Linux Installation and Getting Started

Version 2.1.1, 10 July 1994.

This book is an installation and new-user guide for the Linux system, meant for UNIX novices and gurus alike. Contained herein is information on how to obtain Linux, installation of the software, a beginning tutorial for new UNIX users, and an introduction to system administration. It is meant to be general enough to be applicable to any distribution of the Linux software. Anyone with interest in installing and running Linux should read this book first.

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Preface

"You are in a maze of twisty little passages, all alike."

Before you looms one of the most complex and utterly intimidating systems ever written. Linux, the free operating system for the 80386 and 80486. Linux, the great accomplishment of the free software world. Linux—the name is enough to strike terror into the hearts of men (and, of course, women, and perhaps small animals as well). Not only is it difficult to pronounce, it's almost impossible to comprehend.

Linux was produced by a mishmash team of UNIX gurus, hackers, and the occasional loon. The system itself reflects this complex heritage. The jungle is deep and dangerous. You are entering the realm of black magic and deep wizardry, of voodoo programming and subtle obfuscation. Monsters lurk behind every tree, ready to pounce. Making your way though it alone—well, you can forget about that.

You hold in your very hands the map and guidebook to the many-faceted world of Linux. Armed with this guide, neither the novice nor the guru need fear this system ever again. In fact, setting up your own Linux system can be a great deal of fun. Sit back. Relax. Read on.

This is the second edition of this book. The first edition was specific to the then-popular SLS distribution of Linux. Since that time, Linux has diversified in many ways, and many separate distributions are becoming available. This version is a complete installation and new-user guide, intended to be general for any distribution. The first three chapters have been bagged and replaced with two new chapters, much more comprehensive than the original. The appendices have been revised, and various sections have been tweaked to remain up-to-date with the many changes taking place within the Linux community.

Audience

This book is for any personal computer user who wants to install and use Linux on their system. We assume that you have basic knowledge about personal computers and operating systems such as MS-DOS. No previous knowledge about Linux or UNIX is assumed.

Despite this, we strongly suggest that UNIX novices invest in one of the many good UNIX books out there. (Several of them are listed in Appendix A). This book contains information useful to new Linux users, but for more advanced information, you'll have to look elsewhere!

Organization

This book contains the following chapters.

Chapter 1, *Introduction to Linux*, gives a general introduction to what Linux is, what it can do for you, and what is required to run it on your system. It also provides helpful hints for getting help and reducing overall stress.

Chapter 2, *Obtaining and Installing Linux*, explains how to obtain the Linux software, as well as how to install it—from repartitioning your drive, creating filesystems, and loading the software on the system. It contains instructions meant to be general for any distribution of Linux, and relies on the documentation provided for your particular release to fill in any gaps.

Chapter 3, *Linux Tutorial*, is a complete introduction to using the Linux system for UNIX novices. If you have previous UNIX experience, most of this material should be familiar.

Chapter 4, *System Administration*, introduces many of the important concepts of system administration under Linux. This will also be of interest to UNIX system administrators who want to know about the Linux-specific issues of running a system.

Chapter 5, *Advanced Features*, introduces the reader to a number of advanced features supported by Linux, such as the X Window System and TCP/IP networking.

Appendix A, *Sources of Linux Information*, is a listing of other sources of information about Linux, including newsgroups, mailing lists, online documents, and books.

Appendix B, *Linux Distribution and Mail Order List*, provides a short list of available Linux distributions and where to get them.

Appendix C, *FTP Tutorial and Site List*, is a tutorial for downloading files from the Internet with FTP. This appendix also includes a listing of FTP archive sites which carry Linux software.

Appendix D, *Linux BBS List*, is a listing of bulletin board systems worldwide which carry Linux software. Because most Linux users are do not have access to the Internet, it is important that information on BBS systems becomes available.

Appendix E, *The GNU General Public License*, contains a copy of the GNU GPL, the license agreement under which Linux is distributed. It is very important that Linux users understand the GPL; many disagreements over the terms of the GPL have been raised in recent months.

Acknowledgments

This book has been long in the making, and many people are responsible for the outcome. In particular, I would like to thank Larry Greenfield and Karl Fogel for their work on the first version of Chapter 3, and to Lars Wirzenius for his work on Chapter 4. Thanks to Michael K. Johnson for his assistance with the LDP and the LaTeX conventions used in this manual, and to Ed Chi, who sent me a printed copy of the book for edition.

Special thanks to Melinda A. McBride at SSC, Inc., who did an excellent job completing the index for Chapters 3, 4, and 5. I would also like to thank Andy Oram, Lar Kaufman, and Bill Hahn at O'Reilly and Associates for their assistance and interest in the Linux Documentation Project.

And, of course, much thanks to the many activists, from Linus Torvalds to Peter MacDonald, for devoting so much time and energy to this project, and without whom none of this would be possible.

Last but not least, thanks to the myriad of readers who have sent their helpful comments and corrections. Who needs a spell checker, when you have an audience?

Matt Welsh
13 January 1994

Credits and Legalese

The Linux Documentation Project is a loose team of writers, proofreaders, and editors who are working on a set of definitive Linux manuals. The overall coordinator of the project is Matt Welsh, aided by Lars Wirzenius and Michael K. Johnson.

This manual is but one in a set of several being distributed by the Linux Documentation Project, including a Linux User's Guide, System Administrator's Guide, and Kernel Hacker's Guide. These manuals are all available in LaTeX source format and Postscript output for anonymous FTP from `sunsite.unc.edu`, in the directory `/pub/Linux/docs/LDP`.

We encourage anyone with a penchant for writing or editing to join us in improving Linux documentation. If you have Internet e-mail access, you can join the `DOC` channel of the `Linux-Activists` mailing list by sending mail to

```
linux-activists-request@niksula.hut.fi
```

with the line

```
X-Mn-Admin:  join DOC
```

as the first line of the message body.

Feel free to get in touch with the author and coordinator of this manual if you have questions, postcards, money, or ideas. Matt Welsh can be reached via Internet e-mail at `mdw@sunsite.unc.edu`, and in real life at

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Documentation Conventions

These conventions should be obvious, but we'll include them here for the pedantic.

Bold — Used to mark **new concepts**, **WARNINGS**, and **keywords** in a language.

italics — Used for *emphasis* in text, and occasionally for quotes or introductions at the beginning of a section. Also used to indicate commands for the user to type when showing screen interaction (see below).

⟨*slanted*⟩ — Used to mark **meta-variables** in the text, especially in representations of the command line. For example,

`ls -l` ⟨*foo*⟩

where ⟨*foo*⟩ would "stand for" a filename, such as `/bin/cp`.

`Typewriter` — Used to represent screen interaction, as in

```
$ ls -l /bin/cp
-rwxr-xr-x  1 root    wheel    12104 Sep 25 15:53 /bin/cp
```

Also used for code examples, whether it is C code, a shell script, or something else, and to display general files, such as configuration files. When necessary for clarity's sake, these examples or figures will be enclosed in thin boxes.

$\boxed{\texttt{Key}}$ — Represents a key to press. You will often see it in this form:

Press $\boxed{\textsf{return}}$ to continue.

◇ A diamond in the margin, like a black diamond on a ski hill, marks "danger" or "caution." Read paragraphs marked this way carefully.