

Kubuntu Desktop Guide

Ubuntu Documentation Project <ubuntu-doc@lists.ubuntu.com>

Kubuntu Desktop Guide

by Ubuntu Documentation Project <ubuntu-doc@lists.ubuntu.com>

Copyright © 2004, 2005, 2006 Canonical Ltd. and members of the Ubuntu Documentation Project

Abstract

The Kubuntu Desktop Guide aims to explain to the reader how to configure and use the Kubuntu desktop.

Credits and License

The following Ubuntu Documentation Team authors maintain this document:

- Venkat Raghavan

The following people have also have contributed to this document:

- Brian Burger
- Naaman Campbell
- Milo Casagrande
- Matthew East
- Korky Kathman
- Francois LeBlanc
- Ken Minardo
- Robert Stoffers

The Kubuntu Desktop Guide is based on the original work of:

- Chua Wen Kiat
- Tomas Zijdemans
- Abdullah Ramazanoglu
- Christoph Haas
- Alexander Poslavsky
- Enrico Zini
- Johnathon Hornbeck
- Nick Loeve
- Kevin Muligan
- Niel Tallim
- Matt Galvin
- Sean Wheller

This document is made available under a dual license strategy that includes the GNU Free Documentation License (GFDL) and the Creative Commons ShareAlike 2.0 License (CC-BY-SA).

You are free to modify, extend, and improve the Ubuntu documentation source code under the terms of these licenses. All derivative works must be released under either or both of these licenses.

This documentation is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE AS DESCRIBED IN THE DISCLAIMER.

Copies of these licenses are available in the appendices section of this book. Online versions can be found at the following URLs:

- *GNU Free Documentation License* [<http://www.gnu.org/copyleft/fdl.html>]
- *Attribution-ShareAlike 2.0* [<http://creativecommons.org/licenses/by-sa/2.0/>]

Disclaimer

Every effort has been made to ensure that the information compiled in this publication is accurate and correct. However, this does not guarantee complete accuracy. Neither Canonical Ltd., the authors, nor translators shall be held liable for possible errors or the consequences thereof.

Some of the software and hardware descriptions cited in this publication may be registered trademarks and may thus fall under copyright restrictions and trade protection laws. In no way do the authors make claim to any such names.

THIS DOCUMENTATION IS PROVIDED BY THE AUTHORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Table of Contents

About This Guide	v
1. Conventions	vi
2. Contributing and Feedback	vii
1. Introduction	8
1. About Kubuntu	9
2. Getting Kubuntu	13
3. Getting Help	14
2. Linux Basics	15
1. Directories and File Systems	16
2. Permissions	17
3. Root And Sudo	18
4. Terminal	19
5. Text Editing	21
6. Users and Groups	22
3. Adding, Removing and Updating Applications	23
1. Introduction	24
2. Add/Remove Programs	25
3. Adept Package Manager	26
4. APT	27
5. Manual Installation	28
6. Managing Repositories	29
7. Updates	31
4. Common Tasks	32
1. Music	33
2. Video	36
3. Multimedia Codecs	38
4. Burning and Ripping CDs/DVDs	39
5. Internet	41
6. Office	46
7. Graphics & Drawing	48
8. Games	49
9. Programming	51
5. Configuring Your System	53
1. Desktop Tricks	54
2. Files	58
3. Partitions and Booting	59
4. Hardware	63
5. Networking	67
A. Creative Commons by Attribution-ShareAlike 2.0	69
B. GNU Free Documentation License	74

About This Guide

1. Conventions

The following notes will be used throughout the book:



A note presents interesting, sometimes technical, pieces of information related to the surrounding discussion.



A tip offers advice or an easier way of doing something.



A caution alerts the reader to potential problems and helps avoid them.



A warning advises the reader of a hazard that may arise in a given scenario.

Cross-reference conventions for print will be displayed as follows:

- Links to other documents or websites will look like *this* [<http://www.ubuntu.com>].



PDF, HTML, and XHTML versions of this document will use hyperlinks to handle cross-referencing.

Type conventions will be displayed as follows:

- File names or paths to directories will be shown in `monospace`.
- Commands that you type at a Terminal command prompt will be shown as:

```
command to type
```
- Options that you click, select, or choose in a user interface will be shown in `monospace type`.

Menu selections, mouse actions, and keyboard short-cuts:

- A sequence of menu selections will be displayed as follows: File → Open
- Mouse actions shall assume a right-handed mouse configuration. The terms “click” and “double-click” refer to using the left mouse button. The term “right-click” refers to using the right mouse button. The term “middle-click” refers to using the middle mouse button, pressing down on the scroll wheel, or pressing both the left and right buttons simultaneously, based on the design of your mouse.
- Keyboard shortcut combinations will be displayed as follows: **Ctrl-N**. Where the conventions for “Control”, “Shift,” and “Alternate” keys will be **Ctrl**, **Shift**, and **Alt**, respectively, and shall mean the first key is to be held down while pressing the second key.

2. Contributing and Feedback

This book is developed by the *Ubuntu Documentation Team* [<https://wiki.ubuntu.com/DocumentationTeam>]. *You* can contribute to this document by sending ideas or comments to the Ubuntu Documentation Team mailing list. Information about the team, its mailing lists, projects, etc. can be found on the *Ubuntu Documentation Team Website* [<https://wiki.ubuntu.com/DocumentationTeam>].

If you see a problem with this document, or would like to make a suggestion, you can simply file a bug report at the *Ubuntu Bugtracker* [<https://launchpad.net/products/ubuntu-doc/+bugs>]. Your help is vital to the success of our documentation!

Many thanks,

-Your Ubuntu Documentation Team

Chapter 1. Introduction

This chapter provides some background information about Kubuntu, obtaining Kubuntu and finding help with Kubuntu.

1. About Kubuntu

Thank you for your interest in Kubuntu 6.06.1 LTS - the *Dapper Drake* release.

Kubuntu is an entirely open source operating system built around the Linux kernel.

The Kubuntu community is built around the ideals enshrined in the *Ubuntu Philosophy*

[<http://www.ubuntu.com/ubuntu/philosophy>]: that software should be available free of charge, that software tools should be usable by people in their local language and despite any disabilities, and that people should have the freedom to customize and alter their software in whatever way they see fit. For those reasons:

- Kubuntu will always be free of charge, and there is no extra fee for the "enterprise edition," we make our very best work available to everyone on the same Free terms.
- Kubuntu includes the very best in translations and accessibility infrastructure that the Free Software community has to offer, to make Kubuntu usable for as many people as possible.
- Kubuntu is released regularly and predictably; a new release is made every six months. You can use the current stable release or explore the current development release. Each release is supported for at least 18 months.
- Kubuntu is entirely committed to the principles of open source software development; we encourage people to use open source software, improve it, and pass it on.

The Kubuntu community is comprised of developers, programmers, testers, tech-writers, documentation testers, translators, and most importantly, the people who use Kubuntu every day. We invite you to join this community and help make Kubuntu the operating system you, your family, your friends, and your colleagues will love to use. Help us translate Kubuntu into your language, try it on new and unusual hardware, improve the experience of other users with hints, tips, and FAQs, or help to shape the direction Kubuntu is headed by providing feedback about the software you love most.

Find out more at *the Kubuntu website* [<http://www.kubuntu.org>].

1.1. About the Name

Kubuntu is based on the Ubuntu system, but with the latest KDE packages. Kubuntu means "towards humanity" in Bemba. Kubuntu is pronounced "koo-boon-too".

Ubuntu is a South African ethical ideology focusing on people's allegiances and relations with each other. The word comes from the Zulu and Xhosa languages. Ubuntu (pronounced "oo-BOON-too") is seen as a traditional African concept, is regarded as one of the founding principles of the new republic of South Africa and is connected to the idea of an African Renaissance.

A rough translation of the principle of Ubuntu is "humanity towards others". Another translation could be: "the belief in a universal bond of sharing that connects all humanity".

A person with ubuntu is open and available to others, affirming of others, does not feel threatened that others are able and good, for he or she has a proper self-assurance

that comes from knowing that he or she belongs in a greater whole and is diminished when others are humiliated or diminished, when others are tortured or oppressed.

—Archbishop Desmond Tutu

As a platform based on GNU/Linux, the Kubuntu operating system brings the spirit of ubuntu to the software world.

1.2. Free Software

The Kubuntu project is entirely committed to the principles of open source software development; people are encouraged to use open source software, improve it, and pass it on. This means that Kubuntu is and will always be free of charge.

However, this means more than just being available at zero cost. The philosophy of Free Software is that people should be free to use software in all the ways that are "socially useful". "Free software" not only means that you shouldn't have to pay for it, it also means that you should be able to use the software in any way you wish. The code that makes up Free Software is available for anyone to download, change, fix, and use in any way. So apart from the fact that Free Software is often available without charge, this freedom also has technical advantages: when programs are developed, the hard work of others can be used and built upon. This cannot happen with non-free Software, and when programs are developed, they have to start from scratch. For this reason the development of Free Software is fast, efficient and exciting!

You can find out more about the philosophy of Free Software *here* [<http://www.gnu.org/philosophy/>].

1.3. The Difference

There are many different operating systems based on GNU/Linux: Debian, SUSE, Gentoo, RedHat, and Mandriva for example. Kubuntu is yet another contender in what is already a highly competitive world. So what makes Kubuntu different?

Based on Debian, one of the most widely acclaimed, technologically advanced, and well-supported distributions, Kubuntu aims to create a distribution that provides an up-to-date and coherent Linux system for desktop and server computing. Kubuntu includes a number of carefully selected packages from the Debian distribution and retains its powerful package management system, which allows easy installation and clean removal of programs. Unlike most distributions that ship with a large amount of software that may or may not be of use, Kubuntu's list of packages is reduced to a number of important applications of high quality.

By focusing on quality, Kubuntu produces a robust and feature-rich computing environment that is suitable for use in both home and commercial environments. The project takes the time required to focus on finer details and is able to release a version featuring the latest and greatest of today's software once every 6 months. Kubuntu is available in flavors for the i386 (386/486/Pentium(II/III/IV) and Athlon/Duron/Sempron processors), x86_64 (Athlon64, Opteron, and new 64-bit Intel processors), and PowerPC (iBook/Powerbook, G4 and G5) architectures.

1.4. Long-Term Support

Every Kubuntu release is supported for at least 18 months with security and other updates. Kubuntu 6.06.1 LTS is a special enterprise-ready release, and is supported for 3 years on the desktop, and 5 years on the server. The development process of Kubuntu 6.06.1 LTS was slightly longer than usual to concentrate on a number of areas:

- Quality Assurance
- Localisation
- Certification

As a result, it will be possible to rely on Kubuntu 6.06.1 LTS for a longer period than usual. Therefore this release of Kubuntu is referred to as "LTS" or "Long-Term Support".

1.5. The Desktop

The default desktop environment for Kubuntu is *KDE* [<http://www.kde.org/>], a leading UNIX and Linux desktop suite and development platform.

Another leading UNIX and Linux desktop is *Gnome* [<http://www.gnome.org/>]. Kubuntu does not make use of the Gnome desktop by default. However, the *Ubuntu* [<http://www.ubuntu.com>] project offers Kubuntu users a choice between these two excellent desktop environments. Thanks to the efforts of the Ubuntu team, Kubuntu users are able to install and use the Gnome desktop easily on their system. The Gnome desktop can be found in and downloaded from the main Ubuntu archive. The easiest way to get a working install of Ubuntu is **sudo apt-get install ubuntu-desktop**. This will install the different packages required and set everything up correctly.

After everything is installed, one can choose which environment to use: either KDE or Gnome.

1.6. Version and Release Numbers

The Kubuntu version numbering scheme is based on the date we release a version of the distribution. The version number comes from the year and month of the release rather than reflecting the actual revision of the software. So, our first release (Hoary Hedgehog) was in April 2005, so its version was 5.04. The second release (Breezy Badger) was in October 2005, so its version number was 5.10. This version (Dapper Drake) was released in June 2006, so its version number is 6.06.1 LTS.

1.7. Backing and Support

Kubuntu is maintained by a quickly growing community. The project is sponsored by *Canonical Ltd.* [<http://www.canonical.com>], a holding company founded by Mark Shuttleworth. Canonical employs the core Ubuntu developers and offers support and consulting services for Ubuntu.

Canonical Ltd also sponsors a number of other open source software projects, more information about which can be found on the *Canonical website* [<http://www.canonical.com>].

1.8. What is Linux?

The *Linux kernel* [<http://www.kernel.org>], pronounced "lee-nucks" is the heart of the Kubuntu operating system. A kernel is an important part of any operating system, providing the communication bridge between hardware and software.

Linux was brought to life in 1991 by a Finnish student named Linus Torvalds. At the time, it would run only on i386 systems, and was essentially an independently created clone of the UNIX kernel, intended to take advantage of the then-new i386 architecture.

Nowadays, thanks to a substantial amount of development effort by people all around the world, Linux runs on virtually every modern architecture.

The Linux kernel has gained an ideological importance as well as a technical one. There is an entire community of people who believe in the ideals of Free Software and spend their time helping to make open source technology as good as it can be.

People in this community gave rise to initiatives such as Ubuntu, standards committees that shape the development of the Internet, organizations like the Mozilla Foundation, responsible for creating Mozilla Firefox, and countless other software projects from which you've certainly benefited in the past.

The spirit of open source, commonly attributed to Linux, is influencing software developers and users everywhere to drive communities with common goals.

1.9. What is GNU?

The *GNU Project*, pronounced "guh-noo", was launched in 1984 to develop a complete UNIX-style operating system which is comprised of Free Software: the GNU system. Variants of the GNU operating system, which use the Linux kernel, are now widely used; though these systems are often referred to as "Linux", they are more accurately called GNU/Linux systems.

The GNU project is closely linked to the philosophy of free software, which is central to the projects that derive from it, such as Ubuntu. The concept of Free Software is explained at *Section 1.2, "Free Software"* [p. 10] .

2. Getting Kubuntu

There are a number of methods you may use to obtain a copy of Kubuntu, all of which are described on the Kubuntu Web site *download page* [<http://releases.ubuntu.com/kubuntu/>].

The first method is to download an ISO image from a mirror server near you and make an CD to install Kubuntu. Two types of CDs are available:

- *Desktop CD* - the desktop CD allows you to try Kubuntu without changing your computer at all, and at your option to install it permanently later. This type of CD is what most people will want to use.
- *Text-mode install CD* - the text-mode install CD allows you to perform certain specialist installations of Kubuntu. This type of CD is intended for cases such as creating pre-configured OEM systems or setting up automated deployments; it can also be used as a package source for upgrading older installations.

If you don't have a CD burner or you have limited or expensive bandwidth, we can send you pressed copies of the "Desktop CD" free of charge. You may request CDs via *Shipit* [<http://shipit.ubuntu.com>], the Ubuntu CD Distribution System.



Ordered CDs may take several weeks to leave the warehouse before being shipped, and can take several months to arrive.

Another method of obtaining Kubuntu is to join a local Linux Users Group (LUG) and ask if somebody with Kubuntu would mind making a Kubuntu CD for you. Normally, you will have to replace the CDs used for the duplication and reimburse any postage or delivery costs.

If you do not know of an LUG near you, a list can be found at *Linux Users Groups Worldwide* [<http://lugww.counter.li.org/>].

3. Getting Help

There are a number of places from which you can obtain help with your Kubuntu desktop system, these include:

3.1. KDE Help Center

Kubuntu comes with a inbuilt help system, which can be accessed by choosing K Menu → Help from the desktop menu system. The KDE Help Center is the central location to all documentation available on your system.

A good place to start off learning more about KDE is the *KDE Quickstart Guide* [[help:/khelpcenter/quickstart/index.html](http://help.khelpcenter/quickstart/index.html)], which will familiarize you with some of the basic features of KDE.

3.2. Help with an Application

The easiest way to find help about an application is to read its handbook which is accessible from the *Help* menu in the application's toolbar.

3.3. Find Help Online

- *The Ubuntu Documentation Website* [<http://help.ubuntu.com>] contains HTML and PDF versions of this guide, and other guides produced by the Ubuntu Documentation Team for Ubuntu and Kubuntu.
- You can buy this guide in book form from *our Lulu store* [<http://www.lulu.com/ubuntu-doc>]. You will only pay for the price of printing and postage.
- *The Ubuntu Wiki* [<https://wiki.ubuntu.com/UserDocumentation>] - this contains many other community maintained guides
- *Kubuntu* [<http://kubuntuforums.net>] and *Ubuntu* [<http://www.ubuntu.com/community/forums>] Community Forums - here you can ask questions on a forum and receive answers from the forum community.
- *Mailing Lists* [<http://lists.ubuntu.com/archives/kubuntu-users/>] - here you can ask questions by email, and receive answers from the mailing list community.
- IRC chat: irc.freenode.net channel *kubuntu* - chat in realtime with the Kubuntu community.
- *Kubuntu Homepage* [<http://www.kubuntu.org>] - Get the latest news about Kubuntu.

For more information, visit the *How to Get Help* [<https://wiki.ubuntu.com/HowToGetHelp>] wiki page.

Chapter 2. Linux Basics

This chapter introduces you to basic concepts which are useful to when getting started with a Kubuntu system.

1. Directories and File Systems

In Linux and Unix everything is a file. Directories are files, files are files, and devices are files. Devices are usually referred to as nodes; however, they are still files.

Linux and Unix file systems are organized in a hierarchical, tree-like structure. The highest level of the file system is the `/` or root directory. All other files and directories exist under the root directory. For example, `/home/jebediah/cheeses.odt` shows the correct full path to the `cheeses.odt` file that exists in the `jebediah` directory, which is under the `home` directory, which in turn is under the root (`/`) directory.

Underneath the root (`/`) directory is a set of important directories common to most Linux distributions. The following is a listing of common directories that are directly under the root (`/`) directory:

- `/bin` - important *binary* applications
- `/boot` - *boot* configuration files, kernels, and other files needed at *boot* time
- `/dev` - the *device* files
- `/etc` - configuration files, startup scripts, *etc.*
- `/home` - *home* directories for different users
- `/initrd` - used when creating a customized *initrd* boot process
- `/lib` - system *libraries*
- `/lost+found` - provides a *lost+found* system for files that exist under the root (`/`) directory
- `/media` - automatically mounted (loaded) partitions on your hard drive and removable *media* such as CDs, digital cameras, *etc.*
- `/mnt` - manually *mounted* filesystems on your hard drive
- `/opt` - provides a location for *optional* (3rd party) applications to be installed
- `/proc` - special dynamic directory that maintains information about the state of the system, including currently running *processes*
- `/root` - *root* user's home directory, pronounced "slash-root"
- `/sbin` - important system *binaries*
- `/srv` - can contain files that are *served* to other systems
- `/sys` - system files
- `/tmp` - *temporary* files
- `/usr` - applications and files that are mostly available for all *users* to access
- `/var` - *variable* files such as logs and databases

2. Permissions

All of the files on a Linux system have permissions that allow or prevent others from viewing, modifying or executing them. The superuser "root" has the ability to access any file on the system. Each file has access restrictions, user restrictions, and an owner/group association.

Every file is secured by the following three layers of permissions, in order of importance:

- user

applies to the user who is the owner of the file
- group

applies to the group that is associated with the file
- other

applies to all other users

Inside each of the three sets of permissions are the actual permissions. The permissions, along with the way they apply differently to files and directories, are outlined below:

- read

files can be displayed/opened

directory contents can be displayed
- write

files can be edited or deleted

directory contents can be modified
- execute

executable files can be run as a program

directories can be entered

To view and edit the permissions on files and directories, open the System Menu → Home Folder, right-click on a file or directory, then select Properties. The permissions are found under the Permissions tab and allow for the editing of all permission levels, if you are the owner of the file. Advanced permission settings (such as in the Advanced Permissions tab) are outside of the scope of this guide.

3. Root And Sudo

The root user in GNU/Linux is the user which has administrative access to your system. Normal users do not have this access for security reasons. However, Kubuntu does not include the root user. Instead, administrative access is given to individual users, who may use the "sudo" application to perform administrative tasks. The first user account you created on your system during installation will, by default, have access to sudo. You can restrict and enable sudo access to users with the Users and Groups application (see *Section 6, "Users and Groups" [p. 22]* for more information).

When you run an application that requires root privileges, sudo will ask you to input your normal user password. This ensures that rogue applications cannot damage your system, and serves as a reminder that you are about to perform administrative actions which require you to be careful!

To use sudo when using the command line, simply type "sudo" before the command you wish to run. Sudo will then prompt you for your password.

Sudo will remember your password for a set amount of time (15 minutes by default). This feature was designed to allow users to perform multiple administrative tasks without being asked for a password each time.



Be careful when doing administrative tasks -- you might damage your system!

Some other tips for using sudo:

- To use a "root" terminal, type "sudo -i" at the command line
- The entire group of default graphical configuration tools in Kubuntu already uses sudo, so you will be prompted for your password if needed using kdesu, which is a graphical frontend to sudo.
- For more information on the sudo program and the absence of a root user in Kubuntu, read the *sudo page* [<https://wiki.ubuntu.com/RootSudo>] on the Ubuntu wiki.

3.1. Start a Program Manually with Root Privileges

Sometimes it is necessary to run a program with root privileges. This is easy to do with the Run Command dialog.



Please be careful while running applications with root privileges as you may damage your system. See *Section 3, "Root And Sudo" [p. 18]* for more details.

1. Open the Run Command dialog by typing: **Alt-F2**
2. Enter the name of the program you wish to run, *prefixed* with kdesu and press **Enter**. For example, to launch the file manager Konqueror with root privileges, type

```
kdesu konqueror
```

4. Terminal

Working at the command line is not as daunting a task as you would think. There is no special knowledge needed to use the command line as it is a program like everything else. Most things in Linux can be done using the command line. Although there are graphical tools for most programs, sometimes they are just not enough. This is where the command line comes in handy.

The terminal is often called the command prompt or the shell. In days gone by, this was the way the user interacted with the computer; however, Linux users have found that the use of the shell can be quicker than a graphical method and still holds some merit today. Here you will learn how to use the terminal.

The original use of the terminal was as a file browser, and indeed it is still used as a file browser. You can use the terminal as a file browser to navigate your files and undo the changes that have been made.

4.1. Starting the Terminal

The Konsole can be started by choosing K-menu → System → Konsole (Terminal Program) from the Desktop menu system.

4.2. Common Commands

View Directories: - ls

The ls (LiSt) lists files in different colors with full formatted text

Create Directories: - mkdir (directory name)

The mkdir (MaKeDIRectory) command will create a directory.

Change Directories: - cd (/directory/location)

The cd (Change Directory) command will change from your current directory to any directory you specify.

Copy Files/Directories: - cp (file or directory name) (to directory or filename)

The cp (CoPy) command will copy any files you specify. The cp -r command will copy any directories you specify.

Remove Files/Directories: - rm (file or directory name)

The rm (ReMove) command will delete any filename you specify. The rm -r command will remove any directory you specify, and all its contents.

Move/Rename Files/Directories: - mv (file or directory name)

The mv (MoVe) command will move/rename any file or directory you specify.

Find Files/Directories: - locate (file or directory name)

The locate command will search for any filename you specify. It uses an index of the files on your system to work quickly. To update this index, run the command `sudo updatedb`. This command is run automatically each day if you leave your computer on. It needs to be run with administrative privileges (see *Section 3, “Root And Sudo” [p. 18]*).

You can also use wildcards to match one or more files, such as "*" (for all files) or "?" (to match one character).

4.3. Switch to Console mode

The usual method of command-line access in Kubuntu is to start a terminal (see *Section 4.1, "Starting the Terminal"* [p. 19 above]), however sometimes it is useful to switch to the real console:

1. Use the **Ctrl-Alt-F1** shortcut keys to switch to the first console.
2. To switch back to Desktop mode, use the **Ctrl-Alt-F7** shortcut keys.



There are six consoles available. Each one is accessible with the shortcut keys **Ctrl-Alt-F1** to **Ctrl-Alt-F6**.

4.4. Disable the beep sound in Terminal mode

1. Start a Konsole session, select: K-menu → System → Konsole (Terminal Program) from the desktop menu system.
2. Settings → Bell → None

5. Text Editing

All of the configurations and settings in Linux are saved in text files. Even though you most often can edit configurations through the graphical interface, you may occasionally have to edit them by hand.

Kate is the default Kubuntu text editor, which can be launched by clicking K-menu → Utilities → Kate (Advanced Text Editor) from the desktop menu system.

At times in this guide, Kate is run from the command line using `kdesu`, as most configuration files require root privileges to alter them. It is recommended that you also run `kdesu` from the command line when shown in this guide.

If you need to use a text editor from the command line, you can use `nano`, which is a simple to use text editor. When running it from the command line, always use the following command, which ensures that the editor will not introduce line breaks:

```
nano -w
```

For more information about how to use `nano`, refer to the *guide on the wiki* [<https://wiki.ubuntu.com/NanoHowto>].

There are also quite a few other terminal-based editors available in Kubuntu, popular ones include VIM and Emacs (the pros and cons of each are cause for much friendly debate within the Linux community). These are often more complex to use than `nano`, but are also more powerful.

6. Users and Groups

To add users or groups to your system, you can use the Users And Groups application located in K-menu → System Settings → Users and Groups .

② You will need to change into the "Administrator Mode" to make changes to Users and Groups.

To add a new user, click on New..., fill in the data fields then click OK. To edit the properties of each user, click the Modify... button located in the main Users window.

To add a new group, select the Groups tab and click New.... Choose a name for the new group and, if you want, change the default value for the Group ID. If you try to allocate a Group ID that is in use, the system will warn you.

You can add users to the newly created group by selecting a user from the left menu and clicking on the Add button. Removing a user from a group is as simple as adding one: select the user from the right menu then click Remove. When you are ready, click OK and the new group with its users, if inserted, will be created.

To edit the properties of a group, from within the Groups main window, choose a group name and click on the Modify... button.

To remove a user or a group from the system, select the user or group you want to delete and click Delete....

Chapter 3. Adding, Removing and Updating Applications

This chapter is a complete guide to adding, removing and updating applications on a Kubuntu system.

1. Introduction

There are several ways to manage your applications in Kubuntu. In order to add or remove applications you need to use a *package manager*. The following package managers are described in this chapter:

- Add/Remove Programs - this is the simplest way to manage programs.
- Adept - this graphical program provides an advanced way of managing programs;
- APT - this is a powerful command line program to manage programs.

You may also wish to increase the number of programs available to install through your package managers. Not all the programs that exist for Kubuntu are available by default. You may have to add extra repositories in order to make them available: that is also described in this chapter.

Finally, this chapter explains how to update your system.



You can only have one package management application running at a time. For example, if you are running Add/Remove Programs and try to launch Adept, it will fail with an error. Close the running application before you relaunch the new one.

2. Add/Remove Programs

Add/Remove Programs is a simple graphical way of installing and removing applications in Kubuntu. To launch Add/Remove Programs, choose K Menu → Add/Remove Programs from the desktop menu system.



Running Add/Remove Programs requires administrative privileges (see *Section 3, “Root And Sudo”* [p. 18]).

To install new applications select the category on the left, then check the box of the applications you want to install. Click Apply and your chosen programs will be downloaded and installed automatically, as well as installing any additional applications that are required. The default selection is restricted to the KDE suite, but GNOME applications can be installed by selecting them from the dropdown menu at the top.

Alternatively, if you know the name of the program you want, use the Search tool at the top.

Software from additional repositories may be installed by enabling the Show: *unsupported* and Show: *proprietary software* checkboxes **if they are enabled** in your repository list. For more information, see see *Section 6, “Managing Repositories”* [p. 29]

3. Adept Package Manager

Adept is a graphical frontend to the APT package management system for the K Desktop Environment (KDE). Adept provides an easy-to-use interface with which users can perform software management operations.

Adept can be started from the K menu system or the command line. In order to start Adept, you will be required to provide your password.

To start Adept from the menu system select K Menu → System → Adept (Package Manager).

To start Adept from the command line:

```
kdesu adept
```

Both methods require that you enter your password. This will run Adept with root privileges which will be required in order to perform the requested operations. It is therefore advised that you use Adept with caution since improper usage could lead to the removal, deletion, or corruption of software packages that are required to preserve system integrity.

For more help with using Adept, please refer to the *Adept Handbook* [<help:/adept/index.html>].

4. APT

APT (Advanced Packaging Tool) is a powerful package management system, on which the graphical programs Add/Remove Programs and Adept are based. APT automatically handles dependencies and performs other operations on system packages to allow the installation of the desired packages.



Running APT requires administrative privileges (see *Section 3, “Root And Sudo” [p. 18]*).

Some common commands that can be used with APT:

- Install packages:

```
sudo apt-get install packagename
```

- Remove packages:

```
sudo apt-get remove packagename
```

- Search for packages:

```
apt-cache search keyword
```

- Retrieve new lists of available packages:

```
sudo apt-get update
```

- Upgrade system with available updates:

```
sudo apt-get dist-upgrade
```

- List further commands and options:

```
apt-get help
```



For further information about the use of APT, you can read the comprehensive *Debian APT User Manual* [<http://www.debian.org/doc/user-manuals#apt-howto>].

5. Manual Installation

Although the preferred method of installing programs is via the package managers described in *Chapter 3, Adding, Removing and Updating Applications [p. 23]*, you can also download and install individual package files containing software. There are many different kinds of Linux package files. Most of these are associated with the package managers of specific Linux distributions.

If you find a packaged application that you wish to install, it is recommended that you check if there is a native Kubuntu package of the application available through a package manager, and that you install that version instead. This guarantees that the program is completely compatible with your system. If there is no package available through the package manager, you can install it manually. The installation procedure depends on the type of package file.

5.1. Install/Uninstall .deb files

The package files associated with Kubuntu have the *.deb* suffix because of Kubuntu's close relation to the Debian GNU/Linux distribution. You can download and install individual *.deb* files. You will need administrative privileges to do this (see *Section 3, "Root And Sudo" [p. 18]*).

1. To install a *.deb* file, simply Right click on the *.deb* file, and choose Kubuntu Package Menu → Install Package.
2. Alternatively, you can also install a *.deb* file by opening a terminal and typing:

```
sudo dpkg -i package_file.deb
```

3. To uninstall a *.deb* file, remove it using Adept, or type:

```
sudo apt-get remove package_name
```

5.2. Convert .rpm files to .deb files

Another type of package files is Red Hat Package Manager Files which have the *.rpm* suffix. It is not recommended to install these on an Kubuntu system. In almost all cases, a native Kubuntu *.deb* package is available. However, if absolutely necessary, an *.rpm* file can be converted to a *.deb* package using the program *alien*.

1. Install the *alien* program (*Chapter 3, Adding, Removing and Updating Applications [p. 23]*).
2. Run the following command in a terminal, with administrative privileges:

```
sudo alien package_file.rpm
```

5.3. Install from Source

Files with the *.tar.gz* or *.tar.bz2* suffix are package files known as *tarballs* or *source* packages which are widely used in Linux. If there is no native Kubuntu package available in any of the Kubuntu repositories, you can try to compile the package from source. For tips on compiling software, look at the *Compiling Software* [<https://wiki.ubuntu.com/CompilingSoftware>] page on the Ubuntu Wiki.

6. Managing Repositories

6.1. What are Repositories?

There are thousands of programs freely available to install on Kubuntu. These programs are stored in software archives (*repositories*) and are made available for installation over the Internet. This makes it very easy to install new programs in Linux, and it is also very secure, because each program you install is built specially for Kubuntu and checked before it is installed. To organize the software, Kubuntu repositories are categorized into four groups: *Main*, *Restricted*, *Universe*, and *Multiverse*.

The rationale used to determine which software goes into which category is based on two factors:

- The level of support software development teams provide for a program
- The level of compliance the program has to the *Free Software Philosophy*
[<http://www.ubuntu.com/ubuntu/philosophy>]

You can find more information about the Repositories available on the *Ubuntu website* [<http://www.ubuntu.com/ubuntu/components>].

The standard Kubuntu Install CD contains some software from the *Main* and *Restricted* categories. Once your system is made aware of the Internet-based locations for these repositories, many more programs are made available for installation. Using the software package management tools already installed on your system, you can search for, install and update any piece of software directly over the Internet, without the need for the CD.

6.2. Removing the CD-ROM Repository

The Kubuntu Install CD-ROM is included in the repositories after installation. This can cause Adept to ask for the CD-ROM when installing packages. It is possible to disable this repository so that Adept relies solely on the internet repositories.



To disable the CD-ROM repository:

1. Start Adept by choosing K Menu → System → Adept (Package Manager) from the Desktop menu system.
2. Select View → Manage Repositories in the Adept package manager window.
3. Find the repository line that starts with "cdrom:", right click the line, and select Disable.
4. Click Apply to save your changes, and then exit using Close.

6.3. Adding Extra Repositories

To enable the extra repositories:

1. Start Adept by choosing K Menu → System → Adept (Package Manager) from the Desktop menu system.

2. Select View → Manage Repositories in the Adept package manager window.
3. To enable the *Universe* repository, find the repository line with the Universe Component, and right click the line and select Enable.
 -  Adding this repository will mean that the majority of the Free Software universe will be available to install on your system. This software is supported by a carefully selected group of volunteers within the Kubuntu Community, but is not supported by the core Kubuntu development team and may not include security updates.
4. To enable the *Multiverse* repository, find the repository lines (two of them) with the Universe Component, and click the word "universe". Edit the entry so that it reads "universe multiverse". Right click the line and select Enable to enable it if it is not already enabled.
 -  Adding this repository will mean that software which has been classified as *non-free* will be available to install on your system. This software may not be permitted in some jurisdictions. When installing each package from this repository, you should verify that the laws of your country permit you to use it. Again, this software may not include security updates.
5. Click Apply to save your changes, and then exit using Close.

7. Updates

Sometimes the Kubuntu developers release feature and security updates for applications and packages within the Kubuntu system.

When these updates are available, Kubuntu will inform you with a red warning icon in the system tray. To update your system, click the red button, enter your password and click Fetch List of Updates.

The Adept Updater program will list the available updates: to download and install these updates click Apply Updates. Kubuntu will then download and install the available updates from the Internet.

When Adept Updater has finished updating your system, close the pop-up window by clicking the Quit button.



After installing some important updates, it may be necessary to restart your computer. If so, Kubuntu will inform you with a pop up and an icon in your system tray.

Chapter 4. Common Tasks

This chapter contains information on common tasks that you might want to perform on your computer.

1. Music

1.1. Playing Audio CDs

When you insert an Audio CD into Kubuntu, the system will recognize it, mount it, and start the KDE Daemon. Choose Play to start playing the CDs in KSCD. If you are connected to the Internet, KSCD will retrieve the CD artist, title, and track data from *freedb.org* [<http://freedb.org>]. You can also retrieve information from other sources by clicking on the Extras

To start KSCD manually, choose K-Menu → Multimedia → KsCD (CDPlayer).

To play the CD, click the Play button. To play a particular track, select the track from the drop down list at the top.

1.2. Ripping Audio CDs

1. When you insert an Audio CD into Kubuntu, the system will recognize it, mount it, and start the KDE Daemon. Choose Extract and Encode audio tracks to launch KAudioCreator.
2. To start KAudioCreator manually, choose K-Menu → Multimedia → KAudioCreator (CD Ripper) from the desktop menu system.
3. Inside KAudioCreator, you will be greeted with the list of songs, in order of their track number. If the CD you are ripping is an original CD (not a mix/back-up disk), then most of the song titles should be detected automatically if you are connected to the Internet. If not, click the disk in the top left hand corner to try again.
4. Select what tracks you want to rip, or all of them by pressing Select all tracks
5. To begin the ripping process, press the Rip Selection in the toolbar. When the ripping process has started, you can watch your progress by pressing the Jobs tab. By default, the files rip into `/home/username/ogg` directory, and are in the Ogg Vorbis (ogg) format. They are neatly sorted by artist, followed by album, and lastly song.
6. When you are done ripping your CD tracks, press the eject button to eject your CD-Rom.



You can use the preferences window to control where the extracted audio files are stored on your computer, the filename of extracted audio files, and the file format and codec used for the files. In the main window, choose Settings → Configure KAudioCreator...

KAudioCreator can extract audio files to the following formats:

- **Ogg Vorbis** - Ogg Vorbis is a patent-free lossy audio compression format which typically produces higher quality and greater compression than MP3. See the *Vorbis website* [<http://www.vorbis.com/faq/>] for more information.
- **FLAC** - FLAC is the Free Lossless Audio Codec. It can compress audio files up to 50% without removing any information from the audio stream. For more information on this format, see the *FLAC homepage* [<http://flac.sourceforge.net/>] on sourceforge.net.

- **WAV** - Wav is an uncompressed audio format, which can be compressed into OGG Vorbis or a codec of your choice. It is often used while working on sound in applications like Audacity, before being compressed.

You can also extract CD audio files to the proprietary non-free **MP3** format by using the lame encoder. See the *KAudioCreator Handbook* [<http://docs.kde.org/stable/en/kdemultimedia/kaudiocreator/index.html>] (*Offline Help* [<help:/kaudiocreator/index.html>]).

1.3. Playing and Organizing Music Files

Kubuntu does not directly support the **MP3** format, because it is restricted by patents and proprietary rights. Instead Kubuntu supports the **Ogg Vorbis** format out of the box, a completely free, open and non-patented format. Ogg Vorbis files also sound better than MP3 files of the same file size and are supported by many popular music players (a list of players is *here* [<http://wiki.xiph.org/index.php/PortablePlayers>]).

You can still play your old MP3 files by installing MP3 support (see *Section 3, “Multimedia Codecs”* [p. 38]). Instructions for other formats, such as Windows Media Audio (wma/wmv) and other patent encumbered formats can be found *on the Ubuntu Wiki* [<http://wiki.ubuntu.com/RestrictedFormats>].

The default music application on your Kubuntu system is the Amarok Music Player, a music management and playback application that looks like iTunes. When you first start Amarok, it will scan your home directory for any supported music files you have and add it to the database. To start Amarok, choose K-Menu → Multimedia → Amarok (Audio Player).

Amarok has an inbuilt ID3 tag editor that can edit the metadata on your OGG and other music files. Please see the *amarok handbook* [<http://docs.kde.org/stable/en/extragear-multimedia/amarok/index.html>] (*Offline Help* [<help:/amarok/index.html>]) for details on how to edit the metadata.

1.4. Using your iPod

You can play music directly off your iPod with Amarok. Simply plug your iPod into the computer, and open Amarok.

To transfer music files to and from an iPod, you can use Amarok as well. Please see the *amarok handbook* [<http://docs.kde.org/stable/en/extragear-multimedia/amarok/index.html>] (*Offline Help* [<help:/amarok/index.html>]) on how to manage media files in your iPod.

1.5. Edit Audio Files

Audacity is a free, open source software for recording and editing sounds. To use Audacity:

1. Install the audacity package from the *Universe* repository (see *Section 6, “Managing Repositories”* [p. 29]).
2. To run Audacity, choose K-Menu → Multimedia → Audacity.
3. For further help about using Audacity, consult the program's help by choosing Help → Contents.

2. Video

Many video formats can be played in Kubuntu using free codecs found in the repositories. This includes formats such as MPEG and other common video formats. To install further codec support see *Section 3, “Multimedia Codecs” [p. 38]*.

In Kubuntu, videos can be played with the Kaffeine Media Player. Some features of Kaffeine include custom playlists, DVD playback and more. You can start Kaffeine by clicking: K-Menu → Multimedia → Kaffeine (Media Player).

2.1. DVD Playback



The legal status of this library is not fully clear. In some countries it is possible that the use of this library to play or copy DVDs is not permitted by law. Verify that you are within your rights in using it.

The movie players provided in Kubuntu are capable of reading DVDs that are not encrypted. However, most commercial DVDs are encrypted with CSS (Content Scrambling System) and currently, for legal reasons, it is not possible to include support for these DVDs in Kubuntu. However it is possible to enable support as follows:

1. Install the `libdvdread3` package (see *Section 6, “Managing Repositories” [p. 29]*).



You will need to use Adept Package Manager to install this package

2. Type the following command into a terminal prompt:

```
sudo /usr/share/doc/libdvdread3/examples/install-css.sh
```

2.2. RealPlayer 10

1. Install the `libstdc++5` package (see *Chapter 3, Adding, Removing and Updating Applications [p. 23]*).



You will need to use Adept Package Manager to install this package

2. Download the Realplayer package from *here* [ftp://ftp.nerim.net/debian-marillat/pool/main/r/realplay/realplayer_10.0.6-0.0_i386.deb] only if you have a *i386* machine. Debian packages are not available for *PowerPC* or *AMD64* architectures. However, you can try to see if a player is available on the *Helix Player* [<https://player.helixcommunity.org/>] Community Site.
3. Install the package you have downloaded (see *Section 5.1, “Install/Uninstall .deb files” [p. 28]*).
4. To run Real Player 10, choose K-Menu → Multimedia → RealPlayer 10 (Media Player).

2.3. Video Editing

Kino is an advanced video editor. It features excellent integration with IEEE-1394 (Firewire) for capture, VTR control, and recording back of the camera. It captures video to disk in Raw DV and AVI format, in both type-1 DV and type-2 DV (separate audio stream) encoding. For more information, see *the Kino website* [<http://www.kinodv.org/article/static/2>]. To use it:

1. Install the kino package (see *Chapter 3, Adding, Removing and Updating Applications [p. 23]*).
2. To run Kino, choose Applications → Sound & Video → Kino Video Editor.

3. Multimedia Codecs

Codecs for playing non-free formats are not included in Kubuntu by default. You can get support for the extra codecs by installing the `libxine-extracodecs` package from the *Multiverse* repository (see *Section 6, “Managing Repositories” [p. 29]*).



Some of these packages may not be permitted in some countries: you should verify that you are permitted to use them before installing them.

Due to patent and copyright restrictions, some codecs are not included at all in Kubuntu. For more information on these, go to <https://wiki.ubuntu.com/RestrictedFormats>.

4. Burning and Ripping CDs/DVDs

4.1. Burning a Photo or Data CD/DVD

1. Launch k3b by choosing K-Menu → Multimedia → k3b (CD and DVD Burning)
2. Follow the *steps to burn a data CD*
[<http://docs.kde.org/stable/en/extragear-multimedia/k3b/cdcopyhowto.html>] (*Offline Help* [<help:/k3b/cdcopyhowto.html>]) in the K3B handbook.

4.2. Burning an Audio CD/DVD

1. If you want to burn mp3 files into audio CDs, you will need to install the libk3b2-mp3 package from the *Universe* repository (see *Section 6, “Managing Repositories” [p. 29]*).
2. Launch k3b by choosing K-Menu → Multimedia → k3b (CD and DVD Burning)
3. Follow the *steps to burn an audio CD*
[<http://docs.kde.org/stable/en/extragear-multimedia/k3b/audiocdcreating.html>] (*Offline Help* [<help:/k3b/audiocdcreating.html>]) in the K3B handbook.

4.3. Rip a DVD with K3B

1. Install the following packages

transcode
libxvidcore4
sox
mjpegtools
toolame
libdvdread
from the *Universe* and *Multiverse* repository (see *Section 6, “Managing Repositories” [p. 29]*).
2. Launch k3b by choosing K-Menu → Multimedia → k3b (CD and DVD Burning)
3. Follow the *steps to Rip a DVD and Encode it*
[<http://docs.kde.org/stable/en/extragear-multimedia/k3b/howtos.html#videointroduction>] (*Offline Help* [<help:/k3b/howtos.html#videointroduction>]) in the K3B handbook.

4.4. Generate MD5 Checksum files

- To save the md5sum of file.iso to a file, run:

```
md5sum file.iso > file.iso.md5
```

4.5. Check MD5 checksum of an ISO image

1. Assuming that file.iso and file.iso.md5 are in the same folder.
2. md5sum -c file.iso.md5

4.6. Mount/unmount Image (ISO) files without burning to CD

1. To mount Image (ISO) file

```
sudo mkdir /media/iso
sudo modprobe loop
sudo mount file.iso /media/iso/ -t iso9660 -o loop
```

2. To unmount Image (ISO) file

```
sudo umount /media/iso/
```


5. Internet

5.1. Connecting to the Internet

To connect to the Internet, do the following:


1. If you have a Modem or ADSL connection, read *Section 4.5, "Modems" [p. 65]* first.
2. K-Menu → System Settings → Network Settings
3. Click on the Administrator Mode... and enter your user password to gain administrator privileges.
4. Select the Network Interfaces tab. Select the interface to configure from the list, then click the Configure Interface... button.
5. Enter the relevant details of the connection like DHCP or Static IP address, or the wireless network name (in case of a wireless connection). Click OK to accept the settings.
6. Sometimes it may be necessary to configure the DNS settings. If needed, select the Domain Name System tab to add edit or delete DNS Servers in the DNS Servers list.

To activate or deactivate network connections, do the following:

1. K-Menu → System Settings → Network Settings
2. Click on the Administrator Mode... and enter your user password to gain administrator privileges.
3. Select the Network Interfaces tab. Select the interface to enable/disable from the list, then click the Enable Interface or the Disable Interface button.

5.2. Browse Network Computers

1. To view computers on the network, choose System Menu → Remote Places from the Kicker (the taskbar).
2. You may need to enter a username and password, and a domain. You should obtain these from your network administrator.

 Windows PCs sharing files on a local network can be found in *Samba Shares*.

5.3. Web Browser

Kubuntu comes with a very powerful web browser, file management tool and network browser, called Konqueror. Konqueror can support all major web protocols, and allows basic plugins for Macromedia Flash, and Real Media. When you first start up Kubuntu, Konqueror will be in the bottom panel (known as the "kicker"). It may also be invoked through the K-menu by clicking K-Menu → Internet → Web Browser (Konqueror)

Alternatively, the powerful and secure Mozilla Firefox web browser may be obtained in addition to Konqueror. Mozilla Firefox features tabbed browsing, pop-up blocking, in-built search facilities, live bookmarks and more. Also supported are popular plug-ins such as Java, Macromedia Flash, and Real Player just to name a few. Mozilla Firefox is not installed in Kubuntu by default. Mozilla Firefox can be obtained by installing the firefox package (see *Chapter 3, Adding, Removing and Updating Applications [p. 23]*).

After installation, it can be launched from K-Menu → Internet → Firefox Web Browser from the desktop menu system.

- ❓ Mozilla Firefox has many *Extensions* available. Konqueror, on the other, is much more tightly integrated into KDE.

5.3.1. Macromedia Flash for Konqueror

The following instructions are only for *i386* computers.

1. To view flash graphics from the Konqueror web browser, you need to install the flashplugin-nonfree package from the *Multiverse* repository (see *Chapter 3, Adding, Removing and Updating Applications [p. 23]*).

2. To download and install the plugin, enter the following command in a terminal:

```
sudo update-flashplugin
```

3. The plug-in will be available the next time you start Konqueror.

5.3.2. How do I change Konqueror back to the default KDE profiles?

Kubuntu comes with a simplified Konqueror profile to make things more user friendly compared to default KDE. To get back to the default KDE profiles:

1. Open a terminal by choosing K-Menu → System → Konsole (Terminal Program) from the desktop menu system.
2. Execute the following commands

```
sudo rm -r /usr/share/kubuntu-default-settings/kde-profile/default/share/apps/konqueror
sudo cp /usr/share/apps/konqueror/konqueror-orig.rc /usr/share/apps/konqueror/konqueror.rc
```

5.4. Email

The Kontact groupware suite can handle all your email, contacts, calendar events, todo lists, newsgroups, notes and RSS/Atom feeds. Kontact can be launched by clicking K-Menu → Office → Personal Information Manager (Kontact) from the desktop menu system.

Alternatively, the Mozilla Thunderbird email client is available. To install this popular email client, install the mozilla-thunderbird package (see *Chapter 3, Adding, Removing and Updating Applications [p. 23]*).

To start Thunderbird, choose K-Menu → Internet → Thunderbird Mail Client from the desktop menu system.

5.4.1. Change the preferred email client to Mozilla Thunderbird

1. Choose K-Menu → System Settings → User Account.
2. In the User Account, click the Preferred Applications and click the Email Client and select the Use a different email client option.
3. In the Use a different email client text box, type `mozilla-thunderbird %s`, then click Apply to save your settings.

5.5. News Readers

5.5.1. Akregator Feed Reader

Akregator is a fast and intuitive feed reader program which is installed by default in Kubuntu.

Akregator can be launched as a standalone application by choosing K-menu → Internet → Akregator (RSS Feed Reader) from the Desktop Menu System.

Akregator is also available as a Kontact Component. Launch Kontact by choosing K-menu → Office → Kontact (Personal Information Manager) from the Desktop Menu System. Click the Feeds button on the sidebar at the left to access and configure the News Reader.

5.5.2. Knode News Reader

The default newsreader for Kubuntu applications is in the Kontact application. It provides the capability to install and download your favorite newsgroups and manage their content. However, the news reader component is not installed by default.

1. Install the knode package from the *Universe* repository (see *Section 6, “Managing Repositories”* [p. 29]).
2. Launch Kontact by choosing K-menu → Office → Kontact (Personal Information Manager) from the Desktop Menu System.
3. Click the News button on the sidebar at the left to access and configure the News Reader.

5.6. Web Development

5.6.1. Quanta Plus

Quanta Plus is a powerful editor for web designers and programmers. Quanta Plus supports many programming and markup languages, and includes many utilities for designers and programmers.

1. Install the Quanta Plus package (see *Chapter 3, Adding, Removing and Updating Applications* [p. 23]).

2. To start Quanta Plus, choose K-Menu → Development → Web Development → Quanta Plus (Web Development Environment)

5.6.2. NVU Web Authoring System

NVU is a WYSIWYG (What You See Is What You Get) graphical web design application, similar to Dreamweaver.

1. Install the nvu package from the *Universe* repository (see *Section 6, “Managing Repositories” [p. 29]*).
2. To start Nvu, choose K-Menu → Development → Nvu from the desktop menu system.

5.7. Chat

5.7.1. Kopete

Kopete is the default instant messenger client in Kubuntu. With Kopete you can talk to people who use: AIM/ICQ, Gadu-Gadu, Groupwise, IRC, Jabber, MSN, SMS and Yahoo. The ability to use one client instead of one per network is a great benefit and allows you to have all of your buddies in one window. To start Kopete, choose K-menu → Internet → Kopete (Instant Messenger) from the desktop menu system.

5.7.2. Konversation

Konversation is a client for the Internet Relay Chat (IRC) protocol. It has a clean and easy to use interface. To start Konversation, choose K-menu → Internet → Konversation (Instant Messenger) from the desktop menu system.

5.8. Peer To Peer

5.8.1. BitTorrent

No default bit torrent capability is installed with Kubuntu. However, you may install Ktorrent from the universe repositories. Be sure that the universe repository is enabled and download it via Adept (See *Section 6, “Managing Repositories” [p. 29]*).

5.8.2. aMule File Sharing Client

aMule is a peer to peer (P2P) application for the ed2k network, from which you can download a variety of files.

1. Install the amule package from the *Universe* repository (see *Section 6, “Managing Repositories” [p. 29]*).
2. To open aMule, choose K-menu → Internet → amule from the desktop menu system.

5.8.3. Apollon

Apollon is an easy to use peer to peer client for the KDE Desktop. It supports the Gnutella, OpenFT, and FastTrack networks. This makes installing applications like Limewire redundant.

1. Install Apollon and gift packages from the *Universe* repository (see *Section 6, “Managing Repositories”* [p. 29]).
2. Configure the giFT daemon by, opening a Konsole and run the command

```
gift-setup
```

and follow the instructions on the screen.



Make sure you enable the OpenFT and Gnutella plugins by typing *OpenFT:Gnutella* in the plugin section.

3. See the following files for examples:
 1. *\$HOME/.giFT/giftd.conf* [../sample/giftd.conf]
 2. *\$HOME/.giFT/OpenFT/OpenFT.conf* [../sample/OpenFT.conf]
 3. *\$HOME/.giFT/Gnutella/Gnutella.conf* [../sample/Gnutella.conf].

6. Office

6.1. OpenOffice.org Suite

OpenOffice.org is a suite of applications to support word processing, presentations, spreadsheets, drawing and complex math documents. The suite is the open source equivalent of the Microsoft Office Suite. For details about the OpenOffice.org, visit the *OpenOffice.org homepage* [<http://www.openoffice.org>].

1. Open Office Writer is a fully featured word processor similar to Microsoft Word that can create simple or complex documents. Writer can open most Microsoft Word documents and can save in the .doc format. OpenOffice.org Writer can be launched from K-Menu → Office → OpenOffice.org Writer
2. OpenOffice.org Impress is the functional equivalent of PowerPoint, and provides the capability to create slide presentations. Most PowerPoint files may be opened and edited in Impress. OpenOffice.org Impress can be launched from K-Menu → Office → OpenOffice.org Impress
3. OpenOffice.org Calc is a fully featured spreadsheet program with similar functions found in Microsoft Excel. The module supports multiple spreadsheets, built-in functions and can read most Microsoft Excel documents. OpenOffice.org Calc can be launched from K-Menu → Office → OpenOffice.org Calc
4. OpenOffice.org Draw provides complex functionality to allow the creation of drawings, diagrams, charts, and other business presentations. The program is object oriented and allows for layering of various panes of work. OpenOffice.org Draw can be launched from K-Menu → Office → OpenOffice.org Draw
5. OpenOffice.org Math allows the user to create and assemble math-oriented documents. There are special functions here that allow the creation of mathematical formulas and table nomenclature not easily assembled in the standard Writer application. OpenOffice.org Math can be launched from K-Menu → Office → OpenOffice.org Math
6. OpenOffice.org Base allows the user to manipulate database data from within OpenOffice.org, like Microsoft Access. OpenOffice.org Base can be launched from K-Menu → Office → OpenOffice.org Base

6.2. KMyMoney2 Personal Finance

KMyMoney2 is an excellent personal and/or business cash management application similar to Quicken or Microsoft Money. Quicken QIF import and export is supported within accounts so KMyMoney2 can read files exported from other programs or downloaded from online banking institutions.

1. Install the kymoney2 package from the *Universe* repository (see *Section 6, “Managing Repositories”* [p. 29]).

2. To open Kymoney, choose K-menu → Office → KmyMoney from the Desktop Menu System.

6.3. Kivio Flowchart and Diagram Editor

Kivio is a flowchart and diagram editor for creating and editing organizational charts, flowcharts, ERDs, or other kinds of diagrams. It is analagous to Gnome Dia and Microsoft Visio.

1. Install the kivio package using Adept (see *Section 3, “Adept Package Manager” [p. 26]*).
2. Launch Kivio, by choosing K-Menu → Office → Kivio

7. Graphics & Drawing

Kubuntu has some very powerful, world-class graphics and drawing applications available.

7.1. Krita

Krita lets you draw, paint, edit images, and much more! Krita includes the functionality and plug-ins of other famous image editing and processing programs.

Krita is installed in Kubuntu by default. Launch Krita by selecting K-Menu → Graphics → Krita (Image Manipulation Program)

More information is available from the *Krita homepage*. [<http://www.koffice.org/krita/>]

7.2. Inkscape Vector Graphics Editor

Inkscape is a powerful editor for working with the SVG (Scalable Vector Graphics) format.

1. Install the inkscape package (see *Chapter 3, Adding, Removing and Updating Applications* [p. 23]).
2. To start Inkscape choose K-Menu → Graphics → InkScape Vector Illustrator

7.3. Blender 3d Modeler

Blender is an integrated 3d suite for modeling, animation, rendering, post-production, interactive creation and playback (games).

1. Install the blender package (see *Chapter 3, Adding, Removing and Updating Applications* [p. 23]).
2. To start Blender, choose K-Menu → Graphics → Blender 3D Modeler

7.4. Scribus Desktop Publishing Application

1. Install the scribus package (see *Section 6, “Managing Repositories”* [p. 29]).
2. To install additional templates, install the scribus-template package from the *Universe* repository (see *Section 6, “Managing Repositories”* [p. 29]).
3. To start Scribus, choose K-Menu → Office → Scribus (Page Layout)

8. Games


8.1. Frozen-Bubble

In Frozen-Bubble you attempt to shoot bubbles into groups of the same color to cause them to pop.

1. Install the frozen-bubble package from the *Universe* repository (see *Section 6, “Managing Repositories”* [p. 29]).
2. To start Frozen-Bubble, choose K-Menu → Games → Arcade → Frozen-Bubble.

8.2. PlanetPenguin Racer


Race Tux, the Linux mascot, down a snow and ice-covered mountain as quickly as possible, avoiding the trees and rocks that will slow you down. Don't forget to grap all the fish!

 Ensure you have hardware accelerated 3D drivers installed for your video card. For more information, see *Section 4, “Hardware”* [p. 63] .

1. Install the planetpenguin-racer package from the *Universe* repository (see *Section 6, “Managing Repositories”* [p. 29]).
2. To start PlanetPenguin Racer, choose K-Menu → Games → Arcade → PlanetPenguin-Racer.

8.3. Scorched3D

Scorched3D is a 3D remake of Worms/Scorched Earth.

 Ensure you have hardware accelerated 3D drivers installed for your video card. For more information, see *Section 4, “Hardware”* [p. 63] .

1. Install the scorched3d package from the *Universe* repository (see *Section 6, “Managing Repositories”* [p. 29]).
2. To start Scorched3D, choose K-Menu → Games → Arcade → Scorched 3d.

8.4. Suggested Games

The following is a list of games that fellow Kubuntu users suggest. All of them are available for installation using the Adept Package Manager from the *Universe* repository (See *Section 6, “Managing Repositories”* [p. 29]).

- armagetron - 3D Tron-like high speed game
- wesnoth - fantasy turn-based strategy game
- neverball - 3D arcade games: neverball and neverputt
- atlantik - KDE client for Monopoly-like network games
- kdegames - A package containing several small, and addicting games

- freeciv - Civilization turn based strategy game
- bzflag - a 3D first person tank battle game

There are also two "classic" text based dungeon crawl games:

- Nethack
- Crawl



Remember, these 2 games are text based, which means they **MUST** be run inside the terminal.

All of these games will install themselves to your KDE menu, but can always run them from the command line by typing in the name of the game, and pressing enter.

8.5. Windows Games

Many games which are available for Windows can be run on Linux through special compatibility layers like Wine and Cedega.

1. For information about Wine, see *the Ubuntu wiki* [<https://wiki.ubuntu.com/Wine>].
2. For information about Cedega, see *the Ubuntu wiki* [<https://wiki.ubuntu.com/Cedega>].
See the *Cedega CVS Howto* [<http://www.linux-gamers.net/modules/wiwimod/index.php?page=HOWTO%20Cedega%20CVS>] for instructions on compiling and installing Cedega.

9. Programming

9.1. Basic Compilers

In order to be able to compile programs, some extra packages are necessary. These can be installed all in one go, as follows:

- Install the build-essential package (see *Chapter 3, Adding, Removing and Updating Applications* [p. 23]).

9.2. Java Runtime Environment (1.5)



The following instructions are only for *i386* and *amd64* computers. For *PowerPC* machines, please look at the *Ubuntu Wiki*. [<https://wiki.ubuntu.com/JavaPPC>]

1. Install the sun-java5-bin package from the *Multiverse* repository (see *Section 6, “Managing Repositories”* [p. 29]).
2. Some websites require the Java plugin for Mozilla Firefox. To install the java plugin, install the sun-java5-plugin package (for *i386* machines) or the *j2re-1.4-mozilla-plugin* package (for *amd64* machines) from the *Multiverse* repository.

9.3. Development Tools

This section has a list of handy open source development tools for use on Kubuntu such as Integrated Development Environments and powerful Editors. Most of these applications can be installed by using Adept (see *Chapter 3, Adding, Removing and Updating Applications* [p. 23]).

- *KDevelop* [<http://www.kdevelop.org/>] is an IDE for KDE which supports many programming languages.
- *Eric* [<http://www.die-offenbachs.de/detlev/eric3.html>] is a full featured Python and Ruby IDE.
- *PyQt* [<http://www.riverbankcomputing.co.uk/pyqt/>] is a set of Python bindings for the Qt toolkit.
- *Qt Designer* [<http://www.trolltech.com/products/qt/designer.html>] is the User Interface designer for building KDE applications.
- *IDLE* [<http://www.python.org/idle/>] is the Python IDE built with the Tkinter GUI toolkit.
- *MonoDevelop* [http://www.monodevelop.com/Main_Page] is an IDE for writing mono/.net applications in C# and other languages.
- *Bazaar-NG* [<http://www.bazaar-ng.org/>] is a distributed version control system used for Ubuntu development.
- *Eclipse* [<http://www.eclipse.org/>] is an IDE for Java and other programming languages. It forms the basis for closed-source programs such as JBuilder.
- *NetBeans* [<http://www.netbeans.org/index.html>] is a Java IDE that features support for CVS and a form builder.

- *Bluefish* [<http://bluefish.openoffice.nl/index.html>] is a powerful editor for experienced web designers and programmers.

9.4. Programming Documentation

This is a list of useful documentation for programming with Kubuntu.

9.4.1. Dive Into Python

Dive Into Python is a book on learning how to program in the preferred Kubuntu language, Python. Aimed at programmers with some previous experience, it comes installed with every Kubuntu installation.

You can read Dive Into Python *here* [<file:///usr/share/doc/diveintopython/html/toc/index.html>].

9.4.2. Qt3 Documentation

The Qt3 Documentation package provides the complete reference to programming in Qt.

1. Install the qt3-doc package (see *Chapter 3, Adding, Removing and Updating Applications* [p. 23]).
2. To access the documentation, visit *Qt3 Documentation Index* [<file:///usr/share/doc/qt3-doc/html/index.html>].

Chapter 5. Configuring Your System

This chapter contains information on configuring your system.

1. Desktop Tricks

This section details some tips for using and customizing the desktop. They are mostly tips involving the desktop environment (called KDE), and the file manager (called Konqueror).

1.1. Run programs automatically when KDE starts

1. The easiest way to run programs automatically when KDE starts is to use the *Session Management* feature of KDE. You can setup KDE exactly the way you'd like it to start every time you login.
2. Choose K-Menu → System Settings → User Account from the Desktop Menu System. Click the Session Manager button on the left. Ensure that the Restore manually saved session checkbox is enabled.
3. Launch all the applications you want running *everytime you log in*. Once you have everything set to your satisfaction, click choose K-Menu → Save Session. Every time you start KDE, you will return to this configuration.
4. Another method to do this is to copy the desktop entry of the application you want to autostart from `/usr/share/applications` to the `~/.kde/Autostart` directory.

1.2. Login automatically to KDE when the computer starts

It is possible to login a user automatically when the computer boots. This is not recommended for most computers, as it is not secure and may allow other users access to your information.

1. K-Menu → System Setting → Login Manager
2. Click on the Administrator Mode... and enter your user password to gain administrator privileges.
3. Select the Convenience tab. Check the Enable Autologin and select the user to autologin from the drop down menu and select an appropriate time delay.

1.3. Restart KDE without rebooting the computer

1. Save and close all open applications.
2. Use the **Ctrl-Alt-Backspace** shortcut keys to restart KDE.
3. If **Ctrl-Alt-Backspace** is disabled, type

```
sudo /etc/init.d/kdm restart
```

(See Section 1.4, “Preventing the Ctrl-Alt-Backspace shortcut keys from restarting X” [p. 54] to disable **Ctrl-Alt-Backspace**.)

1.4. Preventing the Ctrl-Alt-Backspace shortcut keys from restarting X

1. Make a backup copy of your existing `/etc/X11/xorg.conf` file.

```
sudo cp /etc/X11/xorg.conf /etc/X11/xorg.conf_backup
```

2. Open `/etc/X11/xorg.conf` for editing.

```
kdesu kate /etc/X11/xorg.conf
```

3. Add the following lines to the end of the file:

```
Section "ServerFlags"  
Option "DontZap" "yes"  
EndSection
```

4. Save the edited file. (*an example* [`../sample/xorg.conf_disablectrlaltnospace`])
5. The change will take effect the next time you log in to KDE. If you want the change to take effect immediately, restart KDE manually. (See *Section 1.3*, “Restart KDE without rebooting the computer” [p. 54].)

1.5. Start a Program Manually

Sometimes it can be useful to start a program manually, for example when the program does not have an entry in the menu. This is easy to do with the Run Command dialog.

1. Open the Run Command dialog by typing: **Alt-F2**
2. Enter the name of the program you wish to run, and press **Enter**.

1.6. Automatically turn on Num Lock when KDE starts

1. K-Menu → System Setting → Keyboard
2. Under the NumLock on KDE Startup, enable the Turn On checkbox. Click on Apply to save your settings.

The change will take effect the next time you log in to KDE. If you want to test it right away, turn off NumLock and restart KDE (see *Section 1.3*, “Restart KDE without rebooting the computer” [p. 54]).

1.7. Handle help:// links in Firefox

You may want to be able to open the `help://` protocol from within Firefox.

1. Start Firefox by choosing K-Menu → Internet → Firefox
2. Type `about:config` in the address bar.
3. Right click on the list, select New → Boolean Type **network.protocol-handler.external.help** as *Preference Name* and **true** as *Value*
4. Right click again on the list, select New → String Type **network.protocol-handler.app.help** as *Preference Name* and **khelpcenter** as *Value*

1.8. Edit K-Menu

Kubuntu comes with the KDE Menu Editor, so you can customize your menus and add entries for applications that don't automatically appear after they are installed.

To add a new menu entry:

1. Open KDE Menu Editor by right-clicking on K-menu and choosing Menu Editor.
2. In KDE Menu Editor's left-hand pane, choose the submenu the new entry should appear in.
3. Choose File → New Item. In the New Item window, choose a Name. Then add the Description, Comment, and Command. Select the icon by clicking on Icon. The Command will usually be the package name, Name is what will appear on the menu, and the Comment will appear in the tooltip that appears near the menu entry. Icons are chosen from `/usr/share/pixmaps` directory by default, or can be chosen from anywhere in your files.

To change the order of menu entries, click and drag the entry in the KDE Menu Editor window.

1.9. Advanced Desktop Applets

Superkaramba is a system for bringing mini programs (desklets) such as weather forecasts, news tickers, system information displays, or music player controls onto your desktop, where they are sitting there in a symbiotic relationship of eye candy and usefulness.

1. Install the superkaramba package from the *Universe* repository (see *Section 6, "Managing Repositories" [p. 29]*).
2. Choose: K-Menu → Utilities → Superkaramba
3. Visit the *SuperKaramba website for downloading applets*. [<http://www.superkaramba.com/>]

1.10. Install Extra Fonts

This section describes how to install extra fonts from the Kubuntu archives.

1. For **international fonts**, install the following packages from the *Universe* repository (see *Chapter 3, Adding, Removing and Updating Applications [p. 23]*):

xfonts-intl-arabic
xfonts-intl-asian
xfonts-intl-chinese
xfonts-intl-chinese-big
xfonts-intl-european
xfonts-intl-japanese
xfonts-intl-japanese-big
xfonts-intl-phonetic

2. For **Microsoft TrueType core fonts**, install the `msttcorefonts` package from the *Multiverse* repository (see *Chapter 3, Adding, Removing and Updating Applications* [p. 23]).
3. For **Ghostscript fonts**, install the `gsfonts-x11` package (see *Chapter 3, Adding, Removing and Updating Applications* [p. 23]).
4. After installing any new font, rebuild the font information files by typing the following at a terminal prompt:

```
sudo fc-cache -f -v
```

If you prefer to download individual fonts by hand, you can install them easily by opening Konqueror and typing `fonts:///` into the location bar. Then you can install the font, either system-wide or for personal use by dragging and dropping into the respective folders.

2. Files

2.1. Show hidden files and folders in Konqueror

- In Konqueror, use the View → Show Hidden Files to toggle hidden files and folders on and off.

2.2. Change the default file type "Open with" program

1. In Konqueror, right click on the file and choose Open With → Other... from the menu that appears. A list of applications appears.
2. Select the default application you want for the file type. If the application is not on the list, use the Add button to add the application to the list.
3. Select the Remember application association for this type of file checkbox. Click Ok to apply your changes.

2.3. Rename all files in a directory at once

Using the program Krename, it is possible to rename multiple files according to a naming scheme which you define.

1. Install the Krename package from the *Universe* repository (see *Section 6, "Managing Repositories" [p. 29]*).
2. Launch Krename by choosing K-menu → Utilities → Krename

2.4. Opening RAR files

1. To open rar files, install the unrar package from the *Multiverse* repository (see *Section 6, "Managing Repositories" [p. 29]*).
2. To open a rar file, double click on it.

3. Partitions and Booting

3.1. Graphical Partition Editor

1. Install the `qtparted` package (see *Section 6, “Managing Repositories” [p. 29]*).
2. You can run the application with: K-Menu → System → QtParted

3.2. Check disk space usage and view the partition table

1. Launch K-Menu → System Settings → Disks & Filesystems
2. Each partition will be listed under Available Disks and Filesystems details of each partition.

3.3. List mounted devices in a terminal

To list mounted devices in a terminal, run the following command:

```
mount
```

The listing shows the device (such as a hard disk partition), the mount point (where you access the files), the filesystem type and the mount options.

This example shows the `hda2` hard disk partition mounted as `/`, with the filesystem type `ext3`. The partition is mounted with two options, one to allow the device to be read from and wrote to and the other to remount the device as read only in the event of any errors.

```
/dev/hda2 on / type ext3 (rw,errors=remount-ro)
```

3.4. Mount/Unmount Windows partitions

1. Read *Section 3.2, “Check disk space usage and view the partition table” [p. 59]*
2. First, make a directory where the partition can be mounted:

```
sudo mkdir /mnt/windows
```

3. Next, run the following command to mount an NTFS Windows Partition and allow read-only access:

```
sudo mount /dev/hdaX /mnt/windows/ -t ntfs -o ro,umask=0222
```

If your Windows partition uses the FAT32 filesystem, it is safe to allow read-write access to the partition. Run the command

```
sudo mount /dev/hdaX /mnt/windows/ -t vfat -o umask=0000
```

instead of the one above.



Replace `/dev/hdaX` with the correct device name for your partition.

4. To unmount the partition, run the following command:

```
sudo umount /mnt/windows/
```

3.5. Mount Windows partitions on boot-up

1. Read *Section 3.2, “Check disk space usage and view the partition table”* [p. 59]
2. First, make a directory where the partition can be mounted:

```
sudo mkdir /mnt/windows
```

3. Next, backup your configuration file for mounting drives and open the file in a text editor with administrative privileges:

```
sudo cp /etc/fstab /etc/fstab_backup  
kdesu kate /etc/fstab
```


4. If your Windows partition uses the NTFS filesystem, append the following line at the end of file

```
/dev/hdaX /mnt/windows ntfs ro,umask=0222 0 0
```

If your Windows partition uses the FAT32 filesystem, it is safe to allow read-write access to the partition. Append the following line at the end of the file

```
/dev/hdaX /mnt/windows vfat umask=0000 0 0
```

instead of the one above.

 Replace **/dev/hdaX** with the correct device name for your partition.

5. Save the edited file (*an example* [../sample/fstab_automountntfs]).
6. Read *Section 3.6, “Remount /etc/fstab without rebooting”* [p. 60] .

3.6. Remount /etc/fstab without rebooting

- `sudo mount -a`

3.7. Run a system command automatically at Startup


Sometimes it can be useful to add a custom command to the startup process so that your computer executes it on every boot. To do this:

1. Edit the crontab with administrative privileges (see *Section 3, “Root And Sudo”* [p. 18]):

```
sudo crontab -e
```

2. Insert the following line:

```
@reboot /home/user/command
```

 Replace `/home/user/command` with the full path to your command.

3. Save the file and exit.

3.8. Change default Operating System at boot

1. Make a backup of your boot configuration file, and open it in a text editor:

```
sudo cp /boot/grub/menu.lst /boot/grub/menu.lst_backup
kdesu kate /boot/grub/menu.lst
```

2. Find this line:

```
...
default 0
...
```

3. Replace with the following line:

```
default X_sequence
```

4. Save the edited file (*an example* [../sample/menu.list_changedefaultosgrub])

3.9. Making the Boot Menu Visible

By default, the boot menu is hidden and you will need to hit **Esc** to see the boot menu. By following the following steps, it will be visible by default.

1. Make a backup of your boot configuration file, and open it in a text editor:

```
sudo cp /boot/grub/menu.lst /boot/grub/menu.lst_backup
kdesu kate /boot/grub/menu.lst
```

2. Find this line

```
# hiddenmenu
```

and uncomment it by removing the # in front of the line so that it looks like:

```
hiddenmenu
```

Save the edited file (*an example* [../sample/menu.list_unhidemenu])

3.10. Change the timeout for boot menu

- 1.

```
sudo cp /boot/grub/menu.lst /boot/grub/menu.lst_backup
kdesu kate /boot/grub/menu.lst
```

2. Find this line

```
...
timeout 3
...
```

3. Replace with the following line

```
timeout X_seconds
```

4. Save the edited file (*an example* [../sample/menu.list_increasedecreasetimeoutgrub])

4. Hardware

4.1. Digital Cameras

Most USB digital cameras will be automatically detected by Kubuntu. Simply plug in and switch on your USB digital camera, Kubuntu will then ask you if you would like to import the photos from your camera. Click on Import, Kubuntu will then show you a preview of your photos. Choose a location to save your photos to, then click on Import. Kubuntu will then save your photos to your hard drive.

If you do not get the auto-import popup with your camera, it might be worth installing digiKam from the *Universe* repository (see *Section 6, “Managing Repositories” [p. 29]*). Launch digiKam after installation by choosing K-Menu → Graphics → digiKam (Photo Management) from the desktop menu system.

4.2. 3D Graphic Cards

4.2.1. 3D Nvidia Video Card Driver

1. Install the `nvidia-glx` package from the *Restricted* repository (see *Chapter 3, Adding, Removing and Updating Applications [p. 23]*).
2.

```
sudo cp /etc/X11/xorg.conf /etc/X11/xorg.conf_backup
sudo nvidia-glx-config enable
```
3. You may adjust the settings of the new driver by running the application `nvidia-settings` (see *Section 1.5, “Start a Program Manually” [p. 55]*). If you wish, add a menu entry for this program (see *Section 1.8, “Edit K-Menu” [p. 56]*).
4. Read *Section 1.3, “Restart KDE without rebooting the computer” [p. 54]*

4.2.2. Disable the Nvidia Graphics Logo on Startup

1. Read *Section 4.2.1, “3D Nvidia Video Card Driver” [p. 63]*
2.

```
sudo cp /etc/X11/xorg.conf /etc/X11/xorg.conf_backup
kdesu kate /etc/X11/xorg.conf
```
3. Find this section

```
...
Section "Device"
Identifier "NVIDIA Corporation NV11 [GeForce2 MX/MX 400]"
Driver "nvidia"
BusID "PCI:1:0:0"
...
```
4. Add the following line below it

```
Option "NoLogo"
```

5. Save the edited file (*an example [./sample/xorg.conf_disablenvidialogo]*)

6. Read *Section 1.3, “Restart KDE without rebooting the computer”* [p. 54]

4.2.3. 3D ATI Video Card Driver

1. Install the `xorg-driver-fglrx` package from the *Restricted* repository (see *Chapter 3, Adding, Removing and Updating Applications* [p. 23]).

2.

```
echo fglrx | sudo tee -a /etc/modules
sudo depmod -a ; sudo modprobe fglrx
sudo cp /etc/X11/xorg.conf /etc/X11/xorg.conf_backup
sudo sed -i -e 's/"ati"/"fglrx"/' /etc/X11/xorg.conf
```

3. If you are using an NForce2-based motherboard you will also need to do the following:

```
kdesu kate /etc/X11/xorg.conf
```

Change “Section “Device”” add the following line:

```
Option "UseInternalAGPGART" "no"
```

4. Restart your machine for changes to take effect.

4.3. Wireless Cards

Many wireless cards are automatically detected by Kubuntu during installation. A complete listing of wireless cards which work with Kubuntu can be found on the *Ubuntu Wiki* [<https://wiki.ubuntu.com/HardwareSupportComponentsWirelessNetworkCards>]. Please add your wireless card to the list if it works with Kubuntu.

Some cards may not work out of the box with Kubuntu. If this is the case, please look at the *Wireless Troubleshooting Guide* [<https://wiki.ubuntu.com/WirelessTroubleshootingGuide>] on the Ubuntu Wiki which is an excellent resource for troubleshooting wireless cards.

All information regarding wireless networking on Kubuntu is collected at *Wireless Networking Central* [<https://wiki.ubuntu.com/WifiDocs>] on the Ubuntu Wiki.

4.3.1. List Wireless Devices

1. To list PCI devices:

```
lspci -v
```

2. To list USB devices:

```
lsusb -v
```

4.4. Configuring Keyboard

4.4.1. Change Keyboard Shortcuts

You might want to modify the default keyboard shortcuts in Kubuntu. To do so, choose K-Menu → System Settings → Regional & Accessibility from the desktop menu system. Select Keyboard Shortcuts button to modify your keyboard shortcuts.

4.4.2. Multiple Keyboard Layouts

You may want to have access to more than one keyboard layout. This is useful if you write in more than one language.

To add new keyboard layouts:

1. Choose: K-Menu → System Settings → Regional & Accessibility → Keyboard Layout
2. In the Layout tab, check the Enable Keyboard Layouts box.
3. Choose the country in which the keyboard layout you want is used, and click Add. The country should appear in the Active Layouts list.
4. Click the country in the Active Layouts list, and choose the appropriate Layout variant for the country selected. This is important for countries where more than one language are commonly spoken.
5. Click on Apply to save your settings.
6. A *flag icon* should now appear in the system tray showing the current keyboard layout being used. Click the *flag icon* to switch to the other keyboard layout.

4.4.3. Input Non-latin Characters

Skim is a KDE guipanel to input non-latin characters. To use Skim for input in your native language:

1. Ensure that your language-support package is installed. If you selected your native language during installation, this has already been installed.
2. Press **Ctrl-Space** to activate it and enter characters.
3. Configure Skim by right clicking the icon in the system tray, and choosing Configure

4.5. Modems

4.5.1. Winmodems

Most winmodems are not supported by Kubuntu by default, but drivers can be found that will enable the use of such modems. First you need to identify what chipset your winmodem is using:

```
wget -c http://linmodems.technion.ac.il/packages/scanModem.gz
gunzip -c scanModem.gz > scanModem
chmod +x scanModem
sudo ./scanModem
kate Modem/ModemData.txt
```

Check the output in Kate, it should list what modem chipset you have. Once you are aware of the chipset you have, see *SettingUpModems* [<https://wiki.ubuntu.com/SettingUpModems>] and follow the directions for your modem.

4.5.2. ADSL Modems

All PPOE and ADSL modems that use ethernet for the connection (and some that use USB) are supported by Kubuntu. For router-style ADSL modems, just connect it up, configure the modem as per your ISPs instructions and configure networking in Kubuntu. For information on PPPOE modems see *ADSLPPoE* [<https://wiki.ubuntu.com/ADSLPPPoE>] on the Ubuntu wiki.

4.6. Printers

Some printers will be automatically detected by Kubuntu; for those that are not, choose K-Menu → System Settings → Printers then choose Add → Add Printer/Class and run the Printer Install Wizard.

There are some printers that need further setup. Search the databases at *LinuxPrinting.org* [<http://www.linuxprinting.org/>] or check the *Ubuntu Wiki's Printer page* [<https://wiki.ubuntu.com/HardwareSupportComponentsPrinters>] for possible information on your printer.

4.7. CDROMs

4.7.1. Speed up CD/DVD-ROM access (enable DMA)

1. Assuming that `/dev/cdrom` is the location of the CD/DVD-ROM

- 2.

```
sudo hdparm -d1 /dev/cdrom
sudo cp /etc/hdparm.conf /etc/hdparm.conf_backup
kdesu kate /etc/hdparm.conf
```

3. Append the following lines at the end of file

```
/dev/cdrom {
dma = on
}
```

4. Save the edited file (*an example* [`./sample/hdparm.conf_speedupcddvdrom`])

4.7.2. Mount CD/DVD-ROMs and show all hidden and associated files

1. Assuming that `/media/cdrom0/` is the location of CD/DVD-ROM

2. To mount CD/DVD-ROM

```
sudo mount /media/cdrom0/ -o unhide
```

3. To unmount CD/DVD-ROM

```
sudo umount /media/cdrom0/
```

4.7.3. Forcefully eject CD/DVD-ROMs manually

- `sudo eject`

5. Networking

5.1. Change the Computer Name

1. K-Menu → System Settings → Network Settings
2. Click on the Administrator Mode... and enter your user password to gain administrator privileges.
3. Select the Domain Name System tab. Enter the name of the computer in the Hostname field.
4. Click Apply, close all open applications and reboot.

5.2. View remote SSH, FTP, and SFTP servers using Konqueror

- In the Location Bar, enter the following:

For SSH, use:

```
ssh://username@ssh.server.com
```

For FTP, use:

```
ftp://username@ftp.server.com
```

For SFTP, use:

```
sftp://username@sftp.server.com
```

Replace username with your username and replace everything after the @ symbol with the server's address. You will be prompted for a password if needed. If there is no username (anonymous) omit the username and the @ symbol.

Alternatively, to specify your password manually, change one of the above like so:

```
ftp://username:password@ftp.server.com
```

5.3. Networking Utilities

5.3.1. Guarddog Firewall

A firewall protects a computer system from unauthorized access. It is not normally necessary to install a firewall on a Kubuntu system, because by default, access to the system is closed. However, if you run any services which you allow other computers to access (for example, the Apache web server), it is advisable to install a firewall. Guarddog is a program which allows you to control Linux's firewall through a graphical interface.

1. Install the Guarddog package from the *Universe* repository (see *Section 6, "Managing Repositories" [p. 29]*).
2. After it is installed, run the Guarddog by choosing K-Menu → System → Guarddog
3. Enter *your* password in the Run as root -KDE su dialog box which pops up.

4. Click the Help in the Firewall Configuration window for details on using Guarddog.

5.3.2. Graphical Network Monitor

Etherape displays network activity among different hosts using circles of varying size.

1. Install the etherape package from the *Universe* repository (see *Section 6, “Managing Repositories” [p. 29]*).
2. Choose: K-Menu → Internet → Etherape

5.3.3. Network Traffic Analyzer

Ethereal is a network traffic analyzer/sniffer that captures packets off the network in real time and displays their contents.

1. Install the ethereal package from the *Universe* repository (see *Section 6, “Managing Repositories” [p. 29]*).
2. Choose: K-Menu → Internet → Ethereal

Appendix A. Creative Commons by Attribution-ShareAlike 2.0

CREATIVE COMMONS CORPORATION IS NOT A LAW FIRM AND DOES NOT PROVIDE LEGAL SERVICES. DISTRIBUTION OF THIS LICENSE DOES NOT CREATE AN ATTORNEY-CLIENT RELATIONSHIP. CREATIVE COMMONS PROVIDES THIS INFORMATION ON AN "AS-IS" BASIS. CREATIVE COMMONS MAKES NO WARRANTIES REGARDING THE INFORMATION PROVIDED, AND DISCLAIMS LIABILITY FOR DAMAGES RESULTING FROM ITS USE.

License

THE WORK (AS DEFINED BELOW) IS PROVIDED UNDER THE TERMS OF THIS CREATIVE COMMONS PUBLIC LICENSE ("CCPL" OR "LICENSE"). THE WORK IS PROTECTED BY COPYRIGHT AND/OR OTHER APPLICABLE LAW. ANY USE OF THE WORK OTHER THAN AS AUTHORIZED UNDER THIS LICENSE OR COPYRIGHT LAW IS PROHIBITED.

BY EXERCISING ANY RIGHTS TO THE WORK PROVIDED HERE, YOU ACCEPT AND AGREE TO BE BOUND BY THE TERMS OF THIS LICENSE. THE LICENSOR GRANTS YOU THE RIGHTS CONTAINED HERE IN CONSIDERATION OF YOUR ACCEPTANCE OF SUCH TERMS AND CONDITIONS.

1. **Definitions.**

- a. "**Collective Work**" means a work, such as a periodical issue, anthology or encyclopedia, in which the Work in its entirety in unmodified form, along with a number of other contributions, constituting separate and independent works in themselves, are assembled into a collective whole. A work that constitutes a Collective Work will not be considered a Derivative Work (as defined below) for the purposes of this License.
- b. "**Derivative Work**" means a work based upon the Work or upon the Work and other pre-existing works, such as a translation, musical arrangement, dramatization, fictionalization, motion picture version, sound recording, art reproduction, abridgment, condensation, or any other form in which the Work may be recast, transformed, or adapted, except that a work that constitutes a Collective Work will not be considered a Derivative Work for the purpose of this License. For the avoidance of doubt, where the Work is a musical composition or sound recording, the synchronization of the Work in timed-relation with a moving image ("synching") will be considered a Derivative Work for the purpose of this License.
- c. "**Licensor**" means the individual or entity that offers the Work under the terms of this License.
- d. "**Original Author**" means the individual or entity who created the Work.
- e. "**Work**" means the copyrightable work of authorship offered under the terms of this License.
- f. "**You**" means an individual or entity exercising rights under this License who has not previously violated the terms of this License with respect to the Work, or who has received

express permission from the Licensor to exercise rights under this License despite a previous violation.

- g. "**License Elements**" means the following high-level license attributes as selected by Licensor and indicated in the title of this License: Attribution, ShareAlike.
2. **Fair Use Rights.** Nothing in this license is intended to reduce, limit, or restrict any rights arising from fair use, first sale or other limitations on the exclusive rights of the copyright owner under copyright law or other applicable laws.
3. **License Grant.** Subject to the terms and conditions of this License, Licensor hereby grants You a worldwide, royalty-free, non-exclusive, perpetual (for the duration of the applicable copyright) license to exercise the rights in the Work as stated below:
- a. to reproduce the Work, to incorporate the Work into one or more Collective Works, and to reproduce the Work as incorporated in the Collective Works;
 - b. to create and reproduce Derivative Works;
 - c. to distribute copies or phonorecords of, display publicly, perform publicly, and perform publicly by means of a digital audio transmission the Work including as incorporated in Collective Works;
 - d. to distribute copies or phonorecords of, display publicly, perform publicly, and perform publicly by means of a digital audio transmission Derivative Works.
 - e. For the avoidance of doubt, where the work is a musical composition:
 - i. "**Performance Royalties Under Blanket Licenses.**" Licensor waives the exclusive right to collect, whether individually or via a performance rights society (e.g. ASCAP, BMI, SESAC), royalties for the public performance or public digital performance (e.g. webcast) of the Work.
 - ii. "**Mechanical Rights and Statutory Royalties.**" Licensor waives the exclusive right to collect, whether individually or via a music rights society or designated agent (e.g. Harry Fox Agency), royalties for any phonorecord You create from the Work ("cover version") and distribute, subject to the compulsory license created by 17 USC Section 115 of the US Copyright Act (or the equivalent in other jurisdictions).
 - f. "**Webcasting Rights and Statutory Royalties.**" For the avoidance of doubt, where the Work is a sound recording, Licensor waives the exclusive right to collect, whether individually or via a performance-rights society (e.g. SoundExchange), royalties for the public digital performance (e.g. webcast) of the Work, subject to the compulsory license created by 17 USC Section 114 of the US Copyright Act (or the equivalent in other jurisdictions).

The above rights may be exercised in all media and formats whether now known or hereafter devised. The above rights include the right to make such modifications as are technically necessary to exercise the rights in other media and formats. All rights not expressly granted by Licensor are hereby reserved.

4. **Restrictions.** The license granted in Section 3 above is expressly made subject to and limited by the following restrictions:

- a. You may distribute, publicly display, publicly perform, or publicly digitally perform the Work only under the terms of this License, and You must include a copy of, or the Uniform Resource Identifier for, this License with every copy or phonorecord of the Work You distribute, publicly display, publicly perform, or publicly digitally perform. You may not offer or impose any terms on the Work that alter or restrict the terms of this License or the recipients' exercise of the rights granted hereunder. You may not sublicense the Work. You must keep intact all notices that refer to this License and to the disclaimer of warranties. You may not distribute, publicly display, publicly perform, or publicly digitally perform the Work with any technological measures that control access or use of the Work in a manner inconsistent with the terms of this License Agreement. The above applies to the Work as incorporated in a Collective Work, but this does not require the Collective Work apart from the Work itself to be made subject to the terms of this License. If You create a Collective Work, upon notice from any Licensor You must, to the extent practicable, remove from the Collective Work any reference to such Licensor or the Original Author, as requested. If You create a Derivative Work, upon notice from any Licensor You must, to the extent practicable, remove from the Derivative Work any reference to such Licensor or the Original Author, as requested.
- b. You may distribute, publicly display, publicly perform, or publicly digitally perform a Derivative Work only under the terms of this License, a later version of this License with the same License Elements as this License, or a Creative Commons iCommons license that contains the same License Elements as this License (e.g. Attribution-ShareAlike 2.0 Japan). You must include a copy of, or the Uniform Resource Identifier for, this License or other license specified in the previous sentence with every copy or phonorecord of each Derivative Work You distribute, publicly display, publicly perform, or publicly digitally perform. You may not offer or impose any terms on the Derivative Works that alter or restrict the terms of this License or the recipients' exercise of the rights granted hereunder, and You must keep intact all notices that refer to this License and to the disclaimer of warranties. You may not distribute, publicly display, publicly perform, or publicly digitally perform the Derivative Work with any technological measures that control access or use of the Work in a manner inconsistent with the terms of this License Agreement. The above applies to the Derivative Work as incorporated in a Collective Work, but this does not require the Collective Work apart from the Derivative Work itself to be made subject to the terms of this License.
- c. If you distribute, publicly display, publicly perform, or publicly digitally perform the Work or any Derivative Works or Collective Works, You must keep intact all copyright notices for the Work and give the Original Author credit reasonable to the medium or means You are utilizing by conveying the name (or pseudonym if applicable) of the Original Author if supplied; the title of the Work if supplied; to the extent reasonably practicable, the Uniform Resource Identifier, if any, that Licensor specifies to be associated with the Work, unless such URI does not refer to the copyright notice or licensing information for the Work; and in the case of a Derivative Work, a credit identifying the use of the Work in the Derivative Work (e.g., "French translation of the Work by Original Author," or "Screenplay based on original Work by Original Author"). Such credit may be implemented in any reasonable manner; provided, however, that in the case

of a Derivative Work or Collective Work, at a minimum such credit will appear where any other comparable authorship credit appears and in a manner at least as prominent as such other comparable authorship credit.

5. Representations, Warranties and Disclaimer

UNLESS OTHERWISE AGREED TO BY THE PARTIES IN WRITING, LICENSOR OFFERS THE WORK AS-IS AND MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND CONCERNING THE MATERIALS, EXPRESS, IMPLIED, STATUTORY OR OTHERWISE, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF TITLE, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NONINFRINGEMENT, OR THE ABSENCE OF LATENT OR OTHER DEFECTS, ACCURACY, OR THE PRESENCE OF ABSENCE OF ERRORS, WHETHER OR NOT DISCOVERABLE. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OF IMPLIED WARRANTIES, SO SUCH EXCLUSION MAY NOT APPLY TO YOU.

6. Limitation on Liability. EXCEPT TO THE EXTENT REQUIRED BY APPLICABLE LAW, IN NO EVENT WILL LICENSOR BE LIABLE TO YOU ON ANY LEGAL THEORY FOR ANY SPECIAL, INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR EXEMPLARY DAMAGES ARISING OUT OF THIS LICENSE OR THE USE OF THE WORK, EVEN IF LICENSOR HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

7. Termination

- a. This License and the rights granted hereunder will terminate automatically upon any breach by You of the terms of this License. Individuals or entities who have received Derivative Works or Collective Works from You under this License, however, will not have their licenses terminated provided such individuals or entities remain in full compliance with those licenses. Sections 1, 2, 5, 6, 7, and 8 will survive any termination of this License.
- b. Subject to the above terms and conditions, the license granted here is perpetual (for the duration of the applicable copyright in the Work). Notwithstanding the above, Licensor reserves the right to release the Work under different license terms or to stop distributing the Work at any time; provided, however that any such election will not serve to withdraw this License (or any other license that has been, or is required to be, granted under the terms of this License), and this License will continue in full force and effect unless terminated as stated above.

8. Miscellaneous

- a. Each time You distribute or publicly digitally perform the Work or a Collective Work, the Licensor offers to the recipient a license to the Work on the same terms and conditions as the license granted to You under this License.
- b. Each time You distribute or publicly digitally perform a Derivative Work, Licensor offers to the recipient a license to the original Work on the same terms and conditions as the license granted to You under this License.
- c. If any provision of this License is invalid or unenforceable under applicable law, it shall not affect the validity or enforceability of the remainder of the terms of this License, and without

further action by the parties to this agreement, such provision shall be reformed to the minimum extent necessary to make such provision valid and enforceable.

- d. No term or provision of this License shall be deemed waived and no breach consented to unless such waiver or consent shall be in writing and signed by the party to be charged with such waiver or consent.
- e. This License constitutes the entire agreement between the parties with respect to the Work licensed here. There are no understandings, agreements or representations with respect to the Work not specified here. Licensor shall not be bound by any additional provisions that may appear in any communication from You. This License may not be modified without the mutual written agreement of the Licensor and You.

Creative Commons is not a party to this License, and makes no warranty whatsoever in connection with the Work. Creative Commons will not be liable to You or any party on any legal theory for any damages whatsoever, including without limitation any general, special, incidental or consequential damages arising in connection to this license. Notwithstanding the foregoing two (2) sentences, if Creative Commons has expressly identified itself as the Licensor hereunder, it shall have all rights and obligations of Licensor.

Except for the limited purpose of indicating to the public that the Work is licensed under the CCPL, neither party will use the trademark "Creative Commons" or any related trademark or logo of Creative Commons without the prior written consent of Creative Commons. Any permitted use will be in compliance with Creative Commons' then-current trademark usage guidelines, as may be published on its website or otherwise made available upon request from time to time.

Creative Commons may be contacted at <http://creativecommons.org/>.

Appendix B. GNU Free Documentation License

Version 1.2, November 2002

Copyright © 2000,2001,2002 Free Software Foundation, Inc.

Free Software Foundation, Inc.

51 Franklin St, Fifth Floor,

Boston,

MA

02110-1301

USA

Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Version 1.2, November 2002

PREAMBLE

The purpose of this License is to make a manual, textbook, or other functional and useful document "free" in the sense of freedom: to assure everyone the effective freedom to copy and redistribute it, with or without modifying it, either commercially or noncommercially. Secondly, this License preserves for the author and publisher a way to get credit for their work, while not being considered responsible for modifications made by others.

This License is a kind of "copyleft", which means that derivative works of the document must themselves be free in the same sense. It complements the GNU General Public License, which is a copyleft license designed for free software.

We have designed this License in order to use it for manuals for free software, because free software needs free documentation: a free program should come with manuals providing the same freedoms that the software does. But this License is not limited to software manuals; it can be used for any textual work, regardless of subject matter or whether it is published as a printed book. We recommend this License principally for works whose purpose is instruction or reference.

APPLICABILITY AND DEFINITIONS

This License applies to any manual or other work, in any medium, that contains a notice placed by the copyright holder saying it can be distributed under the terms of this License. Such a notice grants a world-wide, royalty-free license, unlimited in duration, to use that work under the conditions stated herein. The "Document", below, refers to any such manual or work. Any member of the public is a licensee, and is addressed as "you". You accept the license if you copy, modify or distribute the work in a way requiring permission under copyright law.

A "Modified Version" of the Document means any work containing the Document or a portion of it, either copied verbatim, or with modifications and/or translated into another language.

A "Secondary Section" is a named appendix or a front-matter section of the Document that deals exclusively with the relationship of the publishers or authors of the Document to the Document's overall subject (or to related matters) and contains nothing that could fall directly within that overall subject. (Thus, if the Document is in part a textbook of mathematics, a Secondary Section may not explain any mathematics.) The relationship could be a matter of historical connection with the subject or with related matters, or of legal, commercial, philosophical, ethical or political position regarding them.

The "Invariant Sections" are certain Secondary Sections whose titles are designated, as being those of Invariant Sections, in the notice that says that the Document is released under this License. If a section does not fit the above definition of Secondary then it is not allowed to be designated as Invariant. The Document may contain zero Invariant Sections. If the Document does not identify any Invariant Sections then there are none.

The "Cover Texts" are certain short passages of text that are listed, as Front-Cover Texts or Back-Cover Texts, in the notice that says that the Document is released under this License. A Front-Cover Text may be at most 5 words, and a Back-Cover Text may be at most 25 words.

A "Transparent" copy of the Document means a machine-readable copy, represented in a format whose specification is available to the general public, that is suitable for revising the document straightforwardly with generic text editors or (for images composed of pixels) generic paint programs or (for drawings) some widely available drawing editor, and that is suitable for input to text formatters or for automatic translation to a variety of formats suitable for input to text formatters. A copy made in an otherwise Transparent file format whose markup, or absence of markup, has been arranged to thwart or discourage subsequent modification by readers is not Transparent. An image format is not Transparent if used for any substantial amount of text. A copy that is not "Transparent" is called "Opaque".

Examples of suitable formats for Transparent copies include plain ASCII without markup, Texinfo input format, LaTeX input format, SGML or XML using a publicly available DTD, and standard-conforming simple HTML, PostScript or PDF designed for human modification. Examples of transparent image formats include PNG, XCF and JPG. Opaque formats include proprietary formats that can be read and edited only by proprietary word processors, SGML or XML for which the DTD and/or processing tools are not generally available, and the machine-generated HTML, PostScript or PDF produced by some word processors for output purposes only.

The "Title Page" means, for a printed book, the title page itself, plus such following pages as are needed to hold, legibly, the material this License requires to appear in the title page. For works in formats which do not have any title page as such, "Title Page" means the text near the most prominent appearance of the work's title, preceding the beginning of the body of the text.

A section "Entitled XYZ" means a named subunit of the Document whose title either is precisely XYZ or contains XYZ in parentheses following text that translates XYZ in another language. (Here XYZ stands for a specific section name mentioned below, such as "Acknowledgements", "Dedications", "Endorsements", or "History".) To "Preserve the Title" of such a section when you modify the Document means that it remains a section "Entitled XYZ" according to this definition.

The Document may include Warranty Disclaimers next to the notice which states that this License applies to the Document. These Warranty Disclaimers are considered to be included by reference in this License, but only as regards disclaiming warranties: any other implication that these Warranty Disclaimers may have is void and has no effect on the meaning of this License.

VERBATIM COPYING

You may copy and distribute the Document in any medium, either commercially or noncommercially, provided that this License, the copyright notices, and the license notice saying this License applies to the Document are reproduced in all copies, and that you add no other conditions whatsoever to those of this License. You may not use technical measures to obstruct or control the reading or further copying of the copies you make or distribute. However, you may accept compensation in exchange for copies. If you distribute a large enough number of copies you must also follow the conditions in section 3.

You may also lend copies, under the same conditions stated above, and you may publicly display copies.

COPYING IN QUANTITY

If you publish printed copies (or copies in media that commonly have printed covers) of the Document, numbering more than 100, and the Document's license notice requires Cover Texts, you must enclose the copies in covers that carry, clearly and legibly, all these Cover Texts: Front-Cover Texts on the front cover, and Back-Cover Texts on the back cover. Both covers must also clearly and legibly identify you as the publisher of these copies. The front cover must present the full title with all words of the title equally prominent and visible. You may add other material on the covers in addition. Copying with changes limited to the covers, as long as they preserve the title of the Document and satisfy these conditions, can be treated as verbatim copying in other respects.

If the required texts for either cover are too voluminous to fit legibly, you should put the first ones listed (as many as fit reasonably) on the actual cover, and continue the rest onto adjacent pages.

If you publish or distribute Opaque copies of the Document numbering more than 100, you must either include a machine-readable Transparent copy along with each Opaque copy, or state in or with each Opaque copy a computer-network location from which the general network-using public has access to download using public-standard network protocols a complete Transparent copy of the Document, free of added material. If you use the latter option, you must take reasonably prudent steps, when you begin distribution of Opaque copies in quantity, to ensure that this Transparent

copy will remain thus accessible at the stated location until at least one year after the last time you distribute an Opaque copy (directly or through your agents or retailers) of that edition to the public.

It is requested, but not required, that you contact the authors of the Document well before redistributing any large number of copies, to give them a chance to provide you with an updated version of the Document.

MODIFICATIONS

You may copy and distribute a Modified Version of the Document under the conditions of sections 2 and 3 above, provided that you release the Modified Version under precisely this License, with the Modified Version filling the role of the Document, thus licensing distribution and modification of the Modified Version to whoever possesses a copy of it. In addition, you must do these things in the Modified Version:

GNU FDL Modification Conditions

- A. Use in the Title Page (and on the covers, if any) a title distinct from that of the Document, and from those of previous versions (which should, if there were any, be listed in the History section of the Document). You may use the same title as a previous version if the original publisher of that version gives permission.
- B. List on the Title Page, as authors, one or more persons or entities responsible for authorship of the modifications in the Modified Version, together with at least five of the principal authors of the Document (all of its principal authors, if it has fewer than five), unless they release you from this requirement.
- C. State on the Title page the name of the publisher of the Modified Version, as the publisher.
- D. Preserve all the copyright notices of the Document.
- E. Add an appropriate copyright notice for your modifications adjacent to the other copyright notices.
- F. Include, immediately after the copyright notices, a license notice giving the public permission to use the Modified Version under the terms of this License, in the form shown in the *Addendum* [p. 80] below.
- G. Preserve in that license notice the full lists of Invariant Sections and required Cover Texts given in the Document's license notice.
- H. Include an unaltered copy of this License.
- I. Preserve the section Entitled "History", Preserve its Title, and add to it an item stating at least the title, year, new authors, and publisher of the Modified Version as given on the Title Page. If there is no section Entitled "History" in the Document, create one stating the title, year, authors, and publisher of the Document as given on its Title Page, then add an item describing the Modified Version as stated in the previous sentence.
- J. Preserve the network location, if any, given in the Document for public access to a Transparent copy of the Document, and likewise the network locations given in the Document for previous versions it was based on. These may be placed in the "History" section. You may omit a network

location for a work that was published at least four years before the Document itself, or if the original publisher of the version it refers to gives permission.

- K. For any section Entitled "Acknowledgements" or "Dedications", Preserve the Title of the section, and preserve in the section all the substance and tone of each of the contributor acknowledgements and/or dedications given therein.
- L. Preserve all the Invariant Sections of the Document, unaltered in their text and in their titles. Section numbers or the equivalent are not considered part of the section titles.
- M. Delete any section Entitled "Endorsements". Such a section may not be included in the Modified Version.
- N. Do not retitle any existing section to be Entitled "Endorsements" or to conflict in title with any Invariant Section.
- O. Preserve any Warranty Disclaimers.

If the Modified Version includes new front-matter sections or appendices that qualify as Secondary Sections and contain no material copied from the Document, you may at your option designate some or all of these sections as invariant. To do this, add their titles to the list of Invariant Sections in the Modified Version's license notice. These titles must be distinct from any other section titles.

You may add a section Entitled "Endorsements", provided it contains nothing but endorsements of your Modified Version by various parties--for example, statements of peer review or that the text has been approved by an organization as the authoritative definition of a standard.

You may add a passage of up to five words as a Front-Cover Text, and a passage of up to 25 words as a Back-Cover Text, to the end of the list of Cover Texts in the Modified Version. Only one passage of Front-Cover Text and one of Back-Cover Text may be added by (or through arrangements made by) any one entity. If the Document already includes a cover text for the same cover, previously added by you or by arrangement made by the same entity you are acting on behalf of, you may not add another; but you may replace the old one, on explicit permission from the previous publisher that added the old one.

The author(s) and publisher(s) of the Document do not by this License give permission to use their names for publicity for or to assert or imply endorsement of any Modified Version.

COMBINING DOCUMENTS

You may combine the Document with other documents released under this License, under the terms defined in *section 4 [p. 77]* above for modified versions, provided that you include in the combination all of the Invariant Sections of all of the original documents, unmodified, and list them all as Invariant Sections of your combined work in its license notice, and that you preserve all their Warranty Disclaimers.

The combined work need only contain one copy of this License, and multiple identical Invariant Sections may be replaced with a single copy. If there are multiple Invariant Sections with the same name but different contents, make the title of each such section unique by adding at the end of it, in

parentheses, the name of the original author or publisher of that section if known, or else a unique number. Make the same adjustment to the section titles in the list of Invariant Sections in the license notice of the combined work.

In the combination, you must combine any sections Entitled "History" in the various original documents, forming one section Entitled "History"; likewise combine any sections Entitled "Acknowledgements", and any sections Entitled "Dedications". You must delete all sections Entitled "Endorsements".

COLLECTIONS OF DOCUMENTS

You may make a collection consisting of the Document and other documents released under this License, and replace the individual copies of this License in the various documents with a single copy that is included in the collection, provided that you follow the rules of this License for verbatim copying of each of the documents in all other respects.

You may extract a single document from such a collection, and distribute it individually under this License, provided you insert a copy of this License into the extracted document, and follow this License in all other respects regarding verbatim copying of that document.

AGGREGATION WITH INDEPENDENT WORKS

A compilation of the Document or its derivatives with other separate and independent documents or works, in or on a volume of a storage or distribution medium, is called an "aggregate" if the copyright resulting from the compilation is not used to limit the legal rights of the compilation's users beyond what the individual works permit. When the Document is included in an aggregate, this License does not apply to the other works in the aggregate which are not themselves derivative works of the Document.

If the Cover Text requirement of section 3 is applicable to these copies of the Document, then if the Document is less than one half of the entire aggregate, the Document's Cover Texts may be placed on covers that bracket the Document within the aggregate, or the electronic equivalent of covers if the Document is in electronic form. Otherwise they must appear on printed covers that bracket the whole aggregate.

TRANSLATION

Translation is considered a kind of modification, so you may distribute translations of the Document under the terms of section 4. Replacing Invariant Sections with translations requires special permission from their copyright holders, but you may include translations of some or all Invariant Sections in addition to the original versions of these Invariant Sections. You may include a translation of this License, and all the license notices in the Document, and any Warranty Disclaimers, provided that you also include the original English version of this License and the original versions of those notices and disclaimers. In case of a disagreement between the translation and the original version of this License or a notice or disclaimer, the original version will prevail.

If a section in the Document is Entitled "Acknowledgements", "Dedications", or "History", the requirement (section 4) to Preserve its Title (section 1) will typically require changing the actual title.

TERMINATION

You may not copy, modify, sublicense, or distribute the Document except as expressly provided for under this License. Any other attempt to copy, modify, sublicense or distribute the Document is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

FUTURE REVISIONS OF THIS LICENSE

The Free Software Foundation may publish new, revised versions of the GNU Free Documentation License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns. See <http://www.gnu.org/copyleft/>.

Each version of the License is given a distinguishing version number. If the Document specifies that a particular numbered version of this License "or any later version" applies to it, you have the option of following the terms and conditions either of that specified version or of any later version that has been published (not as a draft) by the Free Software Foundation. If the Document does not specify a version number of this License, you may choose any version ever published (not as a draft) by the Free Software Foundation.

ADDENDUM: How to use this License for your documents

To use this License in a document you have written, include a copy of the License in the document and put the following copyright and license notices just after the title page:

Sample Invariant Sections list

Copyright (c) YEAR YOUR NAME. Permission is granted to copy, distribute and/or modify this document under the terms of the GNU Free Documentation License, Version 1.2 or any later version published by the Free Software Foundation; with no Invariant Sections, no Front-Cover Texts, and no Back-Cover Texts. A copy of the license is included in the section entitled "GNU Free Documentation License".

If you have Invariant Sections, Front-Cover Texts and Back-Cover Texts, replace the "with...Texts." line with this:

Sample Invariant Sections list

with the Invariant Sections being LIST THEIR TITLES, with the Front-Cover Texts being LIST, and with the Back-Cover Texts being LIST.

If you have Invariant Sections without Cover Texts, or some other combination of the three, merge those two alternatives to suit the situation.

If your document contains nontrivial examples of program code, we recommend releasing these examples in parallel under your choice of free software license, such as the GNU General Public License, to permit their use in free software.