

Chapter 1. Introduction

“In the beginning, the file was without form, and void; and emptiness was upon the face of the bits. And the Fingers of the Author moved upon the face of the keyboard. And the Author said, Let there be words, and there were words.”

This manual, the Linux System Administrators’ Guide, describes the system administration aspects of using Linux. It is intended for people who know next to nothing about system administration (as in “what is it?”), but who have already mastered at least the basics of normal usage. This manual also doesn’t tell you how to install Linux; that is described in the Installation and Getting Started document. See below for more information about Linux manuals.

System administration is all the things that one has to do to keep a computer system in a useable shape. It includes things like backing up files (and restoring them if necessary), installing new programs, creating accounts for users (and deleting them when no longer needed), making certain that the filesystem is not corrupted, and so on. If a computer were, say, a house, system administration would be called maintenance, and would include cleaning, fixing broken windows, and other such things. System administration is not called maintenance, because that would be too simple. ¹

The structure of this manual is such that many of the chapters should be usable independently, so that if you need information about, say, backups, you can read just that chapter. This hopefully makes the book easier to use as a reference manual, and makes it possible to read just a small part when needed, instead of having to read everything. However, this manual is first and foremost a tutorial, and a reference manual only as a lucky coincidence.

This manual is not intended to be used completely by itself. Plenty of the rest of the Linux documentation is also important for system administrators. After all, a system administrator is just a user with special privileges and duties. A very important resource are the manual pages, which should always be consulted when a command is not familiar.

While this manual is targeted at Linux, a general principle has been that it should be useful with other UNIX based operating systems as well. Unfortunately, since there is so much variance between different versions of UNIX in general, and in system administration in particular, there is little hope to cover all variants. Even covering all possibilities for Linux is difficult, due to the nature of its development.

There is no one official Linux distribution, so different people have different setups, and many people have a setup they have built up themselves. This book is not targeted at any one distribution, even though I use the Debian GNU/Linux system almost exclusively. When possible, I have tried to point out differences, and explain several alternatives.

I have tried to describe how things work, rather than just listing “five easy steps” for each task. This means that there is much information here that is not necessary for everyone, but those parts are marked

as such and can be skipped if you use a preconfigured system. Reading everything will, naturally, increase your understanding of the system and should make using and administering it more pleasant.

Like all other Linux related development, the work was done on a volunteer basis: I did it because I thought it might be fun and because I felt it should be done. However, like all volunteer work, there is a limit to how much effort I have been able to spend, and also on how much knowledge and experience I have. This means that the manual is not necessarily as good as it would be if a wizard had been paid handsomely to write it and had spent a few years to perfect it. I think, of course, that it is pretty nice, but be warned.

One particular point where I have cut corners is that I have not covered very thoroughly many things that are already well documented in other freely available manuals. This applies especially to program specific documentation, such as all the details of using **mkfs**. I only describe the purpose of the program, and as much of its usage as is necessary for the purposes of this manual. For further information, I refer the gentle reader to these other manuals. Usually, all of the referred to documentation is part of the full Linux documentation set.

Lars has tried to make this manual as good as possible and I would like, as a current maintainer, to keep up the good work. I would really like to hear from you if you have any ideas on how to make it better. Bad language, factual errors, ideas for new areas to cover, rewritten sections, information about how various UNIX versions do things, I am interested in all of it. My contact information is available via the World Wide Web at <http://www.iki.fi/viu/> (<http://www.iki.fi/viu/>).

Many people have helped me with this book, directly or indirectly. I would like to especially thank Matt Welsh for inspiration and LDP leadership, Andy Oram for getting me to work again with much-valued feedback, Olaf Kirch for showing me that it can be done, and Adam Richter at Yggdrasil and others for showing me that other people can find it interesting as well.

Stephen Tweedie, H. Peter Anvin, Remy Card, Theodore Ts'o, and Stephen Tweedie have let me borrow their work (and thus make the book look thicker and much more impressive): a comparison between the xia and ext2 filesystems, the device list and a description of the ext2 filesystem. These aren't part of the book any more. I am most grateful for this, and very apologetic for the earlier versions that sometimes lacked proper attribution.

In addition, I would like to thank Mark Komarinski for sending his material in 1993 and the many system administration columns in Linux Journal. They are quite informative and inspirational.

Many useful comments have been sent by a large number of people. My miniature black hole of an archive doesn't let me find all their names, but some of them are, in alphabetical order: Paul Caprioli, Ales Cepek, Marie-France Declerfayt, Dave Dobson, Olaf Flebbe, Helmut Geyer, Larry Greenfield and his father, Stephen Harris, Jyrki Havia, Jim Haynes, York Lam, Timothy Andrew Lister, Jim Lynch, Michael J. Micek, Jacob Navia, Dan Poirier, Daniel Quinlan, Jouni K Seppänen, Philippe Steindl, G.B. Stotte. My apologies to anyone I have forgotten.

META need to add typographical conventions and LDP blurb here.

The Linux Documentation Project

The Linux Documentation Project, or LDP, is a loose team of writers, proofreaders, and editors who are working together to provide complete documentation for the Linux operating system. The overall coordinator of the project is Greg Hankins.

This manual is one in a set of several being distributed by the LDP, including a Linux Users' Guide, System Administrators' Guide, Network Administrators' Guide, and Kernel Hackers' Guide. These manuals are all available in source format, .dvi format, and postscript output by 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 contact Greg Hankins at `<gregh@sunsite.unc.edu>`.

Notes

1. There are some people who *do* call it that, but that's just because they have never read this manual, poor things.