Getting Started
with Ubuntu

The Ubuntu Manual Team

You're reading the 2020.1 version of this book.

The author of the 2020 update is Clache.

I made this update alone, cause i didn't get answered by initial authors. I have several errors when compiling the book, for example, i cannot have the glossary, the index and add my name in the author's list.
To download the latest original sources, install the bzr package and in a terminal, do the command: `bzr branch lp:ubuntu-manual/xenial`.
For compiling, i have to install the texlive-xetex and fonts-linuxlibertine packages. I also comment the line 101 of file Makefile and the command \ccbysa at the end of line 5 of file frontmatter/copyright.tex. And in the directory where Makefile file is, run the command: `make`.
There is a script that can verify that you have all the dependencies, it's pkgs/install-pkgs.sh.
For language versions, you also need the po4a package and the command is `make ubuntu-manual-LANG.pdf` by replacing 'LANG' with the one chosen and whose list is in the po folder.

My website is https://clache.toile-libre.org where you can make a donation to help me keep updating this book.

Getting Started with Ubuntu can be downloaded for free from https://www.ubuntu-manual.org or purchased from http://ubuntu-manual.org/buy/gswu1604/en_US. A printed copy of this book can be ordered for the price of printing and delivery. We permit and even encourage you to distribute a copy of this book to colleagues, friends, family, and anyone else who might be interested.

https://www.ubuntu-manual.org

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Prologue

Welcome

Welcome to *Getting Started with Ubuntu*, an introductory guide written to help new users get started with Ubuntu.

Our goal is to cover the basics of Ubuntu (such as installation and working with the desktop) as well as hardware and software management, working with the command line, and security. We designed this guide to be simple to follow, with step-by-step instructions and plenty of screenshots, allowing you to discover the potential of your new Ubuntu system.

Canonical releases new versions of Ubuntu every six months; every fourth release is a so-called long-term support (LTS) version. Each Ubuntu release has a version number that consists of the year and month number of the release, and an alliterative code name using an adjective and an animal. Code names are in consecutive alphabetic order, allowing a quick determination of which release is newer. Ubuntu 20.04 (code-named Focal Fossa) is considered a so-called LTS version and is supported by Canonical with patches and upgrades for five years. The previous LTS version is Ubuntu 18.04 (Bionic Beaver), and has support for five years (until April 2023). Whenever a new LTS version of Ubuntu is released, we will incorporate updates and changes into our guide, and make a new version available at https://www.ubuntu-manual.org or https://clache.toile-libre.org.

Getting Started with Ubuntu is not intended to be a comprehensive Ubuntu instruction manual. It is a quick-start guide that will get you doing the things you need to do with your computer easily, without getting bogged down with technical details. With the help of this guide, it should not take long before new users get used to the GNOME desktop environment. GNOME includes the Launcher, the Dash, the HUD, indicators, and an on-screen display notification system (OSD). All these features will be explained in this guide.

For more detailed information on any aspect of the Ubuntu desktop, see the "Ubuntu Desktop Guide," which can be obtained in any of the following ways:

- ‣ in the Dash, type `help`.
- ‣ in the indicator area, click **Session indicator ‣ Ubuntu Help**.
- ‣ go to https://help.ubuntu.com, **Ubuntu 20.04 LTS ‣ Desktop HTML**.

There are also many excellent resources available on the Internet. For example, on https://help.ubuntu.com you will find documentation on installing and using Ubuntu. At the Ubuntu Forums (https://ubuntuforums.org) and Ask Ubuntu (https://www.askubuntu.com), you will find answers to many Ubuntu-related questions.

You can find more information about Ubuntu's online and system documentation in Chapter 8: Learning More.

If something isn't covered in this manual, chances are you will find the information you are looking for in one of those locations. We will try our best to include links to more detailed help wherever we can.

Ubuntu Philosophy

The term "Ubuntu" is a traditional African concept originating from the Bantu languages of southern Africa. It can be described as a way of con-

People sometimes wonder how to pronounce *Ubuntu*. Each *u* is pronounced the same as in the word *put* except for the last *u* which is pronounced the same as in the word *due*.

necting with others—living in a global community where your actions affect all of humanity. Ubuntu is more than just an operating system: it is a community of people coming together voluntarily to collaborate on an international software project that aims to deliver the best possible user experience.

The Ubuntu Promise

▸ Ubuntu will always be free of charge, along with its regular enterprise releases and security updates.
▸ Ubuntu comes with full commercial support from Canonical and hundreds of companies from across the world.
▸ Ubuntu provides the best translations and accessibility features that the free software community has to offer.
▸ Ubuntu's core applications are all free and open source. We want you to use free and open source software, improve it, and pass it on.

A brief history of Ubuntu

Ubuntu was conceived in 2004 by Mark Shuttleworth, a successful South African entrepreneur, and his company Canonical. Shuttleworth recognized the power of GNU/Linux and free software, but was also aware of weaknesses that prevented mainstream use.

To learn more about Canonical, go to https://www.canonical.com.

Shuttleworth set out with clear intentions to address these weaknesses and create a system that was easy to use, completely free (see Chapter 8: Learning More for the complete definition of "free"), and could compete with other mainstream operating systems. With the Debian system as a base, Shuttleworth began to build Ubuntu. Using his own funds at first, installation CDs were pressed and shipped worldwide at no cost to the recipients. Ubuntu spread quickly, its community grew rapidly, and soon Ubuntu became the most popular Linux distribution available.

Debian is the Linux operating system that Ubuntu is based upon. For more information visit http://www.debian.org/.

With more people working on the project than ever before, its core features and hardware support continue to improve, and Ubuntu has gained the attention of large organizations worldwide.

While large organizations often find it useful to pay for support services, Shuttleworth has promised that the Ubuntu desktop operating system will always be free. Ubuntu is installed on an estimated 2% of the world's computers. This equates to tens of millions of users worldwide, and is growing each year. As there is no compulsory registration, the percentage of Ubuntu users should be treated as an estimate.

For information on Ubuntu Server Edition, and how you can use it in your company, visit https://www.ubuntu.com/server.

What is Linux?

Ubuntu is built on the foundation of Linux, which is a member of the Unix family. Unix is one of the oldest types of operating systems, and together with Linux has provided reliability and security for professional applications for almost half a century. Many servers around the world that store data for popular websites (such as YouTube and Google) run some variant of Linux or Unix. The popular Android system for smartphones is a Linux variant; modern in-car computers usually run on Linux. Even OS X is based on Unix. The Linux kernel is best described as the core—almost the brain—of the Ubuntu operating system.

The Linux kernel is the controller of the operating system; it is responsi-

ble for allocating memory and processor time. It can also be thought of as the program which manages any and all applications on the computer itself.

While modern graphical desktop environments have generally replaced early command line interfaces, the command line can still be a quick and efficient way of performing many tasks. See Chapter 6: Advanced Topics for more information, and Chapter 2: The Ubuntu Desktop to learn more about GNOME and other desktop environments.

Linux was designed from the ground up with security and hardware compatibility in mind, and is currently one of the most popular Unix-based operating systems. One of the benefits of Linux is that it is incredibly flexible and can be configured to run on almost any device—from the smallest micro-computers and cellphones to the largest super-computers. Unix was entirely command line-based until graphical user interfaces (GUIS) emerged in 1973 (in comparison, Apple came out with Mac OS ten years later, and Microsoft released Windows 1.0 in 1985).

The early GUIS were difficult to configure, clunky, and generally only used by seasoned computer programmers. In the past decade, however, graphical user interfaces have grown in usability, reliability, and appearance. Ubuntu is one of many different GNU/Linux *distributions*.

To learn more about Linux distributions, see Chapter 8: Learning More.

Is Ubuntu right for you?

New users to Ubuntu may find that it takes some time to feel comfortable when trying a new operating system. You will no doubt notice many similarities to both Microsoft Windows and OS X as well as some differences. Users coming from OS X are more likely to notice similarities due to the fact that both OS X and Ubuntu originated from Unix. The choice in Ubuntu interface is a completely new concept, which needs some exploring to get used to it. See Chapter 2: The Ubuntu Desktop for more information about the Unity shell.

Before you decide whether or not Ubuntu is right for you, we suggest giving yourself some time, maybe until one month, to grow accustomed to the way things are done in Ubuntu. You should expect to find that some things are different from what you are used to. We also suggest taking the following into account:

Ubuntu is community based. That is, Ubuntu is developed, written, and maintained by the community. Because of this, support is probably not available at your local computer store. Fortunately, the Ubuntu community is here to help. There are many articles, guides, and manuals available, as well as users on various Internet forums and Internet Relay Chat (IRC) rooms that are willing to assist beginners. Additionally, near the end of this guide, we include a troubleshooting chapter: Chapter 7: Troubleshooting.

Many applications designed for Microsoft Windows or OS X will not run on Ubuntu. For the vast majority of everyday computing tasks, you will find suitable alternative applications available in Ubuntu. However, many professional applications (such as the Adobe Creative Suite) are not developed to work with Ubuntu. If you rely on commercial software that is not compatible with Ubuntu, yet still want to give Ubuntu a try, you may want to consider dual-booting. Alternatively, some applications developed for Windows will work in Ubuntu with a program called Wine. For more information on Wine, see Chapter 6: Advanced Topics.

To learn more about dual-booting (running Ubuntu side-by-side with another operating system), see Chapter 1: Installation.

Many commercial games will not run on Ubuntu. If you are a heavy gamer,

then Ubuntu may not be for you. Game developers usually design games for the largest market. Since Ubuntu's market share is not as substantial as Microsoft's Windows or Apple's OS X, fewer game developers allocate resources towards making their games compatible with Linux. If you just enjoy a game every now and then, there are many high quality games that can be easily installed through the Ubuntu Software application. There are also a lot of games available at https://store.steampowered. com/browse/linux.

See Chapter 5: Software Management to learn more about Ubuntu Software.

Contact details

Many people have contributed their time to this project. If you notice any errors or think we have left something out, feel free to contact us. We do everything we can to make sure that this manual is up to date, informative, and professional. Our contact details are as follows:

- ‣ Website: https://www.ubuntu-manual.org or https://clache.toile-libre.org
- ‣ Reader feedback: feedback@ubuntu-manual.org
- ‣ IRC: #ubuntu-manual on irc.freenode.net
- ‣ Bug Reports: https://bugs.launchpad.net/ubuntu-manual/+filebug
- ‣ Mailing list: ubuntu-manual@lists.launchpad.net

About the team

Our project is an open-source, volunteer effort to create and maintain quality documentation for Ubuntu and its derivatives.

Want to help?

We are always looking for talented people to work with, and due to the size of the project we are fortunate to be able to cater to a wide range of skill sets:

- ‣ Authors and editors
- ‣ Programmers (Python or TEX)
- ‣ User interface designers
- ‣ Icon and title page designers
- ‣ Event organizers and ideas people
- ‣ Testers
- ‣ Web designers and developers
- ‣ Translators and screenshotters
- ‣ Bug reporters and triagers

To find out how you can get started helping, please visit https://www. ubuntu-manual.org/getinvolved.

Conventions used in this book

The following typographic conventions are used in this book:

- ‣ Button names, menu items, and other GUI elements are set in **boldfaced type**.
- ‣ Menu sequences are sometimes typeset as **File ‣ Save As**…, which means, "Choose the **File** menu, then choose the **Save As**…."

▸ `Monospaced type` is used for text that you type into the computer, text that the computer outputs (as in a terminal), and keyboard shortcuts.

1   Installation

Getting Ubuntu

Before you can get started with Ubuntu, you will need to obtain a copy of the Ubuntu installation image for DVD or USB. Some options for doing this are outlined below.

Minimum system requirements

If you are unsure whether it will work on your computer, the Live DVD or Live USB are great ways to test things out first. Below is a list of hardware specifications that your computer should meet as a minimum requirement.

- 1 GHz x86-64 processor (Pentium 4 HT or better)
- 1 GB of system memory (RAM)
- 8.6 GB of disk space (at least 15 GB is recommended)
- Video support capable of 1024×768 resolution
- Either a DVD drive or a USB port for the installer media
- Audio support (recommended, but not required)
- An Internet connection (highly recommended, but not required)

Downloading Ubuntu

The easiest and most common method for getting Ubuntu is to download the Ubuntu DVD image directly from https://www.ubuntu.com/download. Choose how you will used Ubuntu:

- Download and install
- Try it from a DVD or USB stick

Download and Install / Try it from a DVD or USB stick

For the *Download and install*, or *Try it from a DVD or USB stick* options, then choose "Desktop" and click "Download".

32-bit versus 64-bit

There's no more 32-bit version of Ubuntu shipped. The latest 32-bit was for its derivative Lubuntu 18.04. The difference beetween 32-bit and 64-bit refers to the way computers process information. Computers capable of running 64-bit software are able to process more information than computers running 32-bit software; however, 64-bit systems require more memory in order to do this. Nevertheless, these computers gain performance enhancements by running 64-bit software. All processors from Pentium 4 HT, CoreX and AMD since 2003 have 64-bit capabilities.

- If your computer has a 64-bit processor, install the 64-bit version.
- If your computer has a 32-bit processor(regularly used in netbook), install the 32-bit version of Lubuntu (choose 18.04.4 or 18.04.5), there's update until 2021. If your computer is less powerful for this version, consider an another distribution like Puppy Linux (http://www.puppylinux.com) or Slitaz (http://www.slitaz.org).

Downloading Ubuntu as a torrent

When a new version of Ubuntu is released, the download servers can get "clogged" as large numbers of people try to download Ubuntu at the same time. If you are familiar with using torrents, you can download the torrent file by clicking "Alternative downloads," and then "BitTorrent download." Downloading via torrent may improve your download speed, and will also help to spread Ubuntu to other users worldwide.

Torrents are a way of sharing files and information around the Internet via peer-to-peer file sharing. A file with the `.torrent` extension is made available to users, which is then opened with a compatible program such as uTorrent, Deluge, or Transmission. These programs download parts of the file from other people all around the world.

Burning the DVD image

Once your download is complete, you will be left with a file called *ubuntu-20.04-desktop-amd64.iso* or similar for derivative or next version (for the 64-bit version, the filename contains *amd64* instead of *i386* for the 32-bit version). This file is a DVD image—a snapshot of the contents of a DVD—which you will need to burn to a DVD.

While the 64-bit version of Ubuntu is referred to as the "AMD64" version, it will work on Intel, AMD, and other compatible 64-bit processors.

Creating a bootable USB drive

If your PC is able to boot from a USB stick, you may prefer to use a USB memory stick instead of burning a DVD. Scroll down on the download webpage to the "Easy ways to switch to Ubuntu" section and you will find a link to instructions on how to create a bootable *USB stick* in your current operating system. If you select this option, your installation will be running from the USB memory stick. In this case, references to Live DVD, will refer to the USB memory stick.

Trying out Ubuntu

The Ubuntu DVD and USB stick function not only as installation media, but also allow you to test Ubuntu without making any permanent changes to your computer by running the entire operating system from the DVD or USB stick.

Your computer reads information from a DVD at a much slower speed than it can read information off of a hard drive. Running Ubuntu from the Live DVD also occupies a large portion of your computer's memory, which would usually be available for applications to access when Ubuntu is running from your hard drive. The Live DVD/USB experience will therefore feel slightly slower than it does when Ubuntu is actually installed on your computer. Running Ubuntu from the DVD/USB is a great way to test things out and allows you to try the default applications, browse the Internet, and get a general feel for the operating system. It's also useful for checking that your computer hardware works properly in Ubuntu and that there are no major compatibility issues.

In some cases, your computer will not recognize that the Ubuntu DVD or USB is present as it starts up and will start your existing operating system instead. To run Ubuntu from the Live DVD or USB, we want the computer to look for information from the Live DVD or USB first. Changing your *boot priority* is usually handled by BIOS settings; this is beyond the scope of this guide. If you need assistance with changing the boot priority, see your computer manufacturer's documentation for more information.

To try out Ubuntu using the Live DVD/USB stick, insert the Ubuntu DVD into your DVD drive, or connect the USB drive and restart your computer.

After your computer finds the Live DVD/USB stick, and a quick loading screen, you will be presented with the "Welcome" screen. Using your mouse, select your language from the list on the left, then click the button labelled **Try Ubuntu**. Ubuntu will then start up, running directly from the Live DVD/USB drive.

Once Ubuntu is up and running, you will see the default desktop. We will talk more about how to actually use Ubuntu in Chapter 2: The Ubuntu Desktop, but for now, feel free to test things out. Open some applications,

change settings and generally explore—any changes you make will not be saved once you exit, so you don't need to worry about accidentally breaking anything.

When you are finished exploring, restart your computer by clicking the "Power" button in the top right corner of your screen (a circle with a line through the top) and then select **Restart**. Follow the prompts that appear on screen, including removing the Live DVD and pressing Enter when instructed, and then your computer will restart. As long as the Live DVD is no longer in the drive, your computer will return to its original state as though nothing ever happened!

Alternatively, you can also use your mouse to double-click the "Install Ubuntu 20.04" icon that is visible on the desktop when using the Live DVD. This will start the Ubuntu installer.

Installing Ubuntu—Getting started

At least 8.6 GB of free space on your hard drive is required in order to install Ubuntu. We recommend 15 GB or more. This will ensure that you will have plenty of room to install extra applications later on, as well as store your own documents, music, and photos. To get started, place the Ubuntu DVD in your DVD drive and restart your computer. Your computer should load Ubuntu from the DVD. When you first start from the DVD, you will be presented with a screen asking you whether you want to first try out Ubuntu or install it. Select the language you want to view the installer in and click on the **Install Ubuntu** button. This will start the installation process.

Clicking on the underlined "release notes" link will open a web page containing any important information regarding the current version of Ubuntu.

If you have an Internet connection, the installer will ask you if you would like to "Download updates while installing Ubuntu." We recommend you do so. The second option, "Install third-party software for graphics and Wi-Fi hardware, Flash, MP3, and other media" includes the Fluendo MP3 codec, and software required for some wireless hardware. If you are not connected to the Internet, the installer will help you set up a wireless connection.

The "Preparing to install Ubuntu" screen will also let you know if you have enough disk space and if you are connected to a power source (in case you are installing Ubuntu on a laptop running on battery). Once you have selected your choices, click **Continue**.

Figure 1.2: Preparing to install.

Internet connection

If you are not connected to the Internet, the installer will ask you to choose a wireless network (if available).

We recommend that you connect to the Internet during install, although updates and third-party software can be installed after installation completes.

1. Select **Connect to this network**, and then select your network from the list.
2. If the list does not appear immediately, wait until a triangle/arrow appears next to the network adapter, and then click the arrow to see the available networks.
3. In the **Password** field, enter the network wep or wpa key (if necessary).
4. Click **Connect** to continue.
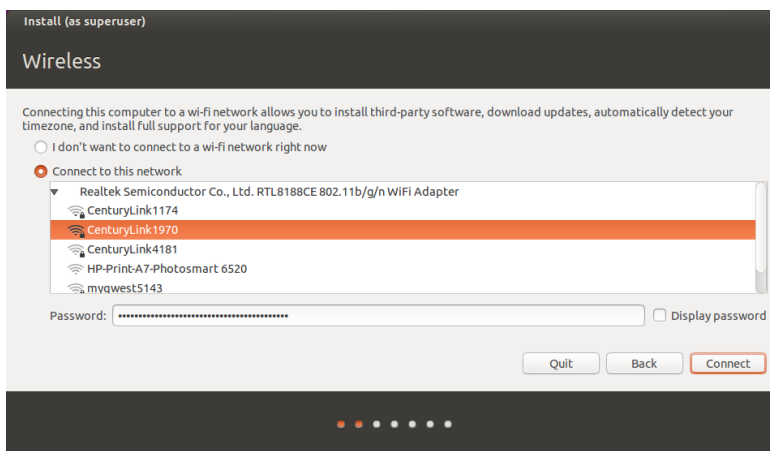
Figure 1.3: Set up wireless.

Allocate drive space

The Ubuntu installer will automatically detect any existing operating system installed on your machine, and present installation options suitable for your system. The options listed below depend on your specific system and may not all be available:

If you are installing on a new machine with no operating system, you will not get the first option. The upgrade option is only available if you are upgrading from a previous version of Ubuntu.

‣ Install alongside other operating systems
‣ Upgrade Ubuntu … to 20.04

‣ Erase … and install Ubuntu
‣ Something else

Install alongside other operating systems.

⚠ *For more complicated dual-booting setups, you will need to configure the partitions manually.*
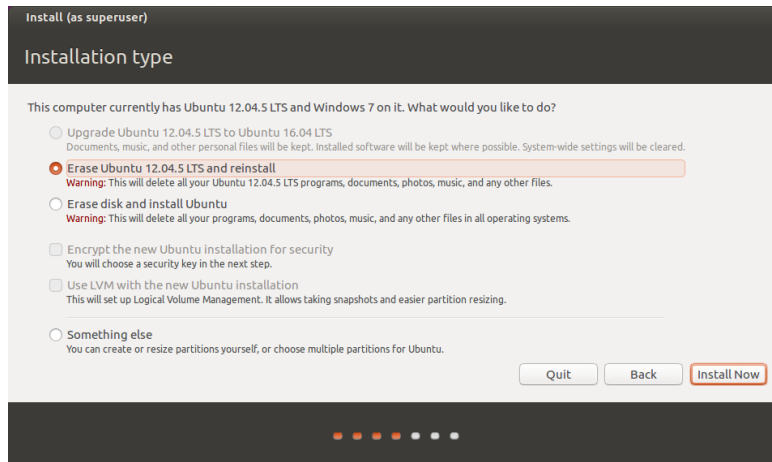
Upgrade Ubuntu … to 20.04

This option will keep all of your documents, music, pictures, and other personal files. Installed software will be kept when possible (not all of your currently installed software may be supported on the new version). System-wide settings will be cleared.

Erase disk and install Ubuntu

Use this option if you want to erase your entire disk. This will delete any existing operating systems that are installed on that disk, such as Microsoft Windows, and install Ubuntu in its place. This option is also useful if you have an empty hard drive, as Ubuntu will automatically create the necessary partitions for you.

⚠ *Formatting a partition will destroy any data currently on the partition. Be sure to back up any data you want to save before formatting. More information and detailed instructions on partitioning are available at: https://help.ubuntu.com/community/HowtoPartition.*

After you have chosen the installation type, click **Continue**, or **Install Now**.

Confirm Partition choices and start install

If you chose **Something else**, configure the partitions as you need. Once you are happy with the way the partitions are going to be set up, click the **Install Now** button at the bottom right to move on.

To reduce the time required for installation, Ubuntu will continue the installation process in the background while you configure important user

details—like your username, password, keyboard settings and default time-zone.

Where are you?
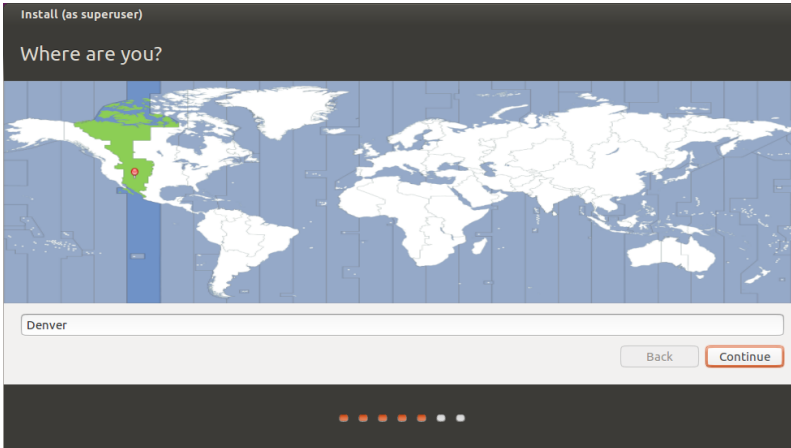
Figure 1.5: Tell Ubuntu your location.

The next screen will display a world map. Using your mouse, click your geographic location on the map to tell Ubuntu where you are. Alternatively, you can type your location in the field below the map. This allows Ubuntu to configure your system clock and other location-based features. Click **Continue** when you are ready to move on.

Keyboard layout
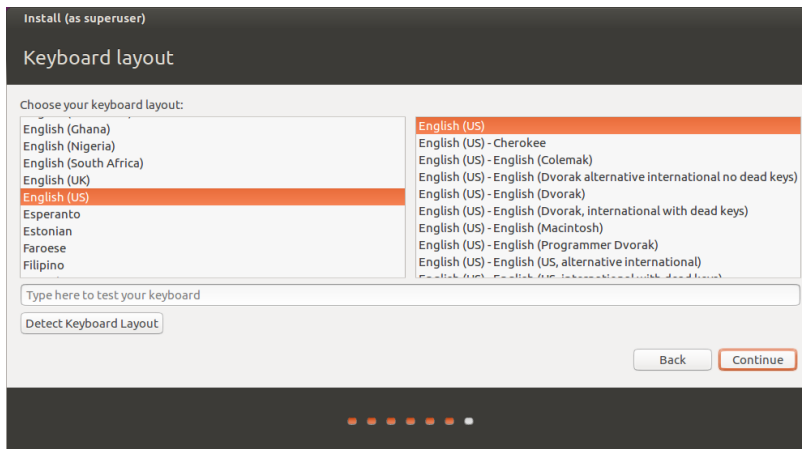
Figure 1.6: Verify that your keyboard layout is correct.

Next, you need to tell Ubuntu what kind of keyboard you are using. In most cases, you will find the suggested option satisfactory. If you are unsure which keyboard option to select, you can click the **Detect Keyboard Layout** button to have Ubuntu determine the correct choice by asking you to press a series of keys. You can also manually choose your keyboard layout from the list of options. If you like, enter text into the box at the bottom of the window to ensure you are happy with your selection, then click **Continue**.

Who are you?

Ubuntu needs to know some information about you so it can set up the primary user account on your computer. When configured, your name will appear on the login screen as well as the user menu, which we discuss in Chapter 2: The Ubuntu Desktop.

On this screen you will need to tell Ubuntu:

‣ your name
‣ what you want to call your computer
‣ your desired username
‣ your desired password
‣ how you want Ubuntu to log you in

Figure 1.7: Setup your user account.

Enter your full name under **Your name**. The next text field is the name your computer uses, for terminals and networks. You can change this to what you want, or keep the predetermined name. Next is your username, the name that is used for the user menu, your home folder, and behind the scenes. You will see this is automatically filled in for you with your first name. Most people find it easiest to stick with this. However, it can be changed if you prefer.

Next, choose a password and enter it into both password fields. When both passwords match, a strength rating will appear to the right that will show you whether your password is "short," "weak," "fair," or "good." You will be able to continue the installation process regardless of your password strength, but for security reasons it is best to choose a strong one. This is best achieved by having a password that is at least nine characters long, with a mixture of uppercase and lowercase letters, as well as numbers and symbols. Avoid words that can be found in a dictionary and obvious passwords such as your birth date, spouse's name, or the name of your pet.

Login Options

Finally, at the bottom of this screen you have two options regarding how you wish to log in to Ubuntu. You may also choose to have Ubuntu encrypt your home folder.

‣ Log in automatically
‣ Require my password to log in
  – Encrypt my home folder

Log in automatically

Ubuntu will log in to your primary account automatically when you start up the computer so you won't have to enter your username and password. This makes your login experience quicker and more convenient, but if privacy or security are important to you, we don't recommend this option. Anyone who can physically access your computer will be able to turn it on and also access your files.

Require my password to login

This option is selected by default, as it will prevent unauthorized people from accessing your computer without knowing the password you created earlier. This is a good option for those who, for example, share their computer with other family members. Once the installation process has been completed, an additional login account can be created for each family member. Each person will then have their own login name and password, account preferences, Internet bookmarks, and personal storage space.

Encrypt my home folder

This option provides you with an added layer of security. Your home folder is where your personal files are stored. By selecting this option, Ubuntu will automatically enable encryption on your home folder, meaning that files and folders must be decrypted using your password before they can be accessed. Therefore if someone had physical access to your hard drive (for example, if your computer was stolen and the hard drive removed), they would not be able to see your files without knowing your password.

⚠️ *If you choose this option, be careful not to enable automatic login at a later date. It will cause complications with your encrypted home folder, and will potentially lock you out of important files.*

Finishing Installation

Ubuntu will now finish installing on your hard drive. As the installation progresses, a slideshow will give you an introduction to some of the default applications included with Ubuntu. These applications are covered in more detail in Chapter 3: Working with Ubuntu. The slideshow will also highlight the Ubuntu support options.

   After approximately twenty minutes, the installation will complete and you will be able to click **Restart Now** to restart your computer and start Ubuntu. The DVD will be ejected, so remove it from your DVD drive and press Enter to continue.

   Wait while your computer restarts, and you will then see the login window (unless you selected automatic login).

Login Screen

After the installation has finished and your computer is restarted, you will be greeted by the login screen of Ubuntu. The login screen will present you with your username and you will have to enter the password to get past it. Click your username and enter your password. Once done, you may click the arrow or press Enter to get into the Ubuntu desktop. Ubuntu's login
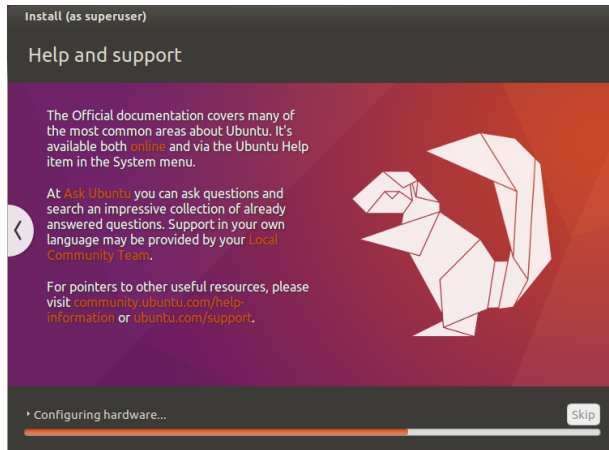
Figure 1.8: Ubuntu community support options. Where to get help for Ubuntu.
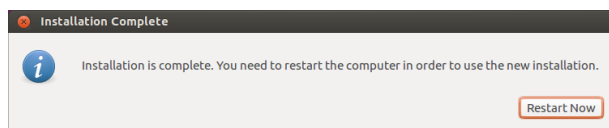
Figure 1.9: You are now ready to restart your computer.

screen supports multiple users and also supports custom backgrounds for each user. In fact, Ubuntu automatically will pick up your current desktop wallpaper and set it as your login background.

The login screen allows you to update your keyboard language, volume intensity and enable/disable accessibility settings before you log in to your desktop. It also displays date/time and battery power for laptops. You can also shut down or restart your system from the login screen.
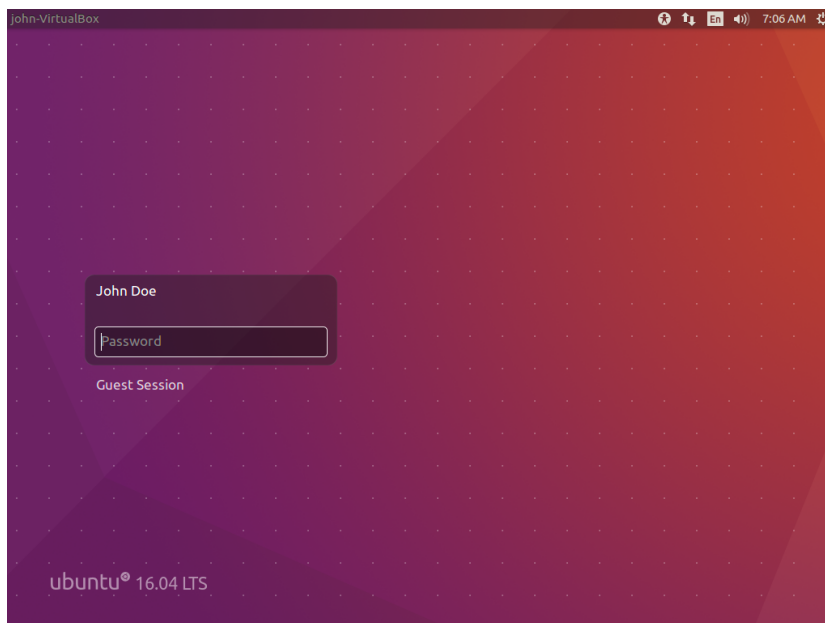
Figure 1.10: Login Screen.

UEFI

An important thing we don't talk in this chapter, is UEFI for Unified Extensible Firmware Interface. This software is the BIOS (Basic Input Output System) successor who have the role to start the computer and making interface between hardware part and software. For compatibility reason, UEFI have also a BIOS Legacy mode.

With this, there's a new type of GUID (Globally Unique IDentifier) Partition Table known as GPT that's used for discribing the partition sheme. It as more reliability than the older MS-DOS type and push the limits. These two types of partition table can work both with UEFI mode or BIOS Legacy mode. Cause there's maybe more than a decade that all motherboard is shipped with these capabilities, you should use the GPT type for your hard drive, but changing it from MS-DOS delete all datas on disk.

When you install an operating system, it's important to know if you are in the UEFI mode or BIOS Legacy mode. You can saw it in the UEFI setup. If you install Ubuntu and don't maintain the old operating system, you can use the two modes, but used UEFI and desactivate Secure boot function is recommended. If you're going to used a multiboot system, you have to use the same mode than the one used by installed system (a conversion stay possible but is risky). If there is a cohabitation of operating systems in the two modes, you can't choose the starting system at the bootloader level, but directly in UEFI setup that is very less easyly and confortable.

2 The Ubuntu Desktop

Understanding the Ubuntu desktop

Initially, you may notice many similarities between Ubuntu and other operating systems, such as Microsoft Windows or Apple OS X. This is because they are all based on the concept of a graphical user interface (GUI)—*i.e.*, you use your mouse to navigate the desktop, open applications, move files, and perform most other tasks. In short, things are visually oriented. This chapter is designed to help you become familiar with various applications and menus in Ubuntu so that you become confident in using the Ubuntu GUI.

Figure 2.1: The Ubuntu 20.04 default desktop.

Gnome

All GUI-based operating systems use a *desktop environment*. Desktop environments contain many features, including (but not limited to):

‣ The look and feel of the system
‣ The organization of the desktop
‣ How the user navigates the desktop

Ubuntu uses Gnome as the default desktop environment. The GNOME desktop is comprised of the desktop background and two bars—a horizontal one located at the top of your desktop called the *menu bar* and a vertically oriented bar at the far left called the *Launcher*.

To read more about other variants of Ubuntu, refer to Chapter 8: Learning More.

The desktop background

Below the menu bar at the top of the screen is an image covering the entire desktop. This is the default desktop background, or wallpaper, belonging to the default Ubuntu theme known as *Yaru.* To learn more about customizing your desktop (including changing your desktop background), see the section on Customizing your desktop below.

The menu bar

The menu bar incorporates common functions used in Ubuntu. The icons on the far right of the menu bar are located in an area of the menu bar called the *indicator area*, or *notification area.* Each installation of Ubuntu may contain slightly different types and quantities of icons based on a number of factors, including the type of hardware and available on-board peripherals upon which the Ubuntu installation is based. Some programs add an icon to the indicator area automatically during installation. The most common indicators are:

Network indicator (🛜 or ⇅) manages network connections, allowing you to connect quickly and easily to a wired or wireless network.

Text entry settings (En) shows the current keyboard layout (such as En, Fr, Ku, and so on) and, if more than one keyboard layout is chosen, allows you to select a keyboard layout. The **keyboard indicator** menu contains the following menu items: Character Map, Keyboard Layout Chart, and Text Entry Settings.

Messaging indicator (✉) incorporates your social applications. From here, among others, you can access instant messenger and email clients.

Sound indicator (🔊) provides an easy way to adjust the sound volume as well as access your music player and sound settings.

Clock displays the current time and provides a link to your calendar and time and date settings.

Session indicator (⚙) is a link to the system settings, Ubuntu Help, and session options (like locking your computer, user/guest session, logging out of a session, restarting the computer, or shutting down completely).

Every application has a menuing system where different actions can be executed in an application (like **File**, **Edit**, **View**, etc.); the menuing system for an application is appropriately called the **application menu**. It is located in the left area of the *menu bar.* By default in Ubuntu, the application menu isn't on the title bar of the application as is commonly the case in other GUI environments.

To show an application's menu, just move your mouse to the desktop's menu bar (at the top of the screen). While your mouse is positioned here, the active application's menu options will appear in the desktop's menu bar, allowing you to use the application's menuing options. When clicking on the desktop, the desktop's menu bar reappears. This capability in Ubuntu to display the application's menu only when needed is especially beneficial for netbook and laptop users with limited viewable screen space. You can disable this feature via **Session Indicator ▸ System Settings ▸ Appearance**. In the **Behavior** tab, under **Show the menus for a window**, select **In the window's title bar**.

For more about:

‣ the Messaging indicator see Using instant messaging on page 61;
‣ the Network indicator see Getting online on page 41;
‣ the Session indicator see Session options on page 35.

🛜 En ✉ ▭ 🔊 12:01 AM ⚙

Figure 2.2: The indicators of the menu bar.

Note that some older applications may still display their menu within the application window.
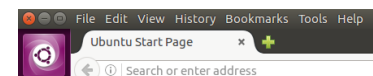

Figure 2.3: To show an application's menu, just move your mouse to the desktop's menu bar (at the top of the screen).

The Launcher

The vertical bar of icons on the left side of the desktop is called the Launcher. The Launcher provides easy access to applications, mounted devices, and the Trash. All running applications on your system will place an icon in the Launcher while the application is running. To change the Launcher icon size, go to **Session Indicator ▸ System Settings ▸ Appearance**, tab **Look**.

The first icon at the top of the Launcher is the Dash, a component of Unity. We will explore the Dash in a later section of this chapter. By default, other applications appear in the Launcher, including the Files file manager, LibreOffice, Firefox, any mounted devices, and the Trash, which contains deleted folders and files, at the bottom of the Launcher.

Holding the Super key, also known as the Windows key (Win key), located between the left `Ctrl` key and `Alt` key, will cause Ubuntu to super-impose a number onto the first ten applications in the Launcher and also display a screen full of useful shortcuts. You can launch an application with a number *n* on it by typing `Super+n`.

If you open more applications than can be shown in the Launcher, the Launcher will "fold" the application icons at the bottom of the Launcher. Simply move your mouse to the bottom of the Launcher, and you'll see the Launcher icons "slide" and the folded application icons unfold for easy access.

Figure 2.4: The Ubuntu Launcher on the left with a sample of applications on it.

Running applications

To run an application from the Launcher (or cause an already-running application to appear), just click on the application's icon.

Applications that are currently running will have one or more triangles on the left side of the icon indicating the number of application windows open for this application. Running applications also have a back-lit icon on the Launcher.

The application in the foreground (*i.e.*, the application that is on top of all other open application windows) is indicated by a single white triangle on the right side of its icon.

You can also run an application through the Dash which will be explored in the upcoming The Dash section.

Some also refer to an application in the foreground as being *in focus*.

Figure 2.5: The triangles on each side of the Firefox icon indicate Firefox is in the foreground and only one window is associated with Firefox at this time.

Adding and removing applications from the Launcher

There are two ways to add an application to the Launcher:

▸ Open the Dash, find the application you wish to add to the Launcher, and drag its icon to the Launcher.
▸ Run the application you want to add to the Launcher, right-click on the application's icon on the Launcher, and select **Lock to Launcher**.

To remove an application from the Launcher, right-click on the application's icon, then select **Unlock from Launcher**.

The Dash

The Dash helps you quickly find applications and files on your computer. If you've used Windows in the past, you'll find the Dash to be similar to the Windows Start menu or the Start Screen in Windows 8. OS X users will find the Dash similar to Launchpad in the dock. The Dash serves as a

For more information about the Dash and its lenses, see https://wiki.ubuntu.com/Unity.

replacement for the various GNOME 2 menus. The Dash allows you to search for information both locally (installed applications, recent files, bookmarks, etc.) and remotely (Twitter, Google Docs, etc.).
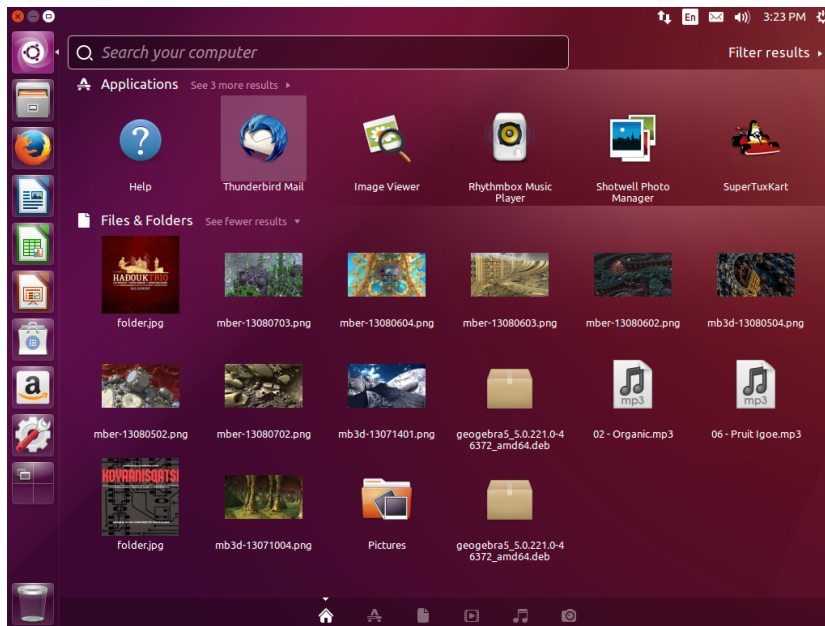
Figure 2.6: The Dash.

To explore the Dash, click on the topmost icon on the Launcher; the icon contains the Ubuntu logo on it. After clicking the Dash icon, the desktop will be overlaid by a translucent window with a search bar on top as well as a grouping of recently accessed applications, files, and downloads. Ubuntu also includes results from popular web services. The search bar provides dynamic results as you enter your search terms.

Lenses

Lenses act as specialized search categories in the Dash: searching is accomplished by utilizing one or more lenses, also known as scopes, and each lens is responsible for providing a category of search results through the Dash.

The six lenses installed by default at the bottom are: **Home** lens (⌂), **Applications** lens (ᴀ), **Files and Folders** lens (▪), **Videos** lens (▶), **Music** lens (♫), and **Photos** lens (◉).

Search for files and applications with the Dash

The Dash is an extremely powerful tool allowing you to search your computer for applications and files.

Find files/folders

The Dash can help you find names of files or folders. Simply type a portion of the file or folder name. As you type, results will appear in the Dash. The **Files and Folders** lens will also assist in finding files or folders—showing you the most recently accessed files as well as the most recent downloads. You can use the *filter results* button in the top-right corner of the Dash to filter results by attributes such as file or folder modification times, file type (.odt, .pdf, .doc, .txt, etc.), or size.

Find applications

A standard Ubuntu installation comes with many applications. Users can additionally download thousands of applications from the Ubuntu Software application. As you collect an arsenal of awesome applications (and get a bonus point for alliteration!), it may become difficult to remember the name of a particular application; the **Applications** lens on the Dash can assist with this search. This lens will automatically categorize installed applications under "Recently used," "Installed," or "Dash plugins." You can also enter the name of an application (or a part of it) into the search bar in the Dash, and the names of applications matching your search criteria will appear. Even if you don't remember the name of the application at all, type a keyword that is relevant to that application, and the Dash will find it. For example, type `music`, and the Dash will show you the default music player and any music player you've used.

The Ubuntu Software application and software management will be discussed in detail at Chapter 5: Software Management.

If you are new to the world of Ubuntu, be sure to read Chapter 3: Working with Ubuntu. It will provide you with assistance in choosing application(s) to suit your needs.
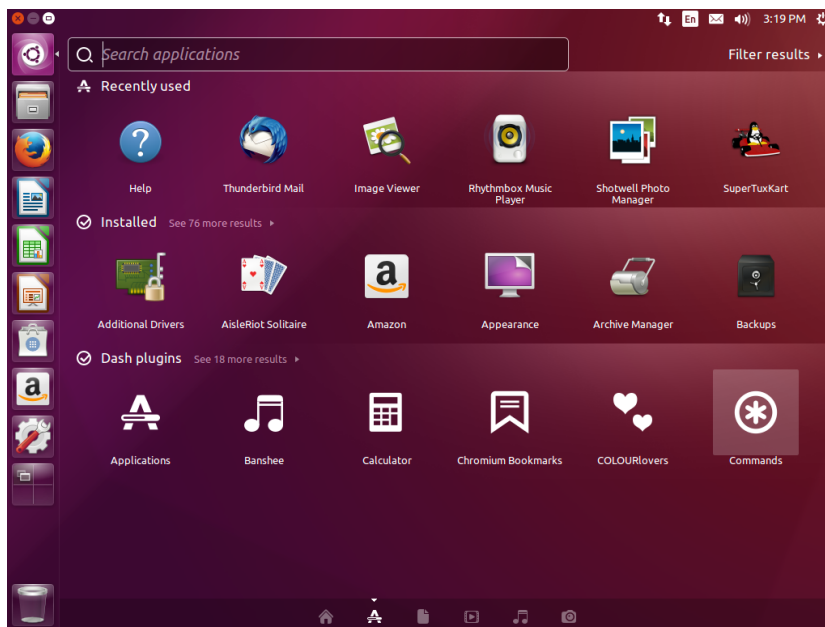
Figure 2.7: You can see the default results when you press the **Applications** lens.

External search results

In addition to searching your local computer for applications and files, the Dash can also search various online resources (*e.g.*, Amazon.com). Results pertinent to your search criteria are returned to you in the Dash. The online search results within the Dash are turned off by default during installation. If you want external search results, go to **System Settings ▸ Security & Privacy ▸ Search** and set the "Include online search results" switch to the **On** position.

Workspaces

Workspaces are also known as virtual desktops. These separate views of your desktop allow you to group applications together, and by doing so, help to reduce clutter and improve desktop navigation. For example, you can open all of your media applications in one workspace, your office suite

in another, and your web browser in a third workspace. Ubuntu has four workspaces by default.

The workspaces feature is not activated by default in Ubuntu. To activate workspaces, click on **Session Indicator ▸ System Settings ▸ Appearance** then click on the **Behavior** tab and click on the **Enable workspaces** box. When this box is checked, you'll notice that another icon is added to the bottom of the Launcher that looks like a window pane. This is the workspace switcher.

Switching between workspaces

If you've activated the workspace switcher as described above, you can switch between workspaces by clicking on the workspace switcher icon located on the Launcher. This utility allows you to toggle through the workspaces (whether they contain open applications or not) and choose the one you want to use. You can also launch the workspace switcher by typing Super+s and choose a workspace by using the keyboard arrows followed by RET (the Return / Enter key).
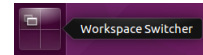
Figure 2.8: The workspace switcher on the Launcher.

Managing windows

When opening a program in Ubuntu (such as a web browser or a text editor —see Chapter 3: Working with Ubuntu for more information on using applications)—a *window* will appear on your desktop. Simply stated, a window is the box that appears on your screen when you start a program. In Ubuntu, the top part of a window (the *title bar*) will have the name of the application to the left (most often, the title will be the same as the application's name). A window will also have three buttons in the top-left corner. From left to right, these buttons represent *close* window, *minimize* window, and *maximize* window. Other window management options are available by right-clicking anywhere on the title bar.

Closing, maximizing, restoring, and minimizing windows

To close a window, click on the close button (⊗) in the upper-left corner of the window—the first button on the left-hand side.

The button immediately to the right of the close button is the minimize button (⊖), which hides the window from view and minimizes it to the Launcher. When an application is minimized to the Launcher, the left-side of the icon in the Launcher will display an additional triangle. Clicking the icon of the minimized application will restore the window to its original position.

Finally, the right-most button is the maximize button (⊙) which causes the application to completely fill the desktop space. If a window is maximized, its top-left buttons and menu are automatically hidden from view. To make them appear, just move your mouse to the *menu bar*. Clicking the maximize button again will return the window to its original size.

Figure 2.9: This is the top bar of a window, named *title bar*. The close, minimize, and maximize buttons are in the top-left corner of the window.

Moving and resizing windows

To move a window around the workspace, place the mouse pointer over the window's title bar, then click and drag the window while continuing to hold down the left mouse button. You can also move a window by holding the Alt key and then clicking and holding the left mouse button while pointing anywhere in the window and dragging the window to a new location. To

resize a window, place the pointer on an edge or corner of the window so that the pointer turns into a larger, two-sided arrow (known as the resize icon). You can then click and drag to resize the window.

Switching between open windows

In Ubuntu, there are many ways to switch between open windows:

- If the window is visible on your screen, click any portion of it to raise it above all other windows.
- Use `Alt+Tab` to select the window you wish to work with. Hold down the `Alt` key, and keep pressing `Tab` until the window you're looking for appears highlighted in the pop-up window. Then, release the `Alt` key, and the application highlighted in the pop-up will move to the foreground of your desktop.
- Click on the corresponding icon on the Launcher by moving your mouse to the left side of the screen and right-clicking on the application's icon. If the application has multiple windows open, double-click on the icon in order to select the desired window.

Press `Ctrl+Super+D` to hide all windows and display the desktop; the same works to restore all windows.

Moving a window to a different workspace

To move a window to a different workspace, verify that the window isn't maximized. If it is maximized, click on the right-most button on the left side of the title bar to restore it to its original size. Then right-click on the window's title bar and select:

You can also use `Shift+Control+Alt` in combination with the `arrow` keys to move a window to a different workspace.

- **Move to Workspace Left**, to move the window to the left workspace
- **Move to Workspace Right**, to move the window to the right workspace
- **Move to Workspace Down**, to move the window to the bottom workspace
- **Move to Another Workspace**, and then choose the workspace to where you wish to move the window.

Note that the options available when moving windows to different workspaces depends on which workspace contains the window you are moving. If the window exists in the lower-right workspace, you will not see a **Move to Workspace Down** because there is no workspace available below the lower-right quadrant of a four quadrant workspace.

Window always on the top or on visible workspace

At times, you may want to force a window to always be in the foreground so that it can be seen or monitored while you work with other applications. For example, you may want to browse the web and, at the same time, view and answer an incoming instant message. To keep a window always in the foreground, right-click on the window's title bar, then select **Always On Top**. This window will now be on the top of all windows opened in the current workspace. If you want to have a window always on the top regardless of the workspace, right-click on the window's title bar, then select **Always on Visible Workspace**. This window will now be on top of all other windows across all workspaces.

Ubuntu's keyboard shortcuts

When you long-press the Super key (also known as the Flag key) for a few seconds, Ubuntu will display a list of useful keyboard shortcuts, some of which have been mentioned above.

Figure 2.10: Common keyboard shortcuts as displayed by Ubuntu.

Browsing files on your computer

There are two ways to locate files on your computer—search for them or access them directly from their directory. You can search for a file using the Dash or the Files file manager. You can also use the Dash or Files file manager to access commonly used directories (such as **Documents**, **Music**, **Downloads**) as well as the most recently accessed files.

Your home directory

The home directory is used to store all of your personal files (rather than system files, such as applications).

In Ubuntu, by default, **the contents of your home directory are accessible for and *can be read by other users* who have an account on your PC**.

The name of your home directory matches your login name and is created when your user account is created. When opening your personal directory, you will see a collection of several directories, including Desktop (which contains any files that are visible on the desktop), Documents, Downloads, Music, Pictures, Public, Templates, and Videos. These directories are created automatically during the installation process. You can add more files and directories as needed.

The terms "*directory*" and "*folder*" are often used interchangeably.

Files file manager

Just as Microsoft Windows has Windows Explorer and OS X has Finder to browse files and directories, Ubuntu uses the Files file manager by default.

The Files file manager window

When you select the **Files** shortcut in the Launcher, click on a directory in the Dash, or double-click a directory on the desktop, Ubuntu will open the Files file manager. The default window contains the following features:
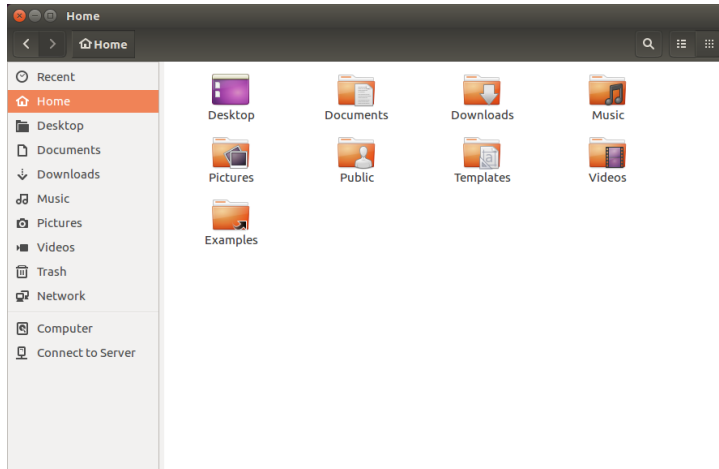
Figure 2.11: Files file manager displaying your home directory.

menu bar The menu bar is located at the top of the screen. The Files menu allows you to modify the layout of the browser, show, browse and remove bookmarks, open a Help document, open a new window, connect to a server, or quit. Choosing **Enter Location** will open the Locations text field where you can enter any location directly.

title bar The title bar shows the name of the currently selected directory. It also contains the **Close**, **Minimize**, and **Maximize** buttons.

toolbar The toolbar displays your directory browsing history (using two arrow buttons), your location in the file system, a search button, and options for your current directory view.

Figure 2.12: The toolbar of the Files application while browsing the directory */var/log/apt/*, with the **Search** functionality activated.

- On the upper left corner of the toolbar, there are two arrow icons. These are similar to the "**Back**" and "**Forward**" history functionality in web browsers. The Files application keeps track of where you are and allows you to backtrack if necessary. As such, the buttons **Previous visited location** and **Next visited location** allow you to navigate through your directory browsing history.
- In the middle of the toolbar, you will see a representation of your current directory location.
- Clicking on the **Search** icon opens a text field so you can search for a file or directory by name.
- Clicking on the **View items as a grid** icon (the default setting) enables you to see the files and directories as icons. In this view, previews of photos and text files are also displayed.
- Clicking on the **View items as a list** icon allows you to see a list of files and directories, along with their size, type, and date of last

modification. You may customize what information is displayed by right-clicking on either **Name**, **Size**, **Type**, or **Modified**. This action will display a checklist of available options.

left pane The left pane of the file browser has shortcuts to commonly used directories. You can also bookmark a directory through the menu bar by choosing **Bookmarks ▸ Bookmark this Location**. Once you have bookmarked the directory, it should appear in the left pane. Regardless of the directory you are currently browsing, the left pane will always contain the same directories.

right pane The largest pane shows the files and directories within the directory you are currently browsing.

To navigate to a directory in Files, click (or double-click) on its icon in the right pane, the left pane, or the toolbar.

Opening files

A file, in its simplest form, is data. Data can represent a text document, database information, or other media such as music or videos. To open a file, you can double-click on its icon. Ubuntu will try to find an appropriate application with which to open the selected file. In some cases, you may wish to open the file with a different application than the one Ubuntu selected. To select an application, right-click the icon and select one of the **Open With** options.

Creating new directories

To create a new directory from within the Files file manager, right-click in the blank area of the right pane and select **New Folder** from the pop-up menu (this action will also work on the desktop). Replace the default "Untitled Folder" title with your desired label (*e.g.*, "Personal Finances"). You can also create a new directory by pressing Ctrl+Shift+N.

Hidden files and directories

If you wish to hide certain directories or files, place a dot (.) in front of the name (*e.g.*, ".Personal Finances"). In some cases, it is impossible to hide files and directories without prefixing them with a dot.

You can easily view hidden files by clicking **View ▸ Show Hidden Files** or by pressing Ctrl+H. Hiding files with a dot (.) is *not* a security measure—it is simply a way to help you organize your files.

Copying and moving files and directories

You can cut, copy, and paste files or directories in the Files file manager by right-clicking on the item and selecting the corresponding button from the pop-up menu. You can also use the keyboard shortcuts Ctrl+X, Ctrl+C, and Ctrl+V to cut, copy, and paste files and directories, respectively.

Multiple files can be selected by left-clicking in an empty space (*i.e.*, not on a file or directory), holding the mouse button down, and dragging the cursor across the desired files or directories. This "click-drag" action is useful when you are selecting items that are grouped closely together. To select multiple files or directories that are not positioned next to each other, hold down the Ctrl key while clicking on each item individually. Once

the desired files and/or directories are selected, right-click on any of the selected items to perform an action just like you would for a single item.

When one or more items have been "copied," navigate to the desired location, then right-click in an empty area of the window and select **Paste** to copy them to the new location. While the *copy* command can be used to make a duplicate of a file or directory in a new location, the *cut* command can be used to move files and directories. That is, a copy will be placed in a new location, and the original will be removed from its current location.

Note that when you "cut" or "copy" a file or directory, nothing will happen until you "paste" it somewhere. Paste will only affect the most recent item(s) cut or copied.

To move a file or directory, select the item to move, then click **Edit ‣ Cut**. Navigate to the desired location, then click **Edit ‣ Paste**. If you click on a file or directory, drag it, then hold down the `Alt` key and drop it to your destination directory, a menu will appear asking whether you want to *copy*, *move*, or *link* the item.

As with the *copy* command above, you can also perform this action using the right-click menu, and it will work for multiple files or directories at once. An alternative way to move a file or directory is to click on the item, and then drag it to the new location.

Using multiple tabs and multiple Files windows

Opening multiple Files file manager windows can be useful for dragging files and directories between locations. You can also have multiple *tabs* to browse multiple locations at once.

To open a second window when browsing a directory in Files, select **File ‣ New Window** or press `Ctrl+N`. This will open a new window, allowing you to drag files and/or directories between two locations. To open a new tab, click **File ‣ New Tab** or press `Ctrl+T`. A new row will appear above the space used for browsing your files containing two tabs—both will display the directory you were originally browsing. You can click these tabs to switch between them and click and drag files or directories between tabs the same as you would between windows.

When dragging items between Files windows or tabs, a small symbol will appear over the mouse cursor to let you know which action will be performed when you release the mouse button. A plus sign (+) indicates you are about to copy the item, whereas a small arrow means the item will be moved. The default action will depend on the directories you are using.

Searching for files and folders on your computer

You can search for files and folders using the Dash or the Files file manager.

Search for files and folders quickly by pressing `Ctrl+F` in Files and then typing what you want to find.

Search using the Dash

In the Dash, simply type your search terms in the search bar at the top of the Dash.

Alternatively, you may use the **Applications** or **Files & Folders** lenses; here you can use a filter to narrow down your search. Open the drop-down menu on the right side of the search bar. If you've selected **Applications**, you will be able to filter by application type. If you've chosen **Files & Folders**, you can filter by a host of options, including **Last modified**, **Type** (*e.g.,*

Documents), or **Size**. It is sufficient to type the first few letters of the file or folder for which you are searching.

Search using Files file manager

In Files file manager, click on the magnifying glass button or press `Ctrl+F`. This opens the search field where you can type the name of the file or folder you want to find.

Customizing your desktop
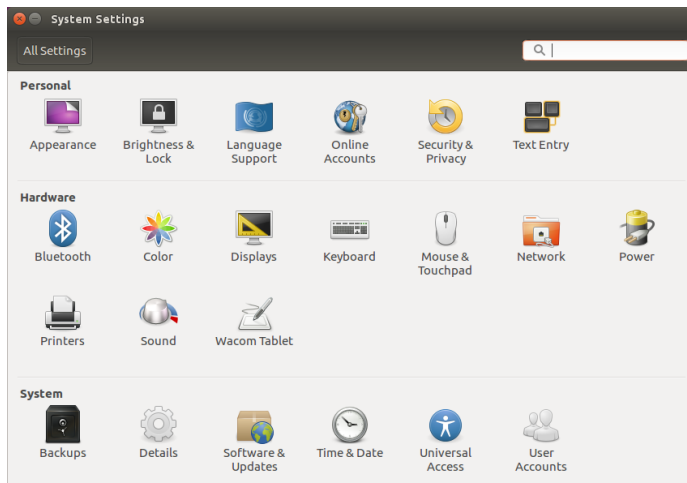
Figure 2.13: You can change most of your system's settings here.

   Most customizations can be reached via the Session Indicator and then selecting **System Settings** to open the System Settings application window. The Dash, desktop appearance, themes, wallpapers, accessibility, and other configuration settings are available here. For more information see Session options.

Appearance
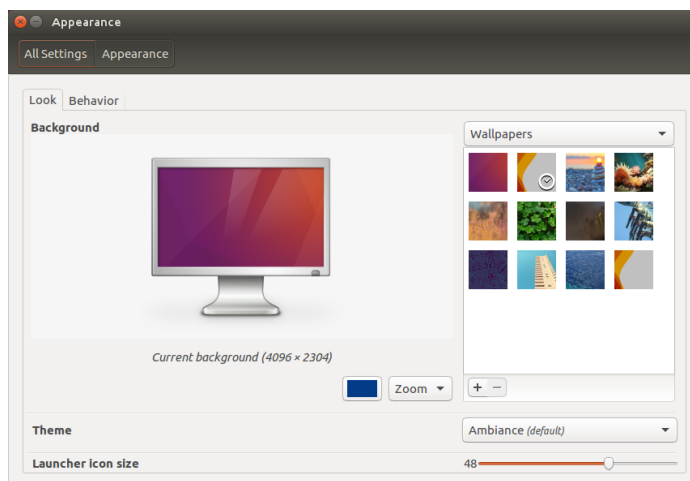
Figure 2.14: You can change the theme in the **Look** tab of the "Appearance" window.

The Look tab

In the **Look** tab you can change the background, window theme, and Launcher icon size to further modify the look and feel of your desktop. To begin, open Appearance by either right-clicking on your background and selecting **Change Desktop Background** or selecting **Session Indicator ▸ System Settings...▸ Appearance**. Select the **Look** tab.

Theme   The "Appearance" window will display the current selected background wallpaper and theme. Themes control the appearance of your windows, buttons, scroll bars, panels, icons, and other parts of the desktop. If you don't like the default theme, but there are other themes from which you can choose. Just click once on any of the listed themes to give a new theme a try. The theme will change your desktop appearance immediately.

Desktop background   To change the **Background**, either select **Wallpapers**, **Pictures Folder**, or **Colors and Gradients** from the drop-down list. When **Wallpapers** is selected, you will see Ubuntu's default selection of backgrounds. To change the background, simply click the picture you would like to use. You're not limited to this selection. To use one of your own pictures, click the + button and navigate to the image you would like to use. Then click the **Open** button, and the change will take effect immediately. This image will then be added to your list of available backgrounds. Selecting **Pictures Folder** opens your Pictures folder where you can choose a picture for the background. The **Colors and Gradients** button allows you to set the background to a solid or gradient color. Click on the **Solid Color** button, then the **Pick a Color** to choose a solid color. The **Vertical Gradient** and **Horizontal Gradient** buttons bring up two **Pick a Color** buttons. Just choose any two colors you like and see if you have achieved the desired result.

Launcher icon size   At the bottom of the **Look** tab you find a slider to change the size of icons on the Launcher. You may choose from a range between 32 and 64 pixels.

The Behavior tab

In the **behavior** tab you find several options to change the behavior of your desktop.

Auto-hide the Launcher   Switch the **Auto-hide the Launcher** to either show the Launcher or reveal it when moving the pointer to the defined hot spot. When turned on, you can choose the reveal location—Left side or Top left corner—and the reveal sensitivity.

Enable workspaces   By default, workspaces are not enabled. You can enable workspaces by checking this option.

Add show desktop icon to the launcher   Check this option if you want to show the desktop icon on the Launcher.

Show the menus for a window   Here you can choose if you want menus to show in the menu bar or in the window's title bar.

Menus visibility   You can change the visibility of your application menus between two options. The first is Displayed on mouse hovering, which will show application menus when the mouse hovers over the application window. The second option is Always displayed, which allows application menus to always be displayed when possible.

You can restore the behavior settings by clicking the **Restore Behavior Settings** button.

Accessibility

Ubuntu has built-in tools that make using the computer easier for people with disabilities. You can find these tools by opening the Dash and searching for "Universal Access," or by selecting **Session Indicator ‣ System Settings…‣ Universal Access**. Use the **Seeing** tab to manage the text size, the contrast of the interfaces, enable a zoom tool, a virtual keyboard, a screen reader, and so on. Selecting high-contrast themes and larger on-screen fonts can assist those with vision difficulties. You can activate "Visual Alerts" through the **Hearing** tab if you have hearing impairment. You can also adjust keyboard and mouse settings to suit your needs through the **Typing** and **Pointing and Clicking** tabs, respectively. The **Profiles** tab will allow you to enable the Accessibility Profiles Indicator with which you may switch between the following profiles: Minor Motor Difficulties, Screen reader with speech, High Contrast, Braille, and On-screen Keyboard.
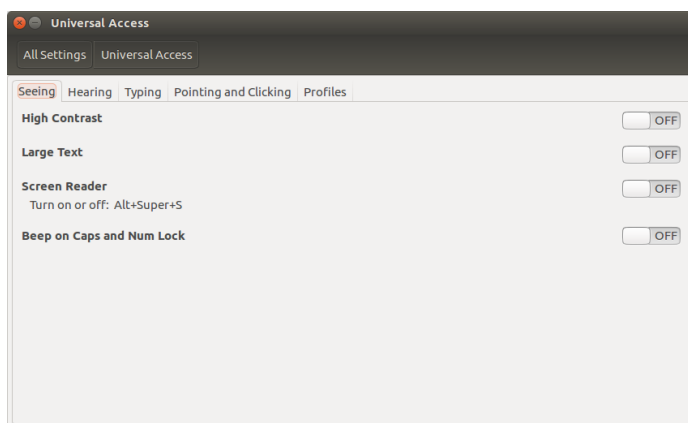
Figure 2.15: Universal Access allows you to enable extra features to make it easier to use your computer.

Once you have finished toggling the settings to your needs, you may need to **log out of the computer and log back in** for the changes to take effect.

Screen reader (Orca)

Orca is a useful tool for people who have difficulties with their vision. It comes preinstalled with Ubuntu and provides the "Screen Reader" functionality in Universal Access.

The screen reader can be activated by using one of the following methods:

‣ Using the keyboard shortcut ALT-Super-s (*in that order*), or
‣ Using **Session Indicator ‣ System Settings…‣ Universal Access ‣ Screen Reader ‣ ON/OFF**, or
‣ Clicking on **Dash** and launching Orca.

Session options

When you have finished working on your computer, you can choose to log out, suspend, restart, or shut down through the **Session Indicator** on the far right side of the top panel.

Logging out

Logging out will leave the computer running but return the desktop to the login screen. This is useful for switching between users, such as when a different person wishes to log in to their account or if you are ever instructed to "log out and back in again." You can also log out by pressing `Ctrl+Alt+Del`. Before logging out, always verify that you have saved your work in any open application.

Suspending

To save energy, you can put your computer into *suspend* mode which will save the current opened applications to internal memory (RAM), power off most of the internal devices and hardware, and allow you to start back up more quickly. Unlike hibernation (which is not officially supported or enabled in Ubuntu/Unity since 14.04 but can be enabled through other means), while in a suspended state the computer will continue operating using minimal electricity. Note that if the power goes out during this state, unsaved changes will be lost and data loss may also occur. To put your computer in *suspend* mode, select **Suspend** from the "Session Indicator".

Rebooting

To reboot your computer, select **Shut Down**... from the "Session Indicator," then click the **Restart** icon.

Shutting down

To totally power down your computer, select **Shut Down**... from the "Session Indicator," then click the **Shut Down** icon.

Other options

From the "Session Indicator", select **Lock/Switch Account**... to either lock the screen of the current user or switch user accounts. You can lock your screen quickly by using the keyboard shortcut `Ctrl+Alt+L`. Locking your screen is recommended if you are away from your computer for any amount of time.

Getting help

General Help

Like with many other operating systems, Ubuntu has a built-in help reference called the Ubuntu Desktop Guide (Figure 2.16 on page 36). To access it, click on the Dash and type `Help`. Alternatively, you can press `F1` while on the desktop, or select **Ubuntu Help** from the **Help** menu in the menu bar. Many applications have their own help section which can be accessed by clicking the **Help** menu within the application window.
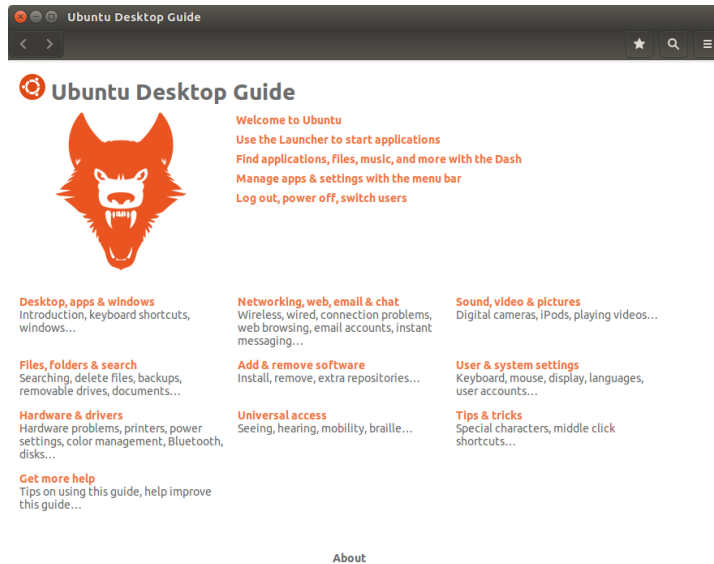
Online Help

If you can't find an answer to your question in this manual or in the Ubuntu Desktop Guide, you can ask for assistance from other Ubuntu users using the Ubuntu Forums (https://ubuntuforums.org). To best assist you in solving the issue, it is best to provide as much information as possible when submitting your query, such as:

‣ System information (*e.g.* Ubuntu version, PC make and model)
‣ The full text of any error messages you have encountered,
‣ What you were doing at the time,
‣ What were you trying to achieve / what you were expecting to happen...

Many Ubuntu users open an account on the forums to receive help and in turn provide support to others as they gain more knowledge. Another useful resource is the Ubuntu Wiki (https://wiki.ubuntu.com/community), a website maintained by the Ubuntu community. You can additionally find the Official Ubuntu Documentation, prepared by Ubuntu developers, at https://help.ubuntu.com.

Last but not least, one other helpful resource for online help and assistance is Ask Ubuntu (https://www.askubuntu.com). Ask Ubuntu is provided by Stack Overflow and can be a helpful resource in addition to the previously-mentioned ones.

Heads-Up Display help
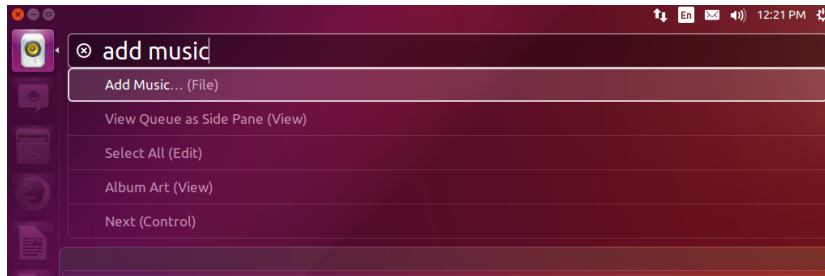
Figure 2.17: The HUD (Heads-Up Display) shows application-specific information and options based on your general input.

The HUD (Heads-Up Display) is a keyboard-friendly utility to help you find commands, features, and preferences embedded deep within the stacked menu structure of an application. Activate the HUD by tapping the Alt key on the keyboard.

For example, if you want to add music in Rhythmbox (the default music player in Ubuntu) you can open the application, press Alt, and begin typing add music. The options available in Rhythmbox will begin to appear as you type, meaning you usually do not have to type many characters to obtain useful results. You can use the Down/Up Arrow keys to navigate these results and press the Enter key to active the selected option. While the HUD is primarily of use *within* applications, particularly those with deep menus such as LibreOffice or GIMP, it may also be used on the Unity desktop itself with no applications opened or given focus. With the HUD, you can often easily perform within a few keystrokes something that would otherwise require navigating various menus and sub-menus.

3   Working with Ubuntu

All the applications you need

Because Ubuntu is a separate operating system, some applications that are available for other operating systems (such as FreeBSD, Windows, or OS X) may not be available for Ubuntu and vice versa. This is especially true for closed source (*i.e.*, proprietary) software released by makers of closed source operating systems.

If you are migrating from a Windows or Mac platform, some of the programs you were using have native Linux versions. For those that lack compatibility, there are well established free software alternatives that will cover your needs. This section will recommend some of these free software applications that are known to work well on Ubuntu.

Most of the applications listed in this section can be installed via the Ubuntu Software application, are open source, and are freely available. Those followed by an asterisk (*) can be downloaded directly from their respective official websites.

Office Suites

In Ubuntu you may choose among many office suites. The most popular suite is LibreOffice (formerly OpenOffice). Included in the suite:

‣ Writer: word processor
‣ Calc: spreadsheet
‣ Impress: presentation manager
‣ Draw: drawing program
‣ Base: database
‣ Math: equation editor

The LibreOffice Suite comes pre-installed with Ubuntu by default. Note that Base is not installed by default but can be installed through Ubuntu Software.

Other office productivity applications that you might want to try out are KOffice, Gnome Office (for older Ubuntu versions), Gnumeric (spreadsheet application), Kexi (database application), and so on.

Email Applications

As with office suites, there are multiple options for email applications. One very popular email application is Mozilla Thunderbird, which is also available for Windows. Thunderbird is the default email application in Ubuntu. Other options include Evolution and KMail.

Web Browsers

The default web browser in Ubuntu is Firefox. Other browsers you may want to try out include Epiphany, Midori, Chromium, Opera*, and Google Chrome*.

PDF Readers

Evince is the default PDF reader in Ubuntu. Others include Okular and Adobe Reader*.

Multimedia Players

For multimedia, Ubuntu users have a wide variety of options for high quality players. While VLC is a perennial favorite among videophiles, the classic and user-friendly Totem is the default media player in Ubuntu. Other media players, most of which can be installed through Ubuntu Software, are: Media Player, SMPlayer, Parole Media Player, mpv Media Player, Tomahawk, Internet DJ Console, KMPlayer, Banshee (an all-round media player), and Kaffeine (KDE).

Music Players and Podcatchers

There are several options for listening to music with Ubuntu: Rhythmbox (installed by default), Amarok, Audacity (also a sound editor), Miro (also a video player), VLC, and so on. These applications allow you to listen to music and to your favorite podcasts. Amarok is similar to Winamp. Miro may be of use especially to those who watch video podcasts and TV shows from the Internet. VLC is well known for its ability to play a very wide range of multimedia file formats.

CD/DVD Burning

There are several popular disk burning applications such as Gnome-baker, Brasero, SimpleBurn, CD burner, Xfburn, and K3b. These CD/DVD creation tools are powerful and offer user-friendly interfaces and numerous features.

Photo Management

You can view and manage your favorite photos with Shotwell, Ubuntu's default photo manager, gThumb, Gwenview, or F-Spot, among others.

Graphics Editors

GIMP is a very powerful graphics editor. You can create your own graphics, taper your photographs, and modify your pictures. Another useful Graphics Editor is Inkscape, which allows you to create and edit Scalable Vector Graphics images. Both GIMP and Inkscape can be installed through Ubuntu Software.

Instant Messaging

You can use Pidgin, Empathy, or Kopete to communicate over most protocols including: AIM, MSN, Google Talk, IRC, Jabber/XMPP, Facebook, Yahoo!, and ICQ. This means that you need only one application to communicate with all of your friends. Note that some of these clients have limited video support.

VoIP Applications

VOIP technologies allow you to talk to people over the Internet. The most popular application is Skype, which is available for Ubuntu. An open-source alternative, Ekiga, supports voice communication using the SIP protocol. Skype uses a proprietary protocol and is thus incompatible.

BitTorrent Clients

There are a number of BitTorrent clients for Ubuntu: Transmission, Ubuntu's default client, is simple and light-weight. Deluge, Vuze, and KTorrent offer many features and can satisfy the most advanced users.

Getting online

This section of the manual will help you to check your connection to the Internet and help you configure it where needed. Ubuntu can connect to the Internet using a wired, wireless, or dialup connection. Ubuntu also supports more advanced connection methods, which will be briefly discussed at the end of this section.

A wired connection is when your computer connects to the Internet using an Ethernet cable. This is usually connected to a wall socket or a networking device—like a switch or a router.

A wireless connection is when your computer connects to the Internet using a wireless radio network—usually known as Wi-Fi. Most routers now come with wireless capability, as do most laptops and netbooks. Because of this, Wi-Fi is the most common connection type for these types of devices. Wireless connectivity makes laptops and netbooks more portable when moving to different rooms of a house and while travelling.

A dialup connection is when your computer uses a *modem* to connect to the Internet through a telephone line.

NetworkManager

Networking in Ubuntu is by default managed with the NetworkManager utility. NetworkManager allows you to turn network connections on or off, manage wired and wireless networks, and make other network connections, such as dialup, mobile broadband, and VPNs.

You can access NetworkManager by using its icon found in the top panel. This icon may look different depending on your current connection state. Clicking this icon will reveal a list of available network connections. The current connections (if any) will have the word "disconnect" underneath. You can click on "disconnect" to manually disconnect from that network.

This menu also allows you to view technical details about your current connection or edit all connection settings.

In the image to the right, you will see a check mark next to "Enable Networking." Deselect "Enable Networking" to disable all network connections. Select "Enable Networking" to enable networking again. This can be very useful when you are required to turn off all wireless communications, like in an airplane.

Figure 3.1: The network connection states: (a) disconnected, (b) wired, and (c) wireless.
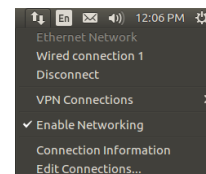
Figure 3.2: Here you can see the currently active connection is "Wired connection 1."

Establishing a wired connection

If you are already online at this point as indicated by the NetworkManager icon in the top panel showing a connection, then you may have successfully connected during the Ubuntu setup process. You can also simply open a browser and see if you have access to the Internet. If so, you do not need to do anything for the rest of this section. If not, then continue reading.

If you have an *Ethernet* cable running from a wall socket or networking device, such as a switch or router, then you will want to setup a wired connection in Ubuntu.

In order to connect to the Internet with a wired connection, you need to know whether your network supports DHCP *(Dynamic Host Configuration Protocol)*. DHCP is a way for your computer to automatically be configured to access your network and/or Internet connection. DHCP is usually automatically configured on your router. This is usually the quickest and easiest way of establishing a connection to the Internet. If you are unsure whether your router is setup to use DHCP, you may wish to contact your ISP's *(Internet Service Provider)* customer service line to check. If your router isn't configured to use DHCP then they will also be able to tell you what configuration settings you need in order to get online. If you are connected to your office LAN, you should contact your network administrator.

Automatic connections with DHCP
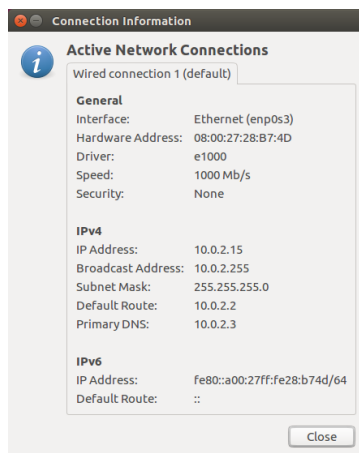
Figure 3.3: This window displays your IP address and other connection information.

If your network supports DHCP, then you may already be set up for online access. To check this, click on the NetworkManager icon. There should be an "Ethernet Network" heading in the menu. If either "Wired connection 1" or "Auto Ethernet" appears directly underneath, then your machine is currently connected and probably setup for DHCP. If "Disconnected" appears in gray underneath the wired network section, look below to see if an option labeled "Wired connection 1" appears in the list. If so, click on it to attempt to establish a wired connection.

If you are still not online after following these steps, you may need to try setting up your network connection manually using a static IP address. To check if you are online, look for the NetworkManager icon in the top panel. If the icon shows ▽, then your computer was not successfully assigned connection information through DHCP. If the icon shows either ⇅ or ⬙, then it is likely that your DHCP connection to the router was successful. To test your Internet connection, you may want to open the Firefox web browser to try loading a web page. More information on using Firefox can be found later in this chapter.

An IP (Internet Protocol) address is a unique number assigned to your machine so that your router can identify you on the network. Think of it like a phone number for your computer. Having this unique address allows the router to speak to your computer, and therefore send/receive data.

Manual configuration with static address

If your network does not support DHCP, then you need to know a few items of information before you can get online. If you do not know any of this information, then you call your ISP.

‣ An *ip address*—This is a unique address used for identifying your computer on the network. An ip address is always given in four numbered groups, separated by dots, for example, 192.168.100.10. When connecting using dhcp, this address will periodically change (hence, the name "dynamic"). However, if you have configured a static ip address, your ip address will never change.

‣ A *network mask*—This tells your computer the size of the network to which it is being connected. It is formatted the same way as the ip address, but usually looks something like 255.255.255.0.

‣ A *gateway*—This is the ip address of the device that your machine looks to for access to the Internet. Usually, this will be the router's ip address.

‣ *dns server*—This is the ip address of the dns *(Domain Name Service)* server. dns is what your computer uses to resolve ip addresses to domain names. For example https://www.ubuntu.com resolves to 91.189.94.156. This is the ip address of the Ubuntu website on the Internet. dns is used so you don't have to remember ip addresses. Domain names (like ubuntu.com) are much easier to remember. You will need at least one dns server address but you can enter up to three addresses in case one server is unavailable. If you do not know your isp's dns server addresses, Google has dns servers that anyone in the world can use for free. The addresses of these servers are: Primary—8.8.8.8 Secondary—8.8.4.4.

To manually configure a wired connection, click on the NetworkManager icon and select **Edit Connections**. Make sure you are looking at the **Wired** tab inside the "Network Connections" window. The list may already have an entry, such as "Wired connection 1" or a similar name. If a connection is listed, select it and click the **Edit** button. If no connection is listed, click the **Add** button.

If you are adding a connection, you need to provide a name for the connection. This will distinguish the connection being added from any other connections added in future. In the "Connection Name" field, choose a name such as "Wired Home."

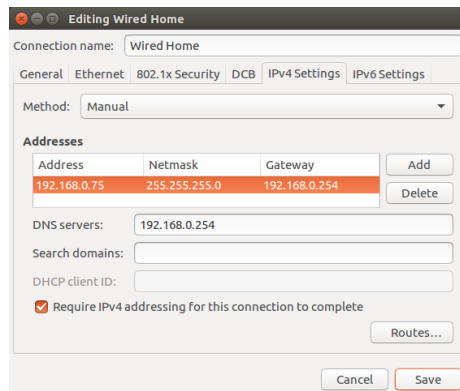Figure 3.4: In this window you can manually edit a connection.

To setup the connection:

1. Make sure that the **Connect automatically** option is selected under the connection name.
2. Switch to the **ipv4 Settings** tab.
3. Change the **Method** to "Manual."
4. Click on the **Add** button next to the empty list of addresses.
5. Enter your ip address in the field below the **Address** header.

6. Click to the right of the IP address, directly below the **Netmask** header and enter your network mask. If you are unsure, "255.255.255.0" is the most common.

7. Click on the right of the network mask directly below the **Gateway** header and enter the address of your gateway.

8. In the DNS Servers field below, enter the address of your DNS server(s). If you are entering more than one, separate them with commas—for example, "8.8.8.8, 8.8.4.4".

9. Click **Save** to save your changes.

*A MAC address is a hardware address for your computer's network card. Entering this information is sometimes important when using a cable modem connection. If you know the MAC address of your network card, this can be entered in the appropriate text field in the **Wired** tab of the editing window. To find the MAC addresses for all installed networking devices, open a terminal window, and at the command line prompt, type `ifconfig`. This will display a lot of information about each of the network devices installed on the computer. The wired devices will begin with one of the four possible prefixes, and that prefix is **en**, for Ethernet devices. **wl** is for Wireless (or Wireless Lan), **sl** is for Serial Line IP (slip), and **ww** is for WWAN.*

When you have returned to the Network Connections screen, your newly added connection should now be listed. Click **Close** to return to the desktop. If your connection was configured correctly, the NetworkManager icon should have changed to show an active wired connection. To test if your connection is properly set up, simply open a web browser. If you can access the Internet, then you are connected!

Wireless

If your computer is equipped with a wireless (Wi-Fi) card and you have a wireless network nearby, you should be able to set up a wireless connection in Ubuntu.

Connecting to a wireless network for the first time

If your computer has a wireless network card, you can connect to a wireless network. Most laptops and netbooks have a built-in wireless networking card.

Ubuntu is usually able to detect any wireless network in range of your computer. To see a list of wireless networks, click on the NetworkManager icon. Under the "Wireless Networks" heading you should see a list of available wireless networks. Each network will be shown by its name and a signal meter to the left showing its relative signal strength. The signal meter looks like a set of bars similar to what is seen when viewing signal strength of a cell phone. Simply put, the more bars, the stronger the signal. To improve speed and reliability of your wireless connection, try moving closer to your router or wireless access point.

A wireless network can be open to anyone, or it can be protected with a password. A small padlock will be displayed alongside the signal bar if any wireless networks within range are password-protected. You will need to know the correct password in order to connect to these secured wireless networks.

To connect to a wireless network, select the desired network by clicking on its name within the list. This will be the name that was used during the

installation of the wireless router or access point. Most ISPS provide pre-configured routers with a sticker on them detailing the current wireless network name and password. Most publicly accessible wireless networks will be easily identifiable by the name used for the wireless network—for example "Starbucks-Wireless."

If the network is unprotected (*i.e.*, the signal meter does not show a padlock), a connection should be established within a few seconds—and without a password required. The NetworkManager icon in the top panel will animate as Ubuntu attempts to connect to the network. If the connection is successful, the icon will change to display a signal meter. An on-screen notification message will also appear informing you that the connection was successful.

If the network is password-protected, Ubuntu will display a window called "Wi-Fi Network Authentication Required" as it tries to make a connection. This means that a valid password is required to make a connection. This is what the screen should look like:

Figure 3.5: Enter your wireless network password.

If you know the password, enter it in the **Password** field and then click on the **Connect** button. As you type the password, it will be obscured from view to prevent others from reading the password as you type it. To verify the characters you are entering for the password, you can view the password by selecting the **Show Password** check box. Then, you can make the password obscure again by deselecting the **Show password** check box. Once the password is entered, click on the **Connect** button. The Network-Manager icon in the top panel will animate as Ubuntu attempts to connect to the network. If the connection is successful, the icon will change to display a signal meter. An on-screen notification message will also appear informing you that the connection was successful.

If you entered the password incorrectly, or if it doesn't match the correct password (for example if it has recently been changed and you have forgotten), NetworkManager will make another attempt to connect to the network, and the "Wi-Fi Network Authentication Required" window will re-appear so that you can re-type the password. You can hit the **Cancel** button to abort the connection. If you do not know the correct password, you may need to call your ISP's customer support line or contact your network administrator.

Once you have successfully established a wireless connection, Ubuntu will store these settings (including the password) to make it easier to connect to this same wireless network in the future. You may also be prompted to select a *keyring* password here. The keyring stores passwords in one place so you can access them all in the future by remembering just the keyring password.

Connecting to a saved wireless network

Ubuntu will automatically try to connect to a wireless network in range
if it has the settings saved. This works on both open and secure wireless
networks.

   If you have numerous wireless networks in range that are saved on
your computer, Ubuntu may choose to connect to one network while you
may want to connect to another network. To remedy this action, click on
the NetworkManager icon. A list of wireless networks will appear along
with their signal meters. Simply click on the network to which you wish to
connect, and Ubuntu will disconnect from the current network and attempt
to connect to the one you have selected.

   If the network is secure and Ubuntu has the details for this network
saved, Ubuntu will automatically connect. If the details for this network
connection are not saved, are incorrect, or have changed, then you will be
prompted to enter the network password again. If the network is open (no
password required), all of this will happen automatically and the connection
will be established.

Connecting to a hidden wireless network

In some environments, you may need to connect to a hidden wireless net-
work. These hidden networks do not broadcast their names, and, therefore,
their names will not appear in the list of available wireless networks even
if they are in range. In order to connect to a hidden wireless network, you
will need to get its name and security details from your network adminis-
trator or ISP.

   To connect to a hidden wireless network:

1. Click on NetworkManager in the top panel.
2. Select **Connect to a hidden wireless network**. Ubuntu will then open
   the "Connect to Hidden Wireless Network" window.
3. In the **Network name** field, enter the name of the network. This is also
   known as the SSID *(Service Set Identifier)*. You must enter the name ex-
   actly how it was given to you. For example, if the name is "Ubuntu-
   Wireless," entering "ubuntu-wireless" will not work as the "U" and "W"
   are both uppercase in the correct name.
4. In the **Wireless security** field, select one of the options. If the network
   is an open network, leave the field set to "None." If you do not know the
   correct setting for the field, you will not be able to connect to the hidden
   network.
5. Click the **Connect** button. If the network is secure, you will be prompted
   for the password. Provided you have entered all of the details correctly,
   the network should then connect, and you will receive an on-screen
   notification informing you that the connection was a success.

   As is the case with visible wireless networks, hidden wireless network
settings will be saved once a connection is made, and the wireless network
will then appear in the list of saved connections.

Disabling and enabling your wireless card

By default, wireless access is enabled if you have a wireless card installed in
your computer. In certain environments (like on airplanes), you may need
to temporarily disable your wireless card.

To disable your wireless card, click on the NetworkManager icon and deselect the **Enable Wireless** option. Your wireless radio will now be turned off, and your computer will no longer search for wireless networks.

To reactivate your wireless card, simply select the **Enable Wireless** option. Ubuntu will then begin to search for wireless networks automatically. If you are in range of a saved network, you will automatically be connected.

Many modern laptops also have a physical switch/button built into the chassis that provides a way to quickly enable/disable the wireless card.

Changing an existing wireless network

At times you may want to change the settings of a saved wireless network —for example, when the wireless password gets changed.

To edit a saved wireless network connection:

1. Click on the NetworkManager icon and select **Edit Connections**…
2. A "Network Connections" window will open. Click on the **Wireless** tab.
3. By default, saved networks are in chronological order with the most recently connected at the top. Find the network you want to edit, select it, and click on the **Edit** button.
4. Ubuntu will now open a window called "Editing ⟨*connection name*⟩", where ⟨*connection name*⟩ is the name of the connection you are editing. This window will display a number of tabs.
5. Above the tabs, there is a field called **Connection name** where you can change the name of the connection to give it a more recognizable name.
6. If the **Connect automatically** option is not selected, Ubuntu will detect the wireless network but will not attempt a connection until it is selected from the NetworkManager menu. Select or deselect this option as needed.
7. On the **Wireless** tab, you may need to edit the ssɪᴅ field. A ssɪᴅ is the wireless connection's network name. If this field isn't set correctly, Ubuntu will not be able to connect to the wireless network in question.
8. Below the ssɪᴅ is a **Mode** field. The "Infrastructure" mode means that you would be connecting to a wireless router or Access Point. The "ad-hoc" mode is for a computer-to-computer connection (where one computer shares another's connection) and is often only used in advanced cases.
9. On the **Wireless Security** tab, you can change the **Security** field. A selection of "None" means that you are using an open network that doesn't require a password. Other selections in this tab may require additional information:

   ᴡᴇᴘ 40/128-bit Key is an older security setting still in use by some older wireless devices. If your network uses this method of security, you will need to enter a key in the **Key** field that will appear when this mode is selected.

   ᴡᴇᴘ 128-bit Passphrase is the same older security as above. However, instead of having a key, your network administrator should have provided you with a passphrase to connect to the network.

   ᴡᴘᴀ & ᴡᴘᴀ2 Personal is the most common security mode for wireless networking. Once you select this mode, you will need to enter a password in the **Password** field.

   If your network administrator requires ʟᴇᴀᴘ, Dynamic ᴡᴇᴘ or ᴡᴘᴀ & ᴡᴘᴀ2 Enterprise then you will need to have the administrator help you with those modes.

10. In the **IPV4 Settings** tab, you can change the **Method** field from "Automatic (DHCP)" to "Manual" or one of the other methods. For setting up manual settings (also known as a static address), please see the section above on manual setup for wired network connections.
11. When you finish making changes to the connection, click **Apply** to save your changes and close the window. You can click **Cancel** at any time to close the window without saving any changes.
12. Finally, click **Close** on the "Network Connections" window to return to the desktop.

After clicking **Apply**, any changes made to the network connection will take effect immediately.

Connecting to a mobile broadband network

If you have a mobile device capable of tethering, such as an Android tablet or phone, then you may be able to utilize the mobile network connection on your computer through the device. The steps to enable tethering on any device can vary widely, but once you have enabled tethering on the device and connected it to your computer (usually through USB) then it will show up on the list of available and current connections in the NetworkManager applet, located in the top panel. Be aware that doing this will send your network traffic over the carrier provider's mobile network and data rates may apply (and add up quickly!). Many standard desktop applications do not yet either detect mobile connections and restrict bandwidth usage or allow you to change a setting in the application to have it do so.

Other connection methods

There are other ways to get connected with Ubuntu:

‣ With NetworkManager, you can connect to digital subscriber line (DSL) networks, a method of connecting to the Internet through your phone line via a modem.
‣ It is possible for NetworkManager to establish a virtual private network (VPN) connection. These are most commonly used to create a secure connection to a workplace network.

The instructions for making connections using DSL, or creating and establishing VPN connections, are beyond the scope of this guide.

Browsing the web

Once you have connected to the Internet, you should be able to browse the web. Mozilla Firefox is the default application for this in Ubuntu.

Starting Firefox

There are several ways to start Firefox. By default Ubuntu has the Firefox icon within the Launcher (the vertical bar down the left side of the screen). Select this icon to open Firefox. Or, open the Dash (the top-most icon in the Launcher) and search for `firefox` using the search box. If your keyboard has a "www" button, you can press that button to start Firefox.
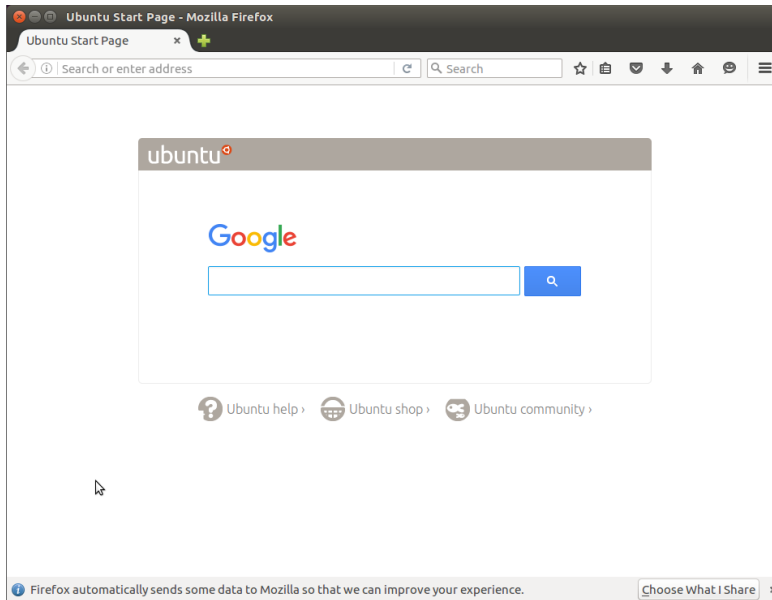
Navigating web pages

Viewing your homepage

When you start Firefox, you will see your home page. By default, this is the Ubuntu Start Page.

To quickly go to your home page, press `Alt+Home` on your keyboard or press on the home icon in Firefox.

Navigating to another page

To navigate to a new web page, you need to enter its Internet address (also known as a URL) into the Location Bar. URLs normally begin with "http://" or "https://" followed by one or more names that identify the address. One example is "https://www.ubuntu.com." (Normally, you can omit the "http://" part. Firefox will fill it in for you. The "https://" cannot be omited.)

URL stands for uniform resource locator, which tells the computer how to find something on the Internet—such as a document, web page or an email address. WWW stands for World Wide Web, which means the web pages by which most people interact with the Internet.

Figure 3.7: You can enter a web address or search the Internet by typing in the location bar.

To navigate:

1. Double-click in the Location Bar, or press `Ctrl+L`, to highlight the URL that is already there.
2. Enter the URL of the page you want to visit. The URL you type replaces any text already in the Location Bar.
3. Press `Enter`.

If you don't know the URL that you need, type a search term into the Search Bar to the right of the Location bar. Your preferred search engine —Google by default—will return a list of websites for you to choose from. (You can also enter your query directly into the Location Bar).

Selecting a link

Most web pages contain links that you can select. These are known as "hyperlinks." A hyperlink can let you move to another page, download a document, change the content of the page, and more.

To select a link:

1. Move the mouse pointer until it changes to a pointing finger. This happens whenever the pointer is over a link. Most links are underlined text, but buttons and pictures on a web page can also be links.
2. Click the link once. While Firefox locates the link's page, status messages will appear at the bottom of the window.

Retracing your steps

If you want to visit a page you have viewed before, there are several ways to do so.

‣ To go back or forward one page, press the **Back** or **Forward** button by the left side of the Location Bar.
‣ To go back or forward more than one page, click-and-hold on the respective button. You will see a list of pages you have recently visited. To return to a page, select it from the list.
‣ To see a list of any URLs you have entered into the Location Bar, press the down arrow at the right end of the Location Bar. Choose a page from the list.
‣ To choose from pages you have visited during the current session, open the **History** menu and choose from the list in the lower section of the menu.
‣ To choose from pages you have visited over the past few months, open the **History ▸ Show All History** (or press `Ctrl+Shift+H`). Firefox opens a "Library" window showing a list of folders, the first of which is "History." Select a suitable sub-folder, or enter a search term in the search bar (at the top right), to find pages you have viewed before. Double-click a result to open the page.

To go backwards and forwards you can also use `Alt+Left` and `Alt+Right` respectively.

Stopping and reloading

If a page is loading too slowly or you no longer wish to view a page, press `Esc` to cancel it. To reload the current page if it might have changed since you loaded it, press on the **Reload** button or press `Ctrl+R`.

The **Reload** button is at the right end of the Location Bar.

Opening new windows

At times, you may want to have more than one browser window open. This may help you to organize your browsing session better, or to separate web pages that you are viewing for different reasons.

There are four ways to create a new window:

‣ On the top bar, select **File ▸ New Window**.
‣ Press `Ctrl+N`.
‣ Right-click on Firefox's icon on the Launcher and select **Open New Window**.
‣ Click on Firefox's icon on the Launcher using your middle mouse button.

Once a new window has opened, you can use it exactly the same as the first window—including navigation and opening tabs. You can open multiple windows.

Opening a link in a new window

Sometimes, you may want to click a link to navigate to another web page, but do not want the original to close. To do this, you can open the link in its own independent window.

There are two ways to open a link in its own window:

▸ Right-click a link and select **Open Link in New Window**.
▸ Press-and-hold the Shift key while clicking a link.

Tabbed browsing

An alternative to opening new windows is to use *Tabbed Browsing* instead.

Tabbed browsing lets you open several web pages within a single Firefox window, each independent of the other. This frees space on your desktop as you do not have to open a separate window for each new web page. You can open, close, and reload web pages in one place without having to switch to another window.

You can alternate quickly between different tabs by using the keyboard shortcut Ctrl+Tab.

A new tab is independent of other tabs in the same way that new windows are independent of other windows. You can even mix-and-match—for example, one window may contain tabs for your emails, while another window has tabs for your work.

Opening a new blank tab

There are three ways to create a new blank tab:

▸ Click on the **Open new tab** button (a green plus-sign) on the right side of the last tab.
▸ On the top bar, open **File ▸ New Tab**.
▸ Press Ctrl+T.

When you create a new tab, it contains a blank page with the Location Bar focused. Type a web address (URL) or other search term to open a website in the new tab.

Opening a link in its own tab

Sometimes, you may want to click a link to navigate to another web page, but do not want the original to close. To do this, you can open the link in its own tab.

There are several ways to open a link in its own tab.

▸ Right-click a link and select **Open Link in New Tab**.
▸ Press-and-hold the Ctrl key while clicking a link.
▸ Click the link using either the middle mouse button or both left and right mouse buttons simultaneously.
▸ Drag the link to a blank space on the tab bar or onto the **Open new tab** button.
▸ Press-and-hold Ctrl+Shift while clicking a link.

A tab always opens "in the background"—in other words, the focus remains on the original tab. The last method (Ctrl+Shift) is an exception; it focuses the new tab immediately.

Closing a tab

Once you have finished viewing a web page in a tab, you have various ways to close it:

▸ Click on the **Close** button on the right side of the tab.
▸ Click the tab with the middle mouse button or the mouse wheel.
▸ Press Ctrl+W.
▸ Right-click the tab and select **Close Tab**.

Restoring a closed tab

Sometimes, you may close the wrong tab by accident, or want to bring back a tab that you have recently closed. Bring back a tab in one of the following two ways:

▸ Press `Ctrl+Shift+T` to re-open the most recently closed tab.
▸ Select **History ▸ Recently Closed Tabs**, and choose the name of the tab to restore.

Changing the tab order

Move a tab to a different location on the tab bar by dragging it to a new location using your mouse. While you are dragging the tab, Firefox displays a small indicator to show the tab's new location.

Moving a tab between windows

You can move a tab into a new Firefox window or, if one is already open, into a different Firefox window.

Drag a tab away from the tab bar, and it will open into a new window. Drag it from the tab bar into the tab bar of another open Firefox window, and it will move there instead.

Searching

You can search the web from within Firefox without first visiting the home page of the search engine. By default, Firefox will search the web using the Google search engine.

Searching the web

To search the web in Firefox, type a few words into the Firefox search Bar. For example, if you want to find information about *Ubuntu*:

1. Move your cursor to the **Search Bar** using your mouse or press `Ctrl+K`.
2. Type the phrase **Ubuntu**. Your typing replaces any text currently in the Search Bar.
3. Press the magnifying glass or `Enter` to search.

Search results from Google for "Ubuntu" will appear in the Firefox window.

Selecting search engines

If you do not want to use Google as your search engine in the Search Bar, you can change the search engine that Firefox uses.

To change your preferred search engine, press the search logo (at the left of your Search Bar—Google by default) and choose the search engine of your choice. Some search engines, such as DuckDuckGo, Google and Bing, search the whole web; others, such as Wikipedia and Amazon, search only specific sites.

Figure 3.8: These are the other search engines you can use—by default—from the Firefox search bar.

Searching the web for words selected in a web page

Sometimes, you may want to search for a phrase that you see on a web page. You can copy and paste the phrase into the Search Bar, but there is a quicker way.
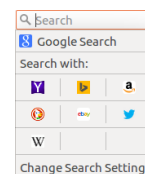
1. Highlight the word or phrase in a web page using your left mouse button.
2. Right-click the highlighted text and select **Search [Search Engine] for [your selected words]**.

Firefox passes the highlighted text to the search engine, and opens a new tab with the results.

Searching within a page

You may want to look for specific text within the web page you are viewing. To find text within the current page in Firefox:

1. Choose **Edit ▸ Find** or press `Ctrl+F` to open the **Find Toolbar** at the bottom of Firefox.
2. Enter your search query into the **Find** field in the Find Toolbar. The search automatically begins as soon as you type something into the field.
3. Once some text has been matched on the web page, you can:

   ▸ Click on **Next** to find text in the page that is below the current cursor position.
   ▸ Click on **Previous** to find text that is above the current cursor position.
   ▸ Click on **Highlight all** to highlight all occurrences of your search words in the current page.
   ▸ Select the **Match case** option to limit the search to text that has the same capitalization as your search words.

To quickly find the same word or phrase again, press `F3`.
You can skip opening the **Find Toolbar** altogether.

1. Turn on the relevant Accessibility option with **Edit ▸ Preferences ▸ Advanced ▸ General ▸ Accessibility ▸ Search for text when I start typing ▸ Close**.
2. Now, provided your cursor is not within a text field, when you start typing, it will automatically start searching for text.

Viewing web pages full screen

To display more web content on the screen, you can use *Full Screen mode*. Full Screen mode hides everything but the main content. To enable Full Screen mode, choose **View ▸ Full Screen** or press `F11`. While in full-screen mode, move your mouse to the top of the screen to reveal the URL and search bars.
Press `F11` to return to normal mode.

Copying and saving pages

With Firefox, you can copy part of a page so that you can paste it elsewhere, or save the page or part of a page as a file on your computer.

Copying part of a page

To copy text, links or images from a page:

1. Highlight the text and images with your mouse.
2. Right-click the highlighted text and select **Copy**, or press `Ctrl+C`.

To copy just a single image, it is not necessary to highlight it. Just right-click the image and select **Copy**.

You can paste the results into another application, such as LibreOffice.

Copying a link

To copy a text or image link (URL) from a page:

1. Position the pointer over the text, link or image. Your mouse pointer changes to a pointing finger.
2. Right-click the link or image to open a pop-up menu.
3. Select **Copy Link Location**.

You can paste the link into other applications or into Firefox's Location Bar.

Saving all or part of a page

To save an entire page in Firefox:

1. Choose **File ‣ Save Page As** from the top bar, or press `Ctrl+S`. Firefox opens the "Save As" window.
2. Choose a location for the saved page.
3. Type a file name for the page.
4. Press **Save**.

To save an image from a page:

1. Position the mouse pointer over the image.
2. Right-click the image and select **Save Image As**. Firefox opens the "Save Image" window.
3. Choose a location for the saved image.
4. Enter a file name for the image.
5. Press **Save**.

Changing your home page

Firefox shows the *home page* when it opens. By default, this is the Ubuntu Start Page. You can change your default home page to a new one, or even to several new ones.

To change your home page:

1. Navigate to the page that you would like to become your new home page. If you want Firefox to open more than one tab when it starts, open a new tab and navigate to the extra page as many times as you would like.
2. Choose **Edit ‣ Preferences ‣ General ‣ Startup ‣ Use Current Pages ‣ Close**.

The home page can also be set by entering the addresses that should be open in the **Home Page**, with a pipe ("|") separating pages to be opened in separate tabs.
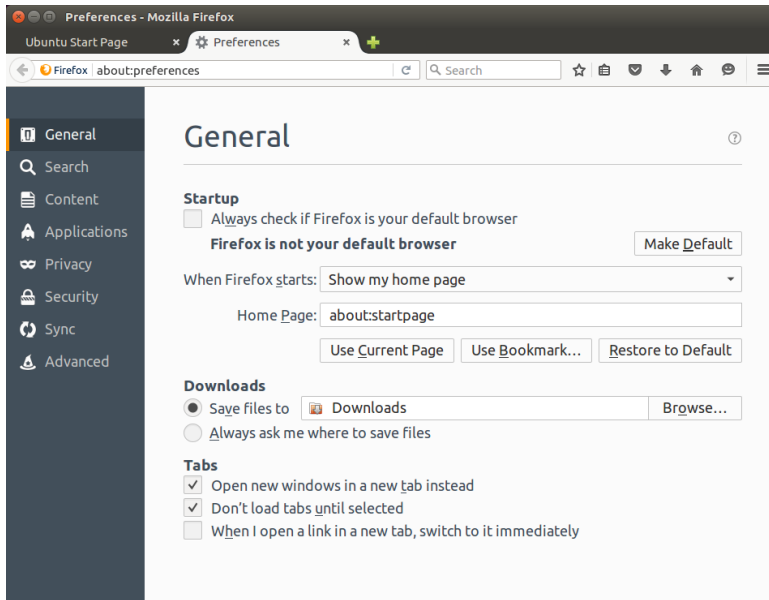
Download settings

In **Edit ▸ Preferences ▸ General ▸ Downloads**, you can tell Firefox where to place downloaded files, and whether or not to ask where each time.

The *Downloads* folder in the Library lists files downloaded in the past. It can be used to open or re-download files.

Bookmarks

When browsing the web you may want to come back to certain web pages again without having to remember the URL. To do this, you *bookmark* each page. These bookmarks are saved in the web browser, and you can use them to re-open to those web pages.

Bookmarking a page

After navigating to a web page you can save its location by bookmarking it. There are two ways to bookmark a page:

- From the top bar, choose **Bookmarks ▸ Bookmark This Page**, or press `Ctrl+D`. A window opens, allowing you to provide a descriptive name for the bookmark and a location (within the browser's bookmarks) to save it. Press **Done** to save.
- Press the *star* on the right-hand side in the Location Bar. It turns blue. This saves the page in the *Unsorted Bookmarks* folder.

Navigating to a bookmarked page

To navigate to a bookmarked page, open the **Bookmarks** menu from the top bar, and choose your bookmark. Firefox opens the bookmark in the current tab.

*You can reveal the bookmarks, including the Unsorted Bookmarks, in a sidebar on the left of the browser window. Select **View ▸ Sidebar ▸ Bookmarks**, or press `Ctrl+B`. Repeat, or press the **close** button at its top, to hide the sidebar.*

Deleting or editing a bookmark

To delete or edit a bookmark, do one of the following:

‣ If you are viewing the page already, the star in the Location Bar will be blue. Press it. Firefox opens a small pop-up window, where you can either **Remove Bookmark** or edit the bookmark.
‣ Select **Bookmarks** ‣ **Show All Bookmarks** or press Shift+Ctrl+O. In the window that opens, you can navigate to bookmarks. Select the one you would like to change. To delete, right-click and choose **Delete** or press Delete on your keyboard. To edit, change the details shown at the bottom of the window.

History

Whenever you are browsing the web, Firefox saves your browsing history. This allows you to come back to a web page that you have recently visited without needing to remember or bookmark the page's URL.

To see your most recent history, open the **History** menu from the top bar. The menu displays several of the most recent web pages that you have viewed. Choose one of the pages to return to it.

To view the complete history, either:

‣ Select **View** ‣ **Sidebar** ‣ **History** or press Ctrl+H to view the history in a sidebar; this replaces the bookmarks sidebar if it is open. (Repeat, or press the **close** button at its top, to hide the sidebar.)
‣ Select **History** ‣ **Show All History** or press Shift+Ctrl+H to view the history in a pop-up window.

Your browsing history is categorized as "Today," "Yesterday," "Last 7 days," "This month," the previous five months by name, and finally "Older than 6 months." If the history for a category does not exist, that category will not be listed. Select one of the date categories in the sidebar to expand it and reveal the pages that you visited during that time. Once you find the page you want, select it to re-display it.

You can also search for a page by its title or URL. Enter a few letters from one or more words or, optionally, the URL in the **Search** field at the top of the history sidebar. The sidebar displays a list of web pages matching your search words. Select the page you want. (You can even do this in the Location Bar, saving you from having to open the History sidebar or pop-up window.)

Clearing private data

Firefox stores all its data only on your computer. Nevertheless, if you share your computer, you may at times want to delete all private data.

Select **History** ‣ **Clear Recent History**… or press Shift+Ctrl+Delete. Choose your **Time range to clear**, and under **Details** which items to clear, and press **Clear Now**.

Preventing Firefox from recording private data

You can start a "private browsing" session during which Firefox will not record anything permanently. This lasts until you disable private browsing or restart Firefox.

Choose **File ▸ New Private Window** or press `Shift+Ctrl+P`. As long as you remain in this mode, Firefox will not record browsing, download, form or search history, or cookies, nor will it cache files. However, if you bookmark anything or download files, these will be retained.

To end private browsing, just close the private browsing window by clicking on its close button or pressing `Shift+Ctrl+W`, or restart Firefox.
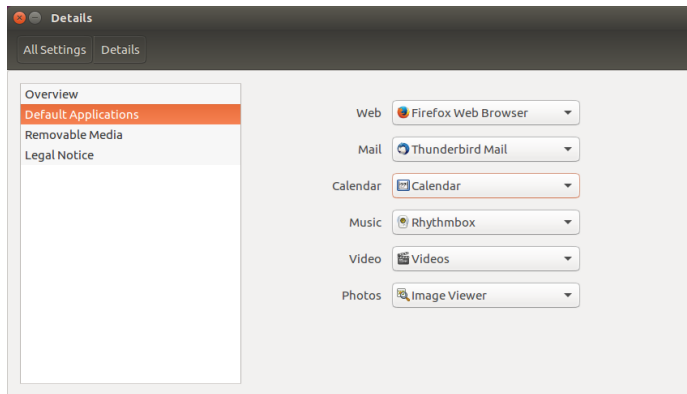
Using a different web browser

Figure 3.11: The Default Applications where you can change your preferred browser.

If you choose to install a different web browser on your computer, you may want to use it as the default browser when you click links from emails, instant messages, and other places. Canonical supports Firefox and Chromium (Google's open-source version of Chrome), but there are several others that you can install.

To change your preferred web browser, open **Session Indicator** from the top panel on the far right-hand side, and open **System Settings…▸ Details ▸ Default Applications**. Choose your preferred web browser from the drop-down menu **Web**.

Reading and composing email

Introduction to Thunderbird

Thunderbird is an email client developed by Mozilla and is easy to setup and use. It is free, fast, and comes packed full of useful features. Even if you are new to Ubuntu and Thunderbird, you will be up and running in no time, checking your email and staying in touch with friends and family.

Setting up Thunderbird

In the top right corner of the Ubuntu desktop you will see an envelope icon in the notification area. This is the *messaging menu.* From here, you can launch Thunderbird by clicking **Set up Mail**. Alternatively, you can click the Ubuntu button in the top left corner of the screen at the top of the Launcher to bring up the Dash and type **thunderbird** into the search box. Once Thunderbird opens, you will be greeted by a pop-up box prompting you to setup your email account.

Before a valid email account is set up in Thunderbird, the first screen to appear will be an introductory message from Mozilla inviting you to set up an email account through a local service provider in your area. For the
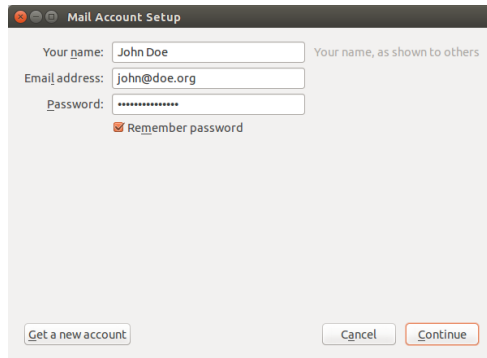
purposes of these instructions, we will assume you already have an email address, so you can click on the button in the lower right corner of the screen that says **Skip this and use my existing email**.

On the next screen titled **Mail Account Setup**, enter your name in the first text box, your email address in the second text box (for example, username@domain.com), and your email password in the third text box.

Once completed, click the **Continue** button. Thunderbird will automatically set up your email account for you. When Thunderbird finishes detecting your email settings, click **Create Account** and Thunderbird will do the rest. You can also set Thunderbird as your default news and rss reader by checking the boxes in the pop-up box that appear after you click **Create Account**. If you don't want to see this message box every time you start Thunderbird, simply deselect **Always perform this check when starting Thunderbird**. You are now ready to start using Thunderbird.

If Thunderbird fails to create the account, you may need to configure it manually, using the parameters that were sent to you by your email address provider and your ISP. If you are still unable to set up your account, you can get help from community members at http://ubuntuforums.org.

Around the Thunderbird workspace

Now that you have your email account set up, let's get to know the Thunderbird workspace. Thunderbird is designed to be very user-friendly and easy to navigate. When you open the application, you will see the main workspace with your email folders (all folders pane) on the left. On the right of the screen, you will see two panes. The top-right pane displays a list of your received email, and the bottom-right pane displays the current email you are viewing. The size of these panes can be easily resized to suit your viewing environment. To resize the panes, simply left-click and hold the dividing bar that separates two panes and drag it to the desired position. The *All Folders* pane is where you can see your mail folders. This pane can also include:

Inbox Where your email is stored and accessed

Email address folder You will see one of these folders for each of the accounts you have setup

Drafts Where your draft emails are stored

Sent mail Where the emails you have sent are stored

Spam This is where suspected spam email is stored so you can check them to make sure you haven't lost any important emails

Trash This is where messages you've deleted are stored so you can double check to make sure you haven't accidentally deleted an important email (also one of the local folders)

Important This is where emails you have marked as important are stored

Starred This is where emails you have marked with a star are stored

Personal This is where emails you have marked as personal are stored

Receipts You can move important receipts to this folder.

Travel You can use this folder to store travel emails such as flight times and bookings

Work You can store work emails in this folder to keep them separate from your personal email

Outbox Where the emails you are in the process of sending are stored (also one of the local folders)

Across the top of the Thunderbird workspace, you will see at least four control buttons, **Get Mail**, **Write**, **Address Book**, and **Tag**. These are used to get your mail, write your mail, access your address book, and tag your email messages.

At the top-right of the *All Folders* pane, you will see a set of quick filter buttons, **Unread**, **Starred**, **Contact**, **Tags**, and **Attachment**. You can use these buttons to filter your email messages so that you only see your unread mail, your favorite mail (starred), mail from people in your address book, mail you have tagged, and mail that includes attachments.

If you are accustomed to a more traditional desktop and you have Thunderbird maximized to full screen, you might be wondering where the menus are located. They are still there, and if you want to access them, move your mouse to the top of the screen and you will see the familiar menus: **File**, **Edit**, **View**, **Go**, **Message**, **Tools**, and **Help**.

At the top of the pane that displays your email, you can see six action buttons, **Reply**, **Reply All**, **Forward**, **Archive**, **Junk**, and **Delete**. You will find these very useful for quickly replying to email, forwarding your email to another person, archiving (backing up) your email, marking an email as junk mail, and quickly deleting an email. To the left of these quick action buttons, you will see information about the email you are viewing that includes the sender's name, the subject of the email, the reply address, and the recipient of the email.

Using your address book

At the top of the main workspace, you will see the **Address Book** button. Click this button to access your address book. The address book opens in a new window. From here, you can easily organize your contacts. At the top of the address book window, you will see five buttons, **New Contact**, **New List**, **Properties**, **Write**, and **Delete**. They function in the following ways:

New Contact This button allows you to add a new contact and add as much detail as you wish to save, including name, nickname, address, email, additional email, screen name, work number, home number, fax, pager and mobile/cell number.

New List This button allows you to add lists for your contacts such as family, friends, acquaintances, etc.

Properties This button allows you to rename your address book name. The default name is *personal address book*, but you can change the name as you see fit.

Write This button allows you to quickly send an email to a selected contact without needing to go back to the main Thunderbird workspace. Simply select a contact from your contacts list and click the **Write** button to send them an email.

Delete This button allows you to quickly delete a contact from your address

book. Just select the contact you want to delete and press **Delete** to remove the contact from your address book.

Checking and reading messages

Thunderbird will automatically check your email account for new messages every ten minutes, but if you need to manually check for new messages at any time, left-click the **Get Mail** button in the top left corner of the workspace. Thunderbird will then check your email account for new messages and download them.

As they are downloaded, you will see the new email appear in the message pane on the right side of the workspace. When you click on one of your emails, it will appear in the pane below your email list. If you want to view your email in a full window, double-left-click your chosen email, and Thunderbird will display the email in a full window in its own tab.

At the top of the open email, you will see information about the email and the five quick action buttons, **Reply**, **Forward**, **Archive**, **Junk** and **Delete** as previously discussed. If an email has remote content, you will see a message asking if you want to display the email or not.

You may want to sort out your emails from time to time; this is easily done with Thunderbird. When you have an email selected and you want to tag the email, simply click the **Tag** button and a drop-down list will be displayed. In this drop-down list, you have the options to **Remove All Tags** or **Mark as**…, **Important**, **Work**, **Personal**, **To Do**, **Later**. You can also **create a New Tag** more suited to your own personal requirements.

Remote content represent parts of an email that may be hosted elsewhere. Remote content might consist of video or audio, but most often is graphics or HTML content. For security purposes, Thunderbird will ask you if you wish to view this remote content.

Composing Messages

To compose a new email message, click the **Write** button in the top left of the workspace. This will bring up a new window where you can compose your new email. In the **To:** field, enter the email address of the destination —the contact to whom you are sending this email. If there is more than one contact to whom you are writing, separate multiple recipients with commas.

If a contact that you are addressing is in your address book, you can address them by name. Start typing the name of the contact; Thunderbird will display the list of mailing contacts below your text. Once you see the contact you intend to address, click on their email address or use the down arrow key and then press **Enter** to select the address.

If you would like to carbon-copy (Cc) some contacts, click the **To:** field and select **Cc:**. Contacts who are listed on the **To:** and **Cc:** lines will receive the email, and will see the rest of the contacts to whom an email was sent. If you would like to send an email to some contacts without disclosing to whom your email was sent, you can send a blind carbon-copy, or **Bcc**. To enable **Bcc**, select **Bcc:** by clicking the **To:** field and selecting **Bcc:**. Any contacts entered in the **Bcc:** field will receive the message, but none of the recipients will see the names or emails of contacts on the **Bcc:** line.

Instead of typing the email addresses or names of the contacts you are addressing in the message, you can select the contacts from your address book. Start typing a few letters from your contact's first or last name in the **To:** field to filter the list to only show mailing contacts. Once you identify the contact you would like to address, click on their name in the list. If you've added the contact in error, delete their address and enter the correct address.

You may enter a subject for your email in the **Subject** field. Messages

should have a subject to help the recipient identify the general contents of the email while glancing at their message list. Enter the contents of your message in the big text field below the subject. There is no practical limit on the amount of text you can include in your message.

By default, Thunderbird will auto-detect the correct format for your email but you can change this by clicking **Options** then mouse over **Delivery Format** and select your preferred option from the list. You have a choice of *Auto-Detect*, *Plain Text Only*, *Rich Text (HTML) Only*, and *Plain and Rich (HTML) Text.*

When you have finished composing your email, click on the **Send** button on the window's toolbar. Your message will be placed in the Outbox, and will be sent to your desired recipient.

Attaching files

At times, you may want to send files to your contacts. To send files, you will need to attach them to your email message. To attach a file to an email you are composing, click on the **Attach** button. When the new window opens, select the file you want to send and click **Open**. The file you selected will then be attached to the email when you click send.

You can attach quite a few different file types to emails, but be careful about the size of the attachments! If they are too big, some email systems will reject the email you are sending, and your recipient will never receive it!

Replying to Messages

In addition to composing new messages, you may want to reply to messages that you receive. There are three types of email replies:

Reply or *Reply to Sender* sends your reply only to the sender of the message to whom you are replying.
Reply to All sends your reply to the sender of the message as well as any address in **To:** or **Cc:** lines.
Forward allows you to send the message, with any additional comments you may add, to some other contacts.

To use any of these methods, click on the message to which you want to reply and then click the **Reply**, **Reply to All**, or **Forward** button on the message toolbar. Thunderbird will open the reply window. This window should look much like the window for composing new messages, but the **To:**, **Cc:**, **Subject:**, and main message content fields should be filled in from the message to which you are replying. Edit the **To:**, **Cc:**, **Bcc:**, **Subject:** or main body as you see fit. When your reply is finished, click on the **Send** button on the toolbar. Your message will be placed in the *Outbox* and will be sent.

Using instant messaging

To communicate with people online in real time, you will first need to install an instant messaging application such as Empathy, which lets you connect to many instant messaging networks (such as Google Talk, Salut, Jabber, Yahoo!, and AIM). To install Empathy, open the Dash, search for **Terminal** and hit Enter or click on the icon labeled "Terminal". Once inside the terminal, type **sudo apt install empathy** and hit Enter.

Running Empathy for the first time

To run Empathy for the first time, you need to start it from the Dash (see The Dash) by searching for **Empathy** and hitting Enter. Altenately, you can

Figure 3.13: This is the icon that Empathy displays in the launcher.

click on its icon, shown in 3.13. After Empathy launches, you should see a window similar to that in figure 3.14. At this time, Empathy does not know about any of your instant messaging accounts.
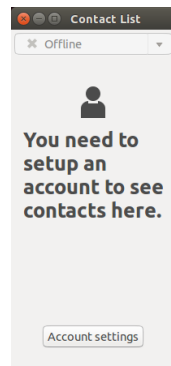

Figure 3.14: You should see a window like this the first time you open Empathy.

Adding accounts

⚠️ *You must have existing chat accounts that are compatible with Empathy. If you do not have an existing account, you will need to create one before continuing.*

On the first run, the Online Accounts manager will appear, allowing you to add accounts to be used with Empathy. You can return to this dialog at any time by navigating to **Empathy ▸ Accounts**. You should see a dialog similar to that in figure 3.15.

Be aware that when you Add or Remove accounts using the Online Accounts manager you will be adding or removing those accounts to or from *all* the applications that they integrate with, not just Empathy.
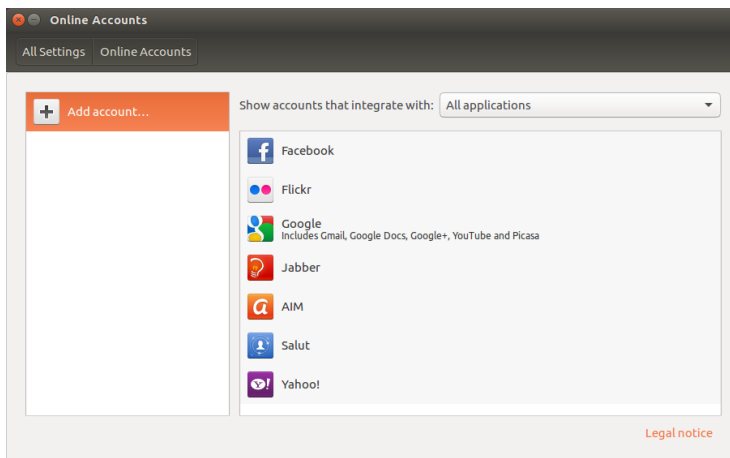
Figure 3.15: Add your existing chat accounts for use in Empathy using the Online Accounts manager.

Click **Add account**... on the left-hand side of the window if it is not already selected. At the top of the window, where it says *Show accounts that integrate with:*, select *Empathy* from the drop-down menu. Now click on the name of the chat service with which you have an account. Shown in figure 3.16, we have selected a Google account. You must now enter your login credentials and authorize Ubuntu to access your account.

When you have authorized Ubuntu to access your account, you are shown all the applications that integrate with the account, including Empathy. All the applications have an **ON/OFF** button to control their integration with the account. Make sure the **ON/OFF** button is set to ON for

Figure 3.16: You must enter your account credentials and authorize Ubuntu to use your account.

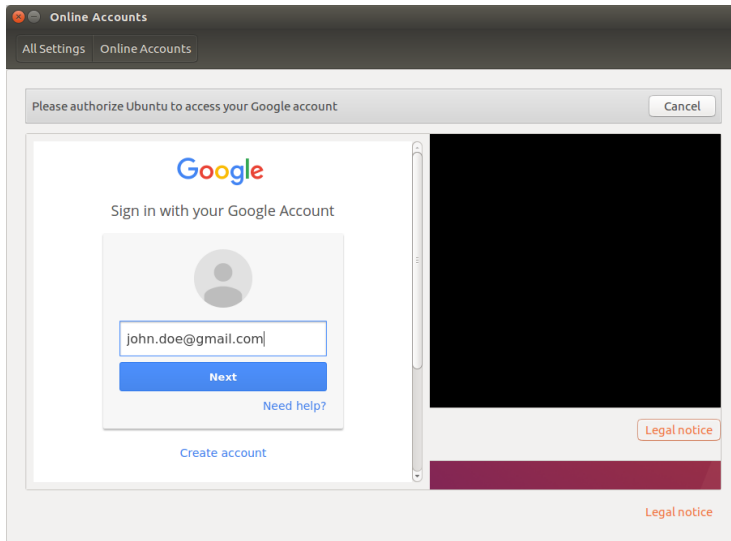Empathy. There is also an **Options** button for you to edit details used by Empathy. The details shown are specific to each application. After adding your accounts, you can now use Empathy to chat with all of your friends, right from your Ubuntu desktop!

Communicating with contacts

Text

To communicate with a contact, select the contact in Empathy's main window and double-click their name. Empathy should open a new window where you can type messages to your contact and see a record of previously exchanged messages.
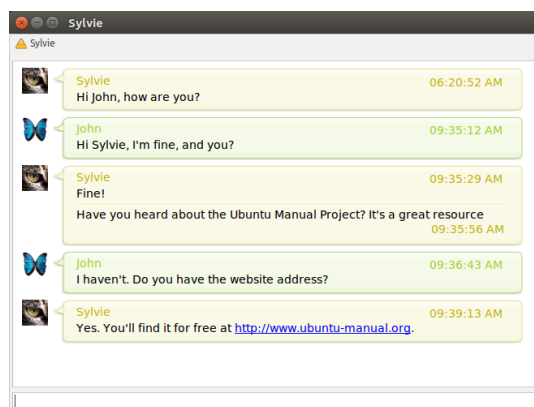
Figure 3.17: Chatting with friends in Empathy.

To send a message to the contact, enter your message in the text field below the conversation history. When you have typed your message press the Enter key to send the message to your contact. When the person you are chatting with is typing to you, a small keyboard icon will appear next to their name in the chat window.

If you are communicating with more than one person, then all of the conversations will be shown either in tabs in your Empathy window or in

separate windows, depending on the option you have chosen in the menu item **Empathy ▸ Preferences**.

Audio and Video Calling

You also can use Empathy to chat with your friends using audio and video. To start an audio or video call, right click on the contact name, then select **Audio Call** or **Video Call**, as shown in figure 3.18. This will notify the person you are trying to call, and they will be asked if they would like to answer the call.

If the person you are calling accepts your call request, you will be connected, and you can begin talking. If the person you are calling cannot see or hear you, your webcam or microphone may not be properly configured; see the sections on Sound and Using a webcam, respectively. You can end the call by clicking on the red telephone button in the chat window.

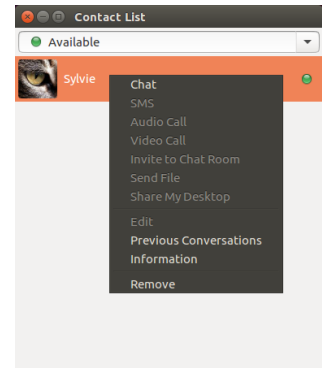Figure 3.18: Right-clicking a contact exposes many ways to communicate.

Sending and receiving files

Sending a file

When you are in a conversation with a contact and you would like to send them a file, right-click the contact in the contact list—as in figure 3.18— and select **Send File**. Empathy should open the "Select file" window. Find the file you wish to send, and click on the **Send** button. A "File Transfers" window will open showing the file and its transfer progress. When the file transfer is complete, you can close the "File Transfers" window.

Changing your status

You can use your status to show your contacts how busy you are or what you are doing. Your contacts see your status next to your name when they chat with you. You can use the standard statuses, which are:

- ▸ Available
- ▸ Busy
- ▸ Away
- ▸ Invisible
- ▸ Offline

Two of these statuses have additional functionality. The *Invisible* status lets you see which of your contacts are online, but does not allow them to see that you are online. The *Offline* status logs you out entirely; you will not be able to see which of your contacts are online, nor can they see you or chat with you.

You can change your status from the drop-down list at the top of the main Empathy window, as shown in figure 3.19. This same drop-down list lets you set a custom status by choosing "Custom Message…" next to the icon that matches your status. Enter what you would like your status to say, and click on the green check mark.
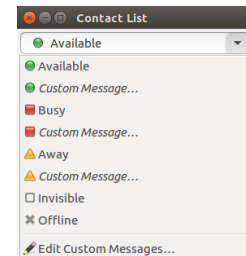
Figure 3.19: Change your Empathy status from the drop-down list at the top of the main window.

Desktop Sharing

Desktop sharing is a very nice feature available with Ubuntu. It can be used for a lot of purposes, like troubleshooting, online meetings, or just showing off your cool desktop to your friend. It is very easy to get remote desktop sharing working between two Ubuntu machines.

To share your screen, you will first have to set up Desktop Sharing. Open the Desktop Sharing application from the Dash (see The Dash). Next, select **Allow other users to view your desktop**; you may want to deselect **Allow other users to control your desktop**.

After you have Desktop Sharing configured, open Empathy. To begin sharing your desktop, right-click on the contact you wish to share your desktop with, and select **Share my desktop**.

It should be noted that the other user will obviously be able to see the information displayed on your screen. Please be sure to keep this in mind if you have documents or files that are of a private nature open on your desktop.

Changing account settings

If you need to add more accounts after the initial launch of Empathy, open the **Empathy** menu on the menu bar, then select **Accounts**. Empathy will then display the Online Accounts manager window.

Editing an account

You might need to edit the details of an account. Select the account you want to change on the left side of the Online Accounts window then click the **Options** button for Empathy. The Online Accounts manager should show the current information for the account. Once you have made your changes, click **Done**.

Removing an account from Empathy

To stop an account from showing in Empathy, select the account on the left hand side of the Online Accounts manager window. Then click on the **ON/OFF** button for Empathy and set it to OFF.

Editing contacts

Adding a contact

To add a contact open **Empathy ‣ Contacts ‣ Add contacts**.. from the menu bar. Empathy opens the "New Contact" window.

In the **Account** drop-down list, choose the account you want to add contacts for. When creating a contact you must select the service that matches the service your contact is using.

After choosing the account you wish to add the contact to, enter their login ID, their username, their screen name, or their email address in the **Identifier** text field. Next, in the **Alias** text field, enter the name you want to see in your contact list. Click **Add** to add the contact to your list of contacts.

Removing a contact

Right click on the contact that you want to remove, then select **Remove**. This will open the "Removing contact" window. Click on the **Delete** button to confirm that you want to remove this contact, or click **Cancel** to keep the contact.

Microblogging

There is no longer a default microblogging client included within the core of Ubuntu/Unity, and so you will need to first install an appropriate application for whatever service you intend to use.

Corebird is a modern GTK+ based Twitter client that, while not installed by default, is available in the default repositories.

Install Corebird with `sudo apt install corebird` in a terminal. When you first start Corebird, it will give you a chance to request a token from Twitter in your web browser. This token will log you in to your Twitter account in Corebird.
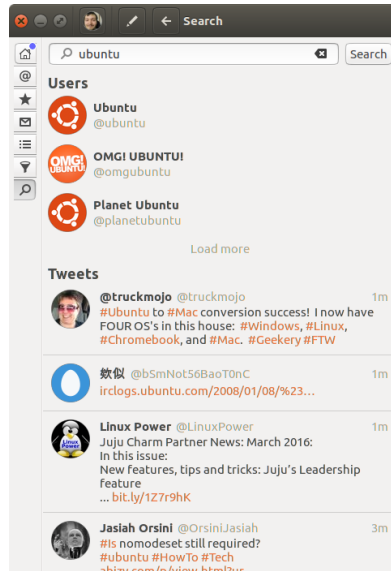
Figure 3.20: Corebird is a modern GTK+ client for Twitter

Choqok, from an ancient Persian word for Sparrow, is a well-maintained and fully-featured client for Twitter.com, Pump.io (Formerly known as Identi.ca), and OpenDesktop.org services. It uses the Qt toolkit, is a part of the KDE Project, and also has ties to the Ubuntu community project Kubuntu.
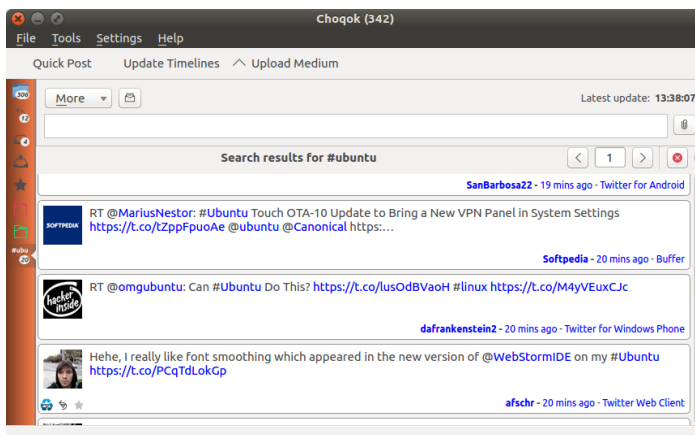
Figure 3.21: Choqok is a powerful microblogging client for Twitter.com, Pump.io, and OpenDesktop.org services.

Install Choqok with `sudo apt install choqok` in a terminal. The startup wizard will authorize the client to utilize your Twitter account via a gen-

erated token you will retrieve in your web browser, which by default in
Ubuntu is Mozilla Firefox.

Viewing and editing photos

Shotwell Photo Manager is the default photo application in Ubuntu. This
application allows you to view, tag, edit, and share photos. To start Shotwell
Photo Manager, click on the Dash near the top-left of the screen, then select
the Shotwell Photo Manager icon labeled **View Photos**. If you do not see
Shotwell Photo Manager, simply type **Shotwell** in the search bar at the top
of the Dash and then select the Shotwell Photo Manager application.
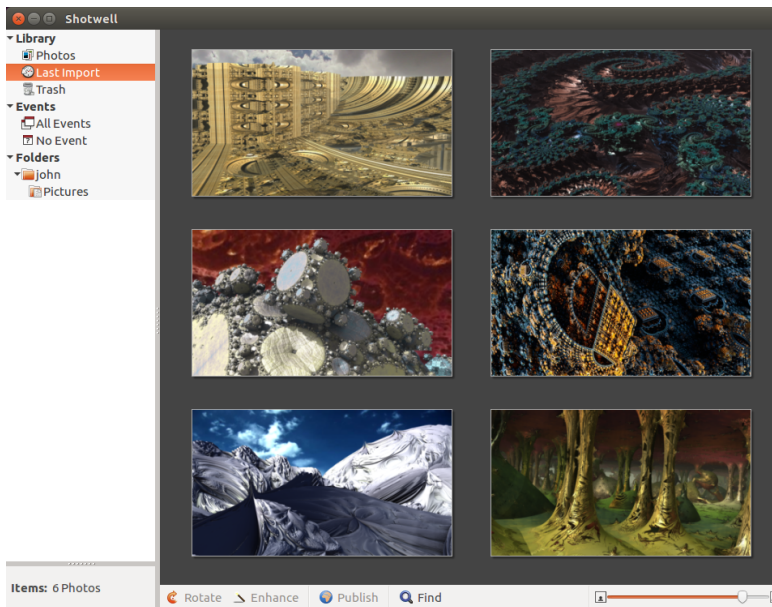
Figure 3.22: Manage your photo collection,
enhance your photos while keeping the original,
and share your memories online using Shotwell
Photo Manager.

Importing Photos

When you launch Shotwell Photo Manager for the first time, you will be
greeted with the "Welcome!" window which provides instructions on how
to import photos. Click **OK**. You can now import photos by dragging photos
into the Shotwell Photo Manager window or by connecting your camera or
external storage device to the computer.

From a digital camera   Connect your camera to the computer using the
data cable, and power on your camera. If your camera is properly detected,
you will see a new window prompting you to launch an application. Select
Shotwell Photo Manager in the drop-down menu, then click **OK**. Your
camera will be listed in the Shotwell Photo Manager sidebar. Select your
camera in the sidebar. You will see a preview of the contents stored in the
camera's memory. Select individual photos by pressing and holding `Ctrl`
and clicking on each photo you want to import, and then click **Import
Selected** on the bottom bar of the window. Or, you can choose to import all
photos by clicking **Import All**.

From your computer   You can import photos into Shotwell Photo Manager
by dragging photos from the file browser into the Shotwell Photo Manager

window. Alternatively, you can click **File ▸ Import From Folder**, then select the folder containing the photos you want to import.

From external hard drive, USB flash drive, or CD/DVD   Importing photos from external storage is similar to importing from your computer. Your external storage device may also appear under the **Camera** label on the Shotwell Photo Manager sidebar. Follow the instructions for importing from a camera or computer.

Choosing where Shotwell Photo Manager saves photos

The default location for the Shotwell Photo Manager **Library** is your Pictures folder in your home directory. When importing pictures using the "Import" window, you will be given the option to copy the files to your **Library** or keep the files in place.

If you have your photos stored on your computer, the option **Import in Place** will be suitable. This will prevent photos from being duplicated. If you are importing photos from an external source, such as a portable hard drive, USB flash drive, or CD/DVD, you should select **Copy into Library** so the photos are copied to your computer—otherwise the photos won't appear when you remove the external source.

Viewing photos

Choose **Library** or any collection in the sidebar to display photos from your selection. Use the slider on the bottom bar to adjust the size of the thumbnails. To view a full-window image, double-click an individual photo. In the full-window view, you can navigate through the collection using the backward and forward arrows, zoom in on the image using the slider, pan by clicking and dragging the image, and exit the full-window view by double-clicking the image.

To view the collection in full-screen mode, press F11 or go to **View ▸ Fullscreen**. You can navigate through the collection using the toolbar by moving your mouse to the bottom of the screen. To view a slideshow presentation of the collection, press F5 or go to **View ▸ Slideshow**. Press the Esc key to exit the *Fullscreen* or *Slideshow* views.

Organizing photos

Shotwell Photo Manager makes finding photos of the same type easier by using *tags*. You can apply as many tags to a photo as you like. To apply tags to photos, first select the photos. Then right-click on the photos and select **Add Tags**. Enter the tags you want into the text field, separated by commas. If you are adding new tags, these will appear in the side bar on the right under the **Tags** label.

Editing images

You may want to edit some of the photos you import into Shotwell Photo Manager. For example, you may want to remove something at the edge, adjust the color, reduce the red-eye effect, or straighten the image. To edit a photo, double-click on the photo you want to edit, and then click on one of the following buttons:

Rotate

Click **Rotate** to rotate the image 90° clockwise. You can click the button more than once and it will rotate the image clockwise in 90° intervals.

Crop

Click **Crop** to change the framing of the photo. The image will darken and a selection will appear. Adjust the selection to your desired crop by dragging a corner or side. If you want to choose a specific aspect ratio, use the drop-down menu to select one of the preset ratios or enter your own custom ratio. A pivot button is provided to change your selection from landscape to portrait and vice versa. Once you are happy with the selection, click **OK** to apply the crop or **Cancel** to discard it.

Red-eye reduction

If you have taken a photo and the flash has caused the subject to have red eyes, you can fix this problem in Shotwell Photo Manager using the following process.

1. Click the **Red-eye** button. A circle will appear.
2. Drag this circle over one of the subjects eyes and then use the slider to adjust the circle size.
3. When the circle is over the eye, click **Apply** to fix the red eye.

You will need to repeat this for each individual eye. Use caution when adjusting the size of the circle. A circle too large that covers the skin may cause discoloration when applying the red-eye reduction.

Adjust

Clicking **Adjust** will bring up a window that lets you edit a few things:

Level Similar to contrast.
Exposure How bright the image is.
Saturation How colorful the image is.
Tint The overall color.
Temperature Whether the image is warm (more yellow) or cool (more blue).
Shadows How dark the shadows are.

To change these values, drag the sliders until you are satisfied with the image. Click **OK** to apply the changes, **Reset** to undo the changes and start over, or **Cancel** to discard the changes.

Auto-adjustment with *Enhance*

Click **Enhance** to let Shotwell Photo Manager automatically adjust the color, levels, exposure, contrast, and temperature to create a more pleasing image.

Reverting an edited photo to the original

When you edit a photo in Shotwell Photo Manager, your original image remains untouched. You can undo all of the changes and revert to the original version by right-clicking on the photo, then selecting **Revert to Original**. This option is only available for edited photos.

Sharing your photos

You can easily share your photos on the web using Shotwell Photo Managers's **Publish** feature. Select the photos you want to share, then go to the top menu and click **File ▸ Publish**. A new window will appear asking where the photos are to be published. Choose Facebook, Flickr, or Picasa Web Albums in the upper right-hand drop-down menu. Some services may require you to authorize Shotwell Photo Manager before allowing the application to publish photos. Follow the instructions in the window, select your desired options, and click **Publish** to upload your images to the web.

Further information

We've only just touched on the features of Shotwell Photo Manager. To get more help, select **Help ▸ Contents**. This will load the online manual, where you can get more detailed instructions on how to use Shotwell Photo Manager effectively.

Watching videos and movies

To watch videos and DVDs in Ubuntu, you can use the Videos application. To start Videos, click on the Dash, then search for "Videos" and select it. This will open the "Videos" window.
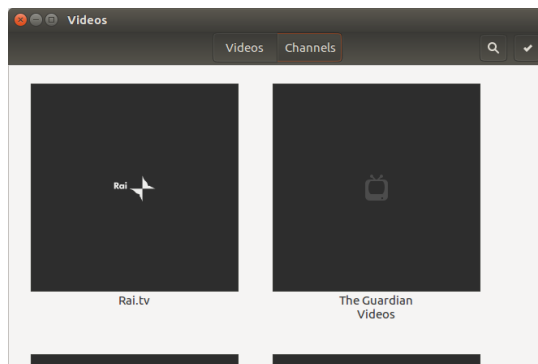

Figure 3.23: The "Videos" (commonly called "Totem") application plays videos as well as music.

Codecs

Watching most commercial DVDs and some video files may require you to install additional software. You will need "codecs" for Ubuntu to decode proprietary music and video files as well as for music and video files encumbered by DRM. You will need "unscrambling software" to access commercial DVDs encrypted by DRM.

⚠️ *Legal Notice: Patent and copyright laws differ depending on which country you are in. Please obtain legal advice if you are unsure whether a particular patent or restriction applies to a media format you wish to use in your country.*

DRM, or Digital Restrictions Management, is the practice of imposing technological restrictions that control what users can do with digital media. When a program is designed to prevent you from copying or sharing a song, reading an ebook on another device, or playing a single-player game without an Internet connection, you are being restricted by DRM.

To install these additional codecs, open the Terminal either through the Dash or the Launcher. When the "Terminal" window opens, use apt to install the following packages via **sudo apt install**:

▸ ubuntu-restricted-extras

- libdvdread4
- libdvdnav4

Double-click each item above and then click the **Install** button. This may open an "Authenticate" window. If so, enter your administrative password, then click **Authenticate** to start the installation process. The ubuntu-restricted-extras meta-package includes most if not all restricted codecs as well as the Adobe Flash Player NPAPI plugin and Microsoft corefonts.

Playing videos from file

Open the **Movie** menu in the Videos application, then select **Open Local Video**... or **Open Web Video**... which will open the "Add Videos" or "Add Web Video" window, respectively. Find the file or files that you want to play and click on the **Add** button. The video or videos will now be available for viewing in the **Videos** tab, along with any other videos already located in an indexed folder such as your Videos folder in your user home directory.

Playing a DVD

When you insert a DVD in the computer, Ubuntu should open the "You have just inserted a Video DVD. Choose what application to launch." window. Make sure that **Videos** is chosen in the drop-down list and then click **OK**. The "Movie Player" window will open and the movie will begin. You can also choose to always perform the action you just specified when another Video DVD is inserted.

If the "Videos" window is already open, then open the **Videos** tab, and select the DVD title that should now appear in the list as a tile.

Listening to audio and music

Ubuntu comes with the Rhythmbox Music Player for listening to your music, streaming Internet radio and managing playlists and podcasts. Rhythmbox (Figure 3.24) can also help you find and purchase music, along with managing subscriptions to your favorite RSS feeds.

Starting Rhythmbox

There are several ways to start Rhythmbox.

- Open the Dash, type `Rhythmbox` or `Music` and click on the Rhythmbox Music Player icon.
- Ubuntu comes with an indicator menu in the top bar for sound-related applications and devices (◀)). After you've opened Rhythmbox the first time, a link to start Rhythmbox and basic controls will be placed under this indicator.

If you close Rhythmbox by pressing `Alt+F4`, or `CTRL+W`, or clicking the red close button (⊗), it will disappear from view but continue to play in the background. You can still control music playback or reopen the application from the sound indicator (◀)), as shown in Figure 3.25.

Playing music

To play music, you can either double-click on your music file or, alternatively, import your music into your library. To do the latter, choose **File ▸**
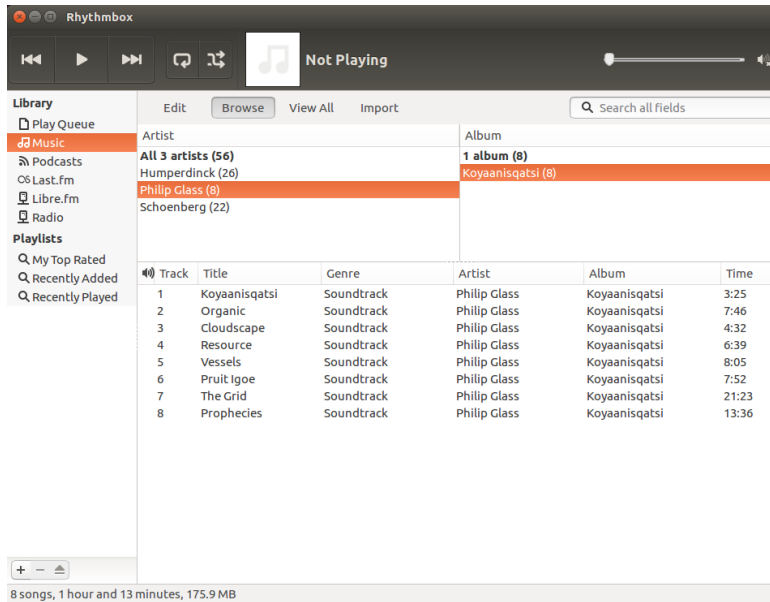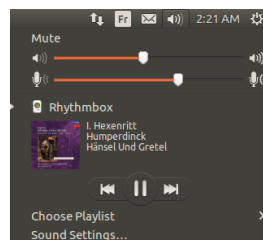
Add Music… or press `Ctrl+O` on your keyboard to import a folder containing audio files. You can use the dropdown box to select the folder where your music resides or click the **Other**… option to find an alternate folder.

The Rhythmbox toolbar contains most of the controls that you will use for browsing and playing your music. If you want to play a song, double-click a track; or click it and press the **Play** button on the toolbar, choose **Control ▸ Play** from the menu bar, or press `Ctrl+Space`. When a song is playing, the **Play** button will become a **Pause** button. Use this button, **Control ▸ Play**, or `Ctrl+Space` to toggle between playing and pausing the track. **Next** and **Previous** buttons are next to the Play/Pause button. Click on these buttons to play the next and previous songs in your library or playlist.

Rhythmbox also has options to toggle repeat mode (**Repeat**, **Control ▸ Repeat** or `Ctrl+R`) and shuffle mode (**Shuffle**, **Control ▸ Shuffle** or `Ctrl+U`).

Playing Audio CDs

When you insert an audio CD in the computer, Ubuntu should open the "You have just inserted an Audio CD. Choose what application to launch." window. Make sure that **Rhythmbox** is chosen in the drop-down list and then click **OK**. The "Rhythmbox" window will open. You can also choose to always perform the action you just specified when another Video DVD is inserted.

To play your CD once in Rhythmbox you can use the audio controls in

the Rhythmbox toolbar. Adding the music to your library, or "Ripping" the audio, is covered below and available in this same window.

Importing ("Ripping") Audio CDs

Begin by inserting a CD. Rhythmbox will automatically detect it and add it to the side menu. If you have an active Internet connection, Rhythmbox will try to find the album details via the web. Click the CD. Uncheck any tracks you don't want imported. Press the **Extract** button, located at the *upper-left* corner of the right panel. Rhythmbox will begin importing the CD. As it finishes each track, it will appear in your Music Library.

Listening to streaming audio

Rhythmbox is pre-configured to enable you to stream audio from various sources. These include Internet broadcast stations (**Radio** from the Side Pane), **Last.fm** and **Libre.fm**. To listen to an Internet radio station, click on the Radio icon in the *Side Pane* for a list of pre-configured stations. You can filter by genre in the *middle pane*. To add a new radio station, select **Add** and enter the radio station URL.

Streaming audio stations are "radio stations" that broadcast over the Internet. Some of these are real radio stations that also stream over the Internet, and others broadcast only over the Internet.

You can browse a selected list of radio stations at https://en.wikipedia.org/wiki/List_of_Internet_stations or you can use your browser to search for "Internet radio stations."

Connect digital audio players

Rhythmbox can connect with many popular digital media players. Connected players will appear in the *Devices list*. Features will vary depending on the player (and often the player's popularity), but common tasks like transferring songs and playlists should be supported. If your device isn't shown on the *Devices* list, try searching for it by clicking on the **+ button ▸ Check for New Devices** in the *bottom-left* corner.
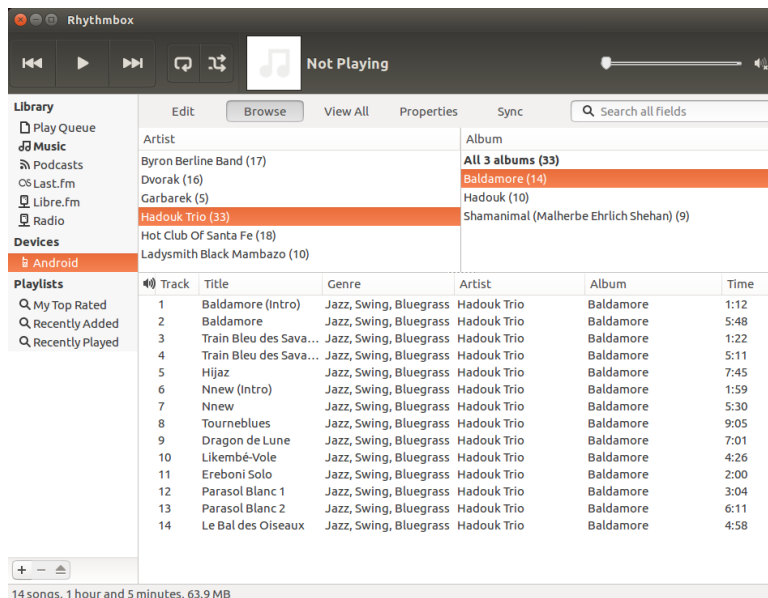

Figure 3.26: Rhythmbox connected to an Android device

Listen to shared music

If you are on the same network as other Rhythmbox users (or most other music player software), you can share your music and listen to their shared

DAAP stands for "Digital Audio Access Protocol," and is a method designed by Apple to let software share media across a network.

music. To do this, click **File ▸ Connect to DAAP Share**... Then enter the
IP address and the port number. Click **OK**. Clicking a shared library will
enable you to browse and play songs from other computers.

Manage podcasts

Rhythmbox can manage all of your favorite podcasts. Select *Podcasts* from
the Side Pane to view all added podcasts. The toolbar will display additional
options to *Browse*, *View All*, *Add* and *Update*. Choose **Add** on the toolbar
and enter the URL of the podcasts to save it to Rhythmbox. You can also
search for podcasts to find here to add to Rhythmbox. Podcasts will be
automatically downloaded at regular intervals or you can manually update
feeds. Select an episode and click **Play**. You can also delete episodes.

Rhythmbox preferences

The default configuration of Rhythmbox may not be exactly what you want.
Choose **Edit ▸ Preferences** to alter the application settings. The Preferences
tool is broken into four main areas: general, playback, music, and Podcasts.

General includes how you want Rhythmbox to display artist and track
information. You can adjust the columns visible in your library and how
the toolbar icons are displayed.

Playback options allow you to enable crossfading and the duration of the
fade between tracks.

Music includes where you would like to place your music files and the
library structure for new tracks added to Rhythmbox. You can also set
your preferred audio format.

Podcasts designates where podcasts are stored on your computer along
with the ability to change how often podcast information is updated.

Plugins

Rhythmbox supports a wide array of plugins, which add functionality
to Rhythmbox. Many of the plugins provide basic audio playback, and
you may check a few more boxes, for example, to access Soundcloud or to
provide a consistent playback volume (ReplayGain). To view or change the
activated plugins, use the global menu bar (**Tools ▸ Plugins**).

Managing your music

Rhythmbox supports creating playlists. *Playlists* can be either static lists
of songs to be played in order or smart playlists based on filter criteria.
Playlists do not contain the actual songs, but only provide references to
them. Thus, if you remove a song from a playlist (**right-click on the song ▸
Remove from Playlist**), the song will remain in your library and on your
hard drive.

To create a playlist, choose **File ▸ Playlist ▸ New Playlist**... or **+ button ▸
New Playlist** in the *bottom-left* corner, or press Ctrl+N. It appears in the
sidebar as "New Playlist." Select the new playlist in the sidebar on the left
and then press F2 to give the new playlist a name of your choosing. Drag
songs from your library to the new playlist in the side pane or right-click on
songs and select **Add to Playlist** and pick the playlist.

Automatic Playlists are created in a similar way. Choose **File ▸ Playlist ▸
New Automatic Playlist**... or **+ button ▸ New Automatic Playlist** in the

bottom-left corner. Define the filter criteria. You can add multiple filter rules and select a name. Save. You can update any playlist (including the predefined ones) by first selecting it on the sidebar and then selecting the Playlist button and selecting Edit....

Rhythmbox supports song ratings. **Right-click a song in your library ▸ Properties ▸ Details** and click on the number of stars. To remove a rating, select zero stars. Other song information such as Title, Artist and Album can be changed. **Right-click a song in your library ▸ Properties ▸ Basic**.

To remove a song, **right-click ▸ Remove**. To delete a song from your hard drive entirely, **right-click ▸ Move to the Rubbish Bin**. If you ever want to move a song, highlight the song (or group of songs) from your library and drag it to a folder or to your desktop. This will make a copy of the audio file in the new location.

Audio codecs

Different audio files (MP3, WAV, AAC, OGG, etc.) require unique tools to decode them and play the contents. These tools are called *codecs*. Rhythmbox attempts to detect any missing codecs on your system so you can play all of your audio files. If a codec is missing, it automatically tries to find the codec online and guides you through its installation.

Rhythmbox support

Rhythmbox is used by many users throughout the world. There are a variety of support resources available in many languages.

▸ **Help ▸ Contents** or F1 for the main help.
▸ **Help ▸ Get Help Online** to ask questions and report bugs.
▸ The Rhythmbox website at https://wiki.gnome.org/Apps/Rhythmbox.
▸ The Multimedia & Video category of Ubuntu Forums at https://ubuntuforums.org/forumdisplay.php?f=334.

Burning CDs and DVDs

To create a CD or DVD, you will need to first install a burning application such as Brasero (The GNOME default) or K3b (A powerful utility built with the Qt toolkit). For the purposes of the Manual we will install and use Brasero. To do this, click the Ubuntu Software icon on the launcher, located to the left by default but it may also be on the bottom of the screen. Once Ubuntu Software opens search for Brasero using the top search bar in the "Ubuntu Software" window. Press "Install" and enter your password. Ubuntu Software will now create an icon for Brasero on your launcher. Click on this icon. This opens the Brasero Disc Burner application. The burning options (Figure 3.27) appearing within Brasero are explained below.

⚠ *If you only need to burn a disc image such as an ISO file, you can do this from the Files application's context menu when you right-click on a disk image file. After right-clicking the ISO file in Files, select "Open With ▸ Disk Image Writer". At this point, do not select one of your hard disks in the window that appears unless you are certain you intend to wipe that device! Select a destination (such as your optical drive with blank media inserted) and click "Start Restoring...". This uses the GNOME Disks component/utility, which is included within the base Ubuntu/Unity system. A burning application such as Brasero or K3b is only necessary if you plan on creating your own disc images, or "projects", or if you prefer greater control over the burning process.*
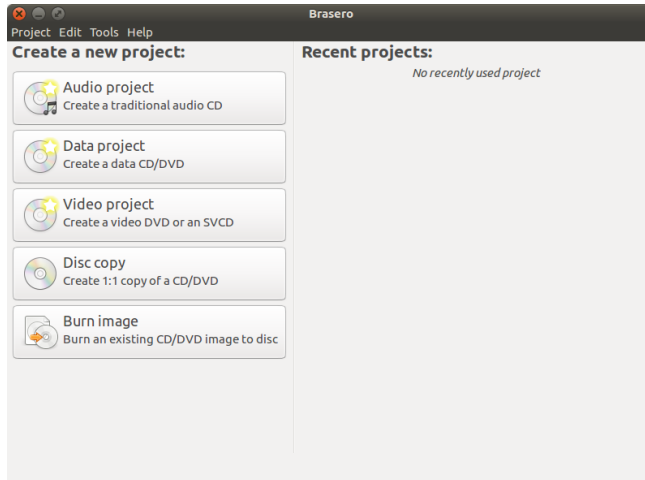
Figure 3.27: Brasero burns music, video, data DVDs and CDs.

Getting Started

Before you can use Brasero, you need to **Create a new project**. There are three types of media projects available: **Audio Project**, **Data Project**, and **Video Project**. There are also two utility projects available: **Disc Copy** and **Burn Image**. Make your selection based on your requirements.

At this current time, Brasero does not support Blu-Ray.

⚠ *The following options apply for all projects except **Disc Copy** and **Burn Image**.*

Adding files to a project

To add files to the list, click the + button. This button will open the "Select Files" window. Navigate to the file you want to add, click the desired file, then click the **Add** button. Repeat this process for each file until all desired files have been added.

Removing files

If you want to remove a file from the project, click the file in the list and click on the - button. To remove all the files in the list click on the **Broom** shaped button.

Saving a project

To save an unfinished project, choose **Project ▸ Save**. The "Save Current Project" window will be opened. Choose where you would like to save the project. In the **Name:** text field, enter a name for the project. Click the **Save** button, and your unfinished project will be saved. When saving a project, you are only saving the parameters of the project; you've burned nothing to the disc at this time.

Burning the disc

When you click the **Burn...** button, you will see the "Properties of ..." window.

You can specify the burning speed in the **Burning speed** drop-down. It is safest to choose the slowest speed to prevent a corrupted CD / DVD disc.

To burn your project directly to the disc, select the **Burn the image directly without saving it to disc** option. With this option selected, no image file is created, and no files are saved to the hard disk. All data is saved to the blank CD or DVD. Note that Brasero only burns information onto standard CDs and DVDs; Brasero does not burn data onto Blu-Ray DVDs at this time.

The **Simulate before burning** option is useful if you encounter problems burning discs. Selecting this option allows you to simulate the disc burning process without actually writing data to a disc—a wasteful process if your computer isn't writing data correctly. If the simulation is successful, Brasero will burn the disc after a ten second pause. During those ten seconds, you have the option to cancel the burning process.

Blanking a disk

Some CDs and DVDs have an RW marking on them. RW simply indicates the disc is Re-Writable, meaning the current data on the disc can be completely erased and new data can be written to it. To erase a disc, open the **Tools** menu, then select **Blank**. The "Disc Blanking" window will be open. In the **Select a disc** drop-down choose the disc that you would like to erase.

You can enable the **Fast blank** option if you would like to shorten the amount of time to perform the blanking process. However, selecting this option will not fully remove the files; if you have any sensitive data on your disc, it would be best not to enable the **Fast blank** option.

Once the disc is erased (blank), you will see *The disc was successfully blanked.* Click the **Close** button to finish.

Audio project

If you record your own music, then you may want to transfer this music onto an audio CD so your friends and family can listen. You can start an audio project by clicking **Project ▸ New Project ▸ New Audio Project**.

When burning a music CD, it is important to remember that commercial music CDs usually contains a two-second gap between the songs. To ensure your music has this same gap between songs, click the file and then click the **pause** button.

You can slice files into parts by clicking the **Knife** button. This opens a "Split Track" window. The **Method** drop-down gives you four options; each option lets you split the track in a different way. Once you have split the track, click **OK**.

In the drop-down list at the bottom of the main "Brasero" window, make sure that you have selected the disc where you want to burn the files. Then click the **Burn** button.

Data project

If you want to, for instance, make a back up of your documents or photos, it would be best to make a data project. You can start a data project by clicking **Project ▸ New Project ▸ New Data Project**.

If you want to add a folder, click the **Folder** picture, then enter the name of the folder.

In the drop-down list at the bottom of the main "Brasero" window, be sure to select the disc where you want to burn the files. Then click the **Burn** button.

Video project

If you want to, for instance, make a DVD of your family videos, it would be best to make a video project.

You can start a video project by clicking **Project ▸ New Project ▸ New Video Project**.

In the drop-down list at the bottom of the main "Brasero" window, be sure to select the disc where you want to burn the files. Then click the **Burn** button.

Disc copy

You can make a copy of an existing disc by clicking **Project ▸ New Project ▸ Disc copy**. This opens the "Copy CD/DVD" window.

If you have only one drive, you will need to first make a disc image and then burn it to a blank disc. If you have two CD/DVD drives, you can copy a disc from one to the other directly, assuming that the source disc is in one drive and the destination disc (the blank media) is in the other drive.

In the **Select disc to copy** drop-down choose the disc to copy. In the **Select a disc to write to** drop-down either choose image file or the disc that you want to copy to.

Disc image

You can make an image file of your data as well. An "image," in this context, is a single-file representation of the contents of the disk. The file usually has an `.iso` or `.img` extension. An image file is similar to a set of zipped files. Change where the image file is saved by clicking **Burn…**. This shows the "Location for Image File". You can edit the name of the file in the **Name:** text field.

The default location to save the image file is your home folder, but you can change the location by clicking the + button next to **Browse for other folders**. Once you have chosen where you want to save the photo or image, click **Close**.

Returning to the "Copy CD/DVD" window, click **Create Image**. Brasero will open the "Creating Image" window and will display the job progress. When the process is complete, click **Close**.

Burn image

⚠️ *"Burning" an image to a disc should not be confused with copying an image file to a disc. When burnt, the contents of the image file are copied over to the disc, rather than the image file itself.*

To burn an image, that is, to transfer the contents inside an image file to a blank disc, open the **Project ▸ New Project ▸ Burn Image**. Brasero will open the "Image Burning Setup" window. Click on the **Click here to select a disc image** drop-down and the "Select Disc Image" window will appear. Navigate your way to the image you wish to burn, click on it, and then click **Open**.

In the **Select a disc to write to** drop-down menu, click on the disc to which you'd like to write, then click **Create Image**.

Working with documents, spreadsheets, and presentations

LibreOffice Suite is the default office suite when working with documents, spreadsheets, and slide presentations.

Working with documents

If you need to work with documents, you can use the LibreOffice Word Processor. Writer has all the features you need from a modern, full-featured word processing and desktop publishing tool including a built-in PDF creator. It also has the ability to save documents in several common formats, such as ".doc" or ".txt" files. It's simple enough for a quick memo, and yet powerful enough to create complete books with contents, diagrams, indexes, and more. You're free to concentrate on your message, while Writer will make it look great. To start the word processor, open the Dash and search for `LibreOffice Writer`. Then select **LibreOffice Writer**.

The LibreOffice Word Processor is known as LibreOffice Writer. LibreOffice Spreadsheet is known as Calc, and LibreOffice Presentation is known as Impress.

Working with spreadsheets

If you need to work with spreadsheets, you can use LibreOffice Spreadsheet (Calc). Calc is the spreadsheet program you've always needed. Newcomers find it intuitive and easy to learn. Professional data miners and number crunchers will appreciate the comprehensive range of advanced functions. To start the spreadsheet application, open the Dash and search for `LibreOffice Calc`. Then select **LibreOffice Calc**.

Working with presentations

If you need to work with slides for a presentation, you can use LibreOffice Impress. Impress is a truly outstanding tool for creating effective multimedia presentations. Your presentations can be enhanced with 2D and 3D clip art, special effects and transition styles, animations, and high-impact drawings. To start the presentation application, open the Dash and search for `LibreOffice Impress`. Then select **LibreOffice Impress**.

Getting more help

Each of these applications come with a comprehensive set of help screens. If you are looking for more assistance with these applications, press the F1 key after starting the application.

4 Hardware

Using your devices

Ubuntu supports a wide range of hardware, and support for new hardware improves with every release.

Hardware identification

There are various ways to identify your hardware in Ubuntu. The easiest would be to install an application from the **Ubuntu Software** application, called Sysinfo.

Firstly, open the "Ubuntu Software" application, then use the search box at the top of the window to search for `sysinfo`. Select the Application, click **Install**. Enter your password when prompted, to install the application.

To run the application, search for Sysinfo at the Dash search bar. Click on the program once you find it. The Sysinfo program will open a window that displays information about the hardware in your system.

Displays

Hardware drivers

A driver is a piece of software which tells your computer how to communicate with a piece of hardware. Every component in a computer requires a driver to function, whether it's the printer, DVD player, hard disk, or graphics card.

The majority of graphics processors are manufactured by three well-known companies: Intel, AMD/ATI, and NVIDIA Corp. You can find your video card manufacturer by referring to your computer's manual, by looking for the specifications of your computer's model on the Internet, by opening an application such as Sysinfo, or by using the command `lspci`, `sudo lshw` and `sudo dmidecode` in a terminal. The Ubuntu Software application houses a number of applications that can tell you detailed system information. SysInfo, see the previous section, is one such program that you can use to find relevant information about your System devices. Ubuntu comes with support for graphics devices manufactured by the above companies, and many others, out of the box. That means you don't have to find and install any drivers yourself, Ubuntu takes care of it all.

Your graphics card is the component in your computer which outputs to the display. Whether you are watching videos on YouTube, viewing DVDs, or simply enjoying the smooth transition effects when you maximize/minimize your windows, your graphics device is doing the hard work behind the scenes.

Keeping in line with Ubuntu's philosophy, the drivers that are used by default for powering graphics devices are free software. This means that the drivers can be modified by the Ubuntu developers and problems with them can be fixed. However, in some cases a proprietary driver (restricted driver) provided by the company may provide better performance or features that are not present in the open source driver, this is all true for NVIDIA who don't provide free licenced driver. In other cases, your particular device may not be supported by any open source drivers yet. In those scenarios, you may want to install the restricted driver provided by the manufacturer.

For both philosophical and practical reasons, Ubuntu does not install restricted drivers by default but allows the user to make an informed choice. Remember that restricted drivers, unlike the open source drivers for your

device, are not maintained by Ubuntu. Problems caused by those drivers will be resolved only when the manufacturer wishes to address them. To see if restricted drivers are available for your system, go to **System Settings**, then open **Software and Updates** and go to the **Additional Drivers** tab. If a driver is provided by the company for your particular device, it will be listed there. You can choose the proprietary driver for your graphics card, then click on the **Apply Changes** button to enable the driver. This process requires an active Internet connection and it will ask for your password. Once installation is complete you may have to reboot your computer to finish activating the driver.

The Ubuntu developers prefer open source drivers because they allow any problem to be identified and fixed by anyone with knowledge within the community. Ubuntu development is extremely fast and it is likely that your device will be supported by open source drivers. You can use the Ubuntu Live DVD to check your device's compatibility with Ubuntu before installing, or go online to the Ubuntu forums or to https://www.askubuntu.com to ask about your particular device.

Another useful resource is the official online documentation (http://help.ubuntu.com), which contains detailed information about various graphics drivers and known problems. This same documentation can be found by searching for `Help` in the Dash search bar or by pressing F1 on your keyboard.

Setting up your screen resolution

One of the most common display related tasks is setting the correct screen resolution for your desktop monitor or laptop.

Ubuntu correctly identifies your native screen resolution by itself and sets it for you. However, due to a wide variety of devices available, sometimes it can't properly identify your resolution.

To set or check your screen resolution, go to **System Settings ‣ Displays**. The "Displays" window automatically detects the type of display and shows your display's name and size. The screen resolution and refresh rate is set to the recommended value by Ubuntu. If the recommended settings are not to your liking, you can change them here. For example, to change the resolution click on the triangle in the **Resolution** drop-down and choose the resolution you want. Ubuntu now includes HiDPI settings in the System Settings Display module. You can now scale menu and title bars according to your viewing needs.

Displays are made up of thousands of tiny pixels. Each pixel displays a different color, and when combined they all display the image that you see. The native screen resolution is a measure of the amount of actual pixels on your display.

Adding an extra display

Sometimes, you may want to add more than one display device to your desktop, or you may want to add an external monitor to your laptop. Doing this is quite simple. Whether it's an extra monitor, LCD TV, or a projector, Ubuntu can handle it all. Ubuntu supports the addition of multiple displays by default, which is as easy as plug and play.

Ubuntu recognizes almost all the latest monitors, TVs and projectors by default. Sometimes it may happen that your additional display is not detected when you connect it to the machine. To resolve this, go to **System Settings ‣ Displays** and click on **Detect Displays**. This will detect the monitors connected to the machine. This menu can also be found from the **Power Off** menu on the top panel. You can also search for Displays at the Dash search bar.

Now, there are two modes which you can enable for your displays. One option is to spread your desktop across two or more monitors. This is particularly useful if you are working on multiple projects and need to keep an eye on each of them at the same time. You can configure the screen to be on any side of your primary screen i.e. to your right, your left or on the

Not for Ubuntu 20.10, but for next versions, we could see a lot of changing if the default graphical server change from Xorg to Wayland. You can try this last one when you login to your session.

top (particularly nice if you are working on a large screen i.e. a big monitor or a TV connected to your 12-13 inch laptop); just move the screen on the **Displays** settings to the side of your choice.

The second option is to mirror the desktop onto each of the displays. This is useful when you are using a laptop to display something on a larger screen e.g. projector. To enable this option just check the box beside **Mirror displays** and click **Apply** to save the settings. You will get a pop-up notification asking if you want to keep the current setting or revert to the previous setting. Click to keep the current setting. You can also select whether you want the Ubuntu Launcher in both the displays or only in the primary display.

Connecting and using your printer

Ubuntu supports most new printers. You can add, remove, and change printer properties by navigating to **System Settings ▸ Printers**. You can also search for Printers from the Dash search bar. Opening Printers will display the "Printers-localhost" window.

When you want to add a printer, you will need to make sure that it is switched on, and plugged into your computer with a USB cable or connected to your network.

Adding a local printer

If you have a printer that is connected to your computer with a USB cable then this is termed a *local printer*. You can add a printer by clicking on the **Add Printer** button.

In the left hand pane of the "New Printer" window any printers that you can install will be listed. Select the printer that you would like to install and click **Forward**.

You can now specify the printer name, description and location. Each of these should remind you of that particular printer so that you can choose the right one to use when printing. Finally, click **Apply**.

If your printer can automatically do double sided printing, it will probably have a duplexer. Please refer to the instructions that came with the printer if you are unsure. If you do have a duplexer, make sure the **Duplexer Installed** option is checked and then click the **Forward** button.

Adding a network printer

Make sure that your printer is connected to your network either with an Ethernet cable or via wireless, and that it is turned on. You can add a printer by opening Printers, and then clicking the **Add** button. The "New Printer" window will open. Click on the small triangle next to *Network Printer*.

If your printer is found automatically it will appear under *Network Printer*. Click the printer name and then click **Forward**. In the text fields you can now specify the printer name, description and location. Each of these should remind you of that particular printer so that you can choose the right one to use when printing. Finally click **Apply**.

You can also add your network printer by entering the IP address of the printer. Select "Find Network Printer," enter the IP address of the printer in the box that reads **Host:** and press the **Find** button. Ubuntu will find the printer and add it. Most printers are detected by Ubuntu automatically. If Ubuntu cannot detect the printer automatically, it will ask you to enter the make and model number of the printer.

The default printer is the one that is automatically selected when you print a file. To set a printer as default, right-click the printer that you want to set as default and then click **Set As Default**.

Changing printer options

Printer options allow you to change the printing quality, paper size and media type. They can be changed by right-clicking a printer and choosing **Properties**. The "Printer Properties" window will show; in the left pane, select *Printer Options*.

You can now specify settings by changing the drop-down entries. Some of the options that you might see are explained.

Media size

This is the size of the paper that you put into your printer tray.

Media source

This is the tray that the paper comes from.

Color Model

This is very useful if you want to print in **Grayscale** to save on ink, or to print in **Color**, or **Inverted Grayscale**.

Media type

Depending on the printer you can change between:

▸ Plain Paper
▸ Automatic
▸ Photo Paper
▸ Transparency Film
▸ CD or DVD Media

Print quality

This specifies how much ink is used when printing, **Fast Draft** using the least ink and **High-Resolution Photo** using the most ink.

Sound

Ubuntu usually detects the audio hardware automatically during installation. Audio in Ubuntu is provided by a sound server named PulseAudio. The audio preferences are easily configurable with the help of a very easy to use GUI which comes preinstalled with Ubuntu.

Volume indicator and sound preferences

A volume icon is present on the top panel which provides quick access to a number of audio related functions. When you click on the volume icon you are greeted with four options: A mute option at the very top, a slider button which you can move horizontally to increase/decrease volume, another slider button to increase/decrease the volume of the microphone, a shortcut to the default music player, Rhythmbox, and an option for accessing the Sound Settings. Selecting *Sound Settings…* opens up another window, which provides access to options for changing input and output hardware preferences for speakers, microphones and headphones. It also provides options for setting the volume level for each application. Sound Settings can also be found from **System Settings**…. It is known as *Sound*.

Output   The *Output* tab will have a list of all the sound cards available in your system. Usually there is only one listed; however, if you have a graphics card which supports HDMI audio, it will also show up in the list. The *Output* tab is used for configuring the output of audio. You can increase/decrease and mute/unmute output volume and select your preferred output device. If you have more than one output device, it will be listed in the section which reads "Choose a device for sound output." The default output hardware, which is automatically detected by Ubuntu during installation will be selected. This section also allows you to change the balance of sound on the left and right speakers of your desktop/laptop. An option will allow you to increase the output volume past 100. You need to check the box "Allow louder than 100%".

By default, the volume in Ubuntu is set to maximum during installation.

If you change your sound output device, it will remain as default.

Input   The second tab is for configuring audio *Input*. You will be able to use this section when you have an in-built microphone in your system or if you've plugged in an external microphone. You can also add a Bluetooth headset to your input devices which can serve as a microphone. You can increase/decrease and mute/unmute input volume from this tab. If there is more than one input device, you will see them listed in the white box which reads *Choose a device for sound input.* If you run VoIP applications such as Skype, you will find the microphone slider just below the volume slider in the top panel sound menu during a voice or video call.

A microphone is used for making audio/video calls which are supported by applications like Skype or Empathy. It can also be used for sound recording.

You should note that by default in any Ubuntu installation, the input sound for mic is either very low or muted. You will have to manually increase the volume or unmute the input to enable your microphone to record sound or use it during audio/video calls.

Sound Effects   The third tab is *Sound Effects.* You can enable, disable, or change the existing sound theme from this section. You can also change the alert sounds for different events.

Applications   The *Applications* tab is for changing the volume for running applications. This comes in handy if you have multiple audio applications running, for example, if you have Rhythmbox, Totem Movie Player and a web-based video playing at the same time. In this situation, you will be able to increase/decrease, mute/unmute volume for each application from this tab.

More functionality

The icon can control various aspects of the system, application volume and music players like Rhythmbox, Banshee, Clementine and Spotify. The volume indicator icon can now be easily referred to as the sound menu, given the diverse functionality of the icon. Media controls available include play/pause, previous track, and next track. You can also switch between different playlists from the *Choose Playlist* option. If the current playing song has album art, it will show up beside the name of the current track, otherwise you will see only the details of the song. It displays the track name, the artist name and the album name of the current track.

You can start and control the default music player, Rhythmbox, by simply left clicking on the sound menu and selecting Rhythmbox from the list. Clicking the **play** button also starts the player.

Using a webcam

Webcams often come built into laptops and netbooks. Some desktops, such as Apple iMacs, have webcams built into their displays. If you purchase a webcam because your computer doesn't have its own, it will most likely have a USB connection. To use a USB webcam, plug it into any empty USB port of your desktop.

Almost all new webcams are detected by Ubuntu automatically. You can configure webcams for individual applications such as Skype and Empathy from the application's setup menu. For webcams which do not work right away with Ubuntu, visit https://wiki.ubuntu.com/Webcam for help.

There are several applications which are useful if you have a webcam. Cheese can capture pictures with your webcam and VLC media player can capture video from your webcam. You can install these from the Ubuntu Software application.

Scanning text and images

Scanning a document or an image is very simple in Ubuntu. Scanning is handled by the application Simple Scan. Most of the time, Ubuntu will simply detect your scanner and you should just be able to use it. To scan a document, follow these steps:

1. Place what you want to scan on the scanner.
2. Click to open the Dash and enter `scan`.
3. Click on Simple Scan.
4. Click to choose between **Text** or **Photo** from **Document ‣ Scan ‣ Text**.
5. Click **Scan**.
6. Click the **Paper Icon** to add another page.
7. Click **Save** to save.

You can save the scanned documents and pictures in JPEG. You can also save in PDF format to enable opening in Acrobat Reader. To do that, add the extension `.pdf` at the end of the filename.

Troubleshooting your scanner

If your scanner is not detected, Ubuntu may give you a "No scanners detected" message when trying to scan. There may be a reason why Ubuntu cannot find your scanner.

‣ Simply unplug the scanner and plug it back in. If it is a newer USB scanner, it is likely that it will just work.
‣ The driver for your scanner is not being automatically loaded. Restart your system. It might help!
‣ Try restarting the scanner service. Open a terminal from the Dash and type in `sudo /etc/init.d/saned restart`
‣ Your scanner is not supported in Ubuntu. The most common type of scanner not supported is old parallel port or Lexmark All-in-One printer/scanner/faxes.
‣ SANE project listing of supported scanners. The SANE (Scanner Access Now Easy) project provides most of the back-ends to the scanning software on Ubuntu.
‣ Check https://wiki.ubuntu.com/HardwareSupportComponentsScanners to find out which scanners work with Ubuntu.

Keyboard and mouse

The keyboard and mouse are essential input devices for a large number of computer users today. There are many different makes and models of keyboards and mice, including lots of keyboards with support for different languages.

In this section we will look at the different settings for your keyboard and mouse. This will be of great use to international users.

Keyboard

The keyboard is likely to be one of the main ways that you interact with your computer. Unfortunately not all keyboards are uniform in design; they can differ by country, by language or appearance. In Ubuntu 16.04, the default language set for the keyboard now appears as an applet menu right next to the Network Manager icon. Clicking on the keyboard applet menu will show you what is the default language set for the keyboard and also enable you to access three options: 1. Character Map 2. Keyboard Layout 3. Text Entry Settings....
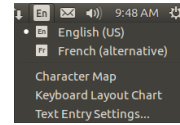
Mouse and Touchpad

A mouse is another mode of input and goes hand in hand with the keyboard. Ubuntu supports all types of plug and play mice, including touchpads and trackballs. If you are planning to use a mouse with your laptop, just plug it in and Ubuntu will recognize it instantly.

There is a settings menu under **System Settings ‣ Mouse and Touchpad** where you can change the mouse settings such as double-click speed, pointer speed and left handed or right handed clicks. If you are using touchpad on your laptop/netbook you can also increase the sensitivity of your touchpad. You can also enable horizontal, edge scrolling and two finger scrolling on your laptop/netbook.

Figure 4.1: Keyboard applet menu.

Multitouch and gesture support

Ubuntu has full support for multitouch gestures. This means that anyone with a touch-enabled device or interface can use the multitouch features. Once triggered, resizing and moving windows in touch-friendly devices can be done using three fingered tap on an application window.

Ubuntu also supports two-finger scrolling similar to OS X laptops and desktops. This setting can be enabled from **System Setting ‣ Mouse and Touchpad ‣ Touchpad**. Select "Two-finger scrolling" from the *Scrolling* options. You can also search for `Mouse and Touchpad` from the Dash search bar and enable the option. Please note that enabling two finger scrolling will disable edge scrolling.

Other devices

USB

USB ports are available as standard on all computers. They are used to connect a multitude of devices to your computer. These could include portable hard drives, flash drives, removable CD/DVD/Blu-ray drives, printers, scanners and mobile phones.

When connected, flash drives and portable hard drives are automatically detected—the file manager will open and display the contents of the drive. You can then use the drives for copying data to and from the computer.

All new cameras, camcorders and mobile phone SD cards are automatically detected by Ubuntu. These SD cards have different types of data, so a window will appear with a drop-down menu to choose between video, audio import and the file manager—you can choose your desired action from this menu.

Firewire

Firewire is a connection on some computers that allows you to transfer data from devices. This port is generally used by camcorders and digital cameras.

 If you want to import video from your camcorder you can do so by connecting your camcorder to the Firewire port. You will need to install a program called Kino which is available in Ubuntu Software.

Firewire is officially known as IEEE 1394. It is also known as the Sony i.LINK and Texas Instruments Lynx.

To find out more about Kino, visit http://www. kinodv.org/.

Bluetooth

Bluetooth is a wireless technology that is widely used by different types of devices to connect to each other. It is common to see a mouse or a keyboard that supports Bluetooth. You can also find GPS devices, mobile phones, headsets, music players and many other devices that can connect to your desktops or laptop and let you transfer data, listen to music, or play games as an example.

 If the Bluetooth support is activated then you should be able to see a Bluetooth icon on the top panel, usually on the left side of the volume icon. If you click on the Bluetooth icon it will open a drop down menu with choices to **Turn on/off Bluetooth**, to **Turn on/off visibility** of the device, setup access to a Bluetooth device and also access Bluetooth settings.

 The Bluetooth preferences can also be accessed from **System Settings ▸ Bluetooth**. If you want to connect (pair) a new device—for example, to have a mobile phone send pictures or videos to your computer—click on the Bluetooth icon on the top panel and select **Setup new device**….

 Ubuntu will open a window for new device setup. When you click **Forward**, Ubuntu will show you how many Bluetooth devices are present near your computer. The list of available devices might take a minute or so to appear on the screen as your system scans for these devices. Each device will be displayed as soon as it is found by Ubuntu. Once a device you'd like to connect with appears in the list, click on it. Then, choose a PIN number by selecting **PIN options**.

 Three predefined PIN numbers are available, but you can also create a custom PIN. You will need to enter this PIN on the device you will be pairing with Ubuntu.

 Once the device has been paired, Ubuntu will open the "Setup completed" window. In Ubuntu, your computer is hidden by default for security reasons. This means that your Ubuntu system can search other Bluetooth devices, but others cannot find your Ubuntu system when they perform a search on their own computer. If you would like to let another device find your computer, you will have to explicitly allow your computer to be found. To allow your computer to be found by other bluetooth devices, turn 'on' the "Visibility of *yourcomputername*" from **System Settings ▸ Bluetooth**. You can also click on the Bluetooth icon and click on **Visible** to turn on visibility which will make your computer discoverable.

 You can also add a fancy name for your Bluetooth-enabled Ubuntu system by changing the text under **Friendly Name**.

 Another feature present in the Bluetooth icon menu is "Send files to device." Use this option to send a file to a mobile phone without pairing with the computer.
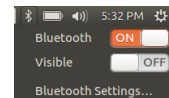
Figure 4.2: The Bluetooth applet menu.

When you *pair* two Bluetooth devices, you are letting each device trust the other one. After you pair two devices, they will automatically connect to each other in the future without requiring a PIN.

Android devices need to be paired at all times, even while transferring files.

5 Software Management

Software management in Ubuntu

Installing software in Ubuntu extends the functionality and usability of this operating system. This chapter describes the way Ubuntu manages software installation and how it keeps all software current.

Package management system

Ubuntu and various other Linux variants use a collection of software tools called a *package management system*, or package manager. A package manager is a collection of tools that make installing, deleting, upgrading, and configuring software easy. A package management system has a database of software called a *repository* where individual software is arranged into a collection called a package. These packages, apart from the software, contain important information about the software itself, such as the software's name, description, version, name of the vendor, and a list of various *dependencies* upon which the software relies for proper installation.

Most other operating systems require a user to purchase commercial software (online or through a physical store) or search the Internet for a free alternative (if one is available). The correct installation file must then be verified for integrity, downloaded, and located on the computer, followed by the user proceeding through a number of installation prompts and options. A package management system removes the user interaction from these steps and automates most, if not all, of the installation process.

Ubuntu comes with a package management system called *Advanced Packaging Tool* or APT.

As discussed in Chapter 3: Working with Ubuntu, Ubuntu offers a wide range of applications for your daily work. Ubuntu comes with a basic set of applications for common tasks, like surfing the Internet, checking email, listening to music, and organizing photos and videos. At times, you may need an extra level of specialization. For example, you may want to retouch your photos, run software for your business, or play new games. In each of these cases, you can search for an application, install it, and use it—usually with no extra cost.

By default, Ubuntu provides a centralized point with two different ways to browse the *repositories* for searching, installing, and removing software.

Figure 5.1: Software Center icon

‣ The Ubuntu Software application
‣ Command line `apt-get`

Ubuntu Software makes searching, installing, and/or removing applications easy and convenient; it is most often the application management system used by both beginning and expert Ubuntu users. We highly recommend Ubuntu Software for searching, installing, and removing applications, although you can still use the command-line application `apt-get` or install and use the advanced application Synaptic Package Manager. Since software in Ubuntu is delivered in the form of *packages*, software installation becomes a one-click, one-step process when using the Ubuntu Software application.

Using Software Center

There are numerous ways to install software on an operating system. In Ubuntu, the quickest and easiest way to find and install new applications is through Ubuntu Software. Ubuntu Software is your very own storefront and gives you instant access to thousands of great applications. Some of these applications are free to download whereas others are available commercially. Each application within Ubuntu Software comes with ratings and reviews making it easier for you to decide which of the applications you want to install.

To start Ubuntu Software, click on its icon in the Launcher, or click on the Dash and search for Ubuntu Software.

Figure 5.2: You can install and remove applications from your computer using Ubuntu Software.

Ubuntu Software can be used to install applications available in the official Ubuntu repositories. The Ubuntu Software window has four sections —Featured Application, Editor's Picks, Recommended Applications and Categories. Clicking on a category will take you to a list of related applications. For example, the Internet category contains the Firefox web browser application.

At the top of the window there are three buttons. Click the **All** button to go to Ubuntu Software's main page, click the **Installed** button to see a list of software already installed on your computer, or click **Updates** to see available updates.

Find your application

If you are looking for an application, you may already know its specific name (for example, vlc Media Player). Just type the name of the application in the search box at the top of the window and Ubuntu Software will show the application in the main window. Or you may just have a general category in mind (for example, the Audio category includes a number of different software applications, such as audio editors and music players).

To help you find the right application, you can browse the Ubuntu Software catalog by clicking on the category reflecting the type of software you

seek. When you select a category, you will be shown a list of applications. Most categories have sub-categories—for example, the Games category has sub-categories such as Simulation, Action, Adventure, Card Games. To go to a sub-category, select one in the left pane; Ubuntu Software will show all available applications in this category in the main window.
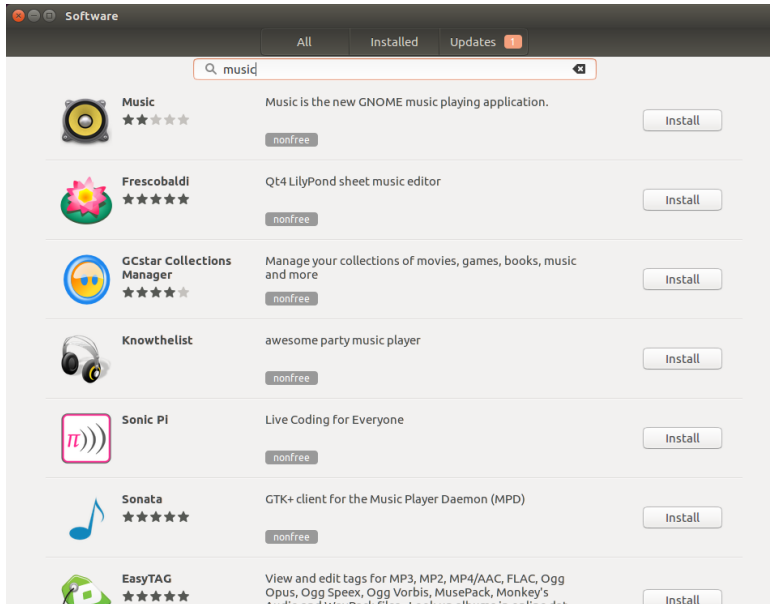
Installing software

Once you have found an application you would like to try, installing it is just one click away.

To install software:

1. Click the **Install** button.
2. After clicking **Install**, enter your password into the authentication window. This is the same password you use to log in to your account. You are required to enter your password whenever installing or removing software in order to prevent someone without administrator access from making unauthorized changes to your computer. If you receive an Authentication Failure message after typing in your password, check that you typed it correctly and try again.
3. Wait until the package is finished installing. During the installation of programs, you will see an animated icon of the application in the Launcher. This animated icon shows the *Progress* of the installation. If you like, you can go back to the main browsing window and choose additional software packages to be installed by following the steps above.

Once Ubuntu Software has finished installing an application, it is ready to be used. You can start the newly installed application by going to the Dash and typing the name of the application in the search bar.

Removing software

Removing applications is very similar to installing software. First, find the installed software in Ubuntu Software. You can click on the **Installed** button
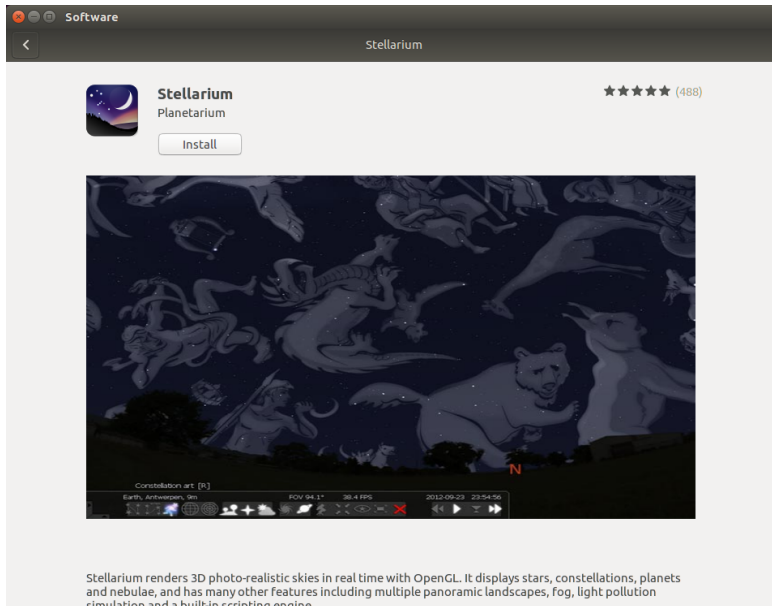
to see all installed software listed in alphabetic order. Scroll down to the application you wish to remove, then click on the **Remove** button. Before actually removing the application, you get a dialog asking you if you are sure you want to remove it. In this dialog you see two buttons, **Cancel** and **Remove**. This way you can decide whether you really want to remove the application, or cancel the action.
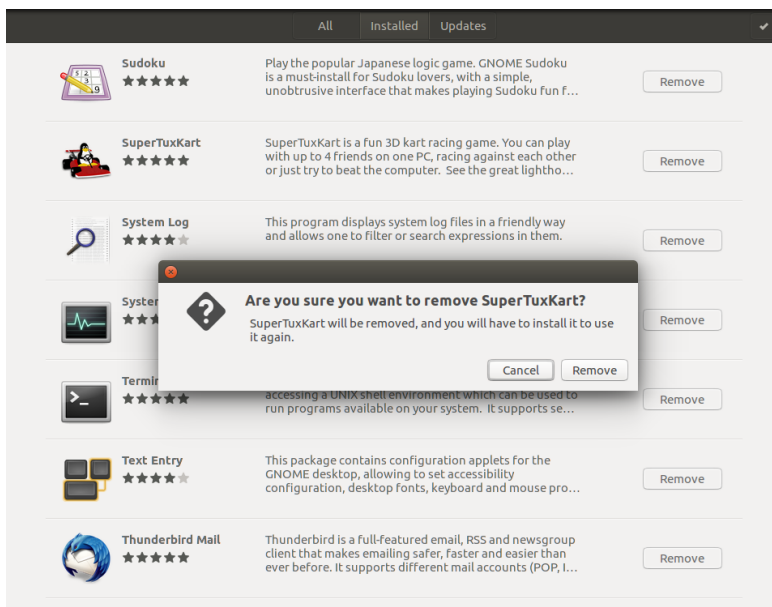
To remove software:

1. Click the **Remove** button to the right of the application you want to remove.
2. Enter your password into the authentication window. Similar to installing software, removing software requires your password to help

protect your computer against unauthorized changes. After confirming the remove action, the package will be removed.

Removing a package will also update your menus accordingly.

Software Recommendations

On its main page Ubuntu Software shows recommended software in The "Recommended" section. The content of this section changes regularly.
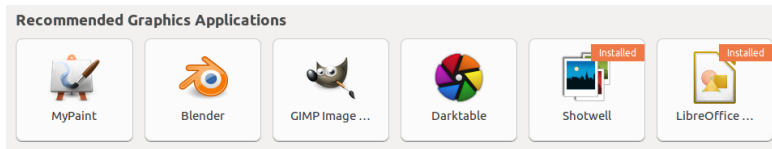

Figure 5.6: Software Recommendations.

Managing additional software

Although Ubuntu Software provides a large library of applications from which to choose, you may be interested in a particular application not available in these repositories. It is important to understand alternative methods for accessing and installing software in Ubuntu, such as downloading an installation file manually from the Internet, or adding extra repositories. First, we will look at how to manage your repositories through Software & Updates.

Software Sources

Ubuntu Software lists only those applications that are available in your enabled repositories. Repositories can be added or removed through the Software & Updates application. To open Software & Updates, simply open **System Settings** and click on Software & Updates in the System section.
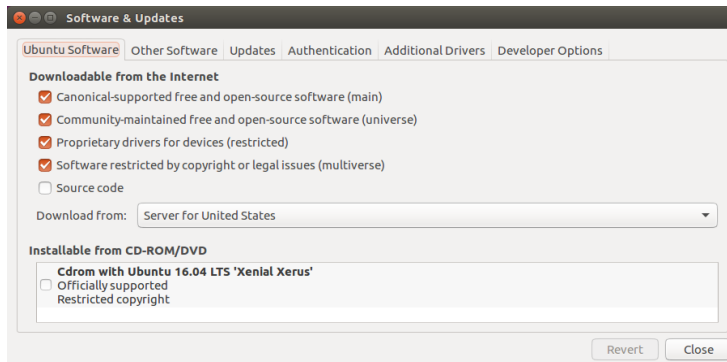

Figure 5.7: The Software & Updates program enables you to add, remove and manage package repositories.

Managing the official repositories

When you open Software & Updates, you will see the **Ubuntu Software** tab where the first four options are enabled by default.

Canonical-supported free and open-source software (main) This repository contains all the open-source packages maintained by Canonical.

Community-maintained free and open-source software (universe) This repository contains all the open-source packages developed and maintained by the Ubuntu community.

Proprietary drivers for devices (restricted) This repository contains proprietary drivers which may be required to utilize the full capabilities of some of your devices or hardware.
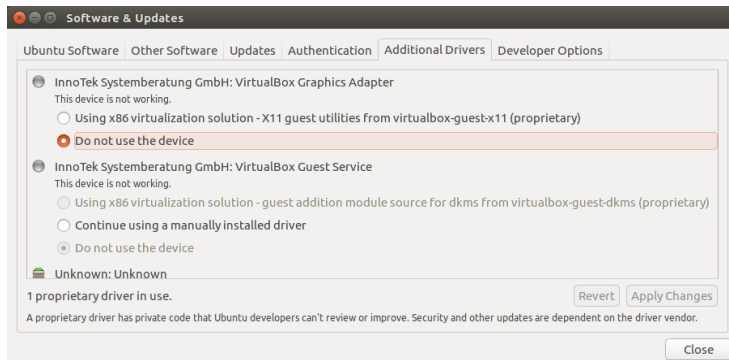
Software restricted by copyright or legal issues (multiverse) This repository contains software possibly protected from use in some states or countries by copyright or licensing laws. By using this repository, you assume responsibility for the usage of any packages that you install.

Source code This repository contains the source code used to build software packages from some of the other repositories. Building applications from source is an advanced process for creating packages, and usually only concerns developers. The **Source code** option should not be selected unless you have experience with building applications from source.

Selecting the best software server

To distribute applications and software, Ubuntu grants permission to many servers all across the world to act as official *mirrors* to host an exact copy of all the files contained in the official Ubuntu repositories.

When selecting a server, you may want to consider the following:

Distance to server. This will affect the speed you can achieve with the file server—the closer the server to your location, the faster the potential connection.

Internet Service Provider. Some Internet service providers offer low-cost or unlimited free downloads from their own servers.

Quality of server. Some servers may only offer downloads at a capped speed, limiting the rate at which you can install and update software on your computer.

Ubuntu will automatically choose an appropriate server while installing. It is recommended these settings not be changed unless your physical location significantly changes or if you feel a higher speed should be achieved by your Internet connection. The guide below will help in choosing an optimal server.

Ubuntu provides a tool for selecting the server that provides the fastest connection with your computer.

1. Click the dropdown box next to "Download from:" in the Software & Updates window.
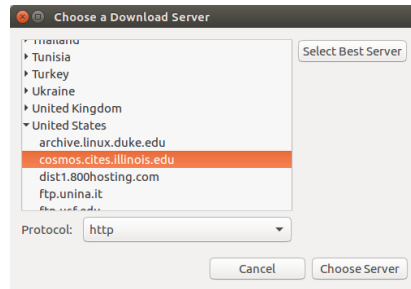
2. Select "Other…" from the list.
3. In the "Choose a Download Server" window, click the **Select Best Server** button in the upper-right. Your computer will now attempt a connection with all the available servers, then select the one with the fastest speed.

If you are happy with the automatic selection, click **Choose Server** to return to the Software & Updates window.

If you are not happy with the automatic selection or prefer not to use the tool, the fastest server is often the closest server to you geographically. In this case, simply choose "Other" then find the nearest location to your location. When you are happy with the selection, click **Choose Server** to return to the Software & Updates window.

If you do not have a working Internet connection, updates and programs can be installed from the installation media itself by inserting your media and clicking the box under "Installable from CD-ROM/DVD." Once this box is checked, the media within the CD-ROM/DVD drive will function as an online repository, and the software on the media will be installable from Ubuntu Software.

Adding more software repositories

Ubuntu makes it easy to add additional third-party repositories to your list of software sources. The most common repositories added to Ubuntu are called PPAS. A PPA is a *Personal Package Archive.* These are online repositories used to host the latest versions of software packages, digital projects, and other applications. PPAS allow you to install software packages that are not available in the official repositories. PPAS also allow you to automatically be notified whenever updates for these packages are available.

If you know the web address of a PPA's Launchpad site, adding it to your list of software sources is relatively simple. To do so, you will need to use the **Other Software** tab in the "Software & Updates" window.

On the Launchpad site for a PPA, you will see a heading to the left called "Adding this PPA to your system." Underneath will be a short paragraph containing a unique URL in the form of ppa:test-ppa/example. Highlight this URL by selecting it with your mouse, then right-click and select **Copy**.

Return to the "Software & Updates" window, and in the **Other Software** tab, click **Add…** at the bottom. A new window will appear, and you will see the words "Apt line:" followed by a text field. Right-click on the empty space in this text field and select **Paste**. You should see appear the URL you copied from the PPA's Launchpad site earlier. Click **Add Source** to return to the "Software & Updates" window. You will see a new entry has been added to the list of sources in this window with a selected check box in front (meaning it is enabled).
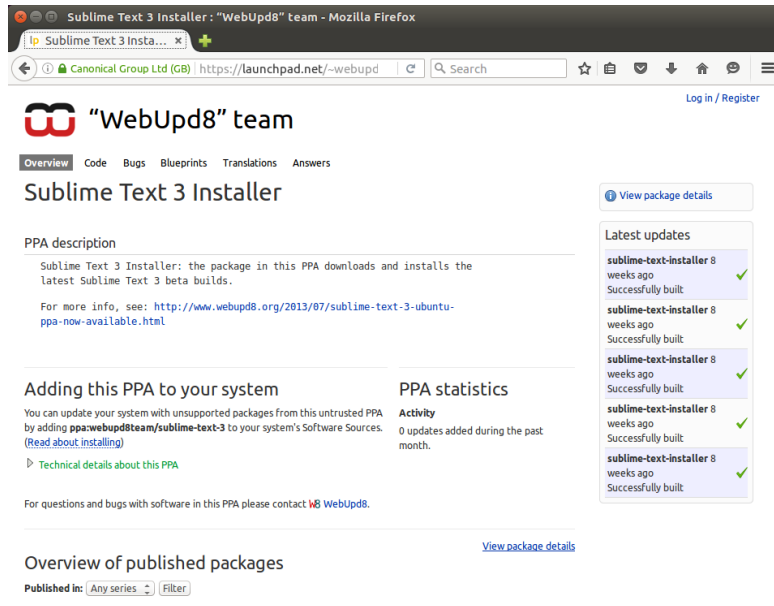
If you click **Close** in the bottom right corner of this window, a message will appear informing you that "The information about available software is out-of-date." This is because you have just added a new repository to Ubuntu, and it now needs to connect to that repository and download a list of the packages it provides. Click **Reload**, and wait while Ubuntu refreshes all of your enabled repositories (including this new one you just added). When it has finished, the window will close automatically.

Congratulations, you have just added a PPA to your list of software sources. You can now open Ubuntu Software and install applications from this PPA in the same way you previously installed applications from the default Ubuntu repositories.

There's a new additionnal type of package called Snap, it could be more secure to use them rather a PPA for beginners.

Manual software installation

Although Ubuntu has extensive software available, you may want to manually install a software package not available in the repositories. If no PPA exists for the software, you will need to install it manually. Before you choose to do so, make sure you trust the package and its maintainer.

Packages in Ubuntu have a `.deb` extension. Double-clicking a package will open an overview page in Ubuntu Software which will give you more information about that package.

The overview provides technical information about that package, a website link (if applicable), and the option to install. Clicking **Install** will install the package just like any other installation in Ubuntu Software.

Updates and upgrades

Ubuntu also allows you to decide how to manage package updates through the **Updates** tab in the Software & Updates window.
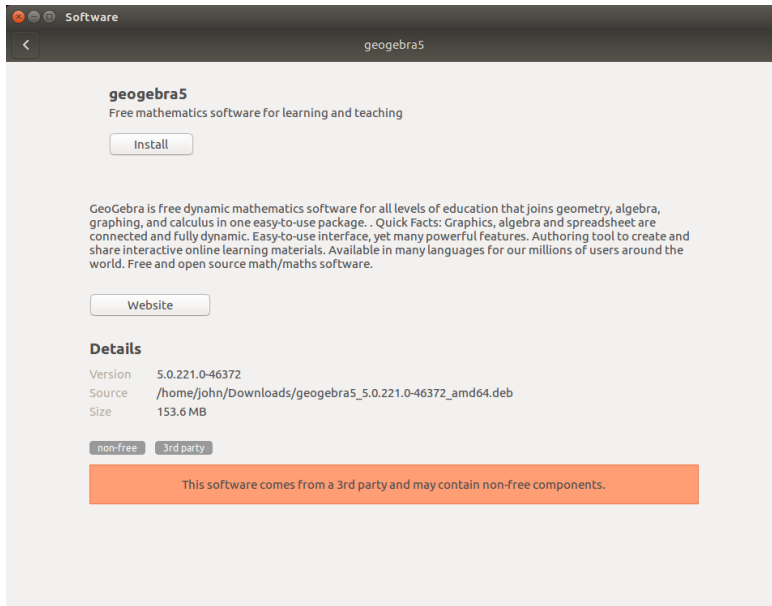
Ubuntu updates

In this section, you are able to specify the kinds of updates you wish to install on your system. The type of update usually depends upon your preferences with regards to system stability versus having access to the latest developments.
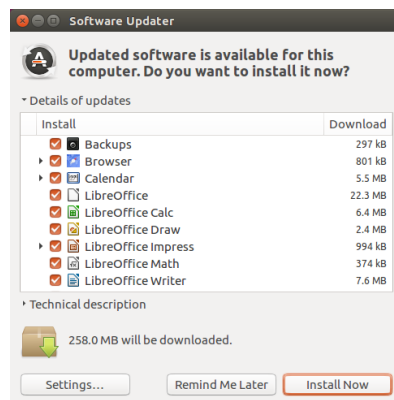
Figure 5.12: You can update installed software by using the Software Updater application in Ubuntu.

Important security updates (codename-security) These updates are highly recommended to ensure your system remains as secure as possible. These updates are enabled by default.

Recommended updates (codename-updates) These updates are not as important in keeping your system secure. Rather, updates listed in this section will keep your software updated with the most recent bug fixes or minor updates that have been tested and approved. This option is also enabled by default.

Unsupported updates (codename-backports) These are updates that have not yet been fully tested and reviewed by Canonical. Some bugs may occur when using these updates, and so this option is also not enabled by default.

⚠️ *An additional option "Pre-released updates (codename-proposed)" has been moved to a separate tab **Developer Options**. This option is for those who would rather remain up-to-date with the very latest releases of applications at the risk of installing an update that has unresolved bugs or conflicts. Note that it is possible you will encounter problems with these updated applications, therefore, this option is not enabled by default.*

Automatic updates

The middle section of this window allows you to customize how your system manages updates, such as the frequency with which it checks for new packages, as well as whether it should install important updates right away (without asking for your permission), download them only, or just notify you about them.

Release upgrade

At the bottom of the **Updates** tab in the Software & Updates window, you will see a dropdown box labeled **Notify me of a new Ubuntu version**:. This option allows you to tell Ubuntu how you would like to handle release updates. This dropdown box contains the following options for notification:

Never Choose this option if you would rather not be notified about any new Ubuntu releases.

For any new version Choose this option if you always want to have the latest Ubuntu release, regardless of whether it is a long-term support release or not. This option is recommended for normal home users.

For long-term support versions Choose this option if you need a release that will have less change and have support for a longer time. If you use Ubuntu for business purposes, you may want to consider selecting this option.

Canonical will release a new version of the Ubuntu operating system every six months. Almost every release is a *normal release.* However, every fourth release—or every 2 years—Canonical releases a *long-term support* (LTS) version of the operating system. Long-term support releases are intended to be the most stable releases available and are supported for a longer period of time. Ubuntu 20.04 is an LTS release. Ubuntu 20.10 will be a normal release.

Important changes are always sheduled for a normal release for having a user"s feedback. LTS are more conservative.

6 Advanced Topics

Ubuntu for advanced users

To this point, we've provided detailed instructions on getting the most from Ubuntu's basic features. In this chapter, we'll detail some of Ubuntu's more advanced features—like the terminal, a powerful utility that can help you accomplish tasks without the need for a graphical user interface (GUI). We'll also discuss some advanced security measures you can implement to make your computer even safer.

This chapter has been written with advanced users in mind. If you're new to Ubuntu, don't feel as though you'll need to master these topics to get the most out of your new software (you can easily skip to the next chapter without any adverse impact to your experience with Ubuntu). However, if you're looking to expand your knowledge of Ubuntu, we encourage you to keep reading.

Introduction to the terminal

Throughout this manual, we have focused primarily on the GUI. In order to fully realize the power of Ubuntu, you will need to learn how to use the terminal.

What is the terminal?

Most operating systems, including Ubuntu, have two types of user interfaces. The first is a GUI. This is the desktop, windows, menus, and toolbars you click to get things done. The second, much older type of interface is the command-line interface (CLI).

The *terminal* is Ubuntu's CLI. It is a method of controlling some aspects of Ubuntu using only commands that you type on the keyboard.

Why would I want to use the terminal?

You can perform most day-to-day activities without ever needing to open the terminal. However, the terminal is a powerful and invaluable tool that can be used to perform many useful tasks you might not be able to accomplish with a GUI. For example:

▸ Troubleshooting any difficulties that may arise when using Ubuntu sometimes requires you to use the terminal.
▸ A command-line interface is sometimes a faster way to accomplish a task. For example, it is often easier to perform operations on many files concurrently using the terminal.
▸ Learning the command-line interface is the first step towards more advanced troubleshooting, system administration, and software development skills. If you are interested in becoming a developer or an advanced Ubuntu user, knowledge of the command-line is essential.

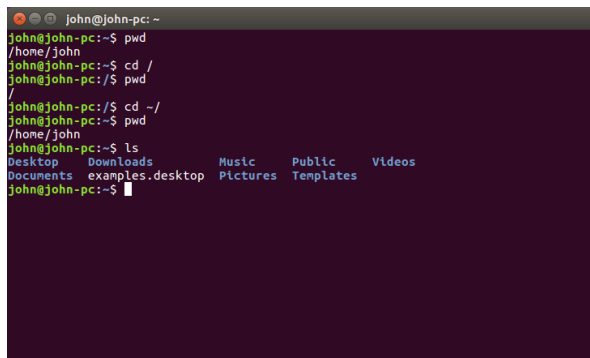Don't confuse terminal and console mode. The terminal is a window that let you access the command-line interface (CLI) in the graphical user interface (GUI). The console mode is fullscreen and accessible by hitting Ctrl+Alt+F2 simultaneously (you can use from F2 to F7 key, for access to six different consoles). In each console, you can logging to a different user or the same than in the grapical mode. For going back to GUI, hit Ctrl+Alt+F1 simultaneously.

Opening the terminal

You can open the terminal by clicking **Dash** then searching for word "term". You'll see an application named terminal. Click on this application to open a terminal. Alternatively, you can open the *terminal* by hitting `Ctrl+Alt+T` simultaneously.

The *terminal* gives you access to what is called a *shell*. When you type a command in the terminal, the shell interprets this command, resulting in the desired action. Different types of shells accept slightly different commands. The most popular is called "bash," and is the default shell in Ubuntu. When the terminal window opens, it will be largely blank with the exception of some text at the top left of the screen, followed by a blinking block, known as a *cursor*. This text is your prompt—it displays, by default, your login name and your computer's name, followed by the current directory. The tilde (~) means that the current directory is your home directory. Finally, the blinking block is called the cursor—this marks where text will be entered as you type.

To test a terminal command, type **pwd** and press `Enter`. The terminal should display `/home/`*yourusername*. This text is called the "output." You have just used the pwd (print working directory) command, which outputs (displays) the current directory.

Figure 6.1: The default terminal window allows you to run hundreds of useful commands.

All commands in the terminal follow the same approach: Type a command, possibly followed by some parameters, and press `Enter` to perform the specified action. *Parameters* (also called *switches*) are extra segments of text, usually added at the end of a command, that change how the command itself is interpreted. These usually take the form of **-h** or **--help**, for example. In fact, **--help** can be added to most commands to display a short description of the command, as well as a list of any other parameters that can be used with that command.

Often, some type of output will be displayed confirming the action was completed successfully, although this can depend on the command being executed. For example, using the `cd` command to change your current directory (see above) will change the prompt but will not display any output.

The rest of this chapter covers some very common uses of the terminal. Throughout the second part of this manual, we will continue to refer to the command line, particularly when discussing steps involved in troubleshooting as well as when describing more advanced management of your computer.

Ubuntu file system structure

Ubuntu uses the Linux file system, which is based on a series of folders in the root directory. These folders contain important system files that cannot be modified unless you are running as the root user or use *sudo*. This restriction exists for both security and safety reasons; computer viruses will not be able to change the core system files, and ordinary users should not be able to accidentally damage anything vital.
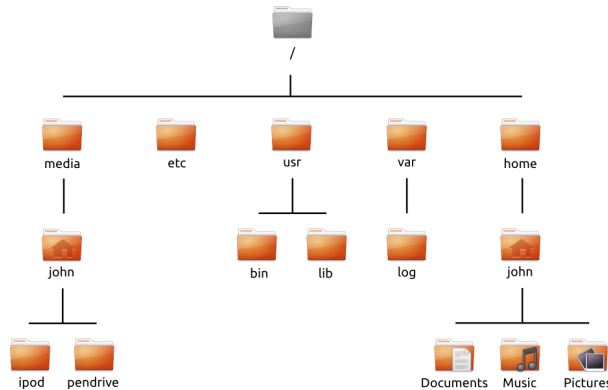

Figure 6.2: Some of the most important directories in the root file system.

We begin our discussion of the Ubuntu file system structure at the top —also known as the root directory—as denoted by /. The root directory contains all other directories and files on your system. Below the root directory are the following essential directories:

/bin and */sbin* Many essential system applications (equivalent to `C:\Windows`).
/etc System-wide configuration files.
/home Each user will have a subdirectory to store personal files (for example, /home/yourusername) which is equivalent to `C:\Users` or `C:\Documents and Settings` in Microsoft Windows.
/lib Library files, similar to `.dll` files on Windows.
/media Removable media (CD-ROMs and USB drives) will be mounted in this directory.
/root This contains the root user's files (not to be confused with the root directory).
/usr Pronounced "user," it contains most program files (not to be confused with each user's home directory). This is equivalent to `C:\Program Files` in Microsoft Windows.
/var/log Contains log files written by many applications.

Every directory has a *path*. The path is a directory's full name—it describes a way to navigate the directory from anywhere in the system.

For example, the directory /home/yourusername/Desktop contains all the files that are on your Ubuntu desktop. It can be broken down into a handful of key pieces:

‣ /—indicates that the path starts at the root directory
‣ home/—from the root directory, the path goes into the home directory
‣ yourusername/—from the home directory, the path goes into the yourusername directory
‣ Desktop—from the yourusername directory, the path ends up in the Desktop directory

Every directory in Ubuntu has a complete path that starts with the / (the root directory) and ends in the directory's own name.

Directories and files that begin with a period are hidden. These are usually only visible with a special command or by selecting a specific option. In the Files file manager, you can show hidden files and directories by selecting the **Show Hidden Files** option in the **View** menu. Hidden files can also be shown by simply pressing Ctrl+H in the Files file manager. If you are using the terminal, then you would type **ls -a** and press Enter to see the hidden files and directories. There are many hidden directories in your home folder used to store program preferences. For example, /home/yourusername/.thunderbird stores preferences used by the Thunderbird mail application.

Mounting and unmounting removable devices

Any time you add storage media to your computer—an internal or external hard drive, a USB flash drive, a CD-ROM—it needs to be *mounted* before it is accessible. Mounting a device means to associate a directory name with the device, allowing you to navigate to the directory to access the device's files.

When a device, such as a USB flash drive or a media player, is mounted in Ubuntu, a folder is automatically created for it in the *media/yourusername* directory, and you are given the appropriate permissions to be able to read and write to the device.

Most file managers will automatically add a shortcut to the mounted device in the side bar of your home folder or as a shortcut directly on the desktop so that the device is easily accessible. You shouldn't have to physically navigate to the *media* directory in Ubuntu unless you choose to do so from the command line.

When you've finished using a device, you can *unmount* it. Unmounting a device disassociates the device from its directory, allowing you to eject it. If you disconnect or remove a storage device before unmounting it, you may lose data.

Securing Ubuntu

Now that you know a bit more about using the command line, we can use it to make your computer more secure. The following sections discuss various security concepts, along with procedures for keeping your Ubuntu running smoothly, safely, and securely.

Why Ubuntu is safe

Ubuntu is secure by default for a number of reasons:

‣ Ubuntu clearly distinguishes between normal users and administrative users.
‣ Software for Ubuntu is kept in a secure online repository containing no false or malicious software.
‣ Open-source software like Ubuntu allows security flaws to be easily detected.
‣ Security patches for open-source software like Ubuntu are often released quickly.
‣ Many viruses designed to primarily target Windows-based systems do not affect Ubuntu systems.

Just because Ubuntu implements strong security model by default doesn't mean the user can "throw caution to the wind." Care should always be taken when downloading files, opening email, and browsing the Internet. Using a good antivirus program is warranted as well.

Basic security concepts

The following sections discuss basic security concepts—like file permissions, passwords, and user accounts. Understanding these concepts will help you in securing your computer.

Permissions

In Ubuntu, files and folders can be set up so that only specific users can view, modify, or run them. For instance, you might wish to share an important file with other users, but do not want those users to be able to edit the file. Ubuntu controls access to files on your computer through a system of "permissions." Permissions are settings configured to control exactly how files on your computer are accessed and used.

To learn more about modifying permissions, visit https://help.ubuntu. com/community/FilePermissions.

Passwords

You should use a strong password to increase the security of your computer. Your password should not contain names, common words, or common phrases. By default, the minimum length of a password in Ubuntu is four characters. We recommend a password with more than the minimum number of characters. A password with a minimum of eight characters which includes both upper and lower case letters, numbers, and symbols is considered strong.

Locking the screen

When you leave your computer unattended, you may want to lock the screen. Locking your screen prevents another user from using your computer until your password is entered. To lock the screen:

▸ Click the session menu icon in the right corner of the top panel, then select **Lock/Switch Account**..., or
▸ Press Ctrl+Alt+L to lock the screen. This keyboard shortcut can be changed by going to **Session Indicator** ▸ **System Settings**... ▸ **Keyboard** ▸ **Shortcuts** and then selecting **System** from the list in the left column and clicking on **Lock Screen** in the right column.

Users and groups

User accounts

When Ubuntu is installed, it is automatically configured for use by a single user. If more than one person will use the computer, each person should have his or her own user account. This way, each user can have separate settings, documents, and other files. If necessary, you can also protect files from being viewed or modified by users without administrative privileges.

Like most operating systems, Ubuntu allows you to create separate user accounts for each person. Ubuntu also supports user groups, which allows you to administer permissions for multiple users at the same time.

Every user in Ubuntu is a member of at least one group. At a bare minimum, the user of the computer has permissions in a group with the same name as the user. A user can also be a member of additional groups. You can configure some files and folders to be accessible only by a user and a group. By default, a user's files are only accessible by that user, and system files are only accessible by the root user.
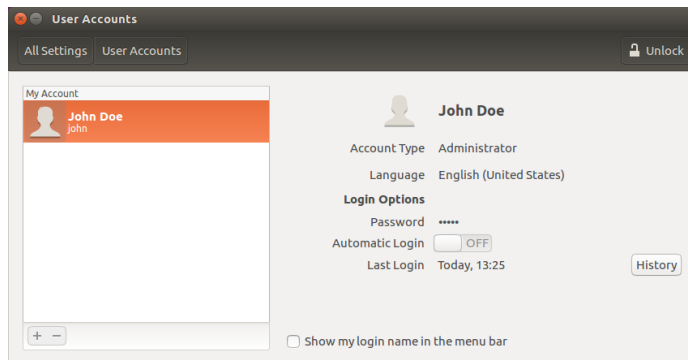

Figure 6.3: Add, remove and change the user accounts.

Managing users

If the account you are using is an administrator account, you can manage users and groups using the Users and Groups administration application. To find this application, click **Session Indicator** ‣ **System Settings**... ‣ **User Accounts**. Then click the **Unlock** button and enter your password to unlock the user settings. Next, select the user that you want to modify from the list. Then click on the element that you want to change.

Adding a user   Click the **+** button underneath the list of the current user accounts. A window will appear with three fields. The **Account Type** field contains a list of user account types. Take care in determining what type of account to assign a user. An *Administrator* has full access to all areas of Ubuntu, whereas the *Standard* account type is more limited. The **Full Name** field contains a friendly display name. The **Username** field is for the actual username. As you enter the user's full name, the **Username** field will automatically fill with a lowercase, no space version of the user's full name. If you prefer to use a different username for this user, highlight the existing username and type in the username of your choice. Once all fields are filled in, click **Add**. The new user will be added to the list of user accounts. New accounts are disabled by default. To enable an account, click the **Account disabled** field next to the **Password** label. A new window will appear allowing you to set the password for the new user.

At the top of the new window is a dropdown menu next to the label **Action**. By default, the "set a password now" option will be automatically selected. You may also choose "log in without a password", however, this is not advised as the account will be available to anyone. The final option, "enable this account" is available once a password has been set. Using this option allows an administrator to enable or disable an account without losing the password.

Ubuntu provides a way to create a secure password by clicking the **gears** button located inside of the **New password** field. A random sequence of numbers, letters, and symbols will be entered into this field. You can also simply enter a password of your choosing by entering it into the **New password** field. Then, re-enter this same password into the space next to **Confirm password**.

⚠️ *Ubuntu enforces the password policies on this screen, so pay attention to the status information located between the **New password** and **Confirm password** fields for information about the password you're setting. If there are problems with the password, Ubuntu will tell you what is wrong with the password and will prevent you from entering the same password into the **Confirm password** field until the new password meets the requirements.*

Modifying a user   Click on the name of a user in the list of users, then click on the text entry next to any of the following options:

‣ Account type:
‣ Language:
‣ Password:
‣ Automatic Login:

You may also change the username by clicking on the username at the top and entering a new name.

Deleting a user   Select a user from the list and click -. Ubuntu will deactivate the user's account, and you can choose whether to remove the user's home folder or leave it in place. If a user is removed and the user's files remain, the only user who can access the files are the root user—also known as the superuser—or anyone associated with the file's group.

Managing groups

Group management is accomplished through the command line (Terminal) or by adding third-party applications (the latter is beyond the scope of this manual). You will find more information in the section below titled "Using the command line".

Adding a group   To add a group, type `sudo addgroup groupname` and press Enter, replacing *groupname* with the name of the group you wish to add. For example, `sudo addgroup ubuntuusers` will add the group *ubuntuusers* to the list of groups.

Modifying a group   To alter the users in an existing group, type `sudo adduser username groupname` to add a user, or `sudo deluser username groupname` to remove a user, and press Enter, replacing *username* and *groupname* in these commands with the actual user and group name with which you're working.

Deleting a group   To delete a group, type `sudo delgroup groupname` and press Enter, replacing *groupname* with the name of the group you wish to delete.

Applying groups to files and folders

To change the group associated with a file or folder, open the Files file manager and navigate to the appropriate file or folder. Then, either select the menu **Files** and choose **Properties**, or right-click on the file or folder and select **Properties**. In the Properties dialog window, click on the **Permissions** tab and select the desired group from the **Groups** drop-down list. Then close the window.

Using the command line

You can also modify user and group settings via the command line, but we recommend you use the graphical method above unless you have a good reason to use the command line. For more information on using the command line to modify users and groups, see the Ubuntu Server Guide at https://help.ubuntu.com/13.04/serverguide/user-management.html.

System updates

Good security happens with an up-to-date system. Ubuntu provides free software and security updates. You should apply these updates regularly. See Updates and upgrades to learn how to update your Ubuntu computer with the latest security updates and patches.

Trusting third party sources

Normally, you will add applications to your computer via Ubuntu Software which downloads software from the Ubuntu repositories as described in Chapter 5: Software Management. However, it is occasionally necessary to add software from other sources. For example, you may need to do this when an application is not available in the Ubuntu repositories or when you need a version of software newer than what is currently in the Ubuntu repositories.

Additional repositories are available from sites such as Launchpad PPAs which can be added as described in Software Sources. You can download the DEB packages for some applications from their respective project sites on the Internet. Alternatively, you can build applications from their source code.

Using only recognized sources, such as a project's site, PPA or various community repositories, is more secure than downloading applications from an arbitrary (and perhaps less reputable) source. When using a third party source, consider its trustworthiness, and be sure you know exactly what you're installing on your computer.

Firewall

A firewall is an application that protects your computer against unauthorized access by people on the Internet or your local network. Firewalls block connections to your computer from unknown sources. This helps prevent security breaches.

Uncomplicated Firewall (UFW) is the standard firewall configuration program in Ubuntu. It runs from the command line, but a program called Gufw allows you to use it with a graphical user interface GUI. See Chapter 5: Software Management to learn more about installing the Gufw package.

Once Gufw is installed, start Gufw by clicking **Dash ▸ Applications ▸ Firewall configuration**. To enable the firewall, select the **Enable** option. By default, all incoming connections are denied. This setting should be suitable for most users.

If you are running server software on your Ubuntu system (such as a web server, or an FTP server), then you will need to open the ports these services use. If you have no need to run any server applications or services, you will likely not need to open any additional ports.

To open a port click on the **Add** button. For most purposes, the **Preconfigured** tab is sufficient. Select **Allow** from the first box and then select the program or service required.

The **Simple** tab can be used to allow access on a single port, and the **Advanced** tab can be used to allow access on a range of ports.

Encryption

You may wish to protect your sensitive personal data—for instance, financial records—by encrypting it. Encrypting a file or folder essentially "locks" that file or folder by encoding it with an algorithm that keeps it scrambled until it is properly decoded with a password. Encrypting your personal data ensures that no one can open your personal folders or read your private data without your authorization through the use of a private key.

Ubuntu includes a number of tools to encrypt files and folders. This chapter will discuss two of them. For further information on using encryption with either single files or email, see Ubuntu Community Help documents at https://help.ubuntu.com/community.

Home folder

When installing Ubuntu, it is possible to encrypt a user's home folder. See Chapter 1: Installation for more on encrypting the home folder.

Private folder

If you have not chosen to encrypt a user's entire home folder, it is possible to encrypt a single folder—called `Private`—in a user's home folder. To do this, follow these steps:

1. In the terminal, install the `ecryptfs-utils` software package using the command **sudo apt install ecryptfs-utils**.
2. Use the terminal to run `ecryptfs-setup-private` to set up the private folder.
3. Enter your account's password when prompted.
4. Either choose a mount passphrase or generate one.
5. Record both passphrases in a safe location. *These are required if you ever have to recover your data manually.*
6. Log out and log back in to mount the encrypted folder.

After the `Private` folder has been set up, any files or folders in it will automatically be encrypted.

If you need to recover your encrypted files manually see https://help.ubuntu.com/community/EncryptedPrivateDirectory.

Some games

In this part, there are descriptions of games that are easy to install cause they are in Ubuntu repositories or with an easily installable package.

First Person Shooter

The development company that has given the genre its noblesse is Id Software, who released the engines of his games under the GPL licence just a few years after first release. For this reason, there's a lot of good FPS engine for GNU/Linux, cause developers can study them and make improvements. And a lot of artists make free game assets.

Assault Cube is a beautiful FPS and easy to install cause it's in the repositories(only out of repositories games are specified).

From the several Doom engine, the easiest way is Chocolate Doom who provides free game datas. But you can also play with the original datas from the Id Software game.

Real Time Strategy

In this section, you find games were you manage a clan or a company.

0 A.D. is an historical game which take place around the Mediteranean sea and more during the Antiquity era. As the leader of an ancient civilization, you must gather the resources you need to raise a military force and dominate your enemies. A good engine where you can zoom and turn around the scene and with a lot of improvements. Good graphics and music. Free building placement and ages to pass.

Widelands is an old game who take inspiration in The Settlers, with great graphics, near than the third episode, and with more modern features. The development is still active. A long inventory, a fixed building placement on an hexagonal map.

Unknown Horizons is a colonization game who take place in new world islands(Americas or Caraibes). It's a recent game and for this reason,not completely optimised, but a good play. A free placement on squared map and ages to pass.

Megaglest is an improved version of Glest. Beautiful with a free placement but development has lost his activity, there's rarely new feature. Tribes are indians, knights and magicians on a free placement map.

Warzone2100 is a game more oriented on battle, you don't need to collect ressources in this post apocalyptic world. It's originally a closed commercial game who are later became free.

Lincity-NG is a town simulation game, really great but development is stopped. Free placement on squared map.

Dune Legacy is an improved game engine for the datas of Dune II. You need to have the original game datas for playing with it and download it http://dunelegacy.sourceforge.net/website/downloads.html.

CorsixTH is a game engine for Theme Hospital. The engine is in the repositories but you need the original datas.

Action

Some funny games were your reflex are important.

Supertux Kart is a game who involved the Linux mascot called Tux in arcade karting race.

Frozen-Bubble is a casual game like Tetris, but where you group bubble by color.

Pingus is a puzzle game where you guide pinguins to the exit, like in Lemmings.

Fish-Fillets is another puzzle game but more slow where 2 fishs are involved.

Extreme Tux Racer is a sliding race. You are Tux and have to straight down in a luge manner to the bottom of skiing circuit.

Speed Dreams is a racing car simulation game, you have to download it from .

Pathological is an interesting puzzle and reflex game all playing with the mouse.

Emilia Pinball is a pinball game where you have 2 tables, but you can create another ones.

Tennix is an arcade style tennis game, there's also Freetennis.

Tint is a classic Tetris game.

Gnome Nibbles is a snake game.

Casual

Solitaire Aisleriot is a card game with some variants.

Hearts is another card game.

Gnome Mahjongg for the ancestral game.

Gnome Mines is a minesweeper.

Xsokoban is a puzzle game, the package name is xsok.

You find 3 soccer games, Bygfoot, Eat The Whistle and Tux Football.

ScummVM is a game engine for point and click games. It supports more than 250 games, but you need to have their datas. The engine is in the repositories and the games list available at https://www.scummvm.org.

ResidualVM is another game engine. Actually, it supports 4 games, but you need to have their datas. The engine is in the repositories and the games list available at https://www.residualvm.org.

Running Windows Programs on Ubuntu

As many Windows users will know, some programs that you can use on a Windows system cease to work on Ubuntu. For example, *LibreOffice* works on both Windows and Ubuntu systems cause it's taylored like this, but *Microsoft Office* works only on a Windows system. Since many Windows users who use Ubuntu want all of their Windows programs back, many programmers have worked together to create *Wine*. *Wine* is an acronym for "*W*ine *I*s *N*ot an *E*mulator".

This section will discuss what Wine is, and how to use it on your Ubuntu installation. For recent information about Wine, please visit the official Wine website at https://www.winehq.org.

What is Wine?

Wine is a background application that allows Linux and OS X users to install and run Windows programs on their system. While not every Windows program is compatible with Wine, many programs seem to be completely compatible with Wine while running on Linux or OS X. For example, Microsoft Office may not be compatible without installing additional components (such as Microsoft.NET Framework). Since recent years,

the release cadence of Wine is yearly, in 2020, it's 5.0. But during the year many improvements are made and you could be interrested by using the wine-development package.

Installing Wine

You could install wine or wine-development from the ubuntu repositories or from a ppa.

⚠️ *If you have a previous version of Wine installed, it could be useful to uninstall it before and all dependencies. But the method differ from how you installed it. The usual command is* `sudo apt-get purge --verbose-versions wine* winetricks && sudo apt-get autoremove --verbose-versions`

Read carefully this command cause it delete non wine related package like winefish, a LaTeX editor.

Cause now all ubuntu flavours are 64bits, in a terminal, run the command `sudo dpkg --add-architecture i386` and update the packages listing by `sudo apt update`. If you choose to install from repositories, you could use the Software Center on the Wine package or used the command `sudo apt-get install --verbose-versions wine`(if you prefer the development version, the package is named wine-development). It's useful to install the tool Winetricks too, it's a software center for Wine, and is, in most cases, optional.

1. Open the terminal and type: `sudo apt-add-repository ppa:ubuntu-wine/ppa`. This will install the Official Wine PPA.
2. After the terminal has finished installing the Wine PPA, type: `sudo apt update`. This will update the PPA list.
3. Once the terminal has finished refreshing the PPA list, type: `sudo apt-get install --verbose-versions --assume-yes wine winetricks`. This will install Wine and Winetricks(used wine-development for the newest version).

Figure 6.4: The Terminal showing the installation of the Wine PPA.

During the installation of Wine and Winetricks, you will have to accept the Microsoft End User License Agreement and the Microsoft Core Fonts License Agreement so that the Microsoft fonts and native files can be installed.

When accepting the Microsoft Core Fonts License Agreement, the **Ok** button is not highlighted. To highlight and accept the Microsoft EULA, press the Tab key and then the Enter key. The Microsoft End User License Agreement will be shown after you accept the Microsoft Core Fonts EULA.
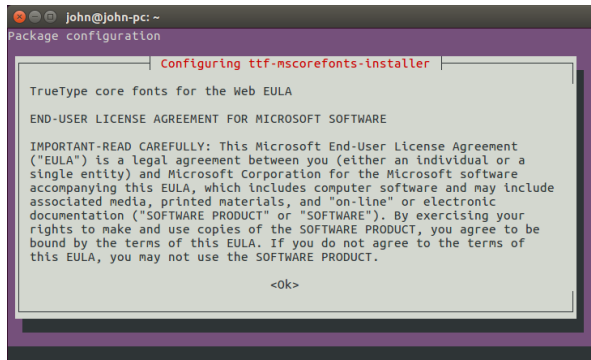
Figure 6.6: The Microsoft Core Fonts EULA
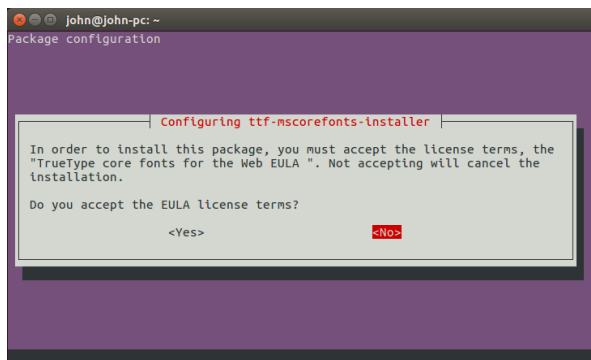dialog opened in the Terminal.

By default, the **No** button is highlighted. To highlight the **Yes** button and
accept the Microsoft EULA, press the Tab key and then the Enter key.

Please Note: It is recommended to reboot your system after installing
Wine and Winetricks, although this is not always required.

Configuring Wine

Wine contains many features that will change the look and feel of the
Windows applications you are trying to run. For example, you can change
the theme of the Windows interface, and what version of Windows you
would like to run (from Windows 2.0 to Windows 8).

To change these settings, open the Dash and search for `Configure Wine`.
Then, open the application. You may see a dialog asking you to install the
packages Mono and Wine Gecko. You can either press the **Install** button, or
go to the Wine website for details.

Application Tab   In the **Application** tab, you can change the way Wine
runs applications. Some Windows programs work only for specific versions
of Windows. This feature allows you to change the version of Windows
Wine will run as for a specific application, or for all of them to run under
one version.

Libraries Tab   In the **Libraries** tab, you can change core Windows files,
to suit your needs. Many Windows programs install DLL files, or Dynamic
Link Libraries. These files contain all of the information needed for an
application to work on a Windows system. Many DLL files are needed for
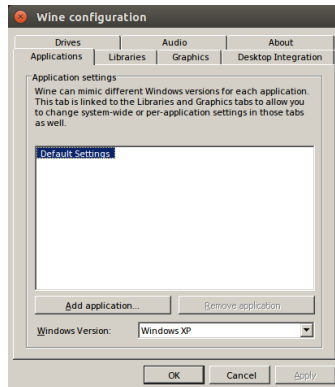a Windows system to run, and are different between versions of Windows.

In this feature, you may edit or replace existing DLL files. This allows you to change the Windows System files, to suit you needs.

⚠️ *These files should not be edited. These are core files needed for Wine to run correctly. Only edit these files if you have to.*

Graphics Tab   In the **Graphics** tab, you can change the look and feel of how Wine runs. You can make Wine emulate a Virtual Desktop (this feature opens a new window that will contain any Windows application that is currently running while this option is in effect), how the applications look, and what resolution to run the application in.

Desktop Integration Tab   In the **Desktop Integration** tab, you can change the way buttons, menus, and other elements appear in an application. Each version of Windows has brought its own unique visual style for its applications. In this feature, you can install and change the applied theme. In this tab, you can also change major file folders. For example, while using Ubuntu, your picture folder is located at `/home/user/Pictures/` but in Windows, your picture folder is located at `C:\Documents and Settings\User\My Documents\My Pictures\` or `C:\Users\User\My Pictures\`. This feature allows you tell Wine where your folders are, for quick reference.

Drives Tab   In the **Drives** tab, you can manage the connected drives that Wine will be able to access. Unlike Ubuntu, Windows applies a *Drive Letter* to each drive. This letter identifies the drive. For example, on every Windows system, the `C:` drive is the core drive. It contains all of the needed files for the operating system to work. The `C:` drive is the equivalent to *root* (File System, or `/`) in Ubuntu. This feature allows you to change the drive letters for any drive, or add a drive letter for a specific folder in your file system, or for a CD drive.

Audio Tab   In the **Audio** tab, you can change the audio settings. This feature allows you to change the audio source that Wine will use for Windows applications (speakers, microphones, etc.).

About Tab   In the **About** tab, you can see the current Wine version you have installed, including Wine's note to all users. This feature also allows you to add a Name and Company Name to the Windows information. Applications use this information to identify you by name.

Microsoft .NET Framework and Wine

Microsoft has created many programs that are needed to run commonly used applications, *Microsoft .NET Framework* being the most common. .NET Framework is needed to run most of the newer applications created by Microsoft, and by other companies as well. Wine is not fully supported by all versions of .NET, but is compatible with most versions. Here is a list of .NET versions, and their compatibility with Wine:

‣ .NET Framework 1.0
‣ .NET Framework 1.1
‣ .NET Framework 2.0
‣ .NET Framework 3.0
‣ .NET Framework 3.5
‣ .NET Framework 4.0
‣ .NET Framework 4.5*
‣ .NET Framework 4.5.1**
‣ .NET Framework 4.5.2**

* This framework has known issues running under Wine and is, in most cases, installable and stable enough to use for most applications.

** This framework has not been tested using a current version of Wine running on Ubuntu, so it is unknown if it will be compatible or not. Use at your own risk.

For more compatibility information about installing and running Microsoft .NET Framework using Wine, go to: http://appdb.winehq.org/objectManager.php?sClass=application&iId=2586.

Running Dos Programs

For DOS programs and essentially the old games, DOSBox is a great emulator that uses the SDL libraries. You could find lots of information at https://www.dosbox.com and install it by the command **sudo apt-get install --verbose-versions dosbox**.

The ./play.it project

./play.it automate the build of native packages from DRM-free installers for pre-compiled games, often commercial, but not only. The generated packages are then installed using the apt tools like apt-get provided in Ubuntu. Native Linux games without .deb package are supported, as well as games developed for other operating systems through tools like Wine(see section Running Windows Programs on Ubuntu) and DOSBox(see section Running Dos Programs) or games engines like ScummVM(https://www.scummvm.org) and ResidualVM(https://www.residualvm.org).

All explanations how to use this software are at https://www.dotslashplay.it, but you can install it by the command **sudo apt-get install --verbose-versions play.it**.

7 Troubleshooting

Resolving problems

Sometimes things may not work as they should. Luckily, problems encountered while working with Ubuntu are often easily fixed. This chapter is meant as a guide for resolving basic problems users may encounter while using Ubuntu. If you need any additional help beyond what is provided in this chapter, take a look at other support options that are discussed in Finding additional help and support later in this book.

Troubleshooting guide

The key to effective troubleshooting is to work slowly, complete all of the troubleshooting steps, and to document the changes you made to the utility or application you are using. This way, you will be able to undo your work, or give fellow users the information about your previous attempts—the latter is particularly helpful in cases when you look to the community of Ubuntu users for support.

Ubuntu fails to start after I've installed Windows

Occasionally you may install Ubuntu and then decide to install Microsoft Windows as a second operating system running side-by-side with Ubuntu. This is supported in Ubuntu, but you might also find after installing Windows that you will no longer be able to start Ubuntu.

When you first turn on your computer, a "bootloader" is responsible for initiating the start of an operating system, such as Ubuntu or Windows.

A *bootloader* is the initial software that loads the operating system when the computer is powered up.

When you installed Ubuntu, you automatically installed an advanced bootloader called *grub*. grub allows you to choose between the various operating systems installed on your computer, such as Ubuntu, Windows, Solaris, or OS X. If Windows is installed after Ubuntu, the Windows installation removed grub and replaced the bootloader with it's own. As a result, you can no longer choose an operating system to use. You can restore grub and regain the ability to choose your operating system by following the steps below, using the same dvd you used to install Ubuntu.

First, insert your Ubuntu dvd into your computer and then restart the computer, making sure to instruct your computer to boot from the dvd drive and not the hard drive (see Chapter 1: Installation). Next, choose your language (*e.g.*, English) and select **Try Ubuntu**. Once Ubuntu starts, click on the top-most icon in the Launcher (the Dash icon). Then, search for **Terminal** using the search box. Then, select Terminal in the search results (or press Ctrl+Alt+T). A window should open with a blinking prompt line. Enter the following, and press the Enter key:

```
$ sudo fdisk -l

Disk /dev/hda: 120.0 GB, 120034123776 bytes
255 heads, 63 sectors/track, 14593 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes

   Device Boot      Start         End      Blocks   Id  System
```

```
/dev/sda1                    1        1224        64228+  83  Linux
/dev/sda2    *            1225        2440       9767520  a5  Windows
/dev/sda3                 2441       14593      97618972+  5  Extended
/dev/sda4                14532       14593        498015  82  Linux swap
```

```
Partition table entries are not in disk order
```

This output shows that your system (Linux, on which Ubuntu is based) is installed on device /dev/sda1, but as indicated by the asterisk in the Boot column, your computer is booting to /dev/sda2 (where Windows is located). We need to fix this by telling the computer to boot to the Linux device instead.

The device (/dev/sda1, /dev/sda2, etc.) we are looking for is identified by the word "Linux" in the System column. Modify the instructions below if necessary, replacing /dev/sda1 with the name of your Linux device.

To do this, create a place to connect your existing Ubuntu installation with your temporary troubleshooting session:

```
$ sudo mkdir /mnt/root
```

Next, link your Ubuntu installation and this new folder:

```
$ sudo mount /dev/sda1 /mnt/root
```

If you've done this correctly, then you should see the following:

```
$ ls /mnt/root
bin dev home lib mnt root srv usr
boot etc initrd lib64 opt sbin sys var
cdrom initrd.img media proc selinux tmp vmlinuz
```

Now, you can reinstall GRUB:

```
$ sudo grub-install --root-directory=/mnt/root /dev/sda
Installation finished. No error reported.
This is the contents of the device map /boot/grub/device.map.
Check if this is correct or not. If any of the lines is incorrect,
fix it and re-run the script grub-install.
(hd0) /dev/sda
```

Next you'll want to unmount the hard drive. This ensures that the drive won't become corrupted when you reboot:

```
$ sudo umount /mnt/root
```

Finally, remove the Ubuntu disc from your DVD-ROM drive, reboot your computer, and then start enjoying your Ubuntu operating system once again.

This guide may not work for all Ubuntu users due to differences in the various system configuration. Still, this is the recommended and most successful method for restoring the GRUB bootloader. If you are following this guide and if it does not restore GRUB on your computer, then try the other troubleshooting methods at https://help.ubuntu.com/community/RecoveringUbuntuAfterInstallingWindows.

I forgot my password

If you forgot your password in Ubuntu, you will need to reset it using the "Recovery mode."

To start the Recovery mode, shut down your computer and then start again. As the computer starts up, press Shift. Select the **Recovery mode** option using the arrow keys on your keyboard. Recovery mode should be under the heading Advanced Options in the list.

Wait until Ubuntu starts up—this may take a few minutes. Once booted, you *will not* be able to see a normal login screen. Instead, you will be presented with the **Recovery Menu**. Select **root** using the arrow keys and press Enter.

You will now be at a terminal prompt:
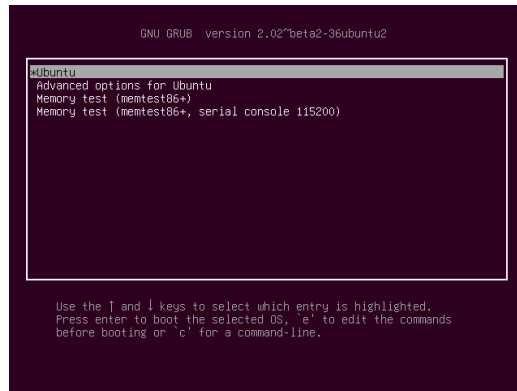
```
root@ubuntu:~#
```

To reset your password, enter:

```
# passwd username
```

Replace "username" above with your username, after which Ubuntu will prompt you for a new password. Enter your desired password, press the Enter key, and then re-type your password again, pressing Enter again when done. (Ubuntu asks for your password twice to make sure you did not make a mistake while typing). Once you have restored your password, return to the normal system environment by entering:

```
# init 2
```

Login as usual and continue enjoying Ubuntu.

I accidentally deleted some files that I need

If you've deleted a file by accident, you may be able to recover it from Ubuntu's Trash folder. This is a special folder where Ubuntu stores deleted files before they are permanently removed from your computer.

To access the Trash folder click on the trash icon at the bottom of the Unity Launcher.

If you want to restore deleted items from the Trash:

1. Open Trash
2. Click on each item you want to restore to select it. Press and hold Ctrl to select multiple items.
3. Click **Restore** to move the deleted items back to their original locations.

How do I clean Ubuntu?

Ubuntu's software packaging system accumulates unused packages and temporary files through regular updates and use. These temporary files, also called caches, contain files from all of the installed packages. Over time, this cache can grow quite large. Cleaning out the cache allows you to reclaim space on your computer's hard drive for storing your documents, music, photographs, or other files.

To clear the cache, you can either use the clean, or the autoclean option for the command-line program apt-get.

To run clean, open Terminal and enter:

```
$ sudo apt-get clean
```

The clean command will remove every single cached item, while the autoclean command only removes cached items that can no longer be downloaded (these items are often unnecessary).

Packages can also become unused over time. If a package was installed to assist with running another program—and that program was subsequently removed—you no longer need the supporting package. You can remove it with `apt-get autoremove`.

Load Terminal and enter:

```
$ sudo apt-get autoremove --verbose-versions
```

When i logging, i always came back to login screen, despite wrote the good password

Maybe your / partition is full. For being sure that is the problem, go to the console mode as explain in console, connect you and type the following command:

```
$ df -h
```

If the / partition is full, you can delete some file like in the precedent section with:

```
$ sudo apt-get clean
```

When partition isn't full anymore, go back to login screen by hitting Ctrl+Alt+F1.

I can't play certain audio or video files

Many of the formats used to deliver rich media content are *proprietary*, meaning they are not free to use, modify, or distribute with an open-source operating system like Ubuntu. Therefore, Ubuntu does not include the capability to use these formats by default; however, users can easily configure Ubuntu to use these proprietary formats. For more information about the differences between open source and proprietary software, see Chapter 8: Learning More.

If you find yourself in need of a proprietary format, you can install the required files from the Terminal. This is covered in the Codecs portion of Chapter 3. Ensure that you have the Universe and Multiverse repositories enabled before continuing. See the Software Sources section to learn how to enable these repositories.

One program that can play many of these formats is VLC. It can be installed from the Terminal or Ubuntu Software. Once Ubuntu has successfully installed this software, your rich media content should work properly.

How can I change my screen resolution?

The image on every monitor is composed of millions of little colored dots called pixels. Changing the number of pixels displayed on your monitor is called "changing the resolution." Increasing the resolution will make the displayed images sharper, but will also tend to make them smaller. The opposite is true when screen resolution is decreased. Most monitors have a "native resolution," which is a resolution that most closely matches the number of pixels in the monitor. Your display will usually be sharpest when your operating system uses a resolution that matches your display's native resolution.

The Ubuntu configuration utility Displays allows users to change the resolution. Open it by clicking on the **session indicator** and then on **Displays**…. The resolution can be changed using the drop-down list within the program. Picking options higher up on the list (for example, those with larger numbers) will increase the resolution.
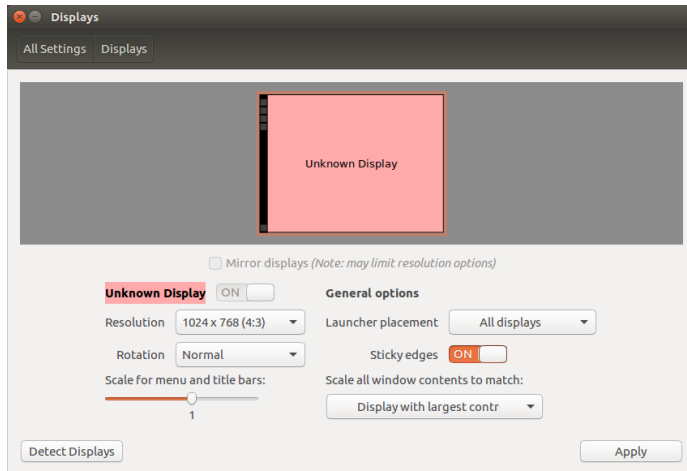
You can experiment with various resolutions by clicking **Apply** at the bottom of the window until you find one that is comfortable. Typically, the highest resolution will be the native resolution. Selecting a resolution and clicking **Apply** will temporarily change the screen resolution to the selected value, and a dialog box will also be displayed for 30 seconds. This dialog box allows you to revert to the previous resolution setting or keep the new resolution setting. If you've not accepted the new resolution and/or 30 seconds have passed, the dialog box will disappear and the display's resolution will return to its previous setting.
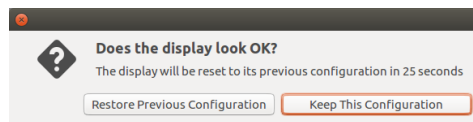
This feature was implemented to prevent someone from being locked out of the computer by a resolution that distorts the monitor output and makes it unusable. When you have finished setting the screen resolution, click **Close**.

Ubuntu is not working properly on my Apple MacBook or MacBook Pro

When installed on notebook computers from Apple—such as the MacBook or MacBook Pro—Ubuntu does not always enable all of the computer's built-in components, including the iSight camera and the Airport wireless Internet adapter. Luckily, the Ubuntu community offers documentation on fixing these and other problems. If you are having trouble installing or using Ubuntu on your Apple notebook computer, please follow the instructions at https://help.ubuntu.com/community/MacBook. You can select the appropriate guide after identifying your computer's model number.

Ubuntu is not working properly on my Asus EeePC

When installed on netbook computers from Asus—such as the EeePC—Ubuntu does not always enable all of the computer's built-in components, including the keyboard shortcut keys and the wireless Internet adapter. The Ubuntu community offers documentation on enabling these components and fixing other problems. If you are having trouble installing

or using Ubuntu on your Asus EeePC, please follow the instructions at https://help.ubuntu.com/community/EeePC. This documentation page contains information pertaining specifically to EeePC netbooks.

To enable many of the features and Function Keys, a quick fix is to add "acpi_osi=Linux" to your grub configuration. From the Terminal

```
$ gksudo gedit /etc/default/grub
```

and very carefully change the line

```
GRUB_CMDLINE_LINUX_DEFAULT="quiet splash"
```

to

```
GRUB_CMDLINE_LINUX_DEFAULT="quiet splash acpi_osi=Linux"
```

Save and close the file. Then, from the terminal:

```
$ sudo update-grub
```

After the command finishes, and you restart the computer, you will be able to use the Fn keys normally.

My hardware is not working properly

Ubuntu occasionally has difficulty running on certain computers, usually when hardware manufacturers use non-standard or proprietary components. The Ubuntu community offers documentation to help you troubleshoot many common issues in this situation, including problems with wireless cards, scanners, mice, and printers. You can find the complete hardware troubleshooting guide on Ubuntu's support wiki, accessible at https://wiki.ubuntu.com/HardwareSupport. If your hardware problems persist, please see Getting more help for more troubleshooting options or information on obtaining support or assistance from an Ubuntu user.

Getting more help

This guide does not cover every possible workflow, task, issue, or problem in Ubuntu. If you require assistance beyond the information in the manual, you can find a variety of support opportunities online.

More details about many support options available to you can be found at Finding additional help and support later in this book.

8   Learning More

What else can I do with Ubuntu?

At this point, you should now be able to use Ubuntu for most daily activities—such as browsing the web, sending email, and creating documents. Now, you may be interested in learning about other versions of Ubuntu that may integrate into your digital lifestyle. In this chapter, we'll introduce additional versions of Ubuntu designed and specialized for certain tasks. We'll also provide resources for answering any remaining questions as well as direct you to how you can get involved in the worldwide community of Ubuntu users. First, we'll discuss the technologies that make Ubuntu a powerful collection of software and a progressive operating system.

Open source software

Ubuntu is open source software (OSS). OSS differs from proprietary software. Proprietary software is defined as software whose source code is not freely available for modification or distribution by anyone but the rightsholder. Microsoft Windows and Adobe Photoshop are examples of proprietary software.

You can see the terms OSS, FLOSS (Free Libre and Open Source Software) or free software. They designed the same program and the same licence. In detail, only a small vision of the world differs between them.

Unlike proprietary software applications, the software included with Ubuntu is specifically licensed to promote sharing and collaboration. The legal rules governing Ubuntu's production and distribution ensure that anyone can obtain, run, or share it for any purpose. Users can modify free software to suit their individual needs, to share it, to improve it, or to translate it into other languages—provided they release the source code for these modifications so others can do the same. In fact, the terms of many open source licensing agreements actually make it illegal *not* to do so. This understanding helps explain why Ubuntu is called open source software. For more information regarding Ubuntu's software licensing standards, see https://www.ubuntu.com/project/about-ubuntu/licensing.

Because free software is developed by large communities of programmers located throughout the world, it benefits from both rapid development cycles and speedy security releases when bugs are identified in the software. In other words, FLOSS is updated, enhanced, and made more secure every day as programmers all over the world continue to improve it.

In addition to these technical advantages, free software also has economic benefits. While users must adhere to the terms of an FLOSS licensing agreement when installing and using Ubuntu, they needn't pay to obtain this license. While not all FLOSS is free of monetary costs, a vast majority of free software is available for free.

To learn more about free libre and open source software, see the Open Source Initiative's open source definition, available at https://www.opensource.org/docs/definition.php and at https://www.gnu.org/philosophy/free-sw.html for the Free Software Foundation's vision.

Distribution families

Ubuntu is one of several popular operating systems based on GNU/Linux. These GNU/Linux-based operating systems—called GNU/Linux "distributions"—may look different from Ubuntu at first glance, but they share similar characteristics because of their common roots.

GNU/Linux distributions can be divided into two broad families: the Debian family and the Red Hat family. Each family is named for a distribution on which subsequent distributions are based. For example, "Debian" refers to both the name of a GNU/Linux distribution as well as the family of distributions derived from Debian. Ubuntu is part of this family. When describing relationships between various open source projects, software developers often use the metaphor of tributaries connecting to a common body of water. For this reason, you may hear someone say that Ubuntu is located "downstream" from Debian, because alterations to the Debian family "flow" into new versions of Ubuntu. Additionally, improvements to Ubuntu usually trickle "upstream"—back to Debian and its family members as the Debian family benefits from the work of the Ubuntu community. Other distributions in the Debian family include Linux Mint, Xandros, and CrunchBang Linux. Distributions in the Red Hat family include Fedora and Mageia.

The most significant difference between Debian-based and Red Hat-based distributions is the system each uses for installing and updating software. These systems are called *Package management systems.* Package management systems are the means by which users can install, remove, and organize software installed on computers with open source operating systems like Ubuntu. Debian software packages are DEB files, while Red Hat software packages are RPM files. The two systems are generally incompatible. For more information about package management, review the chapter on Chapter 5: Software Management.

You will also find specialized GNU/Linux distributions for certain tasks. Next, we'll describe these versions of Ubuntu and explain the uses for which each has been developed.

Choosing amongst Ubuntu and its derivatives

Just as Ubuntu is based on Debian, several distributions are subsequently based on Ubuntu. Each differs with respect to the software included as part of the distribution. Some are developed for general use, while others are designed for accomplishing a more narrow set of tasks.

Alternative interfaces

Ubuntu features a graphical user interface (GUI) called GNOME, who is tweaked for the Ubuntu desktop. Previous versions of Ubuntu used the Unity7 desktop. As we explained in Chapter 2: The Ubuntu Desktop, a "user interface" is a collection of software elements—icons, colors, windows, themes, and menus—that determine how someone may interact with a computer. Some people prefer using alternatives to GNOME, so they have created Ubuntu distributions featuring different user interfaces. These include:

▸ Kubuntu, which uses the KDE graphical environment https://www. kubuntu.org
▸ Lubuntu, which uses the LXQT graphical environment (until Lubuntu18.04, it was LXQT) https://www.lubuntu.me

▸ Xubuntu, which uses the XFCE graphical environment https://www.xubuntu.org
▸ Ubuntu Budgie, which uses the Budgie graphical environment https://www.ubuntubudgie.org
▸ Ubuntu Mate, which uses the Mate graphical environment https://www.ubuntu-mate.org

Additionally, each of these distributions may contain default applications different from those featured in Ubuntu. For instance, the default music player in Ubuntu is Rhythmbox. In Lubuntu, the default music player is Audacious, and in Kubuntu, the default is Amarok. Be sure to investigate these differences if you are considering installing an Ubuntu distribution with an alternative desktop environment.

For more information about these and other derivative distributions, see https://www.ubuntu.com/download/flavours.

Task-specific distributions

Other Ubuntu distributions have been created to accomplish specific tasks or run in specialized environments and settings.

Ubuntu Server Edition

The Ubuntu Server Edition is an operating system optimized to perform multi-user tasks. Such tasks may include file sharing, website, or email hosting. If you are planning to use a computer to perform these types of tasks, you may wish to use this specialized server distribution in conjunction with server hardware. While it is possible to run a server-type environment using only the desktop version of Ubuntu, it is not advised as the Server Edition is better optimized for the multi-user environment.

This manual does not explain the process of running a secure web server or performing other tasks with Ubuntu Server Edition. For details on using Ubuntu Server Edition, refer to the manual at https://www.ubuntu.com/server.

Ubuntu Studio

The derivative of Ubuntu called Ubuntu Studio is designed specifically for people who use computers to create and edit multimedia projects. Ubuntu Studio features applications to help users manipulate images, compose music, and edit video. While users can install these applications on computers running the desktop version of Ubuntu, Ubuntu Studio makes them all available immediately upon installation.

If you would like to learn more about Ubuntu Studio (or obtain a copy for yourself), visit https://ubuntustudio.org.

Ubuntu Kylin

Ubuntu Kylin is tuned to the needs of Chinese users, providing a thoughtful and elegant Chinese experience out-of-the-box.

If you would like to learn more about differences for Ubuntu Kylin, visit https://www.ubuntukylin.com.

Finding additional help and support

This guide cannot possibly contain everything you'll ever need to know about Ubuntu. We encourage you to take advantage of Ubuntu's vast community when seeking further information, troubleshooting technical issues, or asking questions about your computer.

It's important to note that the Internet is full of third-party resources as well as individuals who post information on blogs and forums. While these resources can often seem like great resources, some could be misleading or outdated. It's always best to verify information from third-party sources before taking their advice. When possible, rely on official Ubuntu documentation for assistance with Ubuntu.

Now, let's discuss a few of the available resources to learn more about Ubuntu and other Linux distributions.

Live chat

If you are familiar with Internet Relay Chat (IRC), you can use chat clients such as Pidgin or XChat to join the channel #ubuntu on irc.freenode.net. In this channel, hundreds of volunteer users can answer your questions or offer technical support in real time. To learn more about using Internet Relay Chat to seek help with Ubuntu, visit https://help.ubuntu.com/community/ InternetRelayChat.

LoCo teams

The Ubuntu community contains dozens of local user groups called "LoCo teams." Distributed throughout the world, these teams offer support and advice, answer questions, and promote Ubuntu in their communities by hosting regular events. To locate or contact the LoCo team nearest you, visit https://loco.ubuntu.com.

Books and Magazines

Many books have been written about Ubuntu, and professional magazines often feature news and information related to Ubuntu. You will frequently find these resources at your local bookstore or newsstand. If you know the name of a book or magazine, e.g. this manual or Full Circle Magazine, you can search for it on the Internet.

Official Ubuntu Documentation

The Ubuntu Documentation Team maintains a series of official wiki pages designed to assist both new and experienced users wishing to learn more about Ubuntu. The Ubuntu community endorses these documents, which serve as a reliable first point of reference for users seeking online help. You can access these resources at https://help.ubuntu.com. To get to the built-in Ubuntu Desktop Guide, type `help` in the Dash.

The Ubuntu Forums

The Ubuntu Forums are the official forums of the Ubuntu community. Millions of Ubuntu users use them daily to seek help and support from one another. You can create an Ubuntu Forums account in minutes. To create

an account and learn more about Ubuntu from community members, visit
https://ubuntuforums.org.

Launchpad Answers

Launchpad, an free software code repository and user community, provides
a question and answer service that allows anyone to ask questions about
any Ubuntu-related topic. Signing up for a Launchpad account takes just
a few seconds. You can ask a question by visiting Launchpad at https://
answers.launchpad.net/ubuntu.

Ask Ubuntu

Ask Ubuntu is a free, community-driven website for Ubuntu users and
developers. Like the Ubuntu Forums, it allows users to post questions for
other members of the Ubuntu community to answer. But Ask Ubuntu also
allows visitors to "vote" on the answers users provide, so the most useful or
helpful responses get featured more prominently on the site. Ask Ubuntu is
part of the Stack Exchange network of websites and is one of the best free
Ubuntu support resources available. Visit https://www.askubuntu.com to
get started.

Search Engines

Because Ubuntu is a popular open source operating system, many users
have written about it online. Therefore, using search engines to locate
answers to your questions about Ubuntu is often an effective means of
acquiring help. When using search engines to answer questions about
Ubuntu, ensure that your search queries are as specific as possible. In other
words, a search for "Unity interface" will return results that are less useful
than those associated with the query "how to use Ubuntu Unity interface"
or "how to customize Ubuntu Unity interface."

Community support

If you've exhausted all these resources and still can't find answers to your
questions, visit Community Support at https://discourse.ubuntu.com/t/
community-support/709.

The Ubuntu community

Ubuntu is the flagship product created by a global community of passionate
users who want to help others adopt, use, understand, and even modify or
enhance Ubuntu. By choosing to install and run Ubuntu, you've become
part of this community. As you learn more about Ubuntu, you may wish
to collaborate with others as you promote Ubuntu to new users, to share
Ubuntu advice, or to answer other users' questions. In this section, we'll
discuss a few community projects that can connect you to other Ubuntu
users.

Full Circle Magazine

Full Circle Magazine is "the independent magazine for the Ubuntu GNU/Linux
community." Released every month, Full Circle Magazine contains reviews
of new software (including games) for Ubuntu, step-by-step tutorials for

projects you can accomplish with Ubuntu, editorials discussing important issues in the Ubuntu community, and Ubuntu tips from other users. Full Circle Magazine is released in many different formats and is always free. You can download current and back issues of Full Circle Magazine at https://www.fullcirclemagazine.org.

The Ubuntu UK Podcast

Produced by members of the UK's Ubuntu LoCo team, this bi-weekly online audio broadcast (or "podcast") features lively discussion about Ubuntu and often includes interviews with Ubuntu community members who work to improve Ubuntu. Episodes are available at https://www.ubuntupodcast.org.

OMG! Ubuntu!

OMG! Ubuntu! is a weblog that aims to inform the Ubuntu community about Ubuntu news, events, announcements, and updates in a timely fashion. It also allows Ubuntu users to discuss ways they can promote or share Ubuntu. You can read this blog or subscribe to it at https://www.omgubuntu.co.uk.

Contributing

Contributing to Ubuntu

As we mentioned earlier in this chapter, Ubuntu is a community-maintained operating system. You can help make Ubuntu better in a number of ways. The community consists of thousands of individuals and teams. If you would like to contribute to Ubuntu, please visit https://wiki.ubuntu.com/ContributeToUbuntu.

You can also participate in the Ubuntu community by contributing to this manual. You might choose to write new content for it, edit its chapters so they are easier for new Ubuntu users to understand and use, or translate it in your own language. Or maybe taking screenshots is your passion! Regardless of your talent or ability, if you have a passion to contribute to the Ubuntu community in a meaningful way, then the Ubuntu Manual Project invites you to join! To get involved in the Ubuntu Manual Project, visit https://www.ubuntu-manual.org/getinvolved.

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