Seventh Edition

The Official ubuntu Book

Matthew Helmke
Amber Graner

Foreword by Mark Shuttleworth, founder of ubuntu

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

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Matthew Helmke
Amber Graner

With Kyle Rankin, Benjamin Mako Hill, and Jono Bacon

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

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Contents at a Glance

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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

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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 *extra*ordinary 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 codenames 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 underway for nearly 30 years, in one form or another, but Ubuntu is one way in which it is suddenly becoming "visible" to the non-specialist 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

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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 risen 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 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 12.04 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 in the last year since the previous edition was released. 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 number of users and posts in the Ubuntu Forums has 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 seventh 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 userbase. 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.

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SPECIAL THANKS TO Mark Shuttleworth, Jane Silber, and Vanessa Sammut for all their efforts to get this book out into the world for both new and veteran Ubuntu users. Thanks also to Victor Ferns, director of Canonical, Ltd., for his attention to the project. Many people at Canonical, including Gill Cole, Iain Farrell, Kat Kinnie, Julian Hubbard, Ivanka Majic, Cezzaine Haigh, James Troup, and Marcus Haslam, provided immeasurable assistance in the production of this book.

We greatly appreciate the efforts of our technical reviewers, each of whom greatly contributed to the strength of the manuscript, especially Shannon Oliver, and an anonymous group of Canonical employees and engineers for this edition. Our thanks extend back to this group of reviewers and information sources for help with the previous editions: Ashley Rose, Allen Dye, Isabelle Duchatelle, Joe Barker, Alan Pope, Jorge O. Castro, 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, Carol Lallier, Linda Begley, Richard Evans, Kim Boedigheimer, Mark Taub, John Fuller, and Elizabeth Ryan.

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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.

Amber Graner is an active Ubuntu community member, whose path to Ubuntu activism started as she blogged about her transition to Ubuntu in 2009. Amber contributes to the Ubuntu News Team, Ubuntu Women Project, Ubuntu North Carolina LoCo Team, and more. She assists with many of the online Ubuntu tutorial weeks and various Ubucons. Amber resides in Western North Carolina where she works as the Associate Web Editor for Linux New Media. Her writing can be found online and in print for *Linux Pro* and *Ubuntu User* magazines. Additionally Amber is often found at Linux and open source events promoting, advocating, and encouraging participation in the Ubuntu community and with the Ubuntu project.

Kyle Rankin is a senior systems administrator; the current president of the North Bay Linux Users' Group; and author of *The Official Ubuntu Server Book*, *Knoppix Hacks*, *Knoppix Pocket Reference*, *Linux Multimedia Hacks*, and *Ubuntu Hacks*. Kyle is an award-winning columnist for *Linux Journal* and has had articles featured in *PC Magazine*, *Tech Target*, and other publications.

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 currently a fellow at the MIT Center for Future Civic Media, and a researcher and Ph.D. candidate at the MIT Sloan School of Management.

Jono Bacon is the Ubuntu community manager at Canonical, author of *The Art of Community*, founder of the annual Community Leadership Summit, founder of Severed Fifth, and cocreator of the popular LugRadio podcast.

Introduction

WELCOME to *The Official Ubuntu Book, Seventh 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 include 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—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 5—Finding and Installing Ubuntu Applications: Here you will learn about the vast contents of the Ubuntu software repositories

and how to take advantage of them. Several examples of useful software that is not installed by default are highlighted.

- Chapter 6—Customizing Ubuntu for Performance, Accessibility, and Fun: Learn how to bend Ubuntu to better fit your needs or whims.
- 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 who don't have a DVD drive), and Kubuntu and Ubuntu Server on www.ubuntu.com/download.

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CHAPTER 5

Finding and Installing Ubuntu Applications

- Using Ubuntu Software Center
- Learning Terminology and Foundations
- Using Synaptic
- Useful Software Packages to Explore
- Playing to Learn with Educational Programs
- Summary

IN ADDITION TO THOSE INSTALLED BY DEFAULT, Ubuntu offers a wealth of other applications to help you make the most of your computer. Different people use their computers in different ways, and it is for that reason that we wanted to help you discover how to enable your Ubuntu computer to do even more.

Chapter 3 includes a brief introduction to the Ubuntu Software Center as one way to install or remove software. Here we cover this and other methods as well. Work done using one tool to add or remove software is recognized by the related tools, so it is okay to mix and match which ones you use.

Additionally, we show you just a few of the thousands of additional applications that you can install on your Ubuntu system. Each section showcases one application, starting with the name of the package you need to install and what Windows/OS X equivalents might exist.

Using Ubuntu Software Center

Like other tools discussed later in this chapter, Ubuntu Software Center installs software from the online Ubuntu software repositories.

To launch Ubuntu Software Center, click the Dash Home icon in the launcher at the left of the desktop. In the search box at the top of the menu that appears, type *Ubuntu* and the search will begin automatically. Click the Ubuntu Software Center icon that appears in the box. When it is run for the first time, and occasionally afterward, it will take a few moments to initialize itself and the list of available and installed applications. Once this is complete, you will see the main screen shown in Figure 5-1.

We introduced the basics of the Ubuntu Software Center earlier in Chapter 3. Let's look at some of the other aspects now.

Ubuntu Software Center Account

Some features require an Ubuntu Software Center account, mainly those that require money or allow tracking (which will automatically reinstall

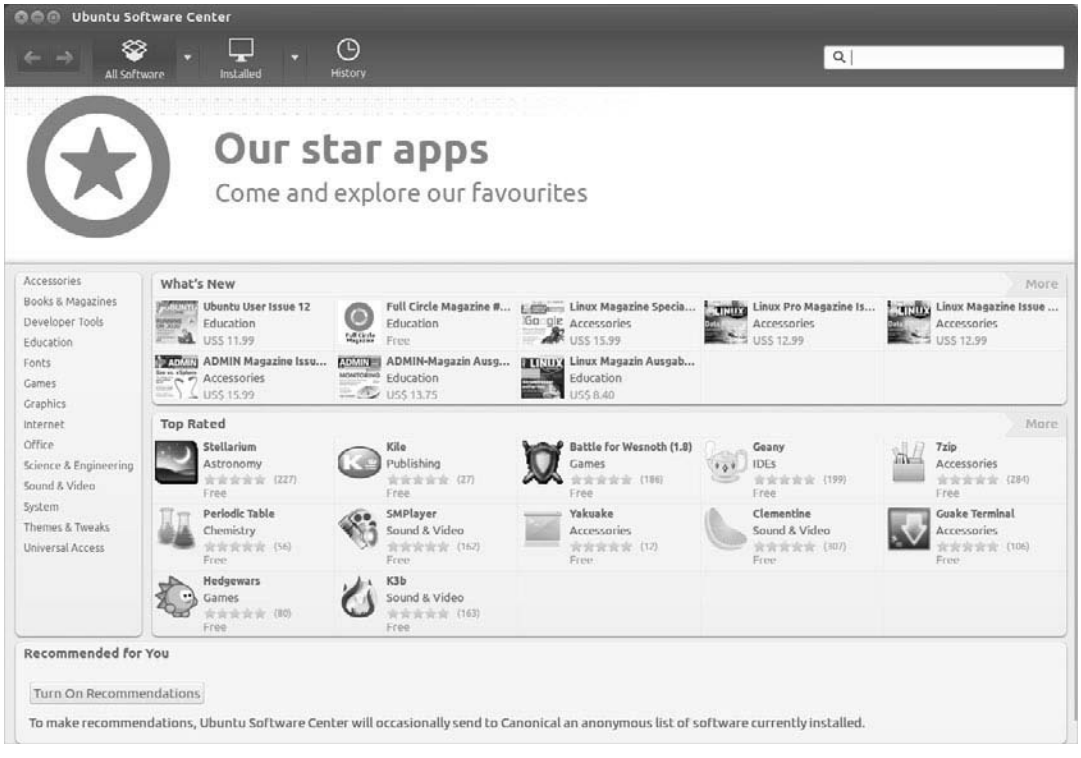

Figure 5-1 Ubuntu Software Center main screen

previous purchases). When required, it is noted in the section. This account is the same as the Ubuntu Single Sign-On account that is required for using Ubuntu One and other Ubuntu services that are available online like the Launchpad bug tracker described in Chapter 9. If a feature requires an account, a window will pop up to make signing up simple, as in Figure 5-2.

Recommendations

Click Turn On Recommendations at the bottom of the Ubuntu Software Center window (Figure 5-1) to allow the program to send nonidentifying information about the software you have already installed. This information is used to generate suggestions for you based on statistical trends. The

Figure 5-2 Create an Ubuntu Software Center account or sign in.

software you have installed is compared to the software other people have installed on their machines as recorded in an anonymous database, and suggestions are given to you. This works kind of like Amazon's "people who like *the book you are looking at now* also like . . ." feature and is quite convenient. Although the database used for this feature is anonymous, people who care deeply about their privacy and don't want to take chances are not forced to use it; this is why you must choose to turn it on rather than it being enabled by default.

You need to create an Ubuntu Software Center account to use this feature.

Sorting

Click a category name at the left of the Ubuntu Software Center window to sort the listed software by category. Some categories are further broken down into smaller subcategories, such as the Games listing shown in Figure 5-3. Note that books and magazines are now available instantly in their digital format via the center.

You can also sort packages from the top of the window using the buttons, as in Figure 5-4. Click the arrow next to All Software or Installed to limit

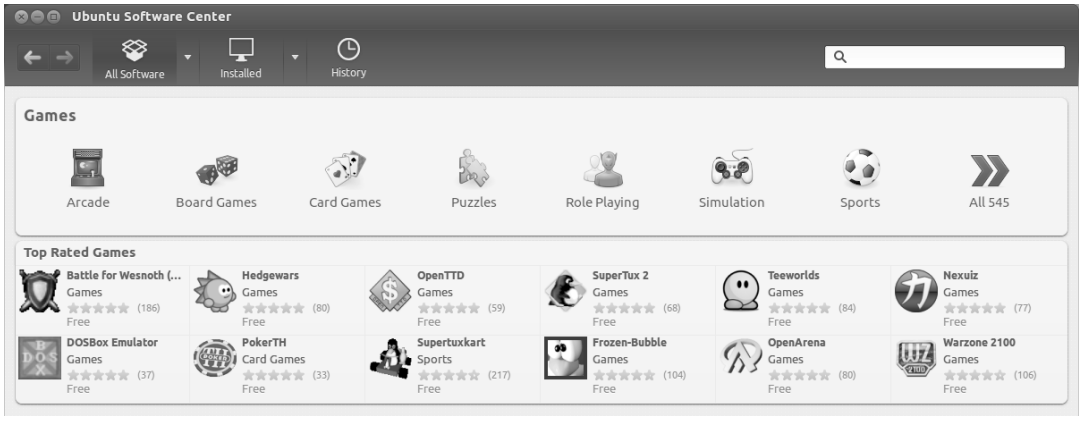

Figure 5-3 Many sorts of games are available.

Figure 5-4 More about software sources coming up

what is displayed by whether it is provided by the Ubuntu community, by Canonical partners, or available only for purchase. Click the All Software or Installed buttons to alternately show all available packages or only those currently on your machine. Click History to list all changes, installations, updates, and removals of software that have occurred on your machine.

Searching

Type search terms in the search box at the upper right to find related software. The search is a live search, meaning that the results are updated as you type; you do not have to hit Enter first, and you can change the terms and get new results instantly, as in Figure 5-5.

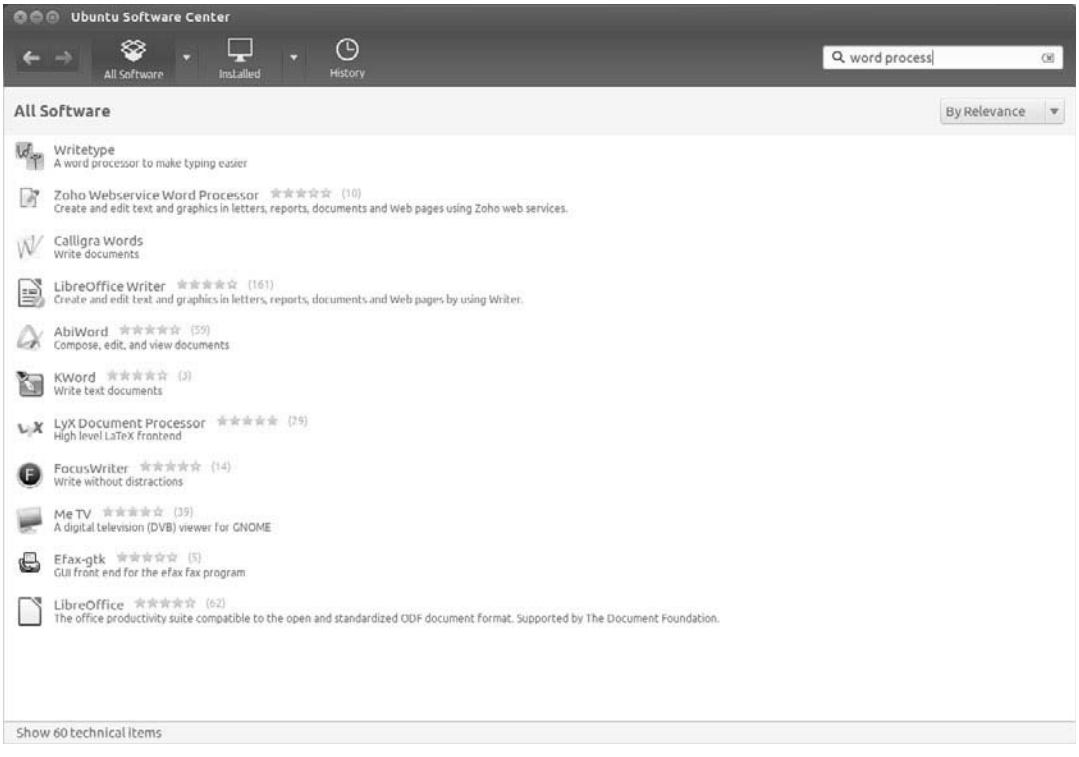

Figure 5-5 It was not necessary to finish typing "word processing" to get results.

Learning More about a Package and Installing It

Click on a title to learn more about it (Figure 5-6). Notice the line that says Free at the left (more on that in the next section) and has an Install button on the right. Click Install to install the software.

At the bottom of the information section is a link titled Developer Web Site, which opens the software developer's Web site, giving you easy access to more information to assist your decision. Further information about a package—the specific version of the package, its size and license, and more—is included below this and just above the Reviews section.

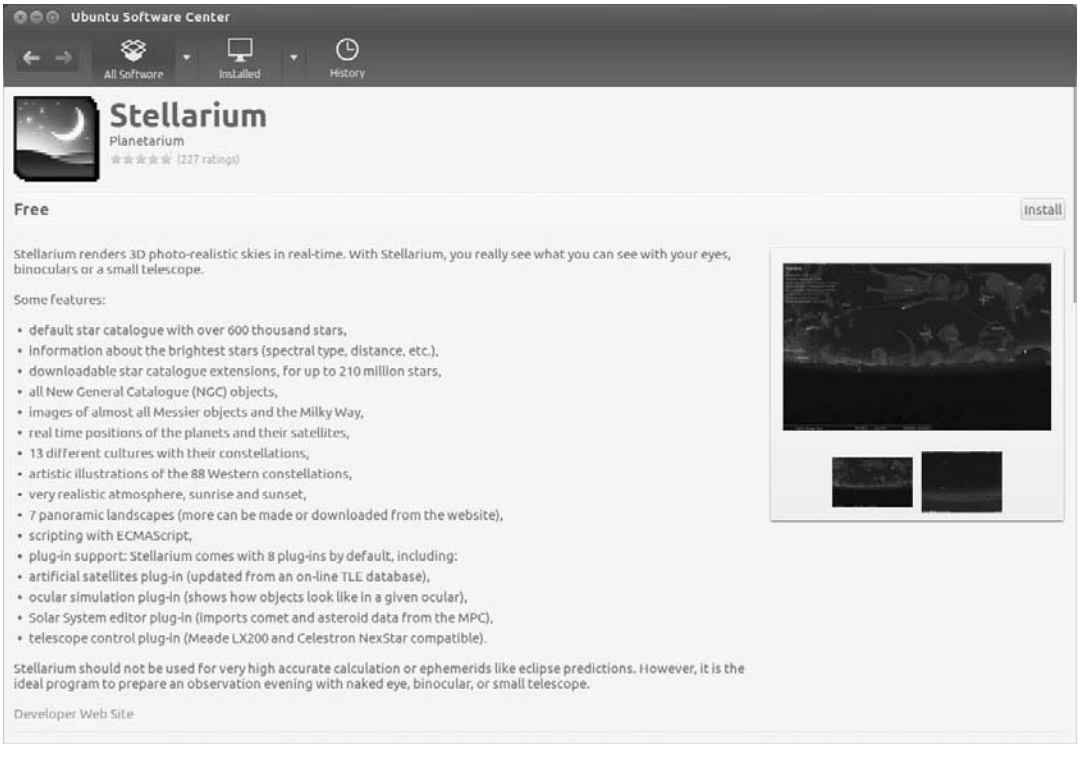

Figure 5-6 Most package listings include screenshots and valuable information.

Scroll down to read reviews and ratings, if any have been posted for the package (Figure 5-7). You can sort the reviews using the drop down boxes just above the first review.

No-Cost Software

Most of the software available from the Ubuntu Software Center is free, as in it will not cost you anything to download and install it (and is also free in the licensing sense as well). These are marked Free, like Stellarium is in Figure 5-6. You pay nothing for this software and it is completely legal for you to copy it, use it, share it, and so on.

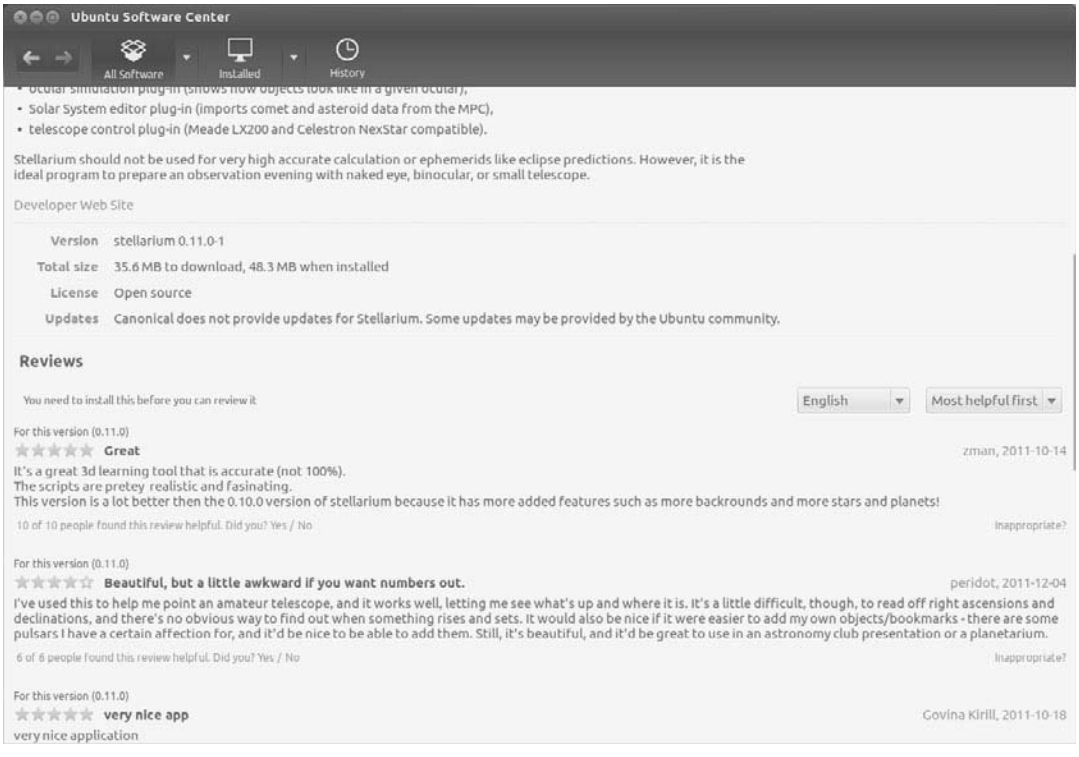

Figure 5-7 Users tend to be honest in their software reviews.

Software for Purchase

Sort using the For Purchase category (Figure 5-4) to display only the packages that require payment. Most of these are digital versions of books and magazines, although some professional software packages are also available, such as games and utilities offered by Canonical partners (Figure 5-8). These are marked differently, with a price in the spot where others are marked Free and a Buy button where others are marked Install. Also, many of these come with proprietary software licenses, so do not assume you can legally share packages you pay for.

You need to create an Ubuntu Software Center account to use this feature.

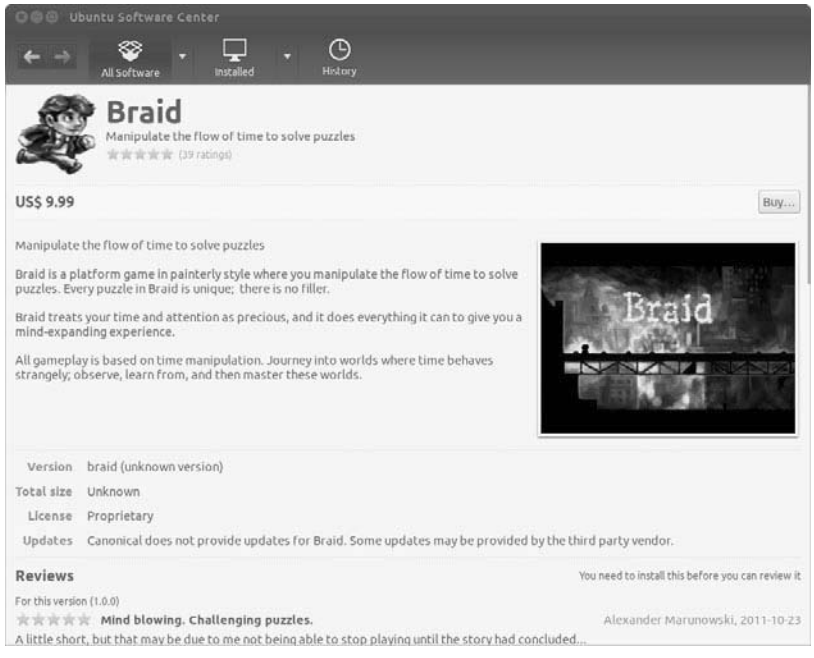

Figure 5-8 Compare this package information screen with Figure 5-6.

Learning Terminology and Foundations

You might want to know a few terms before we continue. These are words used to describe how the software gets installed on your machine as well as how the system works.

- **APT:** Advanced Package Tool, or APT, describes the entire system of online repositories and the parts that download them and install them. This is not highly visible when using graphic interface–based systems like Ubuntu Software Center but very clear when using command-line tools like apt-get, which is described in greater depth in Chapter 8. Whether you use a graphical interface or the command line to deal with Ubuntu software packages, APT is at work.
- **Repositories or software channels:** In the Ubuntu world, these giant online warehouses of software are divided between official Ubuntu repositories and unofficial ones.

- **Packages:** Applications are stored in packages that not only describe the program you want to install but also tell your package manager what the program needs to run and how to safely install and uninstall it. This makes the process of dealing with software dependencies smooth and easy for end users.
- **Dependencies:** Dependencies comprise the software that is needed as a foundation for other software to run. For example, APT is needed for Ubuntu Software Center to run because APT takes care of many of the details behind the scenes.

Using Synaptic

Synaptic is a powerful graphical tool for managing packages. It is not installed by default. While Ubuntu Software Center deals with packages that contain applications, Synaptic deals with all packages, including applications, system libraries, and other pieces of software. Changing the system on this level is more complicated but also allows more detailed control. For instance, you can choose to install a specific library if you need it for a program that is not available in a package format.

TIP **What's a Library?**
In this context, a library is a collection of software functions that may be useful to more than one program. This collection is put into a separate package to save space by not forcing multiple programs to include the same code but instead simply refer to the library when a certain function the library contains is needed. It also makes updates easier, such as when a security issue is fixed, because the programming code may be changed in one place while benefiting all programs that use the function. Libraries streamline software support to be more efficient.

Synaptic may be installed from the Ubuntu Software Center and then found by searching in the Dash for Synaptic Package Manager. Launch it and you will see the main window, as shown in Figure 5-9.

TIP **What's in a Name?**
Why the name Synaptic? *Synaptic* is a play on words based on your brain's synapses and the word APT.

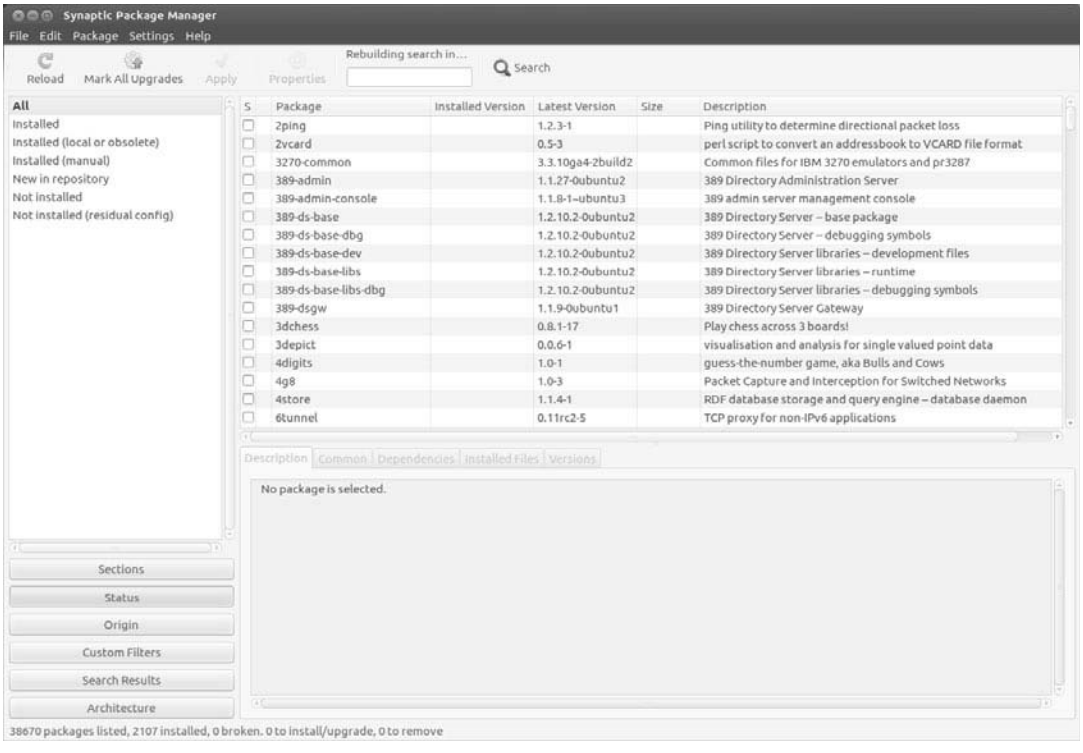

Figure 5-9 Synaptic main window

Installing a Package

As with Ubuntu Software Center, installing packages with Synaptic is fairly easy. After you find the package you wish to install, click the checkbox to the right of the name of the package and select Mark for Installation. A dialog box may pop up (Figure 5-10) showing you what dependencies need to be installed—if any—which you can accept by clicking the Mark button. After you have selected all the packages you wish to install, click Apply on the Synaptic toolbar to begin installation.

Removing a Package

To remove a package, click on the box next to the name of an installed package, and choose Mark for Removal. As with installing a package, you may be asked to mark additional packages for removal (Figure 5-11).

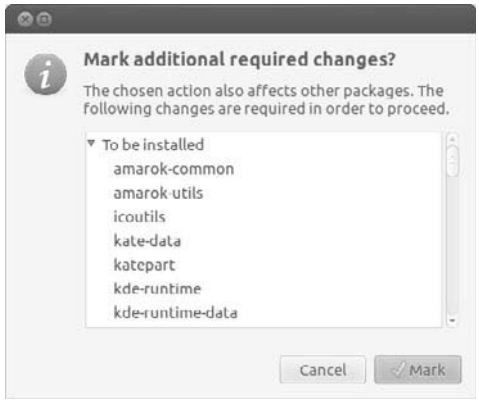

Figure 5-10 Pop-up on Mark for Installation

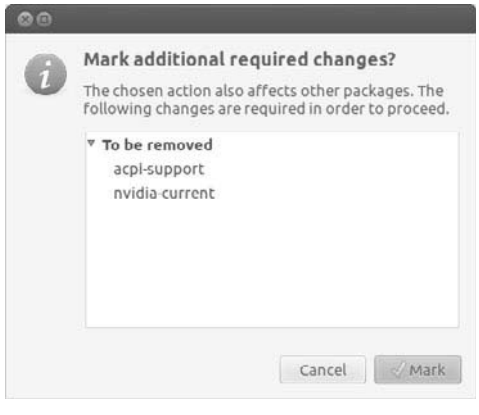

Figure 5-11 Pop-up on Mark for Removal

These are generally packages that depend on the presence of the main package you are marking for removal. If you wish to remove all the configuration files too, choose Mark for Complete Removal. After you have selected the packages you wish to remove, click Apply on the toolbar to start the process of removing the package.

Finding That Package

So you are looking for a package but don't know where to start? The fastest and easiest way is to enter a word in the Quick Search box at the top center

of the Synaptic window. You can also click the Search button on the toolbar. By default, the regular search looks at both the package name and the description, but it can also search just by name or a number of other fields.

If you know what section the package is in, select it in the left pane (you may need to go back to the Sections pane). Select the button in the lower left labeled Sections, and browse through the packages in that section.

In addition to Sections, other package listing and sorting options are worth exploring. You can access them using the buttons at the bottom left of the Synaptic window. Status lets you sort according to installation status. Origin sorts according to the repository from which the software was installed (or no repository for manually installed software; see the section later in this chapter on installing software that is not in a repository). You can even make custom filters to aid your search.

Useful Software Packages to Explore

The software discussed in this section of the chapter is not installed by default but is known to be useful and well respected. These are given here as recommendations to help those who have specific needs narrow their search for programs that meet their requirements.

Creating Graphics with GIMP and Inkscape

GIMP

Package name: gimp
Windows equivalent: Adobe Photoshop or GIMP

The GNU Image Manipulation Program, affectionately known as GIMP to its friends, is a powerful graphics package. GIMP provides a comprehensive range of functionality for creating different types of graphics. It includes tools for selecting, drawing, paths, masks, filters, effects, and more. It also includes a range of templates for different types of media such as Web banners, different paper sizes, video frames, CD covers, floppy disk labels, and even toilet paper. Yes, toilet paper.

NOTE In early versions of Ubuntu, GIMP was installed by default, but has not been for several years, mainly because it is a large package with a specific audience and room was desired for more general-use packages.

Unlike Adobe Photoshop, GIMP does not place all of its windows inside a single large window; instead, GIMP has a number of separate child windows. This can be a little confusing at first for new users—especially those used to Photoshop. To get you started, let's run through a simple session in GIMP.

An Example Start GIMP by searching for it in the Dash.

When GIMP loads, you will see a collection of different windows, as shown in Figure 5-12.

Close the Tip of the Day window, and you are left with two other windows. The one on the left in the screenshot is the main tool palette. This window

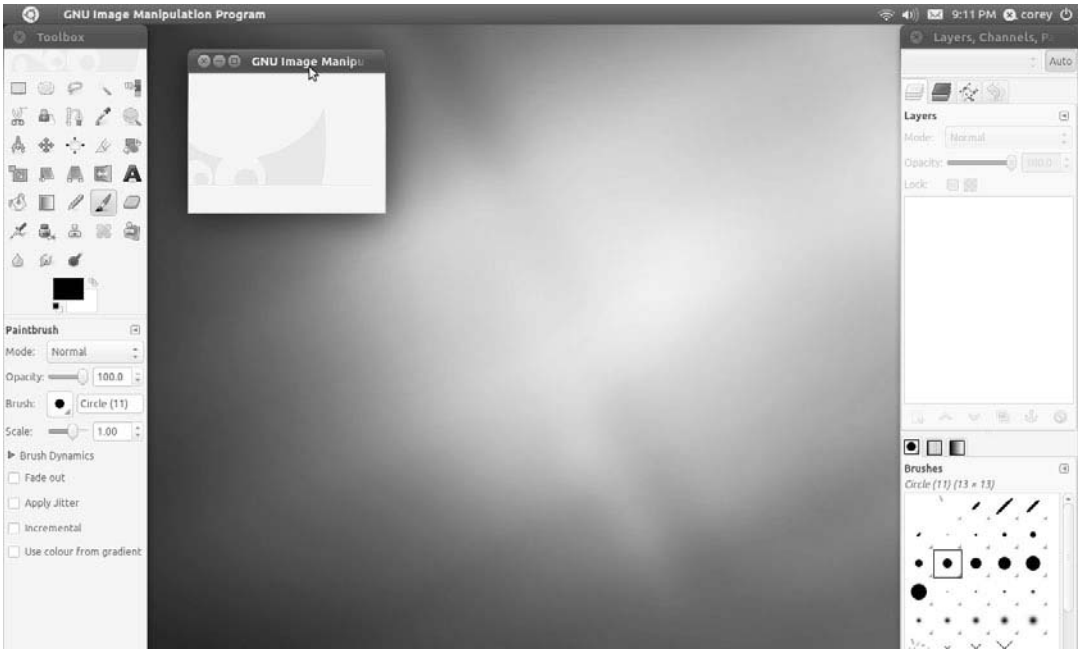

Figure 5-12 GIMP does not put everything in one window like Adobe Photoshop.

provides you with a range of different tools that can be used to create your images. The window on the right provides details of layers, brushes, and other information. GIMP provides a huge range of different windows that are used for different things, and these are just two of them.

To create a new image, click File > New. The window shown in Figure 5-13 will appear.

The easiest way to get started is to select one of the many templates. Click the Template combo box and select 640 × 480. If you click the Advanced Options expander, you can also select whether to use RGB or grayscale with the Colorspace box. You can also choose a background fill color or having a transparent background.

Click OK, and you will see your new image window (Figure 5-14).

To work on your image, use the tool palette to select which tool you want to use on the new image window. Each time you click on a tool in the palette, you see options for the tool appear at the bottom half of the palette window.

When you click the button that looks like an A in the toolbox, it selects the text tool. At the bottom of the toolbox, you will see the different options. Click the Font button that looks like an uppercase and a lowercase case A (like Aa) and select the Sans Bold font. Now click the up arrow on the Size box, and select the size as 60 px. Move your mouse over to the empty

Figure 5-13 Lots of templates are available, including one for toilet paper!

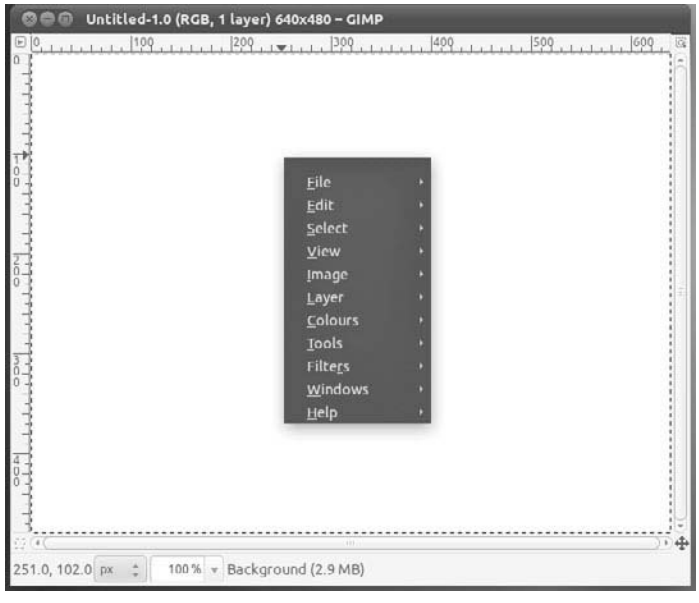

Figure 5-14 Use the right mouse button on the image to access lots of GIMP options and features.

image window, and you will see the mouse pointer change to a text carat. Click in the image, and a box pops up in which you can enter the text to add to the image. Type in *Ubuntu*. With the text entry still open, click the up arrow on the Size box so the text fills most of the window. As you can see, you can adjust the text while it is in the image. When you are happy with the formatting, click Close on the text entry box. Your image should look a little like Figure 5-15.

Now in the toolbox, click the button that has a cross with an arrow on each end. You can use this tool to move the text around. Click the black text, and move the mouse.

Let's now add an effect filter. GIMP comes with a range of different filters built in. You can access these by right-clicking the image and selecting the Filters submenu.

For our image, right-click the image and select Filters > Blur > Gaussian Blur. In the Horizontal and Vertical boxes, select 5 as the value. Click OK,

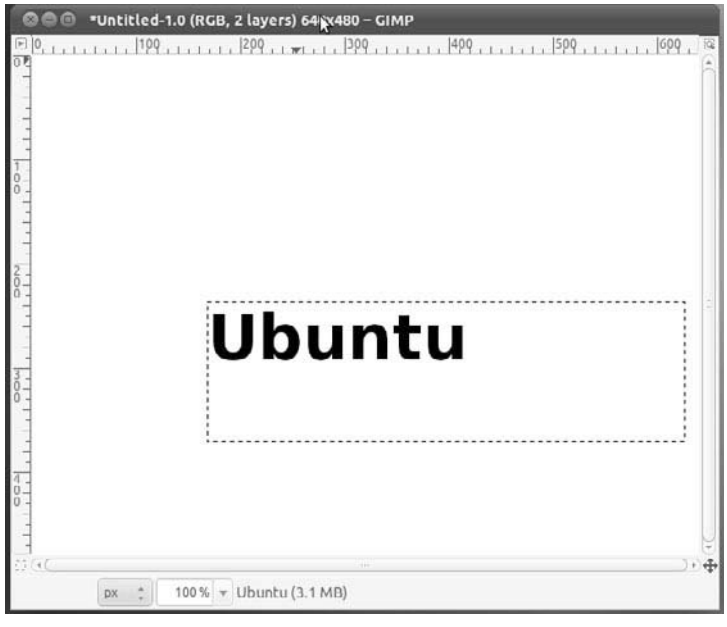

Figure 5-15 Ubuntu comes with a range of attractive fonts for use in your images.

and the blur is applied to your text. Anything in GIMP can be undone by clicking Edit > Undo or typing Ctrl-Z. Your image should now look like Figure 5-16. Now we are going to create another layer and put some text over our blurred text to create an interesting effect. If the Layers window isn't open yet, open it with Windows > Dockable Dialogues > Layers. The Layers window will now appear.

Layers are like clear plastic sheets that can be stacked on top of each other. They allow you to create some imagery on one layer and then create another layer on top with some other imagery. When combined, layers can create complex-looking images that are easily editable because you can edit layers individually. Currently, our blurred text is one layer. We can add a new layer by clicking the paper icon in the Layers dialog box. Another window appears to configure the layer. The defaults are fine (a transparent layer the size of your image), so click OK.

Now double-click the black color chip in the toolbox window and select a light color. You can do this by moving the mouse in the color range and

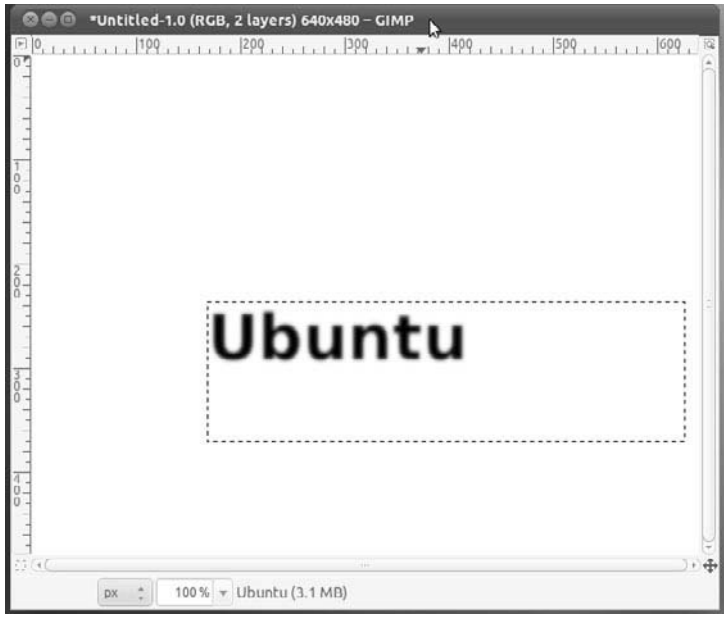

Figure 5-16 Several filters and effects are bundled with GIMP in Ubuntu.

then clicking OK when you find a color you like. Now click the text button from the palette and again add the *Ubuntu* text. When the text is added, it will be the same size as before. Now use the move tool and position it over the blurred text. Now you have the word "Ubuntu" with a healthy glow, as shown in Figure 5-17!

The final step is to crop the image to remove the unused space. Click Tools > Transform Tools > Crop, and use the mouse to draw around the Ubuntu word. You can click in the regions near the corners of the selection to adjust the selection more precisely. Click inside the selection, and the image will be cropped. To save your work, click File > Save, and enter a file-name. You can use the Select File Type expander to select from one of the many different file formats.

Further Resources A great start is GIMP's own help, which is not installed by default, but if you are on the Internet, the help viewer will download it automatically. You can also install it by searching for gimp

Figure 5-17 Combining steps as we have done can result in interesting effects such as this.

help in the Software Center. The GIMP's own Web site at www.gimp.org has all the help plus tutorials and more.

Inkscape

Package name: inkscape
Windows/OS X equivalents: Adobe Illustrator, Inkscape, Macromedia Freehand

Inkscape is also a drawing and graphic creation tool, much like GIMP, but one that has a slightly different focus. Unlike GIMP, which works with raster graphics, Inkscape is a vector drawing tool. This means rather than a grid of pixels, each assigned a color, drawings are mathematically described using angles and arbitrary units.

To get started with Inkscape, launch it by searching for it in the Dash, and very shortly you will see the default window with the basic canvas of either Letter or A4 depending on where in the world you live. At the top of the

screen, below the menus, are three sets of toolbars. The topmost contains common tools like save and zoom, the second a series of snapping options, and the third is changeable depending on the tool selected.

All the tools are listed on the left-hand side of the menu, starting with the selection tool and running down to the eyedropper or paint color selector tool. Let's get started by drawing a simple shape and coloring it in (Figure 5-18).

First, select the rectangle tool on the left, just below the zoom icon. Draw a rectangle anywhere on the screen. Now let's change the color of the fill and outside line or stroke.

NOTE With any of the drawing tools, the Shift key will cause objects to grow from the center of where you clicked and Ctrl will allow you to constrain dimensions and rotation.

Figure 5-18
Inkscape's toolbar

With your rectangle still selected, go to the Object menu and choose Fill and Stroke. Over on the right, you will see the window appear, with three different tabs: Fill, Stroke Paint, and Stroke Style. Let's fill that rectangle with a gradient from orange to white. Immediately below the Fill tab, change from Flat color to Linear Gradient (Figure 5-19).

Look back at your rectangle and see the gradient and a new line running horizontally across the rectangle. Moving either the square or the circle allows you to define where the gradient starts and stops. To change the colors, click the Edit... button. Once the Edit dialog is up, each end of the gradient is called a stop and can be edited separately (Figure 5-20).

Now that we have a rectangle, let's add some text to our image. Select the Text tool, which is right near the bottom on the left, and click anywhere. A cursor appears, and you can start typing. Type "Ubuntu," and then we are going to change the color and size of the text. Let's

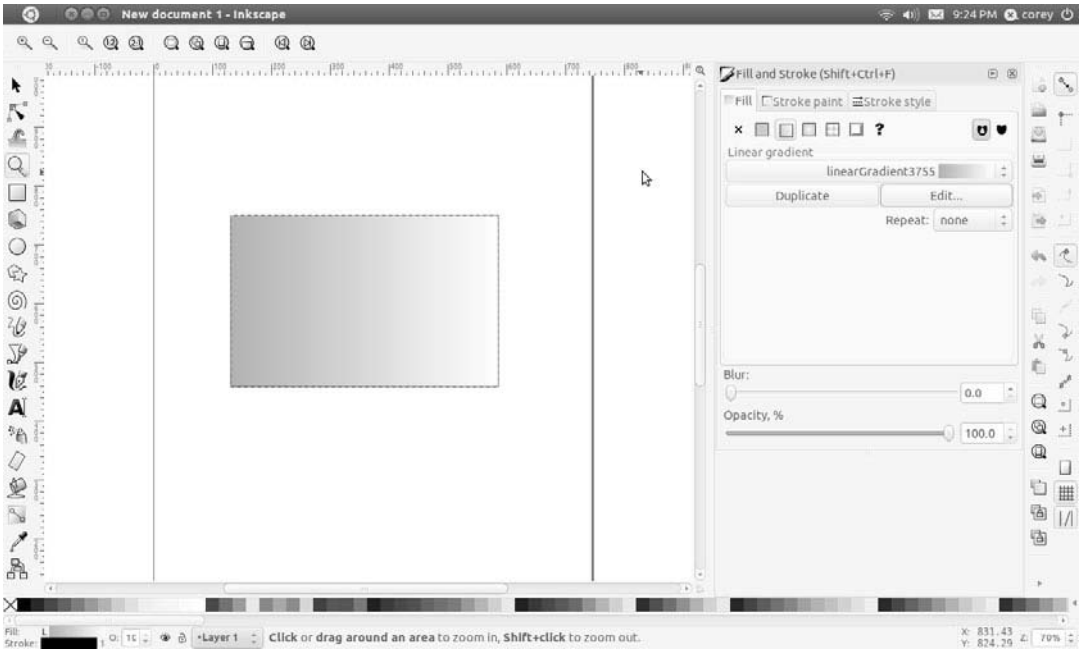

Figure 5-19 Your rectangle, now with gradient-filled goodness

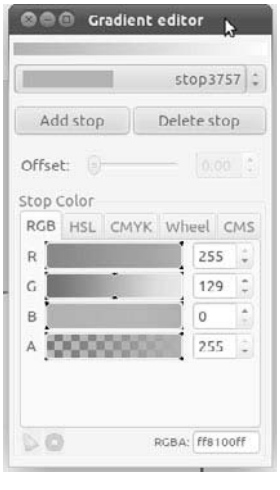

Figure 5-20 Gradient editing dialog

make the text 56 points, which can be selected in the upper right, beside the Font name.

The Fill & Stroke dialog should still be open on the right, but if it isn't, reopen it. Change the text color to Red, then choose the selection tool again. Now drag a box around both the text and the rectangle, and you should see both selected (Figure 5-21).

Now open the Alignment dialog, which is right near the bottom of the Object menu. Like the Fill and Stroke dialog, it appears on the right-hand side. To center the text in the box, see the middle two icons with a line and some blue lines on the side of them. Click both the Horizontal and Vertical alignment options, and both the text and image will be centered on the page (Figure 5-22).

Now that you have created an image, what can you do with it? By default, Inkscape saves in the SVG or Scalable Vector Graphics format, an open

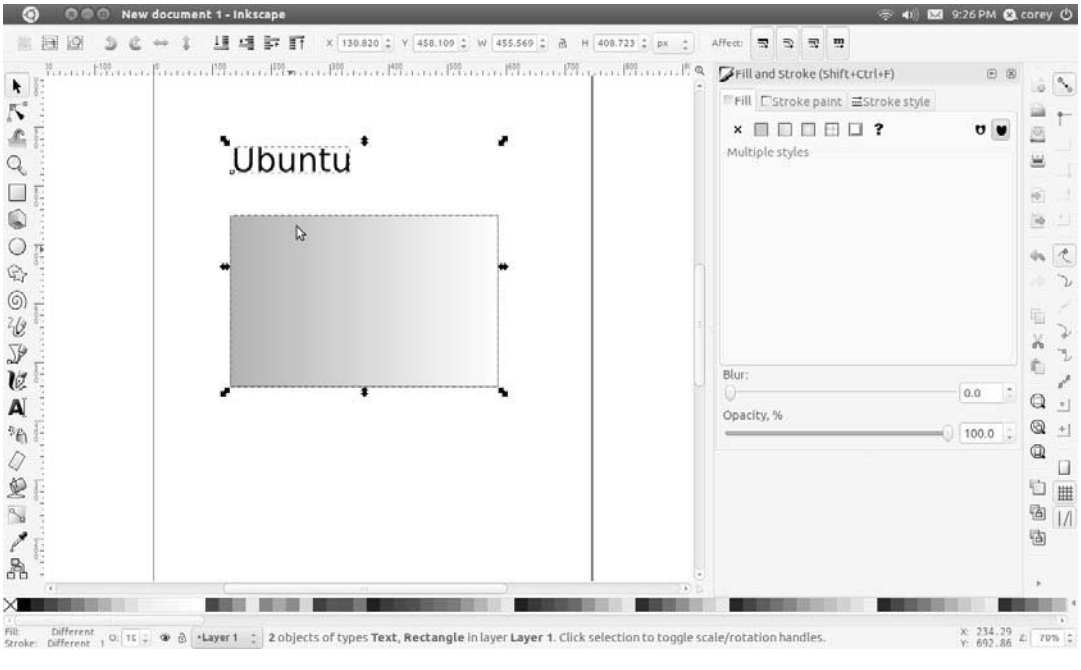

Figure 5-21 Text and rectangle selected

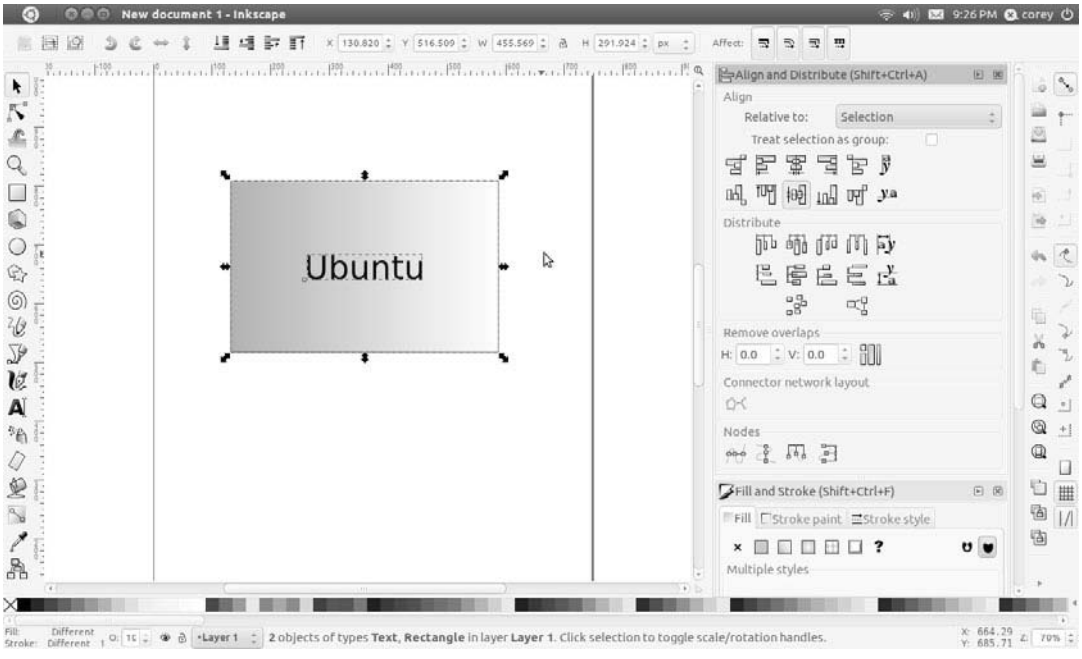

Figure 5-22 Your final drawing

standard for vector graphics. If you want to take your work elsewhere for showing on another computer or printing, Inkscape can also save into PDF format, although if you choose to do so, make certain you also save a copy as an SVG so you can edit the image later if you wish. Both SVG and PDF are options in the Save dialog. One key advantage for PDF is that it embeds fonts and graphics, meaning your image looks the same on nearly any computer you show it on. You can also export your image as a PNG for embedding in a text document or uploading to the Web, although many modern Web browsers such as Firefox and Chrome can display SVG directly, although most don't support the full SVG standard. To export, go to File > Export, which allows you to choose to export just the objects selected, the whole document, or some portion.

Hopefully, you have seen just how powerful Inkscape can be. There are many more things you can do with Inkscape, so play around with the various options, dialogs, and shapes.

Further Resources A good start is always Inkscape's own help, which is in SVG format, so you can see how the original authors created the tutorials. Inkscape's Web site at http://inkscape.org has some great tutorials and articles. If you want a book, Tav Bah's *Inkscape: Guide to Vector Drawing Program, Third Edition*, is a good place to start.

Desktop Publishing with Scribus

Package name: scribus
Windows equivalents: Adobe InDesign, Scribus

For more powerful document creation than LibreOffice can allow, Scribus is just the ticket. A desktop publishing application, Scribus is built for designing and laying out documents of various sizes and sorts. As such, it makes a few different assumptions that might catch you up if you are used to using LibreOffice to create your documents.

When you first launch Scribus, it asks you what kind of document you want to create or if you want to open an existing document. Let's create a one-page document and take Scribus for a spin (Figure 5-23).

The first thing to remember about Scribus is that as a desktop publishing program, it is not designed for the direct editing of images and text. You

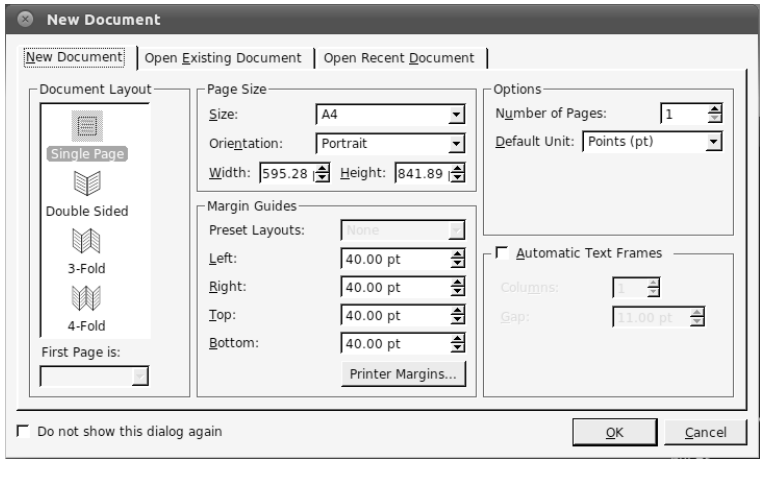

Figure 5-23 Scribus's opening dialog with lots of options

edit and create your images in applications like GIMP or Inkscape and your text in word processors like LibreOffice and then import them.

For starters, let's create a pair of text frames. For our example, we are using a document titled Welcome_to_Ubuntu.odt. To create a text frame, you need to use the Insert Text Frame tool, which can be found near the middle of the toolbar. After you draw the text frame, you need to add text to it. Right-click on the frame and choose Get Text. A dialog very similar to the Open dialog appears. Choose the Welcome_to_Ubuntu.odt file, and then select OK. You will be asked a few options; for now, accept the defaults. You should see the text appear on the screen (Figure 5-24).

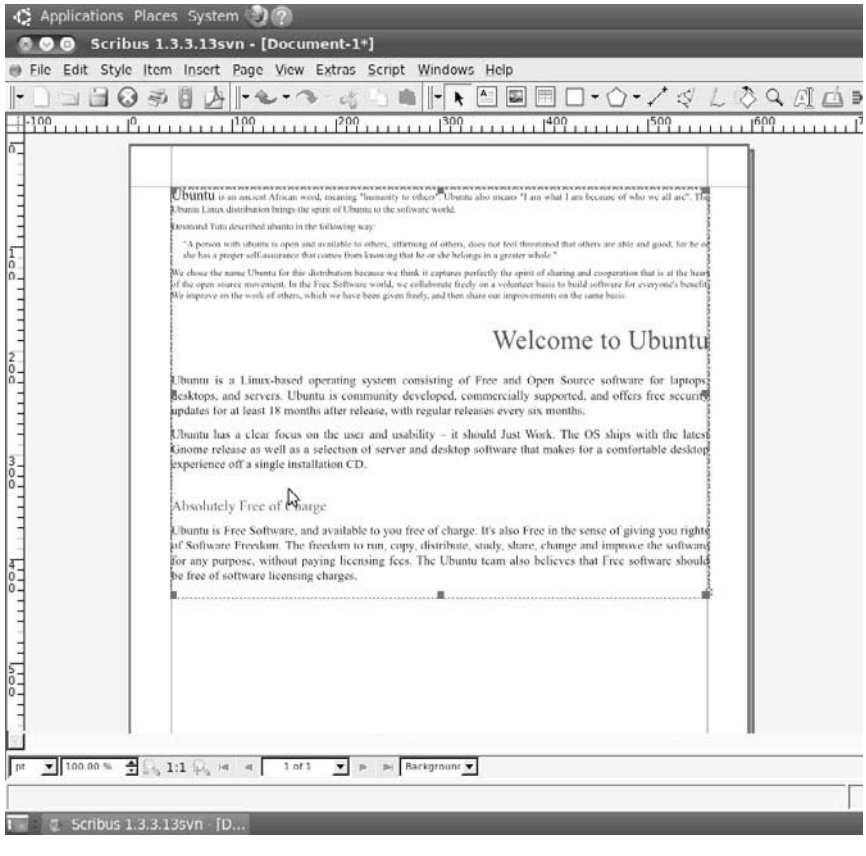

Figure 5-24 The imported text in a frame

NOTE Scribus currently cannot import Microsoft Word documents, so you need to open them in LibreOffice.org and convert them to .odt files so Scribus can import them.

But as you can see, the text overflows the frame. In order for the rest of the text to show up, you need to create another text frame and then link the two, allowing the overflow to appear in the second frame. Go up to the toolbar again, select the Insert Text Frame, and draw another frame roughly on the bottom of the page. Then select the first frame and choose the Link Text Frames icon on the toolbar, which looks like two columns with an arrow between them. After you have selected that, click on the second text box and you should see an arrow appear and, more importantly, your text will now flow from one frame to the next (Figure 5-25).

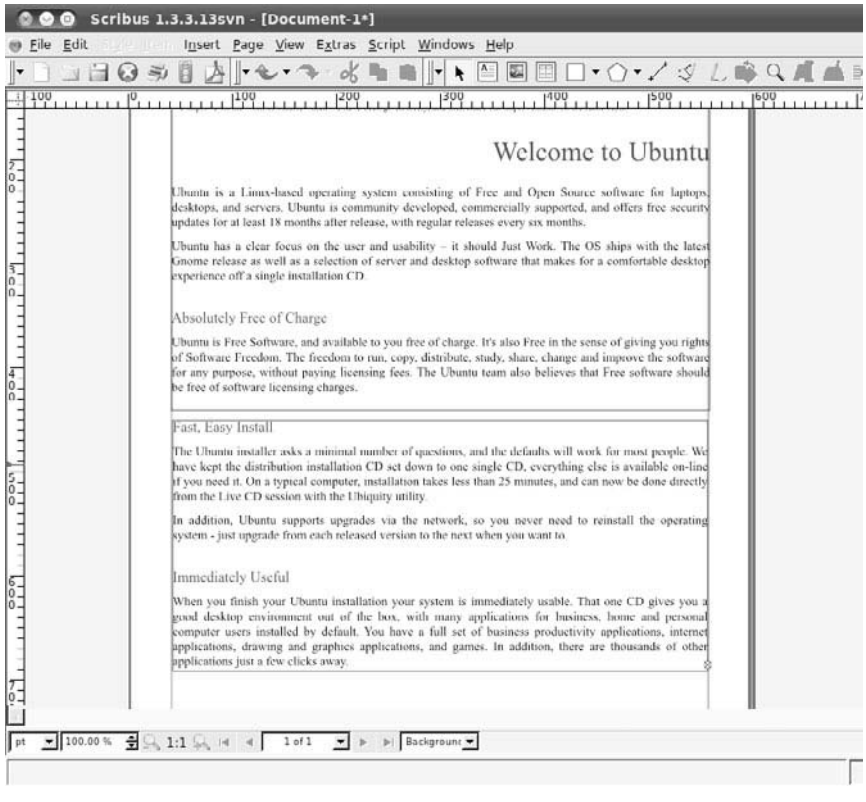

Figure 5-25 Text now flows from frame to frame.

Next let's insert an image at the bottom of the screen. As with text, you need to create an image frame, then add the image to that frame. Draw the image frame below the two text frames, and then right-click and choose Get Image. Just as with the text import, choose your file, this time an image file, in the Open dialog, and it will appear in the frame. Let's choose the Ubuntu logo, under the Logo folder in Example Content. It will appear in your image frame (Figure 5-26).

NOTE Scribus can import gif, jpg, png, xpm, psd, tiff, eps, and pdf. It cannot yet import GIMP's XCF, so you will need to save any images you create in the GIMP in one of the supported formats.

Now that you have added some text and an image, let's export to PDF so you can share your creation with the world. On the toolbar near the left-hand

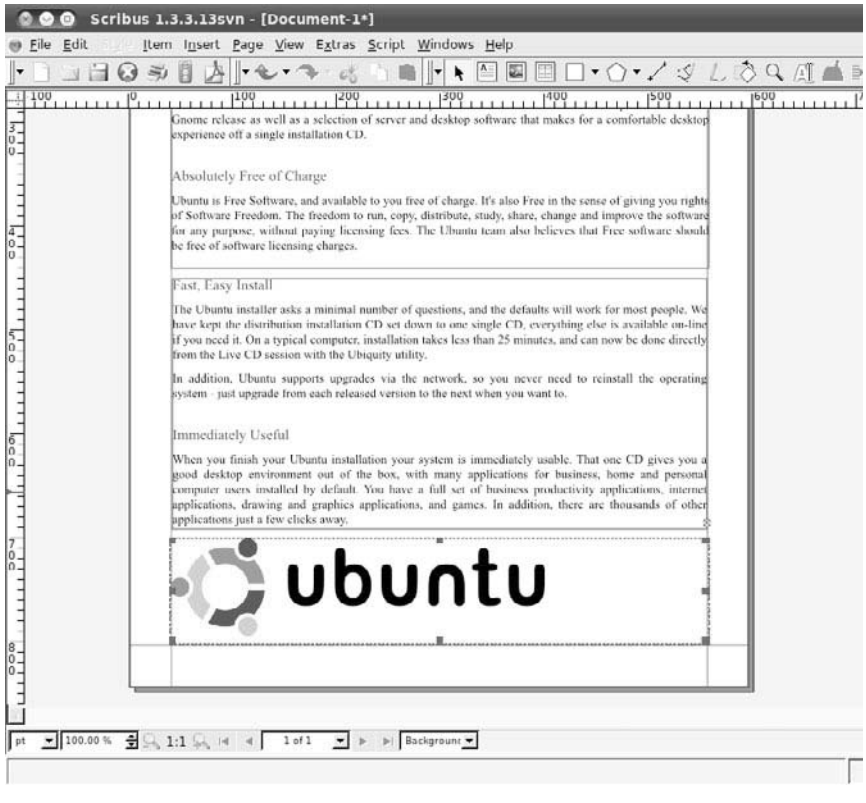

Figure 5-26 Your document with an image added

edge, you will see the PDF logo, just to the left of the traffic light icon. Select that, and don't worry about the error about the DPI of the image. Select Ignore Errors, and you will see a large dialog with many options for embedding fonts and the like. Don't worry too much about them right now, as the document you have created isn't that complicated. Choose a good name for your document, and then save it to your Documents folder. Now let's take a look at your creation in the Document Viewer. Open the File Manager and load your new document (Figure 5-27).

Now let's go back to Scribus and save the image in Scribus's own SLA format so that you can edit it later if you wish. Enter the name you chose for the PDF name and save it in the Documents folder as well. You have now created your first document in Scribus. There is a lot more to explore, so go and try things out. Just remember to save every now and again.

Figure 5-27 Your document as a PDF

Further Resources As always, Scribus's own help is a great place to start. The Scribus Web site at www.scribus.net has a help wiki, further documentation, and more. There is also an official book, which isn't out as of this writing but should be very shortly. Information about it can also be found on the Scribus Web site.

Creating Music with Jokosher

Package name: jokosher
Windows/OS X equivalents: Garage Band

Musicians abound in the Ubuntu community and the wider world, but until Jokosher came along, there wasn't an easy-to-use and simple program for creating that music. Founded by Ubuntu's own Jono Bacon and named after a kosher joke about the food that is Jono's name, Jokosher makes creating music or other audio recordings a breeze.

To get started in Jokosher, you first need to create a project to hold the various audio tracks that make up the end file. For our basic project, we are going to take two of the free culture showcase projects that ship with Ubuntu and combine them together. Click on the Create a New Project button in the welcome screen (Figure 5-28) and then on the next window, enter in Ubuntu combination into the Project Name field.

Figure 5-28 Jokosher's welcome window

NOTE Jokosher is a nondestructive editor, which means that it doesn't edit the files you add directly; rather, it stores the edits and applies them separately.

Once that is open, you will see a largely blank screen and you need to fill that with sound files. Choose Add Audio File on the upper toolbar and type in /usr/share/example-content in the location bar. Select one of two files in the Ubuntu Free Culture Showcase folder. After that is loaded, select Add Audio File again and select the other audio files. You should see something like in Figure 5-29.

Now that we have both files loaded, let's create some sweet solos so that you can only hear one of the two files. To create a cut in the audio file, simply double-click wherever you want your cut. So anywhere in the How Fast.ogg file, double-click and then drag the second piece to the left.

This will create a very abrupt break in the music, so to make it more pleasing, let's create a pair of fades on either side. While holding the shift key down, click near the end of the first part and drag to the end. Release the mouse and you should see a pair of 100% boxes. Click and drag the right-

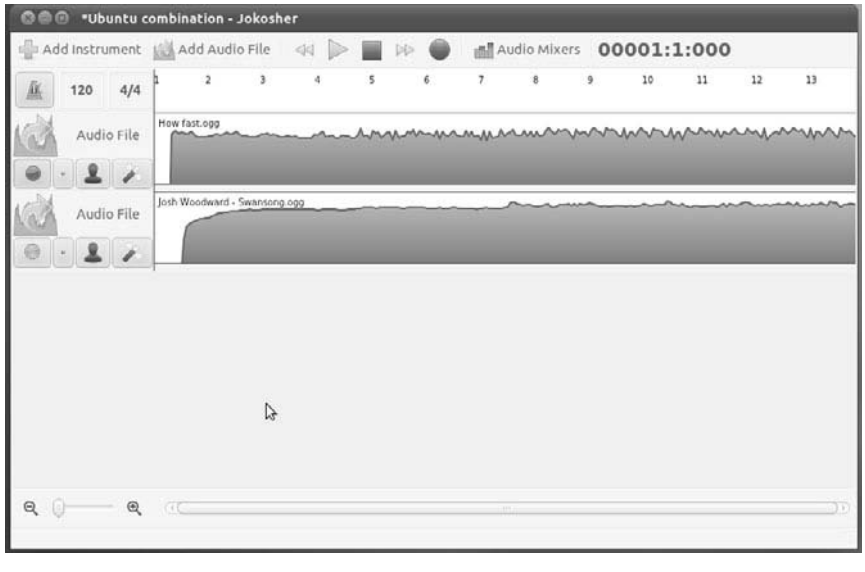

Figure 5-29 The audio files are loaded.

most one down to the bottom where it will read 0%. After you are done, you should have something like Figure 5-30.

Now let's export that file so you can share your awesome creation with your friends. Go to File > Mixdown Project and in the Mixdown Project, create a new profile by clicking the plus icon in the upper right. Name is exported and then click ok. Now you need to add an action, in this case export, so click on the lower right-most plus icon. Select Export File and then select Add Action. Now we need to configure the file name, type of audio file, and where you are going to save it to. Select Export File on the list and click the little configure icon in the lower right, it looks like a wrench and screwdriver. Name your file Ubuntu Combination and then Save it as a FLAC file. In the location bar, click the folder icon and choose your music folder. After you're done, it should look like Figure 5-31. Now click the Mixdown button and your file is created. Go to your Music folder and hit play for the fun to begin.

We have just scratched the surface with Jokosher. We didn't get into adding live instruments and recording them directly, which is where Jokosher

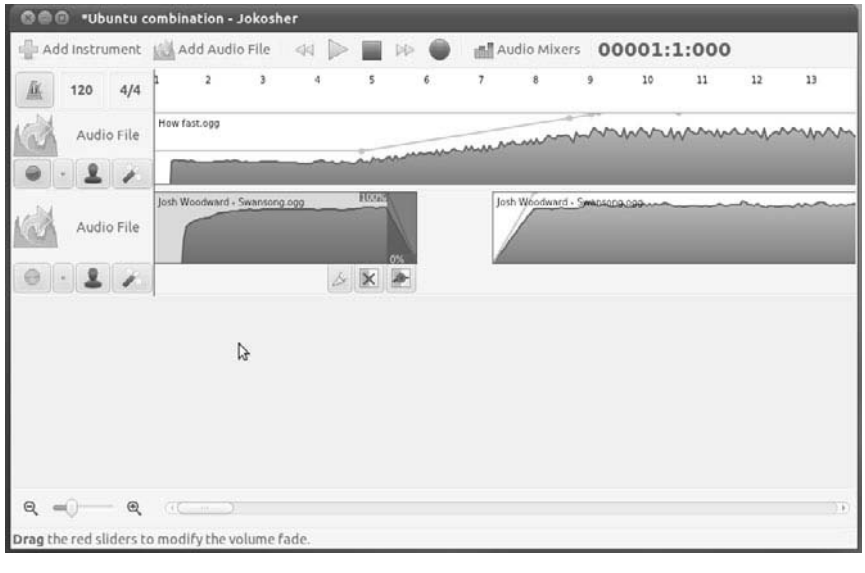

Figure 5-30 Adding some fades and cuts

Figure 5-31 Naming your file and exporting to the right place is easy.

really shines. But we did get a taste of the power of Jokosher even with a few simple audio files that come with Ubuntu. Go out and have fun.

Further Resources As always, Jokosher's own help is a great place to start. The Jokosher Web site at www.jokosher.org has a help wiki, further documentation, and more.

Playing to Learn with Educational Programs

There are many different educational applications available on Ubuntu. Let's take a look at just a few of them in the Ubuntu Software Center. Most of these and others can be found under the Education category in the center.

NOTE There is an easy way to install much of the educational software via preselected package bundles aimed at different age groups, be it preschool, primary, secondary, or tertiary. To install the bundles, install the ubuntu-edu-preschool, -primary, -secondary, or -tertiary package.

Kalzium

Kalzium presents the pinnacle of periodic table exploration for users of any ages. In its simplest form, it provides a quick and easy reference to the

periodic table. Kalzium includes 105 of the naturally occurring elements, many of which are accompanied by sample pictures. If the user hovers the mouse pointer over an element symbol in the periodic table, a balloon appears showing the selected element's name, atomic number, and mass (Figure 5-32).

For more advanced users, Kalzium provides a fascinating way to explore the periodic table. Using the left-hand panel, users have access to the timeline, boiling point, and melting point sliders. When users move these sliders, the elements on the periodic table change color according to their dates of discovery, boiling points, or melting points respectively. Users can then start to see patterns emerging in the periodic table right in front of their eyes.

As well as presenting the basic information, Kalzium provides very advanced statistics on each of the 105 elements present.

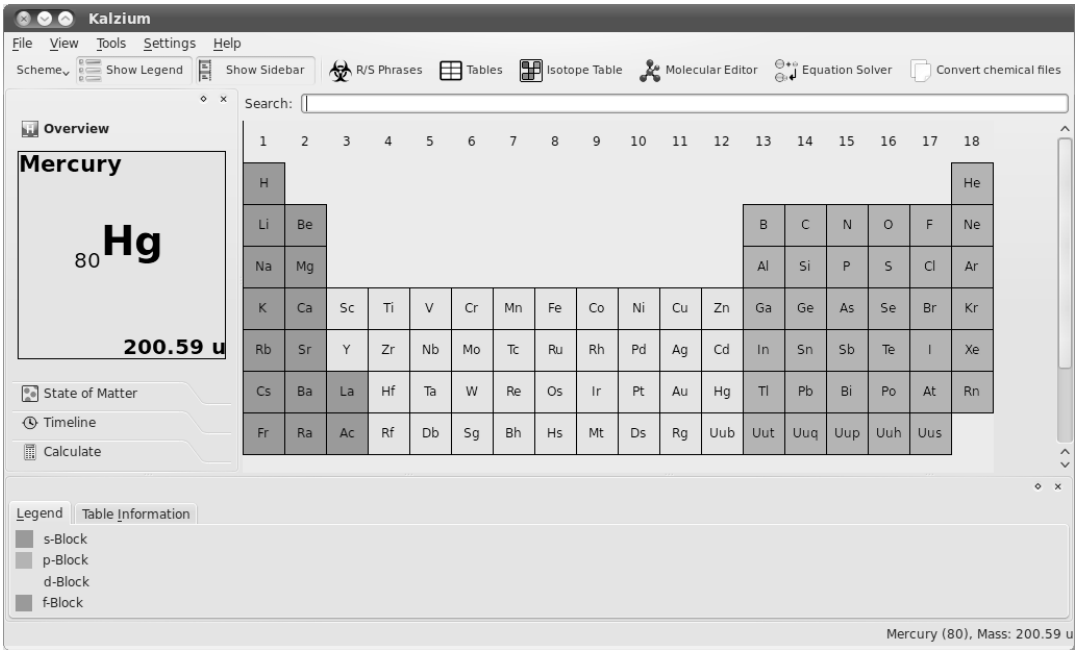

Figure 5-32 Kalzium

Kanagram

Kanagram is a simple package that messes up the letters of a word to create an anagram that children must then unscramble. The package comes with hints, a cheat feature that reveals the word, and built-in word lists, which can be extended.

KBruch

KBruch is a math program to help students practice the use of fractions. It comes with four distinct modes of play.

- **Fraction Task:** In this exercise, the user is given a fraction sum that must be solved by adding the numerator and denominator. The difficulty of the sum can be changed by the user, who has control over the number of fractions to use, the maximum size of the main denominator, and the mathematical operations to use, such as addition, subtraction, multiplication, and division.
- **Comparison:** This exercise is designed to test the user's understanding of fraction sizes by making him or her compare two given fractions.
- **Conversion:** The Conversion mode tests the user's skills at taking a given number and converting it into a fraction.
- **Factorization:** Factorization tests the user in calculating the factors of a given number. Factorization is a key skill in using and manipulating fractions.

KHangman

This modern version of a classic game helps children learn to spell and recognize letter patterns in words. KHangman shows a blank base to start; as the user chooses letters, they are entered into the word if correct or placed on the tries list if incorrect, in which case the hangman begins to grow. KHangman comes with three built-in word lists, but these can be extended easily.

Kig

For people wishing to learn about geometrical construction in mathematics, Kig is a must. It is an extremely powerful package but very simple to use. Kig allows users to create complex geometrical abstractions from over thirty simple tools, such as points, parallel and perpendicular lines, arcs, bisectors, circles, and hyperbola (Figure 5-33). When creating abstractions, Kig uses other lines and points already on the diagram to lock onto, making it easy to achieve high precision.

Kig also includes some testing tools. Once a geometrical diagram has been drawn, it is often required to prove a concept by showing that two lines are indeed parallel or perpendicular. Kig offers these tools and more in an easy-to-use manner. Just clicking on the tool prompts the user to choose the item to test against. Then, each time the user hovers over another item while moving the cursor around, Kig will pop up with a message to tell whether or not it satisfies the test case.

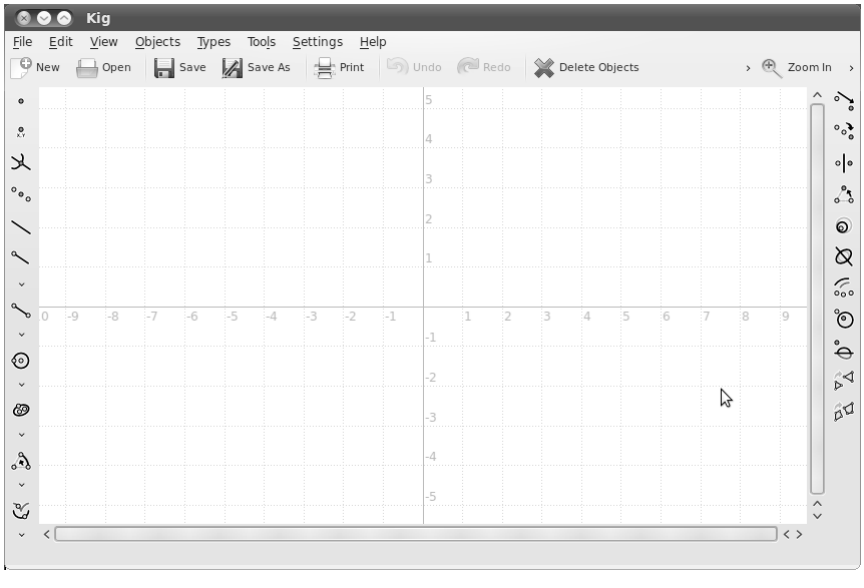

Figure 5-33 Kig

KmPlot

KmPlot is a mathematical function–graphing program for Edubuntu. The package has a powerful expression parser built in and can plot different functions simultaneously and combine their function terms to build more complex mathematical functions. KmPlot also supports functions with parameters and functions in polar coordinates. KmPlot can create graphs to a very high precision, making it excellent for teaching purposes.

Stellarium

With a default catalog of over 600,000 stars, Stellarium is a powerful planetarium designed to show you exactly what you would see with the naked eye, binoculars, or telescope.

In keeping with the multicultural nature of Ubuntu and Open Source, Stellarium can show you not only the constellations from the Greek and Roman traditions (Figure 5-34) but also those of other "sky cultures," as

Figure 5-34 Stellarium

Stellarium describes them, such as the various Chinese, Ancient Egyptian, and Polynesian traditions.

Stellarium is even capable of driving a dome projector, like you would see at a large-scale, purpose-built planetarium as well as controlling a wide variety of telescopes directly.

KTouch

In this day and age, typing is an everyday occurrence for most people. KTouch is a tutor that gives help and support to those wishing to learn the art of touch typing. With fifteen levels and automatic level progression, KTouch is a fairly advanced tutor program, offering statistics and alternative language options, too.

KTurtle

KTurtle is a Logo programming language interpreter for Edubuntu. The Logo programming language is very easy to learn, and thus young children can use it. A unique quality of Logo is that the commands or instructions can be translated, so the user can program in his or her native language. This makes Logo ideal for teaching children the basics of programming, mathematics, and geometry. One of the reasons many children warm to Logo is that the programmable icon is a small turtle, which can be moved around the screen with simple commands and can be programmed to draw objects (Figure 5-35).

By typing in commands such as `turnleft 90`, `forward 4`, children are using a language native to themselves while also learning procedural logic. KTurtle can even handle simple subroutines, so it's easy to extend the programming onward and upward.

With the introduction of KDE 4, Edubuntu includes a group of brand new educational packages. Next is a brief summary of each new application.

Marble

Marble, the desktop globe, is a virtual globe and world atlas, which can be utilized to learn more about the Earth. With the ability to pan and zoom,

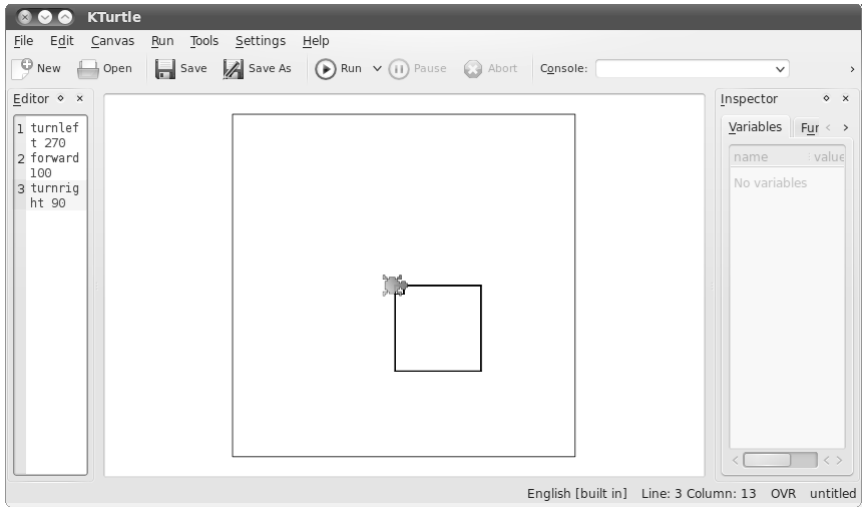

Figure 5-35 KTurtle

click on a label to open a corresponding Wikipedia article, and view the globe and maps with various projections, Marble is a welcome addition to Edubuntu's educational packages.

Parley

Parley, the digital flash card, allows you to easily remember things utilizing the spaced repetition learning method, otherwise known as flash cards. Features include different testing types, fast and easy setup, multiple languages, the ability to share and download flash cards, and much more.

Step

Step is an interactive physics simulator that allows you not only to learn but to feel how physics works. By placing bodies on the scene and adding some forces such as gravity or springs, you can simulate the law of physics, and Step will show you how your scene evolves.

Blinken

Blinken takes you back, back to the 1970s, as a digital version of the famous Simon Says game. Watch the lights, listen to the sounds, and then try to complete the sequence in order. Blinken provides hours of fun with the added benefit of learning.

Others Not on the Education Menu

Some educational applications are not located in the Education menu in the software center. Here are brief descriptions of two of them.

- **Tux Paint:** Tux Paint is a drawing package for younger children. Although geared toward a younger audience, Tux Paint still packs in some of the more advanced features of drawing packages and can draw shapes, paint with different brushes, use a stamp, and add text to the image. The Magic feature allows many of the more advanced tools normally found in full-fledged photo editors to be used, such as smudge, blur, negative, tint, and many more. There is also the facility to save as well as print.
- **GCompris:** GCompris is a set of small educational activities aimed at children between two and ten years old and is translated into over forty languages. Some of the activities are game oriented and at the same time educational. Among the activities, there are tasks to educate children in computer use, algebra, science, geography, reading, and more. More than eighty activities are available in the latest release.

Summary

In this chapter, you learned how to install and use just a few of the additional applications available for Ubuntu. Although this chapter only scratched the surface of what each application can do, you should have enough of an understanding of each to get started with them, and the Further Resources sections should help you become an expert. But beyond

what is in this chapter, the vast universe of new programs is available. Go and explore—try out something new. At worst, you will have wasted a few hours, but you might find something that will change your life.

Always remember that there is a wealth of help and documentation 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 http://help.ubuntu.com and make use of the forums, wiki, mailing lists, and IRC channels.

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