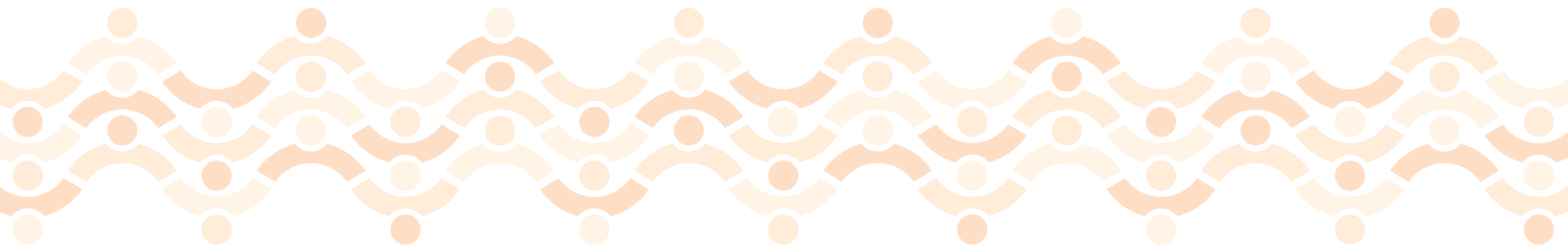





Getting Started with Ubuntu 10.04

Second Edition



The Ubuntu Manual Team

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<http://ubuntu-manual.org>

Second Edition

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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 guide you through some of the most popular applications. 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 even if you are a novice computer user or are migrating from another operating system for the first time.

Please bear in mind that this guide is still very much a work in progress and always will be. It is written specifically for Ubuntu 10.04 LTS, and although we have aimed to not limit our instructions to this version, it is unavoidable that some things will change over the life of Ubuntu. Whenever a new version of Ubuntu is released, we will incorporate any changes into our guide, and make a new version available at <http://www.ubuntu-manual.org>.

Getting Started with Ubuntu 10.04 is not intended to be a comprehensive Ubuntu instruction manual. It is more like a quick-start guide that will get you doing the things you need to do with your computer quickly and easily, without getting bogged down with technical details.

If you are after more detail, there are excellent resources available at <http://help.ubuntu.com>. Ubuntu's built-in system documentation is also very useful for accessing help on specific topics, and can be found by clicking **System > Help and Support** in Ubuntu. If something isn't covered here, 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.

More information about Ubuntu's online and system documentation can be found in [Chapter 9: Learning more](#).

Ubuntu philosophy

The term "Ubuntu" is a traditional African concept that originated from the Bantu languages of southern Africa. It can be described as a way of connecting 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 that come 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 Linux and open source, but was also aware of weaknesses that prevented mainstream use.

Shuttleworth set out with clear intentions to address these weaknesses and create a system that was easy to use, completely free (see **Chapter 9: 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 end user. Ubuntu spread quickly, the size of the community rapidly increased, and it soon became the most popular Linux **distribution** available.

With more people working on the project than ever before, Ubuntu continues to see improvement to its core features and hardware support, and has gained the attention of large organizations worldwide. For example, in 2007, Dell began a collaboration with Canonical to sell computers with Ubuntu preinstalled. Additionally, in 2005, the French Police began to transition their entire computer infrastructure to a variant of Ubuntu—a process which has reportedly saved them “millions of euros” in licensing fees for Microsoft Windows. By the year 2012, the French Police anticipates that all of their computers will be running Ubuntu. Canonical profits from this arrangement by providing technical support and custom-built software.

While large organizations often find it useful to pay for support services, Shuttleworth has promised that the Ubuntu desktop system will always be free. As of 2010, Ubuntu is installed on nearly 2% of the world’s computers. This equates to millions of users worldwide, and is growing each year.

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 has provided reliability and security in 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 a Unix system. The Linux kernel is best described as the core, or almost the brain, of the operating system.

Canonical is the company that provides financial and technical support for Ubuntu. It has employees based around the world who work on developing and improving the operating system, as well as reviewing work submitted by volunteer contributors. To learn more about Canonical, go to <http://www.canonical.com>.

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

The Linux kernel is the shift manager of the operating system; it is responsible for allocating memory and processor time. It can also be thought of as the program which manages any and all programs on the computer itself.

Linux was designed from the ground up with security and hardware compatibility in mind, and is currently one of the most popular -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 larger super-computers. Unix was entirely command line-based until graphical user interfaces (**GUI**) began to emerge in the early 1990s.

These early GUIs were difficult to configure and clunky at best, and generally only used by seasoned computer programmers. In the past decade, however, graphical user interfaces have come a long way in terms of usability, reliability, and appearance. Ubuntu is just one of many different Linux *distributions*, and uses one of the more popular graphical desktop environments called GNOME.

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 Mac OS X, as well as some differences. Users coming from Mac OS X are more likely to notice similarities due to the fact that both Mac OS X and Ubuntu originated from Unix.

Before you decide whether or not Ubuntu is right for you, we suggest giving yourself some time 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 made, developed, 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 help out beginners. Additionally, near the end of this guide, we include a troubleshooting chapter: **Chapter 8: Troubleshooting**.
- ▶ **Many applications designed for Microsoft Windows or Mac OS X will not run on Ubuntu.** For the vast majority of everyday computing tasks, there are 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.

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: The Command Line** for more information, and **Chapter 2: The Ubuntu Desktop** to learn more about **GNOME** and other desktop environments.

A desktop environment is a sophisticated and integrated user interface that provides the basis for humans to interact with a computer using a monitor, keyboard and a mouse.

To learn more about Linux distributions, see **Chapter 9: Learning more**.

A popular forum for Ubuntu discussion and support is the Ubuntu Forums, <http://ubuntuforums.org>.

To learn more about **dual-booting** (running Ubuntu side-by-side with another operating system), see **Chapter 1: Installation**. For more information on Wine, go to <http://www.winehq.org/>.

- ▶ **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, which leads to larger profits. Since Ubuntu's market share is not as substantial as Microsoft's Windows or Apple's Mac OS X, most game developers will not allocate resources towards making their games compatible with Ubuntu. If you just like to play a game every now and then, there is active game development within the community, and many high quality games can be easily installed through Ubuntu Software Center. Additionally, some games developed for Windows will also work in Ubuntu with Wine.

See [Chapter 5: Software Management](#) to learn more about Ubuntu Software Center.

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:

The Ubuntu Manual Team

Website: <http://www.ubuntu-manual.org/>

Email: ubuntu-manual@lists.launchpad.net

IRC: #ubuntu-manual on irc.freenode.net

Bug Reports: <http://bugs.ubuntu-manual.org>

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 **System ▶ Preferences ▶ Appearance**, which means, "Choose the **System** menu, then choose the **Preferences** sub-menu, and then select the **Appearance** menu item."
- ▶ 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 CD. Some options for doing this are outlined below.

Downloading Ubuntu

The easiest and most common method for getting Ubuntu is to download the Ubuntu CD image directly from <http://www.ubuntu.com>. Head to the website and click the “Download Ubuntu” link at the top. Select the nearest download location to you in the drop-down box (to ensure maximum download speed), then click “Begin Download.”

32-bit vs 64-bit

You may notice the words “Ubuntu Desktop 10.04 (32-bit)” underneath the default download button on the website. If you are unsure what 32-bit means, don’t worry. 32-bit will work on most computers, so if in doubt, simply proceed with the download. However, if you know that your computer is capable of using 64-bit software, you may wish to try the 64-bit version instead. To do this, click on “Alternative download options” and make your selection.

Downloading Ubuntu as a torrent

When a new version of Ubuntu is released, sometimes the **servers** can get clogged up with large numbers of people downloading or upgrading at the same time. If you are familiar with using torrents, you may wish to download the torrent file by clicking “Alternative download options,” and obtain your copy of the CD image this way instead. You may see significant improvements to your download speed, and will also be helping to spread Ubuntu to other users worldwide. Again, if you are unsure how to use torrents, you can use the default download options on the website.

Burning the CD image

Once your download is complete, you will be left with a file called *ubuntu-10.04-desktop-i386.iso* or similar (*i386* here in the filename refers to the 32-bit version. If you had downloaded the 64-bit version, the filename would contain *amd64* instead). This file is a CD image—a bit like a snapshot of the contents of a CD—which you will need to burn to a CD. To find out how to burn a CD image on your computer, refer to your operating system’s or manufacturer’s

Many companies (such as Dell and System76) sell computers with Ubuntu preinstalled. If you already have Ubuntu installed on your computer, feel free to skip to [Chapter 2: The Ubuntu Desktop](#).

32-bit and 64-bit are types of processor architectures. 64-bit is newer, and most recent computers will come with a 64-bit capable processor. See [Chapter 9: Learning more](#) for more information.

Torrents are a way of sharing files and information around the Internet via peer-to-peer file sharing. When a new version of Ubuntu is released, the Ubuntu servers can become very busy. If you know how to use torrents, we recommend that you download the CD image this way to take the load off the servers during periods of high demand. 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.

support documentation. You can also find detailed instructions at <https://help.ubuntu.com/community/BurningIsoHowto>.

Ordering a free CD

Alternatively, a free CD can be ordered from Canonical. This option may be preferred if you don't have access to a CD burner, have limited bandwidth, or have a slow Internet connection. There are no shipping costs or other charges when you order an Ubuntu CD. Simply visit <http://shipit.ubuntu.com> to request your free Ubuntu Desktop Edition CD.

The CD usually takes two to six weeks to arrive, depending on your location and the current demand. If you would rather start using Ubuntu sooner, you may prefer to follow the instructions above for downloading the CD image, and then burn it to a disc instead.

The Live CD

The Ubuntu CD functions not only as an installation CD for putting Ubuntu onto your computer, but also as a Live CD. A Live CD allows you to test Ubuntu without making any permanent changes to your computer by running the entire operating system straight from the CD.

Your computer reads information from a CD at a much slower speed than it can read information off of a hard drive. Running Ubuntu from the Live CD also occupies a large portion of your computer's memory, which would usually be available for programs to access when Ubuntu is running from your hard drive. The Live CD experience will therefore feel slightly slower than it does when Ubuntu is actually installed on your computer. However, running Ubuntu from the CD 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.

To try out Ubuntu using the Live CD, insert the Ubuntu CD into your CD drive and restart your computer. Most computers are able to detect when a bootable CD is present in your drive at startup—that is, a CD that will temporarily take precedence over your usual operating system. As your computer starts, it will run whatever information is stored on this bootable CD, rather than the information stored on your hard drive which your computer usually looks for.

Once your computer finds the Live CD, and after 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 labeled **Try Ubuntu 10.04**. Ubuntu will then start up, running straight from the Live CD.

Once Ubuntu is up and running, you will see the default desktop. We

You will be required to create a free online account with Launchpad before you can place your CD order. Once you have Ubuntu installed and running, you will need this account again for use with all **Ubuntu One** services. See [Chapter 3: Working with Ubuntu](#) for more information on Ubuntu One.

It is possible to purchase Ubuntu on CD from some computer stores or online shops. Have a look around your local area or on the Internet to see if someone is selling it near you. Even though Ubuntu is free software, it's not illegal for people to sell it.

In some cases, your computer will not recognize that the Ubuntu CD is present as it starts up, and will start your existing operating system instead. Generally, it means that the priority given to devices when your computer is starting needs to be changed. For example, your computer might be set to look for information from your hard drive first, and then to look for information on a CD second. In order to run Ubuntu from the Live CD, we want it to look for information from a CD first. Changing your boot priority is beyond the scope of this guide. If you need assistance to change the boot priority, see your computer manufacturer's documentation for more information.

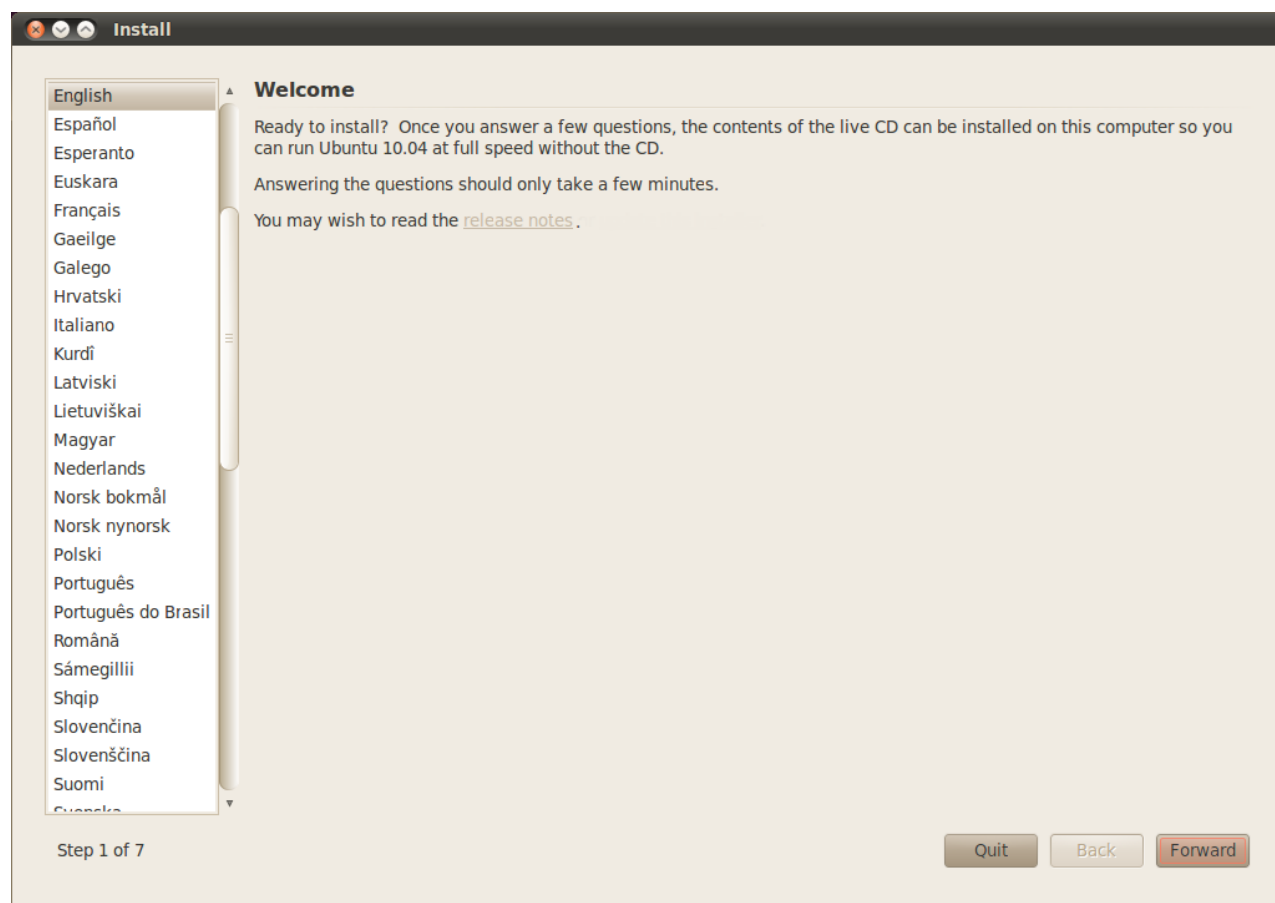


Figure 1.1: The “Welcome” screen allows you to choose your language.

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 programs, 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 (circle with a line through the top) and then select **Restart**. Follow the prompts that appear on screen, including removing the Live CD and pressing Enter when instructed, and then your computer will restart. As long as the Live CD is no longer in the drive, your computer will return to its original state as though nothing ever happened!

Minimum system requirements

Ubuntu runs well on most computer systems. If you are unsure whether it will work on your computer, the Live CD is a great way to test things out first.

The majority of computers in use today will meet the requirements listed here; however, refer to your computer’s documentation or speak to the manufacturer if you would like more information.

For the more technically minded, below is a list of hardware specifications that your computer should meet as a minimum requirement.

- ▶ 700 MHz x86 processor
- ▶ 256 MB of system memory (RAM)
- ▶ 3 GB of disk space
- ▶ Graphics card capable of 1024×768 resolution
- ▶ Sound card
- ▶ A network or Internet connection

Installing Ubuntu

The process of installing Ubuntu is designed to be quick and easy. However, we do realize that some people may find the idea a little daunting. To help you get started, we have included step-by-step instructions below, along with screenshots so you can see how things will look along the way.

If you have already tested out the Ubuntu Live CD, you should now be familiar with the initial “Welcome” screen that appears (refer to [The Live CD](#) section above for more information). Again, select your language on the left-hand side, then click the button labeled **Install Ubuntu 10.04**.

At least 3 GB of free space on your hard drive is required in order to install Ubuntu; however, 10 GB or more of free space is recommended. This will ensure that you will have plenty of room to install extra programs later on, as well as store your own documents, music, and photos.

Getting started

To get started, place the Ubuntu CD in your CD drive and restart your computer booting into Ubuntu. When the welcome screen is displayed select your language and click the **Install Ubuntu 10.04**.

The next screen will display a world map. Using your mouse, click your location on the map to tell Ubuntu where you are. Alternatively, you can use the **drop-down lists** underneath. This allows Ubuntu to set up your system clock and other location-based features. Click **Forward** when you are ready to move on.

Next, you need to tell Ubuntu what keyboard you are using. Usually, you will find the suggested option is satisfactory. If you are unsure, you can click the **Guess** button to have Ubuntu work out the correct choice by asking you to press a series of keys. You can also choose your own keyboard layout from the list. If you like, type something into the box at the bottom to make sure you are happy with your selection, then click **Forward** to continue.

Alternatively, you can also use your mouse to double-click the “Install Ubuntu 10.04” icon that is visible on the desktop when using the Live CD. This will start the Ubuntu installer.

There are two other options presented on the “Welcome” screen: **release notes** and **update this installer**. Clicking on the blue underlined **release notes** will open a web page containing any important information regarding the current version of Ubuntu. Clicking **update this installer** will search the Internet for any updates to the Ubuntu Live CD that may have been released since your CD was created.

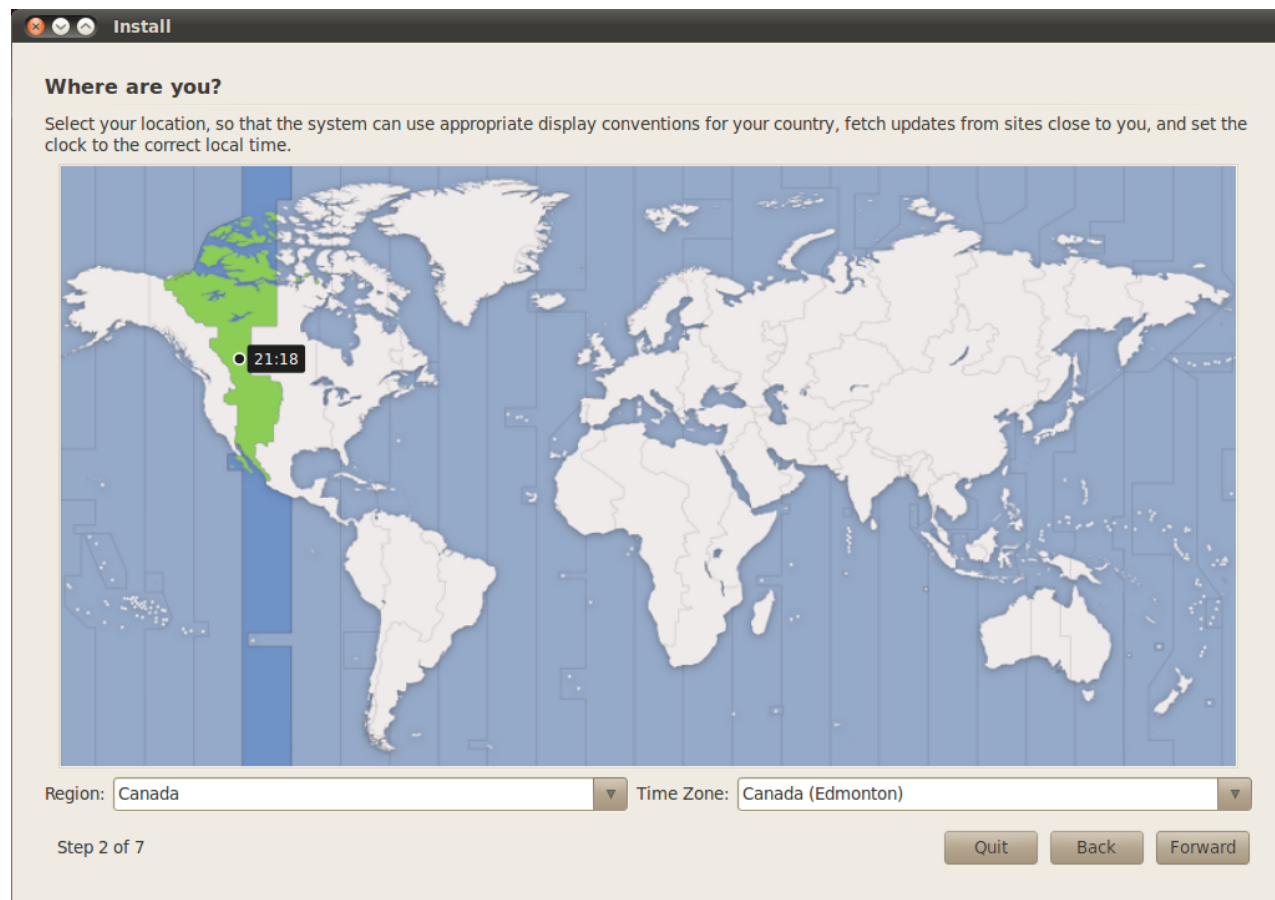


Figure 1.2: Tell Ubuntu your location.

Prepare disk space

This next step is often referred to as **partitioning**. Partitioning is the process of allocating portions of your hard drive for a specific purpose. When you create a **partition**, you are essentially dividing up your hard drive into sections that will be used for different types of information. Partitioning can sometimes seem complex to a new user; however, it does not have to be. In fact, Ubuntu provides you with some options that greatly simplify this process.

Erase and use the entire disk

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 Windows XP, 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.

Many people installing Ubuntu for the first time currently use another operating system on their computer, such as Windows XP, Windows Vista, Windows 7, or Mac OS X. Ubuntu provides you with the option of either replacing your existing operating system altogether, or installing Ubuntu alongside your existing system. The latter is called dual-booting. Whenever you turn on or restart your computer, you will be given the option to select which operating system you want to use for that session.

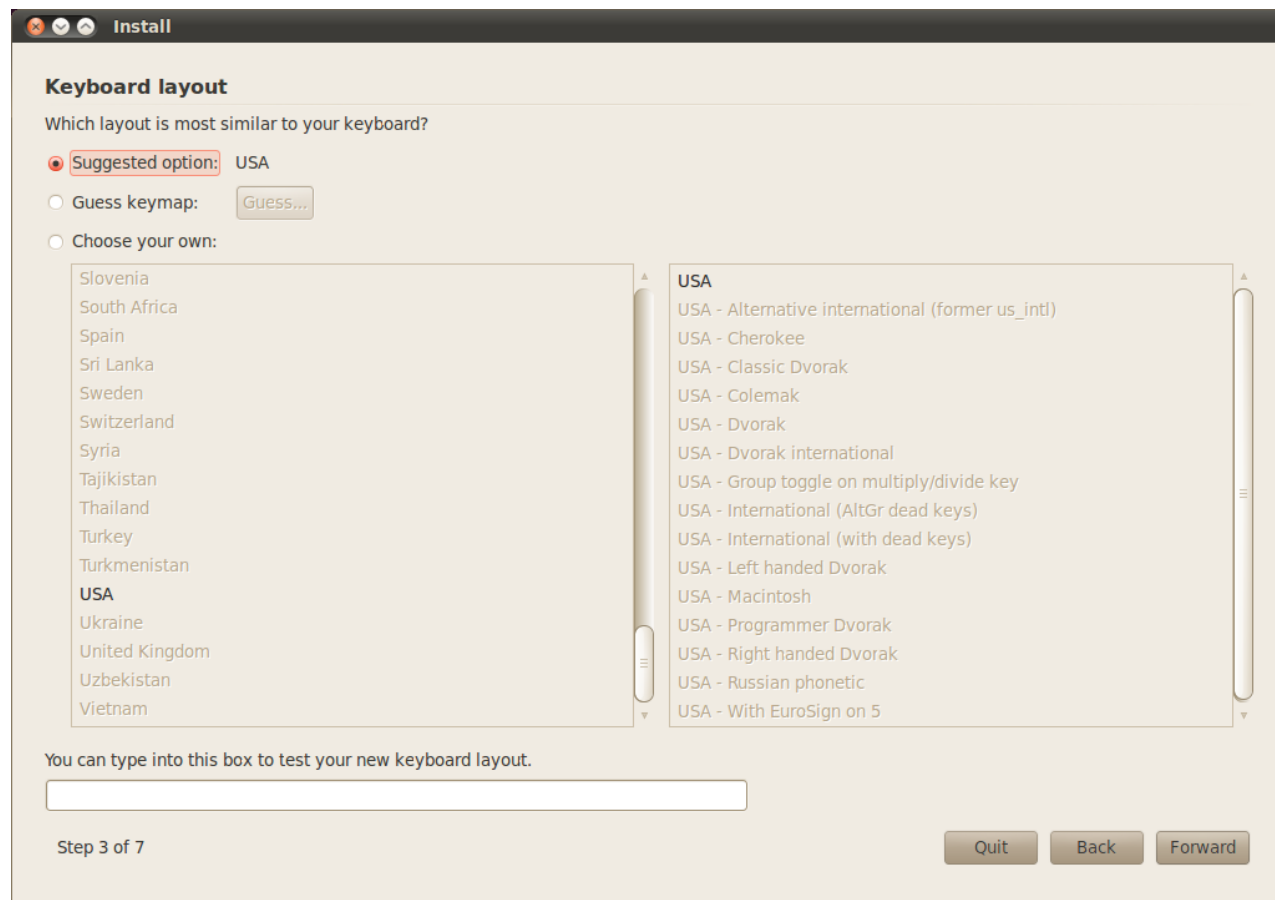


Figure 1.3: Check your keyboard layout is correct.

Guided partitioning

If you already have another operating system installed on your hard drive, and want to install Ubuntu alongside it, choose the **Install them side by side, choosing between them each startup** option.

Ubuntu will automatically detect the other operating system and install Ubuntu alongside it. For more complicated **dual-booting** setups, you will need to configure the partitions manually.

Specifying partitions manually

This option is for more advanced users and is used to create special partitions, or format the hard drive with a filesystem different to the default one. It can also be used to create a separate `/home` partition. This can be very useful in case you decide to reinstall Ubuntu, as it allows you to format and reinstall the operating system, whilst keeping all your personal files and program settings intact in a separate partition.

Because this is quite an advanced task, we have omitted the details from

Ubuntu installs a **home folder** where your personal files and configuration data are located by default. If you choose to have your home folder on a separate partition, then in the event that you decide to reinstall Ubuntu or perform a fresh upgrade to the latest release, your personal files and configuration data won't be lost.

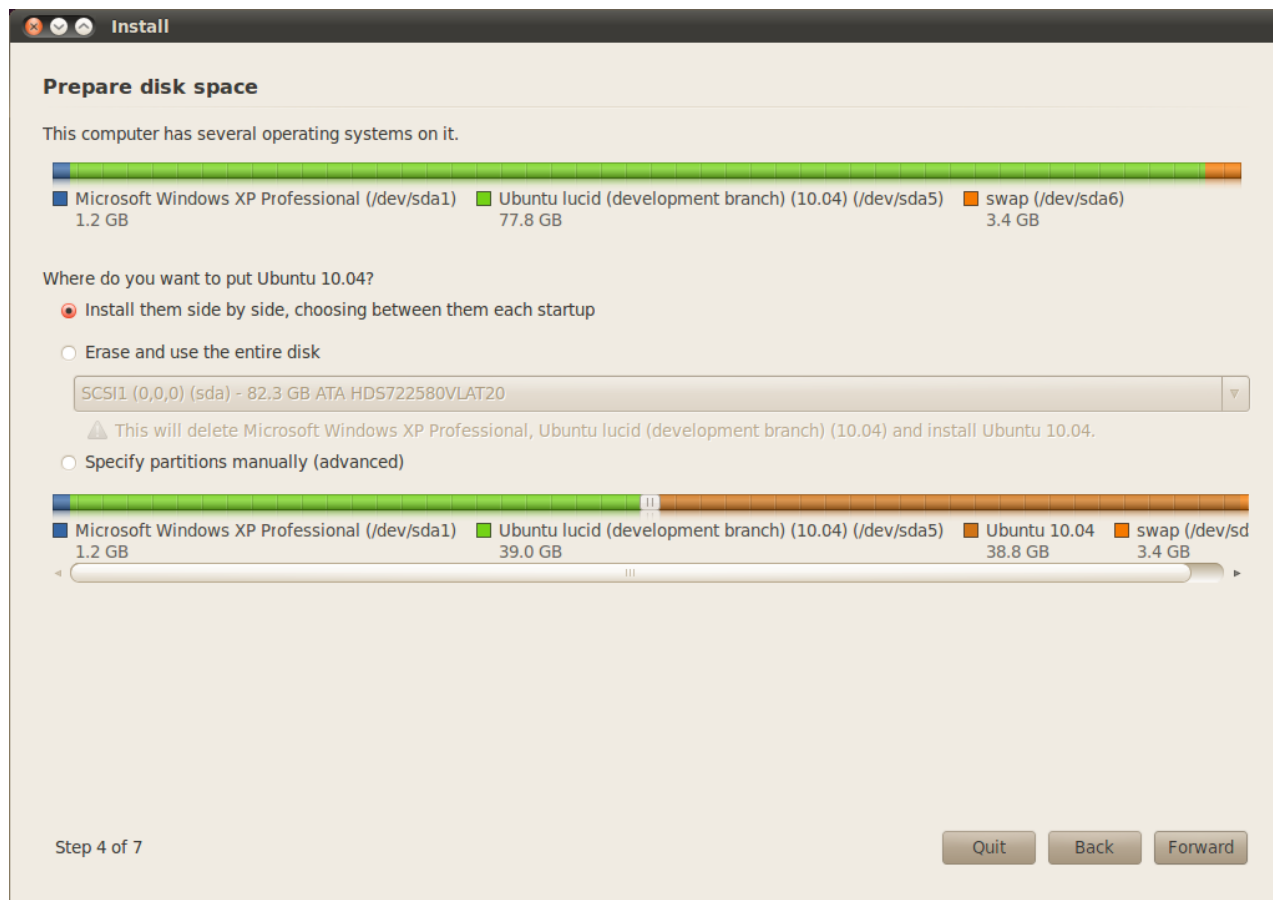


Figure 1.4: Choose where you would like to install Ubuntu.

this edition of *Getting Started with Ubuntu*. You can see more information and detailed instructions on partitioning here: <https://help.ubuntu.com/community/HowtoPartition>.

Once you are happy with the way the partitions are going to be set up, click the **Forward** button at the bottom to move on.

Enter your details

Ubuntu needs to know some information about you so it can set up the primary login account on your computer. Your name will appear on the login screen as well as the **MeMenu**, which will be discussed further in [Chapter 2: The Ubuntu Desktop](#).

On this screen you will need to tell Ubuntu:

- ▶ your real name,
- ▶ your desired username,
- ▶ your desired password,
- ▶ what you want to call your computer,

- ▶ how you want Ubuntu to log you in.

Who are you?

What is your name?
Full Name

What name do you want to use to log in?
Username

If more than one person will use this computer, you can set up multiple accounts after installation.

Choose a password to keep your account safe.
Password Re-enter password

What is the name of this computer?
Computer Name

This name will be used if you make the computer visible to others on a network.

Log in automatically
 Require my password to log in
 Require my password to log in and to decrypt my home folder

Step 5 of 7

Quit Back Forward

Figure 1.5: Setup your user account.

Type in your full name under “What is your name?”. The next text field is where you select a username for yourself, and is the name that will be displayed at the Ubuntu login screen when you turn on your computer. 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 the first password field on the left, then type the same again into the right field to verify. When both passwords match, a strength rating will appear on the right that will tell you whether your password is “too short,” “weak,” “fair,” or “strong.” 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 six characters long, and is a mixture of letters, numbers, symbols, and uppercase/lowercase. For extra security, avoid obvious passwords like your birth date, spouse’s name, or the name of your pet.

Although you can choose your preferred username and computer name, you are required to stick with Latin letters, numbers, hyphens, and dots. You will receive a warning if non-acceptable symbols or other characters are entered, and until this is altered you will be unable to progress to the next screen.

Now you need to decide on your computer's name. Again, this will be filled in for you automatically using the login name you entered above (it will say something like "john-desktop" or "john-laptop."). However, it can be changed if you prefer. Your computer name will mainly be used for identifying your computer if you are on a home or office network with multiple computers. To learn more about setting up a network, refer to [Chapter 3: Working with Ubuntu](#).

Finally, at the bottom of this screen you have three options to choose from regarding how you want to log in to Ubuntu.

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, this option is not recommended. 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.

Require my password to login and decrypt my home folder

This option provides you with an extra 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 still 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.

Confirm your settings and begin installation

The last screen summarizes your install settings, including any changes that will be made to the partitions on your hard drive. Note the warning about

data being destroyed on any removed or formatted partitions—if you have important information on your hard drive that is not backed up, now would be a good time to check that you have set up your partitions correctly. Once you have made sure that all the settings are correct, click on **Install** to begin the installation process.

You should not need to click the **Advanced** button unless you wish to change your bootloader settings or network proxy. These are more advanced tasks and beyond the scope of this guide.

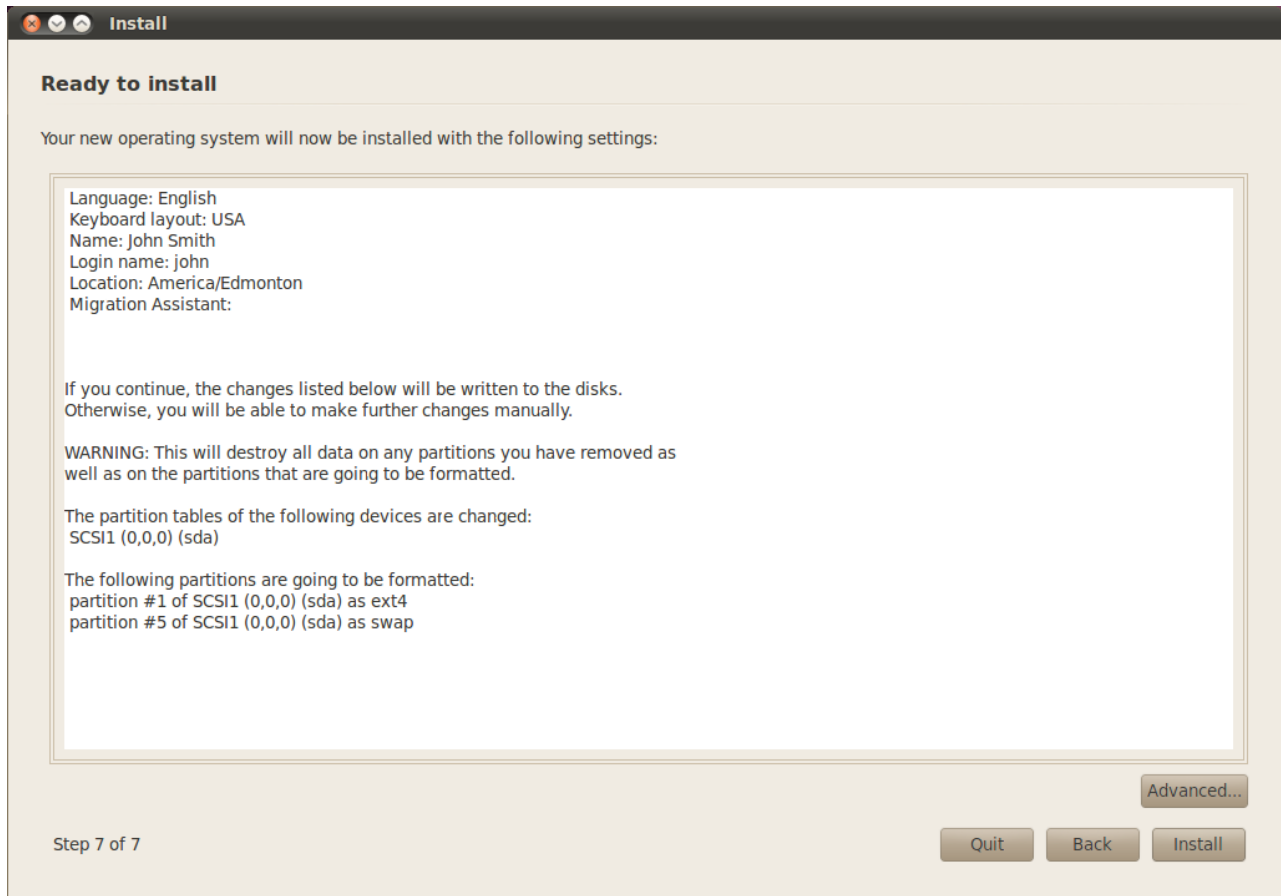


Figure 1.6: Check that everything is set up right before Ubuntu is installed.

Ubuntu will now install. 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](#).

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 CD will be ejected, so remove it from your CD drive and press Enter to continue.

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

Click your username and enter your password, then press Enter or click

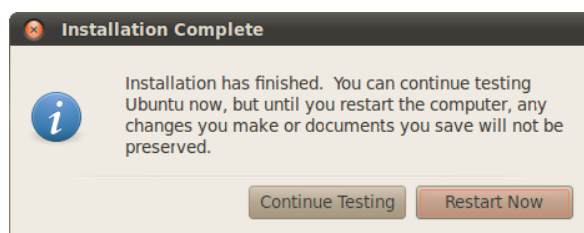
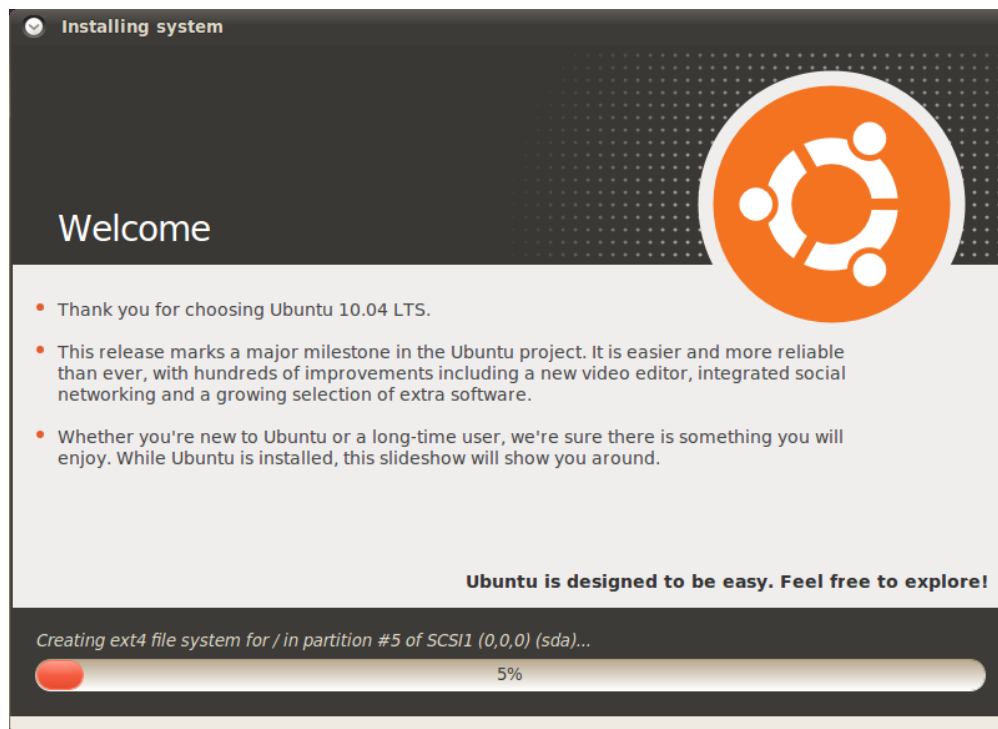


Figure 1.7: The first slide in the installation slideshow.
Figure 1.8: You are now ready to restart your computer.

Log in. You will then be logged in to Ubuntu and will be presented with your new desktop!

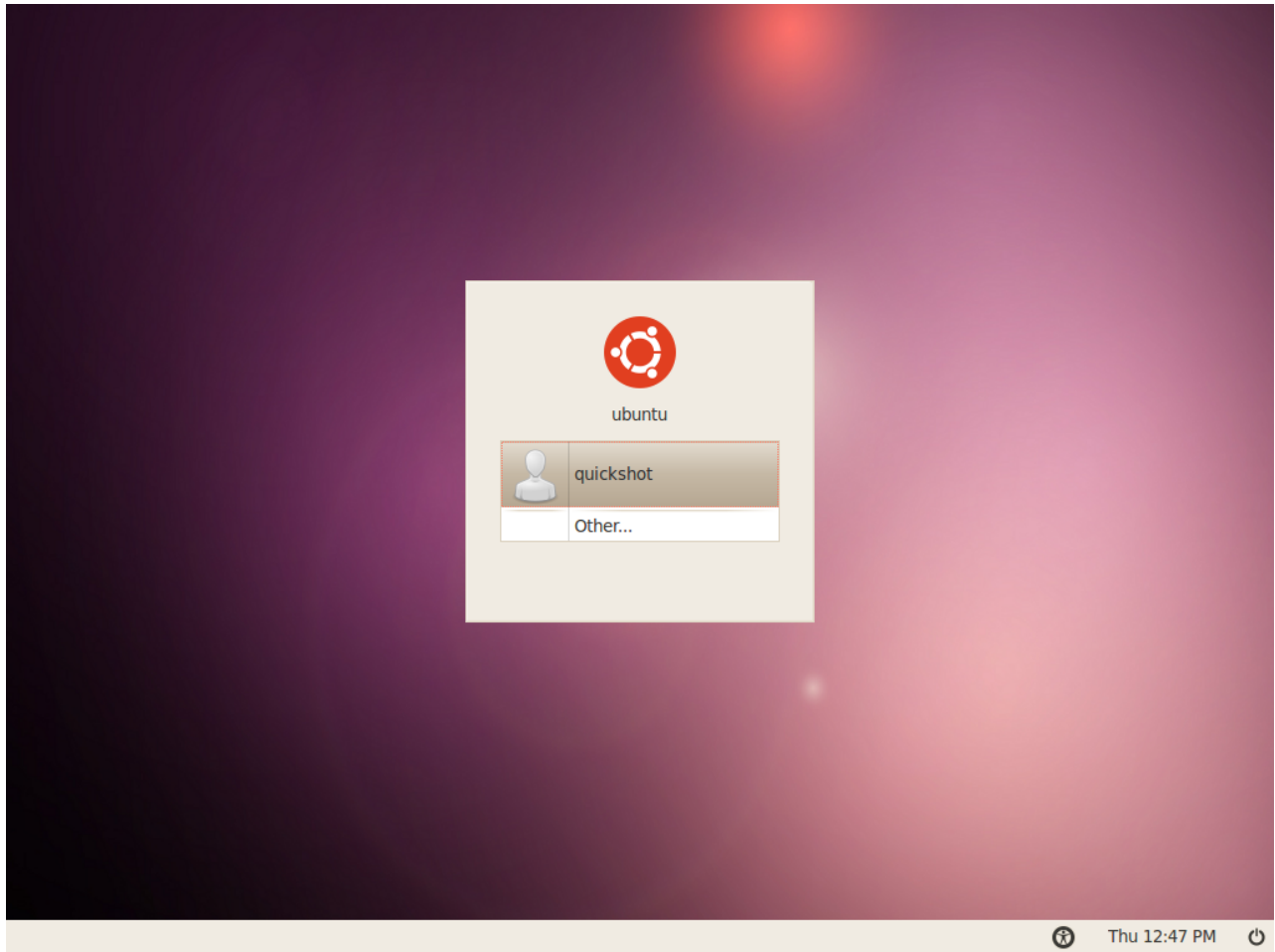


Figure 1.9: The Ubuntu login window.

2 The Ubuntu Desktop

Understanding the desktop

At first glance, you will notice many similarities between Ubuntu and other operating systems such as Windows or Mac OS X. This is because they are all based on the concept of a graphical user interface (GUI)—that is, you use your mouse to navigate the desktop, open programs, move files, and perform most other tasks. In short, things are visually oriented, which means that it's important for you to become familiar with where and what to click in Ubuntu.

Ubuntu 10.04 has an emphasis on “social from the start” and features social network integration in the desktop for sites like Twitter and Facebook.

GNOME

All GUI-based operating systems use a *desktop environment*. Desktop environments encompass many things, such as:

- ▶ the look and feel of your system
- ▶ how the desktop is organized
- ▶ the way the desktop is laid out
- ▶ how the desktop is navigated by the user

In Linux distributions (such as Ubuntu), there are a number of desktop environments available for use. One of the most popular desktop environments is called GNOME, which is the default in Ubuntu. KDE, XFCE, and LXDE are other popular desktop environments (used in Kubuntu, Xubuntu, and Lubuntu, respectively), although there are many more. Since Ubuntu uses GNOME, we will limit this guide to exploring your GNOME desktop.

To read more about other variants of Ubuntu, refer to [Chapter 9: Learning more](#).

When you first log in to Ubuntu after installing it, you will see the GNOME desktop. Ubuntu is highly customizable, as is the GNOME desktop, but for now let's just explore the default layout that is in front of you.

First, you will notice there are two *panels*—one at the top of your desktop and one at the bottom. A panel is a bar that sits on the edge of your screen and contains various *applets*. These applets provide useful functions such as running programs, viewing the time, or accessing the main menu.

Everything on a panel is an **applet**, even the main menu.

The top panel

Starting from the left, you will see three menu headings—**Applications**, **Places**, and **System**—followed by two program icons. The first of these icons will open the Firefox web browser (see [Chapter 3: Working with Ubuntu](#) for more information), and the next will open the Ubuntu Help Center.

On the right side of this panel you will find the *notification area*, which is similar in function to the “system tray” in Windows, or the “menu extras”

The Ubuntu Help Center is a highly useful resource. It provides a wealth of information about your Ubuntu system, and is always at your fingertips by simply clicking this panel icon (or navigating to **System ▶ Help and Support**).

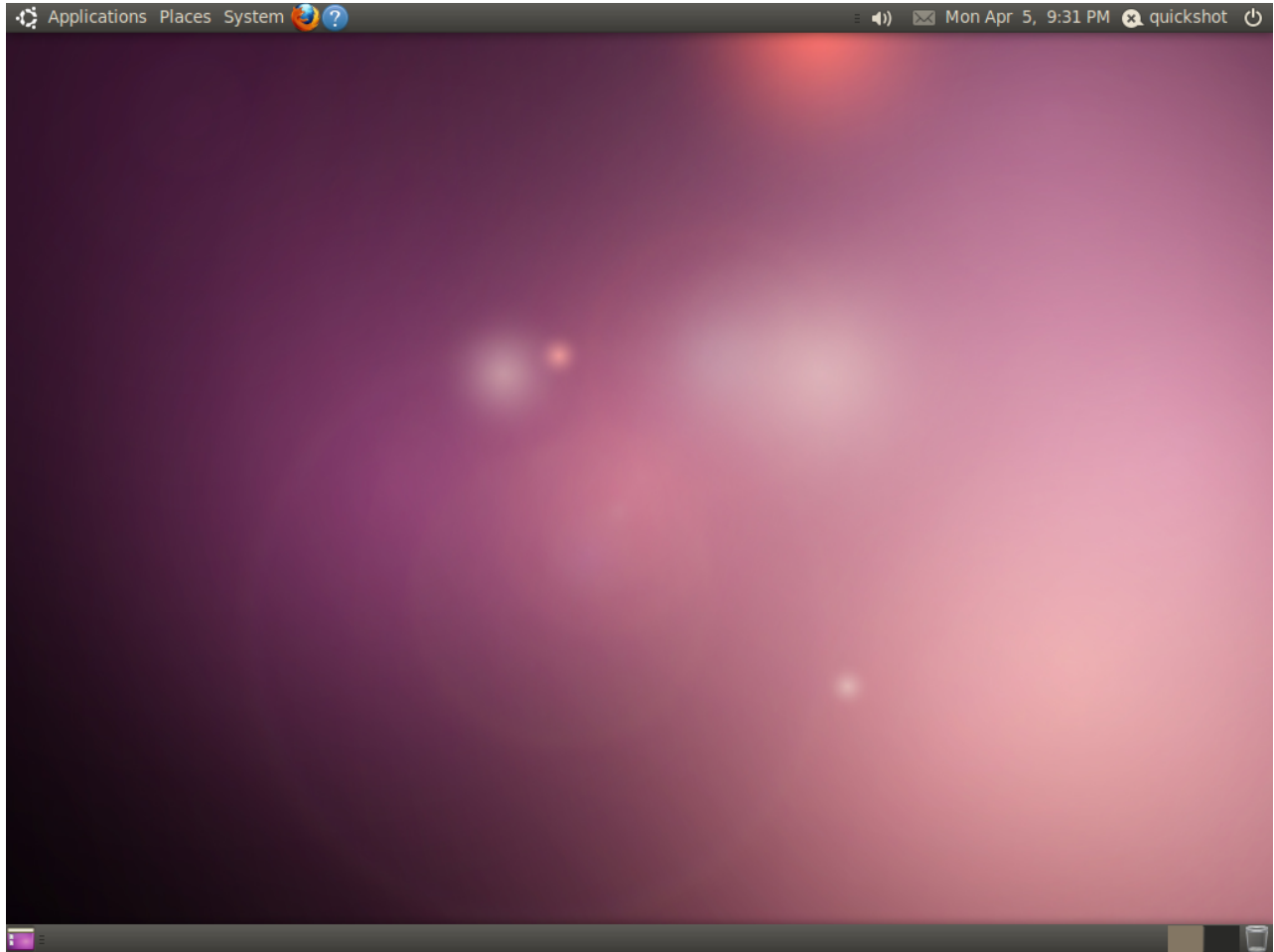


Figure 2.1: The Ubuntu 10.04 default desktop.

area on the Mac OS X menubar. Next to this is the **MeMenu**, which will display your username (the name you entered during installation) and is used to update social network sites like Twitter and Facebook as well as set your Instant Messaging status in Empathy. Finally, on the far right of the panel is the session menu, which provides menu options for locking your computer, logging out, restarting, or shutting down completely.

The notification area

Inside the **notification area** you will find the network indicator, volume adjustment, Bluetooth indicator (if your computer has Bluetooth capability), messaging, and the date and time applets. Some programs will also place an icon in the notification area when you open them.

Left-clicking icons in the notification area will bring up a list of options associated with the application. In some cases right-clicking an icon will also perform another action related to that application. For example, to adjust the

New notifications of emails and instant messages appear in the messaging menu applet. When you have a new message, the envelope icon will turn green.

To remove an applet, right-click on it and select **Remove From Panel**. To add a new applet to a panel, right-click in a clear area on the panel and select **Add to Panel**.

volume, simply left-click once on the volume icon and a volume slider will appear. Click the date and time applet to open a small calendar, and then click a specific date to add a reminder to your calendar through Evolution (see [Chapter 3: Working with Ubuntu](#) for more information on Evolution).

When the calendar is expanded there is a button labeled **Locations**, which will open a small world map when clicked. Here you can further set up your location preferences by clicking **Edit**. In the window that appears, click **Add**, then enter your location in the text field. If you live in a major city it may be on the list already; if not, you can enter your latitude and longitude manually. If you don't know this information try searching online for it. Make sure your time zone is selected, then click **OK** to return to the preferences screen.

Feel free to explore the other options available under the **General** and **Weather** tabs if you like, then click **Close** at the bottom when you are done. If weather information is available for your home city, you will now see the current temperature displayed alongside the date and time in the notification area.

The bottom panel

Ubuntu uses most of the bottom panel to display a list of all programs or windows that are currently open. These appear as horizontal buttons which can be clicked to *minimize* or *restore* the corresponding windows (see [Managing windows](#) below for more information).

On the far left of the bottom panel is a small icon that resembles a desktop. This *Show Desktop* button will **minimize** all open windows at once, giving you clear access to your desktop. This is often useful when you have many windows open at once and your desktop becomes cluttered. Clicking the button again will restore the windows to their original position.

On the right side of the panel you will see some small boxes in a row; this is the *Workspace Switcher*. By default, Ubuntu 10.04 is set up with four workspaces.

Finally, the icon farthest to the right is the *trash*, which performs a similar function to the Recycle Bin in Windows or the Trash in Mac OS X. Any files you delete are first sent to the trash. To see the contents of the trash, click on this icon. You can empty it by clicking on the **Empty Trash** button in the window that appears, or alternatively by right-clicking the trash icon in the bottom panel and selecting **Empty Trash** from the menu. This will permanently delete any files or folders that it contains.

The desktop background

In between the top and bottom panels is an image that covers the entire desktop. This is the desktop background or wallpaper and the one you see in front of you belongs to the default Ubuntu 10.04 theme known as *Ambiance*. To

To show the desktop you can press
Ctrl+Alt+D

The GNOME desktop environment used in Ubuntu can provide two or more “virtual desktops,” or **workspaces**. Using these workspaces can reduce clutter by opening windows on separate desktops, without needing a separate monitor. For example, in order to organize your activities you may have your email open in one workspace and a text document you are working on in another. To switch workspaces, simply click on the boxes in the **workspace switcher** or use the keyboard shortcut Ctrl+Alt+Left arrow or Ctrl+Alt+Right arrow to switch workspaces quickly.

learn more about customizing your desktop including changing your background, see the section on [Customizing your desktop](#) below.

Managing windows

When you open a program in Ubuntu (such as a web browser or a text editor—see [Chapter 3: Working with Ubuntu](#) for more information on using programs)—a *window* will appear on your desktop. If you have used another operating system before, such as Microsoft Windows or Mac OS X, you are probably familiar with the concept of a “window”—the box that appears on your screen when you start a program. In Ubuntu, the top part of a window (the *titlebar*) will have the title of the window in the center, and three buttons in the top left corner. From left to right, these buttons *close*, *minimize*, and *maximize* the window. Additionally, you can right-click anywhere on the titlebar for a list of other window management options.

Closing, maximizing, restoring, and minimizing windows



To *close* a window, click on the “×” in the upper left corner of the window—this will be the first button on the left-hand side. Immediately to the right of this is a downward-pointing arrow that is used to *minimize* the window to the bottom panel of your desktop. Once minimized the window will no longer be visible, but its corresponding button in the bottom panel will remain, indicating the program is still running in the background. Clicking this button will *restore* the window to its original position. Finally, the right-most button of this group will *maximize* the window, making it fill the entire screen. Clicking this button again will return the window to its original size.

Figure 2.2: The close, minimize, and maximize buttons are on the top-left corner of windows.

Moving and resizing windows

To move a window around the workspace, place the mouse pointer over the window’s titlebar, then click and drag the window while continuing to hold down the left mouse button. To resize a window, place the pointer on an edge or corner of the window so that it turns into a larger arrow, the resize icon. You can then click and drag to resize the window.

You can also move a window by holding the **Alt** key and dragging the window

Switching between open windows

There are at least three ways in Ubuntu to switch between open windows in a workspace. You can find the window on the bottom panel taskbar and click

to bring it up on the screen, or you can use **Alt+Tab** to select the window you wish to work on. Hold down the **Alt** key, and keep pressing the **Tab** button until the window you're looking for appears in the popup. If the window is visible on your screen, you can click any portion of it to raise it above all other windows.

Using the Applications menu

There are three menu headers in the top panel. Let's take a look at these in more detail, starting with the **Applications** menu.

Accessories

The **Accessories** sub-menu has many programs that are suited for productivity, including Calculator and Tomboy Notes.

Other programs in **Accessories** include the CD/DVD Creator, gedit Text Editor (similar to Windows' Notepad and Mac OS X's TextEdit), Search for Files (we'll discuss that later), and Take Screenshot, which allows you to take a picture of your desktop screen.

Games

Ubuntu has several games built in for your entertainment. If you enjoy card games, check out AisleRiot Solitaire. Perhaps you're looking for more of a challenge: in that case, there's gBrainy and Sudoku. The **Games** menu also includes Mahjongg, Mines (similar to Windows' Minesweeper game) and Quadrapassel (similar to Tetris).

Graphics

Under the **Graphics** sub-menu, you'll find the F-Spot photo manager where you can view, edit and share pictures you've downloaded from your camera. OpenOffice.org Drawing allows you to create images using the OpenOffice.org suite, and Simple Scan is a program for scanning images and documents from your scanner.

Internet

The **Internet** sub-menu is where you will find the Firefox web browser and the Empathy Instant Messenger client to allow you to talk to your friends and family.

Office

The **Office** sub-menu is where you will find most of the OpenOffice.org suite to help you create formal documents, presentation, or spreadsheets. Also

You may find that there are programs in the **Applications** menu that you don't use frequently, or just don't want to be displayed on the menu. To hide those applications (without deleting the actual programs), click on **System > Preferences > Main Menu**. Find the programs in the right panel that you want to hide from the menu, and deselect them in the "Show" column. See [Chapter 3: Working with Ubuntu](#) for more information about the included applications.

Another way to take a screenshot is to press **PrtSc**.

Instant messaging (IM) is a means of text-based communication where you can hold a conversation with someone over the Internet, instantly.

To learn more about OpenOffice.org and to get help with using the OpenOffice.org suite of applications, visit <http://openoffice.org>.

under **Office** is the Evolution email client and an online dictionary. The full OpenOffice.org suite installed in Ubuntu by default consists of:

- OpenOffice.org Word Processor
- OpenOffice.org Spreadsheet
- OpenOffice.org Presentation
- OpenOffice.org Drawing (located under the **Graphics** sub-menu)

Sound and video

The **Sound and Video** sub-menu has programs for working with multimedia, such as:

- Brasero disc burner
- Totem movie player
- Pitivi video editor
- Rhythmbox music player
- Sound Recorder

More information on all of these programs can be found in [Chapter 3: Working with Ubuntu](#).

Ubuntu Software Center

At the very bottom of the **Applications** menu is the Ubuntu Software Center. This application gives you access to a library of software that you can download. When you open the Ubuntu Software Center, the main screen is similar to your **Applications** menu, for easy searching. If you know the name of the program you're looking for, just type the name into the **search box** in the top right. The Ubuntu Software Center keeps track of programs that are installed on your computer. If you're simply curious as to what is available, you can explore the software available using the categories listed on the left side of the window.

Learn more about the Ubuntu Software Center in [Chapter 5: Software Management](#).

Using the System menu

The **System** menu, located on the top panel, contains two important sub-menus. These sub-menus, **Preferences** and **Administration**, allow you to make modifications to Ubuntu's appearance, as well as the way it functions. Through the **System** menu, you can also open the Ubuntu Help Center (Help and Support), find out more about your GNOME desktop environment (About GNOME), and find out more about Ubuntu in general (About Ubuntu).

See [Chapter 4: Hardware](#) for more information on setting up Ubuntu.

Preferences

You can use the **Preferences** sub-menu to modify the appearance of the desktop and windows, assign a default printer, designate keyboard shortcuts,

change the entries listed in the **Applications** menu, edit network connections, and change mouse settings, among other options.

Administration

The **Administration** sub-menu contains programs you can use to monitor computer performance, change disk partitions, activate third-party drivers, manage all installed printers, and manage how your computer receives updates from Ubuntu. This sub-menu also has the Synaptic Package Manager for locating and downloading software packages. This is a more technical alternative to Ubuntu Software Center and should be used by power users.

Browsing files on your computer

There are two ways to locate files on your computer. You can use the Search for Files tool in the **Applications** ▶ Accessories. You can also use the **Places** menu on the top panel. See the section below about the **Nautilus file browser** for more details.

Places

The **Places** menu holds a list of commonly used folders (such as **Documents**, **Music**, **Downloads**, and the **Home Folder**). You can also browse the disks on your computer by clicking **Computer** in this menu. If you set up a home network, you will find a menu item to access shared files/folders. You can also access the Search for Files tool from the **Places** menu, as well as browse a list of recently opened documents.

Your home folder

The home folder is where each user's personal files are located. When you installed Ubuntu, you entered a name to set up your user account. That same name is assigned to your home folder. When you open your personal folder, you will see that there are several folders inside: Desktop (which contains any files that are visible on the desktop), Documents, Downloads, Music, Pictures, Public, Templates, and Videos.

You will also see a link named Examples. Double-click on that link to open a folder containing example documents, spreadsheets, and multimedia files. You will note be able to edit them. If you want to edit them move them to you home folder.

Nautilus file browser

Just as Windows has Windows Explorer and Mac os x has Finder to browse files and folders, Ubuntu uses the Nautilus file browser by default. We will now look at the features offered in Nautilus.

Most of the applications in the **System** ▶ **Administration** menu will prompt you to enter your user password when you launch them. Some applications will require you to click a button to unlock it. Press this button, and enter your password. After entering your password you gain increased privileges. This is a security feature to make sure that only authorized people are allowed to change system settings. To learn more about security in Ubuntu, see [Chapter 7: Security](#).

You should open the example content to see how different types of files are displayed in Ubuntu.

The Nautilus file browser window

When you open a folder on the desktop or from the **Places** menu, the Nautilus file browser window opens up. The standard browser window contains the following features:

- ▶ *Menubar*: The menubar is located at the top of the window. These menus allow you to modify the layout of the browser, navigate, bookmark commonly used folders and files, and view hidden folders and files.
- ▶ *Toolbar*: The toolbar has tools for navigation and a tool to make the contents of the window larger or smaller. A drop-down list gives you the option of switching the view from **Icon View** to **List View** or **Compact View**. The search icon (which looks like a magnifying glass) opens a field so you can search for a file by name.
- ▶ *Additional Navigation Tools*: Just below the toolbar, you will see a representation of where you are currently browsing. This is similar to the history function of most browsers; it keeps track of where you are and allows you to backtrack if necessary. You can click on the locations to navigate back through the file browser.
- ▶ *Left Pane*: The left pane of the file browser has shortcuts to commonly-used folders. When you bookmark a folder, it appears in the left pane. No matter what folder you open, the left pane will always contain the same folders. This left pane can be changed to display different features by clicking the down arrow beside “Places” near the top.
- ▶ *Central Pane*: The largest pane shows the files and folders in the directory that you are currently browsing.

If you bookmark a folder, it will appear in the **Places** menu.

If you start typing a location starting with a / character, Nautilus will automatically change the navigation buttons into a text field labeled Location. It is also possible to convert the navigation buttons into a text field by pressing **Ctrl+L**.

Navigating between directories

To navigate between directories, use the bookmarks in the left pane of the Nautilus file browser. You can also retrace your steps by clicking on the name of a folder where it is listed just below the navigational icons. Double-clicking on a visible directory will cause you to navigate to it in Nautilus.

Opening files

To open a file, you can either double-click on its icon or right-click and select **Open With** (program).

Creating new folders

To create a new folder from within Nautilus click **File • Create Folder**, then name the folder that appears by replacing the default “untitled folder” with your desired label (*e.g.*, “Personal Finances”). You can also create a new folder by pressing **Ctrl+Shift+N**, or by right-clicking in the file browser window and selecting **Create Folder** from the popup menu (this action will also work

Note that you can easily view hidden files by clicking **View • Show Hidden Files**, or alternatively by pressing **Ctrl+H**. Hiding files with a dot (.) is **not** a security measure —instead it provides a way of keeping your folders organized and tidy.

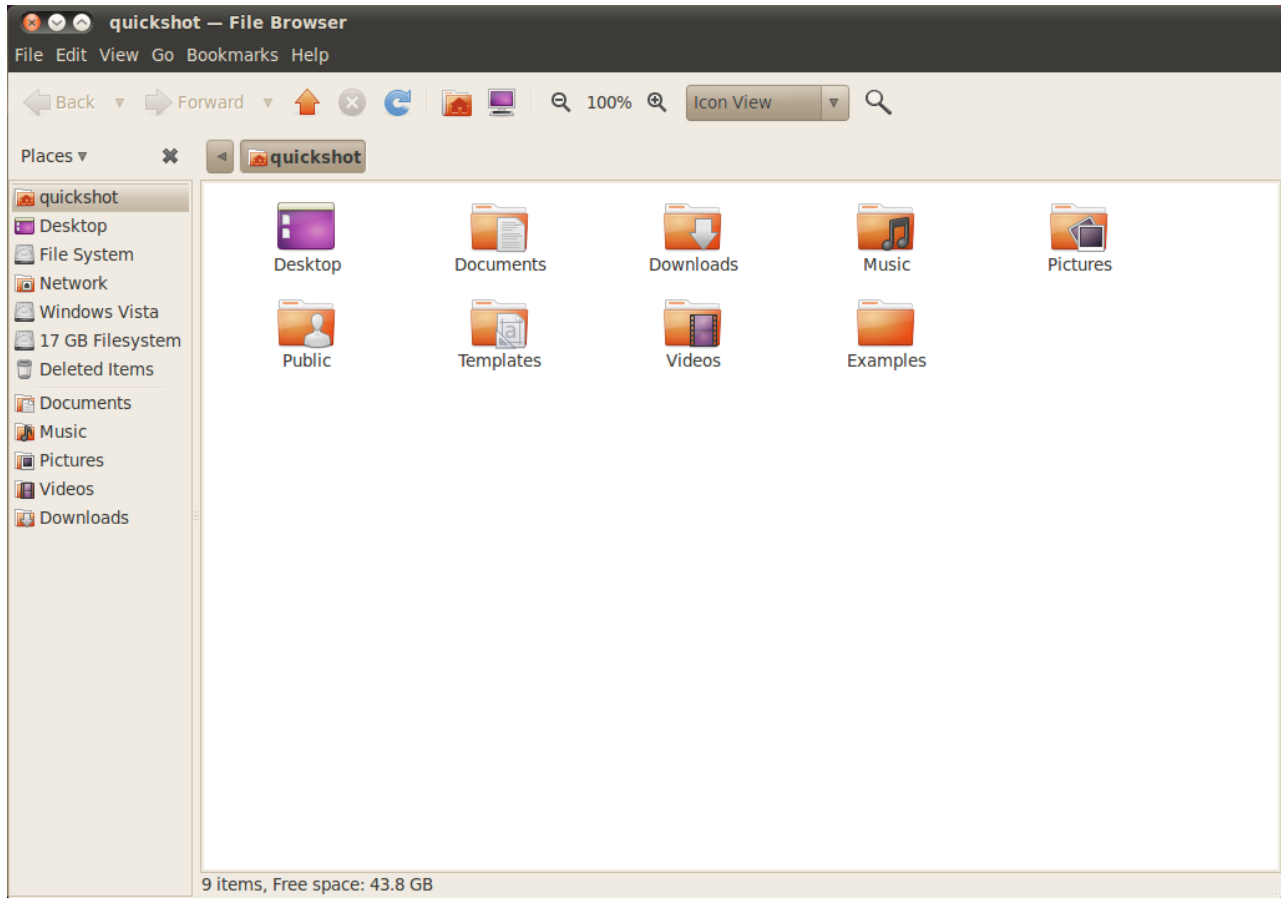


Figure 2.3: Nautilus file manager displaying your home folder.

on the desktop). If you wish to hide certain folders or files, place a dot (.) in front of the name (*i.e.*, “.Personal Finances”). In some cases it impossible to hide files and folders, without prefixing them with a dot. In Nautilus these folders can be hidden by creating a `.hidden` file. Open the file and type in the name of the file(s) or folder(s) you wish to hide. Make sure that each file or folder is on a separate line. When you open Nautilus the folder will no longer be visible.

Copying and moving files and folders

You can copy files or folders in Nautilus by clicking **Edit** ▶ **Copy**, or by right-clicking on the item and selecting **Copy** from the popup menu. When using the **Edit** menu in Nautilus, make sure you’ve selected the file or folder you want to copy first (by left-clicking on it once).

Multiple files can be selected by left-clicking in an empty space (*i.e.*, not on a file or folder), holding the mouse button down, and dragging the cursor across the files or folders you want. This “click-drag” move is useful when you are selecting items that are grouped closely together. To select multiple files

You can also use the keyboard shortcuts `Ctrl+X`, `Ctrl+C` and `Ctrl+V` to cut, copy and paste (respectively) files and folders.

or folders that are not positioned next to each other, hold down the `Ctrl` key while clicking on each item individually. Once multiple files and/or folders are selected you can use the **Edit** menu to perform actions just like you would for a single item. When one or more items have been “copied,” navigate to the desired location then click **Edit ▶ Paste** (or right-click in an empty area of the window and choose **Paste**) to copy them to the new location.

While the *copy* command can be used to make a duplicate of a file or folder in a new location, the *cut* command can be used to move files and folders around. That is, a copy will be placed in a new location, and the original will be removed from its current location.

To move a file or folder, select the item you want to move then click **Edit ▶ Cut**. Navigate to your desired location, then click **Edit ▶ Paste**. 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 folders at once. An alternative way to move a file or folder is to click on the item, and then drag it to the new location.

Using multiple tabs and multiple Nautilus windows

Opening multiple Nautilus windows can be useful for dragging files and folders between locations. The option of *tabs* is also available in Nautilus, as well as the use of *panes*. When browsing a folder in Nautilus, to open a second window select **File ▶ New Window** or press `Ctrl+N`. This will open a new window, allowing you to drag files and folders 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 folders between tabs the same as you would between windows. You can also open a second pane in Nautilus so you can see two locations at once without having to switch between tabs or windows. To open a second pane, click **View ▶ Extra Pane**, or press `F3` on your keyboard. Again, dragging files and folders between panes is a quick way to move or copy items.

Searching for files on your computer

Earlier, we mentioned that you can search for files on the computer by using the **Search for Files** feature on the **Places** menu in the top panel. You can also use the Nautilus browser to search for files, as explained above.

Customizing your desktop

Now that you’ve been introduced to the `GNOME` desktop environment, let’s take a look at customizing some of its features, such as modifying the behavior of your panels, or changing the look and feel of your desktop.

When you “cut” or “copy” a file or folder, nothing will happen until you “paste” it somewhere. Paste will only affect the most recent item that was cut or copied.

In the Nautilus **Edit** menu, you will also find the **Copy To** and **Move To** buttons. These can be used to copy or move items to common locations, and can be useful if you are using **panes** (see below). Note that it is unnecessary to use **Paste** when using these options.

When dragging items between Nautilus windows, tabs or panes, 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 locations you are using.

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

Panels

The panels (currently sitting at the top and bottom of your screen) can be moved from their default positions to the sides of the screen, set to hide from view when not in use, and can change color. To access these features, right-click the panel you want to modify and select **Properties** from the pop-up menu. The **General** tab has options to autohide, position the panel, and change the panel size (width).

Use the **Orientation** drop-down box to select where you want the panel to be located, and underneath this you can set the desired width (in pixels).

By default, a panel covers the entire length of the desktop. To change that, you can deselect the **Expand** option. The panel will then shrink so that it is just long enough to accommodate any applets or program launchers that are currently sitting in it. Ticking the **Autohide** button will cause your panel to “fold” up into the edge of the screen when you are not using it, and remain hidden until you move your mouse cursor back to that screen edge.

An alternative way of hiding the panel is to do so manually. Clicking on **Show hide buttons** will add a button to each side of the panel that can be used to hide it from view. By default these buttons will display directional arrows; however, you can select the **Arrows on hide buttons** option to remove the arrows and just have plain buttons. Clicking one of these *hide buttons* on the panel will slide it across the screen and out of view, leaving just the opposite hide button in sight which you can click to bring it back. The **Background** tab in the “Panel Properties” window allows you to change the appearance of the panel. By default, this is set to **None (use system theme)**, meaning that your desktop theme will dictate the appearance of the panel (we will look at how to change your desktop theme below). If you prefer, you can choose your own panel color by selecting the **Solid color** button, then opening the color select window. You can also set the panel transparency using the slider. Alternatively, you can click the **Background image** button if you have an image or pattern stored on your computer that you would like to use as your panel background. Use the file selector to locate the background image in your computer, then click **Open** to apply the change.

Adding applets

Ubuntu provides a selection of applets that can be added to any panel. Applets range from the informative to the fun, and can also provide quick access to some tasks. To add an applet, right-click on a panel then select **Add to Panel...** from the popup menu. A window will appear with a list of available applets, which can then be dragged to an empty space on a panel. You may want to spend some time exploring the different ones available—they can easily be removed from your panel by right-clicking on the applet and selecting **Remove From Panel**.

By default, Ubuntu requires that you maintain at least one panel on the desktop. If you prefer a Microsoft Windows feel, a panel at the bottom of the desktop can be set to start programs as well as select between open windows. Alternatively, if you prefer a Mac OS X look you can keep a panel at the top and add an applications dock such as Dockey, Avant Window Navigator (AWN), or Cairo-Dock. These are all available in the Ubuntu Software Center, which is discussed further in [Chapter 5: Software Management](#).

Some applets will be locked and can't be moved. Right-click on them and deselect the “Lock to Panel” check box.

To reposition an existing applet, right-click on it and select **Move**. Move your mouse cursor to the desired location (this can even be a different panel) and the applet will follow, then left-click to drop it into place.

The “Add to Panel...” window can also be used to add additional application launchers to your panel, similar to the Firefox launcher that sits to the right of the **System** menu. To add a new one, double-click on **Application Launcher...** near the top of the window. Here you can navigate through your applications and drag them to your panel to create a new launcher, just as you did to add an applet previously. Program launchers can also be removed and repositioned through their right-click menu.

You can also add program launchers to a panel by dragging them directly from the **Applications** menu, in the left of the top panel.

Workspaces

To modify your workspaces, right-click on the *workspace switcher* applet (by default this is on the right side of the bottom panel, just to the left of the Trash applet) and select **Preferences**. In the window that appears you can choose how many workspaces you want in total, and whether these will be displayed on the panel in one or more rows. You can also rename each workspace, and have the names displayed in the panel applet. If you prefer, you can also choose to just have the workspace you are currently using displayed in the panel. In this case, you can still change between workspaces by moving the mouse over the workspace switcher and scrolling the mouse wheel.

Appearance

You can change the background, fonts, and window theme to further modify the look and feel of your desktop. To begin, open the Appearance Preferences by navigating to **System ▸ Preferences ▸ Appearances** in the top panel.

Theme

The “Appearance Preferences” window will initially display the **Theme** tab when it opens. Here you can select a theme that will control the appearance of your windows, buttons, scroll bars, panels, icons, and other parts of the desktop. The “Ambiance” theme is used by default, but there are seven other themes you can choose from. Just click once on the theme you want to try, and the changes will take effect immediately.

You can download additional themes by clicking the “Get More Themes Online” link at the bottom of this window. Your web browser will open and take you to <http://art.gnome.org/themes/>, where you can download new themes from a large selection. Once you have downloaded a theme, locate the file on your computer (using Nautilus) and drag it across to the Themes window. This will add it to your list of available themes, and a window will appear asking whether you want to apply the changes immediately.

You can also customize any theme to your liking by selecting it then click-

ing the **Customize...** button underneath. Here you can mix elements of different themes such as icons, mouse pointers, buttons, and window borders to create your own unique look.

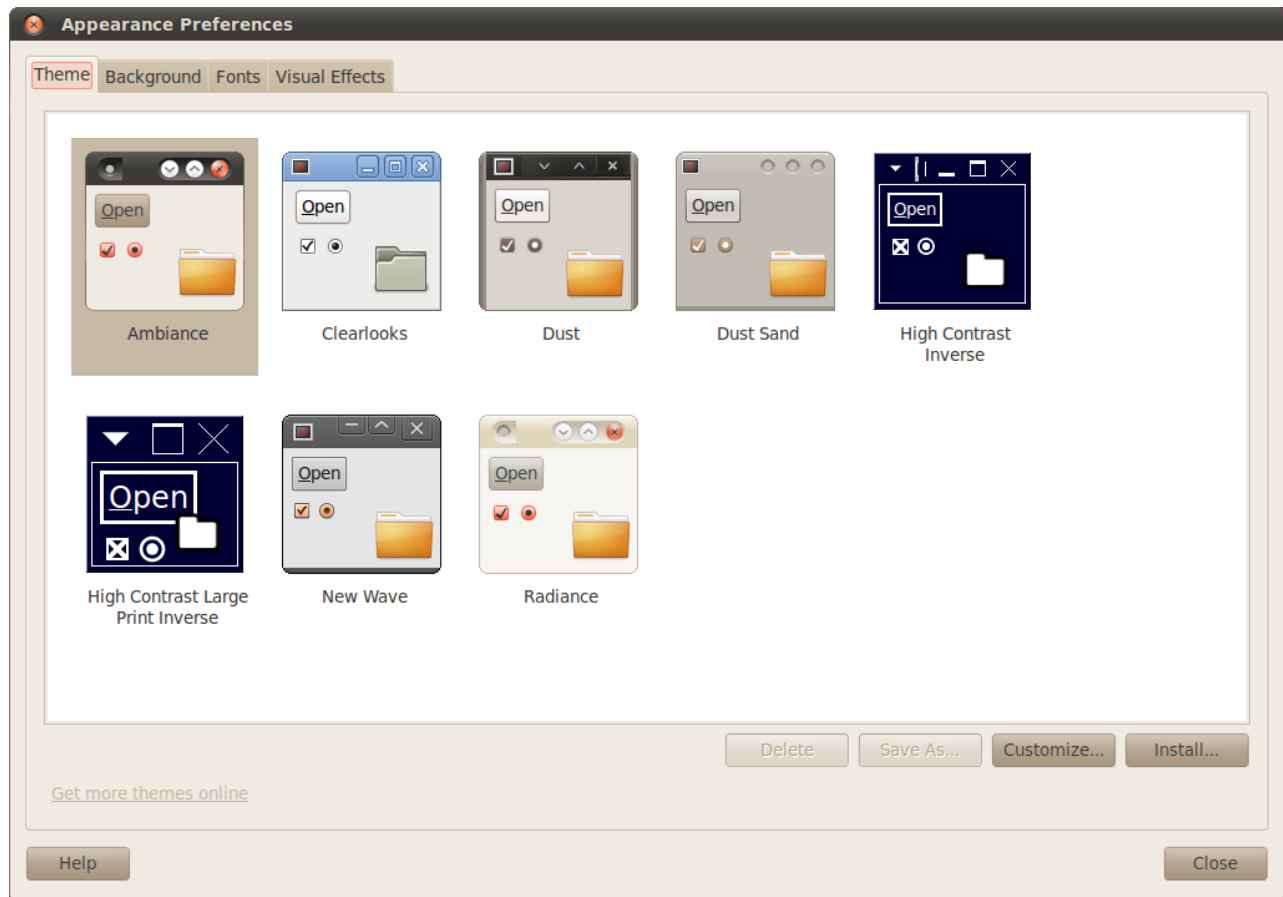


Figure 2.4: You can change the theme in the **Theme** tab of “Appearance Preferences”.

Desktop background

Click the **Background** tab in the Appearance Preferences window to change the desktop background. Here 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 though. To use one of your own pictures, click the **Add...** button, and navigate to the image you want. Double-click it, and the change will take effect immediately. This image will also then be added to your list of available backgrounds.

If you are after a larger selection of desktop backgrounds, click the “Get More Backgrounds Online” link at the bottom of the Appearance Preferences window. This link will open your web browser, and direct you to the <http://art.gnome.org/backgrounds> website.

You can also change the background by right-clicking on the desktop and selecting **Change Desktop Background** from the pop-up menu.

Fonts

You can also change the fonts used throughout your desktop through the Appearance Preferences window by clicking on the **Fonts** tab. You can individually set the font style and size for applications, documents, desktop items, window titles, and for anything using fixed width fonts. The Rendering section at the bottom of the Fonts tab gives you four options for changing the way that fonts are drawn on your screen. Changing these may improve the appearance of text on different types of monitors.

Screensaver

Ubuntu offers a selection of screensavers. By default, a blank screen will be displayed after a short period of inactivity. To select a different screensaver, click on the **System** menu in the top panel, then **Preferences** ▶ **Screensaver**. This will open the “Screensaver Preferences” window, with the available screensavers listed on the left. When you select a screensaver, you will see a mini-preview in the window, or you can see how it will look on your full screen by clicking the **Preview** button. The left and right arrow buttons at the top allow you to scroll through the different screensavers without leaving the full screen preview. To return to the Screensaver Preferences window, click the **Leave Fullscreen** button at the top of the screen.

Make sure that the **Activate screensaver when computer is idle** option is selected if you want to enable the screensaver. The slider can be adjusted to set the duration of inactivity before the screensaver appears. Once it does, you can resume working on your computer by pressing any key or by moving your mouse. For added security, you can also select the **Lock screen when screensaver is active** option. In this case, Ubuntu will ask you for your login password when you return to the computer.

Accessibility

Ubuntu has built-in tools that make using the computer easier for people with certain physical limitations. You can find these tools by opening the **System** menu, then selecting **Preferences** ▶ **Assistive Technologies**. You can adjust keyboard and mouse settings to suit your needs through the “Assistive Technologies Preferences” window by clicking on the **Keyboard Accessibility** or **Mouse Accessibility** buttons.

Other assistive technologies

Orca is another useful tool for persons with visual impairments, and comes preinstalled on Ubuntu. To run Orca, press **Alt+F2** and type **orca** into the command text field. Then press **Enter** or click **Run**. Orca’s voice synthesizer will activate and assist you through the various options such as voice type,

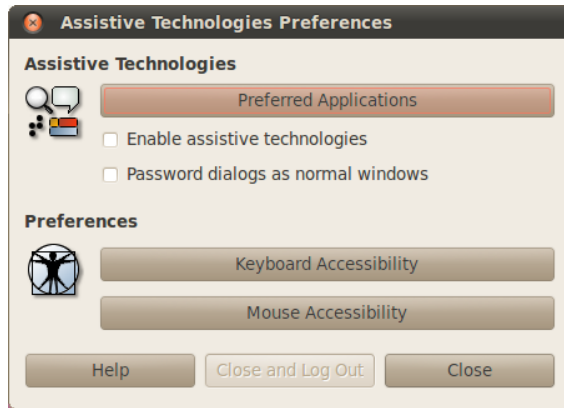


Figure 2.5: Assistive Technologies allows you to enable extra features to make it easier to use your computer.

voice language, Braille, and screen magnification. Once you have finished selecting your settings, you will need to log out of the computer (Orca will offer to do this for you). When you log back in, the Orca settings you chose will automatically run every time you use your computer.

In addition to these options, selecting high-contrast themes and larger on-screen fonts can further assist those with vision difficulties.

Managing your computer

When you have finished working on your computer, you can choose to log out, suspend, restart, or shut down through the session menu on the far right side of the top panel. You can also quickly access these options by pressing the `Ctrl+Alt+Del` keys.

Logging out

Logging out will leave the computer running but return you to the login screen. This is useful for switching 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 should save your work before logging out.

Suspend

To save energy, you can put your computer into suspend mode, which will save its current condition and allow you to start more quickly while remaining on but using very little energy. Suspending the computer spins down the hard disk and saves your session to memory, so it is very quick to suspend and resume from suspension.

Hibernate

Hibernate is similar to suspend, except that instead of saving your session to memory, hibernate will save your session to the hard disk. This takes a little longer, but with the added benefit that hibernation uses no power while it is in a hibernated state.

Rebooting

To reboot your computer, select **Restart** from the session menu.

Shut down

To totally power down your computer, select **Shut Down** from the session menu.

Other options

From the session menu, you can also select **Lock Screen** to require a password before using the computer again—this is useful if you need to leave your computer for some duration. You can also use the session menu to set up a guest session for a friend to try Ubuntu, or to *switch users* to log into another user account without closing your applications.

You can lock your screen quickly by using the keyboard shortcut **Ctrl+Alt+L**. Locking your screen is recommended if you move away from your computer for a short amount of time.

Getting help

Ubuntu, just like other operating systems, has a built-in help reference, called the Ubuntu Help Center. To access it, click on the help icon in the top panel. You can also access it by clicking **Help and Support** in the **System** menu.

Many programs have their own help which can be accessed by clicking the **Help** menu within the application window.



If you can't find an answer to your question in this manual or in the Ubuntu Help Center, you can contact the Ubuntu community through the Ubuntu Forums (<http://ubuntuforums.org>). 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>), a website maintained by the Ubuntu community.

Figure 2.6: Clicking the blue help icon in the top panel (just to the right of the **System** menu and the Firefox icon) will open Ubuntu's built-in system help.

We encourage you to check any information you find on other websites with multiple sources when possible, but only follow directions if you understand them completely.

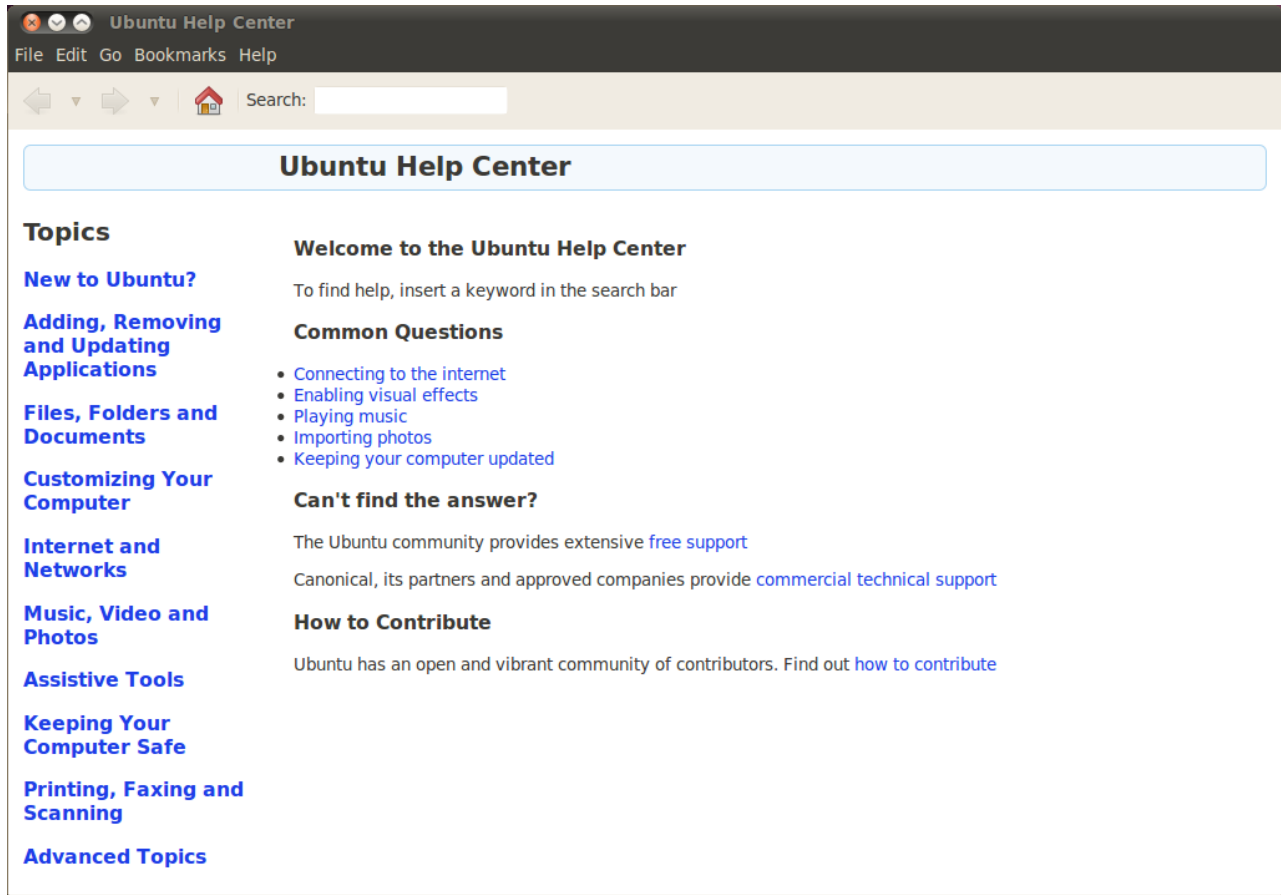


Figure 2.7: The built-in system help provides topic-based help for Ubuntu.

3 Working with Ubuntu

Getting online

If you are in a location with Internet access, you will want to make sure you are connected in order to get the most out of your Ubuntu operating system. This section of the manual will help you check your connection and configure it where necessary. Ubuntu can connect to the Internet using a wired, wireless, or dialup connection. It also supports some more advanced connection methods, which we will briefly discuss at the end of this section.

A **wired connection** refers to when your computer is physically connected to a **router** or an **Ethernet port** with a cable. This is the most common connection for desktop computers.

A **wireless connection** is when your computer is connected to the Internet via a wireless radio network, also known as Wi-Fi. Laptop computers commonly use Wi-Fi due to portability, making it easy to access the Internet from different rooms in the house or when traveling.

In order to connect wirelessly, you must be in a location with a working wireless network. To have your own, you will need to purchase and install a *wireless router* or *access point*. Some locations may already have a publicly accessible wireless network available.

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

NetworkManager

In order to connect to the Internet in Ubuntu, you need to use the NetworkManager utility. NetworkManager allows you to turn all networking on or off, and helps you manage your wired, wireless, and other connections.



You can access all the functions of NetworkManager using its icon in the top panel. This icon may look different depending on whether you currently have a working connection, and whether the connection is wired or wireless. If you are unsure, try hovering your mouse over the icon until a short description appears near the cursor. This will read “Wired network connection ‘Auto eth0’ active” (for example) if you have a working wired connection, or otherwise something else related to networking or connections such as “No connection” or “Networking disabled.”

Clicking this icon will bring up a list of network connections that are

If you are unsure whether your computer has a wireless card, check with your manufacturer.

Figure 3.1: NetworkManager will display this icon in the top panel when you are connected to a wired network.

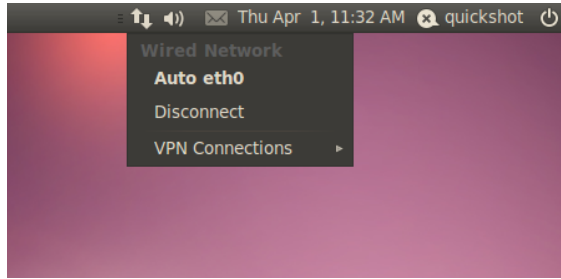


Figure 3.2: Here you can see the currently active “auto eth0” connection listed in the NetworkManager menu.

available to you. If you are currently connected to the Internet, the name of this connection will be highlighted in bold.

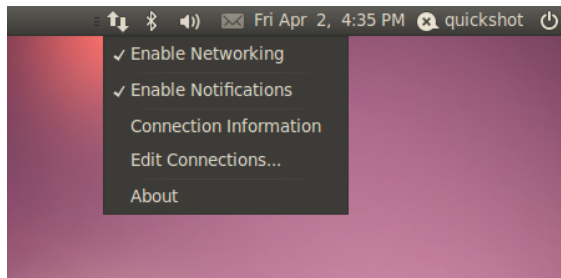


Figure 3.3: This is the menu when you right-click the networking icon.

You can also right-click on the NetworkManager icon. This will open a menu allowing you to enable or disable networking, view technical details about your current connection, or edit all connection settings. In the image above, the check box next to “Enable Networking” is currently selected; you can deselect it to disable all network connections. This may be useful if you need to shut off all wireless communication, such as when in an airplane.

Establishing a wired connection

If you have an *Ethernet* cable running from a wall socket, a router, or some other device, then you will want to set up a wired network connection in Ubuntu.

In order to connect with a wired connection, you need to know whether your network connection supports **DHCP**. This stands for “Dynamic Host Configuration Protocol,” and is a way for computers on your network to automatically receive configuration information from your Internet service provider (**ISP**). This is usually the quickest and easiest way of establishing a connection between your computer and your ISP in order to access the Internet, although some ISPs may provide what is called a *static address* instead. If you are unsure whether your ISP supports DHCP, you may wish to contact their customer service line to check. They will also be able to provide you with information on your static address if one has been allocated to you (in many cases ISPs only allocate static addresses to customers upon request).

Are you already online? If the Network-Manager icon in the top panel shows a connection, then you may have successfully connected during the installation process. If so, you do not need to follow the rest of this section.

Automatic connections with DHCP

If your network supports DHCP, you may already be set up for online access. To check this, click on the NetworkManager icon. There should be a “Wired Network” heading in the menu that is displayed. If “Auto eth0” appears directly underneath, then your computer is currently connected and probably already set up correctly for DHCP. If “disconnected” appears in gray underneath the wired network section, look below to see if an option labeled “Auto eth0” appears in the list. If so, click on it to attempt to establish a wired connection.

To check if you are online, right-click on the NetworkManager icon in the top panel and select the **Connection Information** option.

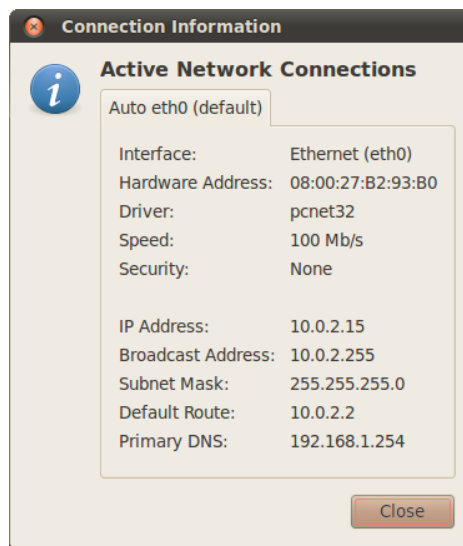


Figure 3.4: This window displays your IP address and other connection information.

You should see a window showing details about your connection. If your IP address is displayed as 0.0.0.0 or starts with 169.254, then your computer was not successfully provided with an address through DHCP. If it shows another address, it is most likely that your connection was automatically configured correctly. To test out 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.

If you are still not online after following these steps, you may need to try setting up your Internet configuration manually, using a static IP address.

Manual configuration with static addresses

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

- ▶ An **IP address** is a unique address used for identifying your computer on the Internet. When connecting through DHCP this is likely to change at

An Internet Protocol (IP) address is a numerical label assigned to devices on a computer network. It is the equivalent of phone numbers for your house and allows your computer to be uniquely identified so you can access the Internet and share files with others.

To access the “Connection Information” window, you will need to make sure that networking is enabled. Otherwise this option will be gray and you will not be able to select it through the right-click menu of the NetworkManager applet. To enable networking, right-click on the NetworkManager applet and select **Enable Networking** from the popup menu.

times. However, if your ISP has provided you with a static address then it will not. An IP address is always given in the form of four numbers separated by decimal points, for example, 192.168.0.2.

- ▶ The **network mask** tells your computer how large the network is that it belongs to. It takes the same form as an IP address, but is usually something like 255.255.255.0
- ▶ The **gateway** is the IP address at your ISP's end. It helps your computer connect or "talk" with their network, which acts as a "gateway" between your computer and the Internet.
- ▶ **DNS servers** are one or more IP addresses of "Domain Name System" servers. These servers convert standard web addresses (like <http://www.ubuntu.com>) into IP addresses such as 91.189.94.156. This step allows your computer to "find" the correct web site when you type in the web address you wish to visit. A minimum of one DNS server is required, up to a maximum of three. The additional ones are used in case the first one fails.

To manually configure a wired connection, right-click on the Network-Manager icon and select **Edit Connections**. Make sure you are looking at the **Wired** tab inside the "Network Connections" window that is displayed.

The list may already have an entry such as "Auto eth0," or a similar name. If a connection is listed, select it and then click the **Edit** button. If no connection is listed, click the **Add** button instead.

If you are adding a connection, you first need to provide a name for the connection so you can distinguish it from any others that are added later. In the "Connection name" field, choose a name such as "Wired connection 1."

If you do not already have these settings, you will need to consult your network administrator or ISP customer support to receive them.

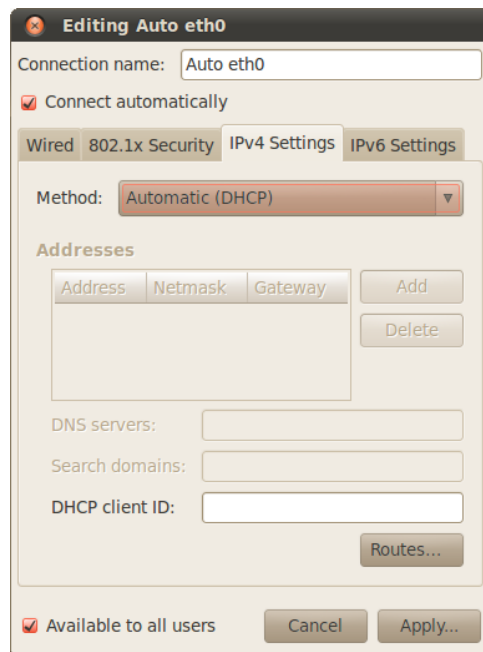


Figure 3.5: In this window you can manually edit a connection.

To set up the connection:

1. Under the connection name, make sure that the **Connect automatically** option is selected.
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. Type in 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 type in your network mask. If you are unsure of your network mask, “255.255.255.0” is the most common.
7. Click to the right of the network mask, directly below the **Gateway** header, and type in the address of your gateway.
8. In the **DNS servers** field below, type in the addresses of your DNS server. If your network has more than one DNS server, enter them all, separated by spaces or commas.
9. Click **Apply** to save your changes.



*A MAC address is a hardware address for your computer’s network card, and entering it is sometimes important when using a cable modem connection or similar. 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.*

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 is configured correctly, the NetworkManager icon should have changed to show an active connection. To test if your connection is properly set up, refer to the instructions above for checking a DHCP connection.

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 should be able to connect to a wireless network. Most laptop and netbook computers have a wireless network card.

Ubuntu is usually able to detect any wireless networks that are available within range of your wireless card. 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 with a name on the left, and a signal meter on the right. A signal meter looks

To improve speed and reliability of your connection, try to move closer to your router or access point.

like a series of bars—the more bars that are filled in, the stronger the connection will be.

A wireless network may be open to anyone to connect, or may be protected with network security. A small padlock will be displayed next to the signal meter of any wireless networks that are protected. You will need to know the correct password in order to connect to these.

To connect to a wireless network, select the desired network’s name from the list. This will be the name that was used when the wireless router or access point was installed. If you are in a workplace or a location with a publicly accessible wireless network, the network name will usually make it easy to identify.

If the network is unprotected (*i.e.*, the network signal meter does not display a padlock), a connection should be established within a few seconds. The NetworkManager icon in the top panel will animate as Ubuntu attempts to establish a connection. If it connects successfully the icon will change to display a signal meter. A notification message in the upper right of your screen will also appear, informing you that a connection was established.

If the network is secured, Ubuntu will display a window called “Wireless Network Authentication Required” once it tries to connect. This means that a password is required in order to connect.



Figure 3.6: Type in your wireless network passphrase.

If you know the password, enter it in the **Password** field, and then click **Connect**. As you type your password, it will be obscured to prevent others from seeing it. If you prefer, you can select the **Show password** option to see the password as you type.

After you click the **Connect** button, the NetworkManager icon in the top panel will animate as it tries to connect to the network. If you have entered the correct password, a connection will be established and the NetworkManager icon will change to show signal meter bars. Again, Ubuntu will display a pop up message in the upper right of your screen informing you that a connection was established.

If you entered the wireless network’s password incorrectly, NetworkManager will attempt to establish a connection then return to the “Wireless

Select the **Show Password** option to make sure you haven’t made a mistake when entering the password.

Network Authentication Required” window. You can attempt to enter the correct password again, or click **Cancel** to abort your connection. If you do not know the password to the network you have selected, you will need to get the password from the network administrator.

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

Connecting to a saved wireless network

If you have previously successfully established a wireless connection, that connection’s password will be saved on your computer. This will allow you to connect to the same network without having to re-enter the password.

In addition, Ubuntu will automatically try to connect to a wireless network within range if it has its settings saved. This will work for both open and secured wireless networks.

If you have many saved wireless networks that are in range, Ubuntu may choose to connect to one of them, while you may prefer to connect to another. In this case, click on the NetworkManager icon. You should see a list of wireless networks in range, along with their signal meters. Click on your desired network.

If the password and other settings have not changed, Ubuntu will connect to the wireless network you chose. If the password has change, Ubuntu will open the “Wireless Network Authentication Required” window. In this case, follow instructions in the previous section.

Connecting to a hidden wireless network

In some circumstances, you may need to connect to a hidden wireless network. These hidden networks do not broadcast their names, which means that they will not show up in the list of wireless networks in the NetworkManager menu. In order to be able to connect to a hidden network, you will need to get its name and security settings from your network administrator.

To connect to a hidden network:

1. Click on the NetworkManager icon in the top panel.
2. Choose the **Connect to Hidden Wireless Network** option. Ubuntu should open the “Connect to Hidden Wireless Network” window.
3. By default, the **Connection** field should show “New...”—you can leave this unchanged.
4. In the **Network name** field, enter the name of the wireless network. This name is also known as a *SSID*. Please enter the network name exactly as it was given to you.

5. In the **Wireless security** field, select one of the options. If the network is open, leave this field as “None.” If you do not know the correct setting for the network you will not be able to connect to the hidden network.
6. Click on the **Connect** button.

The rest of the process should work exactly as in the section on the initial connection to wireless networks. Once set up according to the instructions above, the hidden network should show up in the list of saved networks.

Disabling and enabling your wireless network card

Wireless access in Ubuntu is enabled by default if you have a wireless network card in your computer. In certain cases, for example on airplanes, you may need or be required to turn your wireless radio off.

To do this, right-click on the NetworkManager icon, and deselect the **Enable Wireless** option. Your wireless network will be turned off, and your computer will no longer search for available wireless networks.

To turn wireless networking back on, right-click on the NetworkManager icon, and click on the **Enable Wireless** option to re-select it. Your wireless network will be turned back on. Ubuntu will then search for nearby wireless networks and will connect to any saved networks within range.

Some computers may have a physical switch or button to turn off Wi-Fi.

Changing an existing wireless network

At times, you may want to change the settings for a wireless connection that you have previously saved. Its password may have changed, or your system administrator asked you to change some networking or security settings.

To edit a saved wireless network connection:

1. Right-click on the NetworkManager icon and select **Edit Connections...**
2. A “Network Connections” window should open. Click on the **Wireless** tab to see a list of saved wireless connections
3. By default, this list shows connections in the order of most recently used to least recently used. Find the connection you want to edit, click on it, and then click **Edit**.
4. Ubuntu should open a window called “Editing *<connection name>*”, where *<connection name>* is the name of the connection you are editing. The window should display a number of tabs.
5. Above the tabs, you may change the **Connection name** field if you want to give the connection a more recognizable name
6. If the **Connect automatically** option is not selected, Ubuntu will detect the wireless network but will not automatically connect to it without you choosing it from the NetworkManager menu. Select or deselect this setting as needed.
7. On the **Wireless** tab of the “Editing *<connection name>*” window, you may need to edit the **ssid** field. A **ssid** is the wireless connection’s network

name—if set incorrectly, the network may not be detected and a connection may not be made. Please make sure that the SSID is set according to your network administrator’s instructions.

8. Below the SSID, you should see the **Mode** field. The “Infrastructure” mode means that you would be connecting to a wireless router or access point. This is the most common mode for wireless networks. The “Ad-hoc” mode is a computer-to-computer mode and is often only used in advanced cases.
9. On the **Wireless Security** tab of the “Editing *<connection name>*” window, you may need to change the **Security** field to the correct setting. A selection of **None** means that you are using an open network with no security. Other selections may require slightly different additional information:
 - ▶ **WEP 40/128-bit Key** is an older security setting still in use by some wireless networks. If your network uses this security mode, you will need to enter a key in the **Key** field that should appear after you select this mode.
 - ▶ **WEP 128-bit Passphrase** is the same older security setting as the entry above. However, instead of a key, your network administrator should have provided you with a text passphrase—a password—to connect to the network. Once you select this security mode, you will need to enter your passphrase in the **Key** field.
 - ▶ **WPA & WPA2 Personal** is the most common security mode for wireless network connections at home and at businesses. Once you select this mode, you will need to enter a password in the **Password** field.
 - ▶ If your network administrator requires LEAP, Dynamic WEP, or WPA & WPA2 Enterprise security, you will need to have the administrator help you set up those security modes.
10. On the **IPv4 Settings** tab, you may need to change the **Method** field from “Automatic (DHCP)” to “Manual,” or one of the other methods. For setting up manual settings (also known as static addresses), please see the section above on manual set up 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** to close the window without making changes.
12. Finally, click **Close** on the “Network Connections” window to return to the desktop.

After making changes, your new settings should go into effect immediately.

Other connection methods

There are other ways to get connected with Ubuntu.

With NetworkManager, you can also configure Mobile Broadband connections to keep online through your cellular or other mobile data carrier.

You can also connect to DSLs (Digital Subscriber Lines), which are a method of Internet connection that uses your telephone lines and a “DSL modem.”

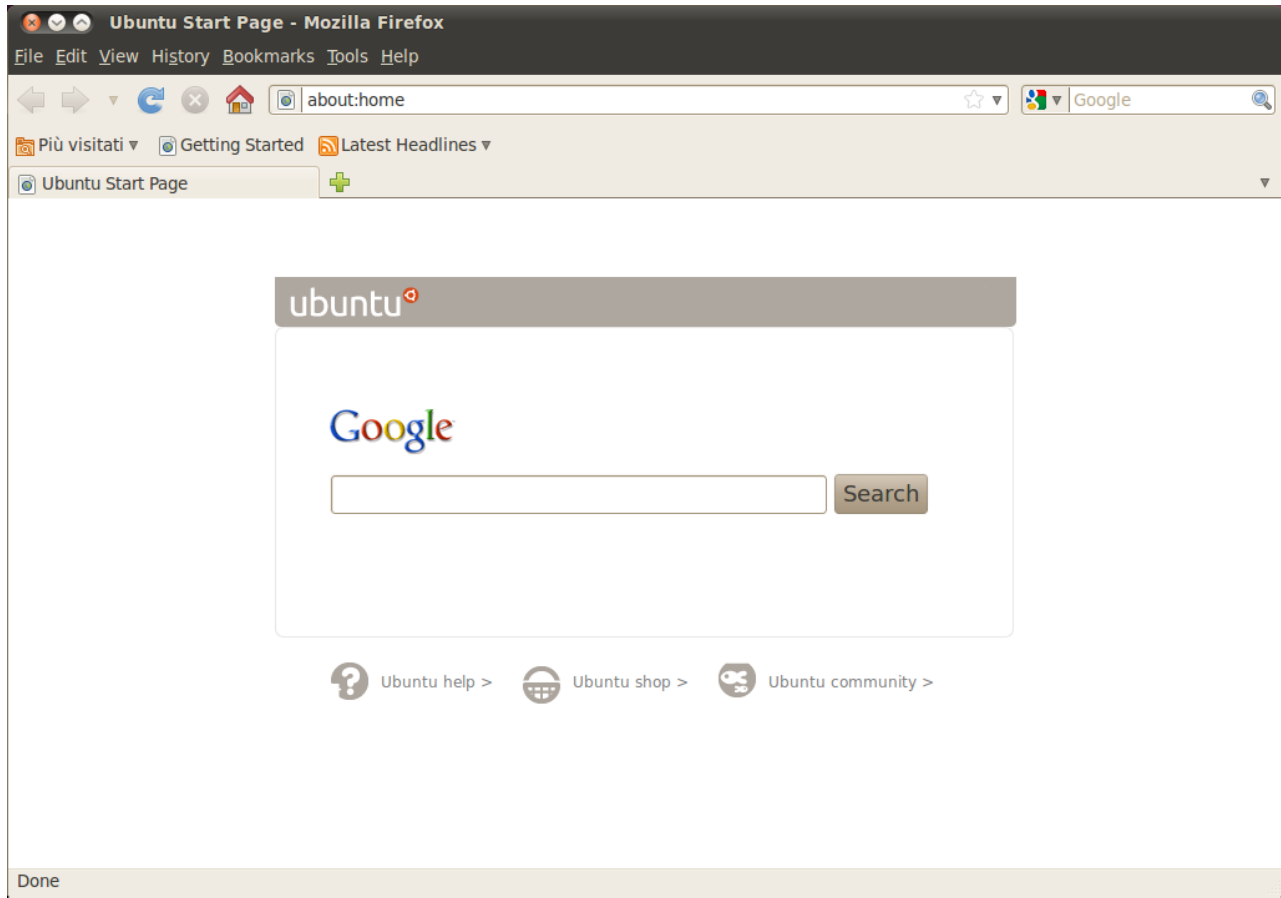


Figure 3.7: The default Ubuntu home page for the Firefox web browser.

A VPN is a “Virtual Private Network,” and is sometimes used to help secure connections. DSLs are “Digital Subscriber Lines,” a type of broadband connection.

It’s also possible to use NetworkManager to establish a VPN (Virtual Private Network) connection. These are commonly used to create secure connectivity to a workplace.

The instructions for making connections using mobile broadband, VPNs, or DSLs, 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 with Ubuntu. Mozilla Firefox is the default application for browsing the web in Ubuntu.

Starting Firefox

To start Firefox, click **Applications** ▶ **Internet** ▶ **Firefox Web Browser**. If your keyboard has a “www” button, you can also press that button to start Firefox.

To set other keyboard shortcuts or to change the shortcut for launching Firefox, go to **System** ▶ **Preferences** ▶ **Keyboard Shortcuts**.

Navigating web pages

Viewing your homepage

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

To go to your home page quickly, press **Alt+Home**.

Navigating to another page

To navigate to a new web page, you need to type its Internet address (also known as a URL) into the Location Bar. URLs normally begin with “**http://**” followed by one or more names that identify the address. One example is “**http://www.ubuntu.com/**”.

URL stands for uniform resource locator and www stands for world wide web.

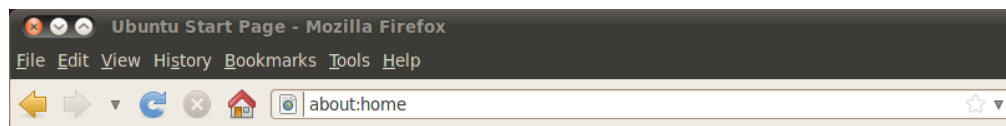


Figure 3.8: You can enter a web address or search the Internet by typing in the location bar.

To navigate:

1. Click on the Location Bar to select the URL that is already there.
2. Type the URL of the page you want to visit. The URL you type replaces any text already in the Location Bar.
3. Press **Enter**.

To quickly select the URL of the Location Bar, press **Ctrl+L**.

If you don't know a URL, try typing something specific to the page you want to visit (for example a name or other search request) into the Location Bar and press **Enter**. This will search your preferred search engine—Google by default—for that term, and take you to the web page that is the top result from the search.

You can also press **F6** on your keyboard to highlight the location bar in Firefox.

Clicking a link

Most web pages contain links you can click to move to other pages.

To click 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 on 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 seen before, there are several ways to do

To go backwards and forwards you can also use **Alt+Left** to go backwards or **Alt+Right** to go forwards.

so.

- ▶ To go back or forward one page, click on the **Back** or **Forward** button.
- ▶ To go back or forward more than one page, click on the small triangle next to the **Forward** button. You should see a list of pages you've recently visited. To return to a page, select it from the list.
- ▶ To see a list of any URLs you've typed into the Location Bar, click on the down arrow at the right end of the Location Bar. To view a page, select it from the list.
- ▶ To choose from pages you've visited during the current session, open the **History** menu and choose from the list in the bottom section of the menu.
- ▶ To choose from pages you've visited during the past several sessions, open the **History** menu and choose **Show All History**. Firefox should open a "Library" window, which shows a list of folders. Click on the folders to displays sub-folders, or titles of web pages you've visited in the past. Click on a page's title to view that page.

Stopping and reloading

If a page is loading too slowly or you no longer wish to view a page, click on the **Stop** button.

To reload the current page or to get the most up-to-date version, click on the **Reload** button or press **Ctrl+R**.

Opening new windows

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

There are two ways to create a new window:

- ▶ On the menubar, open the **File** menu, then choose **New Window**.
- ▶ Press **Ctrl+N**.

Once a new window has opened, you can use it just like the first window—including navigation and opening tabs.

Opening a link in a new window

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

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

- ▶ Right-click on a link to open its popup menu. Choose the **Open Link in New Window** option. A new window will open, containing the web page for the link you clicked.

- ▶ Press-and-hold the **Shift** key while clicking a link. This will also open the web page in a new window.

Tabbed browsing

If you would like to visit more than one web page at a time, you can use *Tabbed Browsing* to navigate the web.

Tabbed browsing lets you open several web pages within a single Firefox window, each displaying in its own tab. This frees up space on your desktop since you don't have to have a window open for every web page you're currently visiting. 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**.

Opening a new blank tab

There are three ways to create a new blank tab:

- ▶ Click on the **New Tab** button on the right side of the last tab.
- ▶ On the menubar, open the **File** menu, and then choose **New Tab**.
- ▶ Press **Ctrl+T**.

When you create a new tab, it will contain a blank page with the Location Bar focused. Start typing 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 on a link to navigate to another web page, but do not want the original page to close. To do this, you can open the link you'd like to click in its own tab.

There are many ways to open a link in its own tab:

- ▶ If your mouse has a middle button, or a wheel, click on the link with the middle mouse button or wheel. A new tab should open, containing the web page for the link you clicked.
- ▶ Click on the link with the left mouse button, and keep holding down the mouse button. Drag the link up to a blank space on the tab bar, and release the mouse button. A new tab should open, containing the web page for the link you dragged.
- ▶ Press-and-hold the **Ctrl** key while clicking the left mouse button on the link. A new tab should open, containing the web page for the link you clicked.
- ▶ Right-click on a link to open its popup menu. Choose the **Open Link in New Tab** option. A new tab will open, containing the web page for the link you clicked.
- ▶ Click on a link, holding both left and right mouse buttons.

Closing a tab

Once you are done viewing a web page in a tab, you can close that tab.

There are four ways to close a tab:

- ▶ Click on the **Close** button on the right side of the tab you want to close.
- ▶ On the menubar, open the **File** menu, and then choose **Close Tab**.
- ▶ Click on the tab you want to close with the middle mouse button, or the mouse wheel, if you have one.
- ▶ Press **Ctrl+W**.
- ▶ Click on the tab with both mouse buttons.

Restoring a closed tab

Sometimes, you may close the wrong tab by accident, or want to bring back a tab that you've recently closed.

To bring back a tab you've closed, do one of the following:

- ▶ On the menubar, open the **History** menu, choose **Recently Closed Tabs**, and then choose the name of the tab you want to restore.
- ▶ Press **Ctrl+Shift+T** to re-open the most recently closed tab.

Changing the tab order

To move a tab to a different location on the tab bar, drag it there using your mouse. Click-and-hold on the tab and drag the tab to a new place on the tab bar. While you are dragging the tab, Firefox will display a small indicator to show where the tab will be moved.

When moving a tab to a new window it may reload the page. remember to save your work before doing this.

Moving a tab between windows

If you have more than one Firefox window open, you can move an open tab to a different window. You can also split a tab off to become its own window.

To move a tab from one Firefox window to another already open window, click-and-hold on the tab and drag it to the tab bar on the other Firefox window. When you release the mouse button, the tab will be attached to the new window.

To move a tab from one window into its own window, click-and-hold on the tab and drag the tab below the tab bar. When you release the mouse button, the tab will become a new window.

Searching

You can search the web, or other collections, 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 the *Ubuntu*:

1. Click on the **Search Bar**.
2. Type the phrase “Ubuntu.” Your typing replaces any text currently in the Search Bar.
3. Press Enter to search.

Search results from Google for “Ubuntu” should appear in the Firefox window.

Selecting search engines

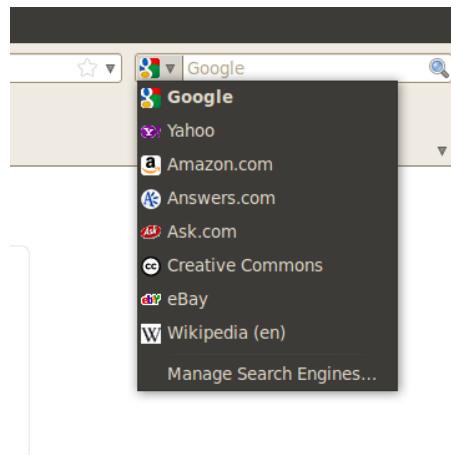


Figure 3.9: These are the other search engines you can use—by default—from the Firefox search bar.

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 the search engine, click on the icon on the left side of the Search Bar. Choose one of the other search engines in the list. Some search engines, like Google, search the whole web; others, like Amazon.com, only search specific sites.

The Ubuntu home page’s search bar uses Google by default, but will automatically use Yahoo if Yahoo is selected in the Search Bar.

Searching the web for words selected in a web page

Sometimes, you may want to search for a phrase that appears on a different web page. Instead of copying and pasting the phrase into the Search Bar, Firefox allows you to search the web for words you select within a web page.

1. Highlight any words in a web page using your left mouse button.
2. Right-click on the text you’ve highlighted to open a popup menu. Choose the option **Search [Search Engine] for “[your selected words]”**.

Firefox should open a new tab containing search results for your highlighted words, found using the currently selected search engine.

Searching within a page

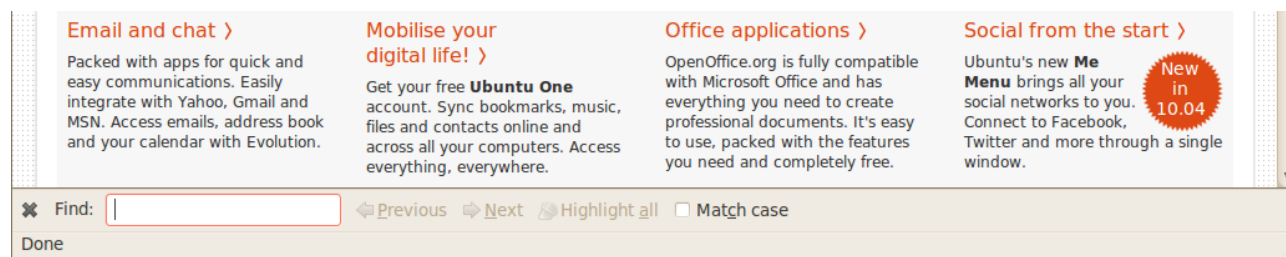


Figure 3.10: You can search within web pages using the **Find Toolbar**.

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. Press **Ctrl+F** or choose **Edit ▸ Find** to open the **Find Toolbar** at the bottom of Firefox.
2. Enter the text you want to find 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 **Next** to find text in the page that is below the current cursor position.
 - Click **Previous** to find text that is above the current cursor position.
 - Click on the **Highlight all** button to highlight 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 find the same word or phrase again, press **F3** or choose **Edit ▸ Find Again** from the menubar.

Viewing web pages full screen

To display more web content on the screen, you can use *Full Screen mode*. Full Screen mode condenses the Firefox's toolbars into one small toolbar. To enable Full Screen mode, simply choose **View ▸ Full Screen** or press **F11**.

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 from a page:

1. Highlight the text and/or images with your mouse.
2. Choose **Edit** ▶ **Copy** from the menubar or press **Ctrl+C**.

You can paste the text into other programs.

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

1. Position the pointer over the link or image.
2. Right-click on the link or image to open a popup menu.
3. Choose **Copy Link Location**.

You can paste the link into other programs 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 menubar. Firefox should open the "Save As" window.
2. Choose a location for the saved page.
3. Type a file name for the page, and click **Save**.

To save an image from a page:

1. Position the mouse pointer over the image.
2. Right-click on the image to display a popup menu.
3. Choose **Save Image As**. Firefox should open the "Save Image" window.
4. Choose a location for the saved image.
5. Enter a file name for the image and click **Save**.

Changing your homepage

By default, Firefox will show the **Ubuntu Start Page** when you start Firefox. If you prefer to view another page when you start Firefox, you will need to change your homepage preference.

To change your homepage:

1. Navigate to the page that you would like to become your new homepage.
2. Choose **Edit** ▶ **Preferences** from the menubar.
3. In the "Startup" section on the **General** tab, which is shown by default, click on the **Use Current Page** button. If you had more than one tab open then all the tabs will be opened when Firefox starts. If you prefer to have one page open, close the other tabs and repeat Steps 2-4.
4. Click **Close**.

The homepage 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 a new tab

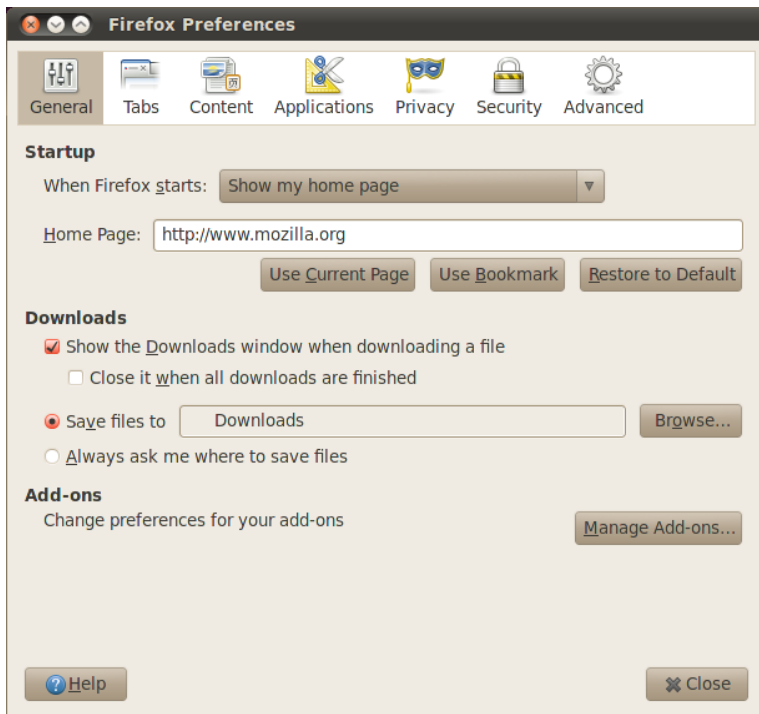


Figure 3.11: You can change Firefox settings in this window.

Download settings

In **Edit > Preferences** you can change how Firefox behaves with downloads. You can tell Firefox where to place downloaded files, or to ask where each time. You can also set the behavior of Firefox's Downloads window. The Downloads window can be hidden entirely, or set to hide when downloads finish.

The Downloads window shows the progress of currently downloading files, and 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.

In Firefox, you can create *bookmarks*, which are saved in the web browser and which you can use to navigate back to your picked 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 menubar, choose **Bookmarks** and then **Bookmark This Page**. A window will open. Provide a descriptive name for the bookmark, and click on the **Done** button.

- Press **Ctrl+D**. A pop-up will appear. Provide a descriptive name for the bookmark, and click on the **Done** button.

Navigating to a bookmarked page

To navigate to a bookmarked page, open the **Bookmarks** menu from the menubar, and then choose your bookmark's name. Firefox should open the bookmark in the current tab.



*You can also press **Ctrl+B** to display bookmarks in a sidebar on the left side of the browser window. Press **Ctrl+B** again to hide the sidebar.*

Deleting a bookmark

If you would like to delete a bookmark that you have previously made, open the **Bookmarks** menu from the menubar, and then right-click on your bookmark's name. Firefox should open a popup menu for your bookmark. Choose the **Delete** option from the menu. Your bookmark should then be deleted.

History

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

To see your most recent history, open the **History** menu from the menubar. The menu should then display several of the most recent web pages that you were viewing. Choose one of the pages to return to it.

To see the web pages you have visited recently, press **Ctrl+H**. Firefox will open a "sidebar" on the left side of the browser window, that contains your browsing history, categorized as "Today," "Yesterday," "Last 7 days," "This month," the past 6 months (listed month by month), and finally "Older than 6 months."

Click on one of the date categories in the sidebar to expand it. Then it will reveal the pages you visited during that period. Then, once you find the page you need, click on its title to return to it.

You can also search for a page by its title. Enter a few letters, or a word, in the **Search** field at the top of the history sidebar. The sidebar should then display a list of web pages whose titles match your search words. Click on the title of the page you need to return to it.

If you would like to hide the history sidebar again, press **Ctrl+H** again.

Clearing private data

At times, you may want to delete all private data that Firefox stores about your browsing history. While this data is stored only on your computer, you may want to remove it if you share access to your computer.

To delete your private data, open the **Tools** menu from the menubar, and choose **Clear Recent History**. In the drop down list for the **Time range to clear**, choose how far back you would like Firefox to delete.

If you would like more control over what you clear, click on the **Details** text to display a list of options.

When done, click on the **Clear Now** button.

Using a different web browser

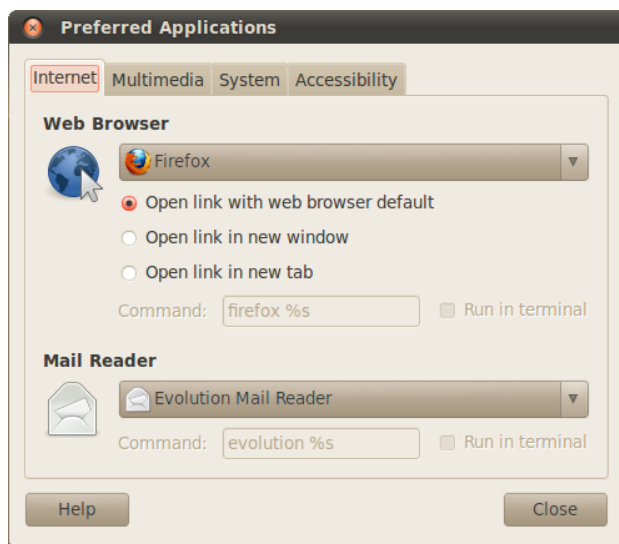


Figure 3.12: You can change the default browser with the “Preferred Applications” utility. To use it, open the **System** • **Preferences** • **Preferred Applications**.

If you install a different web browser on your computer, you may want to use it as the default browser when you click on links from emails, instant messages, and other places.

To change your preferred web browser, open the **System** menu from Ubuntu’s main menubar. Then, choose **System** • **Preferences** • **Preferred Applications**. Ubuntu should then open the “Preferred Applications” window.

In the “Web Browser” section, choose your new preferred web browser, and click **Close**.

Reading and composing email

To send and receive email in Ubuntu, you can use the Evolution mail application. To start Evolution, open the **Applications** menu, then choose **Office** and then **Evolution Mail and Calendar**.

In addition to email, Evolution also can help manage your contact list, your calendar, and a list of tasks.



Although Evolution can be used with many webmail systems, such as Yahoo! Mail, Hotmail, and Gmail, you may prefer to use the Firefox web browser to access them.

Running Evolution for the first time

When you start Evolution for the first time, you will need to configure it to connect to your email account.

When Evolution starts, you should see the “Evolution Setup Assistant” window, welcoming you to Evolution. Click **Forward** to continue with the setup.

Next, on the “Restore from backup” screen, Evolution may ask you to restore from a previous backup. Since this is the first time you are running Evolution, you can click **Forward** to skip this step.

On the next screen, “Identity”, you need to enter your name and the email address you wish to use with Evolution. Enter your full name in the **Full Name** field, and the full email address in the **Email Address** field. You can fill in the optional information, or leave it unchanged if you desire. Click **Forward** when you are done.

Next, you should see the “Receiving Email” screen. On this screen, you need to provide Evolution with the details of your email servers. If you do not know these details, you will need to ask your network administrator or check with your email provider.

There are two common types of Internet email connections: IMAP, and POP. These are described below. In work environments there are sometimes other types, such as Microsoft Exchange or Novell GroupWise—for more information on those types of connections, please see the documentation for Evolution located in the **Help** ▶ **Contents** menu.

Setting up an IMAP connection

IMAP connections allow you to manage your email remotely—the actual email and folders reside on your email server, while Evolution allows you to view, edit, and delete the messages and folders as needed.

If your email provider recommends an IMAP connection, choose **IMAP** from the **Server Type** drop-down list. In the **Server** field, enter the Internet address or URL of your mail server. for example **imap.example.com**. In the **Username** field; enter the username that you use to log into your email system, for example **joe.x.user** or **joe.x.user@example.com**, as specified by your email provider.

Your email provider may specify the security settings you will need to use in order to receive email. If your connection does not use security, leave the **Use Secure Connection** drop-down list set to **No encryption**. Otherwise, choose either **TLS encryption** or **SSL encryption**, as specified by your email provider.

After choosing these options, click **Forward** to proceed to the “Receiving Options” screen. While it is normal to leave all options unselected, you may want to select the **Check for new messages** option to have Evolution automatically check email on a regular basis.

When you are finished setting the options, click **Forward** to continue to the next screen.

Setting up a POP connection

POP connections let you manage your email locally—Evolution will connect to your email provider and download any new messages you may have received, and store them in folders on your computer. The messages will be deleted from the server.

If your email provider recommends a POP connection, choose **POP** from the **Server Type** drop-down list. In the **Server** field, enter the Internet address or URL of your mail server; for example **pop.example.com**. In the **Username** field, enter the username that you use to log into your email system, for example **joe.x.user**, or **joe.x.user@example.com**.

Your email provider may specify the security settings you will need to use in order to receive email. If your connection does not use security, leave the **Use Secure Connection** drop-down list set to **No encryption**. Otherwise, choose either **TLS encryption** or **SSL encryption**, as specified by your email provider.

After choosing these options, click **Forward** to proceed to “Receiving Options” screen. While it is normal to leave all options unselected, you may want to select the **Check for new messages** option to have Evolution automatically check email on a regular basis.

You may also wish to adjust the Message Storage options, which determine what Evolution does after downloading email to your computer. Select the **Leave messages on server** option to have Evolution keep the messages on your email system after downloading them. This will allow you to use another computer to re-download all of your new messages. Select the **Delete after 7 days** option to have Evolution keep the messages for a few days, and delete them after a while. You can adjust the number of days that Evolution keeps the messages.

When you are finished setting the options, click **Forward** to continue to the next screen.

Setting up your sending options

The next screen should be the “Sending Email” screen. Here, you will need to configure your connection for sending email through your email provider.

The most common type of sending connection is SMTP, which is the default server type selected.

In the **Server** field, type in the name of the outbound mail server (also known as the SMTP server), as described by your email provider. For example, **mail.example.com**.

If your email provider requires authentication, select the **Server requires authentication** option. This is common for commercial email providers.

In the “Authentication” section of the screen, choose the type of authentication from the **Type** drop-down list—the most common authentication type is “PLAIN.” Below that, enter your username, for example, **joe.x.user**, or **joe.x.user@example.com**, in the **Username** field.

Your email provider may specify the security settings you will need to use in order to send email. If your connection does not use security, leave the **Use Secure Connection** drop-down list set to **No encryption**. Otherwise, choose either **TLS encryption** or **SSL encryption**, as specified by your email provider.

After choosing these options, click **Forward** to proceed to the next screen.

Finalizing your account options

On the next screen, “Account Management”, enter a descriptive name for this account. If you set up more email accounts with Evolution the name provided here will help distinguish those accounts.

When finished, click **Forward**. This should open the “Done” screen. If you believe that you’ve entered the correct options, click **Apply** to finish setup. Otherwise, click **Back** to go back one or more screens to correct your settings, or click **Cancel** to abort setup and discard your account settings.

After you finish setup, Evolution may ask you if you would like to make it your default email client. Click **Yes** if you plan on reading and sending email only with Evolution. Click **No** if you plan on installing or using a different email program.

Around the Evolution workspace

The Evolution window is divided into four parts. At the top are the menubar and toolbar. The menubar lets you access most of the functionality of Evolution, while the toolbar provides convenient shortcuts to some of the most frequently used features.

On the left side of the window is the folder list. Every message that you send or receive will reside in one of the folders in this list.

Below the folder list on the left side of the window are the **Mail**, **Contacts**, **Calendars**, **Tasks**, and **Memos** buttons. When working with email, the **Mail** button is selected. The other buttons take you to those other parts of Evolution.

On the right side of the window are the message list, and the message preview beneath it. The message list shows all of the messages in the currently selected folder, or matching your search request. If a message is selected in this list, its contents are shown in the message preview pane below.

Understanding the folder list

The folder list is the way that Evolution separates and categorizes your email. The first group of folders in the list is titled “On This Computer.” These are

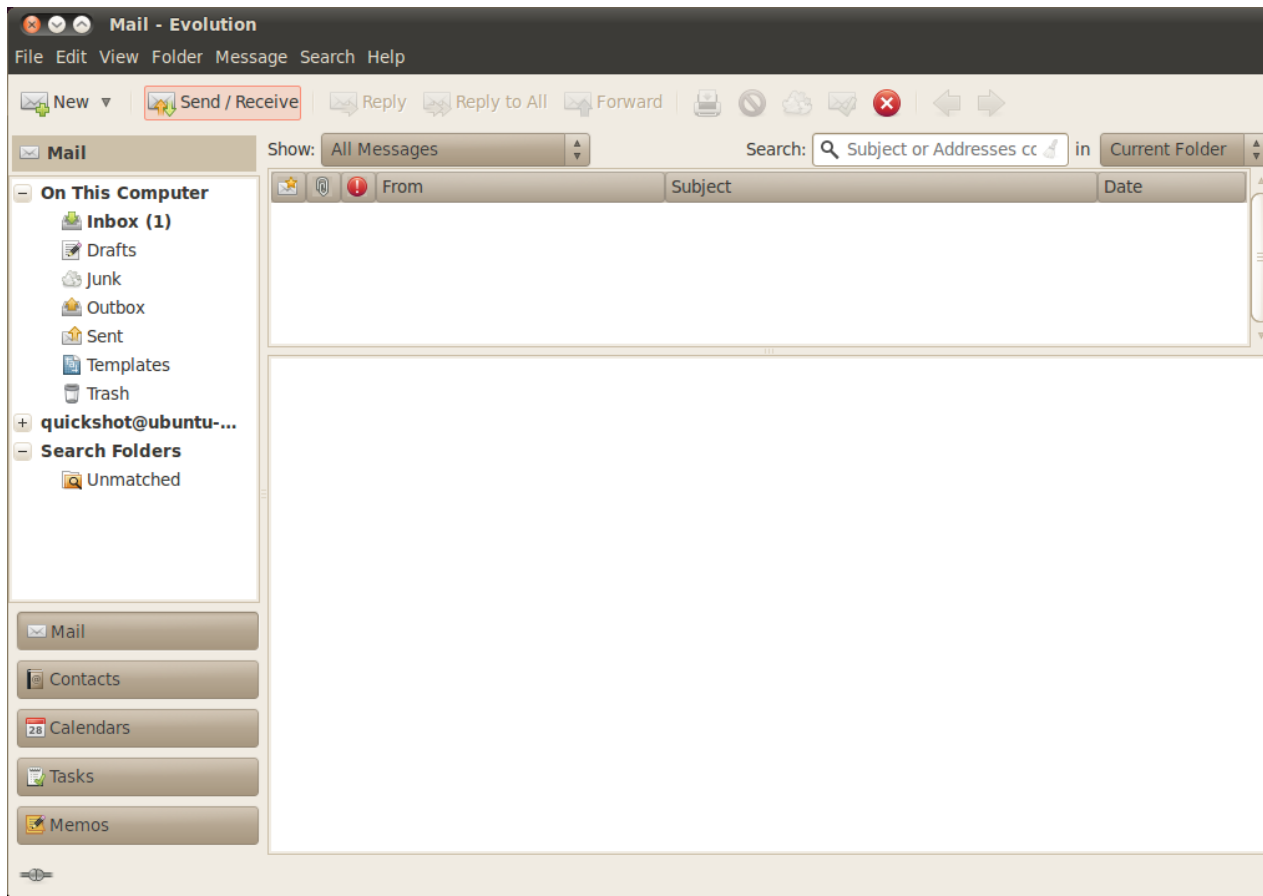


Figure 3.13: Evolution allows you to manage your mail, contacts and tasks.

your *local* folders—they reside on your computer only. If you use POP servers to retrieve your email, any new message will be placed in the **Inbox** local folder.

You can click on any folder to see its contents appear in the message list on the right side of the window.

Each of the initial folders in the list is special:

- ▶ **Inbox** stores your incoming messages.
- ▶ **Drafts** stores messages that you’ve worked on, but have not yet sent.
- ▶ **Junk** stores messages that have been identified as unsolicited email that you did not want. Junk mail is also known as “spam.”
- ▶ **Outbox** contains messages that you’ve finished composing, but which have not been sent yet. For example, if you are in an airplane or another location without an Internet connection, you can still click the **Send** button once you’ve finished writing an email. The message will be moved to the Outbox, and will remain there until the next time you are able to send and receive messages. Once you can send and receive messages, all email messages in the Outbox will be sent out.

- ▶ **Sent** contains copies of messages that have been sent successfully. Once a message from an Outbox is sent, it is copied to the Sent folder.
- ▶ **Templates** stores any email message templates you have saved. A template is a partial message, for example, a blank invoice, that can be used as the starting point for other messages.
- ▶ **Trash** contains messages that you have deleted. By default, the trash will be emptied every time you exit Evolution.

If a folder contains any unread messages, the folder's name will be displayed in bold, and the number of unread messages will be displayed in parentheses following the folder name.

If you use an IMAP server to retrieve your email, then your remote IMAP folders will also be shown in the folder list, below the “On This Computer” section. The heading for each folder list uses the name you gave to that account. Each IMAP-enabled account has its own **Inbox** for new messages.

Towards the bottom of the folder list, Evolution will show a list of “Search Folders.” These are special folders that represent certain messages that match search rules. Please see the section on Finding Messages for more on search folders.

Managing folders

In addition to the initial folders, you can create your own folders to manage your email.

To create a new folder, open the **Folder** menu, and then choose **New**. Enter a name for the folder that you would like to create. Then, from the list of folders below, select the *parent* folder. For example, if you would like your new folder to be placed under the Inbox then select the Inbox folder. If you select “On This Computer,” then your new folder will be placed under “On This Computer” in the folder list.

Once you've made your selection, click on the **Create** button to create the folder. Your new folder should now be in the folder list.

You can move folders that you have created. To do so, click on the folder that you would like to move, hold down the mouse button, and drag the folder to a new parent folder. Once the mouse cursor highlights a new parent folder, release the mouse button to finish the move.

You can also right-click on a folder, and choose the **Move...** option. Then, select the new parent folder, and click on the **Move** button.

To delete a folder, right-click on the folder and choose the **Delete** option. To confirm that you want to delete the folder, click on the **Delete** button.

Checking and reading messages

Checking mail

When you finish setup, or when you start Evolution in the future, Evolution will first try to connect to your email provider to check your email. In order to connect, Evolution will need to know your email account password, and will ask you for it.

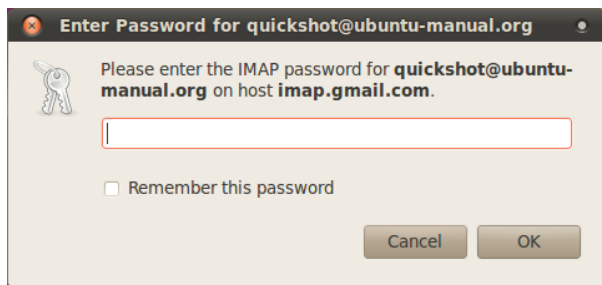


Figure 3.14: You need to enter your password to authenticate your account.

In the “Enter Password” window, enter your password and click **OK**. If you wish for Evolution to remember this password and not ask you in the future, you can select the **Remember this password** option.

Evolution will then show a “Send & Receive Mail” window, showing the progress of the operation such as how many messages are being retrieved.

Listing messages

The top right portion of the Evolution window is the message list. Here, you can see email messages for your currently selected folder, or matching your search terms.

By default, the message list shows six columns of information for each message. The first column is a read/unread indicator. If a message has been read, the column shows an icon of an open envelope. If a message has not been read, the icon will show a closed envelope.

The second column is an attachment indicator. If a message contains an attached file, Evolution will show an icon of a paperclip in this column. Otherwise, the column will be blank.

The third column is an importance indicator. If someone sends you a message marked with high importance, Evolution will show an exclamation mark in this column. Otherwise, this column will be blank.

The fourth column contains the sender of the message. Both the name and email, or just the email address, may be displayed in this column.

The fifth column contains the subject of the email message.

Finally, the sixth column is the date that the email was sent.

When you click on a message, its contents will be displayed in the preview pane below the message list. Once you select a message by clicking it, you can

click on the **Reply** button in the toolbar to begin composing a reply message to be sent to the sender, or click on the **Reply to All** button to begin composing a reply message to be sent to the sender and other recipients of your selected message.

You can also click on the **Trash** button in the toolbar to put the message in the Trash folder, or on the **Junk** button to move the message into the Junk folder. Note that Evolution, or your mail server, may automatically classify some mail as Junk.

In addition to the buttons on the toolbar, you can right-click on a message in the list. Evolution will open a menu with actions that you can perform for the message.

Sometimes, you may wish to take an action on multiple email messages (for example, delete multiple messages, or forward them to a new recipient). To do this in Evolution, press-and-hold the **Ctrl** key while clicking on multiple messages—the messages you click on will be selected. You can also click on one message to select it, then press-and-hold the **Shift** key and click on another message in the list. All messages in the list between the original selection and the one you just clicked on will be selected. Once you have multiple messages selected, right-click on one of them to perform your desired action.

Directly above the message list are the **Show** drop-down list, and the search options. You can use the **Show** drop-down list to filter your view to show only unread messages, or only messages with attachments, etc.

The search options will be covered in a later section.

Previewing messages

When you select an email message, its contents will be shown in the preview pane below the message list.

The top of the preview pane will show the message header, which contains the sender, recipients, and subject of the message, as well as the date the message was sent. Below the header, Evolution shows the contents of the message itself.

If a message was sent with **HTML** formatting, some of the images may not be displayed when a message is previewed. To display the missing images, open the **View** menu from the menubar, then **Load Images**, or press **Ctrl+I**. If your Internet connection is active, the missing images should then load.

Note that loading images may provide a way for the sender to track your receipt of the message. We do not recommend loading images in messages that you suspect are Junk.

Opening messages

At times, you may want to display multiple messages at the same time. To do so, you can open each message in a separate window instead of just viewing it in the preview pane.

To open a message in its own window, double click a message in the message list. The message should then open in a separate window. You can go back to the message list and open another message, if needed.

In the open message window, you can use the options in the menubar or on the toolbar to reply to the message, categorize it, delete it, as well as perform other message actions.

Finding messages

There are three ways to search for messages in Evolution: you can use the search option at the top of the message list, use the Advanced Search function, or create a search folder.

To use message list search, enter the text you want to find in the **Search** field at the top right of the message list, and press Enter. The list of messages will change to show only those messages containing the text you entered.

To the right of the search field you should be able to see a drop-down list of options such as “Current Folder,” “Current Account,” and “All Accounts.” By default, Evolution will use the “Current Folder” option and will only show you results within the folder you’ve got selected in the folder list on your left. If you choose the “Current Account” option, Evolution will search for messages in all folders within the current email account—such as all the folders “On This Computer” or in your IMAP folders, depending on your email setup. If you have multiple email accounts added to Evolution, choosing the “All Accounts” option lets you search for messages in all of your accounts.

If no messages match the text you’ve entered, you can edit the text and try searching again. To return to the folder display, open the **Search** menu from the menubar and then choose **Clear**, or instead erase all the text you’ve entered in the **Search** field and press Enter.

In some cases, you may want to search for messages using multiple criteria. For example, you may want to find a message from a particular user with some specific words in the subject of the message. In Evolution, you can perform this search using the Advanced Search function.

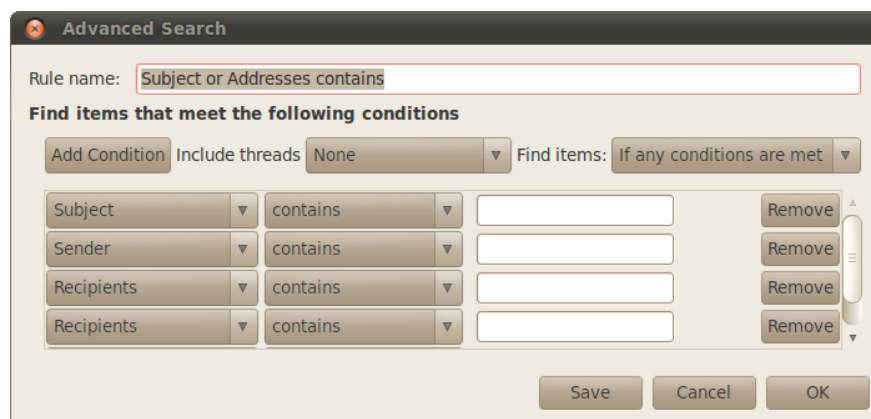


Figure 3.15: To use more search terms you can use the advanced search window.

To use Advanced Search, choose **Search** ▶ **Advanced Search**. Evolution should open the “Advanced Search” window. In the middle section of the

window, specify your search criteria. For our example, to find messages from myfriend@example.com that contained “boat” in the subject, you would enter **myfriend@example.com** in the text field to the right of the drop-down list with “Sender” selected, and would enter **boat** in the text field to the right of the drop-down list with “Subject” selected. Then, click on **Remove** to the right of all lines that are unused, and click **OK** to perform the search. The message list should then only display messages that match your advanced search criteria.

When specifying the criteria for advanced search, you can click on the **Add Condition** button to add additional lines. You can also change the selection in the drop-down list at the beginning of each line to specify a different field to be checked, or change the drop-down with “contains” selected by default in order to have a different type of a match. Please refer to the Evolution help documents for more information.

In some cases, you may want to perform the same search request on a regular basis. For example, you may want to always be able to see all messages from myfriend@example.com regardless of which folder you’ve used to store the message. To help with this type of a search, Evolution allows you to create Search Folders.

To create a search folder, choose **Search ▶ Create Search Folder From Search** from the menubar. Give the folder a name by entering it in the **Rule name** field at the top. Then, specify search criteria in the same way as in Advanced Search. Below the criteria, pick which folders should be searched by this search folder—for example, you can choose “All local and active remote folders” to search in all of your account’s folders. When you are finished, click **OK**.

The new search folder should now be added to the list of search folders towards the bottom of the message list. If you click on the search folder to select it, you should be able to see a list of messages that match your search criteria.

Subscribing to IMAP folders

If you use IMAP to retrieve your email, you should see a set of folders in the folder list on the left side of the window that is titled with the name of your IMAP account. Folders like Inbox, Drafts, Junk and others should be displayed in the folder list.

If you have other folders in your IMAP account, you will need to subscribe to them. If you subscribe to a folder, Evolution will download messages for that folder whenever you check your email.

To subscribe to a folder select **Folder ▶ Subscriptions** from the menubar. Evolution should open the “Folder Subscriptions” window. From the **Server** drop-down list choose your account name. Evolution should then show a list of folders in the list below.

Choose the folders you would like to subscribe to by selecting the check

box to the left of the folder name. When you are finished, click **Close**. The folders will be updated the next time you check your email.

Composing and replying to messages

In addition to reading email, you will likely want to reply to the email you read, or compose new messages.

Composing new messages

To compose a new message, click on the **New** button on the toolbar. Evolution should open a “Compose message” window.

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; Evolution will display the list of matching 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 Enter to select the address.

If you would like to carbon-copy some contacts, enter their email addresses in the **Cc:** field in the same manner as the **To:** recipients. Contacts 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 **View • Bcc Field** from the menubar. A **Bcc:** field should appear below the **Cc:** field. 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 also select the contacts from your address book. To do so, click on the **To:**, **Cc:** or **Bcc:** buttons to the left of the text fields. Evolution should open the “Select Contacts from Address Book” window. Use the list on the left side of the window to select your contact, or type a few letters from your contact’s first or last name in the **Search** field to filter the list to only show matching contacts.

Once you identify the contact you would like to address, click on their name in the list. Then, click on the **Add** button to the left of either the **To:**, **Cc:**, or **Bcc:** fields located on the right of the screen. Your selected contact will be added to that list. If you’ve added the contact in error, click their name in the list on the right, and click on the **Remove** button. When you are finished picking contacts, click **Close** to return to the composing screen.

Enter a subject for your email. Messages should have a subject to help the

recipient to identify the email while glancing at their message list; if you do not include a subject, Evolution will warn you about this.

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, new messages will be sent in “Plain Text” mode. This means that no formatting or graphics will be shown to the recipient, but the message is least likely to be rejected or displayed illegibly to the recipients. If you know that your recipient uses a contemporary computer and a modern email program, you can send them messages that include formatting. To switch to this mode, click the drop-down list button on the left side directly above the text field for the message contents. Change the selection from “Plain Text” to “HTML” to enable advanced formatting. When using HTML mode, a new toolbar should appear right under the mode selection that will allow you to perform advanced font styling and message formatting.

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 when you next check your email.

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 **Add Attachment** button at the bottom right of the email message window. Evolution should show the “Add attachment” window.

Select the file you would like to include in your message and click on the **Attach** button. Evolution will return you to the email message window, and your selected file should be listed in a section below the **Add Attachment** button.

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 which you are replying.
- ▶ **Reply to All**—sends your reply to the sender of the message, as well as anyone else on the 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 toolbar.

Evolution should 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. Each line in the message should be prefixed with a “>” character.

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 when you next check your email.

Using signatures

In order to give your messages a footer, Evolution allows you to use a “signature.” Signatures in email are a bit of standard text that is added to the bottom of any new messages or replies.

When composing or replying to a message, click on the **Signature** drop-down list below the toolbar just above the **To:** field. This list should contain any signatures that you have created, as well as an “Autogenerated” signature. If you select **Autogenerated**, Evolution will add two dashes, and then your name and email address to the bottom of the email message.

You can also specify some custom signatures. To create a signature, open the “Evolution Preferences” window by selecting **Edit • Preferences** from the menubar. On the left side of the Evolution Preferences window, select **Composer Preferences** and then select the **Signatures** tab.

Click on the **Add** to add a new signature. Evolution should then open the “Edit Signature” window. Give your signature a name, and enter the contents of your signature in the big text field below. When finished, click on the **Save** button on the toolbar (the button’s icon looks like a floppy disk). Your new signature’s name should appear in the list in preferences. Close the preferences window.

Your signature should now show up in the drop-down list in the compose/reply window.

Note that the two dashes are added automatically by Ubuntu, so there is no need to include them in your custom signature.

Staying organized

The Evolution application in Ubuntu can let you keep and manage a list of your contacts, maintain a calendar, and a task list.

If you have already set up Evolution with an email account, you do not need to do any further setup to use these features. If you do not wish to use Evolution for email, you can still use it for managing your contacts or maintaining a schedule, as well as keep track of tasks and memos that you can create for yourself.

To start Evolution, open the **Applications** menu, then choose **Office** and then **Evolution Mail and Calendar**.

Managing your contacts

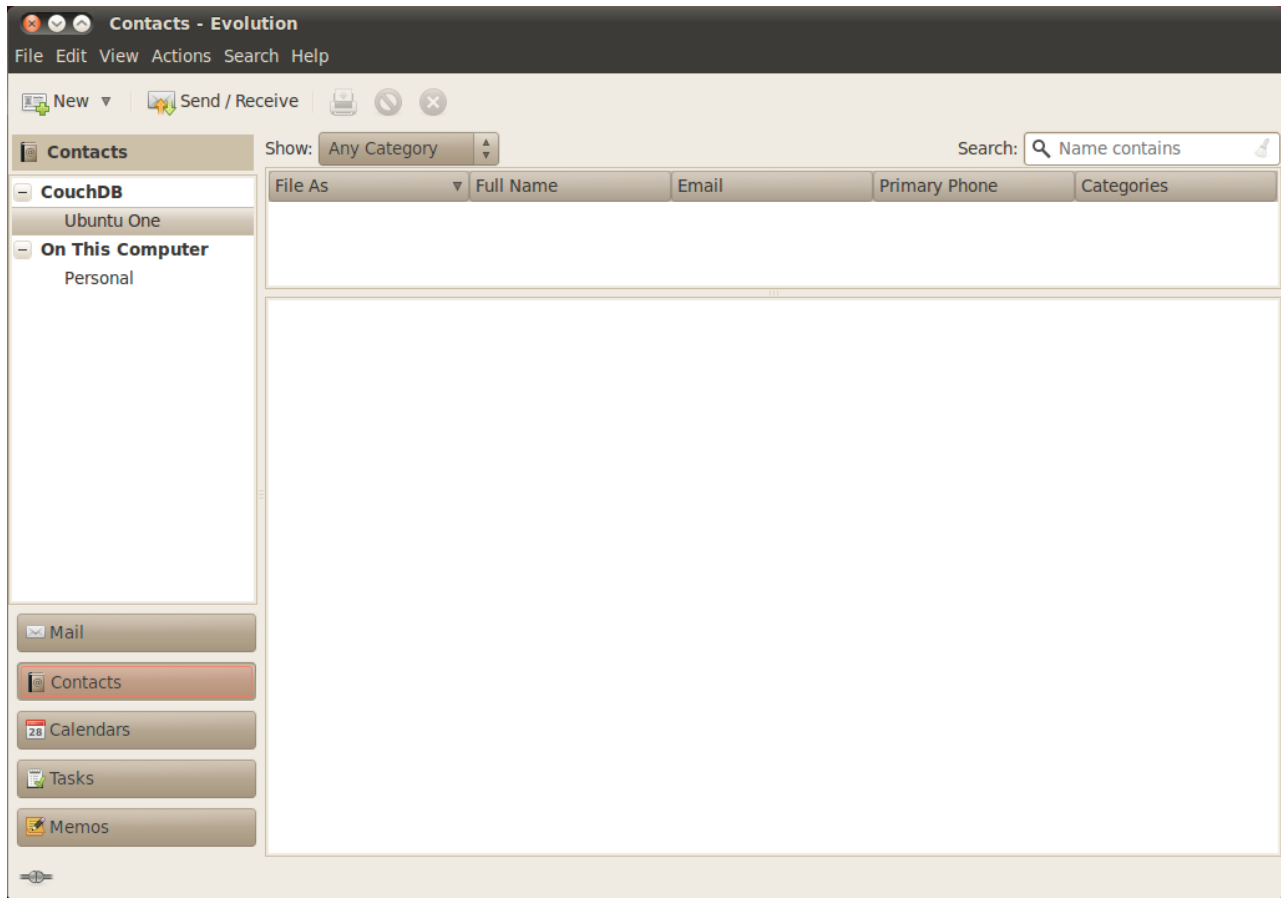


Figure 3.16: You can view, edit, and add contacts.

If you would like to keep a list of your contacts—personal or professional contact information for people and organizations—you can manage these contacts in Evolution.

To view contacts, click on the **Contacts** button below the folder list on the left side of the Evolution window. The folder list on the left will be replaced by a list of address book types. Click on an address book, for example “Personal.”

The right side of the window will display a list of contacts. Click a contact to show the contact’s details in the lower portion of the right side of the window.

If you use Ubuntu One, you may have two address books—a “Personal” address book stored on your computer, and an “Ubuntu One” address book. You can add contacts to either address book, though only the “Ubuntu One” address book is synchronized to your Ubuntu One account.

An address book is a collection of contacts and contact lists. It can either be stored on your computer, or on a remote server.

Ubuntu One is a free service you can use to sync and store contacts, as well as other information. For more information on Ubuntu One see the dedicated section later in this chapter.

Searching for contacts

To find a contact, type in a few letters from the contact's first or last name in the search text box on the upper right of the window, and press Enter. The list below should change to only show contacts whose name matches your search term.

Adding or editing a contact

To make changes to an existing contact, find the contact in the list and double-click on the entry. Evolution should open a "Contact Editor" window for the contact.

Switch between the different tabs in the contact editor to make changes to the contact. Click **OK** when you have finished making your changes.

To add a new contact, click on the **New** on the toolbar. Evolution should open the "Contact Editor" window. Enter the contact's details in the contact editor window, and click **OK** when finished.

Managing your schedule

If you like to manage your schedule with a computer, you can maintain this schedule in Ubuntu using Evolution.

To view your calendar, click on the **Calendars** button below the folder list on the left side of the Evolution window. The folder list on the left will be replaced by a list of calendars, and a mini-calendar showing the current month.

Evolution allows you to manage more than one calendar. For example, you could have a personal calendar and a school or work calendar. You can also subscribe to the calendar of a friend or family member who may choose to share their calendar with you.

Click on one of the calendars in the list. By default, you should have a "Personal" calendar in the list. The middle of the window should now show a view of the current day, showing all the hours of the current day.

If the calendar already has some events, Evolution will show the event in the day view between the hours when the event starts and finishes. You can double-click on the event to open its details, or drag the event to a different time or date to reschedule it.

In the day view, you can click on a different day on the mini-calendar on the left side of the screen. Evolution will then display that day in the day view.

You may also wish to see more than one day at a time. This will allow you to compare schedules on different days, or find a free day for an event you wish to schedule. In Evolution, you can click on the **Work Week** or **Week** buttons on the toolbar to see an entire week at the same time. Click on the **Month** button on the toolbar to see a view of the entire month—if an event

is difficult to read due to the small space allotted to each day, you can hover your mouse over the event to have Evolution show the full title of the event. Finally, the **List** button on the toolbar shows upcoming appointments in a list, allowing you to see all of your upcoming appointments at a glance.

On the right side of the window, Evolution displays a list of tasks and memos. You can add a new task or memo to Evolution

Adding a new event

The simplest way to add a new task is to click a time in the day view, and begin typing. An event “bubble” will appear, containing the text that you are typing. If you want to add a longer event, drag your mouse from the first time slot to the last before starting to type.

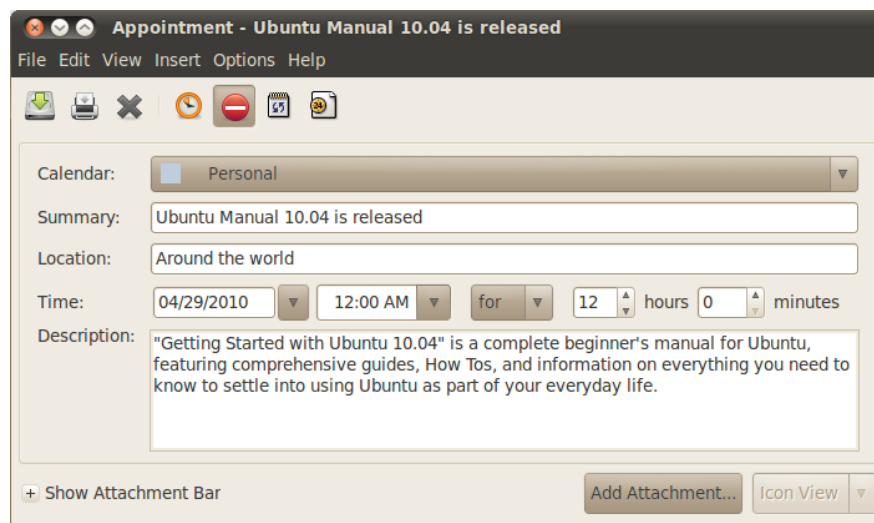


Figure 3.17: You can stay organized by adding events to your calendar.

To add a new event without using the day view, click on the **New** button on the toolbar. Evolution should open the “Appointment” window. In the **Summary** field, enter a short title for the event as you want it to appear on the calendar. Optionally specify the location and enter a longer description if you would like. Make sure that the time and date, as well as the duration, are as you want them. Finally, click on the **Save** button on the toolbar to save this new event (the button looks like a hard drive, and is the first button on the toolbar).

Scheduling a meeting

If you would like to schedule a meeting with one of your contacts, Evolution can assist you in sending out an invitation and processing replies.

To create a meeting invitation, choose **File** ▶ **New** ▶ **Meeting** from the

menubar. Specify the subject, location, time and duration, and description as when you create a regular event.

You will then need to add attendees to this meeting. To add an attendee, click on the **Add** button. In the list of attendees, Evolution will add a new row—type the attendee’s email address or contact name.

When you are finished adding attendees, click on the **Save** button on the toolbar. Evolution should then ask you if you would like to send meeting invitations to your selected participants. Click **Send** to send out these invitations. The invitations will be sent the next time you check email in Evolution.

If your contact chooses to reply to the meeting invitation, Evolution will show you a new email message. In the body of the email message, Evolution will display an **Update Attendee Status** button. Click on that button to mark your contact as attending the meeting.

Using instant messaging

Instant messaging allows you to communicate with people you know in real time. Ubuntu includes the Empathy application that lets you use instant messaging features to keep in touch with your contacts. To start Empathy, open the **Applications** menu from the menubar, then choose **Internet** and then **Empathy IM Client**.

Empathy lets you connect to many instant messaging networks. You can connect to AIM, Gadu-Gadu, Google Talk, Groupwise, ICQ, Jabber, MSN, MySpace, QQ, XMPP, Sametime, Silc, SIP, Yahoo, or Zephyr.

Running Empathy for the first time

When you open Empathy for the first time you will need to configure it with the details of your instant messaging accounts.

When Empathy starts you will see the “Welcome to Empathy” window. Choose the option corresponding to your situation.

You have an account

If you have an account that you have used previously with another instant messaging program then select the **Yes, I’ll enter my account details now** option. Then, click **Forward** to continue.

On the next screen, choose your account type from the drop-down list below **What kind of chat account do you have?**. Then, enter your account details in the field below.

Depending on the account type that you choose, Empathy may request that you enter a username, or an ID for your account, followed by a password.

If you do not remember your account information, you will need to visit the website of the instant messaging network to retrieve that information.

If you have another account to add then select the **Yes** option, and click

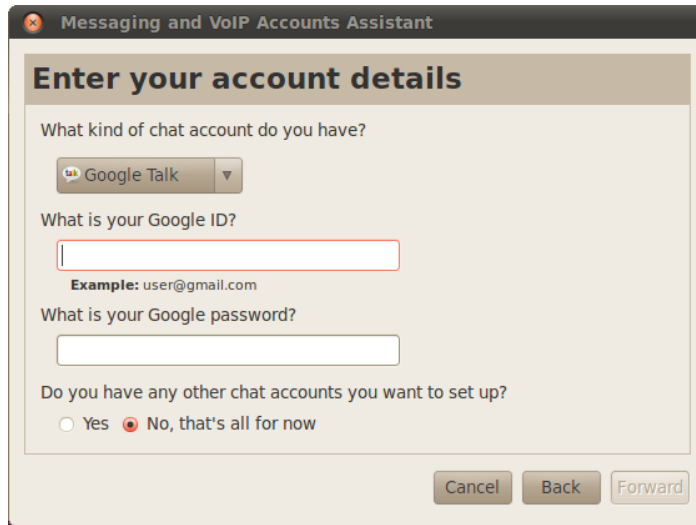


Figure 3.18: Creating a new instant messenger account in Empathy.

Forward to repeat the above process. When you have entered all the accounts leave the **No, that's all for now** option selected, and click **Apply** to finish the setup process.

Next, Empathy should display the “Please enter personal details” screen. If you choose to fill out this information, you will be able to communicate with people who are on your local network either at home or in an office.

Enter your first name in the **First name** field, and your last name in the **Last name** field. Type in a way that you would like to be identified on your local network in the **Nickname** field. When you have filled all of the information, click **Apply**.

If you don't want to communicate with people on your local network, select the **I don't want to enable this feature for now** option and click **Apply**.

You would like an account

If you don't have an account that you can use, then you can create one by selecting the **No, I want a new account** option. Click **Forward** to display the next set of options.

Choose the account type that you would like to create from the drop-down list below **What kind of chat account do you want to create?** You can create either a Jabber or a Google Talk account.

Next, enter the account name that you would like in the text field, and in the proceeding text field enter a password of your choice. If you would like to set up another account then select the **Yes** option, and repeat the above process.

When you have entered all the accounts leave the **No, that's all for now** option selected, and click **Forward**.

Note: If you wish to create another account type then you will need to visit the relevant website and create the account. Then follow the “You have an account” section.

Empathy should display the “Please enter personal details” window. Providing this information allows you to communicate with people who are on your local network either at home or in the workplace.

Enter your **First name** in the text field, and enter your **Last name** in the next field. In the **Nickname** field enter a nickname by which you would like to be identified. When you have filled all of the text fields click **Apply** to save your settings.

If you don’t want to talk to people on your local network then select the **I don’t want to enable this feature for now** option and click **Apply**.

You want to talk to people nearby

If you would only like to communicate with people on your local network either at home or in the workplace, then you should select the **No, I just want to see people online nearby for now** option.

Click **Forward** to display the next set of options. Then enter your **First name** in the text field, and enter your **Last name** in the next field. In the **Nickname** field enter a nickname by which you would like to be identified. When you have filled all of the text fields, click **Forward**.

The screenshot shows a window titled "Messaging and VoIP Accounts Assistant" with a sub-header "Please enter personal details". The main text explains that Empathy can discover and chat with people on the same network and asks the user to verify their details. There is a small cartoon dog icon. A checkbox is present for "I don't want to enable this feature for now". Below are three text input fields labeled "First Name:", "Last Name:", and "Nickname:". At the bottom are three buttons: "Cancel", "Back", and "Apply".

Figure 3.19: You can talk to people nearby by entering your information.

Changing account settings

If you need to add more accounts after the first launch, then open the **Edit** menu, then choose **Accounts**. Empathy will then display the “Accounts” window.

Adding an account

To add an account click on the **Add** button. Empathy should display some options on the right hand side of the window. Choose your account type from the **Protocol** drop-down list. Next, enter your account name in the first text field. Then enter your password in the **Password** text field. Finally click on the **Log in** button to save and verify your settings.

Editing an account

You might need to edit an account if you change the password or get the password wrong. Select the account you want to change on the left side of the “Accounts” window. Empathy should show the current settings for the account. Once you have made your changes, click **Save**.

Removing an account

To remove an account select the account on the left hand side of the window and click on the **Remove** button. Empathy should open the “Do you want to remove” window. Click on the **Remove** button to confirm that you want to remove the account, or click **Cancel** to keep the account.

Editing contacts

Adding a contact

To add a contact open the **Chat** menu, then choose **Add contact**. Empathy should open the “New Contact” window.

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

For example if your contact’s address ends in “@gmail.com” then you will need to add it to an account that ends in “@gmail.com.” Likewise if the contact’s email ends in “@hotmail.com” then you would need to add it to an account ending in “@hotmail.com.”

After choosing the account you wish to add the contact to, you will need to enter their login ID, their username, their screen name or their email address in the **Identifier** text field.

Then, in the **Alias** text field, enter the name that you would like to see it in your contact list. Click **Add** to add the contact to your list of contacts.

Removing a contact

Click on the contact that you want to remove and then open the **Edit** menu, then choose **Contact**, then **Remove**. This will open the “Remove contact” window.

Click on the **Remove** button to confirm that you want to remove a contact, or click **Cancel** to keep the contact.

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.

To send a message to the contact, type 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. If you are communicating with more than one person then all of the conversations will be shown in tabs within the same window.

Audio

If your contact has audio capabilities then there will be an icon of a microphone next to their name. Click on the microphone icon to open a popup menu. Choose the **Audio call** option from the menu. Empathy should then open the "Call" window.

This window shows your picture on the right and your contact's picture on the left. Ensure that your microphone and speakers are connected, and proceed with the audio conversation. You can finish the conversation by clicking on the **Hang up** button.

Video

If your contact has video chat capabilities then there will be an icon of a webcam next to their name. Click on the icon to open a popup menu. Choose the **Video call** option from the menu. Empathy should then open the "Call" window.

This window shows your webcam view in the top right and your contact's webcam will be in the middle.

If you don't have a webcam then your picture will be shown instead. You can finish the call by clicking on the **Hang up** button.

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, open the **Contact** menu and then choose **Send file**.

Empathy should open the "Select file" window. Find the file that you wish

to send and click on the **Send** button. A “File Transfers” window will open showing the chosen file and its transfer progress.

When the file transfer is complete, you can close the “File Transfers” window.

Receiving a file

When a contact wants to send you a file, the status icon to the left of the contact’s name will flash with an icon of a paper plane.

To receive the file double-click the contact’s name. Empathy will open the “Select a destination” window. Choose a location where you would like Empathy to save the file, and click **Save**. Empathy should open the “File Transfers” window.

The “File Transfers” window shows you the progress of current file transfers. You can stop file transfers by clicking on the **Stop** button, open transferred files by clicking on the **Open** button, and clear the list of completed transfers by clicking on the **Clear** button.

Changing your status

You can use your status to show your contacts how busy you are or what you are doing. You can use the standard statuses, which are “Available,” “Busy,” “Away,” “Invisible,” and “Off-line.” These can be changed in the main Empathy window from the drop-down list at the top of the window.

The same drop-down list lets you set a custom status by choosing “Custom Message...” next to the icon that matches your status. Type what you would like your status to say, and click on the green check mark.

Changing your picture

Your picture is what your contacts will see next to your name in their contact list. The default picture is the outline of a person. You can change your picture by opening the **Edit** menu, then choosing **Personal Information**.

Empathy should open the “Personal Information” window. From the **Account** drop-down list choose the account that you want to change, then click on the picture on the right hand side of the window.

Empathy should open the “Select Your Avatar Image” window. Find the file containing your picture, and click **Open**. If you would like to return it to the default avatar, click on the **No Image** button instead.

Microblogging

You can connect several microblogging services by opening the **Applications** menu, then choosing **Internet** and then **Gwibber Social Client**. Until you add accounts, the “Social Accounts” window will open.

After you have added accounts you will see the “Social broadcast messages” window.

In this window in the **Add new** drop-down list you can choose the from Flickr, Twitter, StatusNet, Qaiku, Facebook, FriendFeed, Digg, and Identi.ca.

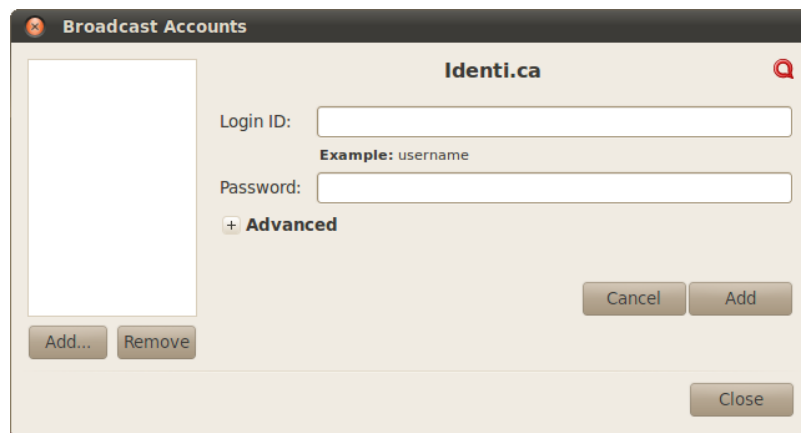


Figure 3.20: Gwibber lets you add many different account types.

MeMenu

If you click your name in the top panel, you will see the “MeMenu,” in the box below your name you can type a message to post on the sites that you have set up with Gwibber.

You can also change your account settings by clicking **Broadcast Accounts...**, this opens the “Broadcast Accounts” window.

Changing accounts

To add more accounts after you have already added some. Click **Edit then Accounts**, the “Social Accounts” window will open.

Adding accounts

In the “Social Accounts” click **Add...**, each account will need you to enter your account details. The details that you require for each account is detailed as follows.

Flickr: To set up a Flickr account all you need is the account login ID.

Twitter: Requires a user name and password.

StatusNet: A login ID, domain and password is needed.

Qaiku: You will need an API key, instructions for this are provided in the Gwibber window. You will also need your login ID.

Facebook: Click **Authorize**, then enter your email address and password and click **Connect**. If you want to be able to post on Facebook from Gwibber, click **Allow publishing**, otherwise click **Don't allow**.

If you want Gwibber to show your news feed, you will need to click **Allow access**, otherwise click **Don't allow**. You will also need to allow status updates—click **Allow status updates**; if you don't want Gwibber to be able to update your status, click **Don't allow**.

In order for Gwibber to interact with Facebook each time it is used, it will need to have constant authorization. If not, you will have to authorize it each time you use it. To allow constant authorization click **Allow**.

FriendFeed: A remote key is required for friend feed, Gwibber provides information on where to get one from. You will also need a login ID.

Digg: A login ID is all that is required for Digg.

Identi.ca: A login ID and password is required for Identi.ca.

Removing accounts

In the “Broadcast Accounts” window click the account that you want to remove and click **Remove**.

How Gwibber displays accounts

Gwibber allows you to post to either all, one or a selection of accounts. This can be set at the bottom of the “Social broadcast message” window—each of the accounts that you can post with will have an icon. Clicking on an icon so that it is disabled (appears gray) means that you will not post to that account.

Once you have decided on which accounts you want to post to you can type your message in the text field above the icons, then click **Send**.

Each one of your accounts will have a set of icons to go with it. These icons are displayed on the left hand side of the “Social broadcast message” window. The set of icons that goes with an account has a background color. Selecting each one of these icons allows you to do tasks for that specific account.

Viewing and editing photos

To view and edit photos in Ubuntu, you can use the F-Spot Photo Manager application. To start F-Spot, open the **Applications** menu, then choose **Graphics**, then **F-Spot Photo Manager**. When you start F-Spot for the first time, you will see the “Import” window—how to use this is covered in ‘**Importing**’.

By default, F-Spot displays your photos by date. You can view photos from a specific month by clicking on that month in the timeline near the top of the window.

You can also play slide shows of your pictures by clicking on the Play button on the toolbar (this button looks like a green triangle).

This guide often refers to the side bar on the left. If you can't see it, open the **View** menu, then choose **Components**, and choose **Sidebar**—making sure the option is selected.

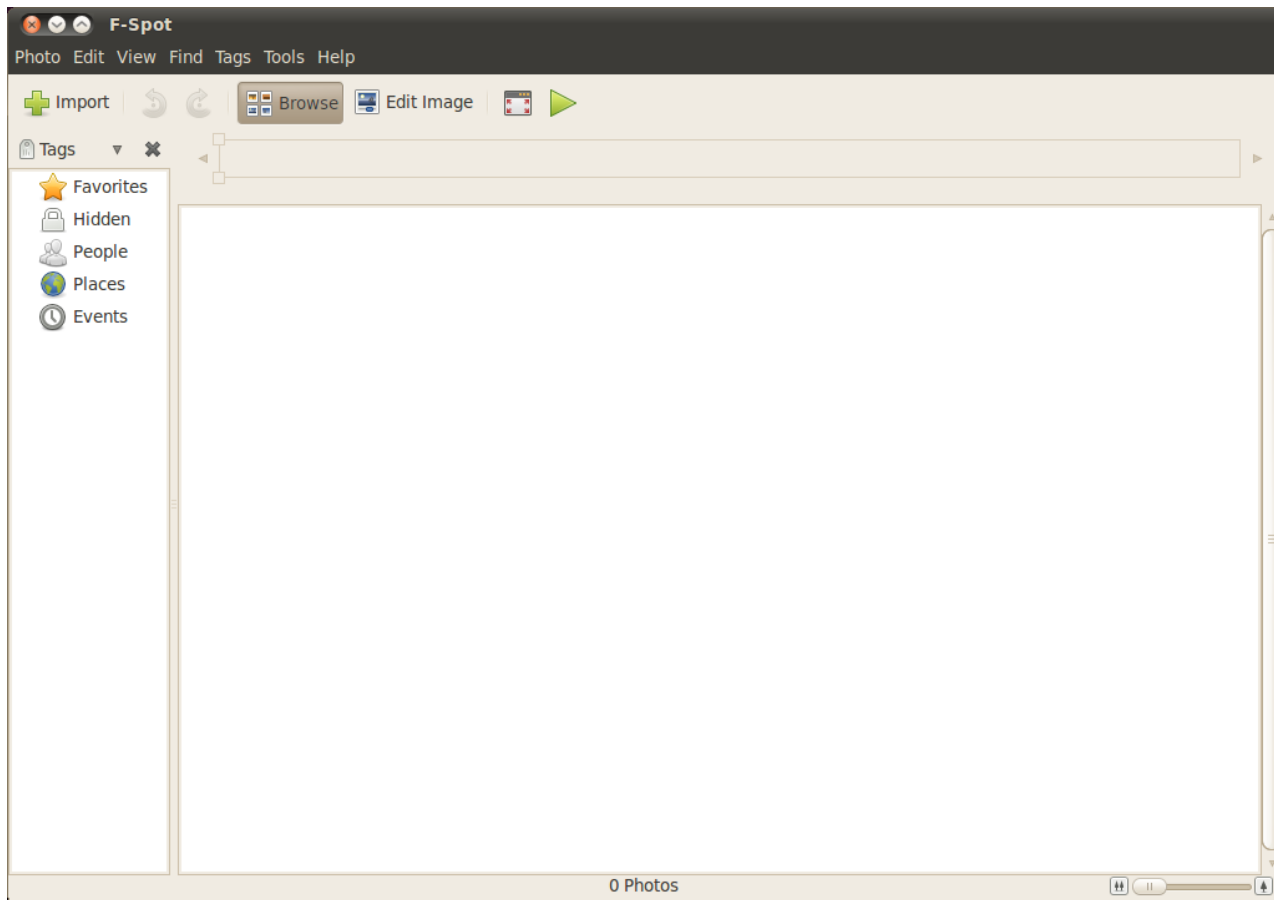


Figure 3.21: F-Spot lets you store, tag, and edit your photos.

Version system

When you edit a photo, F-Spot creates a new version so that the original is not lost. You can create a new version by opening the **Photo** menu, then choosing **Create New Version....** This opens the “Create New Version” window. In the **Name** text field you can type what you would like to call the version and then click **OK**. A new version will then be created.

You can view previous versions of photos by clicking on the photo that you wish to view, then clicking on the **Edit Image** button. This changes the side bar on the left to the “Edit” side bar. In the bottom left, the **Version** drop-down list allows you to choose previous versions of the photo.

You might want to rename a version so that you remember which version is which. To rename a version, click on the photo that you want to change, then click on the **Edit Image** button. This changes the side bar on the left to the “Edit” side bar. In the bottom left the **Version** drop-down list lets you choose the version of the photo that you want to rename.

Open the **Photo** menu, then choose **Rename Version**. This will open the “Rename Version” window. Enter the new name in the **New name** text field,

then if you want to rename the version click **OK**. If you don't want to rename the version, click **Cancel**.

When editing photos, you may make a mistake and may decide to remove that version as you no longer need it. To delete a version, click on the photo that you want to change, then click on the **Edit Image** button. This changes the side bar on the left to the "Edit" side bar. In the bottom left the **Version** drop-down list choose the version of the photo that you want to delete. Then open the **Photo** menu, then choose **Delete Version**. This will open the "Really Delete?" window. If you want to delete the version click **Delete**. If you don't want to delete the version, click **Cancel**.

Importing

When you launch F-Spot for the first time you will see the "Import" window. After the first launch you can import more photos by clicking on the **Import** button.

When you import some photos, only the photos that you have just imported are shown. To show all of your photos, click on the gray X to the right of the blue **Find**.

Choosing where F-Spot saves photos

When importing pictures in the "Import" window, the **Copy files to the Photos folder** option determines where the photos are saved.

If the **Copy files to the Photos folder** option is selected then F-Spot will copy the photos into the **Photos** folder, which is within your **Pictures** folder. The pictures are then sorted by year, month and then date.

If the **Copy files to the Photos folder** option is unselected then F-Spot will not copy the pictures into the **Photos** folder.

Importing from file

To import photos that are saved on your computer, choose **Select Folder** from the **Import Source** drop-down list. This opens the "Import" window. Navigate to the folder containing your photos and click **Open**.

When the loading bar says "Done Loading" all the photos in that folder and any sub-folders are then displayed in the "Import" window. You can exclude importing photos from sub-folders by deselecting the **Include sub-folders** option.

All of the photos are imported by default, but you can choose to import only some photos. To do so, press-and-hold the **Ctrl** key while clicking the photos you do not want to import. Duplicates are automatically detected when the **Detect duplicates** option is selected.

You can attach tags by typing the names of your current tags in the **Attach Tags** text field. If you want to use multiple tags then separate them with a comma.

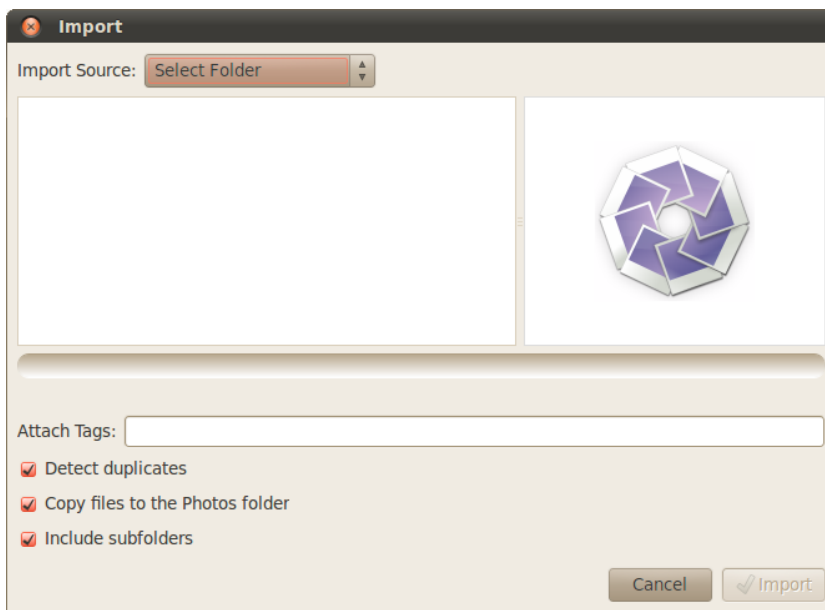


Figure 3.22: You can import all of your photos.

Once you have chosen the photos that you want to import, click on the **Import** button.

From digital camera

To import photos from a digital camera, plug your camera into the USB port of your computer, and turn your camera on. If your camera is detected, Ubuntu should open a new window prompting you to import photos. Ensure that **Open F-Spot** is chosen in the drop-down list and click **OK**. This will show the “Import” window. In the **Import Source** drop-down list choose the option that looks like **...Camera**.

A “Select Photos to Copy from Camera...” window will open. You can then click the photos that you want to copy. All of the photos are selected by default but you can add or remove individual photos by pressing-and-holding the **Ctrl** key while clicking on photos to deselect them.

You can attach tags to all of them by clicking on the **Attach tag** option and choosing the tag in the **Attach tag:** drop-down list. For more information about tags see [Organizing photos](#).

You can change where the files are saved in the **Target location** drop-down list. The default is the **Photos** folder—this is where F-Spot saves the photos.

Once you have chosen the photos that you want to import, click on the **Copy** button. The “Transferring Pictures” window should open, and will show the copying progress. When copying is complete, the progress bar will display **Download Complete**. Finally, click **OK** to show your photos in F-Spot.

Organizing photos

F-Spot 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 choose **Attach Tag**. Click the tag you want add to your photos. You can attach tags when importing photos, as covered in the “Importing” section.

You can make new tags by opening the **Tags** and choosing **Create New Tag...** This will open up the “Create New Tag” window. Enter the name of the tag in the **Name of New Tag:** text field. The **Parent Tag:** drop-down list allows you to choose the “parent” tag for your new tag.

Editing Images

You may want to edit some of the photos you import into F-Spot. For example, you may want to remove something at the edge, some discoloring, fix red eyes, or straighten a photo. To edit a photo, click on the photo that you want to edit and then click on the **Edit Image** button. This changes the side bar on the left of the “F-Spot” window. The panel will show eight options: **Crop**, **Red-eye Reduction**, **De-saturate**, **Sepia Tone**, **Straighten**, **Soft Focus**, **Auto Color**, and **Adjust Colors**. Some of these options are explained in more detail in the next section.

Cropping photos

You might want to crop a photo to change the framing or remove part of the edge of the photo. Click on the **Crop** on the left panel, then in the **Select an area to crop** drop-down list choose the ratio that you would like to crop with. You might want choose the ratio that matches the ratio that you would like to print, so that the photo is not stretched.

You can create custom constraints if one of the defaults does not meet your requirements. This is done by choosing **Custom Ratios** from the **Select an area to crop** drop-down list. This opens the “Selection Constraints” window. Click **Add** to place a new entry on the left of the window.

Once you have chosen your constraint, move the cursor to one corner of the section of the photo that you want to keep. Click-and-hold the left mouse button and drag it to the opposite corner of the section that you want to keep. Release the the mouse button to finish your cropping selection.

To resize the cropping selection box, move the mouse until an arrow points to the side of the cropping selection box that you want to move. Click-and-hold the left mouse button, and move the mouse until the edge is in the right place.

All ratios work in portrait and landscape mode. To change between the two, you need to click on the edge of the cropping selection box as if you

were to resize the box. Moving the cursor between top right and bottom left switches between portrait and landscape modes.

Red-eye Reduction

If you have taken a photo and the flash caused the subject to have red eyes, you can fix this problem in F-Spot. First, click on the **Red-eye Reduction** button. Move the cursor to the one corner of the subject's eye and click-and-hold the left mouse button as you drag the cursor to the opposite corner of the eye. Then, release the mouse button.

This box can be moved by placing the cursor into the middle of the red eye selection box until a hand cursor is shown. Then, click-and-hold the left mouse button and move the selection box into the correct place. When it is in the correct place you can release the left mouse button.

To resize the box, move the mouse until an arrow points to the side of the red eye selection box that you want to move. Click-and-hold the left mouse button, move the mouse until the edge is in the right place.

When the box covers all of the red in one eye, click the **Fix** button. You will need to repeat the process for each of the subject's eyes that is affected.

Straighten

If you have a photo where the subject is at an angle, you can straighten the photo with F-Spot. First, click on the **Straighten** button. Then move the slider until the picture is straight again. F-Spot will auto crop the picture to remove any white parts that occur due to the rotation. When you are happy that the picture is straight, click on the **Straighten** button.

Auto Color

To automatically correct the coloring of a photo, click on the **Auto Color** button.

Exporting to web services

F-Spot allows you to export you photos to a Web Gallery, Folder or CD and the following services: SmugMug, Picasa Web, Flickr, 23hq and Zoomr.

You can export to these services by selecting a picture and then opening the **Photo** menu, then choosing **Export to** and clicking the service that you require. This will open a window in which you can enter your account name and password for the service. This will allow you to upload pictures to this service.

Watching videos and movies

To watch videos or DVDs in Ubuntu, you can use the Movie Player application. To start the Movie Player, open the **Applications** menu, then choose **Sound & Video**, then choose **Movie Player**. This will open the “Movie Player” window.

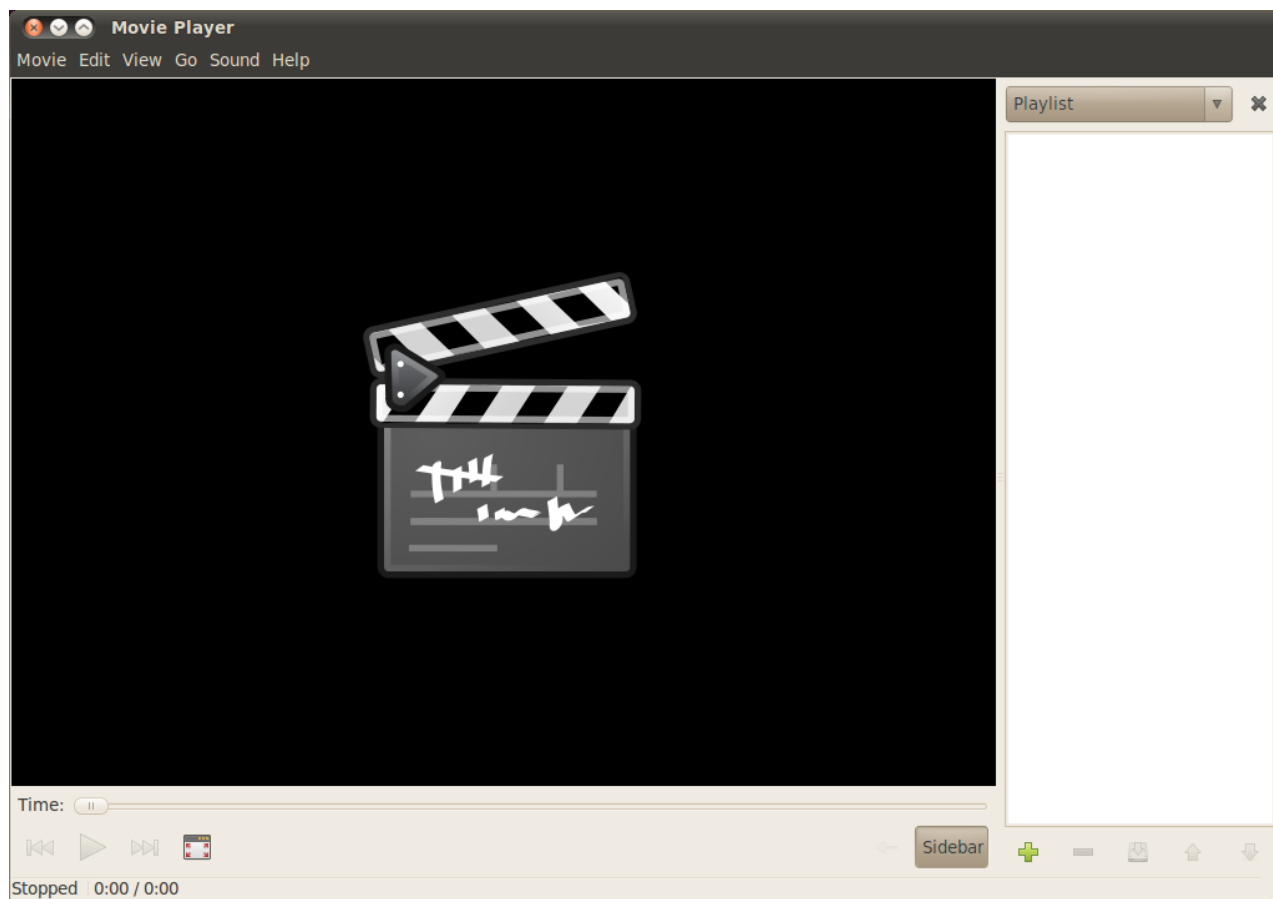


Figure 3.23: Totem plays music and videos.

Codecs

Watching DVDs may require Ubuntu to install a “codec,” which is a piece of software that allows your computer to understand the contents of the DVD, and display the video.



Legal Notice: Patent and copyright laws operate differently 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.

So that you can play all videos and DVDs, you will need to install some codecs. These are located within the **Multiverse** repository. This is now enabled by default.

To install the codecs, open the **Applications** menu, then choose **Ubuntu Software Center**. When the “Ubuntu Software Center” window opens, use the search box in the top right and search for the following:

- ▶ gstreamer0.10-ffmpeg
- ▶ gstreamer0.10-plugins-bad
- ▶ gstreamer0.10-plugins-bad-multiverse
- ▶ gstreamer0.10-plugins-ugly
- ▶ gstreamer0.10-plugins-ugly-multiverse
- ▶ gstreamer0.10-plugins-base
- ▶ gstreamer0.10-plugins-good
- ▶ libdvdread4
- ▶ libdvdnav4

When you find each one, select it with a double-click and then click the **Install** button. This may open an “Authenticate” window. If so, enter your password then click **Authenticate** to start the installation process.

To finish codec installation, you also need to run a command in the terminal. Open the **Applications** menu, then choose **Accessories** and then choose **Terminal**. This will open the “Terminal” window.

Type the command as shown below.

```
$ sudo /usr/share/doc/libdvdread4/install-css.sh
```

Once you have typed the command, press Enter. You will be asked for your password—to authorize this action, type in your password and press Enter. Wait for the process to finish. Once it has finished you can close the “Terminal” window.

Playing videos from file

Open the **Movie** menu, then choose **Open...** This will open the “Select Movies or Playlists” window. Find the file or files that you want to play and click on the **Add** button. The video or videos will start playing.

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 **Open Movie Player** is chosen in the drop-down list and then click **OK**. The “Movie Player” window will open and the movie will start.

If the “Movie Player” window is already open, open **Movie** menu, then choose **Play Disc...** and the movie will start.

For more information on the terminal see [Chapter 6: The Command Line](#)

Sudo is a way to gain temporary administrative rights to perform certain tasks, such as installing new software. Usually, sudo is presented in a window for you to enter your password. When you enter your password in a terminal, it will not be shown.

Listening to audio and music

Ubuntu comes with the Rhythmbox Music Player for listening to your music, streaming Internet radio, managing playlists and podcasts, and purchasing songs.

Starting Rhythmbox

To start Rhythmbox, open the **Applications** menu, then choose **Sound & Video**, then **Rhythmbox Music Player**.

To quit Rhythmbox, choose **Music > Quit** or press **Ctrl+Q**. Rhythmbox will continue to run if you choose **Music > Close** or close the window. A few Rhythmbox tools (such as **Play**, **Next**, and **Previous**) are available from the Rhythmbox Music Player icon in the **notification area** (typically the top right of your screen). You can also choose **Quit** from this menu to quit Rhythmbox.

Playing music

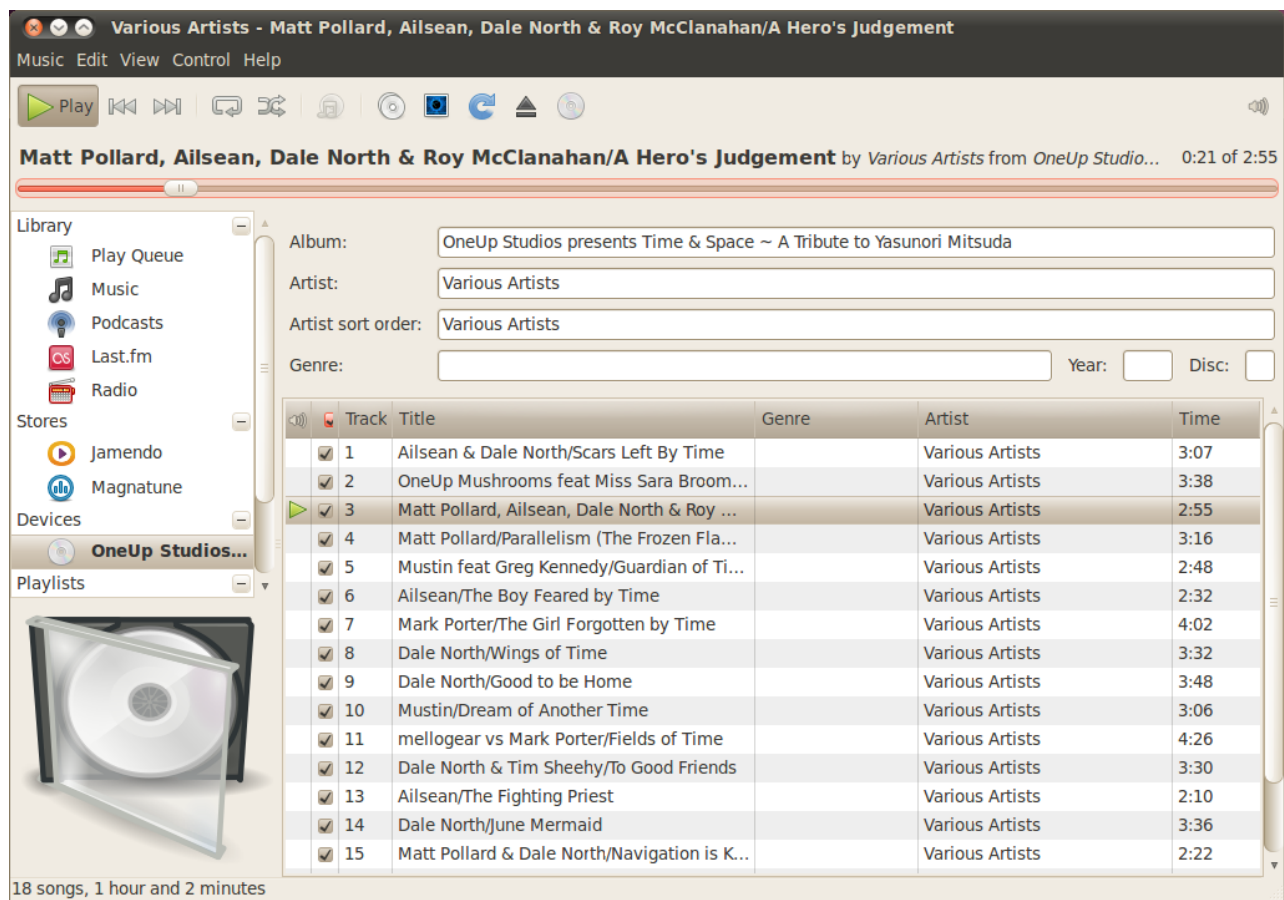


Figure 3.24: Rhythmbox with a CD in.

In order to play music, you must first import music into your library. Choose **Music ▸ Import Folder** or press **Ctrl+O** on your keyboard to import a folder of songs or **Import File** for single songs.

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, select a track and click on the **Play** button on the toolbar (you can also choose **Control ▸ Play** from the menubar or press **Ctrl+Space**). Clicking on the **Play** button again will pause the song.

Next and **Previous** buttons are next to the Play button. You can click on these buttons to play the next and previous songs in your library.

The Rhythmbox toolbar also has options to enable or disable **Repeat** (**Control ▸ Repeat** or **Ctrl+R**), **Shuffle** (**Control ▸ Shuffle** or **Ctrl+U**), the **Artist/Album browser** (**View ▸ Browse** or **Ctrl+B**), and **Visualization**.

When you insert a CD into your computer, it will appear in the list of Devices in the Side Pane. Select the CD in the Devices list. Enable and disable the Side Pane by choosing **View ▸ Side Pane** or **F9**. Rhythmbox will attempt to find the correct artist, album, and track names. To play the songs on the CD, choose the track and press Play.

To import the songs into your library, select the CD in the Devices list. You can review information about the CD, make any changes if needed, or deselect songs that you do not want to import. The toolbar will display additional options to **reload album information**, **eject the CD**, and **copy the tracks to your library**. Press the Copy button to import the songs.

Listening to streaming radio

Rhythmbox is preconfigured to enable you to stream radio from various sources. These include Internet broadcast stations (**Radio** from the Side Pane) as well as **Last.fm**. To listen to an Internet radio station, choose a station from the list and click **Play**. To listen to music from Last.fm, configure your **Account Settings**.

Streaming radio are radio stations that are broadcast over the Internet.

Connect digital audio players

Rhythmbox can connect with many popular digital audio players. Connected players will appear in the Devices list. Features will vary depending on the player but common tasks like transferring songs and playlists should be supported.

Listen to shared music

If you are on the same network as other Rhythmbox users (or any music player software with DAAP support), you can share your music and listen to their shared music. Choose **Shared** from the Side Pane for a list of shared libraries on your network. Usually shares will be listed automatically but some-

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

times you will be required to add the IP manually. To do this click **Music ▶ Connect to DAAP share....** Then enter the IP address and the port number. Then click **Add**. 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 **Subscribe to a new Podcast Feed** and **Update all feeds**. Choose **Music ▶ New Podcast Feed**, **Ctrl+P**, or press the Subscribe button in the toolbar to import a podcast URL. 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.

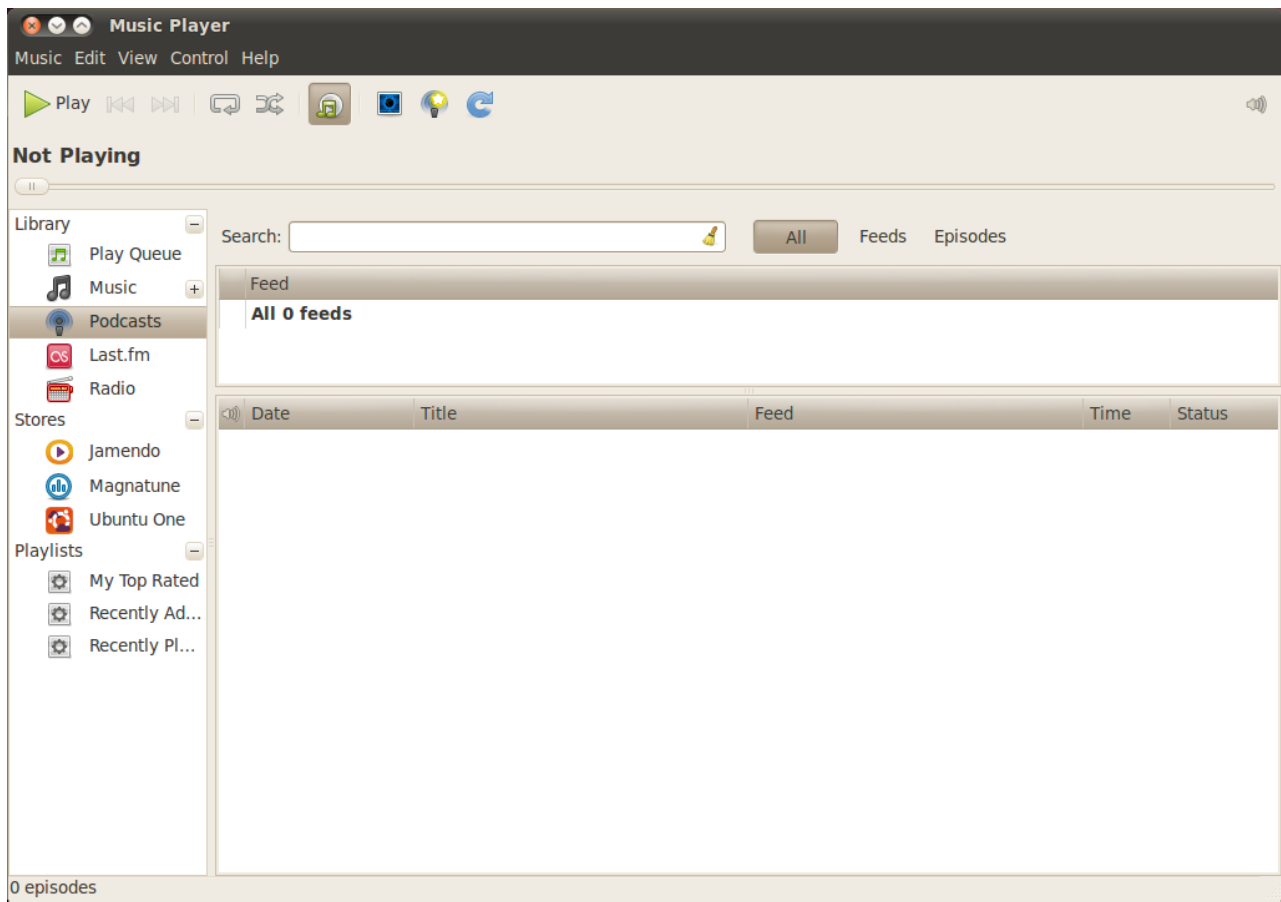


Figure 3.25: You can add and play your podcasts in Rhythmbox.

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 options** include music filtering and sorting options and a configuration setting for toolbar button labels.
- ▶ **Playback options** allow you to customize the crossfading feature and define the buffer setting for streamed music from sources such as Internet radio and shared libraries.
- ▶ **Music options** define the **Library Location** on your computer where imported music is added, the **Library Structure** of how folders are created based on your imported music, and the **Preferred format** for imported music.
- ▶ **Podcasts options** define the **Download location** podcast episodes and the frequency to **Check for new episodes**.

Managing your music

Rhythmbox supports creating playlists. Playlists are either static lists of songs that are played in order or can be automatic playlists based on your specific filter criteria. Playlists contain references to songs in your library. They do not contain the actual song file. If you remove a song from a playlist (**Remove from Playlist**), it will remain in your library.

To create a playlist, choose **Music ▶ Playlist ▶ New Playlist** or **Ctrl+N** and give the new playlist a name. You can then either drag songs from you library to the new playlist in the side pane or right-click on songs and choose **Add to Playlist** and pick the playlist.

Automatic Playlists are created almost the same way as static playlists—choose **Music ▶ Playlist ▶ New Automatic Playlist**. Next, define the filter criteria. You can add multiple filter rules. Finally, click **Close** and give the new automatic playlist a name. Automatic Playlists will appear in your side pane with a different icon than any static playlists. You can update any playlist by right-clicking on the name and choosing **Edit...**

Rhythmbox supports setting song ratings. Select a song in your library and choose **Music ▶ Properties**, **Alt+Enter**, or right-click on the file and choose **Properties**. Select the **Details** tab and set the rating by picking the number of stars. Other song information such as **Title**, **Artist**, and **Album** can be changed from the **Basic** tab. Click **Close** to save any changes.

To delete a song, select it in your library and choose **Edit ▶ Move to Trash** or right-click on the song and choose **Move to Trash**. This will move the song file to your trash.

If you ever want to move a song (for example to another computer), choose

the song (or group of songs) from your library and drag it to a folder or to your desktop. This will make a copy in the new location.

Rhythmbox plugins

Rhythmbox comes with a variety of plugins. These are tools that you can enable and disable that add more features to Rhythmbox. Examples include **Cover art**, **Song Lyrics**, and various music stores. A few plugins are enabled by default.

To view the list of available plugins, choose **Edit ▶ Plugins**. The **Configure Plugins** window allows you to enable or disable individual plugins, view descriptions, and configure additional options if they are available for the plugin.

Music stores

Rhythmbox has three music stores which give you access to an extremely large catalog of music with a variety of licensing options.

The **Jamendo** store sells free, legal and unlimited music published under the six Creative Commons licenses. You can browse the catalog and play songs by choosing **Jamendo** in the **Stores** list in the side pane. More information about their catalog can be found at <http://www.jamendo.com/>.

The **Magnatune** store sells music from independent musicians. They work directly with artists and hand-pick the songs available. Their catalog is composed of high quality, non-DRM (no copy protection) music and covers a variety of genres from Classical and Jazz to Hip Hop and Hard Rock. You can browse the catalog and play songs by choosing **Magnatune** in the **Stores** list in the side pane. More information about their catalog and subscription service can be found at <http://www.magnatune.com/>.

The **Ubuntu One Music Store** sells music from major and minor music labels around the world. The store offers non-DRM (no copy protection) songs encoded in either high quality MP3 or AAC format. Ubuntu does not come with support for MP3 playback, but the store will install the proper codecs automatically for free. You can browse the catalog, play previews, and buy songs by choosing **Ubuntu One** in the **Stores** list in the side pane.

The Ubuntu One Music Store integrates with the Ubuntu One service. All purchases are transferred to your personal cloud storage and then automatically copied to all of your computers so an Ubuntu One account is required. The catalog of music available for purchase will vary depending on where you live in the world. More information about the Ubuntu One Music Store can be found at <http://one.ubuntu.com/music/>.

Audio codecs

Different audio files (*e.g.*, MP3, WAV, AAC) require unique tools to decode them and play the contents. These tools are called codecs. Rhythmbox will attempt to detect any missing codecs on your system so you can play all of your audio files. If a codec is missing, it will try to find the codec in online resources and guide you through installation.

Rhythmbox support

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

- ▶ Choose the **Help** button for a variety of support options and information about reporting Rhythmbox bugs.
- ▶ The Rhythmbox website: <http://projects.gnome.org/rhythmbox/>
- ▶ The Multimedia & Video category of Ubuntu Forums: <http://ubuntuforums.org/forumdisplay.php?f=334>

Working with documents, spreadsheets, and presentations

Quite often, you may need to use your computer for work. You may have a need to use a word processor to write a document. You may need to work on a spreadsheet, do calculations on a table of data or create a data chart. You may want to work on slides for a presentation.

In Ubuntu, you can use the OpenOffice.org suite of applications for these tasks.

Working with documents

If you need to work with documents, you can use the OpenOffice.org Word Processor. To start the word processor, open the **Applications** menu, choose **Office**, and then choose **OpenOffice.org Word Processor**. Ubuntu should then open the main window for the word processor.

The OpenOffice.org Word Processor is also known as the OpenOffice.org Writer. Spreadsheet is also known as Calc, and Presentation is known as Impress.

Working with spreadsheets

If you need to work with spreadsheets, you can use the OpenOffice.org Spreadsheet. To start the spreadsheet application, open the **Applications** menu, choose **Office**, and then choose **OpenOffice.org Spreadsheet**.

Working with presentations

If you need to work with slides for a presentation, you can use the OpenOffice.org Presentation. To start the presentation application, open the **Applications** menu, choose **Office**, and then choose **OpenOffice.org Presentation**.

Getting more help

Each of these applications comes 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.

Taking notes

You can take notes in a program called **Tomboy Notes**. You can use it to make a shopping or a to do list. Click **Applications**, then click **Accessories** and click **Tomboy Notes**.

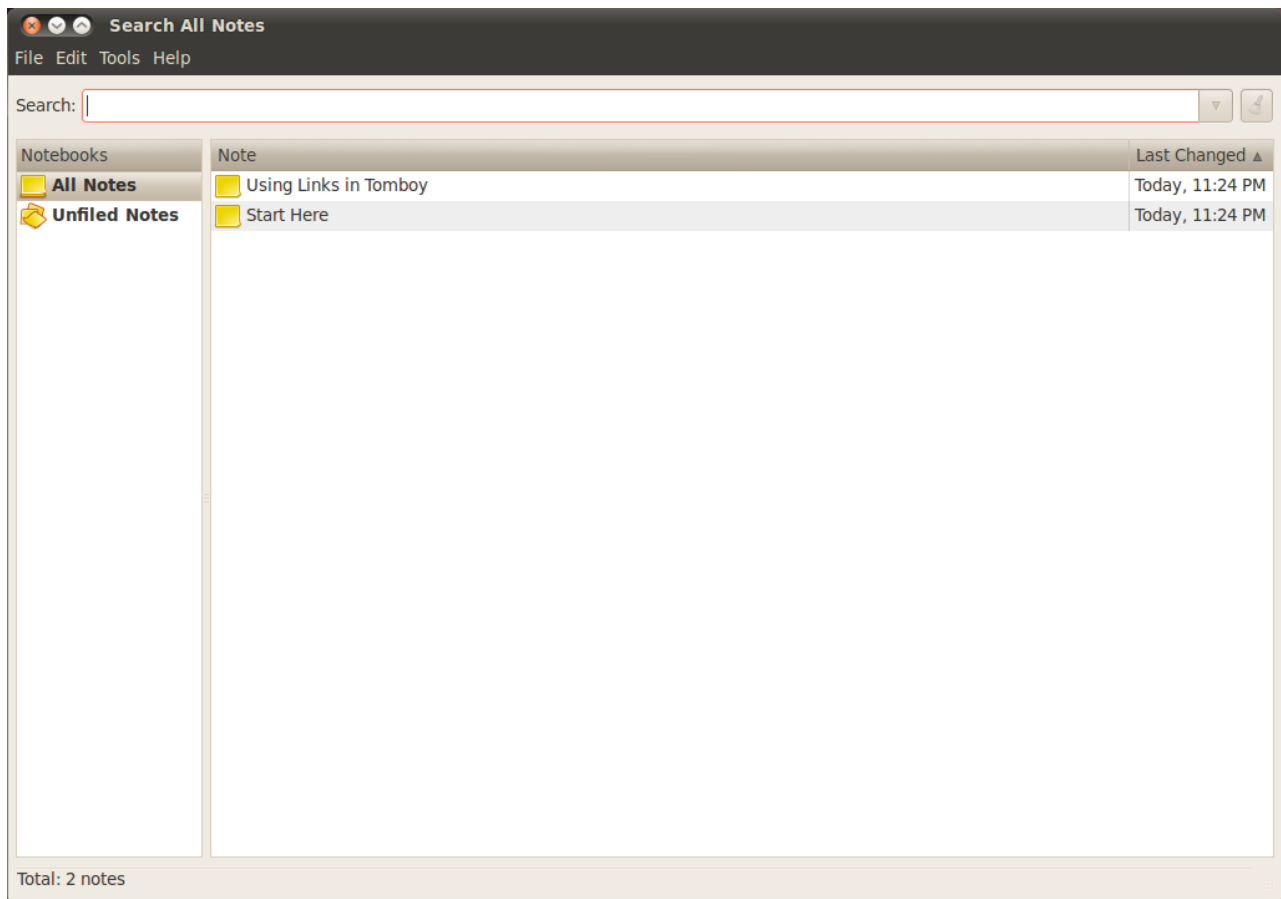


Figure 3.26: You can record information that you need to remember.

You can search all of your notes by typing a word in the **Search:** text field in the main tomboy window.

Making notes

To create a new note click **File**, then click **New**. The “New Note” window will open.

The “New Note” window will contain a blue title “New Note”—this can be deleted and changed to a title that makes the note more memorable. The main content of the note can be typed where it says “Describe your new note here.” Once you have entered your text just close your note as all changes are automatically saved.

To delete the note click the red delete note button. This will open a “Really delete this note?” window. If you do want to delete the note click the **Delete** button, otherwise click the **Cancel** button.

You can add a note to a notebook by clicking the **Notebook** button and clicking the option next to the notebook that you want to move the note to.

Organizing notes

You can organize your notes in Tomboy using “Notebooks.” This makes finding you notes quicker and in a more logical location. To create a new notebook click **File**, then **Notebooks**, and click **New Notebook...**

The “Create a new notebook” window will open, type the name of the notebook in the **Notebook name:** text field. Once you have typed the notebook name click the **Create** button.

The notebook will now show up in the sidebar of Tomboy Notes. You can click and hold on the note of your choice and drag it on top of the notebook that you want to move it to.

Synchronizing

You can synchronize your notes with your Ubuntu One account, which means that you can access them across all of your Ubuntu computers. You can also access them from <https://one.ubuntu.com/>.

To synchronize your notes click the **Edit**. Then click **Preferences**. This will open the “Tomboy Preferences” window. Click the **Synchronization** tab and then in the **Service** drop down click **Tomboy Web**.

Next click the **Connect to Server** button. This will open a web page in **Firefox** you will need to enter the email address that you use for Ubuntu One and your password. Then click the **Continue** button, then in the **Computer Name** text field enter a name that reminds you of that computer and click the **Add This Computer** button. Firefox will then display a page that says something similar to “Tomboy Web Authorization Successful.”

Back at the “Tomboy Preferences” window click the **Save** button. A new window will pop up asking if you want to “synchronize your notes now.” Click the **Yes** button and the “Synchronizing Notes...” window will show. Once the synchronization is complete click the **Close** button.

If you want to synchronize the notes again click **Tools** and click **Synchronize Notes**. Your notes will start synchronizing. When they are done, click the **close** button.

Ubuntu One

It is common for many people to use multiple computers in the course of their work, school, and personal life. You might have a desktop at your office as well as a laptop for traveling or just going to a coffee shop. Ensuring that all of your files are accessible no matter what computer you're using is quite a difficult task. The same could be said for the complexity of keeping your Evolution address book, Tomboy notes, or Firefox bookmarks in sync.

Ubuntu One can help you keep your digital life in sync. All of your documents, music, bookmarks, address book contacts, and notes stay in sync across all of your computers. In addition, they're all stored in your personal cloud so you can use a web browser from any computer to access all of your stuff from the Ubuntu One website (<http://one.ubuntu.com/>).

Ubuntu One provides all Ubuntu users with 2 GB of storage for free. More storage capacity and contacts synchronization with mobile phones is available for a monthly fee. After you set up Ubuntu One you can continue to use your computer as you normally would, with Ubuntu One taking care of making your data appear on all your other computers with Ubuntu One installed.

Setting up Ubuntu One

To set up Ubuntu One, first open the **System** menu, then choose **Preferences**, then **Ubuntu One**. If this is your first time running the *Ubuntu One Preferences* application, it will add your computer to your Ubuntu One account.

Ubuntu One uses the Ubuntu Single Sign On (sso) service for user accounts. If you don't already have an Ubuntu sso account, the setup process will let you create one. When you're finished, you will have an Ubuntu sso account, a free Ubuntu One subscription, and your computer will be setup for synchronization.

Ubuntu One Preferences

The Ubuntu One Preferences application shows how much of your storage capacity you are currently using as well as provides account management tools.

The *Account* tab displays your account information like name and email address and links to more account management and technical support resources.

The *Devices* tab lists all of the devices that are currently added to synchronize with your account. Devices are either computers or mobile phones. For the computer that you are currently using, you can adjust how much of your bandwidth is used by synchronization and connect or reconnect to Ubuntu One. You can also remove computers and mobile phones from your Ubuntu One account.

The *Services* tab is where you manage what Ubuntu One features synchronize with your cloud storage and other computers. You can enable or disable the synchronization of files, purchased music, contacts, and bookmarks.

More information

For more information about Ubuntu One, its services, and technical support resources, visit the Ubuntu One website at <http://one.ubuntu.com/>. Follow the Ubuntu One blog at <http://one.ubuntu.com/blog> for news on the latest features.

4 Hardware

Using your devices

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

Hardware identification

To identify your hardware you can install the following application: Click **Applications**, scroll down to **Ubuntu Software Center**. When the “Ubuntu Software Center” window opens, use the search box in the top right and search for the following: “sysinfo.” Now select the Application click **Install** and enter your password to install the application.

To run the application, choose **Applications** ▶ **System Tools** ▶ **Sysinfo**. The Sysinfo program will then open a window with information about the hardware that is part of your system.

Displays

Hardware drivers

A driver is some code packaged in a file, which tells your computer how to utilize 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.

A majority of graphics cards are manufactured by three well known companies: Intel, AMD/ATI, and NVIDIA Corp. You can find your card manufacturer by referring to your computer manual or looking for the specifications of your particular model on the Internet. The Ubuntu Software Center houses a number of programs that allow detailed system information to be obtained. **SysInfo** 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 that you don’t have to find and install any drivers by yourself, Ubuntu takes care of it on its own.

In keeping with Ubuntu’s philosophy, the drivers that are used by default for powering graphics devices are open source. This means that the drivers can be modified by the Ubuntu developers and problems with them can be fixed. However, in some cases the proprietary driver (restricted driver) provided by the company may provide better performance or features that are not present in the open source driver written by the developer community. In other cases, your particular device may not be supported by the open source

Your graphics card is the component in your computer that powers your display. When you’re watching videos on YouTube or 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.

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, click **System** in the top panel, go to **Administration** and find **Hardware Drivers**. If a driver is provided by the company for your particular device, it will be listed there. You can simply click **Activate** and use the driver if you want. This process will require an active Internet connection and will ask for your password.

The Ubuntu developers prefer open source drivers because they allow the problem to be identified and fixed by anyone with knowledge in 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 CD to check for your device compatibility before installing Ubuntu or go online in the Ubuntu forums 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.

Setting up your screen resolution

One of the most common display related tasks is setting up your screen resolution.

Ubuntu correctly identifies your native screen resolution by itself and sets it for you. However, due to a huge variety of devices available, sometimes it can make a mistake and set up an undesirable resolution.

To set up or just check your screen resolution, go to **System ▶ Preferences ▶ Monitors**. The *Monitors* application shows you your monitor name and size, the screen resolution and refresh rate. Clicking on the displayed resolution (e.g., “1024×768 (4:3)”) would open a drop-down menu where you can select the resolution of your choice.

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.

Connecting and using your printer

You can add, remove, and change printer properties by navigating to **System ▶ Administration ▶ Printing**. This will display the “Printing-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**.

Adding a network printer

Make sure that your printer is connected to your network with an Ethernet cable and is turned on. You can add a printer by clicking **Add Printer**. The “New Printer” window will open. Click the “+” sign 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**, type in 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.

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 choose *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**.

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 you will need to make sure the **Duplexer Installed** option is checked and then click the **Forward** button.

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**.

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 of the system automatically during installation. The 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.

A volume icon, sitting on the top right corner of the screen, provides quick access to different audio related functions. Left clicking on the volume icon shows up a slider button which you can move horizontally to increase/decrease volume. Left clicking on the volume icon also allows you to choose between muting the sound and Sound Preferences. Selecting *Sound Preferences* opens up another window which provides access to sound themes, hardware, input and output preferences. Sound Preferences can also be found if you go to **System ▸ Preferences ▸ Sound**.

The first tab which shows up by default is *sound themes*. You can disable the existing sound theme or configure it with the options available.

The *hardware 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. This section should be configured only if you are an advanced user.

The third tab is for configuring *input audio*. You will be able to use this section when you have an inbuilt microphone in your system or if you add an external 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*.

The *output tab* is used for configuring the output 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

You can add new sound themes by installing them from Software Center (e.g., Ubuntu Studio Sound theme.) You will get the installed sound themes from the drop down menu. You can also enable window and button sounds.

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 is muted. You will have to manually unmute to enable your microphone to record sound or use it during audio/video calls.

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

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

which reads “Choose a device for sound output.” The default output hardware, which is automatically detected by Ubuntu during installation will be selected.

The *Applications tab* is for changing the volume for running applications. This comes in very handy if you have multiple audio programs 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.

Burning CDs and DVDs

To create a CD or DVD go to **Applications ▶ Sound and Video ▶ Brasero Disc Burner**. This opens Brasero, which gives you five options to choose from. Each one of these is explained below.

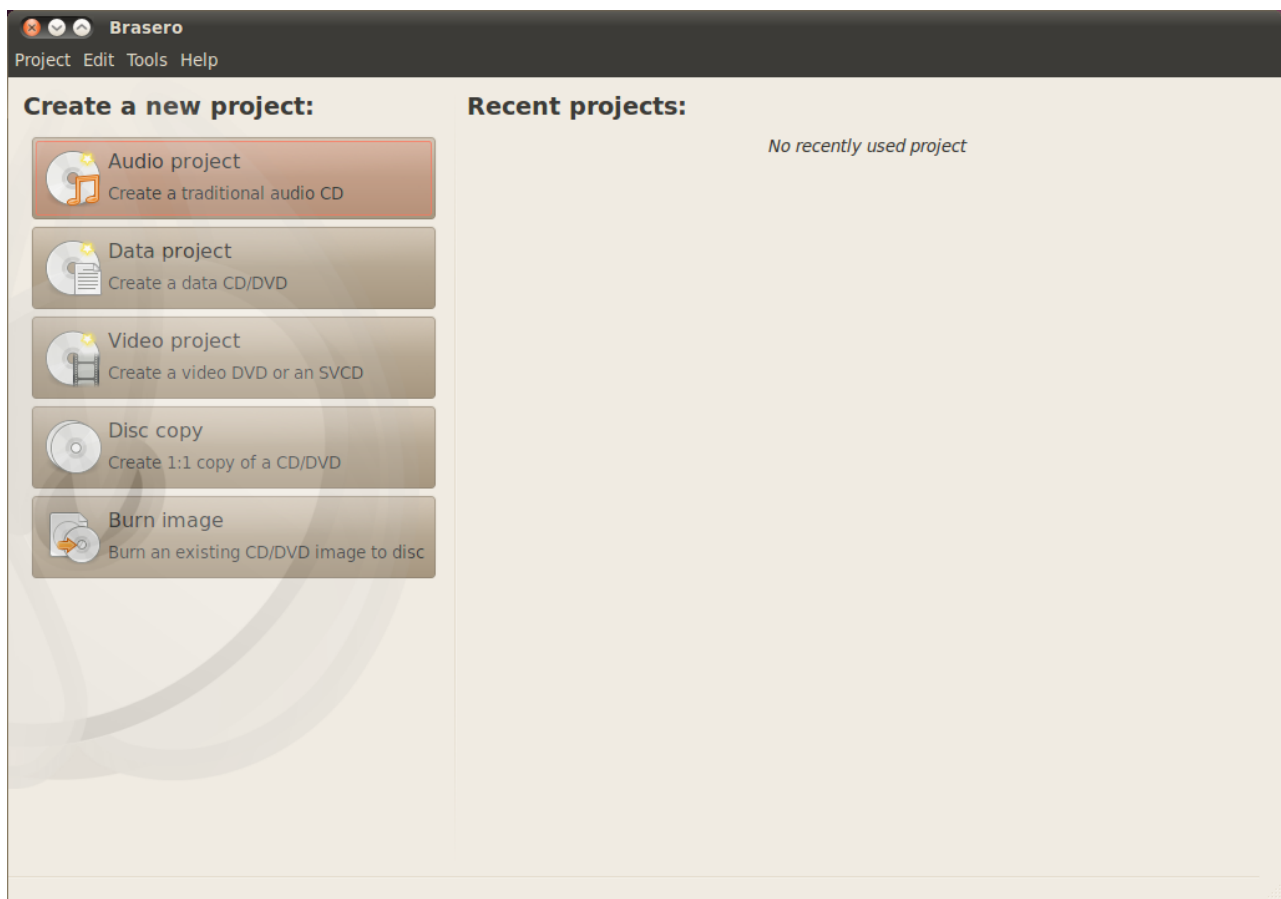


Figure 4.1: Brasero burns music, video, and data DVDs and CDs.

Universal options

These options apply for all projects except **Disc copy** and **Burn Image**.

Adding files to a project

To add files to the list, click the **Green +** button, which opens the “Select Files” window. Then navigate your way to the file you want to add, click it, and then click the **Add** button. Repeat this process for each file that you want to add.

Saving a project

To save a project so that you can finish it later, choose **Project ▶ Save**. The “Save Current Project” window will be opened. Choose where you would like to save the project. Then, in the **Name:** text field, enter a name for the project so that you will remember it. Now click the **Save** button.

Removing files

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

Icons of a broom are often used in Ubuntu to represent clearing a text field or returning something to its default state.

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 best to choose the highest speed.

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.

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 that ten second pause, you have the option to cancel the burning process.

Temporary files are saved in the /tmp folder by default. Should you wish to save these files in another location, you will need to change the setting in the **Temporary files** drop down menu. Under normal conditions, you should not need to change this setting.

Blanking a disk

If you are using a disc that has **rw** written on it and you have used it before, then you can blank it so that you can use it again. Doing this will cause you to lose all of the data currently on the disc. To blank a disc, open the **Tools** menu, then choose **Blank**. The “Disc Blanking” window will be open. In the **Select a disc** drop down choose the disc that you would like to blank.

rw stands for Re-Writable which means that disc can be used more than once.

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 blank the 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**, then **New Project** and then **New Audio Project**.

So that each file does not play straight after each other you can add a two second pause after a file. This can be done by clicking the file and then clicking the || 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 one of these lets you split the track in a different way. Once you have split the track click **OK**.

In the drop down at the bottom of the main “Brasero” window make sure that you have selected the disc that you want to burn the files to. Then click the **Burn** button.

Data project

If you want to 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** then clicking **New Project** and then **New Data Project**.

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

In the drop down at the bottom of the main “Brasero” window make sure that you have selected the disc that you want to burn the files to. Then click the **Burn** button.

Video project

If you want to 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**, then **New Project** and then **New Video Project**.

In the drop down at the bottom of the main “Brasero” window make sure that you have selected the disc that you want to burn the files to. Then click the **Burn** button.

Disc copy

You can copy a disc clicking **Project**, then **New Project** and then **Disc copy**. This opens the “Copy CD/DVD” window.

If you have two CD/DVD drives you can copy a disc from one to the other, the disc that you want to copy to must be in the CD-RW/DVD-RW drive. If you have only one drive you will need to make an image and then burn it to a disc. 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.

Image file

You can change where the image file is saved by clicking **Properties**, this shows the “Location for Image File”. You can edit the name of the file in the **Name:** text field.

The default save location is your home folder, you can change this by clicking the + next to **Browse for other folders**. Once you have chosen where you want to save it click **Close**.

Back in the “Copy CD/DVD” window click **Create Image**. Brasero will open the “Creating Image” and will display the job progress. When the process is complete click **Close**.

Burn image

To burn an image, open the **Project** • New Project, and then **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**.

Using a webcam

Webcams often come built into laptops and netbooks. Some computers, such as Apple desktops, also have webcams built into the monitors. The rest of the webcams typically use USB connections. To use a USB webcam, plug it into an open USB port in your computer.

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 quite a few applications which are useful for webcams. Cheese can capture pictures with your webcam and VLC media player can capture video streaming from your webcam. You can install these from the Ubuntu Software Center.

Scanning text and images

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. Go to **Applications** • **Graphics** • **Simple Scan**.
3. Click **Scan**.
4. Click the **Paper Icon** to add a another page.
5. Click **Save** to save.

Does my scanner work with Ubuntu?

There are three ways to see if your scanner works in Ubuntu:

1. Simply plug it in. If it is a newer USB scanner, it is likely that it will just work.
2. Check <https://wiki.ubuntu.com/HardwareSupportComponentsScanners> to find out which scanners work with Ubuntu.
3. 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.

Ubuntu can't find my scanner

There are a few reasons why Ubuntu may give you a “No devices available message”:

- ▶ 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.
- ▶ The driver for your scanner is not being automatically loaded.

Other devices

Firewire

Firewire is a special type of port that makes use of Firewire technology to transfer data. 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 the Ubuntu Software Center.

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

Bluetooth

Bluetooth is widely used on GPS devices, mice, mobile phones, headsets, music players, desktops and laptops for data transfer, listening to music, playing games and for various other activities. All modern operating systems support Bluetooth and Ubuntu is no exception.

You can access the Bluetooth preferences by left-clicking on the Bluetooth icon on the right hand side of the top panel. It is usually located next to the volume icon. Left-clicking on the Bluetooth icon opens a popup menu with several choices, such as an option to **Turn off Bluetooth**.

The Bluetooth preferences can also be accessed from **System ▶ Preferences ▶ Bluetooth**. If you want to setup a new device such as a mobile phone to synchronize with your computer, choose the option that reads **Setup new device...**

Ubuntu will then open a window for new device setup. When you click **Forward**, Ubuntu will open the second screen which will show you how

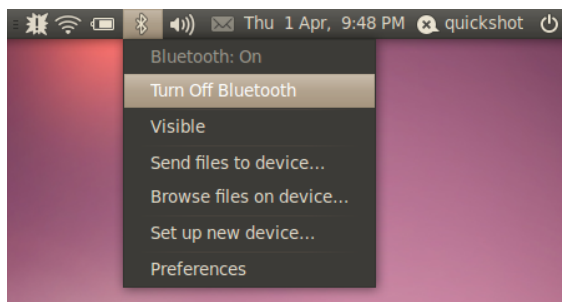


Figure 4.2: The Bluetooth applet menu.

many Bluetooth devices are present within the range of your system. The list of available devices might take a minute or so to appear on the screen as your system will be scanning for the devices. The scan and display is in real time, which means that every device will be displayed as soon as it is found. Click on the required Bluetooth device from the list of devices. Then, select the PIN number by selecting **PIN options**.

Three predefined PIN numbers are available but you can create a custom PIN if you like. 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” screen.

In Ubuntu, your computer is hidden by default for security reasons. This means that your Ubuntu system can search other Bluetooth enabled systems but they cannot search for your Ubuntu system. You will have to enable the option, if you want your Bluetooth device to find your Ubuntu system. You can do this by selecting the option “Make computer discoverable” in Bluetooth preferences. You can also add a fancy name for your Bluetooth-enabled Ubuntu system by changing the text under **Friendly Name**.

5 Software Management

Software management in Ubuntu

As discussed in [Chapter 3: Working with Ubuntu](#), a range of default applications are available in Ubuntu that are suitable for many everyday tasks. At some point you may decide to test out an alternative web browser, set up a different email client, edit an audio file, or try some new games (for example), and to do any of these you will need to install new software. Ubuntu keeps track of many different software **packages**, and finding and installing what you are after is designed to be as quick and easy as possible. Alternatively, you may prefer to browse through the extensive library of available applications, and try any that catch your interest.

Differences from other operating systems

Most other operating systems generally require a user to purchase commercial software (online or through a physical store), or otherwise search the Internet for a free alternative (if one is available). The correct installation file must then be downloaded and located on the computer, followed by the user proceeding through a number of installation prompts and options.

While at times a similar process may be used for installing software in Ubuntu, the quickest and easiest way to find and install new applications is through the Ubuntu Software Center. This is a central location for accessing new software, and is based on the concept of *repositories*. A repository can be thought of as a catalog of packages that are available for downloading from a single location. You automatically have access to the official Ubuntu repositories when the operating system is installed; however, additional repositories can be added later in order to access more software.

Using the Ubuntu Software Center

The Software Center can be used to install most applications that are available in the official Ubuntu repositories.

To start the Software Center, open the **Applications** menu and choose **Ubuntu Software Center**.

The Software Center window has two parts—a list of sections on the left, and a set of icons on the right. Each icon represents a *department*, which is a category of software. For example, the “Games” department contains “Sudoku.”

The sections on the left side of the window represent your current view of the Software Center’s catalog. Click the **Get Software** button on the left to

Some software packages have more advanced purposes, such as programming or running a **server**, and cannot be installed using the Software Center. You will need to use the Synaptic Package Manager (discussed towards the end of this chapter) to install these packages.

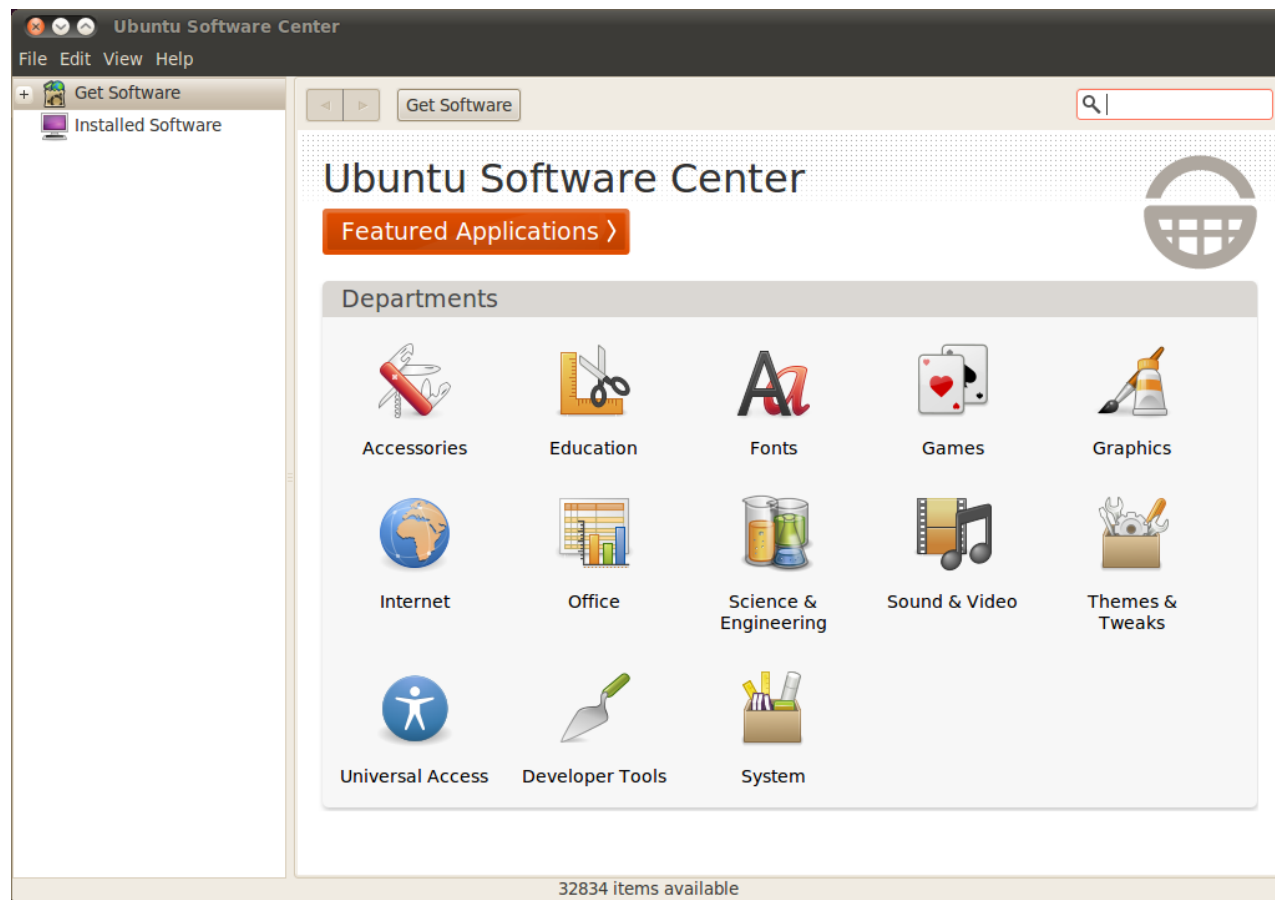


Figure 5.1: You can install and remove applications from your computer using the Software Center.

see software that is available to install, and **Installed Software** to see a list of software that is already installed on your computer.

Finding software

If you are looking for an application, you may already know a specific name (for example, “Thunderbird” is a popular email client), or otherwise you may just have a general category in mind (for example, the “sound and video” category includes a number of different software applications such as video converters, audio editors, and music players).

To help you find the right application, you can browse the Software Center catalog by clicking on the department that reflects the category of software you are after, or alternatively use the built-in search at the top-right of the window to look for specific names or keywords.

When you select a department, you will be shown a list of applications that fit within that category. Some departments have sub-categories—for example, the “Games” department has subcategories for “Simulation” and “Card Games.”

Check out the Featured Applications department to see a list of highly recommended applications.

To move through categories you can use the back and forward buttons at the top of the window, as well as the navigational buttons (often referred to as “breadcrumbs”) next to these.

Installing software

Installing applications is practically only one click away. Once you have found an application that you would like to try:

1. *Click the **Install** button to the right of the selected package.* If you would like to read more about the software package before installing it, first click on **More Info**. This will take you to a short description of the application, as well as a screenshot and a web link when available. If you wish to proceed, you can also click **Install** from this page.
2. *Type your password into the authentication window that appears.* This is the same password you use to log in to your account. You are required to enter it whenever installing new software, in order to prevent someone without administrator access from making unauthorized changes to your computer.
3. *Wait until the package is finished installing.* During the installation (or removal) of software packages, you will see an animated icon of rotating arrows to the left of the **In Progress** button in the sidebar. If you like, you can now go back to the main browsing window and queue additional software packages to be installed by following the steps above. At any time, clicking the **In Progress** button on the left will take you to a summary of all operations that are currently processing. Here you can also click the X icon to cancel any operation.

Once the Software Center has finished installing an application, it is now ready to be used. Ubuntu will usually place an entry in your **Applications** menu under the relevant sub-menu—its exact location will depend on the purpose of the application. In some cases an application will appear in one of the **System** ▶ **Preferences** or **System** ▶ **Administration** menus instead.

Removing software

Removing applications is very similar to installing them. First, click on the **Installed Software** button in the Software Center’s sidebar. Scroll down to the application you wish to remove (or use the search field to quickly find it), and then:

1. *Click the **Remove** button to the right of the selected application.*
2. *Type your password into the authentication window that appears.* Removing software also requires that you enter your password to help protect your computer against unauthorized changes. The package will then be queued for removal, and will appear under the **In Progress** section in the sidebar.

Note that you will need to be connected to the Internet for the Software Center to work. To learn how to set up your connection, see [Chapter 3: Working with Ubuntu](#).

If you receive an “Authentication Failure” message after typing in your password, check that you typed it correctly by trying again. If the error continues, this may mean that your account is not authorized to install software on the computer.

To completely remove a package and all its configuration, you will need to purge it. You can do this with the more advanced Synaptic Package Manager, which is discussed further in the [Synaptic Package Manager](#) section below.

Removing a package will also update your menus accordingly.

Managing additional software

Although the Software Center provides a large library of applications to choose from, initially only those packages available within the official Ubuntu repositories are listed. At times, a particular application you are after may not be available in these repositories. If this happens, it is important to understand some 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 Sources.

Software Sources

The Software Center lists only those applications that are available in your enabled repositories. Repositories can be added or removed through the Software Sources application. To open this, click **System** ▶ **Administration** ▶ **Software Sources** in the top panel. You will be asked to enter your password, then the “Software Sources” window will open. There are five tabs at the top of this window: **Ubuntu Software**, **Other Software**, **Updates**, **Authentication**, and **Statistics**.

You can also open Software Sources from the Software Center. Simply go to **Edit** ▶ **Software Sources**.

Managing the official repositories

The **Ubuntu Software** tab lists the five official Ubuntu repositories, each containing different types of packages. When Ubuntu is first installed, four of these are enabled—*main*, *universe*, *restricted*, and *multiverse*.

- ▶ **Canonical-supported open source software (main):** This repository contains all the open-source packages that are maintained by **Canonical**.
- ▶ **Community-maintained open source software (universe):** This repository contains all the open-source packages that are 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 that may be 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 that is used to build the software packages from some of the other repositories.

The **Source code** option should not be selected unless you have experience with building applications from source.

Closed-source packages are sometimes referred to as non-free. This is a reference to freedom of speech, rather than monetary cost. Payment is not required to use these packages.

Building applications from source is an advanced process for creating packages, and usually only concerns developers. You may also require source files when using a custom **kernel**, or if trying to use the latest version of an application before it is released for Ubuntu. As this is a more advanced area, it will not be covered in this manual.

Selecting the best software server

Ubuntu grants permission to many servers all across the world to act as *mirrors*. That is, they host an exact copy of all the files contained in the official Ubuntu repositories. In the **Ubuntu Software** tab, you can select the server that will give you the best possible download speeds.

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

- ▶ **Connection speed.** Depending on the physical distance between you and a server, the connection speed may vary. Ubuntu provides a tool for selecting the server that provides the fastest connection with your computer.

First, click the dropdown box next to “Download from:” in the “Software Sources” window, and select **Other** from the menu. In the “Server Selection” window that appears, 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 Sources” window.

- ▶ **Location.** Choosing a server that is close to your location will often provide the best connection speed.

To select a server by country, choose your location in the “Server Selection” window. If there are multiple servers available in your location, select one then click **Choose Server** when you are finished.

Finally, if you do not have a working Internet connection, Ubuntu can install some software packages straight from your installation CD. To do this, insert the disc into your computer’s CD drive, then select the check box next to **Installable from the CD-ROM/DVD**. Once this check box is ticked, the disc will be treated just like an online repository, and applications will be installable straight from the CD through the Software Center.

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**. These allow you to install software packages that are not available in the official repositories, and automatically be notified whenever updates for these packages are available.

Providing 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 Sources” 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 choose **copy**.

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.

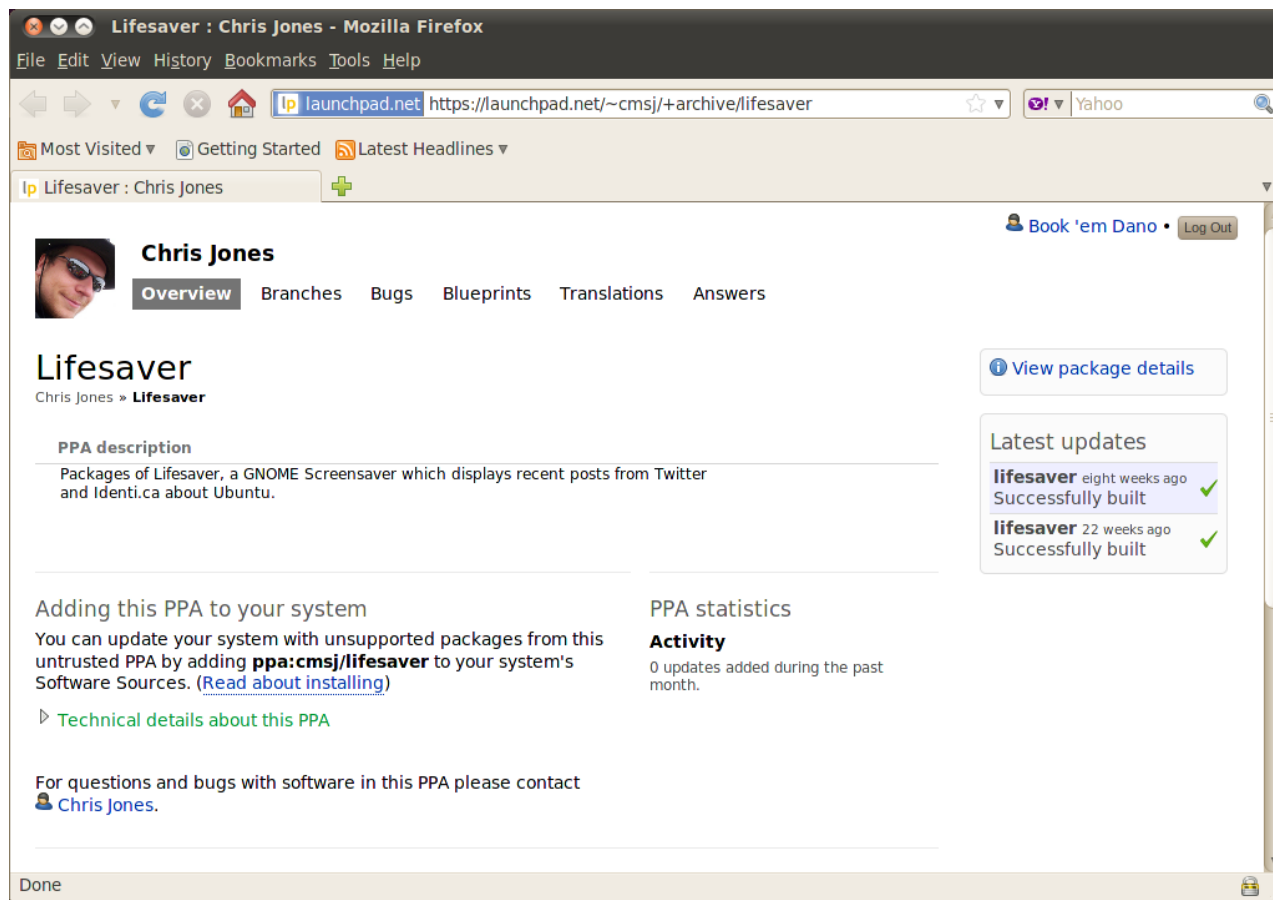


Figure 5.2: This is an example of the Launchpad page for the Lifesaver PPA. Lifesaver is an application that is not available in the official Ubuntu repositories. However, by adding this PPA to your list of software sources, it would then be easy to install and update this application through the Software Center.

Return to the “Software Sources” 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**, and you should see the URL appear that you copied from the PPAs Launchpad site earlier. Click **Add Source** to return to the “Software Sources” window. You will see a new entry has been added to the list of sources in this window, with a ticked 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 that 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 the Software Center and install applications from this PPA,

in the same way you previously installed programs from the default Ubuntu repositories.

Synaptic Package Manager

The Synaptic Package Manager is a more advanced tool for managing software in Ubuntu. It can be used to perform the same tasks as the Ubuntu Software Center, such as installing and removing applications, but also allows for more control over your packages. For example, it provides the following options:

- ▶ **Install** any package in your repositories. In many cases you can even select which version of a package to install, although this option is only available if there are multiple versions in the repository.
- ▶ **Reinstall** a package. This may be useful if you wish to revert a package to its default state, or repair any conflicts or damaged files.
- ▶ **Update** a package when a newer version is released.
- ▶ **Remove** any package you no longer need.
- ▶ **Purge** a package to completely remove it, including any stored preferences or configuration files (which are often left behind when a package is removed).
- ▶ **Fix** broken packages.
- ▶ **Check properties** of any package, such as the version number, contained files, package size, dependencies, and more.

To open the Synaptic Package Manager, navigate to **System ▶ Administration ▶ Synaptic Package Manager**. As explained above, Synaptic is a more complex tool than the Software Center, and generally not essential for a new user just getting started with Ubuntu. If you want to read more information on how to use this program, or require more support managing the software on your system, head to <https://help.ubuntu.com/community/SynapticHowto>.

Updates and Upgrades

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

Ubuntu updates

In this section, you are able to specify the kinds of updates you wish to install on your system, and usually depends on your preferences around stability, versus having access to the latest developments.

- ▶ **Important security updates:** These updates are highly recommended to ensure your system remains as secure as possible. These are enabled by default.

- ▶ **Recommended updates:** These updates are not as important for keeping your system secure, but will mean your packages always have the most recent bug fixes or minor updates that have been tested and approved. This option is also enabled by default.
- ▶ **Pre-released updates:** 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 that you will encounter problems with these updated applications, therefore this option is not enabled by default. However, if this happens it is possible to “roll-back” to a previous version of a package through Synaptic Package Manager.
- ▶ **Unsupported updates:** 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.

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

Here you can decide which system upgrades you would like to be notified about.

- ▶ **Never:** Choose this if you would rather not be notified about any new Ubuntu releases.
- ▶ **Normal releases:** Choose this 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.
- ▶ **Long Term Support releases only:** Choose this option if you need a release that will be more stable and have support for a longer time. If you use Ubuntu for business purposes, you may want to consider selecting this option.

Every 6 months, Canonical will release a new version of the Ubuntu operating system. These are called normal releases. Every four normal releases—or 24 months—Canonical releases a Long Term Support (LTS) release. Long Term Support releases are intended to be the most stable releases available, and are supported for a longer period of time.

6 The Command Line

Introduction to the terminal

Throughout this manual, we have focused primarily on the graphical desktop user interface. However, in order to fully realize the power of Ubuntu, you may want 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 graphical user interface (GUI). This is the desktop, windows, menus, and toolbars that you click to get things done. The second, and much older, type of interface is the command-line interface (CLI).

The *terminal* is Ubuntu's command-line interface. 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?

For the average Ubuntu user, most day-to-day activities can be completed 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. 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 at once 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 will be essential.

Opening the Terminal

You can open the terminal by clicking **Applications** ▶ **Accessories** ▶ **Terminal**.

When the terminal window opens, it will be largely blank apart from some text at the top left of the screen, followed by a blinking block. This text is your **prompt**—it displays your login name and your computer's name, followed by the current directory. The tilde (~) means that the current directory is your

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. There are different types of shells that accept slightly different commands. The most popular is called "bash," and is the default shell in Ubuntu.

In GUI environments the term "folder" is commonly used to describe a place where files are stored. In CLI environments the term "directory" is used to describe the same thing and this metaphor is exposed in many commands (i.e., `cd` or `pwd`) throughout this chapter.

home directory. Finally, the blinking block is the **cursor**—this marks where text will be entered as you type.

To test things out, 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, and the output that was displayed shows the current directory.

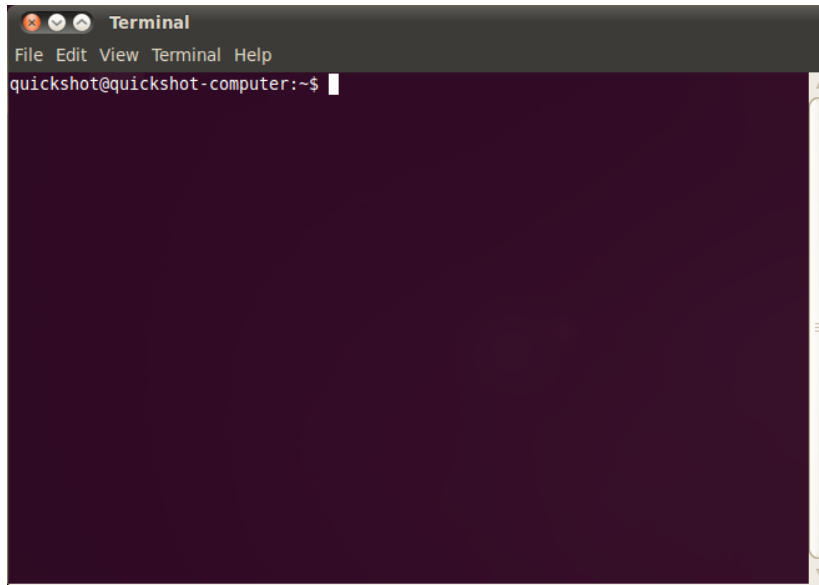


Figure 6.1: The default terminal window allows you to run hundreds of useful commands.

All commands in the terminal follow the same approach. Type in the name of a command, possibly followed by some **parameters**, and press Enter to perform the specified action. Often some output will be displayed that confirms the action was completed successfully, although this depends on the command. For example, using the **cd** command to change your current directory (see below) will change the prompt, but will not display any output.

The rest of this chapter covers some very common uses of the terminal. However, there are almost infinite possibilities available to you when using the command-line interface in Ubuntu. Throughout the second part of this manual we will continue to refer to the command line, particularly when discussing steps involved in troubleshooting and the 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. Each of 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

Parameters 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.

not be able to change the core system files, and users should not be able to accidentally damage anything vital.

Below are some of the most important directories.

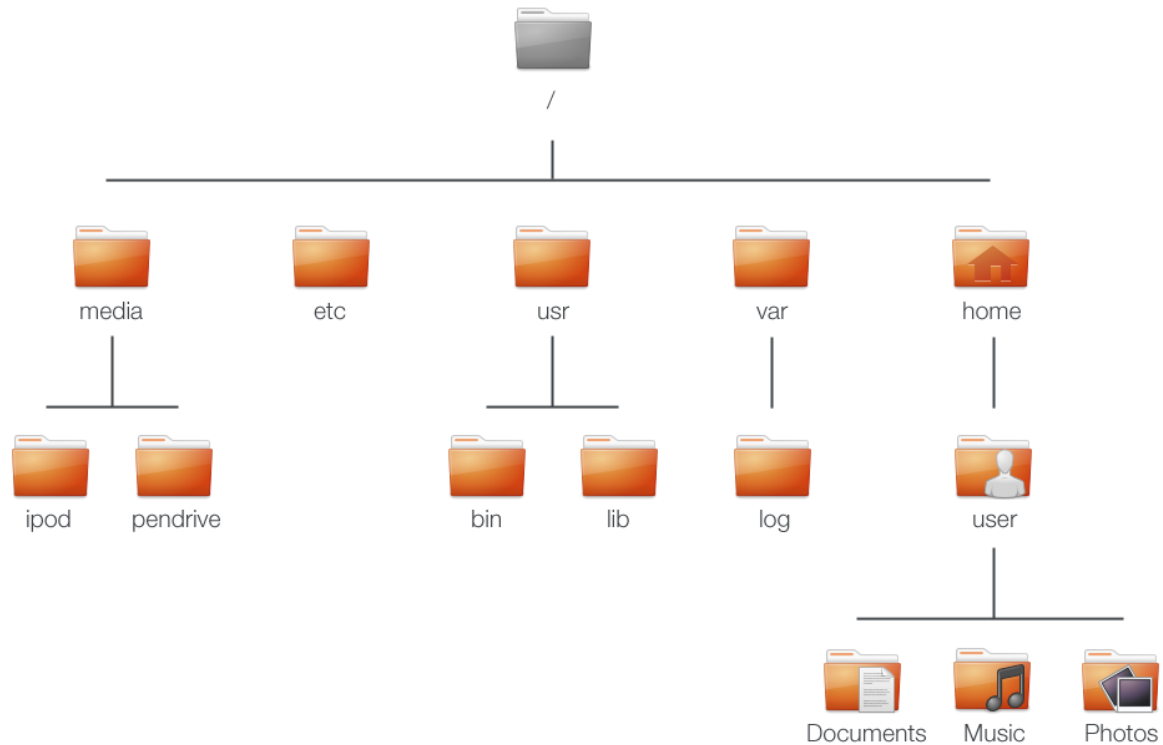


Figure 6.2: Some of the most important directories in the root file system.

The root directory—denoted by `/`—contains all other directories and files. Here are the contents of some system essential directories:

- ▶ `/bin` & `/sbin`: Many essential system programs
- ▶ `/etc`: System-wide configuration files
- ▶ `/home`: Each user will have a subdirectory to store personal files (for example `/home/your-username`)
- ▶ `/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)
- ▶ `/var/log`: Contains log files written by many programs

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/your-username/Desktop` contains all the files that are on your Ubuntu desktop. The path, `/home/your-username/Desktop`, can be broken down into a few pieces:

1. `/`—indicates that the path starts at the root directory
2. `home/`—from the root directory, the path goes into the home directory
3. `your-username/`—from the home directory, the path goes into the your-username directory
4. `Desktop`—from the your-username 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 directories. These are usually only visible with a special command or by selecting a specific option. In the Nautilus you can show hidden files and directories by selecting **View ▸ Show Hidden Files**, or by pressing `Ctrl+H`. There are many hidden directories in your home folder used to store program preferences. For example, `/home/your-username/.evolution` stores preferences used by the Evolution 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* 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 its side bar so it's easy for you to get to. 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 are done using a device, you can *unmount* it. Unmounting a device means to disassociate the device from its directory, allowing you to eject it.

Getting started with the command line

Navigating directories

The `pwd` command is short for *print working directory*. It can be used to display the directory you are currently in. Note that the prompt (the text just before the blinking cursor) also displays your current directory.

```
$ pwd
/home/your-username/
```

The `cd` command is short for *change directory*. It allows you to navigate from your current working directory to another of your choosing.

```
$ cd /directory/you/want/to/go/to/
```

If there are spaces in one of the directories, you will need to put quotation marks around the path:

```
$ cd ~/Music/The Beatles/Sgt. Pepper's Lonely Hearts Club Band/
```

If you leave out the quotation marks, the terminal will think that you are trying to change to a directory named `~/Music/The`.

There are some special directory names. `~` is a special name that always refers to your home directory. You can type `cd ~` to navigate to your home directory from anywhere in the system. The name `..` (two periods) is a special name that refers to the directory's "parent"—the directory one level above it in the directory tree. For example, if your current working directory is `/home/your-username` then typing `cd ..` will navigate to the `/home` directory.

Getting a list of files

The `ls` command is used to get a *list* of all the files and directories that exist inside the current directory.

```
$ ls
alligator-pie.mp3
squirm.mp3
baby-blue.mp3
```

Moving things around

The `mv` command is used to move a file from one directory to another.

```
$ mv /dmb/big-whiskey/grux.mp3 /home/john
```

You can also use the `mv` command to rename a file. For example:

```
$ mv grux.mp3 frub.mp3
```

The `cp` command is used to copy a file from one directory into another.

Note that the terminal is case-sensitive.

For example, if you have a directory called `Directory1`, you must remember to include the capital letter whenever referring to it in the terminal, otherwise the command will not work.

```
$ cp /dmb/big-whiskey/grux.mp3 /media/ipod
```

Creating directories

The `mkdir` command is short for *make directory*, and is used to create a new directory in the current directory or another specified location. For example, this command will make a directory called `newdirectory` inside the current directory:

```
$ mkdir newdirectory
```

The following command will ignore your current directory, and instead make one called `newdirectory` inside a hypothetical directory called `/tmp/example/`:

```
$ mkdir /tmp/example/newdirectory
```

You could then navigate to this new directory by using the `cd` command.

```
$ cd /tmp/example/newdirectory
```

Deleting files and directories

The `rm` command is used to delete files. For example, to delete a file named `deleteme.txt` located in the current directory:

```
$ rm deleteme.txt
```

To delete a file located in another directory (*i.e.*, not inside your current working directory), you would need to include the *path* to the file. In other words, you are specifying the file's location. For example, to delete the file `deleteme.txt` located in the `/tmp/example/` directory, use the following command:

```
$ rm /tmp/example/deleteme.txt
```

The `rmdir` command is similar to the `rm` command, except it is used to delete folders. For example, this command would delete the directory called `newdirectory` that we created earlier.

```
$ rmdir /tmp/example/newdirectory/
```

Introducing sudo

When you installed Ubuntu, the system automatically created two user accounts: your primary user account, and a “root” account that operates behind the scenes. This root account has the necessary privileges required for modifying system files and settings, whereas your primary user account does not. Rather than logging out of your primary user account and then logging back in as root (which can be very dangerous), you can use the `sudo` command (for command line applications) and `gksudo` to borrow root account privileges

for performing administrative tasks such as installing or removing software, creating or removing new users, and modifying system files.

For example, the following command would open Ubuntu's default text editor `gedit` with root privileges. You will then be able to edit important system files that would otherwise be protected. The password you use with `sudo` is the same password that you use to log in to your primary account, and is set up during the Ubuntu installation process.

```
$ gksudo gedit
[sudo] password for username:
Opening gedit...
```



The `sudo` command gives you virtually unlimited access to important system files and settings. It is important you only use `sudo` if you understand what you are doing. You can find out more about using `sudo` in [Chapter 7: Security](#).

When using `sudo` in the terminal, you will be prompted to enter your password. You will not see any dots, stars, or other characters appearing in the terminal as you type your password—this is an extra security feature to help protect your password from any prying eyes.

Managing software through the terminal

In Ubuntu there are many ways to manage your software. Graphical tools such as the Ubuntu Software Center and Synaptic Package Manager were discussed in [Chapter 5: Software Management](#), however, many people prefer to use the `apt` command (Advanced Packaging Tool) to manage their software from within the terminal. The `apt` command is extremely versatile and encompasses several tools, the most commonly used of which is `apt-get`.

The various `apt` commands should be prefixed with the `sudo` command, since they typically require root privileges.

Using `apt-get`

The `apt-get` command is used for installing and removing packages from your system. It can also be used to refresh the list of packages available in the repositories, as well as download and install any new updates for your software.

Updating and upgrading

The `apt-get update` command can be used to quickly refresh the list of packages that are available in the default Ubuntu repositories, as well as any additional repositories added by the user (see [Chapter 5: Software Management](#) for more information on repositories).

```
$ sudo apt-get update
```

You can then use `apt-get upgrade` to download and install any available updates for your currently installed packages. It is best to run `apt-get update` prior to running `apt-get upgrade`, as this will ensure you are getting the most recent updates available for your software.

```

$ sudo apt-get upgrade
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages will be upgraded:
tzdata
1 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
Need to get 683kB of archives.
After this operation, 24.6kB disk space will be freed.
Do you want to continue [Y/n]?

```

The terminal will give you a summary of what packages are to be upgraded, the download size, and how much extra disk space will be used (or freed), and then ask you to confirm before continuing. To proceed with the installation, press `y` and then `Enter`, and the upgrades will be downloaded and installed for you. If you do not want to proceed with the installation, press `n` and then `Enter`.

Installing and removing

The following command would be used to install VLC media player using `apt-get`:

```

$ sudo apt-get install vlc
[sudo] password for username:

```

To remove VLC, you would type:

```

$ sudo apt-get remove vlc
[sudo] password for username:

```

Notice the `sudo` command before the `apt-get` command. In most cases it will be necessary to use `sudo` when installing software, as you will be modifying protected parts of your system. Many of the commands we will be using from here on require root access, so expect to see `sudo` appearing frequently.

Cleaning up your system

Often software in Ubuntu depends on other packages being installed on your system in order to run correctly. If you attempt to install a new package and these *dependencies* are not already installed, Ubuntu will automatically download and install them for you at the same time (provided the correct packages can be found in your repositories). When you remove a package in Ubuntu, any dependencies that were installed alongside the original package are not also automatically removed. These packages sit in your system and can build up over time, taking up disk space. A simple way to clean up your system is to use the `apt-get autoremove` command. This will select and remove any packages that were automatically installed but no longer required.

```

$ sudo apt-get autoremove

```

Another useful cleaning command is `apt-get autoclean` which removes cache files left over from downloading packages.

Adding extra software repositories

Sometimes you might want to install some software that isn't in the official repositories but may be available in a what's called a PPA. PPAs, or personal

package archives, contain software that you can install by adding that PPA to your system. To add a PPA repository:

```
$ sudo add-apt-repository ppa:example/ppa
```

Once you have installed the PPA you may install software from it in the usual way using the `apt-get install` command.

7 Security

This chapter discusses ways to keep your Ubuntu computer secure.

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, which contains 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.

Basic Security concepts and procedures

When Ubuntu is installed, it is automatically configured for a single person to use. If more than one person will use the computer with Ubuntu, each person should have her or his 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. See [Users and groups](#) to learn more about creating additional users accounts.

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 that you can configure 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 can 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.

Locking the screen

When you leave your computer unattended, you may want to lock the screen. Locking your screen prevents anyone 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 Screen**, or
- ▶ press `Ctrl+Alt+L` to lock the screen. This keyboard shortcut can be changed in **System** ▶ **Preferences** ▶ **Keyboard Shortcuts**.

System updates

Good security depends on an up-to-date system. Ubuntu provides free software and security updates. You should apply these updates regularly. See [Chapter 5: Software Management](#) 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 the Software Center, 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 newer version of the one available in the Ubuntu repositories.

Additional repositories are available from sites such as getdeb.net and Launchpad PPA, which can be added as described in [Chapter 5: Software Management](#). You can download the DEB packages for some applications from their respective project sites on the Internet. Alternately, you can build applications from their source code (an advanced method of installing and using applications).

Using only recognized sources such as a project's site, PPA, or various community repositories (such as getdeb.net) 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.

Users and groups

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

Every user in Ubuntu is a member of at least one group—the group’s name is the same as the name of 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; system files are only accessible by the root user.

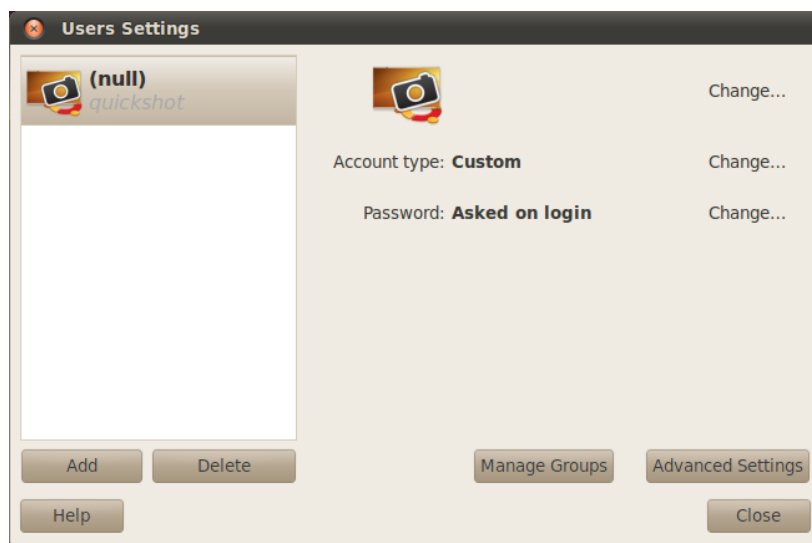


Figure 7.1: Add, remove and change the user accounts.

Managing users

You can manage users and groups using the **Users and Groups** administration application. To find this application, click **System > Administration > Users and Groups**.

To adjust the user and group settings click the keys icon next the phrase “Click to make changes.” You will need to input your password in order to make changes to user and group settings.

Adding a user Click the **Add** button which appears underneath a list of the current user accounts that have already been created. A window will appear that has two fields. The “Name” field is for a friendly display name. The “Short Name” field is for the actual username. Fill in the requested information, then click **OK**. A new dialog box will appear asking you to enter a password for the user you have just created. Fill out the fields, then click **OK**. Privileges you grant to the new user can be altered in “Users Settings”.

Modifying a user Click on the name of a user in the list of users, then click on the **Change...** button, which appears next to each of following options:

- Account type:
- Password:

For more advanced user options click on the **Advanced Settings** button. Change the details as required in the dialog that appears. Click **OK** to save the changes.

Deleting a user Select a user from the list and click **Delete**. Ubuntu will deactivate the user's account, and you can choose whether remove the user's home folder or leave it.

Managing groups

Click on the **Manage Groups** button to open the group management dialog.

Adding a group To add a group, click **Add**. In the dialog that appears, enter the group name and select the names of users you would like to add to the group.

Modifying a group To alter the users in an existing group, select a group and click on the **Properties** button. Select and deselect the users as required, then click **OK** to apply the changes.

Deleting a group To delete a group, select a group and click **Delete**.

Applying groups to files and folders

To change the group associated with a file or folder, open the Nautilus file browser and navigate to the appropriate file or folder. Then, either select the folder and choose **File ▸ Properties** from the menubar, or right-click on the file or folder and choose **Properties**. In the Properties dialog that appears, 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. We recommend that 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/10.04/serverguide/C/user-management.html>

Setting up a secure system

You may also want to use a firewall, or use encryption, to further increase the security of your system.

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 is a program that runs from the command line, but a program called Gufw allows you to use it with a graphical interface. See [Chapter 5: Software Management](#) to learn more about installing the Gufw package.

Once it's installed, start Gufw by clicking **System** ▶ **Administration** ▶ **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 are not familiar with servers, 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 private key.

Ubuntu includes a number of tools to encrypt files and folders. This chapter will discuss two of these. 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. Install the **ecryptfs-utils** software package.
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>.

8 Troubleshooting

Resolving problems

Sometimes, things simply do not work as they should. Luckily, problems encountered while working with Ubuntu are easily fixed. Below, we offer a guide to resolving basic problems that users may encounter while using Ubuntu. If you exhaust the troubleshooting advice below, see [Getting more help](#) to learn about seeking support from the Ubuntu community.

Troubleshooting guide

The key to effective troubleshooting is working slowly and methodically, documenting changes you make to your Ubuntu system at every step. This way, you will always be able to roll back your work—and give fellow users information about your previous attempts, in the unlikely event that you should need to turn to the community 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. While this is supported by Ubuntu, you may find that after installing Windows you may no longer be able to start Ubuntu.

When you first turn on your computer, a program called a “bootloader” must start Ubuntu or another operating system. When you installed Ubuntu, you installed an advanced bootloader called **GRUB** that allowed you to choose between the various operating systems on your computer, such as Ubuntu, Windows and others. However, when you installed Windows, it replaced GRUB with its own bootloader, thus removing the ability to choose which operating system you'd like to use. You can easily restore GRUB—and regain the ability to choose your operating system—by using the same CD you used to install Ubuntu.

First, insert your Ubuntu CD into your computer and restart it, making sure to have your computer start the operating system that is on the CD itself (see [Chapter 1: Installation](#)). Next, choose your language and select **Try Ubuntu**. Wait while the software loads. You will need to type some code to restore your bootloader. On the **Applications** menu, click **Accessories**, and then click the **Terminal** item. Enter the following:

```
$ sudo fdisk -l
Disk /dev/hda: 120.0 GB, 120034123776 bytes
```

A **bootloader** is the initial software that loads the operating system when you turn on the computer.

```
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 means that your system (Linux, on which Ubuntu is based) is installed on device /dev/sda1, but your computer is booting to /dev/sda2 (where Windows is located). We need to rectify this by telling the computer to boot to the Linux device instead.

To do this, first create a place to manipulate your Ubuntu installation:

```
$ sudo mkdir /media/root
```

Next, link your Ubuntu installation and this new folder:

```
$ sudo mount /dev/sda1 /media/root
```

If you've done this correctly, then you should see the following:

```
$ ls /media/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=/media/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
```

Finally, remove the Ubuntu disc from your CD-ROM drive, reboot your computer, and enjoy your Ubuntu system once again.

This guide may not work for all Ubuntu users due to differences in system configuration. Still, this is the recommended method, and the most successful method, for restoring the GRUB bootloader. If following this guide does not restore GRUB on your computer, please consider trying some of the other troubleshooting methods at <https://help.ubuntu.com/community/RecoveringUbuntuAfterInstallingWindows>. When following the instructions, please note that your Ubuntu installation uses Grub2. This guide replicates the method described in the first section of the referenced web page. Please consider starting with the third section, <https://help.ubuntu.com/community/RecoveringUbuntuAfterInstallingWindows>.

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.

Ubuntu doesn't present the login screen when my computer boots

The simplest and easiest way to correct this issue is to order Ubuntu to reset the graphics configuration. Press and hold **Control**, **Alt** and **F1**. You should now see a black and white screen with a prompt for your username and password.

Enter your username, press **Enter**, and then enter your password. (Characters *will not* appear on the screen as you enter your password. Don't worry —this behavior is normal and was implemented for security purposes). Next, enter the following commands. Your password will be needed again.

```
$ sudo cd /etc/X11
$ sudo mv ./xorg.conf ./xorg.conf_old
$ sudo service gdm stop
$ sudo X -configure
$ sudo mv ./xorg.conf.new ./xorg.conf
$ sudo reboot now
```

Ubuntu will reboot, and your login screen should be restored.

I forgot my password

If you forget your password in Ubuntu, you will need to reset it using “Recovery mode.”

To start Recovery mode, shut down your computer, then power it up. As the computer starts up, press **Shift** (Grub2) **Esc** (Grub1) when you see the white-on-black screen with a countdown (the GRUB prompt). Select the **Recovery mode** option using the arrow keys on your keyboard. Recovery mode should be the second item in the list.

Wait while Ubuntu starts up. You *will not* see a normal login screen. Instead, you will be presented with a terminal prompt that looks something like:

```
root@something#
```

To reset your password, enter:

```
$ passwd username
```

Replace “username” above with your username. Ubuntu will prompt you for a new password. Enter your desired password, press enter and then type your password again, pressing enter after you are 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.



Figure 8.1: This is the grub screen in which you can choose recovery mode.

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, select **Places** ▶ **Computer** from the top panel, then choose **Trash** from the list of places in the left-hand sidebar of the window that appears (alternatively, click on the trash applet at the far right of the bottom panel). To remove items from this folder and restore them to your computer, right-click on the items you want and select **Restore**, or otherwise drag them wherever you would like (we recommend a memorable location, such as your home folder or desktop).

The Wastebasket is called different things in various parts of the desktop. This could cause confusion. This is a known issue and will be resolved in the next version of GNOME. The Wastebasket could also be known as the "Deleted Items Folder".

How do I clean Ubuntu?

Over time, Ubuntu's software packaging system can accumulate unused packages or temporary files. These temporary files, also called caches, contain package files from all of the packages that you have ever installed. Eventually, this cache can grow quite large. Removing them 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 use either the `clean`, or the `autoclean` option for a command-line program called `apt-get`. 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). To run `clean`, open **Terminal** and type:

```
$ sudo apt-get clean
```

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 `autoremove`.

Load **Terminal** and type:

```
$ sudo apt-get autoremove
```

to remove the unnecessary packages.

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 and 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 9: Learning more](#).

If you find yourself in need of a proprietary format, you may install the files necessary for using this format with one command. Before initiating this command, ensure that you have Universe and Multiverse repositories enabled. See the [Synaptic Package Manager](#) section to learn how to do this.

Open the Ubuntu Software Center by selecting it from **Applications**. Search for `ubuntu-restricted-extras` by typing “ubuntu restricted extras” in the search box on the right-hand side of the Ubuntu Software Center's main window. When the Software Center finds the appropriate software, click the arrow next to its title. Click **Install**, then wait while Ubuntu installs the appropriate software.

Once Ubuntu has successfully installed 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 **Monitors** allows users to change the resolution. Open it by choosing **System** from the Main Menu, then choosing **Preferences** and then **Monitors**. 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.

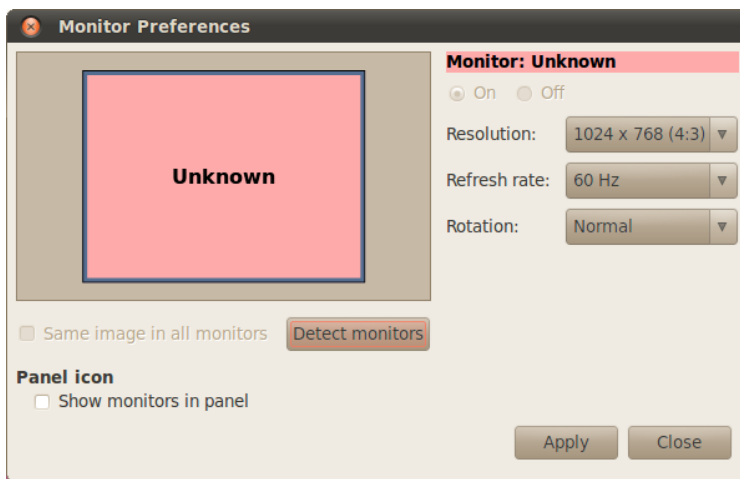


Figure 8.2: You can change your display settings.

You can experiment with various resolutions by clicking **Apply** at the bottom of the window until you find one that’s comfortable for you. 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. A dialog box will also be displayed. It allows you to revert to the previous resolution setting or keep the new resolution. The dialog box will disappear in 30 seconds, restoring the old resolution. This feature was implemented to prevent someone from being locked out of the computer by a resolution that distorts the monitor and makes it unusable. When you have finished setting the screen resolution, click **Close**.

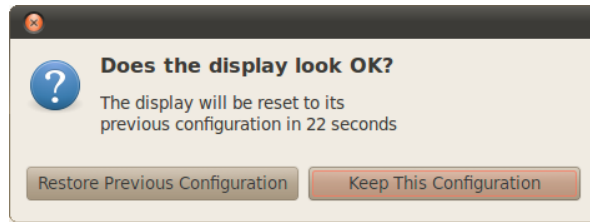


Figure 8.3: You can revert back to your old settings if you need to.

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. For instructions on doing this, visit the web page above.

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.

My hardware is not working properly

Ubuntu occasionally has difficulty running on certain computers, generally when hardware manufacturers use non-standard or proprietary components. The Ubuntu community offers documentation to help you troubleshoot many issues that may arise from 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 or issue in Ubuntu. If you require assistance beyond the information in the manual, you can find a variety of support opportunities online. You can access extensive and free documentation, buy professional support services, query the community for free support or explore technical solutions. More information is available here: <http://www.ubuntu.com/support>

9 Learning more

What else can I do with Ubuntu?

By now, you should be able to use your Ubuntu desktop for all your daily activities—such as browsing the web and editing documents. But you may be interested in learning about other versions of Ubuntu you can integrate into your digital lifestyle. In this chapter, we'll provide you with more detail about versions of Ubuntu that are specialized for certain tasks. But first, we'll first discuss the technologies that make Ubuntu a powerful collection of software.

Open Source Software

Ubuntu is open source software. Open source software differs from proprietary software—software whose source code is patented and is therefore not freely available for modification or distribution by anyone but the rightsholder. Microsoft Windows and Adobe Photoshop are examples of proprietary software.

Unlike proprietary software programs, 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 they wish. Computer users can modify open source software to suit their individual needs, share it, improve it, or translate it into other languages—provided they release these modifications so others can do the same. In fact, the terms of many open source licensing agreements make it illegal not to do so.

Because open source software is developed by large communities of programmers distributed throughout the globe, it benefits from rapid development cycles and speedy security releases (in the event that someone discovers bugs in the software). In other words, open source software is updated, enhanced, and made more secure every day as programmers all over the world continue to improve it.

Aside from these technical advantages, open source software also has economic benefits. While users must adhere to the terms of an open source licensing agreement when installing and using Ubuntu, for instance, they needn't pay to obtain this license. While not all open source software is free of monetary costs, much is.

To learn more about open source software, see the Open Source Initiative's open source definition, available at <http://www.opensource.org/docs/definition.php>.

The **source code** of a program is the collection files that have been written in a computer language to make the program.

Proprietary software is software that cannot be copied, modified, or distributed freely.

Distribution families

Ubuntu is one of several popular operating systems based on Linux (an open source operating system). While other versions of Linux, or “distributions,” may look different from Ubuntu at first glance, they share similar characteristics because of their common roots.

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 distribution as well as the family of distributions derived from Debian. Ubuntu is part of the Debian family of distributions, as are Linux Mint, Xandros, and CrunchBang Linux. Distributions in the Red Hat family include Fedora, openSUSE, and Mandriva.

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.” Debian software packages are `DEB` files, while Red Hat software packages are `RPM` files. For more information about package management, see [Chapter 5: Software Management](#).

You will also find distributions that have been specialized 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. Some of these are made for general use, and each differs with respect to the software included as part of the distribution. Others are designed for specialized uses.

Four derivative distributions are officially recognized and supported by both Canonical and the Ubuntu community. These are:

- **Ubuntu Netbook Edition**, which is optimized for netbook computers.
- **Kubuntu**, which uses the `KDE` graphical environment instead of the `GNOME` environment found in Ubuntu;
- **Edubuntu**, which is designed for use in schools; and
- **Ubuntu Server Edition**, which is designed for use on servers, and typically is not used as a desktop operating system because it doesn’t have a graphical interface.

Four other derivatives of Ubuntu are available. These include:

- **Xubuntu**, which uses the `XFCE` graphical environment instead of the `GNOME` environment found in Ubuntu;
- **Ubuntu Studio**, which is designed for creating and editing multimedia; and
- **Mythbuntu**, which is designed for creating a home theater PC with MythTV (an open source digital video recorder).

A **distribution**, or “distro,” is a operating system made from open source programs, bundled together to make them easier to install and use.

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.

For more information about these derivative distributions, see <http://www.ubuntu.com/project/derivatives>.

Ubuntu Netbook Edition

Ubuntu Netbook Edition is a version of Ubuntu designed specifically for netbook computers. It is optimized for computing devices with small screens and limited resources (like the energy-saving processors and smaller hard disks common among netbooks). Ubuntu Netbook Edition sports a unique interface and features a collection of software applications particularly useful to on-the-go users.

Because many netbooks do not contain CD-ROM drives, Ubuntu Netbook Edition allows users to install it on their computers using USB flash drives. To learn more about using a flash drive to install Ubuntu Netbook Edition on a netbook computer, visit <https://help.ubuntu.com/community/Installation/FromImgFiles>.

Netbooks are low-cost, low-power notebook computers designed chiefly for accessing the Internet.

Ubuntu Server Edition

The Ubuntu Server Edition is an operating system optimized to perform multiuser tasks when installed on servers. Such tasks include file sharing and website or email hosting. If you are planning to use a computer to perform tasks like these, you may wish to use this specialized server distribution in conjunction with server hardware.

This manual does not explain the process of running a secure web server or performing other tasks possible with Ubuntu Server Edition. For details on using Ubuntu Server Edition, refer to the manual at <http://www.ubuntu.com/server>.

A **server** is a computer that's been configured to manage, or "serve," files many people wish to access.

Ubuntu Studio

This derivative of Ubuntu is designed specifically for people who use computers to create and edit multimedia projects. For instance, it 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 <http://ubuntustudio.org/home>.

Mythbuntu

Mythbuntu allows users to turn their computers into entertainment systems. It helps users organize and view various types of multimedia content such as movies, television shows, and video podcasts. Users with TV tuners in their computers can also use Mythbuntu to record live video and television shows.

To learn more about Mythbuntu, visit <http://www.mythbuntu.org/>.

32-bit or 64-bit?

As mentioned earlier in this manual, Ubuntu and its derivatives are available in two versions: 32-bit and 64-bit. This difference 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.

Why choose one over another? Pay attention to the version you select in the following cases:

- ▶ If your computer is fairly old (made before 2007), then you may want to install the 32-bit version of Ubuntu. This is also the case for most netbooks.
- ▶ If your computer has more than 4 GB of memory (RAM), then you may need to install the 64-bit version in order to use all the installed memory.

Finding additional help and support

This guide is not intended to be an all-encompassing resource filled with everything you'll ever need to know about Ubuntu. Because *Getting Started with Ubuntu 10.04* could never answer all your questions, we encourage you to take advantage of Ubuntu's vast community when seeking further information, troubleshooting technical issues, or asking questions about your computer. Below, we'll discuss a few of these resources—located both inside the operating system and on the Internet—so you can learn more about Ubuntu or other Linux distributions.

System help

If you need additional help when using Ubuntu or its applications, click the **Help** icon on the top panel, or navigate to **System • Help and Support**. Ubuntu's built-in help guide covers a broad range of topics in great detail.

Online Ubuntu help

The Ubuntu Documentation team has created and maintains a series of wiki pages designed to help both new and experienced users learn more about Ubuntu. You can access these at <http://help.ubuntu.com>.

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 <http://ubuntuforums.org>.

Launchpad Answers

Launchpad, an open source 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 requires only a few minutes. Ask a question by visiting Launchpad at <https://answers.launchpad.net/ubuntu/+addquestion>.

Live chat

If you are familiar with Internet relay chat (IRC), you can use chat clients such as XChat or Pidgin to join the channel #ubuntu on irc.freenode.net. Here, hundreds of user volunteers can answer your questions or offer you support in real time.

LoCo teams

Within the Ubuntu community are dozens of local user groups called “LoCo teams.” Spread throughout the world, these teams offer support and advice, answer questions and promote Ubuntu in their communities by hosting regular events. To locate and contact the LoCo team nearest you, visit <http://loco.ubuntu.com/>.

Community support

If you’ve exhausted all these resources and still can’t find answers to your questions, visit Community Support at <http://www.ubuntu.com/support/community>.

In addition to official Ubuntu and community help, you will often find third-party help available on the Internet. While these documents can often be great resources, some could be misleading or outdated. It’s always best to verify information from third-party sources before taking their advice.

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Glossary

applet An applet is a small program that runs in a **panel**. Applets provide useful functions such as starting a program, viewing the time, or accessing the main menu.

Canonical Canonical, the financial backer of Ubuntu, provides support for the core Ubuntu system. It has over 310 paid staff members worldwide who ensure that the foundation of the operating system is stable, as well as checking all the work submitted by volunteer contributors. To learn more about Canonical, go to <http://www.canonical.com>.

cursor The blinking cursor that appears after the **prompt** in the **terminal** is used to show you where text will appear when you start typing. You can move it around with arrow keys on your keyboard.

decrypted When you decrypt an encrypted file it becomes **decrypted**, and viewable. Encrypted files on Ubuntu are not recognizable in any language, they are just a string of random numbers and letters until they are **decrypted** using a password.

desktop environment A generic term to describe a GUI interface for humans to interact with computers. There are many desktop environments such as GNOME, KDE, XFCE and LXDE just to name a few.

DHCP DHCP stands for *Dynamic Host Configuration Protocol*, it is used by a DHCP **server** to assign computers on a network an IP address automatically.

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

distribution A **distribution** is a collection of software that is already compiled and configured ready to be installed. Ubuntu is an example of a distribution.

dual-booting **dual-booting** is the process of being able to choose one of two different operating systems currently installed on a computer from the boot menu, once selected your computer will then boot into whichever operating system you chose at the boot menu. Dual booting is a generic term, and can refer to more than two operating systems.

Ethernet port An Ethernet port is what an Ethernet cable is plugged into when you are using a **wired connection**.

GNOME GNOME (which once stood for GNU Network Object Model Environment) is the default desktop environment used in Ubuntu.

GUI The GUI (which stands for Graphical User Interface) is a type of user

interface that allows humans to interact with the computer using graphics and images rather than just text.

ISP ISP stands for *Internet Service Provider*, an ISP is a company that provides you with your Internet connection.

kernel A kernel is the central portion of a Unix-based operating system, responsible for running applications, processes, and providing security for the core components.

maximize When you maximize an application in Ubuntu it will fill the whole desktop, excluding the panels.

MeMenu The MeMenu in Ubuntu 10.04 allows you to manage your presence on social networking services. It also allows you to publish status messages to all of your accounts by entering updates into a text field.

minimize When you minimize an open application, the window will no longer be shown. If you click on a minimized application's panel button, it will then be restored to its normal state and allow you to interact with it.

notification area The notification area is an applet on the panel that provides you with all sorts of information such as volume control, the current song playing in Rhythmbox, your Internet connection status and email status.

output The output of a command is any text it displays on the next line after typing a command and pressing enter, *e.g.*, if you type `pwd` into a terminal and press Enter, the directory name it displays on the next line is the output.

package Packages contain software in a ready-to-install format. Most of the time you can use the **Software Center** instead of manually installing packages. Packages have a `.deb` extension in Ubuntu.

panel A panel is a bar that sits on the edge of your screen. It contains **applets** which provide useful functions such as running programs, viewing the time, or accessing the main menu.

parameter Parameters are special options that you can use with other commands in the terminal to make that command behave differently, this can make a lot of commands far more useful.

partition A partition is an area of allocated space on a hard drive where you can put data.

partitioning **partitioning** is the process of creating a **partition**.

prompt The prompt displays some useful information about your computer, it can be customized to display in different colors as well as being able to display the time, date and current directory as well as almost anything else you like.

proprietary Software made by companies that don't release their source code under an open source license.

router A router is a specially designed computer that using its software and hardware, routes information from the Internet to a network. It is also sometimes called a gateway.

server A server is a computer that runs a specialized operating system and provides services to computers that connect to it and make a request.

shell The **terminal** gives access to the shell, when you type a command into the terminal and press enter the shell takes that command and performs the relevant action.

Software Center The Software Center is where you can easily manage software installation and removal as well as the ability to manage software installed via Personal Package Archives.

terminal The terminal is Ubuntu's text only interface, it is a method of controlling some aspects of the operating system using only commands entered via the keyboard.

wired connection A wired connection is when your computer is physically connected to a **router** or **Ethernet port** with a cable, this is the most common connection for desktop computers.

wireless connection A wireless connection involves no cables of any sort and instead uses a wireless signal to communicate with either a **router**, access point or computer.

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