

Eighth Edition

The Official **ubuntu**[®]
Book

Matthew Helmke & Elizabeth K. Joseph
with José Antonio Rey and Philip Ballew

Foreword by Mark Shuttleworth, founder of **ubuntu**[®]

FREE SAMPLE CHAPTER



SHARE WITH OTHERS

Praise for Previous Editions of *The Official Ubuntu Book*

“*The Official Ubuntu Book* is a great way to get you started with Ubuntu, giving you enough information to be productive without overloading you.”

—John Stevenson, DZone book reviewer

“*OUB* is one of the best books I’ve seen for beginners.”

—Bill Blinn, TechByter Worldwide

“This book is the perfect companion for users new to Linux and Ubuntu. It covers the basics in a concise and well-organized manner. General use is covered separately from troubleshooting and error-handling, making the book well-suited both for the beginner as well as the user that needs extended help.”

—Thomas Petrucha, Austria Ubuntu User Group

“I have recommended this book to several users who I instruct regularly on the use of Ubuntu. All of them have been satisfied with their purchase and have even been able to use it to help them in their journey along the way.”

—Chris Crisafulli, Ubuntu LoCo Council,
Florida Local Community Team

“This text demystifies a very powerful Linux operating system. . . . In just a few weeks of having it, I’ve used it as a quick reference a half-dozen times, which saved me the time I would have spent scouring the Ubuntu forums online.”

—Darren Frey, Member, Houston Local User Group

“This is a book that the new Ubuntu user would find helpful in getting started and the more experienced computer user would find informative enough to keep as a reference manual. I also enjoyed the computing humor.”

—Dr. Gregory Chappelle, General Atomics,
Electromagnetics Division, San Diego, California

“In short, this book is something that I can honestly recommend to anyone using Ubuntu. It works great as a reference and equally well as a how-to guide. I respect the work that’s been done, and I can’t overstate how knowledgeable the authors are, as well as the reviewers.”

—Paul Tagliamonte, Ubuntu Member, and Debian Developer

This page intentionally left blank

The Official Ubuntu Book

Eighth Edition

This page intentionally left blank

The Official Ubuntu Book

Eighth Edition

Matthew Helmke
Elizabeth K. Joseph
José Antonio Rey
Philip Ballew
With Benjamin Mako Hill



PRENTICE
HALL

Upper Saddle River, NJ • Boston • Indianapolis • San Francisco
New York • Toronto • Montreal • London • Munich • Paris • Madrid
Capetown • Sydney • Tokyo • Singapore • Mexico City

Many of the designations used by manufacturers and sellers to distinguish their products are claimed as trademarks. Where those designations appear in this book, and the publisher was aware of a trademark claim, the designations have been printed with initial capital letters or in all capitals.

The authors and publisher have taken care in the preparation of this book, but make no expressed or implied warranty of any kind and assume no responsibility for errors or omissions. No liability is assumed for incidental or consequential damages in connection with or arising out of the use of the information or programs contained herein.

For information about buying this title in bulk quantities, or for special sales opportunities (which may include electronic versions; custom cover designs; and content particular to your business, training goals, marketing focus, or branding interests), please contact our corporate sales department at corpsales@pearsoned.com or (800) 382-3419.

For government sales inquiries, please contact governmentsales@pearsoned.com.

For questions about sales outside the U.S., please contact international@pearsoned.com.

Visit us on the Web: informit.com/ph

Library of Congress Cataloging-in-Publication Data

Helmke, Matthew.

The official Ubuntu book / Matthew Helmke, Elizabeth K. Joseph, José Antonio Rey, Philip Ballew ; with Benjamin Mako Hill.—Eighth edition.

pages cm

Previous editions by various authors, including Benjamin Mako Hill and others, and various titles, such as The official Ubuntu server book.

Includes index.

ISBN-13: 978-0-13-390539-7 (pbk. : alk. paper)

ISBN-10: 0-13-390539-X (pbk. : alk. paper)

I. Ubuntu (Electronic resource) 2. Operating systems (Computers) I. Joseph, Elizabeth K. II. Rey, José Antonio, 1996– III. Ballew, Philip. IV. Hill, Benjamin Mako, 1980– V. Title.

QA76.774.U28H45 2015

005.4'32—dc23

2014018023

Copyright © 2015 Canonical, Ltd.

This book is published under the Creative Commons Attribution-ShareAlike 3.0 license, <http://creativecommons.org/licenses/by-sa/3.0/>.

Printed in the United States of America. This publication is protected by copyright, and permission must be obtained from the publisher prior to any prohibited reproduction, storage in a retrieval system, or transmission in any form or by any means, electronic, mechanical, photocopying, recording, or likewise, unless permitted under the Creative Commons Attribution-ShareAlike license 3.0. To obtain permission to use material from this work, please submit a written request to Pearson Education, Inc., Permissions Department, One Lake Street, Upper Saddle River, New Jersey 07458, or you may fax your request to (201) 236-3290.

ISBN-13: 978-0-13-390539-7

ISBN-10: 0-13-390539-X

Text printed in the United States on recycled paper at RR Donnelley in Crawfordsville, Indiana. First printing, July 2014

This book is dedicated to the Ubuntu community. Without your tireless hard work and commitment, none of this would be possible.

This page intentionally left blank

Contents at a Glance

<i>Foreword to the Sixth Edition</i>	<i>xix</i>
<i>Foreword to the First Edition</i>	<i>xxi</i>
<i>Preface</i>	<i>xxvii</i>
<i>Acknowledgments</i>	<i>xxxii</i>
<i>About the Authors</i>	<i>xxxiii</i>
<i>Introduction</i>	<i>xxxv</i>
Chapter 1: The Ubuntu Story	1
Chapter 2: Installing Ubuntu	35
Chapter 3: Getting Started with Ubuntu	63
Chapter 4: Finding and Installing Ubuntu Applications	107
Chapter 5: Customizing Ubuntu for Performance, Accessibility, and Fun	147
Chapter 6: Becoming an Ubuntu Power User	167
Chapter 7: Welcome to the Command Line	185
Chapter 8: The Ubuntu Server	203
Chapter 9: Ubuntu-Related Projects and Derivatives	245
Chapter 10: The Ubuntu Community	273
<i>Index</i>	<i>305</i>

This page intentionally left blank

Contents

Foreword to the Sixth Edition	xix
Foreword to the First Edition	xxi
Preface	xxvii
Acknowledgments	xxxix
About the Authors	xxxiii
Introduction	xxxv
About This Book	xxxv
The Scope of the Book	xxxvi
The Menu	xxxvi
CHAPTER 1 The Ubuntu Story	1
The Vision	2
Free Software, Open Source, and GNU/Linux	3
Free Software and GNU	4
Linux	5
Open Source	5
How the Vision Became Ubuntu	7
Mark Shuttleworth	7
The Warthogs	9
What Does <i>Ubuntu</i> Mean?	10
Beyond the Vision	11
What Is Ubuntu?	12
What Is a Distribution?	13
An Ecosystem of Distributions	14
The Debian Project and the Free Software Universe	16
The Ubuntu Community	17

Ubuntu Promises and Goals	17
Philosophical Goals	17
Conduct Goals and Code of Conduct	20
Technical Goals	22
Bug #1	24
Sustaining the Vision: Canonical and the Ubuntu Foundation	26
Canonical, Ltd.	26
Canonical's Service and Support	27
Bazaar and Launchpad	29
The Ubuntu Foundation	30
Beyond the Vision: Ubuntu Subprojects, Flavors, and Spin-Offs	31
Summary	33
CHAPTER 2 Installing Ubuntu	35
Choosing Your Ubuntu Version	36
Other Ubuntu Flavors	37
Is It Still Ubuntu?	38
Getting Ubuntu	38
Burning a DVD	39
Creating a Bootable USB Stick	41
Booting and Installing	42
Migration	43
Language	44
Preparing to Install Ubuntu	44
Allocate Drive Space	45
Installation Begins	50
Configuring Your Keyboard	51
Identification	51
Finishing Up	53
Installing from the Minimal CD	54
Choosing Your Spot in the World	55
Hardware	55
Setting the Hostname and Time Zone	56
Configuring a User	56
Time Zone	57
Creating Partitions	57
Finishing Up	60
Summary	61

CHAPTER 3 Getting Started with Ubuntu	63
Getting Acquainted with Unity	65
Finding and Running Applications with the Launcher	65
Other Icons in the Launcher	68
Using Applications	69
Managing Files and Folders	70
Adding Additional Users	72
The Notification Area	74
Using Applications	76
Browsing the Web with Firefox	77
Creating Documents with LibreOffice	80
Connecting with Empathy and the Indicator Applet	83
Managing Your E-Mail with Thunderbird	83
Using Ubuntu in Your Language	85
Configuring a Printer	86
Gathering Information	87
Launching the Wizard	87
Mission Accomplished!	89
Remote Printing	89
Keeping Your Computer Updated	90
Using Ubuntu Software Center	90
Adding and Removing Programs and Packages	92
Installing Updates	92
Learning about What Was Updated	93
Installing an Application That Is Not in the Repositories	93
Upgrading to the Next Ubuntu Release	95
Doing the Actual Upgrade	95
Ubuntu and Multimedia	96
Installing Codecs	96
Listening to Audio Files	98
Playing and Ripping CDs	100
Interacting with Photos	100
Watching Videos	100
Backing Up	102
Customizing Ubuntu's Look and Feel	104
Unity in Other Devices	105
Summary	105

CHAPTER 4	Finding and Installing Ubuntu Applications	107
	Using the Ubuntu Software Center	108
	Ubuntu Software Center Account	108
	Recommendations	109
	Sorting	110
	Searching	111
	Learning More about a Package and Installing It	111
	No-Cost Software	113
	Software for Purchase	114
	Learning Terminology and Foundations	114
	Using Synaptic	115
	Installing a Package	116
	Removing a Package	116
	Finding That Package	117
	Useful Software Packages to Explore	118
	Creating Graphics with GIMP and Inkscape	118
	Desktop Publishing with Scribus	129
	Editing Videos with OpenShot	134
	Play Games with Steam	134
	Kalzium	137
	Kanagram	139
	KBruch	139
	KHangman	139
	Kig	139
	KmPlot	140
	Stellarium	141
	KTouch	142
	KTurtle	142
	Marble	142
	Parley	143
	Step	143
	Blinken	143
	Other Applications Not on the Education Menu	144
	Summary	145
CHAPTER 5	Customizing Ubuntu for Performance, Accessibility, and Fun	147
	Unity Terminology	148
	Appearance Tool	153

Unity Tweak Tool	155
Unity	155
Window Manager	156
Appearance	159
System	159
Compiz Config Settings Manager	159
Unity Lenses and Scopes	165
Additional Resources	166
Summary	166
CHAPTER 6 Becoming an Ubuntu Power User	167
Administering System and User Settings	168
User Settings	170
Security & Privacy Settings	170
Default Settings	170
Understanding How Linux Stores and Organizes Files	172
Using Windows Files on Another Partition	174
Learning Unity Keyboard Shortcuts	175
Launcher	176
Dash	176
Switching	176
Windows	176
Workspaces	176
Other	179
Using the Terminal	179
Working with Windows Programs	180
Installing Software from PPAs	181
Compiling Software from Source	183
Summary	184
CHAPTER 7 Welcome to the Command Line	185
Starting Up the Terminal	186
Getting Started	187
Building Pipelines	188
Running Commands as Superuser	189
Finding Help	190
Moving around the Filesystem	191

Manipulating Files and Folders	192
System Information Commands	193
Searching and Editing Text Files	194
Dealing with Users and Groups	195
Getting Help on the Command Line	196
Searching for Man Files	197
Using Wildcards	197
Executing Multiple Commands	198
Running Sequentially	198
Using Byobu to Manage Your Terminal	198
Using Byobu by Default in GNOME Terminal	200
Moving to More Advanced Uses of the Command Line	200
Summary	201
CHAPTER 8 The Ubuntu Server	203
What Is Ubuntu Server?	204
Installing Ubuntu Server	206
A Couple of Installer Tricks	207
Partitioning Your Ubuntu Server	207
The Story of RAID	208
Setting Up RAID	210
The Story of the Logical Volume Manager	212
Setting Up LVM	214
Encrypted Home and Software Selection	216
You're Done: Now Watch Out for Root!	217
Ubuntu Package Management	218
The Ubuntu Archive	218
APT Sources and Repositories	219
dpkg	220
Installing a Package Manually	221
apt-get and apt-cache	222
Running a Distribution Upgrade	225
aptitude	227
Tips and Tricks	228
Ubuntu Server Security	229
User Account Administration	230
Filesystem Security	231
System Resource Limits	232
System Log Files	233

A Sprinkling of Network Security	234
Final Words on Security	235
Advanced Topics	236
Virtualization	236
Disk Replication	239
Cloud Computing	239
Summary	243
CHAPTER 9 Ubuntu-Related Projects and Derivatives	245
Recognized Flavors	246
Kubuntu	248
Edubuntu	249
Lubuntu	251
Xubuntu	252
Ubuntu Studio	253
Mythbuntu	254
Ubuntu Kylin	255
Ubuntu GNOME	256
Editions	256
Ubuntu Server	256
Ubuntu Phone	258
Other Distributions	259
Guadalinex	260
Linux Mint	261
Launchpad	261
Soyuz	263
Launchpad Translations	263
Launchpad Bugs	265
Blueprint Tracker	267
Launchpad Answers	269
Other Functionality	270
Bazaar	270
Ubuntu One	272
Summary	272
CHAPTER 10 The Ubuntu Community	273
Venues	275
Mailing Lists	276
Internet Relay Chat	278

Web Forums	279
Wikis	281
The Fridge	282
AskUbuntu.com	284
Ubuntu Discourse	284
Social Media	285
Developer Summits, Sprints, and Rallies	285
User Conferences	287
Planet Ubuntu	288
Teams, Processes, and Community Governance	289
Teams	290
The Ubuntu Community Team at Canonical	290
Local Community Teams	291
MOTUs	292
The Community Council	293
The Technical Board	295
Other Councils and Boards	296
The SABDFL	297
Ubuntu Members	298
Getting Involved	299
Ubuntu Online Events	299
Advocacy	299
Support	300
Ideas and Feedback	300
Documentation	300
Translation and Localization	301
Quality Assurance and Bugs	301
Programming and Packaging	302
Summary	302

Foreword to the Sixth Edition

THE OFFICIAL UBUNTU BOOK CAPTURES both the spirit and the precision with which Ubuntu itself is crafted. Like Ubuntu, it has evolved in a steady cadence of regular releases, and this sixth edition reflects the cumulative insight gained from prior editions, as well as some of the latest innovations driving Ubuntu forward.

2011 is a critical year of change for Ubuntu, as we move towards the new, unified interface called Unity. Our goal is to deliver what people have long wished for: the world's cleanest, most elegant desktop experience, as free software. 11.04 is the first major step in that process as we introduce Unity by default on the desktop, retaining the Classic GNOME desktop for those who cannot yet make the leap to Unity.

Our broader goal is to challenge the free software ecosystem to invest as much creativity and energy in design as it does in engineering. We know that free software can be the best in the world for performance, reliability, and security; now it's time to bring ease-of-use and stylishness into the mix too.

I hope you enjoy 11.04, and love this book. My thanks to the many folks who have made both Ubuntu and *The Official Ubuntu Book* possible. It's a great privilege to be part of this community.

—Mark Shuttleworth
Ubuntu Founder
April 2011

This page intentionally left blank

Foreword to the First Edition

IT'S A SMALL CELEBRATION for me to write this foreword—almost exactly two years after the first meeting of a small group of free software professionals that turned into the Ubuntu project. A celebration because two years ago none of us would have predicted that our dream would spawn several million CDs, three or four million enthusiastic users, hundreds of commitments of support from companies large and small, a minor prime-time television reference, and now *The Official Ubuntu Book*.

The dream that brought us together can be simply expressed:

To build a world-class operating system for ordinary desktop computer users, that is genuinely free and freely available, that is immediately useful, and that represents the very best that the free software world can achieve today.

In setting out to build a platform for “ordinary desktop computer users,” I had no idea that I would have the privilege of meeting and working with so many *extraordinary* desktop computer users. Some of those extraordinary individuals are the authors of this book, people who both understand the importance of the free software movement and have the talent to have been real contributors to its success. Others make up the backbone of the Ubuntu community—the small but dedicated army of a few hundred people that works to produce a new release of Ubuntu every six months. They are at the heart of a network that reaches out through the global free software community—through the world of Debian, an extraordinary project in its own right and without which Ubuntu could not exist, and on out to the thousands of projects, large and small, that produce the code and documentation that we pull together and call *Ubuntu*.

While this huge extended community can often appear to be fractured and divided along infinitesimal ideological lines, we are all broadly in agreement about four key ideas, and it is those ideas that are central to the Ubuntu promise:

- That our software should not come with a license fee. That we should be able to share our software, modify it, and then share our modifications, too.
- That this free software should be the best version available, including regular security updates, and not a tease for a better, commercial product.
- That full-scale, high-quality commercial support from local and global companies should be available for this free platform.
- That this software should be usable in as many languages as possible and usable by as many people as possible regardless of disability.

The 17 of us who met in London two years ago come from a very wide variety of countries and backgrounds, but we all agreed that the goal of producing a platform that could live up to that promise was a worthy one, one that we would devote ourselves to wholeheartedly.

For several months we worked quietly. We wanted to come to the world not only with a manifesto but also with a clear demonstration of work done toward our goals, something that people could test and comment on. We had no name (though industry insiders called us the “Super-Secret Debian Startup”) and, as a result, we hosted most of our work at www.no-name-yet.com. We were looking for a name that could express the beauty of the free software community development process—collaboration, interdependence, sharing, standing gently on the shoulders of giants, and reaching for lofty goals. The only word that comes close to that, of which I’m aware, is the African word *ubuntu*. It is found in many forms in many different African languages. And so we adopted it as the name of our project.

We knew that our first release would have blemishes—warts—and gave it the codename “The Warty Warthog.” We called ourselves “the warthogs” and coordinated our work on the #warthogs IRC channel. Today, for better or worse, that’s turned into a tradition of codenames such as “Breezy

Badger” and “Dapper Drake.” As lighthearted as they sound, these code-names come to embody the spirit of our community as it works toward a particular release. This next one—Dapper—is exactly that: a man emerging from youth, professional, bold, confident, and energetic. This is our first release that is designed to meet the needs of large organizations as much as developers and engineers. In the same way, the Ubuntu community has moved from being something of a rebellion against the “Linux establishment” to a strong and professionally organized group.

What Makes Ubuntu So Popular?

First, this is the time for free software to come to the forefront, and Ubuntu is very much the beneficiary of the vast amount of work that has gone into building up a huge body of work in the GNU/Linux world. That work has been under way for nearly 30 years, in one form or another, but Ubuntu is one way in which it is suddenly becoming “visible” to the nonspecialist computer user. We are in the middle of a great overturning of the industry status quo. The last time that happened, in the mid-1990s, was when the world suddenly found itself connected to itself—by the Internet. Every major company, especially those in the field of technology, had to examine itself and ask the question, “How do we adapt to an Internet world?” Today, every major technology company has to ask itself the question, “How do we adapt to a free software world?”

I would speculate and say that Ubuntu represents an idea whose time has come. We did not invent the free software movement—that honor goes to Richard Stallman and many others who had a vision far more profound at a time when it was hard to see how it could ever become reality. But Ubuntu has perhaps the honor of bringing that vision to a very wide audience in a form that we can all appreciate. I hope that the real visionaries—those who have led the way—will appreciate the decisions and the choices we make in bringing you this project. Some will take exception—I know Linus prefers KDE to GNOME, for example, so he’s likely to be more of a fan of Kubuntu than Ubuntu. But in general, the ideas that others have had, the principles of the free software movement, are well expressed in Ubuntu.

Second, Ubuntu is a project on which *you* can have a real impact. It has the benefit of deep and reliable financial backing and a corporate team to give

it muscle, but it is in every regard an open project, with participation at the highest levels by true volunteers. We work in a fishbowl—our meetings take place online, in a public forum. That can be tricky. Building an operating system is a fast-paced business full of compromise and tough decisions in the face of little information. There are disagreements and dirty laundry, and mistakes are made. (I should know; some of them are mine. You should hear the one about the Warty Warthog desktop artwork.) The transparency of our environment, however, means that we can count on having robust conversations about our options—all of them, even the ones the core team would never have dreamed up. It also means that mistakes are identified, discussed, and ultimately addressed faster than they would be if we lived and worked behind closed doors. You get a better platform as a result.

We work hard as a community to recognize the contributions of all sorts of individuals—advocates, artists, Web forum moderators, channel operators, community event organizers, writers, translators, people who file and triage bugs . . . whatever your particular interest or talent, we will find a way to integrate your contribution.

Perhaps most important is the way our approach to community differentiates Ubuntu from other free software projects with similar vision. We try to do all of this in a way that recognizes that disagreements are important but prevents those disagreements from creating deep divides in our community. Our code of conduct may not be perfect, but it reminds each of us to remember the meaning of the word *ubuntu*—that each of us has our best impact *through* the relationships we maintain with one another. Finding common ground and maintaining healthy communication are more important for us as a community in the long run than a particular technical decision or the specific choice of words with which to translate “File” into Spanish. Our community governance structures—our Technical Board and Community Council—exist to ensure that debates don’t become personal and that decisions can be taken after all sides have been heard.

If you are a software professional or curious about Linux, this book and this platform are an excellent choice. You will learn about the world of Ubuntu and, indirectly, Debian and GNU/Linux. These are great foundations for working with the tools that I believe will come to define the

“standard,” the everyday computing base upon which we build our homes and offices.

I once heard a proprietary software vendor say, “Linux is more expensive because skilled Linux professionals are more costly.” This is true. It means, of course, that Linux skills are more valuable! It won’t be true forever because the world of Linux is expanding so rapidly that sooner or later we will have to accept a position in the mainstream, and that takes off some of the “geek points” associated with being part of the “future of technology.” But right now, without a doubt, being ahead of the curve on Linux and on Ubuntu is the right place to be. If you’re this far into this foreword, you are clearly going to make it. ;-))

It’s difficult for me to speculate on what the future might hold for the Ubuntu project. I know that I along with many others are loving the opportunity to be at the center of such an exciting initiative and are committed to seeing where it leads us over the coming years. I believe that it will become a pervasive part of our everyday computing environment, so I would like to help make sure that we don’t make too many mistakes along the way! Please, come and join us in the fishbowl to help ensure we do a very, very good job.

—Mark Shuttleworth
Ubuntu Founder
April 2006

This page intentionally left blank

Preface

WE HOPE YOU ENJOY *The Official Ubuntu Book*. There are many changes we made for this edition, which we believe takes an already good book to a new level.

Because Ubuntu has increased in popularity and is better known, we have expanded the intended audience from pure beginners to also include those who know a bit about Ubuntu but who want to improve their skills and become power users. These individuals are not necessarily focused on becoming programmers or systems administrators, but regular people who want to make their day-to-day use of Ubuntu more efficient or who want to better harness Ubuntu's potential.

In 2011, Ubuntu received the first wide release of the new Unity interface. This has been refined to become more elegant, more powerful, and more useful. These changes are outlined in this book. While the first release was exciting but incomplete, we believe you will find that the 14.04 Ubuntu edition of Unity delivers a new and exciting standard for human-computer interaction.

Finally, a large part of this book has been rewritten—not because the earlier editions were bad, but because so much has happened since the previous edition was published. This book chronicles the major changes that affect typical users and will help anyone learn the foundations, the history, and how to harness the potential of the free software in Ubuntu.

As we write this, it has been several years since we penned the first edition of *The Official Ubuntu Book*. Over that time, we have seen Ubuntu continue its explosive growth. Updating this book drives this fact home in striking ways. For example, the numbers of users and posts in the Ubuntu Forums have nearly doubled since the last edition of this book a year ago. Again.

Once again, we feel blessed that *The Official Ubuntu Book* has been able to benefit from, and perhaps in a small way even *contribute* to, that success. Ultimately, that success paved the way for several subsequent editions, and now the eighth edition, of the book that you're reading now.

In the process, this book, like Ubuntu, continues to mature. Our job as authors, like that of the Ubuntu developers, now involves more updating and polishing than it used to. Distributed under a free license, a once-risky book on a once-risky operating system is, just a few short years later, as close to a sure thing as an author, publisher, and, if we have done our job well, a reader could hope for.

And yet with success comes responsibility to our readers and to our users with high expectations. Ubuntu's success is built in part of maturity and excellence, and it cannot sacrifice these qualities if it will succeed. We cannot either. Our job as writers is complicated because we need to accurately reflect and represent both qualities while catering to an increasing and increasingly diverse group of users.

As we've noted in the prefaces to previous editions of this book, being *Official* has carried with it a set of rights and responsibilities. Our book's title means that we must attempt to reflect and represent the whole Ubuntu community. While we, as authors, are expected to put ourselves into the book, it is understood that it can never be to the detriment of the values, principles, technologies, or structures of the Ubuntu community.

Doing this has been complicated as Ubuntu has grown. In each edition, we have added new information, because the Ubuntu community has grown to include new projects. In each revision of this book, we have needed to add to the list of related projects, tools, and community initiatives. As the Ubuntu community grows, it is impossible to give a complete accounting of what Ubuntu has to offer. Creating a summary requires some hard decisions. At the end of the day, we are constrained by page count and our own limited schedules.

Meanwhile, as with earlier editions, we needed to write this book about a new release of Ubuntu while that version was under active development and was being redesigned, rethought, and rebuilt. Every day, Ubuntu grows

in different, unpredictable ways, and this growth has increased exponentially with the size of the community and the diversity of the user base. Our book's development process had to both match and track this process as our content was crafted, rewritten, adjusted, and allowed to mature **itself**.

As in the previous edition, the contributors to this book go well beyond those listed on the book's cover. Invisible to most readers, dozens of members of the community left their mark on different parts of the text of this book. Although this degree of participation led to a writing process that was as hectic, and at times frustrating, as the process that builds Ubuntu, we hope we can remind readers of the level of quality that this process inspires in our book's subject. In the places where we achieve this, we have earned our book's title. With that goal in mind, we look forward to future versions of Ubuntu and editions of this book wrought through the same community-driven process.

This page intentionally left blank

Acknowledgments

SPECIAL THANKS TO Mark Shuttleworth, Jane Silber, Steve George, Jono Bacon, Jorge O. Castro, Sian Aherne, and Marina Engelluori at Canonical for all their efforts to get this book out into the world for both new and veteran Ubuntu users.

Our thanks extend back to this group of reviewers and information sources for help with the previous editions: Amber Graner, Shannon Oliver, Kyle Rankin, Corey Burger, Jonathan Jesse, Ashley Rose, Allen Dye, Isabelle Duchatelle, Joe Barker, Alan Pope, Jonathan Riddell, Oliver Grawet, Dennis Kaarsemaker, Matthew East, Quim Gil, Dinko Korunic, Abhay Kumar, Jaldhar Vyas, Richard Weideman, and Scott Ritchie.

And finally, we appreciate the efforts of the Prentice Hall team, including Debra Williams Cauley, Kim Arney, Jill Hobbs, Linda Begley, Richard Evans, Kim Boedigheimer, Mark Taub, John Fuller, and Elizabeth Ryan.

This page intentionally left blank

About the Authors

Matthew Helmke has been an Ubuntu user since April 2005 and an Ubuntu Member since August 2006. He served from 2006 to 2011 on the Ubuntu Forum Council, providing leadership and oversight of the Ubuntu Forums, and spent two years on the Ubuntu regional membership approval board for Europe, the Middle East, and Africa. He has written articles about Ubuntu for magazines and Web sites, is the lead author of *Ubuntu Unleashed*, and has written several books and articles on other topics.

Elizabeth K. Joseph is a professional Linux Systems Administrator currently working at Hewlett-Packard, with a focus on managing the infrastructure for the OpenStack project. She has been working with Linux and around Linux communities since 2002. Elizabeth began contributing to Ubuntu in 2006 and currently contributes to various teams, including Documentation, News, Quality Assurance, and Classroom. Over the years she has served on the Ubuntu Membership Board and is now serving her third term as a member of the Ubuntu Community Council. At home in San Francisco, she serves as one of the leaders of the Ubuntu California team and is on the board of a nonprofit that provides Ubuntu-based computers to schools in need.

José Antonio Rey is a community contributor who has been actively participating since 2011. He is a student residing in Peru, whose contributions include helping with the News and Classroom teams, managing Ubuntu On Air!, and being the contact of the Ubuntu Peru team and a member of the LoCo Council. Even though he is not a developer, he has helped with Juju charms and is the author for the Postfix and Mailman charms.

Philip Ballew is an active open source advocate in the greater open source community. He is heavily involved in the Ubuntu project, and spends most of his time contributing to this project. When Philip is not contributing to

Open Source, he can be found riding his bike, dancing badly, or attempting to pass his college classes. Philip is eager to get involved in any project that he sees making a difference in the world for the good, and enjoys Ubuntu for this reason. He currently calls sunny San Diego, California, home, and hopes all readers of the book come by and say hello to him there.

Benjamin Mako Hill is a long-time free-software developer and advocate. He was part of the founding Ubuntu team whose charge at Canonical was to help grow the Ubuntu development and user community during the project's first year. Mako is an Assistant Professor at the University of Washington and a fellow at the Berkman Center for Internet and Society at Harvard University. He holds a Ph.D. from MIT.

Introduction

WELCOME TO *The Official Ubuntu Book, Eighth Edition!*

In recent years, the Ubuntu operating system has taken the open source and IT world by storm. From out of nowhere, the Little Operating System That Could has blossomed into a full-featured desktop and server offering that has won over the hearts of users everywhere. Aside from the strong technical platform and impressive commitment to quality, Ubuntu also enjoys success because of its sprawling community of enthusiastic users who have helped to support, document, and test every millimeter of the Ubuntu landscape.

In your hands you are holding the official, authorized guide to this impressive operating system. Each of the authors selected to work on this book has demonstrated a high level of technical competence, an unbridled commitment to Ubuntu, and the ability to share this knowledge in a simple and clear manner. These authors gathered together to create a book that offers a solid grounding to Ubuntu and explains how the many facets and features of Ubuntu work.

About This Book

At the start of every book, on every bookshelf, in every shop, is a paragraph that sums up the intentions and aims for the book. We have one very simple, down-to-earth aim: to make the Ubuntu experience even more pleasant for users. The Ubuntu developers and community have gone to great lengths to produce an easy-to-use, functional, and flexible operating system for doing, browsing, and creating all kinds of interesting things. This book augments that effort. With such an integrated and flexible operating system, this guide acts as a tour de force for the many things you can do with Ubuntu.

The Scope of the Book

With so much to cover, we had our work cut out to write a book that could cover the system in sufficient detail. However, if we were to write in depth about every possible feature in Ubuntu, you would need to buy a new bookcase to store the sheer amount of content.

Part of the challenge in creating *The Official Ubuntu Book* was selecting the topics and content that can be covered within a reasonably sized book. We have identified the most essential content and written only about it. These chosen topics not only cover installation, use of the desktop, applications, multimedia, system administration, and software management, but also include a discussion of the community, online resources, and the philosophy behind Ubuntu and open source software. As a bonus, we expanded our discussion of projects related to Ubuntu that will be of interest to you. We believe this book provides an ideal one-stop shop for getting started with Ubuntu.

The Menu

Here is a short introduction to each chapter and what it covers.

- **Chapter 1: The Ubuntu Story.** This spirited introduction describes the Ubuntu project, its distribution, its development processes, and some of the history that made it all possible.
- **Chapter 2: Installing Ubuntu.** We walk through the installation process one step at a time to clearly describe how anyone interested may begin using Ubuntu on their own computer.
- **Chapter 3: Getting Started with Ubuntu.** This is an informative and enjoyable introductory tour of Ubuntu, and the reader's first introduction to the more practical content of the book.
- **Chapter 4: Finding and Installing Ubuntu Applications.** Here you will learn about the vast contents of the Ubuntu software repositories and discover how to take advantage of them. Several examples of useful software that is not installed by default are highlighted.
- **Chapter 5: Customizing Ubuntu for Performance, Accessibility, and Fun.** Learn how to bend Ubuntu to better fit your needs or whims.

- **Chapter 6: Becoming an Ubuntu Power User.** We explore some of the advanced ways to use Ubuntu. This is the chapter for users who want to move up from basic use, but who do not intend to become programmers or professional systems administrators.
- **Chapter 7: Welcome to the Command Line.** Begin to take advantage of the power and efficiency of the command line with the clear, easy-to-use examples in our brief introduction.
- **Chapter 8: The Ubuntu Server.** This introduction to Ubuntu Server installation and administration includes coverage of command-line package management, basic security topics, and advanced installer features like logical volume management and RAID.
- **Chapter 9: Ubuntu-Related Projects and Derivatives.** There are a number of Linux distributions based on Ubuntu that you will find interesting and possibly useful. We discuss some of these as well as projects that are integral to the creation of Ubuntu, such as Launchpad and Bazaar.
- **Chapter 10: The Ubuntu Community.** The Ubuntu community is larger and more active than many people realize. We discuss many of its facets, including what people like you do to build, promote, distribute, support, document, translate, and advocate Ubuntu—and we tell you how you can join in the fun.

The Ubuntu team offers several installation options for Ubuntu users, including CDs for desktop, alternate install, and server install. These three CD images are conveniently combined onto one DVD included in the back of this book, allowing you to install Ubuntu for different configurations from just one disk. There is also an option to test the DVD for defects as well as a memory test option to check your computer.

The first boot option on the DVD, “Start or Install Ubuntu,” will cover most users’ needs. For more comprehensive information, check the Help feature by selecting F1 on the boot menu. You can also refer to Chapter 2, which covers the Ubuntu installation process in detail.

You can find the DVD image, the individual CD images (for those users who don’t have a DVD drive), and Kubuntu and Ubuntu Server on www.ubuntu.com/download.

This page intentionally left blank

This page intentionally left blank

CHAPTER 5

Customizing Ubuntu for Performance, Accessibility, and Fun

- **Unity Terminology**
- **Appearance Tool**
- **Unity Tweak Tool**
- **Compiz Config Settings Manager**
- **Unity Lenses and Scopes**
- **Additional Resources**
- **Summary**

ONE OF THE MOST APPEALING ARGUMENTS FOR the adoption and use of Linux is the fact it can be customized according to users' personal preferences. In this chapter, we look at the many ways the Unity desktop can be adapted to different users. Unity is a relatively new desktop, so we start by reviewing the terminology for the desktop. We then look at the default settings, including various ways to tweak them. Lenses were introduced in the Ubuntu 11.04 release; in the 14.04 LTS, a wide variety of Lenses are available. We examine some popular Lenses and how to use them. Different people use their computers in different ways, and for that reason we want to help you discover how to tweak your Unity desktop to best suit your needs.

While tweaking your desktop is a fun way to personalize your desktop experience, we also want to caution you about making changes without understanding what those changes will do. If you are unsure about making those changes, take some time to research them. At the end of this chapter, we identify some more resources to further your understanding of the Unity desktop.

In this chapter, we show you just a few of the Lenses that are available and explain how you can install them. At the end, we point out the resources that will get you started writing those Lenses as you go from novice to superuser. Let's get ready to supercharge your Unity desktop!

Unity Terminology

When the Unity Launcher was introduced in the Ubuntu 11.04 release, a number of design goals were established. Specifically, the icons needed to be easy to find, running applications needed to be always visible, the focused application needed to be easily accessible, and the interface needed to be touch friendly. The Unity desktop certainly met with a mixed range of highly charged emotions from early adopters, and due to their passion and feedback, the desktop and its functionality have improved. Providing user feedback is one of the most important things an Ubuntu user can do for the project. At the end of this chapter, you'll be given a list of resources to get you started on providing the developers with feedback.

In Ubuntu 14.04 Unity desktop, many new Unity Scopes are installed by default. These new Scopes allow the Dash to search in many more places, and they provide you with results from a wide variety of sources.

Unity also features the HUD (Heads Up Display) that users can use to search the menus of a focus (active) window or full application. HUD doesn't replace your global menu, but rather is a feature that can be accessed by pressing the Alt key.

As we look at the parts that make up the Unity desktop, we'll also explore the Unity Tweak Tool (Figure 5-1). Unity Tweak Tool is a third-party tool that allows users to configure and tune their Unity desktops. It also allows users to return to the default desktop settings, thereby undoing changes made earlier. To install Unity Tweak Tool through the Software Center, click the Ubuntu Software Center icon located in the Launcher. Once the

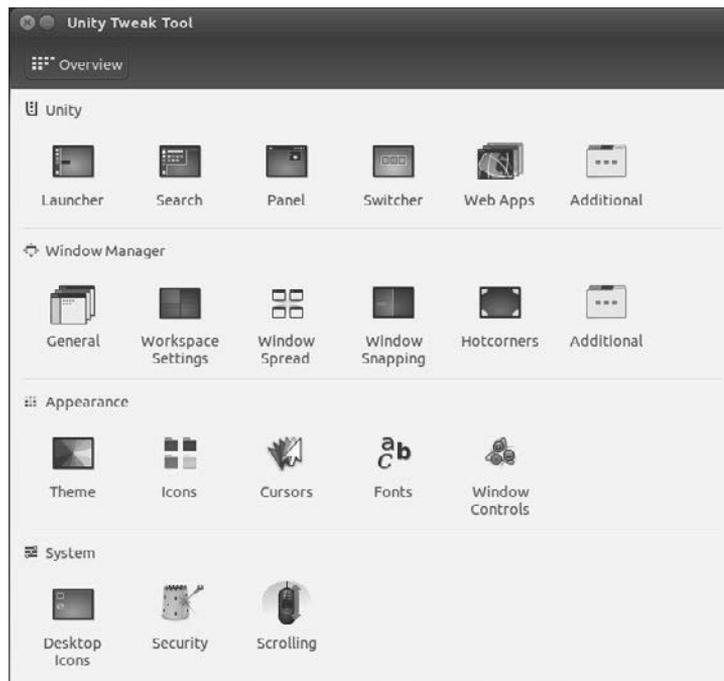


Figure 5-1 Unity Tweak Tool

software center opens, type *Unity Tweak Tool* into the search box and click Install (Figure 5-2).

You can also install the Unity Tweak Tool from the command line with the command `sudo apt-get install unity-tweak-tool`.

Following is the list of user interface (UI) terms for the parts of your Unity desktop; numbers 1 to 6 correspond to the numbers in Figure 5-3 and the words in Figure 5-4, number 7 is shown at the top right of Figure 5-5, which also shows the HUD.

1. Windows Tile
2. Application Menu
3. Dash Icon, which opens what is shown in 5-4, including:
 - a. Applications Lens
 - b. Files and Folders Lens
 - c. Videos Lens
 - d. Music Lens
 - e. Photos Lens
 - f. Social Network Messages Lens
4. Launcher Icons
5. Launcher
6. Trash
7. Indicators
8. HUD

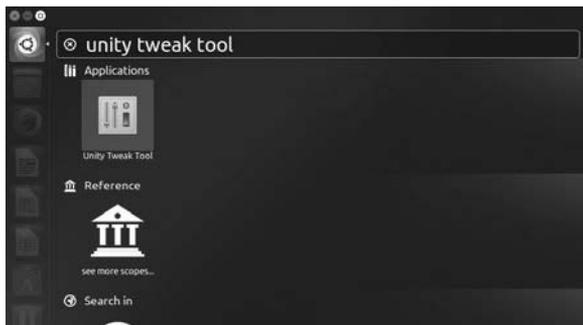


Figure 5-2 Installing Unity Tweak Tool from the Ubuntu Software Center



Figure 5-3 Diagram of the Unity desktop



Figure 5-4 Diagram of the Dash



Figure 5-5 Diagram of the HUD

Now that we have reviewed the terminology for your desktop, let's look at those default settings.

The Ubuntu 14.04 release uses the 3.13.0 kernel and is based on the 3.13.0 upstream stable kernel and Xorg server 1.15.0.

The applications included in this release by default, but not necessarily locked to the Launcher, are Nautilus, Ubuntu Software Center, Firefox, Thunderbird, LibreOffice, Rhythmbox, Deja Dup Backup Tool, Empathy, Shotwell, Transmission, Remmina (remote desktop client), GNOME Control Center (system settings), Gedit, Brasero, and Totem.

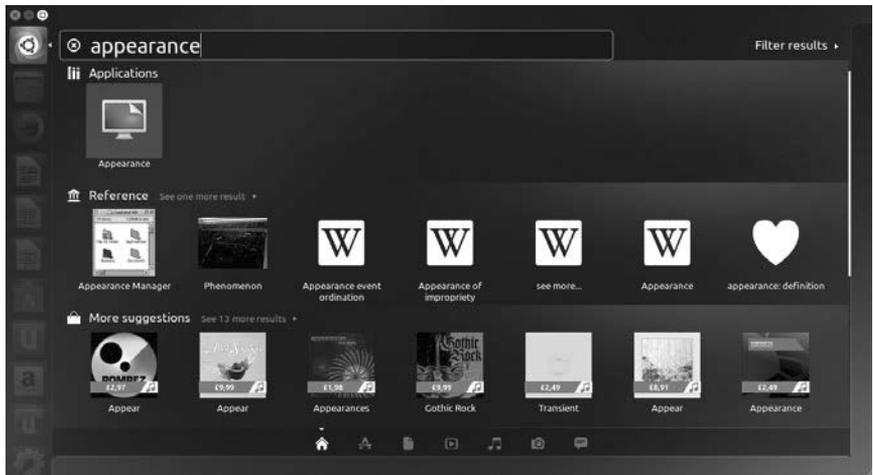


Figure 5-6 Locating the Appearance icon from the Dash

As mentioned earlier, tweaking your Unity desktop can be done easily with tools like the Unity Tweak Tool, and some tweaks can be made using the Appearance tool. To get to the Appearance tool, click the Super key once and the Dash will open. In the search box, type “Appearance,” and then click on the Appearance icon to open this tool (Figure 5-6).

Appearance Tool

The Appearance tool is available by default and allows users to change the look and behavior of their Unity desktop. It opens to the Look tab (Figure 5-7) and allows you to change the background, theme, and Launcher icon size. The Behavior tab (Figure 5-8) allows you to change autohiding of the Launcher, the reveal location (where you need to put your mouse for the Launcher to reappear), and the reappear sensitivity levels. It also allows you to enable Workspaces as well as add a Show Desktop icon to the Launcher.

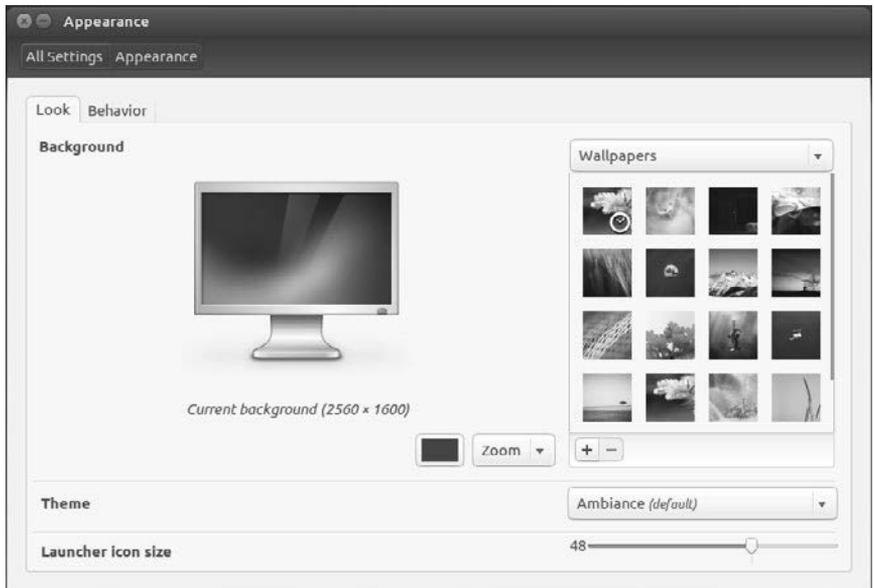


Figure 5-7 Appearance tool: Look tab

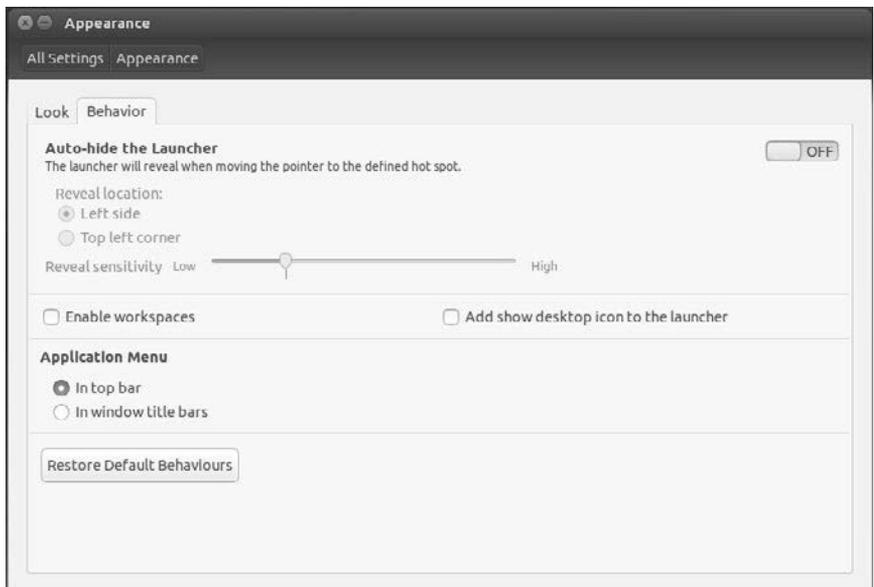


Figure 5-8 Appearance tool: Behavior tab

Unity Tweak Tool

As mentioned earlier, Unity Tweak Tool is a third-party tool, which was created by the Freyja Development Team. To find out more about the team, go to <https://launchpad.net/~freyja-dev>.

If you followed the instructions to download the Unity Tweak Tool earlier in this chapter, great. If not, you may want to do so now. This tool allows users to tweak four different areas of the Unity desktop.

Unity

Here, you will be able to change settings for the Launcher, Search, Panel, Switcher, Web Apps, and more.

The Launcher tab (Figure 5-9) allows you to change the color, transparency, icon size, autohiding, animations, and more.

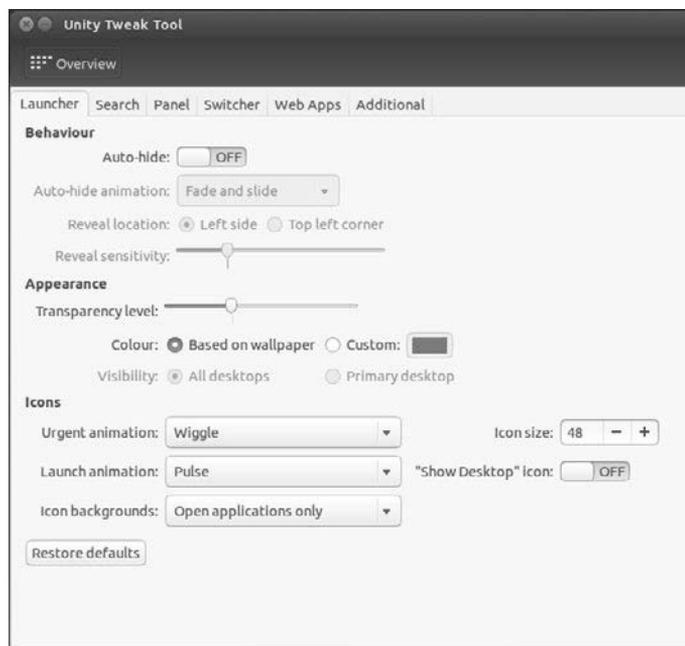


Figure 5-9 Unity Tweak Tool: Launcher tab

The Search tab (Figure 5-10) allows you to change the blur of the Dash, and some other features as the display of suggestions, as well as recently used applications.

The Panel tab (Figure 5-11) allows you to change settings for the top panel. It includes transparency and the display of certain system-based indicators.

The Shifter tab (Figure 5-12) allows you to specify settings and shortcuts for the applications switcher.

On the Web Apps tab (Figure 5-13), you can decide whether you want to enable prompts for Web Apps and specify the preauthorized domains.

The Additional tab (Figure 5-14) allows you to change keyboard shortcuts as well as enable the HUD to remember previous commands.

Window Manager

The Window Manager allows you to customize how Ubuntu manages windows.



Figure 5-10 Unity Tweak Tool: Search tab

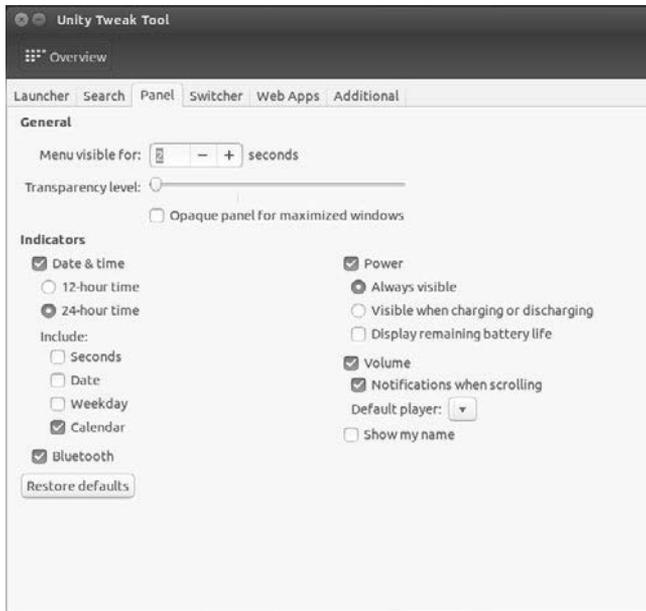


Figure 5-11 Unity Tweak Tool: Panel tab

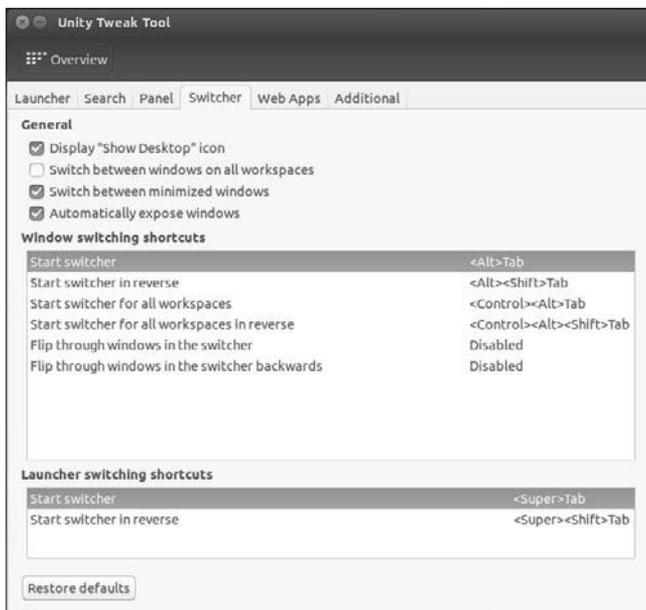


Figure 5-12 Unity Tweak Tool: Shifter tab

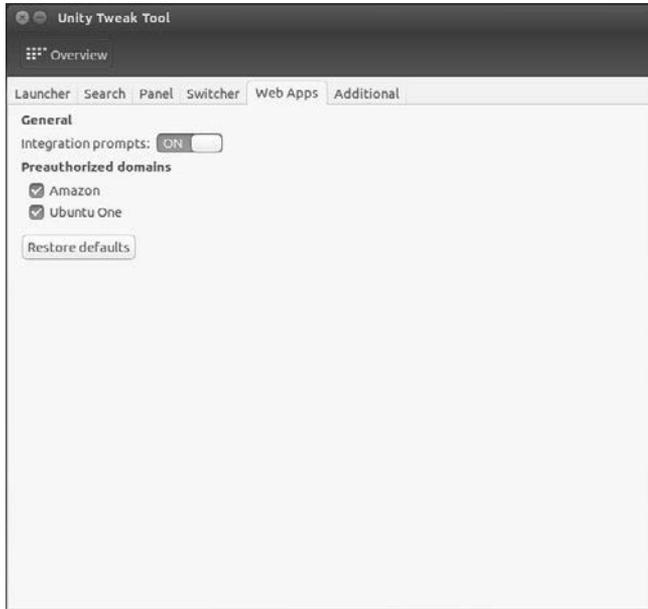


Figure 5-13 Unity Tweak Tool: Web Apps tab

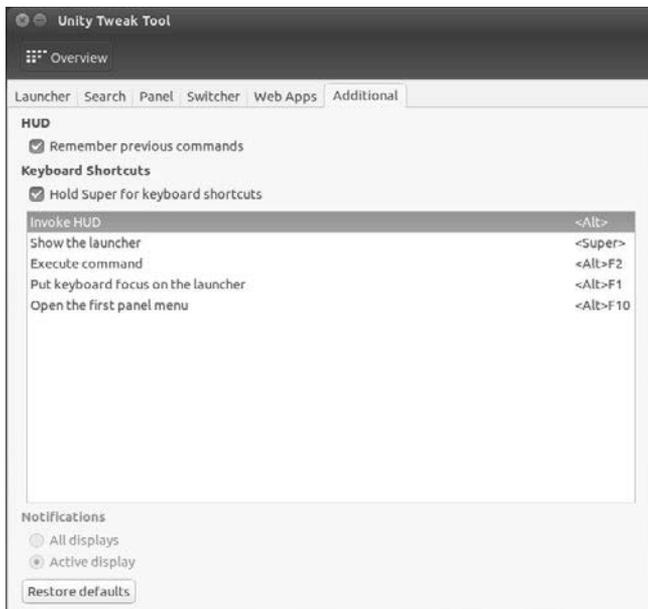


Figure 5-14 Unity Tweak Tool: Additional tab

Appearance

The Appearance section allows you to change the system theme, icons, cursors, and default fonts, as well as the side where the *close*, *minimize*, and *maximize* buttons are located.

System

The System section allows you to set the default desktop icons, disable some features for security reasons, and set some scrolling options.

Play around with all these settings. Unity Tweak Tool is a very forgiving tool. If you don't like the tweaks you are making, simply click the Restore Defaults button found on every tab, and you'll be able to start your tweaking adventure all over again.

Compiz Config Settings Manager

Compiz Config Settings Manager is a configuration tool for Compiz with which you may want to become familiar. To get started with the Compiz Config Settings Manager, you will need to install it from the Ubuntu Software Center, launch it from the Launcher by clicking the Super key to bring up the Dash, and type "Compiz." Click on the Compiz Config Settings Manager icon to launch this tool. The first time you open this manager, you will get a warning (Figure 5-15). Although it is an incredible tool, Compiz Config Settings Manager is not as forgiving as the Appearance and Unity Tweak tools. Users are cautioned to use Compiz (Figure 5-16) with care, as you may end up with an unusable desktop if you make too many errors.

When you open Compiz Config Settings Manager, you'll notice that some of the categories have the boxes beside them checked. This is because those areas have been integrated with the Unity desktop.

Let's take a closer look at the features offered with Compiz Config Settings Manager.

In the upper-left corner of the Main view, you'll notice a search box (Figure 5-17). It can be used for quick and easy filtering of the plug-ins list



Figure 5-15 Compiz Config Settings Manager warning

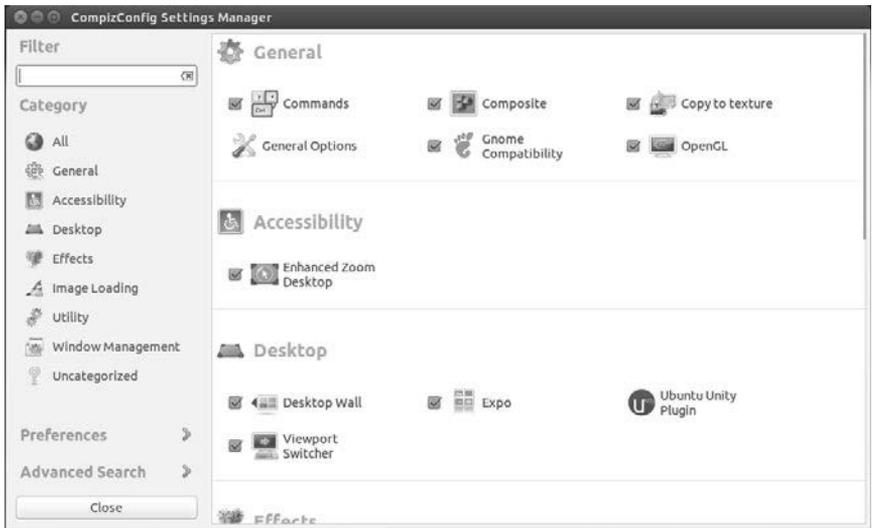


Figure 5-16 Compiz Config Settings Manager main view

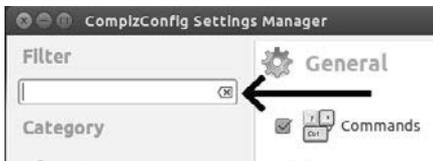


Figure 5-17 Compiz Config Settings Manager search box

using the text you type in the search box. The search box can also be used like a filter for the options on various plug-in pages.

The Advanced Search button at the lower-left corner of the Main view (as seen in Figure 5-18) allows you to filter through all the options of all the plug-ins. Please note this may take a while to load. Advanced Search allows you to search by name, long description, and the values you have set. Once you have a list, you can click on the plug-in and see which groups contain the option you searched for.

The plug-ins for the Compiz Config Settings Manager are divided into eight categories:

1. **General:** Contains the core plug-ins (Figure 5-18).
2. **Accessibility:** Contains plug-ins to make the desktop easier to use, especially for those individuals who have a reading or viewing disability (Figure 5-19). The Enhanced Zoom plug-in magnifies the whole screen on demand.
3. **Desktop:** Contains plug-ins to configure how the desktop behaves (Figure 5-20).

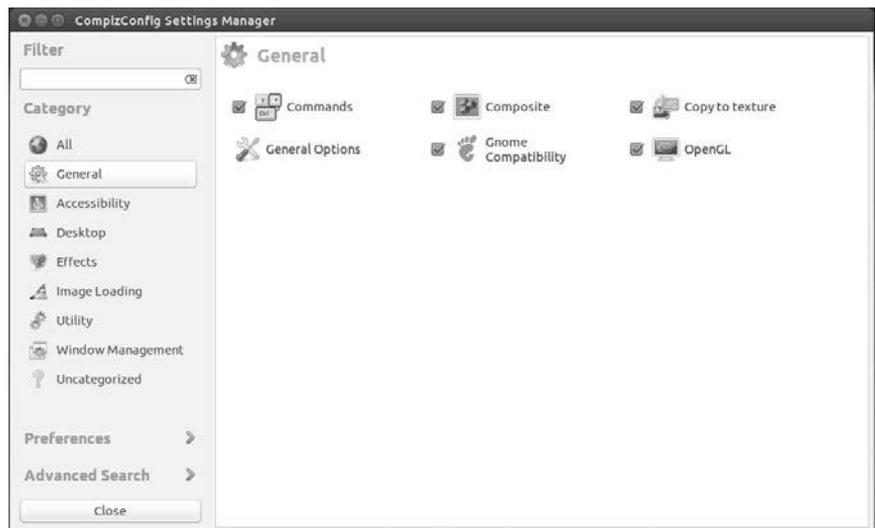


Figure 5-18 Compiz Config Settings Manager General category

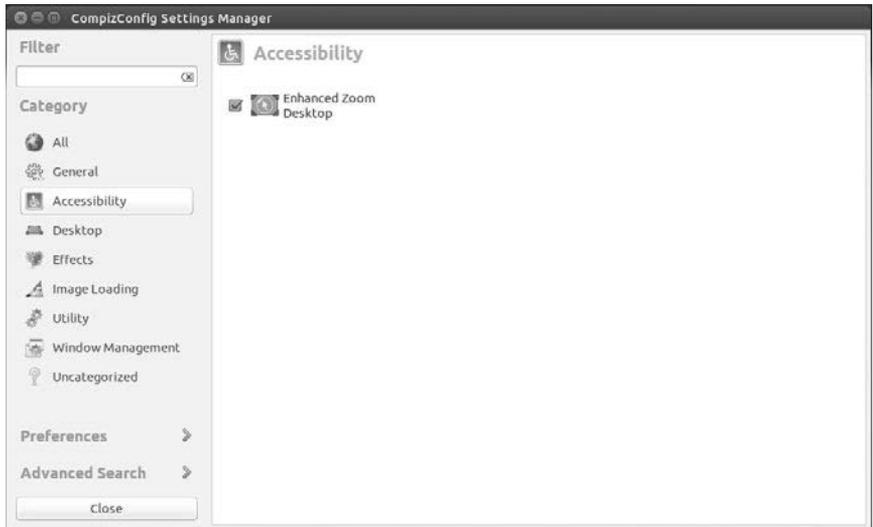


Figure 5-19 Compiz Config Settings Manager Accessibility category

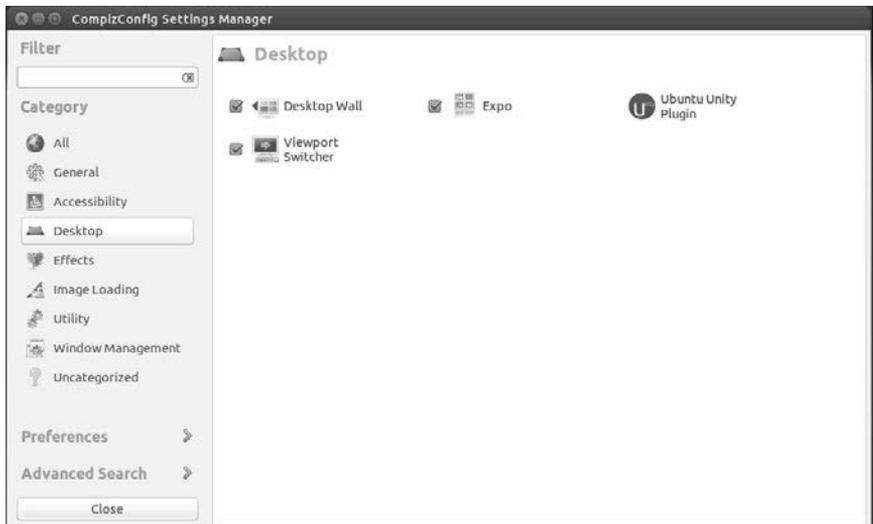


Figure 5-20 Compiz Config Settings Manager Desktop category

4. **Effects:** Contains plug-ins to configure various animations and effects, such as Fading Windows (Figure 5-21).
5. **Extras:** Contains plug-ins that serve a minor or ambiance purpose like annotate.
6. **Image Loading:** Contains plug-ins that allow various image formats to be loaded (Figure 5-22).
7. **Utility:** Contains plug-ins that provide internal functionality like Regex Matching (Figure 5-23).
8. **Window Management:** Contains plug-ins that provide basic to advanced window treatment functionality, like moving windows (Figure 5-24).

NOTE Use caution when working with Compiz Config Settings Manager because you can render your desktop unusable. Make sure you are familiar with how to recover your desktop from the command line.

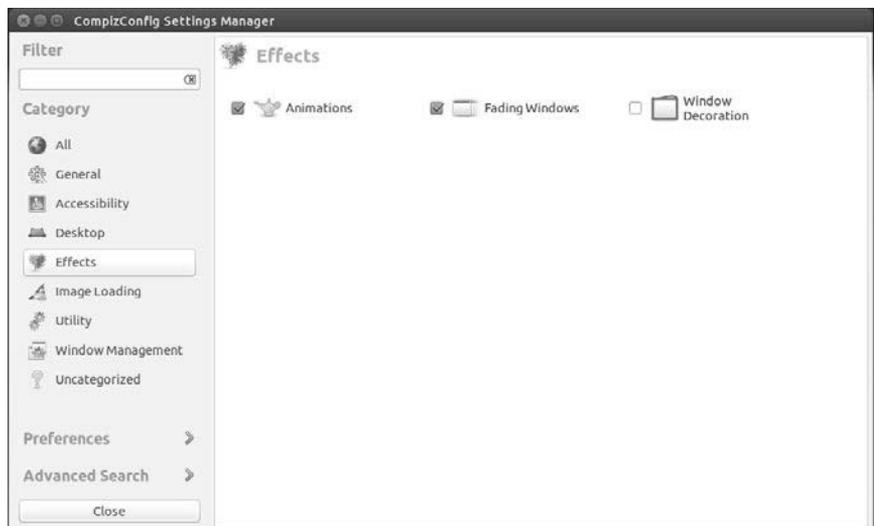


Figure 5-21 Compiz Config Settings Manager Effects category

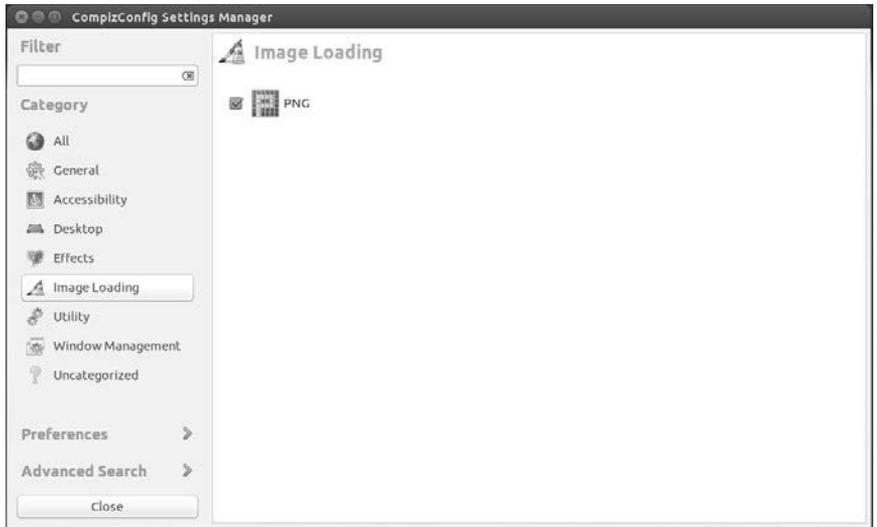


Figure 5-22 Compiz Config Settings Manager Image Loading category

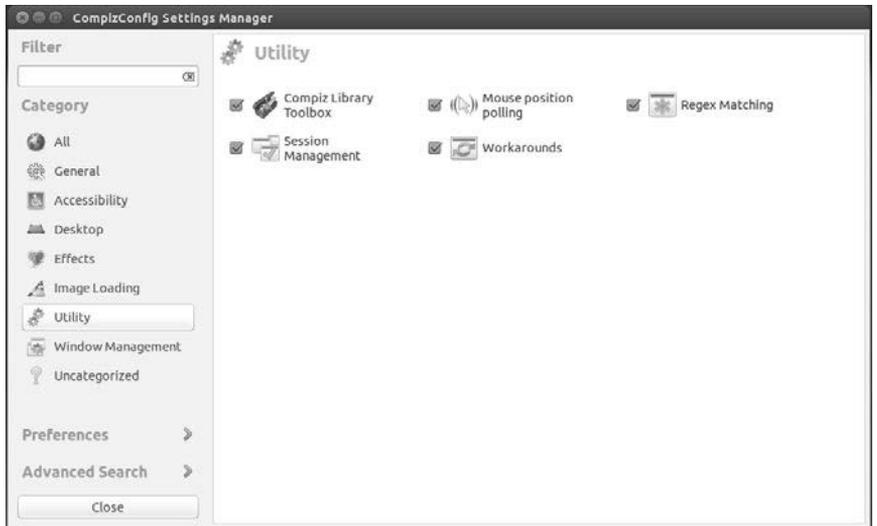


Figure 5-23 Compiz Config Settings Manager Utility category

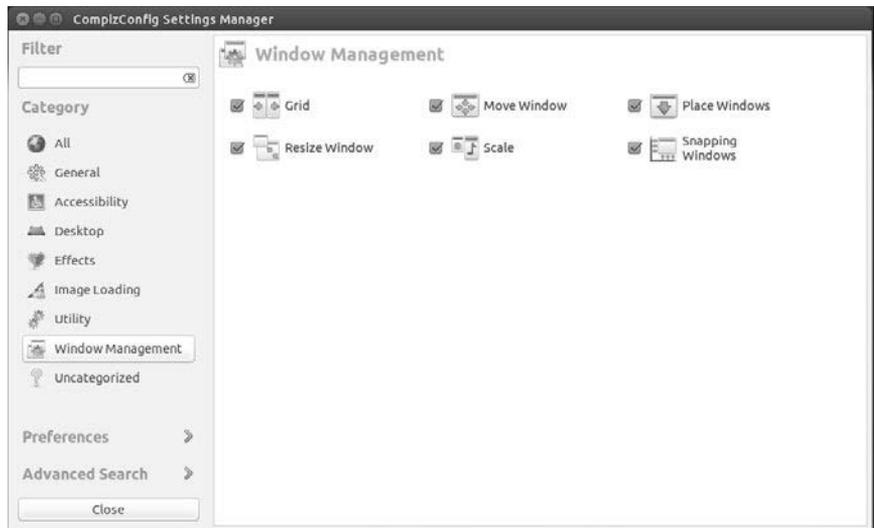


Figure 5-24 Compiz Config Settings Manager Window Management category

To become more familiar with Compiz and the Compiz Config Settings Manager, go to www.compiz.org.

Unity Lenses and Scopes

The Dash is one of Unity's main features. It allows users to search for information both locally and remotely using Lenses. Each Lens is responsible for one category of search results for the Dash.

By itself, the Lens is not very useful, because it doesn't perform the search. Instead, the Lens relies on one or more *Scopes*, which are the actual search engines, to return the search results.

In the terminology section of Chapter 3, we looked at the music Lens. This Lens has two *Scopes*, which means that four processes are involved in searching the music category for content: the Dash, the Lens daemon, first Scope daemon, and second Scope daemon.

As a user, you won't even notice the complex process the Lens performs to keep everything in sync. You can just enjoy the benefits of being able to quickly search various categories of information.

NOTE For more information on how Lenses work and are created, see the Lens Guidelines wiki at <https://wiki.ubuntu.com/Unity/Lenses/Guidelines>.

It seems that everyone has a favorite Unity Lens. By default, Unity comes with the following Lenses: Applications, Files, Music, and Video.

Additional Resources

In this chapter, we looked at three tools you can use to tweak your Unity desktop: Appearance, Unity Tweak Tool, and Compiz Config Settings Manager. Other tools and resources are available to help you personalize your desktop environment.

A wealth of help and documentation is also available online. If you ever find yourself stuck, take a look at the Ubuntu Web site at www.ubuntu.com or the Ubuntu documentation at <https://help.ubuntu.com>, and make use of Ask Ubuntu, the forums, wiki, mailing lists, and IRC channels.

Summary

In this chapter we outlined several ways to customize your Ubuntu experience. Changing the Unity desktop from its default settings is not something everyone will want or need to do, but knowing how to do so is both useful and sometimes necessary.

This page intentionally left blank

Index

- . (dot), in configuration folder names, 174
 - ; (semicolon), sequential command execution, 198
 - ***... (asterisks), password security, 65
 - ~ (tilde), home directory indicator, 187, 192
 - (dash), in command line options, 188
 - ? (question mark), wildcard, 197
 - @ (at sign), in command-line username, 187
 - * (asterisk), wildcard, 197
 - && (ampersands), conditional command execution, 198
 - | (vertical bar), pipe symbol, 180, 189
 - \$ (dollar sign), UNIX shell symbol, 187, 222
- A**
- Access for disabled users, 20
 - Accessibility plug-ins, 161–162
 - addgroup command, 196
 - Adding. *See also* Creating.
 - groups, 196
 - packages, 92–93
 - programs, 92–93
 - search engines to Firefox, 78
 - to text files, 195
 - Additional tab, 156, 158
 - adduser command, 73, 195
 - Administrator privileges, 104–105
 - Adobe Flash, Firefox support, 79–80
 - Adobe Illustrator equivalent. *See* Inkscape.
 - Adobe InDesign equivalent. *See* Scribus.
 - Adobe Photoshop equivalent. *See* GIMP (GNU Image Manipulation Program).
 - Advocacy, community opportunities, 299–300
 - Allocating drive space, 45–50
 - Alternate install CD. *See* Minimal CD.
 - AMD64 support, 37
 - Ampersands (&&), conditional command execution, 198
 - Anagrams, 139
 - Answers program, 30, 269–270
 - Appearance section, 159
 - Appearance tool, 153–154
 - Applications. *See also* Programs.
 - closing, 69
 - finding, 65–68. *See also* The Launcher.
 - minimizing/maximizing, 69
 - running, 65–68, 77. *See also* The Launcher.
 - switching, 68
 - APT (Advanced Package Tool)
 - description, 114
 - sources for repositories, 219–220
 - apt-cache utility, 222–225
 - apt-get utility, 222–225
 - aptitude utility, 227–228
 - ARM support, 37
 - Array failures, 212
 - Array management. *See* LVM (Logical Volume Manager).
 - AskUbuntu.com, 284
 - Asterisk (*), wildcard, 197
 - Asterisks (***)..., password security, 65
 - Astronomy, 141–142
 - At sign (@), in command-line username, 187

- Audio. *See also* Multimedia; Music.
 - playing CDs, 100
 - podcasts, 99
 - Rhythmbox Music Player, 98–99
 - ripping CDs, 100
- Authentication, 272
- Ayatana project, 72
- B**
- Backing up your files, 102–104
- Backport repositories, 219
- Bacon, Jono, 274, 290
- Bazaar, 29, 270–271
- /bin folder, 173
- BIOS configuration problems, 42
- Blinken, 143–144
- Blog aggregator. *See* Planet Ubuntu.
- Blueprint Tracker, 30, 267–268
- Bochs, 238
- Bookmarking Web sites, 78–79
- Books and publications. *See also*
 - Documentation; Linux Documenta-
tion Project.
 - The Official Ubuntu Server Book*, 200,
243, 250
 - A Practical Guide to Linux...*, 200–201
 - Ubuntu Unleashed 2014*, 201
- /boot folder, 173
- “Bootable flag” setting, 60
- Browse Network option, 71
- Browsing
 - files and folders, 71
 - the Web. *See* Firefox.
- Bug #1, 24–26
- Bug tracking
 - community opportunities, 301–302
 - fixes in releases, 23
 - Launchpad Bugs, 265–267
- Bugs program, 29, 265–267
- Bulletin board. *See* The Fridge.
- Burning
 - installation DVDs, 39–40
 - .iso files, 39–40
- Buying
 - installation DVDs, 39
 - software, 114–115
- Byobu, 190, 198–200
- C**
- Calendar, 74
- Canonical, Ltd. *See also* Shuttleworth,
Mark.
 - Bazaar, support and development, 29
 - founding of, 11–12, 26–27
 - geographical location, 27
 - Launchpad, support and development,
29
 - service and support, 27–29
 - Silber becomes CEO, 27
 - as a virtual company, 12
- cat command, 188, 195. *See also* zcat
command.
- cd command, 191
- CDs. *See also* DVDs.
 - copying. *See* DVDs, burning; Ripping
CDs.
 - installation. *See* Desktop DVDs;
Installation DVDs; Minimal CDs.
 - playing, 100
 - ripping, 100
- Chat programs, 83
- chgrp command, 196
- chmod command, 192
- chown command, 193
- Clock, 74–75
- Cloud computing
 - community opportunities, 291
 - Microsoft support for, 26
 - overview, 239–243
 - tools for, 240–243. *See also* Ubuntu
Cloud; Ubuntu One.
- CoC (Code of Conduct)
 - goals of Ubuntu, 20–22
 - maintenance of, 294
 - Mark Shuttleworth, 21–22
- Code program, 30

- Codecs
 - Linux Mint, 261
 - multimedia, 96–98
 - video, 100–102
 - Command-line interface. *See* Terminal.
 - Commands. *See* Terminal commands; *specific commands*.
 - Communication venues. *See* Ubuntu community, communication venues.
 - Community Council, 293–295
 - Community of users. *See* Ubuntu community.
 - community-announce mailing list, 277
 - Compiz Config Settings Manager
 - accessibility plug-ins, 161–162
 - desktop plug-ins, 161–162
 - effects plug-ins, 163
 - extras plug-ins, 161
 - image loading plug-ins, 163–164
 - installing, 159
 - launching, 159
 - online resources, 165
 - overview, 159–161
 - plug-ins, 161–165
 - search box, 159–161
 - utility plug-ins, 163–164
 - warning message, 159–160
 - window management plug-ins, 163, 165
 - Computer name. *See* Hostname.
 - Computer option, 71
 - Configuration files, 174
 - Configuring. *See also* Customizing; Installing.
 - BIOS, 42
 - displays (monitors), 75
 - keyboards, 51
 - system settings, 75
 - translation and localization, 85–86
 - Connect to Server option, 71
 - Containerization, 238
 - Copying
 - CDs. *See* Burning, installation DVDs; Ripping CDs.
 - files and folders, 71
 - installation DVDs, 39–40
 - cp command, 192
 - CPU information, displaying, 193
 - Creating. *See also* Adding.
 - bootable USB sticks, 41–42
 - folders, 192
 - passwords, 53, 56–57
 - pipelines, 188–189
 - Creating, user accounts
 - adding new users, 72–73, 195
 - Guest Sessions, 75
 - hostnames, 52
 - during installation, 51–53, 56–57
 - passwords, 53, 56–57, 73, 196
 - user name, 56
 - Customizing. *See also* Configuring.
 - the Launcher, on Unity desktop, 155–156
 - system settings, 75
 - Unity desktop. *See* Compiz Config Settings Manager; Unity desktop, customizing.
- D**
- The Dash
 - illustration, 151
 - keyboard shortcuts, 177
 - overview, 66–68
 - searches, 165–166. *See also* Lenses.
 - System Settings option, 168–173
 - Dash (-), in command line options, 188
 - Data replication, 209
 - DB2 database, Ubuntu support, 28
 - Debian distribution, 15–17
 - Debian package management, 220–221
 - Degraded RAID mode, 212
 - Deleting
 - files, 68, 71, 192. *See also* Trash.
 - folders, 68, 71. *See also* Trash.

- Deleting, *continued*
 - groups, 196
 - packages, 92–93, 116–117, 224
 - programs, 92–93
 - user accounts, 74, 196
- delgroup command, 196
- deluser command, 74, 196
- Dependencies, definition, 115
- Derivatives. *See* Flavors.
- Desktop computers, commitment to, 23–24
- Desktop DVDs. *See also* Installing Ubuntu from desktop DVD.
 - booting from, 42–43
 - description, 36
- Desktop folder, 70–71
- Desktop icons, customizing, 159
- Desktop plug-ins, 161–162
- Desktop publishing, 129–134
- Desktops. *See also specific desktops.*
 - Edubuntu, 249–250
 - Kubuntu, 248–249
 - Lubuntu, 251–252
 - Mythbuntu, 254–255
 - Ubuntu. *See* Unity.
 - Ubuntu GNOME, 256
 - Ubuntu Kylin, 255–256
 - Ubuntu Studio, 253–254
 - Xubuntu, 252–253
- /dev folder, 173
- Developer Membership Board, 297
- Development tools. *See* Launchpad.
- df command, 193
- Directories vs. files, 172. *See also* Folders.
- Disabled users, access for, 20
- Disk replication, 239
- Disk space usage, displaying, 193
- Disk storage. *See* LVM (Logical Volume Manager).
- Displays (monitors)
 - configuring, 75
 - locking, 75
 - screen corners, 72
- Dispute arbitration, 294
- Distributed Replicated Block Device (DRBD), 239
- Distribution management, 263
- Distributions. *See also* Editions; Flavors; *specific distributions.*
 - Andalusian government, 260
 - currently active, 14–16
 - Edubuntu, 38, 249–250
 - for educational use, 38, 249–250
 - Guadalinex, 260
 - for the KDE desktop, 37, 248–249
 - Kubuntu, 37, 248–249
 - managing, 30, 263. *See also* Soyuz program.
 - for older hardware, 38, 252–253
 - overview, 13–14
 - propagating changes upstream, 15–16
 - for servers. *See* Ubuntu Server.
 - Ubuntu Server, 37–38
 - Xubuntu, 38, 252–253
- Distros. *See* Distributions.
- Distrowatch database, 14
- Documentation. *See also* Books and publications; Linux Documentation Project.
 - community opportunities, 300–301
 - community-produced, 281–282
 - Linux, online, 201
 - Ubuntu community, 300–301
 - wikis, 281–282
- Documents folder, 70–71
- Dollar sign (\$), UNIX shell symbol, 187, 222
- do-release-upgrade tool, 225–227
- Dot (.), in configuration folder names, 174
- Downloading
 - Edubuntu, 38
 - installation DVDs, 37, 39
 - packages, 222–225
- Downloads folder, 70–71
- dpkg command, 220–221
- DRBD (Distributed Replicated Block Device), 239

Drive space, allocating, 45–50

Drivers

- printers, 88–89
- video, 102

Dropbox equivalent. *See* Ubuntu One.

Dual-booting, 46

DVDs (installation). *See also* CDs.

- burning, 39–40
- images. *See* .iso files.
- for installing Ubuntu. *See* Installation DVDs.

DVDs (video)

- codecs required, 100–102
- playing, 101–102
- remote control, 102

E

Editing

- files, 194
- text, 194–195
- videos, 134

Editions (of Ubuntu), 257–259. *See also* Distributions; Flavors; *specific editions*.

Editors

- nano, 195
- Stream Editor, 194

Edubuntu, 249–250

- downloading, 38

Educational activities

- anagrams, 139
- astronomy, 141–142
- Blinken, 143–144
- factorization, 139
- flash cards, 143
- fractions, 139
- functions, plotting, 140–141
- games, 137
- GCompris, 144
- geometrical constructions, 139–140
- globe of the world, 142–143
- Kalzium, 137–138
- Kanagram, 139
- KBruch, 139

- Kig, 139–140
- KTouch, 142
- KTurtle, 142
- Logo programming language, 142
- Marble, 142–143
- Parley, 143
- periodic table of elements, 137–138
- physics simulator, 143
- planetarium, 141–142
- plotting functions, 140–141
- Stellarium, 141–142
- Step, 143
- touch typing tutor, 142
- Tux Paint, 144
- world atlas, 142–143

Educational distributions. *See* Edubuntu.

Effects plug-ins, 163

E-mail, Thunderbird program, 83–85

Empathy program, 83

Emptying the trash, 68

Encryption, 58, 216–217

/etc folder, 173

Extensions, Firefox, 79–80

Extras plug-ins, 161, 163

F

Facebook, 285

Factorization, 139

Fault tolerance

- LVM (Logical Volume Manager), 216
- RAID (redundant array of inexpensive disks), 208

Feature tracking, 267–268

Feedback

- community opportunities, 300
- about Ubuntu Server, 236

File manager, 70–71

Files. *See also* Folders; *specific files*.

- adding text to, 195
- browsing, 71
- configuration files, 174
- copying, 71
- deleting, 68, 71, 192. *See also* Trash.
- vs. directories, 172

- Files, *continued*
 - editing, 194
 - listing, 179–180, 192
 - owned by packages, listing, 228
 - ownership, changing, 193
 - package owner, listing, 228
 - package provider, listing, 228–229
 - permissions, changing, 193
 - remote, listing and copying, 71
 - searching, 194
 - storing and organizing, 172–175
 - viewing contents of, 188, 195
 - Windows, accessing, 174–175
 - Filesystems, security, 231–232
 - Firefox
 - adding search engines, 78
 - Adobe Flash, 79–80
 - bookmarking sites, 78–79
 - extensions, 79–80
 - launching, 77
 - live bookmarks, 79
 - navigating the Internet, 77–78
 - online resources, 77
 - searches, 78
 - Firewall tables, 235
 - Flash cards, 143
 - Flash drives. *See* USB sticks.
 - Flavors, 246–247. *See also* Distributions; Editions; *specific flavors*.
 - Folders. *See also* Files; *specific folders*.
 - browsing, 71
 - changing, 191
 - copying, 71
 - creating, 192
 - current, identifying, 191
 - deleting, 68, 71. *See also* Trash.
 - Linux, list of, 173
 - listing contents of, 179–180, 187–188, 192
 - remote, listing and copying, 71
 - “Format the partition” setting, 60
 - Fractions, 139
 - Free, definition of, 6
 - free command, 193
 - Free (no cost) software, 113–114
 - Free (open) software
 - characteristics of, 4
 - definition, 4
 - definition of “free,” 6
 - freedoms, 4
 - GNU, 4–5
 - goals of Ubuntu, 18–19
 - open source, 6–7
 - FREE SPACE line, 59
 - Freedoms of free software, 4
 - Freehand equivalent. *See* Inkscape.
 - Frequency of releases, 22–23
 - Freyja Development Team, 155
 - The Fridge, 282–284
 - fstab file, 175
 - Full virtualization, 238
 - Functions, plotting, 140–141
 - Funding, donations to Ubuntu Foundation, 31
- ## G
- Games
 - educational, 137
 - hangman, 139
 - KHangman, 139
 - Simon Says, 143–144
 - Steam, 134–137
 - GCompris, 144
 - Gear menu, 75–76
 - Geographic location, specifying, 50, 55
 - Geometrical constructions, 139–140
 - GIMP (GNU Image Manipulation Program), 118–124. *See also* Inkscape.
 - Globe of the world, 142–143
 - GNOME. *See* Ubuntu GNOME.
 - GNU (GNU’s Not UNIX), 4–5
 - Goals of Ubuntu
 - access for disabled users, 20
 - code of conduct, 20–22. *See also* CoC (Code of Conduct).
 - easy translation, 19–20
 - free software, 18–19

- open source, 19
- philosophical, 17–20
- technical, 22–24
- Google+, 285
- Governance. *See* Ubuntu community, governance.
- Graphics packages
 - GIMP (GNU Image Manipulation Program), 118–124
 - Inkscape, 124–129
 - Tux Paint, 144
- grep command, 194. *See also* zgrep command.
- Ground Control, 272
- Groups
 - adding and deleting, 196
 - changing, 72
 - ownership, changing, 196
- Guadalinux, 260
- Guest Sessions, 75
- Guided partitions, 57–58
- Guided—Use Entire Disk . . . options, 57–58

H

- HAL (hardware abstraction layer), 194
- Hangman game, 139
- Hard disks. *See* LVM (Logical Volume Manager).
- Hardware
 - detecting, 55–56
 - emulating, 238
 - listing, 194
- HBD (Here Be Dragons), founding of, 9
- head command, 195
- Helmke, Matthew, 201
- Help. *See also* Technical support.
 - from the command line, 196–197
 - man pages, 190–191, 196–197
 - Ubuntu Help option, 75
- help command, 196–197
- Hill, Benjamin Mako, 200
- History of Ubuntu, 2–3. *See also* Shuttleworth, Mark.

- /home folder, 173
- Home folder contents, 70–71
- Home Folder icon, 68
- /home partition, 207
- Home theater. *See* Mythbuntu.
- Hostname, setting, 52, 56
- Hot swapping RAID devices, 212
- HUD (Heads Up Display), 149–153, 156

I

- i386 support, 37
- IBM
 - running DB2 database under Ubuntu, 28
 - virtualization, 237–238
- Ideas and feedback
 - community opportunities, 300
 - about Ubuntu Server, 236
- ifconfig command, 194
- Illustrator equivalent. *See* Inkscape.
- Image loading plug-ins, 163, 165
- InDesign equivalent. *See* Scribus.
- Indicator applet, 83
- Inkscape, 124–129. *See also* GIMP (GNU Image Manipulation Program).
- Installation DVDs. *See also* .iso files.
 - burning, 39–40
 - buying, 39
 - desktop, 36. *See also* Installing Ubuntu from desktop DVD.
 - downloading, 37, 39
 - Minimal CDs, 36. *See also* Installing Ubuntu from Minimal CD.
- Installing. *See also* Configuring.
 - Compiz Config Settings Manager, 159
 - Ubuntu Server, 206–207. *See also* LVM (Logical Volume Manager).
- Installing packages
 - manually, 221–222
 - with Synaptic, 116
- Installing software from
 - PPAs, 181–182
 - source code, 183–184

- Installing Ubuntu
 - bootable USB sticks, creating, 41–42
 - computer types supported, 36
 - as a trial version, 42
- Installing Ubuntu from desktop DVD
 - allocating drive space, 45–50
 - BIOS configuration problems, 42
 - dual-booting, 46
 - DVDs for. *See* Installation DVDs.
 - geographic location, specifying, 50
 - hostname, setting, 52
 - migrating from previous version, 43–44
 - partitioning the hard disk, 45–50
 - passwords, creating, 53
 - preparation for, 44–45
 - user accounts, creating, 51–53
- Installing Ubuntu from Minimal CD
 - geographic location, specifying, 55
 - getting started, 54–55
 - hardware detection, 55–56
 - hostname, setting, 56
 - installing a server, 55
 - partitioning the hard disk, 57–60
 - passwords, creating, 53
 - time zone, setting, 56–57
 - user accounts, creating, 56–57
- Internet, browsing. *See* Firefox.
- iPods, 99
- iptables command, 235
- IRC (Internet Relay Chat), 278–279
- IRC Council, 297
- Isle of Man, 27
- .iso files, 39–40. *See also* Installation DVDs.
- iwconfig command, 194

- J**
- Juju, 240–243

- K**
- Kalzium, 137–138
- Kanagram, 139
- KBruch, 139
- KDE desktop, 37, 248–249. *See also* Kubuntu.
- Kernel, definition, 5
- Keyboard shortcuts, 156, 176–179. *See also specific keys.*
- Keyboards, configuring, 51
- KHangman, 139
- Kig, 139–140
- KmPlot, 140–141
- KTouch, 142
- KTurtle, 142
- Kubuntu, 37, 248–249. *See also* KDE desktop.
- Kubuntu Council, 248
- KVM, 238

- L**
- l10n (localization), 263–265. *See also* Translation and localization.
- “Label” setting, 60
- Language selection. *See also* Translation and localization.
 - changing, 85–86
 - during installation, 44
 - setting as default, 86
- The Launcher
 - customizing, on Unity desktop, 155–156
 - finding applications, 65–68
 - Home Folder icon, 68
 - keyboard shortcuts, 177
 - running applications, 65–68
 - Trash icon, 68
 - Ubuntu Software Center icon, 68
 - Unity desktop, customizing, 155–156
- Launcher tab, 155–156
- Launchpad
 - Answers program, 30, 269–270
 - Blueprint Tracker, 30, 267–268
 - Bugs program, 29, 265–267
 - Canonical, Ltd., support and development, 29
 - Code program, 30
 - components of, 29–30. *See also specific components.*

distribution management, 30, 263
 feature tracking, 267–268
 overview, 261–263, 270
 Rosetta program, 29, 263–265
 Soyuz program, 30, 263
 specifications, writing and tracking, 30,
 267–268
 support and development, 29–30
 translation and localization, 29,
 263–265
 Lenses, 66–68, 165–166
 less command, 195. *See also* zless
 command.
 /lib folder, 173
 Libraries, Synaptic, 115
 LibreOffice, 80–83
 Lightweight X11 Desktop Environment
 (LXDE), 251
 Linux
 history of, 5
 technical definition, 5
 Linux Documentation Project, 201, 218.
 See also Books and publications;
 Documentation.
 Linux-VServer projects, 238
 LIRC (Linux Infrared Control), 102
 Listing packages, 221
 Live bookmarks, 79
 Lock option, 76
 Locking displays (monitors), 76
 LoCo Council, 297
 LoCos (local community teams),
 291–292
 Log files. *See* System log files.
 Log Out option, 76
 Logging out, 76
 Logo programming language, 142
 Logs, separating from spools, 207
 ls command, 179–180, 187–188, 192
 ls_release -a command, 193
 lshal command, 194
 lspci command, 194
 lsusb command, 194
 LTS (long-term support), 3

Lubuntu, 251–252
 LVM (Logical Volume Manager)
 fault tolerance, 216
 LVs (logical volumes), 213–214
 overview, 212–214
 PEs (physical extents), 214
 PVs (physical volumes), 213–214
 setting up, 214–216
 setting up during installation, 47
 LVs (logical volumes), 213–214
 LXDE (Lightweight X11 Desktop
 Environment), 251

M

MAAS (Metal As A Service), 240–243
 Macromedia Freehand equivalent. *See*
 Inkscape.
 Mailing lists, 276–278
 Mailman program, 276–277
 Main repositories, 218
 Malone. *See* Launchpad, Bugs program.
 man command, 190–191, 196–197
 man intro command, 197
 man man command, 197
 Manual option, 58–60
 Manual partitioning, 48–50, 58–60
 Marble, 142–143
 Master package archive, 218–219
 Masters of the Universe (MOTUs),
 292–293
 Math programs
 factorization, 139
 flash cards, 143
 fractions, 139
 functions, plotting, 140–141
 KBruch, 139
 KmPlot, 140–141
 Parley, 143
 plotting functions, 140–141
 Mauelshagen, Heinz, 213
 /media folder, 173
 Members of the Ubuntu project, 298–299
 Membership Approval Board, 297
 Memory, displaying, 193

Metal As A Service (MAAS), 240–243
 Migrating from previous version, 43–44
 Minimal CDs, 36
 Minimizing/maximizing applications, 69
`mkdir` command, 192
`/mnt` folder, 173
 Monitors. *See* Displays (monitors).
 MOTUs (Masters of the Universe),
 292–293
 Mount options, security, 231–232
 “Mount options” setting, 60
 “Mount point” setting, 60
 Mount points for Windows partitions,
 174–175
 Mounting/unmounting devices, folder
 for, 173
 Movie Player program, 100–101
 Multimedia. *See also* specific media.
 home theater. *See* Mythbuntu.
 installing codecs, 96–98
 Ogg Theora, 97
 Ogg Vorbis, 97
 production tools. *See* Ubuntu Studio.
 Multiverse repositories, 219
 Multiverse repository, 94
 Music. *See also* Audio; Multimedia.
 iPods, 99
 playing CDs, 100
 Rhythmbox Music Player, 98–99
 ripping CDs, 100
 Music folder, 70
`mv` command, 192
 Mythbuntu, 254–255
 MythTV, 254–255

N

nano command, 195
 nano text editor, 195
 Network cards, listing, 194
 Network interface information, display-
 ing, 194
 Network Manager, 74–75
 Network Neighborhood equivalent, 71
 Network Places equivalent, 71

Network security, 234–235
 New Printer wizard, 87–89
`noatime` option, 232
`nodev` option, 231
`noexec` option, 232
`nosuid` option, 231
 Notification area, 73–76

O

Office suite. *See* LibreOffice.
The Official Ubuntu Server Book, 200, 250
 Ogg Theora, 97
 Ogg Vorbis, 97
 Older hardware. *See* Xubuntu.
 Online resources
 AskUbuntu.com, 284
 BIOS manual, 42
 Compiz Config Settings Manager, 165
 Firefox, 77
 The Fridge, 282–284
 IRC (Internet Relay Chat), 278–279
 Lenses, 166
 Linux commands, 201
 Linux Documentation Project, 201,
 218
 mailing lists, 276–278
 Planet Ubuntu, 79, 288
 PPAs (personal package archives), 94
 social media, 285
 Unity on other devices, 105
 Web forums, 279–280
 wikis, 281–282
 Wine, 180, 181
 Open source
 free software, 6–7
 goals of Ubuntu, 19
 Open Source Initiative, 6
 OpenShot, 134–135
 OpenVZ, 238
 Opportunities to work with Ubuntu
 community. *See* Ubuntu commu-
 nity, opportunities.
`/opt` folder, 173
 OS virtualization, 237–238

Ownership, changing
 files, 193
 groups, 196

P

Package management. *See also* MOTUs
 (Masters of the Universe); Synaptic;
 Technical Board.

APT sources, 219–220
 building from source, 226–227
 Debian packages, 220–221
 deleting, 224
 downloading, 222–225
 fetching from CD, 222–225
 file owner, listing, 228
 file provider, listing, 228–229
 listing, 221
 master archive, 218–219. *See also*
 Repositories.
 owned files, listing, 228
 searching for, 223–224
 system upgrades, 225–227
 virus protection, 221–222

Packages. *See also* PPAs (personal package
 archives); Ubuntu Software Center.
 adding/deleting, 92–93
 deleting, 116–117
 description, 115
 finding, 117–118
 getting information about, 111–113
 libraries of, 115
 overview, 115
 recommendations, 109–110
 reviews and ratings, 113

Packages, installing
 with `apt-get`, 224
 manually, 221–222
 with Synaptic, 116
 updates, 92–93

Packaging, community opportunities, 302

Panel tab, 156–157

Paravirtualization, 237–238

Parity drives, 210

Parley, 143

Partitioning disks

“Bootable flag” setting, 60
 desktop DVD, 45–50
 encryption, 58
 “Format the partition” setting, 60
 FREE SPACE line, 59
 guided partitions, 57–58
 Guided—Use Entire Disk . . . options,
 57–58
 “Label” setting, 60
 Manual option, 58–60
 manually, 48–50, 58–60
 Minimal CD, 57–60
 “Mount options” setting, 60
 “Mount point” setting, 60
 “Reserved blocks” setting, 60
 security, 207
 settings, 60
 “Typical usage” setting, 60
 Ubuntu Server, 207–208
 “Use as” setting, 60

`passwd` command, 196

Passwords

administrator privileges, 104–105
 appearing as asterisks, 65
 changing groups or user accounts, 72,
 196
 creating, 53, 56–57
 disabling, 73
 guidelines for, 56
 for user accounts, setting, 73

PCI buses and devices, listing, 194

PDF files, saving documents as, 82–83

Perens, Bruce, 6

Periodic table of elements, 137–138

Permissions, changing, 193

Personal package archives (PPAs). *See*
 PPAs (personal package archives).

PEs (physical extents), 214

Philosophical goals of Ubuntu, 17–20

Phone versions of Ubuntu, 258–259

Photographs, managing, 100

Photoshop equivalent. *See* GIMP (GNU
 Image Manipulation Program).

Physics simulator, 143
 Pictures folder, 71
 Pipelines
 creating, 188–189
 definition, 180
 Planet Ubuntu, 79, 288
 Planetarium, 141–142
 Plotting functions, 140–141
 Plug-ins, Compiz Config Settings
 Manager, 161–165
 Podcasts, 99
 PPAs (personal package archives)
 installing software from, 181–182
 online resources, 94
A Practical Guide to Linux . . ., 200–201
 Predictable release schedule, 22–23
 Presentations. *See* LibreOffice.
 Printers
 configuring, 86–90
 drivers, 88–89
 New Printer wizard, 87–89
 Printing
 remotely, 89–90
 system information, 193
 Privacy, system settings, 170
 Process information, displaying, 193
 Processes, displaying, 194
 /proc/sys folder, 173
 Programming, community opportunities, 302
 Programming tools. *See* Launchpad.
 Programs, adding/deleting, 92–93. *See also* Applications.
 ps command, 194
 Public folder, 71
 PVs (physical volumes), 213–214
 pwd command, 191
 Python programming language, 24

Q

q command, 196
 QEMU, 238
 Quality assurance, community opportunities, 301–302
 Question mark (?), wildcard, 197

R

RAID (redundant array of inexpensive disks)
 array failures, 212
 choosing a mode, 210
 data replication, 209
 degraded mode, 212
 fault tolerance, 209
 hot swapping, 212
 modes, 209–210
 overview, 208–210
 parity drives, 210
 setting up, 210–212
 spare devices, 212
 striped sets, 209
 RAID 0, 209
 RAID 1, 209
 RAID 5, 209
 RAM information, displaying, 193
 Rankin, Kyle, 200
 Raymond, Eric S., 6
 Red Hat distribution *vs.* Debian, 15
 Releases
 bug fixes, 23
 frequency, 22–23
 predictable schedule, 22–23
 support for, 23
 technical goals for, 22–23
 Remote control
 printers, 89–90
 video. *See* LIRC (Linux Infrared Control).
 Removing. *See* Deleting.
 Repositories
 APT sources, 219–220
 backports, 219
 main, 218
 multiverse, 94, 219
 official *vs.* unofficial, 115
 PPAs (personal package archives), 94
 restricted, 218
 security updates, 218–219
 universe, 94, 219
 updating software from, 94
 “Reserved blocks” setting, 60

Restricted repositories, 218
 Revision control, 270–271
 Rhythmbox Music Player, 98–99
 Ripping CDs, 100
 rm command, 192
 Rodríguez, Fabián, 300
 Root account, enabling, 218
 /root folder, 173
 Rosetta program, 29, 263–265
 “Rough consensus, running code,”
 289–290

S

SABDFL (self-appointed benevolent dictator for life), 297–298
 /sbin folder, 173
 Scopes, 165–166
 Screens. *See* Displays (monitors).
 Scribus, 129–134
 Scrolling options, Unity desktop, 159
 Search box, Compiz Config Settings Manager, 159–161
 Search engines, adding to Firefox, 78
 Search tab, 156
 Searching

- the Dash, 165–166
- files, 194
- Firefox, 78
- man files, 197
- for packages, 223–224
- system log files, 234
- Unity desktop, customizing, 156
- wildcards, 197

 Security

- repositories, updating, 218–219
- separating logs and spools, 207

 Security, Ubuntu Server

- filesystems, 231–232
- firewall tables, 235
- mount options, 231–232
- networks, 234–235
- overview, 229
- system log files, 233–234
- system resource limits, 232–233
- user account administration, 230–231

Security & Privacy menu, 170
 sed command, 194
 Self-appointed benevolent dictator for life (SABDFL), 297–298
 Semicolon (;), sequential command execution, 198
 Server support, commitment to, 23–24
 Servers. *See also* Ubuntu Server.

- distributions for, 37
- installing, 55

 Shifter tab, 156, 157
 Shutting down your computer, 76
 Shuttleworth, Mark. *See also* Canonical, Ltd.

- appointments to the Technical Board, 296
- Bug #1, 24–26
- certificate authority, founding of, 8
- civilian cosmonaut, 8
- CoC (Code of Conduct), 21–22
- on community governance, 289
- HBD (Here Be Dragons), founding of, 9
- history of Ubuntu, 7–9
- naming Ubuntu, 10–11
- SABDFL (self-appointed benevolent dictator for life), 297–298
- self-appointed benevolent dictator for life, 297
- Thawte, founding of, 8
- TSF (The Shuttleworth Foundation), founding of, 8–9
- Ubuntu Foundation, founding of, 30–31

 The Shuttleworth Foundation (TSF), founding of, 8–9
 Silber, Jane, 27
 Simon Says game, 143–144
 Slackware, 14
 SLS (Softlanding Linux System), 14
 Sobell, Mark G., 200
 Social media, 285
 Software center. *See* Ubuntu Software Center.
 Software development tools. *See* Launchpad.

- Sound cards, listing, 194
 - Source code
 - building packages from, 226–227
 - installing software from, 183–184
 - Soyuz program, 30, 263
 - Specifications, writing and tracking. *See* Blueprint Tracker.
 - Spools, separating from logs, 207
 - Spreadsheets. *See* LibreOffice.
 - Stallman, Richard M.
 - GNU (GNU's Not UNIX), 4–5
 - Linux, 5
 - Steam, 134–137
 - Stellarium, 141–142
 - Step, 143
 - Stream EDitor, 194
 - Streaming video, 100–101
 - Striped RAID sets, 209
 - sudo command, 190
 - Super key, 176
 - Superusers
 - running Terminal commands, 189–190
 - software folder, 173
 - Suspend option, 76
 - Suspending a session, 76
 - Swap usage information, displaying, 193
 - Switching
 - applications, 68
 - keyboard shortcuts, 177
 - user accounts, 75
 - Synaptic
 - deleting packages, 116–117
 - finding packages, 117–118
 - installing packages, 116
 - libraries, 115
 - name derivation, 116
 - System information
 - displaying, 193
 - printing, 193
 - System log files
 - list of, 234
 - overview, 233
 - reviewing, 234
 - searching, 234
 - utilities for, 234
 - System resource limits, 232–233
 - System section, 159
 - System settings. *See also* Compiz Config Settings Manager.
 - configuring, 75, 104–105
 - default, 170–171
 - privacy, 170
 - user, 170
 - System Settings option, 75, 168–173
 - System upgrades, packages, 225–227
- ## T
- Tablet versions of Ubuntu, 258–259
 - tail utility, 195, 234
 - Teams. *See also* Ubuntu community.
 - at Canonical, 290–291
 - local community (LoCos), 291–292
 - MOTUs (Masters of the Universe), 292–293
 - overview, 290
 - Technical Board, 295–296
 - Technical goals of Ubuntu, 22–24
 - Technical support. *See also* Help; Ubuntu community, communication venues.
 - AskUbuntu.com, 284
 - BIOS manual, 42
 - community opportunities, 300
 - The Fridge, 282–284
 - Linux Documentation Project, 201, 218
 - mailing lists, 276–278
 - Planet Ubuntu, 79, 288
 - tracking, 30, 269–270
 - Web forums, 279–280
 - wikis, 281–282
 - Templates folder, 71
 - Terminal
 - launching, 186–187
 - managing, 198–200
 - overview, 179–180
 - recommended resources, 200–201

- Terminal commands
 - running as superuser, 189–190
 - running sequentially, 198
 - stringing together, 180
 - Text editors
 - nano, 195
 - Stream EDitor, 194
 - Thawte
 - founding of, 8
 - sale to Verisign, 8
 - Thunderbird program, 83–85
 - Tilde (~), home directory indicator, 187, 192
 - Time zone, setting, 56–57
 - /tmp partition, 207
 - top command, 193
 - Torvalds, Linus, 5
 - Touch typing tutor, 142
 - Translation and localization. *See also*
 - Language selection.
 - community opportunities, 301
 - configuring, 85–86
 - goals of Ubuntu, 19–20
 - l10n (localization), 263–265
 - Launchpad, 263–265
 - Rosetta program, 29, 263–265
 - Transparency, 155
 - Trash folder, 71
 - Trash icon, 68
 - Troubleshooting BIOS configuration
 - problems, 42
 - TSF (The Shuttleworth Foundation),
 - founding of, 8–9
 - Tutu, Desmond, 11
 - Tux Paint, 144
 - Tweak Tool
 - Additional tab, 156, 158
 - Appearance section, 159
 - description, 149–150
 - illustration, 149
 - Launcher tab, 155–156
 - Panel tab, 156–157
 - Search tab, 156
 - Shifter tab, 156, 157
 - System section, 159
 - Web Apps tab, 156, 158
 - Window Manager, 156–158
 - Twitter, 285
 - “Typical usage” setting, 60
 - Typing tutor, 142
- ## U
- Ubuntu
 - development organization. *See*
 - Canonical, Ltd.
 - name origin, 10–11
 - programming language, 24
 - #ubuntu channel, 278–279
 - Ubuntu Cloud, 257–258. *See also* Cloud computing.
 - Ubuntu community, communication
 - venues. *See also* Technical support.
 - AskUbuntu.com, 284
 - developer summits, sprints, and rallies, 285–286
 - Facebook, 285
 - The Fridge, 282–284
 - Google, 285
 - IRC (Internet Relay Chat), 278–279
 - mailing lists, 276–278
 - online events, 299
 - overview, 275
 - Planet Ubuntu, 288
 - social media, 285
 - Twitter, 285
 - Ubucons, 287–288
 - Ubuntu Discourse, 284–285
 - user conferences, 287–288
 - water cooler conversations, 284–285
 - Web forums, 279–280
 - wikis, 281–282
- Ubuntu community, ease of access to, 24
- Ubuntu community, governance. *See also*
 - Teams.
 - Community Council, 293–295
 - Developer Membership Board, 297
 - dispute arbitration, 294
 - Forum Council, 296

- Ubuntu community, governance,
 - continued*
 - goals of, 289
 - IRC Council, 297
 - LoCo Council, 297
 - meetings, 295
 - Membership Approval Boards, 297
 - overview, 289–290
 - SABDFL (self-appointed benevolent dictator for life), 297–298
 - structures and processes, 295
 - Technical Board, 295–296
- Ubuntu community, opportunities
 - advocacy, 299–300
 - application developers, 291
 - bug tracking, 301–302
 - cloud community, 291
 - documentation, 300–301
 - ideas and feedback, 300
 - packaging, 302
 - programming, 302
 - quality assurance, 301–302
 - supporting others, 300
 - translation and localization, 301
 - Ubuntu developers, 291
- Ubuntu desktop. *See* Unity.
- Ubuntu Discourse, 284–285
- Ubuntu Foundation, 30–31
- Ubuntu GNOME, 256
- Ubuntu Help option, 75
- Ubuntu Kylin, 255–256
- Ubuntu members, 298–299
- Ubuntu One, 272. *See also* Cloud computing.
- Ubuntu Phone, 258–259
- Ubuntu Server
 - cloud computing, 239–243
 - description, 37–38
 - disk replication, 239
 - DRBD (Distributed Replicated Block Device), 239
 - encrypting the home directory, 216–217
 - /home partition, 207
 - installing, 206–207
 - overview, 204–206, 256–258
 - partitioning, 207–208. *See also* RAID (redundant array of inexpensive disks).
 - /tmp partition, 207
 - user feedback, 236
 - /var partition, 207
 - virtualization, 236–238
- Ubuntu Server, security
 - filesystems, 231–232
 - firewall tables, 235
 - mount options, 231–232
 - networks, 234–235
 - overview, 229
 - system log files, 233–234
 - system resource limits, 232–233
 - user account administration, 230–231
- Ubuntu Software Center. *See also* Packages; PPAs (personal package archives).
 - accounts, 108–109
 - buying software, 114–115
 - free (no cost) software, 113–114
 - installing packages, 111–113
 - launching, 108
 - overview, 90–92
 - package listings, 111–113
 - recommendations, 109–110
 - reviews and ratings, 113
 - searching, 111
 - sorting, 110–111
- Ubuntu Software Center icon, 68
- Ubuntu Studio, 253–254
- ubuntu-announce mailing list, 277
- ubuntu-devel mailing list, 277–278
- ubuntu-devel-announce mailing list, 277
- ubuntu-devel-discuss mailing list, 277
- uname -a command, 193
- Unbuntu Unleashed 2014*, 201
- Unity desktop. *See also* The Dash.
 - buttons, 69
 - calendar, 74
 - clock, 74–75
 - closing applications, 69

- files and folders, 70–71
 - finding applications, 65–68
 - Gear menu, 75–76
 - home folder contents, 70–71
 - Home Folder icon, 68
 - HUD (Heads Up Display), 149–153
 - illustrations, 66–67, 151
 - keyboard shortcuts, 176–179
 - the Launcher, 66–68
 - Lenses, 66–68, 165–166
 - Lock option, 75
 - Lock Screen option, 75
 - Log Out option, 76
 - minimizing/maximizing applications, 69
 - Network Manager, 74
 - notification area, 73–76
 - on other devices, 105
 - Restart option, 75
 - running applications, 66–68
 - Scopes, 165–166
 - screen corners, 72
 - Shut Down option, 75
 - Suspend option, 75–76
 - switching applications, 68
 - System Settings option, 75
 - About This Computer option, 75
 - Trash icon, 68
 - Ubuntu Help option, 75
 - Ubuntu Software Center icon, 68
 - usability, 72
 - user accounts, 72–75
 - user interface terms, 150
 - Unity desktop, customizing. *See also* Compiz Config Settings Manager.
 - appearance, 159
 - Appearance tool, 153–154
 - application switcher settings, 157
 - default settings, 159
 - desktop icons, 159
 - keyboard shortcuts, 156
 - the Launcher, 155–156
 - panel settings, 156–157
 - Panel tab, 156–157
 - scrolling options, 159
 - searches, 156
 - security, 159
 - transparency, 155
 - Tweak Tool, 149–150, 155–159
 - Web apps, 156, 158
 - window management, 156–158
 - Universe repository, 94, 219
 - Update Manager, 95–96
 - Updating software
 - adding/deleting programs and packages, 92–93
 - installing updates, 92–93
 - to a new Ubuntu release, 95–96
 - notification, 75
 - from outside the repositories, 93–95
 - propagating changes upstream, 15–16
 - from repositories, 95
 - reviewing updates, 93
 - Ubuntu Software Center, 90–92
 - Update Manager, 95–96
 - Usability, 72
 - USB buses and devices, listing, 194
 - USB sticks, making bootable, 41–42
 - “Use as” setting, 60
 - User accounts
 - adding and deleting, 51–53, 56–57, 72–74, 195–196
 - administration security, 230–231
 - administrator privileges, 104–105
 - configuring, 56–57
 - deleting, 196–197
 - Guest Sessions, 75
 - passwords, setting, 73
 - switching, 75
 - User conferences, 287–288
 - User settings, 170
 - Users logged on, displaying, 196
 - /usr folder, 173
 - Utility plug-ins, 163–164
- V**
- /var folder, 173
 - /var partition, 207

Verisign, purchase of Thawte, 8
 Version, choosing for installation, 37–38
 Version control, tools for. *See* Bazaar.
 Version information, printing, 193
 Versions of Ubuntu. *See* Distributions;
 Editions; Flavors.
 Vertical bar (|), pipe symbol, 180, 189
 Video. *See also* Multimedia.
 codecs required, 100–102
 drivers, 102
 DVDs, 101–102
 editing, 134
 Movie Player program, 100–101
 remote control, 102
 streaming, 100–101
 Videos folder, 71
 VirtualBox, 238
 Virtualization, 236–238
 Virus protection, 221–222
 VMware, 236
 Volkerding, Patrick, 14

W

Warthogs, 2, 9–10
 Warty Warthog, 2
 Web Apps tab, 156, 158
 Web browsing. *See* Firefox.
 Web forums, 279–280
 who command, 196
 Wikis, 281–282

Wildcards, 197–198
 Window management
 keyboard shortcuts, 178
 plug-ins, 163, 165
 Window Manager, 156–158
 Windows key, 176
 Windows partitions, mounting, 174–175
 Wine Windows emulator, 180–181
 Wireless network information, displaying, 194
 Word processing. *See* LibreOffice.
 Workspace management, keyboard shortcuts, 179
 World atlas, 142–143

X

Xen, 238
 Xfce window management system, 252–253
 Xubuntu, 38, 252–253

Z

zcat command, 234. *See also* cat command.
 zgrep command, 234. *See also* grep command.
 zless command, 234. *See also* less command.
 Zoning, 238
 z/VM, 238