allocating hardware when necessary and executing software when required.

If you've been following the Linux world at all, no doubt you've heard the name Linus Torvalds. Linus is the person responsible for creating the first Linux kernel software while he was a student at the University of Helsinki. He intended it to be a copy of the Unix system, at the time a popular operating system used at many universities.

After developing the Linux kernel, Linus released it to the Internet community and solicited suggestions for improving it. This simple process started a revolution in the world of computer operating systems. Soon Linus was receiving suggestions from students as well as professional programmers from around the world.

Allowing anyone to change programming code in the kernel would result in complete chaos. To simplify things, Linus acted as a central point for all improvement suggestions. It was ultimately Linus's decision whether to incorporate suggested code in the kernel. This same concept is still in place with the Linux kernel code, except that instead of just Linus controlling the kernel code, a team of developers has taken on the task.

The kernel is primarily responsible for four main functions:

- System memory management