

Working with your desktop

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Abstract

A comprehensive guide to using Ubuntu in a desktop environment.

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Chapter 1. Linux Basics

Linux is inspired by the Unix operating system which first appeared in 1969, and has been in continuous use and development ever since. Many of the design conventions behind Unix also exist in Linux and are central to understanding the basics of the system.

Unix was primarily oriented towards the command line interface, and that legacy is carried on in Linux. Thus, the graphical user interface with its windows, icons and menus are built on top of a basic command line interface. Furthermore, this means that the Linux file system is structured to be easily manageable and accessible from the command line.

1. Directories and File Systems

Linux and Unix file systems are organised in a hierarchical, tree-like structure. The highest level of the file system is the `/` or *root directory*. In the Unix and Linux design philosophy, everything is considered a file - including hard disks, partitions and removable media. This means that all other files and directories (including other disks and partitions) 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, there is a set of important system directories that are common across most Linux distributions that are used. The following is a listing of common directories that are directly under the root (`/`) directory:

- `/bin` - important *binary* applications
- `/boot` - files that are required to *boot* the computer
- `/dev` - the *device* files
- `/etc` - configuration files, startup scripts, *etc...*
- `/home` - local users' *home* directories
- `/lib` - system *libraries*
- `/lost+found` - provides a *lost+found* system for files that exist under the root (`/`) directory
- `/media` - mounted (loaded) removable *media* such as CDs, digital cameras, *etc...*
- `/mnt` - *mounted* filesystems
- `/opt` - provides a location for *optional* applications to be installed
- `/proc` - special dynamic directory that maintains information about the state of the system, including currently running *processes*
- `/root` - *root* user home directory, pronounced 'slash-root'
- `/sbin` - important system *binaries*
- `/sys` - contains information about the *system*
- `/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. The super user "root" has the ability to access any file on the system. Each file has access restrictions, user restrictions and have an owner/group association.

Every file is secured by the following three sets 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 Places → Home Folder and right-click on a file or directory. Then select Properties. The permissions exist under the Permissions tab and allow for the editing of all permission levels, if you are the owner of the file.

To learn more about file permissions in Linux, read the *file permissions page* [<https://help.ubuntu.com/community/FilePermissions>] in the Ubuntu Wiki.

3. Terminals

Working at the command line is not as daunting a task as you would think. There is no special knowledge needed to know how to use the command line, 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 a file browser and indeed it is still used as a file browser, in the event of the graphical environment failing. You can use the terminal as a file browser to navigate your files and undo the changes that have been made.

3.1. Starting the Terminal

To start Terminal choose Applications → Accessories → Terminal .

3.2. 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 (ChangeDirectory) 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 -rf command will remove any directory you specify.

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

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

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

The locate command will search your computer 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 updatedb. This command is run automatically each day, if you leave your computer on. It needs to be run with administrative privileges (see *Chapter 2, Administrative Tasks [p. 8]*).

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

For a more thorough introduction to the Linux command line, please read the *command line introduction* [<https://help.ubuntu.com/community/BasicCommands>] on the Ubuntu wiki.

3.3. Switch to Console mode

The usual method of command-line access in Ubuntu is to start a terminal (see *Section 3.1, "Starting the Terminal" [p. 4]* 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**.

3.4. Disable the beep sound in Terminal mode

1. Start a Terminal session, select: Applications → Accessories → Terminal from the desktop menu system.
2. Edit → Current Profile... . Select the General tab. Uncheck the Terminal bell checkbox.

4. 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.

Gedit is the default Ubuntu text editor, which you can launch by clicking Applications → Accessories → Text Editor on the desktop menu system.

At times in this guide, Gedit is run from the command line using `gksudo`, which runs Gedit with administrative privileges, in order to modify configuration files.

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://help.ubuntu.com/community/NanoHowto>].

There are also quite a few other terminal-based editors available in Ubuntu, 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.

5. Users and Groups

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

② Remember to log off and log back in order for the changes to become effective.

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

To add a new group, select the Groups tab and click Add group. 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 is as simple as adding one: select a 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 Properties button.

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


Chapter 2. Administrative Tasks

In Ubuntu, for security reasons, administrative tasks are confined to users with special privileges. Administrative access is given to individual users, who may use the `sudo` command 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 5, “Users and Groups”* [p. 7] 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, which by default is 15 minutes, but can be changed. 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 on using `sudo`:

- To use a "root" terminal, type "`sudo -i`" at the command line.
- All of the default graphical configuration tools in Ubuntu already use `sudo`, so they will prompt you for your password if needed.
- For more information on the `sudo` program and the absence of a root user in Ubuntu, read the *sudo page* [<https://help.ubuntu.com/community/RootSudo>] on the Ubuntu wiki.

Chapter 3. Adding, Removing and Updating Applications

1. What is a package manager?

To add or remove applications in Ubuntu, you need to use a *package manager*. This is a program that installs and uninstalls software, and keeps track of all the components each piece of software needs.

There are three main package managers you can use in Ubuntu:

- *Add/Remove Programs* - The easiest way to install and uninstall programs.
- *Synaptic* - Advanced control of software and other system components.
- *Apt* - For if you prefer using the Terminal.

If you open more than one of these programs at once, they may not work. Close them all and open just one.

You need administrative access to use any of these programs.

- *Chapter 2, Administrative Tasks [p. 8]*

2. Add/Remove Applications

With the Add/Remove... item in the Applications menu, you can install programs to do new things with Ubuntu. You can also remove programs you don't want. You need administrative access to use Add/Remove Programs.

- *Chapter 2, Administrative Tasks [p. 8]*

If you know the name of a program you want to install, enter it in the Search field. Otherwise, begin by choosing a software category on the left.

Programs that are already installed begin with a check mark next to their name. Uncheck a program if you want to remove it from your computer.

When you click Apply or OK, any new software will be downloaded from the Internet, and Ubuntu will make the changes you selected. If you have not activated the online package archive, you may be asked to insert your Ubuntu CD-ROM to install some packages.

Some software cannot be installed or removed using Add/Remove Applications. If you cannot find the package you are looking for, click Advanced to open Synaptic.

3. Synaptic Package Manager

Synaptic is an advanced package management application that can install and remove every package available to your system. The interface is graphical like Add/Remove Applications, but presents much more information and gives you complete control over the software on your computer.

To launch Synaptic, from the System menu choose Administration → Synaptic Package Manager. You need administrative access to use Synaptic.

- *Chapter 2, Administrative Tasks [p. 8]*

If you know the name of the package you want to install or remove, click the Search button, and enter the package name or a short search term. You can also search for packages by description (for example, you can find all packages mentioning “*arcade*” or “*mathematics*”).

Use the categories on the left to filter the list of packages. To return to the list of categories after doing a search, click Sections.

To install a package, click the box next to it and choose Mark for installation. If you change your mind, choose Unmark. To remove a package that is already installed, choose Mark for Removal.

When you’ve finished, click Apply and Ubuntu will make the changes you selected. If you don’t want to make any changes, close the window instead.

4. Command-Line Package Management With APT

If you are comfortable using the Terminal, you can use apt (Advanced Packaging Tool) to install or remove software. You need administrative access to use apt.

- *Chapter 2, Administrative Tasks [p. 8]*

To update the local list of packages, enter in a Terminal:

```
sudo apt-get update
```

To install all available updates:

```
sudo apt-get upgrade
```

To install a package:

```
sudo apt-get install package
```

To remove a package:

```
sudo apt-get remove package
```

To list other apt commands and options:

```
apt-get help
```

For more information, see *Debian's apt manual*

[<http://www.debian.org/doc/user-manuals#apt-howto>].

5. Installing a Single Package File

The preferred method of installing programs is via the package managers described in this chapter. However, although the Ubuntu package archives are very large, it is possible that you may wish to install a package that is not available in the Ubuntu archives. If this happens, you can also download and install files from websites.



It is important to ensure that any files you download come from a safe source before installing them.

There are many different kinds of Linux package files. Most of these are associated with the package managers of specific Linux distributions. Examples are *Debian Package* files (*.deb* files), *RPM Package Manager* files (*.rpm* files), and *Tarballs* (*.tar* files).

This section deals with installing these single files.



It is not guaranteed that these files will be compatible with your system and you will not receive security updates if you install these files. For these reasons, if you wish to install a program, always use a native Ubuntu package of the application available through a package manager, if there is one available.

5.1. Install/uninstall *.deb* files

These files are *Debian packages*. The package files associated with Ubuntu have the *.deb* suffix because of Ubuntu's close relations with the Debian GNU/Linux distribution. You will need administrative privileges to install a *.deb* file (see *Chapter 2, Administrative Tasks [p. 8]*).

To install a *.deb* file, double-click on it. If you prefer using the Terminal, enter:

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

To uninstall a *.deb* file, deselect it in your package manager. Or from a Terminal, enter:

```
sudo dpkg -r 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 Ubuntu system. In almost all cases, a native Ubuntu *.deb* package is available. However, if absolutely necessary, an *.rpm* file can be converted to a *.deb* package using the program *alien*.

In a terminal, enter:

```
sudo alien package_file.rpm
```

If you get a “command not found” or similar error, install *alien* before trying again:

```
sudo apt-get install alien
```

5.3. Install *tarballs*

Files with the *.tar.gz* or *.tar.bz2* suffix are package files known as *tarballs* which are widely used in Linux and Unix.

If there is no native Ubuntu package available in any of the Ubuntu repositories, you can use the command line to install or uninstall the Tarball file by following the instructions that come with the package.

Tarballs often contain the source code of the program, and need to be *compiled* in order to be used. To do this, extra software will generally be needed (see *Section 1, “Basic Compilers”* [p. 67]).

6. Software Repositories

6.1. What are Repositories?

There are thousands of programs available to install on Ubuntu. These programs are stored in software archives (*repositories*) and are made freely 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 Ubuntu and checked before it is installed. To organise the software, Ubuntu repositories are categorised 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 website* [<http://www.ubuntu.com/ubuntu/components>].

The standard Ubuntu 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 software 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. Adding Extra Repositories

To install software from the “Universe” or “Multiverse” repositories:

1. Open System → Administration → Software Properties .
2. Select Add
3. To use the “Universe” repository, turn on Community Maintained (Universe).



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 Ubuntu Community, but is not supported by the core Ubuntu development team and may not include security updates.

4. To use the “Multiverse” repository, turn on Non-free (Multiverse).



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 Close to save your changes and exit.

7. Updates

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

When these updates are available, Ubuntu will inform you with a pop-up and a red icon in your notification area. To update your system, click the red button, enter your password and click OK.

The Update Manager program will list the available updates: to download and install these updates click Install Updates. Ubuntu will then download and install the available updates from the Internet.

When Update Manager has finished updating your system, close the pop-up window with the Close button, then close Update Manager to finish updating your system.



After installing some important updates, it may be necessary to restart your computer. If so, Ubuntu will inform you with a popup and an icon in your notification area.

Chapter 4. Music and Video

This section describes the music and video players available to use with Ubuntu and how to configure them to listen to different types of multimedia files.

1. Playing and Organising Music Files

To play and organize your music, Ubuntu comes with Rhythmbox Music Player, which looks similar to iTunes. When you first start Rhythmbox, it will scan your home directory for any supported music files you have and add it to the database. To start Rhythmbox, choose Applications → Sound & Video → Rhythmbox Music Player .

Ubuntu does not directly support the **MP3** format, because it is restricted by patents and proprietary rights. Instead Ubuntu 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 portable music players.

- *Players that work with Vorbis* [<http://wiki.xiph.org/index.php/PortablePlayers>]

You can still play your old MP3 files by installing MP3 support (see *Section 5, “Multimedia Codecs”* [p. 23]). 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 Cowbell ID3 tag editor can edit the metadata on your mp3 and other music files. To use Cowbell:

1. Install the cowbell package from the “Universe” repository (see *Chapter 3, Adding, Removing and Updating Applications* [p. 9]);
2. To run Cowbell, choose Applications → Sound & Video → Cowbell Music Organizer.

2. Playing and Extracting Audio CDs

When you insert an audio CD, the Sound Juicer CD player and ripper opens automatically. To play the CD, click the Play button or press **Ctrl-P**. To play a particular track, double-click on the track or select the track and click Play.

To extract (rip) your audio CD, make sure the tracks that you want to rip are selected, then click the Extract button or press **Ctrl-Enter**.



If you are connected to the internet, Sound Juicer will retrieve the CD artist, title, and track data from *MusicBrainz.org* [<http://musicbrainz.org>], a community-maintained database of over 360,000 albums.

To start Sound Juicer manually, choose Applications → Sound & Video → Sound Juicer CD Extractor.

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 Edit → Preferences.

Sound Juicer can extract audio files to these formats:

- **Ogg Vorbis** - A patent-free lossy audio compression format, which typically produces higher quality and greater compression than MP3.
 - *More about Vorbis from vorbis.com* [<http://vorbis.com/faq/>]
- **FLAC** - The Free Lossless Audio Codec. It can compress audio files up to 50% without removing any information from the audio stream.
 - *FLAC Web site* [<http://flac.sourceforge.net/>]
- **WAV** - Typically used for voice recordings. Sound Juicer uses this format for low quality mono audio files.

You can also extract CD audio files to the proprietary non-free **MP3** format. Instructions on how to rip to the MP3 format are in the help for Sound Juicer. Choose Help → Contents and navigate to the *Preferences* section.

3. Burning CDs

When you put a blank CD in the drive Ubuntu will ask if you want to burn an audio or data CD. Clicking on Burn Audio CD will launch Serpentine . To add music to your audio CD, either drag music from your File Browser or use the Add button. You will also need to select the size of your CD (21, 74, 80 or 90 minutes). Serpentine will warn you if you exceed the set limit.

To make a photo or data CD, click Burn Data CD. Ubuntu will open a CD/DVD Creator window. The CD Creator is built into the File Browser, and it allows you to add any file or folder you have permission to access. When you are ready to burn the CD, click Write to Disc. Ubuntu will then prompt you to select the drive containing the blank CD, and give you the opportunity to name the CD and select the write speed. Finally, click Write to create the new photo or data CD.

4. Video Playback

To play video, Ubuntu comes with Totem Movie Player, which looks and functions similar to Windows Media Player. Features of Totem include custom playlists and DVD playback. You can start Totem by clicking: Applications → Sound & Video → Movie Player from the desktop menu system.

To read video files, Totem uses the Gstreamer framework. To play some video formats, you may need to add further codec support (see *Section 5, “Multimedia Codecs”* [p. 23]).

There are also other multimedia applications available. Examples include Mplayer, Xine and Totem-xine (which uses the Xine framework, instead of the Gstreamer framework). You may benefit from trying alternative video players.

5. Multimedia Codecs

Many applications in Ubuntu use the GStreamer open source multimedia framework. The codec plugins for GStreamer are organised in different packages depending on the licensing that applies to the various codecs. You can see which codecs are contained in which plugin on the *GStreamer website* [<http://gstreamer.freedesktop.org/documentation/plugins.html>].

Other applications, such as Mplayer and Xine, do not use the Gstreamer framework. Due to patent and copyright restrictions, codecs for these programs are not included at all in Ubuntu. For more information on these read the *Restricted Formats* [<https://help.ubuntu.com/community/RestrictedFormats>] wiki page.

To install extra codecs for Gstreamer:

- Install the following packages from the “Universe” and “Multiverse” repositories (see *Chapter 3, Adding, Removing and Updating Applications* [p. 9]):

```
gstreamer0.10-plugins-ugly
gstreamer0.10-plugins-ugly-multiverse
gstreamer0.10-plugins-bad
gstreamer0.10-plugins-bad-multiverse
gstreamer0.10-ffmpeg
```



You will need to use Synaptic Package Manager to install these packages.



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

6. Using an iPod

You can play music directly off an iPod with Rhythmbox Music Player. Plug the iPod into the computer, and open Rhythmbox.

To transfer music files to and from an iPod, you can use gtkpod:

1. Install the gtkpod package from the “Universe” repository (see *Chapter 3, Adding, Removing and Updating Applications [p. 9]*).
2. To run gtkpod, choose Applications → Sound & Video → gtkpod.

7. Editing Audio Files

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

1. Install the audacity package from the “Universe” repository (see *Chapter 3, Adding, Removing and Updating Applications [p. 9]*).
2. To run Audacity, choose Applications → Sound & Video → Audacity.
3. For further help with Audacity, use Audacity’s Help menu.

8. DVD Playback

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



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.

1. Install the `libdvdread3` package (see *Chapter 3, Adding, Removing and Updating Applications [p. 9]*).



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

2. To activate DVD decryption, type the following line into a terminal prompt:

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

3. To play DVDs with Totem, you will need to install some extra codecs (see *Section 5, “Multimedia Codecs” [p. 23]*).
4. However, the Gstreamer framework (used by Totem) does not support menus or subtitles for DVD playback. For this reason, you can install a separate DVD player, Xine, which supports these. To install Xine, install the `gxine` package from the “Universe” repository (see *Chapter 3, Adding, Removing and Updating Applications [p. 9]*).
5. You can then open `gxine` from the Sound & Video menu.

9. Backing Up DVDs

You can back up your DVDs to files or onto DVD+/- discs with DVD::RIP. To install DVD::RIP:



Before backing up a DVD, you must ensure that you are legally permitted to make copies of it.

1. Install the Multimedia Codecs (see *Section 5, “Multimedia Codecs” [p. 23]*).
2. Enable DVD video playback (see *Section 8, “DVD Playback” [p. 26]*).
3. Install dvdrip and transcode from the “Multiverse” repository (see *Chapter 3, Adding, Removing and Updating Applications [p. 9]*).
4. You can run the program using the command `dvdrip` (see *the run application manual [ghelp:user-guide#tools-run-app]* for help on how to run an application without using the menu). If you wish, you can add a menu entry for the program `dvdrip` (see *the menu editor manual [ghelp:user-guide#menu-editor]* for help on how to add menu entries). We recommend you enter it in the Sound & Video menu, and that you use the file `/usr/share/perl5/Video/DVDRip/icon.xpm` for the icon.
5. To start `dvd::rip`, choose Applications → Sound & Video → `dvd::rip`.

10. RealPlayer

1. Install the realplay package from the *Commercial* repository (see *Chapter 3, Adding, Removing and Updating Applications [p. 9]*).
2. To run RealPlayer, choose Applications → Sound & Video → RealPlayer 10.

11. Video Editing

Kino is an advanced video editor. It features excellent integration with IEEE-1394 for capture, VTR control, and recording back to 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) encodings. 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. 9]*).
2. To run Kino, choose Applications → Sound & Video → Kino Video Editor.

You can also try the PiTiVi video editor by installing the pitivi package from the “Universe” repository (see *Chapter 3, Adding, Removing and Updating Applications [p. 9]*). PiTiVi is a video editor for the GNOME desktop. It is still in fairly early development, but worth a try.

Chapter 5. Internet

This section describes a number of tasks related to the internet, including how to connect to the internet, configuring and using an internet browser, and using other types of internet programs.

1. Connecting to the Internet

1.1. Basic Procedure

This section describes the basic procedure for connecting to the internet.



If you have a wireless connection, or connect to the internet through a modem (including an ADSL modem), and this section does not work, you should read *Section 1.2, “Wireless Cards”* [p. 3] or *Section 1.3, “ADSL Connections”* [p. 3].

To connect to the internet:

1. Open System → Administration → Networking.
2. Select the connection you wish to use, then click Properties.
3. Ensure Enable this connection is turned on.
4. If your ISP or network administrator has given you an IP address, set Configuration to Static IP address, then enter the address in the IP address field and click OK. Otherwise, set Configuration to DHCP and click OK.
5. To activate or deactivate network connections, select your connection, then click `Activate/Deactivate`.

1.2. Wireless Cards

Many wireless cards are automatically detected by Ubuntu during installation. To see if your card is supported, open System → Administration → Networking. If your wireless card is listed, you can follow *Section 1.1, “Basic Procedure”* [p. 3] to connect to the internet. A complete listing of wireless cards which work with Ubuntu can be found online at the *Ubuntu Wiki* [<https://help.ubuntu.com/community/WifiDocs/WirelessCardsSupported>]. Please add your wireless card to the list if it works with Ubuntu.

Some cards may not work automatically with Ubuntu. 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.

If your wireless card does not work with Ubuntu, you may have to do some research in order to activate it. A good way of getting a wireless card to work is to use the `ndiswrapper` tool which allows Ubuntu to use the Microsoft Windows driver for the wireless card. To do this, follow the instructions below in *Section 1.2.1, “Windows Wireless Drivers”* [p. 3].

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

1.2.1. Windows Wireless Drivers

Even if your wireless network card does not have a native Linux driver, you may still be able to get it working with `ndiswrapper`. `Ndiswrapper` is a Linux module which allows Ubuntu to use the Windows driver for wireless cards (in most cases).



These instructions apply only to the x86 and AMD64 versions of Ubuntu, and not to Ubuntu for Power PC (PPC).



If you have access to the internet, you can see if your wireless card is in the list of cards supported by `ndiswrapper` *on the `ndiswrapper` website* [<http://ndiswrapper.sourceforge.net/mediawiki/index.php/List>].

To install `ndiswrapper`, install the package `ndiswrapper-utils` (see *Chapter 3, Adding, Removing and Updating Applications* [p. 9]). This package is provided on the Ubuntu CD. If you have access to the internet, you can also optionally install a graphical tool, `ndisgtk` from the *Universe* repository (see *ghelp:add-applications#extra-repositories*).

In order to set up `ndiswrapper`, it is necessary to obtain the Windows driver for your wireless card. Generally, the best way to do this is from the CD supplied with your wireless card. You should copy two files to the same place on your computer, one ending in `.SYS` and one ending in `.INF`. If you find any files which end in `.BIN`, also copy those. If you are not able to find the right files, and have alternative access to the internet, you may be able to obtain help from the *`ndiswrapper` website* [<http://ndiswrapper.sourceforge.net/mediawiki/index.php/list>].

If you have installed the graphical tool `ndisgtk`, to set up `ndiswrapper`, simply select System → Administration → Windows Wireless Drivers from the menu, and follow the instructions given.

If you have not installed the graphical tool, use this procedure:

1. Open Applications → Accessories → Terminal and type:

```
sudo ndiswrapper -i ~/Desktop/drivername.inf
```



The above command assumes that your `.INF` file is named `drivername.inf` and was copied to your Desktop. Replace these values if necessary.

2. To check if it is working correctly, type:

```
ndiswrapper -l
```

If it is working correctly, you should see:

```
Installed ndis drivers:  
{name of driver} driver present, hardware present
```

3. For `ndiswrapper` to function, you need to load a module. To do this, type:

```
sudo depmod -a
sudo modprobe ndiswrapper
```

4. To ensure that the module is loaded each time you boot the computer, type:

```
sudo ndiswrapper -m
```

You should now be able to connect to the internet by following the instructions at *Section 1.1, “Basic Procedure” [p. 3]* .

1.3. ADSL Connections

All PPPOE and router-style ADSL modems that use an Ethernet connection are supported by Ubuntu, and some USB ADSL modems are supported too.

For a router-style ADSL modem, simply follow *Section 1.1, “Basic Procedure” [p. 3]*

For information on setting up a PPPOE ADSL modem see *Section 1.3.1, “PPPoE Modems” [p. 33]* .

For information on setting up a USB ADSL modem see *Section 1.3.2, “USB ADSL Modems” [p. 34]* .

1.3.1. PPPoE Modems

This section is about setting up an ADSL Internet connection using an ethernet PPPoE modem.

You will need to have subscribed to an *Internet Service Provider*, and your Internet connection must be installed and functional. A "DSL" light on your modem usually shows that the line is synchronized.

You will need your username and password for the account. You must also have an ethernet card connected to your PPPoE modem with the correct type of cable.

Finally, you need the PPPoE package to be installed in order for the following command to work. This package is installed by default, but can be missing if the configuration has been changed. If the following command does not work, you will need to install this package, which can be found on the Ubuntu CD.

To set up the modem:

1. Open Applications → Accessories → Terminal

2. In the terminal type:

```
sudo pppoeconf
```

3. A text-based menu program will guide you through the next steps, which are:

1. Confirm that your Ethernet card is detected.
2. Enter your username.
3. Enter your password.

4. If you already have a PPPoE Connection configured, you will be asked if it may be modified.
 5. Popular options: you are asked if you want the 'noauth' and 'defaultroute' options and to remove 'nodetach' - choose "Yes".
 6. Use peer DNS - choose "Yes".
 7. Limited MSS problem - choose "Yes".
 8. When you are asked if you want to connect at start up, you will probably want to say yes.
 9. Finally you are asked if you want to establish the connection immediately.
4. Once you have finished these steps, your connection should be working.

To start your ADSL connection on demand, in a terminal type:

```
sudo pon dsl-provider
```

To stop your ADSL connection, in a terminal type:

```
sudo poff dsl-provider
```

1.3.2. USB ADSL Modems

Often parts of ADSL USB modem drivers are proprietary, closed source software, with a restrictive licence, and so the whole driver cannot be supplied with Ubuntu. To get a modem to work with these drivers, you will need to download files from Internet with a computer having a working connection, then transfer the downloaded files to you Ubuntu installation.



USB is far from the ideal medium for network access, if you have a modem that can connect both via USB and ethernet or a ethernet router, you should use the ethernet connection instead of the USB modem.

Since any USB modem installation will require Internet access to download the necessary proprietary drivers, as well as extensive configuration which is beyond the scope of this guide, all we can do here is to list the USB Modem models known to work with Ubuntu with links to the relevant installation instructions on the Ubuntu community help site.

The installation procedure of USB modems differs depending on the specific make and model of your modem. To identify model of your modem, Note the name and number on the front. Occasionally you may have to look for a label to discover the exact model. Consult the list below to see which driver your modem requires and note the link.

When you go online to download the necessary drivers, you can access the relevant driver download links from the page with the installation instructions relevant to that model of USB modem.

1. Speedtouch modems:

<https://help.ubuntu.com/community/UsbAdslModem/SpeedTouch>

2. Modems using the Analog Devices Inc. eagle-usb I, II or III chipset (such as Sagem Fast 800, Comtrend ct 350 etc.):

<https://help.ubuntu.com/community/UsbAdslModem/ueagle-atm>

<https://help.ubuntu.com/community/UsbAdslModem/EagleUsb>

3. Conexant AccessRunner based modems:

<https://help.ubuntu.com/community/UsbAdslModem/EciAdsl>

<https://help.ubuntu.com/community/UsbAdslModem/AccessRunner>

<https://help.ubuntu.com/community/UsbAdslModem/e-techV2>

1.4. Dialup Modems

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

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

Read this file, it should list what modem chipset you have. Once you are aware of the chipset you have, see <http://www.linmodems.org/> and follow the directions for your modem. More information can be found at *SettingUpModems* [<https://wiki.ubuntu.com/SettingUpModems>] on the Ubuntu Wiki.

2. Web browsing

The powerful and secure Mozilla Firefox web browser is included in Ubuntu. Firefox features tabbed browsing, pop-up blocking, built-in search, and live bookmarks. Also supported are popular plug-ins such as Java, Macromedia Flash, and RealPlayer. Firefox can be launched by clicking Applications → Internet → Firefox .

2.1. Viewing Online Audio and Video in Firefox

To view online audio and video streams in Firefox, you may need to install some plugins. Which plugin you choose to install depends on which media player you prefer (see *Section 4, “Video Playback”* [p. 22]).

1. For the Totem Gstreamer plugin (the default Ubuntu media player), install the `totem-gstreamer-firefox-plugin` package from the “Universe” repository (see *Chapter 3, Adding, Removing and Updating Applications* [p. 9]).
2. For the Totem Xine plugin, install the `totem-xine-firefox-plugin` package from the “Universe” repository (see *Chapter 3, Adding, Removing and Updating Applications* [p. 9]).
3. For the Mplayer plugin, install the `mozilla-mplayer` package from the “Multiverse” repository (see *Chapter 3, Adding, Removing and Updating Applications* [p. 9]).
4. The changes will take effect when you close and open Firefox.

② These steps will install the plugin for Firefox. However, to play some formats, you may need to add some extra codecs (see *Section 5, “Multimedia Codecs”* [p. 23]).

2.2. Macromedia Flash for Firefox

To view flash graphics from the Mozilla Firefox web browser:

1. Install the `flashplugin-nonfree` package from the “Multiverse” repository (see *Chapter 3, Adding, Removing and Updating Applications* [p. 9]).
2. The plug-in will be available the next time you start Firefox.

② Installing the package as described above will download and install the plugin. You need an internet connection for this to work. If, after installing the application, you need to download and install the plugin at a later time, enter the following command in a terminal:

```
sudo update-flashplugin
```

2.3. Java plugin for Mozilla Firefox

Some websites require the Java plugin for Mozilla Firefox. The easiest way to view Java applets is to install the `j2re1.4-mozilla-plugin` package from the “Multiverse” repository.

For a more complete Java installation, see *Section 2, “Java Runtime Environment (1.5)”* [p. 63] .

2.4. 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 *Chapter 3, Adding, Removing and Updating Applications [p. 9]*).
2. To start Nvu, choose Applications → Office → Nvu .

2.5. Bluefish Web Development Studio

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

1. Install the bluefish package from the “Universe” repository (see *Chapter 3, Adding, Removing and Updating Applications [p. 9]*).
2. To start Bluefish, choose Applications → Programming → Bluefish Editor

3. Email

3.1. Evolution Mail

The Evolution groupware suite can handle all your email, contact lists, tasks and calendar needs. It also can act as a newsreader and also integrates with the Gnome panel clock, giving you one-click access to your task list.

Evolution can be launched by clicking Applications → Internet → Evolution Mail from the desktop menu system.

If you have Evolution installed, you can find a guide to using it in *the internet section* [x-yelp-toc:#ApplicationsInternet] of this help.

3.2. Alternative Email Clients

You can also use Mozilla Thunderbird for email. To install it, install the mozilla-thunderbird package (see *Chapter 3, Adding, Removing and Updating Applications [p. 9]*).

To start Thunderbird, choose Applications → Internet → Thunderbird Mail Client.

To change your preferred email client to Mozilla Thunderbird:

1. Choose System → Preferences → Preferred Applications
2. Click on the Mail Reader tab, and select the Custom option.
3. In the Command text box, type `mozilla-thunderbird %s`, then close the dialog.

4. Instant Messaging

4.1. Gaim

Gaim is the default instant messenger client in Ubuntu. With Gaim you can talk to people who use AIM/ICQ, Gadu-Gadu, GroupWise, IRC, Jabber, MSN, Napster and Yahoo, and list all your buddies in a single window.

To start Gaim, choose Applications → Internet → Gaim Internet Messenger .

4.2. XChat-GNOME

XChat-GNOME is an advanced, graphical, multi-platform Internet Relay Chat (IRC) client. Its features include advanced scripting support (perl and python) and a clean, easy to use interface.

1. Install the xchat-gnome package from the *main* repository (see *Chapter 3, Adding, Removing and Updating Applications [p. 9]*).
2. To start XChat-GNOME, choose Applications → Internet → Xchat-GNOME IRC Chat .

4.2.1. Joining #ubuntu with XChat-Gnome

One excellent way to get help with Ubuntu or introduce yourself to IRC is to join Ubuntu's official support channel on Freenode.

1. Start XChat-Gnome as above.
2. When you start XChat-Gnome for the first time, it will ask you for an IRC Nickname & your real name. Pick anything you want for your nick (first initial & your last name is good, or be more creative), put your real name or part of it, and press OK.
3. In the Server Window that opens next, select *Ubuntu Servers*, and press Connect.

5. Peer To Peer

5.1. BitTorrent

BitTorrent capability is included in Ubuntu by default. Find a BitTorrent .torrent file online, click on it in Firefox, and the Gnome BitTorrent client should start automatically.

To restart a download from a .torrent file that is already on your computer, double-click on it.

5.2. aMule File Sharing Client

1. Install the amule package from the “Universe” repository (see *Chapter 3, Adding, Removing and Updating Applications [p. 9]*).
2. To open aMule, choose Applications → Internet → aMule .

6. News Readers

6.1. Pan News Reader

1. Install the pan package (see *Chapter 3, Adding, Removing and Updating Applications [p. 9]*).
2. To open Pan Newsreader, choose Applications → Internet → Pan Newsreader.

6.2. Liferea News Reader

1. Install the liferea package from the “Universe” repository (see *Chapter 3, Adding, Removing and Updating Applications [p. 9]*).
2. To open Liferea Feed Reader, choose Applications → Internet → Liferea Feed Reader.

7. Networking

7.1. Change the Computer Name

1. Open System → Administration → Networking .
2. Click General, and enter the name of the computer in the Hostname field.

Restart the computer for the change to take effect.

7.2. Networking Utilities

7.2.1. Firestarter Firewall

A firewall protects a computer system from unauthorized access. It is not normally necessary to install a firewall on an Ubuntu system, because access to the system is closed by default. However, if you run any services that let other computers access yours (for example, the Apache web server), it is advisable to install a firewall. Firestarter is a program that lets you control a firewall through a graphical interface.

1. Install the Firestarter package from the “Universe” repository (see *Chapter 3, Adding, Removing and Updating Applications [p. 9]*).
2. After it is installed, run Applications → System Tools → Firestarter to configure your firewall. The firewall will now start in the background when your computer starts.

7.2.2. 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 *Chapter 3, Adding, Removing and Updating Applications [p. 9]*).
2. Choose: Applications → Internet → Etherape

7.2.3. 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 *Chapter 3, Adding, Removing and Updating Applications [p. 9]*).
2. Choose: Applications → Internet → Ethereal

7.3. Browse Network Computers

To view computers on the network, open Places → Network Servers.

You may need to enter a username, password, and domain. You should obtain these from your network administrator.

Chapter 6. Office

Ubuntu comes with a variety of software for performing office tasks — word processing and publishing, spreadsheets, and presentations.

1. OpenOffice.org

Ubuntu comes with OpenOffice.org, an office suite that includes a powerful word processor, spreadsheet, presentation designer, and database management. The suite has excellent compatibility with other major office suites, such as Microsoft Office.


- *OpenOffice.org Web site* [<http://www.openoffice.org/>]

2. GNOME Office

The GNOME desktop features a separate office suite. These programs are generally lighter and faster than the programs in the OpenOffice.org suite, and have fewer features as a result. But this may be exactly what you want. The Suite has excellent compatibility with other major Office suites, such as Microsoft Office.

The GNOME Office Suite includes the following software:

- A word processor (Abiword);
- A spreadsheet (Gnumeric);
- A database management program (GNOME-DB);
- A diagram editor (Dia);
- Two graphics applications (Inkscape and The GIMP); and
- A project management application (Planner).

 Each of these applications can also be installed separately.

To install the GNOME Office suite:

1. Install the `gnome-office` package from the “Universe” repository (see *Chapter 3, Adding, Removing and Updating Applications [p. 9]*).
2. The Office applications can then be found in the menu at Applications → Office, and the Graphics applications can be found at Applications → Graphics.

3. GnuCash Accounting Application

GnuCash is a program to manage your personal or business finances. GnuCash lets you track bank accounts, stocks, income and expenses. As quick and intuitive as a checkbook register, it is based on professional accounting principles to ensure balanced books and accurate reports.

- *GnuCash Web site* [<http://gnucash.org/>]

To use GnuCash:

1. Install the gnucash package from the “Universe” repository (see *Chapter 3, Adding, Removing and Updating Applications [p. 9]*).
2. You can open GnuCash by running the command `gnucash` (see *the run application manual* [[ghelp:user-guide#tools-run-app](#)] for help on how to run an application without using the menu). If you wish, you can add a menu entry for the program `gnucash` (see *the menu editor manual* [[ghelp:user-guide#menu-editor](#)] for help on how to add menu entries).

4. Scribus Desktop Publishing Application

Scribus is a professional desktop publishing program. For more information, see the *Scribus website* [<http://www.scribus.org.uk/>].

1. Install the scribus package (see *Chapter 3, Adding, Removing and Updating Applications [p. 9]*).
2. To install additional templates, install the scribus-template package from the “Universe” repository (see *Chapter 3, Adding, Removing and Updating Applications [p. 9]*).



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

3. To start Scribus, choose Applications → Office → Scribus .

Chapter 7. Graphics & Photos

This section describes the photo management and graphic design applications available to use with Ubuntu, and describes how to set up 3d graphics devices.

1. Digital Cameras

Ubuntu detects most USB digital cameras automatically. Plug in and switch on the camera, and Ubuntu will then ask you if you would like to import the photos it contains. Click on Import, and Ubuntu will show you a preview of the photos. Choose a location to save your photos to, then click on Import, and Ubuntu will save your photos to your hard drive.

If Ubuntu does not ask you if it can import the photos:

1. Open Applications → Graphics → gThumb Image Viewer .
2. Choose File → Import Photos.

See *Section 3, “gThumb Image Viewer” [p. 52]* for more on gThumb.

2. 3D Graphic Cards

2.1. Introduction to 3D Video Acceleration

Most video hardware should work automatically with Ubuntu. With some types of video hardware, 3D acceleration (which is needed by some games) is not supported automatically, but you may be able to fix this yourself.

To find out whether 3D acceleration is working, enter in a terminal:

```
glxinfo | grep rendering
```

If 3D acceleration is working, the result will be:

```
direct rendering: Yes
```

If not, follow these instructions to activate 3D acceleration.

2.2. 3D Nvidia Video Card Driver

No Nvidia Video cards have 3D acceleration enabled automatically with Ubuntu, because the manufacturer does not release open source drivers. However, it is possible to activate 3D acceleration. The process depends on which type of video card you have.

- If you have an older TNT, TNT2, TNT Ultra, GeForce1 or GeForce2 card, install the `nvidia-glx-legacy` and `nvidia-settings` packages from the “Restricted” repository (see *Chapter 3, Adding, Removing and Updating Applications* [p. 9]).
- If you have a newer card, install the `nvidia-glx` package from the “Restricted” repository (see *Chapter 3, Adding, Removing and Updating Applications* [p. 9]).

To set up the new driver, enter in a terminal:

```
sudo nvidia-glx-config enable
```

You can adjust the settings of the new drivers by running `nvidia-settings` (see *the run application manual* [ghelp:user-guide#tools-run-app] for help on how to run an application without using the menu). If you wish, add a menu entry for this program (see *the menu editor manual* [ghelp:user-guide#menu-editor] for help on how to add menu entries).

2.3. 3D ATI Video Card Driver

Many ATI video cards work well with Ubuntu automatically. To check that 3D acceleration works with your card, see *Section 2.1, “Introduction to 3D Video Acceleration”* [p. 50] .

If it doesn't work:

1. Install the `xorg-driver-fglrx` package from the “Restricted” repository (see *Chapter 3, Adding, Removing and Updating Applications* [p. 9]).

2. To set up the new driver, enter in a terminal:

```
sudo dpkg-reconfigure xserver-xorg
```

Agree to automatic detection of your video, and choose the driver fglrx when asked.

Restart the computer for the changes to take effect.

3. gThumb Image Viewer

gThumb is an advanced image viewer and browser. It has many useful features, such as filesystem browsing, slide show, image catalogs, web album creation, camera import, image CD burning, batch file operations and quick image editing features like transformation and color manipulation.

gThumb is included in Ubuntu by default. To start it, choose Applications → Graphics → gThumb Image Viewer .

For help with gThumb, use the items in its Help menu.

For more advanced photo & image editing, see The GIMP.

4. The GIMP (Gnu Image Manipulation Program)

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

The GIMP is installed in Ubuntu by default, and can be started by choosing Applications → Graphics → GIMP Image Editor .

- *GIMP Web site* [<http://gimp.org/>]

5. 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. 9]*).
2. To start Inkscape choose Applications → Graphics → Inkscape SVG Vector Illustrator .

6. Blender 3d Modeller

Blender is an integrated 3d suite for modelling, animation, rendering, post-production, interactive creation and playback.

1. Install the blender package (see *Chapter 3, Adding, Removing and Updating Applications [p. 9]*).
2. To start Blender choose Applications → Graphics → Blender 3d modeller.

Chapter 8. Games

Ubuntu comes with 16 games by default, including Aisleriot Solitaire, Gnometriz, and Mines.

Explore Ubuntu's Games menu at Applications → Games .

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 *Chapter 3, Adding, Removing and Updating Applications [p. 9]*).
2. To start Frozen-Bubble, choose Applications → Games → Frozen-Bubble.

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.

② Ensure you have hardware accelerated 3D drivers installed for your video card. For more information see *Section 2, “3D Graphic Cards” [p. 50]*.

1. Install the planetpenguin-racer package from the “Universe” repository (see *Chapter 3, Adding, Removing and Updating Applications [p. 9]*).
2. To start PlanetPenguin Racer, choose Applications → Games → PlanetPenguin-Racer.

3. Scorched3D

Scorched3D is a 3D remake of Scorched Earth, an artillery duel game.

- ② Ensure you have hardware accelerated 3D drivers installed for your video card. For more information see *Section 2, “3D Graphic Cards” [p. 50]*.
- 1. Install the scorched3d package from the “Universe” repository (see *Chapter 3, Adding, Removing and Updating Applications [p. 9]*).
- 2. To start Scorched3D, choose Applications → Games → scorched 3d.

4. Windows Games

Many games which are available for Windows can be run on Linux through emulators. Examples of these are Wine and Cedega

1. For information about Wine, see *the Ubuntu wiki* [<https://help.ubuntu.com/community/Wine>].
2. For information about Cedega, see *the Ubuntu wiki* [<https://help.ubuntu.com/community/Cedega>]

Chapter 9. Programming

This section contains some basic information for those wishing to use Ubuntu for writing and running their own programs.

1. Basic Compilers

Compiling programs requires some packages that are not installed by default. You can install these all at once by installing the build-essential package (see *Chapter 3, Adding, Removing and Updating Applications [p. 9]*).

2. Java Runtime Environment (1.5)

② These instructions are for *i386* and *amd64* computers only. For *PowerPC* machines, see *Ubuntu Help Online* [<https://help.ubuntu.com/community/Java>].

② At the time of this writing J2SE is at version 5.0 Update 6. This is subject to change. If you do not see this version on Sun's website, download the newest version displayed.

1. Go to <http://java.sun.com/j2se/1.5.0/download.jsp> and click on “Download JRE 5.0 Update 6”. Do not choose the link with the NetBeans bundle.
2. You must first accept the licence, then click on “Linux self-extracting file” and Download `jre-1_5_0_06-linux-i586.bin` to your hard drive.

② If you use an *amd64* computer, please replace `jre-1_5_0_06-linux-i586.bin` with `jre-1_5_0_06-linux-amd64.bin`.

3. Install the `java-package` package from the “Multiverse” repository (see *Chapter 3, Adding, Removing and Updating Applications* [p. 9]).
4. Make the downloaded file executable. At the command line, change to the directory where you downloaded the file, and type

```
chmod +x jre-1_5_0_06-linux-i586.bin
```

5. To install JRE, first build an Ubuntu package. Type

```
fakeroot make-jpkg jre-1_5_0_06-linux-i586.bin
```

6. Then install the package you have built:

```
sudo dpkg -i sun-j2re1.5_1.5.0+update06_i386.deb
```

7. To get your system to use Sun Java instead of the open-source (but less functional) GIJ that is installed by default, run:

```
sudo update-alternatives --config java
```

and choose the option that has `j2re1.5-sun` in it.

3. Development Tools

These are some of the Integrated Development Environments (IDEs), editors, and other development tools available for Ubuntu.

- *Anjuta* [<http://anjuta.sourceforge.net/>] is an Integrated Development Environment (IDE) for C and C++.
- *Bazaar-NG* [<http://www.bazaar-ng.org/>] is a decentralised version control system used for Ubuntu development.
- *Bluefish* [<http://bluefish.openoffice.nl/index.html>] is a powerful editor for experienced web designers and programmers.
- *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.
- *Eric* [<http://www.die-offenbachs.de/detlev/eric3.html>] is a fully featured Python and Ruby IDE.
- *Glade* [<http://glade.gnome.org/>] is a User Interface designer for building GNOME applications.
- *IDLE* [<http://www.python.org/idle/>] is the Python IDE built with the Tkinter GUI toolkit.
- *KDevelop* [<http://www.kdevelop.org/>] is a IDE for KDE which supports many programming languages.
- *MonoDevelop* [http://www.monodevelop.com/Main_Page] is an IDE for writing mono/.net applications in C# and other languages.
- *NetBeans* [<http://www.netbeans.org/index.html>] is a Java IDE that features support for CVS and a form builder.

4. Learning How to Program

4.1. Dive Into Python

Dive Into Python is a book for learning how to program in Python, aimed at programmers with some previous experience.

- *Read Dive Into Python* [<file:///usr/share/doc/diveintopython/html/toc/index.html>]

4.2. PyGTK Tutorial

PyGTK Tutorial is a tutorial on developing with the graphical toolkit often used for developing Ubuntu applications. It assumes that you have knowledge of Python but not necessarily GTK.

1. Install the `python-gtk2-tutorial` package (see *Chapter 3, Adding, Removing and Updating Applications* [p. 9]).



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

2. To access the documentation, visit `python-gtk-tutorial` [<file:///usr/share/doc/python-gtk2-tutorial/html/index.html>].

4.3. Devhelp

Devhelp is an application to read and search all of the documentation that you install.

1. Install the `devhelp` package (see *Chapter 3, Adding, Removing and Updating Applications* [p. 9]).
2. Choose Applications → Programming → Devhelp.

Chapter 10. Partitions and Booting

This section contains information about how to change the way that your computer behaves when you first turn it on, and how to access other operating systems and partitions from Ubuntu.

1. Graphical Partition Editor

Gparted is a graphical tool to edit disk partitions.

1. Install the gparted package (see *Chapter 3, Adding, Removing and Updating Applications [p. 9]*).
2. You can run the application with System → Administration → Gnome Partition Editor .

2. Make Windows partitions available from Ubuntu

Windows partitions should be automatically available from any Ubuntu system. If they are not, you can make them available using the Disks Manager.

1. Open System → Administration → Disks .
2. Select the correct hard disk, and click Partitions.
3. Select the relevant partition, and click Enable.
4. To unmount the partition, click Disable.

3. Make Windows partitions automatically available

Windows partitions should be automatically available from Ubuntu. If they are not, the following procedure will make them automatically available:

1. Read *Section 7.1, “Check disk space usage and view the partition table” [p. 7]*
2. First make a directory where the partition can be made available ("mounted"):

```
sudo mkdir /media/windows
```

3. Next, back up your disk configuration file and open the file in a text editor with administrative privileges:

```
sudo cp /etc/fstab /etc/fstab_backup
sudo gedit /etc/fstab
```

4. Append the following line at the end of file:

```
/dev/hda1 /media/windows ntfs umask=0222 0 0
```



Replace **/dev/hda1** with the correct device name for your partition.

If your Windows partition uses the FAT32 filesystem, replace **ntfs** with **vfat** in the above command.

If you have a FAT32 filesystem, it is also safe to allow read-write access. To do this, change the value of **umask** to 0000.

5. Save the edited file (*an example* [sample/fstab_automountntfs]).
6. The changes will take effect when the computer is restarted.

4. Run a system command automatically at startup

Sometimes it can be useful to run a custom command whenever your computer starts up. To do this:

1. Edit the crontab with administrative privileges (see *Chapter 2, Administrative Tasks [p. 8]*):

```
sudo crontab -e
```

2. Insert the following line:

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



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

3. Save the file and exit.

5. Change default operating system at boot

To change which operating system starts by default when the computer starts up, edit the grub configuration file.

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

```
sudo cp /boot/grub/menu.lst /boot/grub/menu.lst_backup
sudo gedit /boot/grub/menu.lst
```

2. Find this line:

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

3. Replace with the following line:

```
default X
```



You should replace *X* with a number, according to the order which your operating systems appear in the configuration file. You should start counting from 0. For example, if you wish the default operating system to be the first in the list, replace *X* with 0, if you wish the default operating system to be the second in the list, replace *X* with 1, and so on.

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

6. Configure startup services

This requires administrative privileges (see *Chapter 2, Administrative Tasks [p. 8]*).

1. Run Services Settings: System → Administration → Services.
2. Enter your password.
3. Select the services you want running, then click OK when done.
4. For greater control over the boot-up services, install the bum from the “Universe” repository (see *Chapter 3, Adding, Removing and Updating Applications [p. 9]*), and run it: System → Administration → Boot-up Manager.

7. Other Tips

7.1. Check disk space usage and view the partition table

1. Open System → Administration → Disks .
2. Select the Harddrive, then the Partitions tab
3. Each partition will be listed under Partition List, with disk space and mount point.

7.2. List devices

To list mounted devices, in a terminal enter:

```
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)
```

To list PCI devices:

```
lspci
```

To list USB devices:

```
lsusb
```

7.3. Mount/unmount CD/DVD-ROMs manually, and show all hidden and associated files/folders

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

To mount a CD/DVD-ROM:

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

To unmount a CD/DVD-ROM:

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

Chapter 11. Printing

Some printers will be automatically detected by Ubuntu; for those that are not, choose System → Administration → Printing , then choose Printer → Add Printer.

Some printers 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.

Chapter 12. Advanced Desktop Configuration

This section details some tips for using and customising Ubuntu's desktop environment (called GNOME), and the file manager (called Nautilus).

1. Log in automatically when the computer starts

To log in automatically when the computer starts:

1. Choose System → Administration → Login Window .
2. Select Security, and turn on Enable Automatic Login.
3. Choose the account you want to log in as.

This is not recommended for most computers, as it is not secure and may give other people access to your information.

2. Open files with administrative privileges from the file manager

To open files with administrative privileges from the file manager, you need to add a script to Nautilus.



Opening files with administrative privileges is a security risk. Always ensure that you are familiar with the file that you are opening.

1. Open a new file to edit in the relevant directory:

```
gedit $HOME/.gnome2/nautilus-scripts/Open\ as\ Administrator
```

2. Enter these lines in the new file:

```
for uri in $NAUTILUS_SCRIPT_SELECTED_URIS; do
gksudo "gnome-open $uri" &
done
```

3. Save the edited file (*an example* [sample/nautilus_open_as_administrator])
4. Make the edited file executable:

```
chmod +x $HOME/.gnome2/nautilus-scripts/Open\ as\ Administrator
```

You can now open a file as an administrator by right-clicking on it and choosing Scripts → Open as Administrator.

3. Install Extra Fonts

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

For **international fonts**, install these packages from the “Universe” repository (see *Chapter 3, Adding, Removing and Updating Applications [p. 9]*):

- 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

For **Microsoft TrueType core fonts**, install the msttcorefonts package from the “Multiverse” repository (see *Chapter 3, Adding, Removing and Updating Applications [p. 9]*).

For **Ghostscript fonts**, install the gsfonts-x11 package (see *Chapter 3, Adding, Removing and Updating Applications [p. 9]*).

After installing any new font, rebuild the font information files by entering in a Terminal:

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

If you prefer to download individual fonts by hand, you can install them simply and easily by opening a file manager, and typing `fonts:///` into the location bar (see *the file manager manual [ghelp:user-guide#nautilus-location-bar]* for how to use the location bar). Then you can simply drag the font you downloaded into the group of existing fonts.

4. RAR Archiver

1. Install the rar package from the “Multiverse” repository (see *Chapter 3, Adding, Removing and Updating Applications [p. 9]*).

2. Run:

```
sudo ln -fs /usr/bin/rar /usr/bin/unrar
```

3. To open a rar file, double click on it.

5. Advanced Desktop Applets

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

1. Install the `gdesklets` and `gdesklets-data` packages from the “Universe” repository (see *Chapter 3, Adding, Removing and Updating Applications* [p. 9]).
2. Choose: Applications → Accessories → gDesklets
3. For more information, visit the *gDesklets website* [<http://www.gdesklets.org/>]

6. Hide Recent Documents in the Places menu

To hide Recent Documents from the Places menu, open a terminal and run the command:

```
chmod 400 ~/.recently-used
```

To show the menu again, run the command:

```
chmod 600 ~/.recently-used
```

7. Show the Computer, Home, and Trash desktop icons in GNOME

1. Open the Configuration Editor, by running the program `gconf-editor` (see *the run application manual* [`ghelp:user-guide#tools-run-app`] for help on how to run an application without using the menu).
2. Choose apps → nautilus → desktop.
3. Turn on `computer_icon_visible`, `home_icon_visible`, and `trash_icon_visible`. The changes take effect immediately.

8. Restart GNOME without rebooting the computer

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

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

(See *Section 9, “Preventing the Ctrl-Alt-Backspace shortcut keys from restarting X” [p. 84]* to disable **Ctrl-Alt-Backspace**.)

9. 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:

```
sudo gedit /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_disablectrlaltbackspacegnome]).
5. The change will take effect the next time you log in to GNOME. If you want the change to take effect immediately, restart GNOME manually. (See *Section 8, "Restart GNOME without rebooting the computer"* [p. 83].)