

MATT VOGEL

GET
STARTED
WITH
UBUNTU
14.10

Get Started with Ubuntu 14.10

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1. Introduction

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What this book is

This book is a beginner's guide to installing and using Ubuntu 14.10, the newest version of the popular Linux software. This book is designed for a new Linux or Ubuntu user. Intermediate or advanced Linux users should not purchase this book.

What this book is not

This book is not an exhaustive guide to the Linux operating system. I plan to tackle more advanced topics in later books. I do not want to overload a new user to Linux with a bunch of advanced topics so my goal is to keep this book relatively simple and geared toward the new Linux user.

This book is not professionally edited. I am basically a one man show with a full time job in the network security field, a part time job teaching network security at night, a part time photographer, and part time writer. While I have done my best to find my mistakes, this book will have spelling and grammar errors. If you find one let me know and I will make sure to fix the problem in the next edition.

What is Ubuntu

I am not going to waste a lot of time explaining what Ubuntu is and where it comes from. You can read all about Ubuntu on their Wikipedia page at [http://en.wikipedia.org/wiki/Ubuntu_\(operating_system\)](http://en.wikipedia.org/wiki/Ubuntu_(operating_system)).

I will tell you that Ubuntu is a form of Linux which is a free operating system that is Unix-like. My guess is that you already know that or you would not be reading this book.

Why I like Ubuntu

I have been using Linux for about 11 years and using Ubuntu for about 4 years. I really like Ubuntu's ease of installation and ease of use once it is installed. Ubuntu also tends to include a lot of leading edge technology in their releases which means that it runs on a lot of the newer hardware without having to worry about installing special drivers.

For a beginning Linux user you cannot go wrong with Ubuntu.

Getting Ubuntu

You can download Ubuntu directly from their website at <http://www.ubuntu.com>. On the main page click on the download tab and then click on Ubuntu Desktop. You can also download a Server version and a Cloud version but these versions are outside of the scope of this book so I suggest you stick with the Desktop version.

You will need to choose your flavor, 32-bit or 64-bit. The version you use depends on the type of processor in your computer. Most new computers are 64-bit. If you are using an older computer you may need to use the 32-bit version. If you are unsure about what your computer can use just use the 32-bit version.

How are you going to install Ubuntu

There are many ways to use Ubuntu below are some of the options:

- Live DVD
- Live USB
- Install to the hard drive
- Virtualization (VirtualBox or VMWare)

The Live DVD or Live USB allows you to boot into Ubuntu without installing the operating system to your hard drive, sort of like try before you buy. You will have the option to install the operating system from the Live DVD or Live USB once the operating system boots. In order to boot from a Live DVD or Live USB you need to adjust the boot sequence in the BIOS to allow booting from the DVD or USB. Since there are many types of BIOS, going over the procedures in depth for each one could take a whole book.

For most systems you will need to interrupt the boot process by pressing F2 or F12 on your keyboard. There will be a message that is displayed for a few seconds right at the start of the boot sequence that will tell you which key to push. Some BIOS also allow you to choose the boot device without editing the BIOS. Once you are in the BIOS look for a tab or section labeled Boot. This is where you will be able to change the boot options. Be sure to save your changes before you exit the BIOS.

If you install the operating system to your hard drive you can either use the whole hard drive for Ubuntu or you can dual boot between Windows and Ubuntu or Ubuntu and another flavor of Linux. Dual booting is a more advanced topic that is outside the scope of this book. There are numerous resources on the Internet that can assist you with configuring your system for dual booting. I may tackle dual booting in a future book but with the prevalence of virtualization software, the need for dual booting is quickly disappearing.

Virtualization is an option that allows you to keep your existing operating system and run Ubuntu in a Virtual Machine (VM). This is the method that I recommend for beginning Linux users unless you have an older laptop or PC that you do not use as your primary desktop. I personally run Ubuntu in a VM at home and at school when I teach. I also have a dedicated Ubuntu laptop.

If you want to use Virtualization I recommend VirtualBox. You can download VirtualBox for from their website <https://www.virtualbox.org>. If you are going to use Ubuntu in a Virtual Machine you do not need to burn the ISO to a DVD or USB Thumb Drive. You only need to download the ISO and point the VM at the ISO as the boot media and off you go.

No matter which way you plan to enjoy Ubuntu you will have to download the ISO from their website.

If you are going to use the Live DVD then you will have to burn the ISO to a DVD, not a CD. The size of the ISO is too large for a CD. If you are going to use the Live USB you will need a USB thumb drive and a utility to create the Live USB. There are several utilities on the Internet for burning an ISO to a DVD or USB Thumb Drive.

2. Installing Ubuntu

Now that you have your ISO downloaded and burned to a DVD, USB Thumb Drive, or loaded in a VM, you are ready to start installing Ubuntu 14.10. The first screen you will see is shown in Figure 2-1. You will have the option to Try Ubuntu in Live Mode or Install Ubuntu. If you opt to try the Live Boot mode you will not need to follow the installation steps and can skip to Chapter 3. Just remember that the next time you boot into Live Boot mode any changes you have made will be lost.

Install Ubuntu

If you want to install Ubuntu just click on the **Install Ubuntu** button. The installation process will now start.

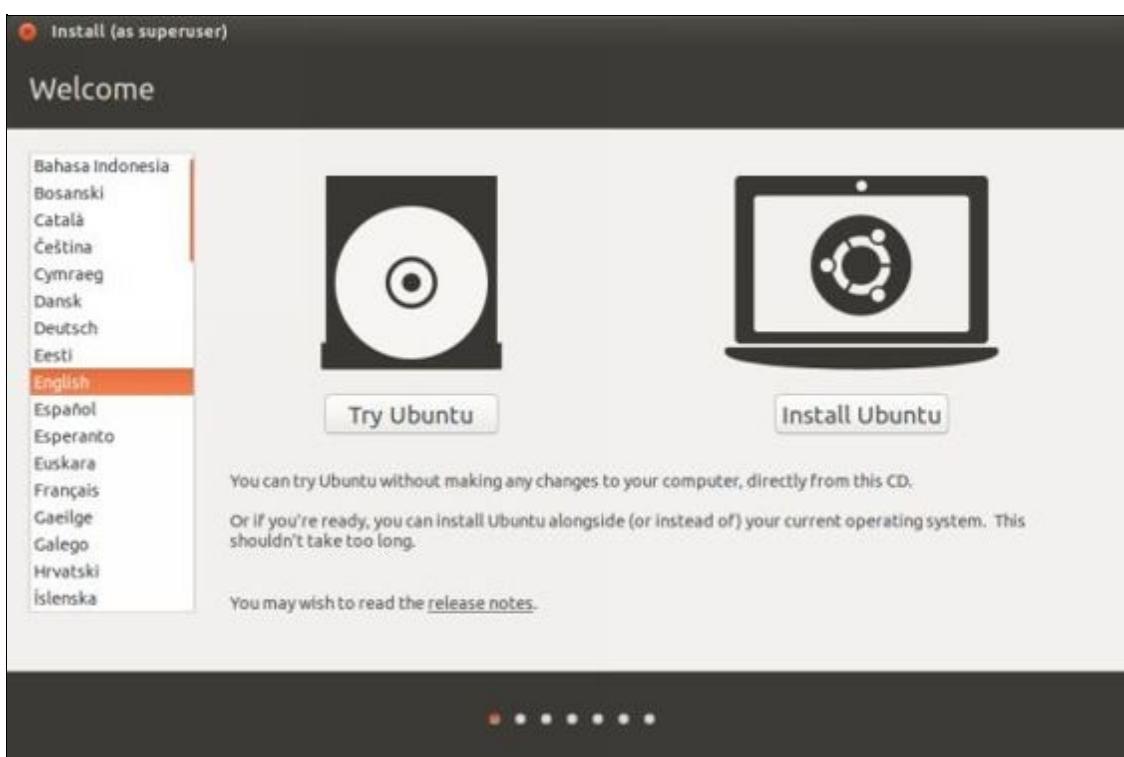


Figure 2-1. Install - Initial Ubuntu boot screen

Preparing to Install Ubuntu

The second install screen you will see will look like Figure 2-2. Be sure to check the boxes **Download updates while installing** and **Install third-party software**. Checking

the first checkbox will speed up the installation of Ubuntu by downloading updates in the background while the installation is taking place. The second checkbox will allow Ubuntu to play things like MP3 files. Click **Continue** to proceed with the installation.

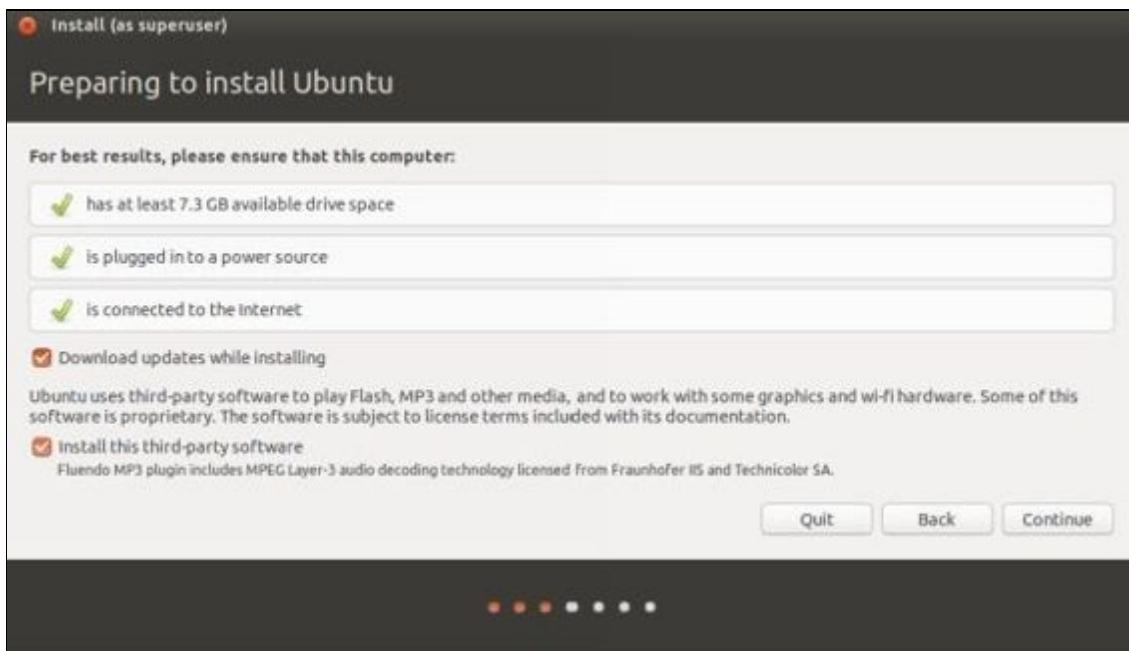


Figure 2-2. Install - Preparing to install Ubuntu

Installation Type

Next you will need to choose your installation type. Your screen should look like Figure 2-3. The default option is to erase the disk and install Ubuntu. For most Ubuntu installations this would be the best choice.

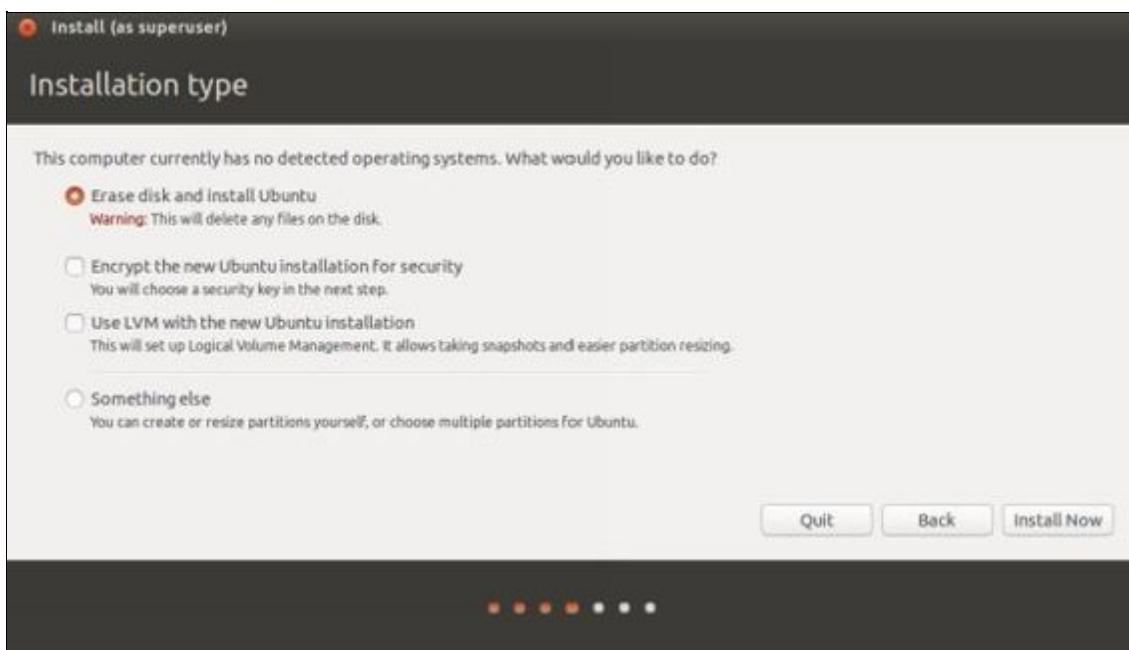


Figure 2-3. Install - Installation type

The second choice will encrypt the Ubuntu installation and require a security key or password, to unlock the system during boot. This is a good option for laptops if you want to protect sensitive data. If someone was to steal your laptop they would not be able to access the system without the security key or password.

The third option installs Ubuntu using Logical Volume Management (LVM). LVM is an advanced topic that will not be covered in this book, however, if you want to try it out you can select this option. There is no danger in choosing this option.

The fourth option is for those users that want to setup their own partitioning. This is a very advanced topic that is not covered in this book. Choose this option at your own risk.

Once you choose your option click **Install Now** to continue the installation.

Time Zone

On the next screen, Figure 2-4, you will be asked to choose your time zone. You can choose a time zone by simply clicking on the location on the map. Then click **Continue** to continue the installation.

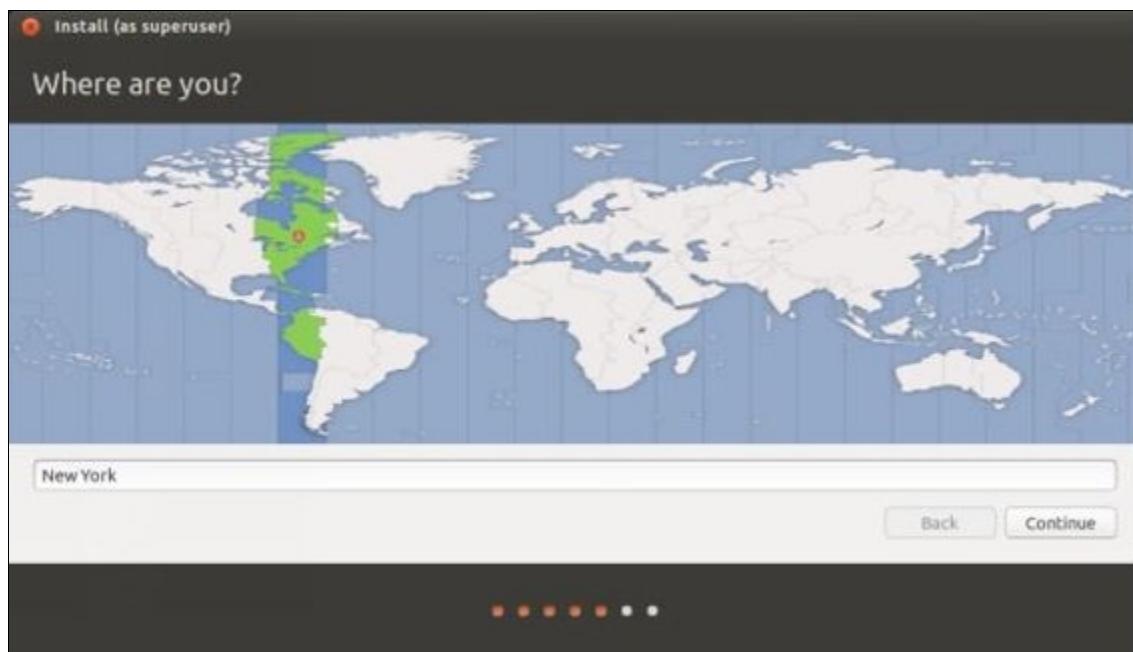


Figure 2-4. Install - Time Zone

Keyboard Layout

On the next screen, Figure 2-5, you will be asked to choose a keyboard layout. The installation should have sensed your keyboard version so you will not need to change this unless you really want to. Choose your keyboard layout and click **Continue**.

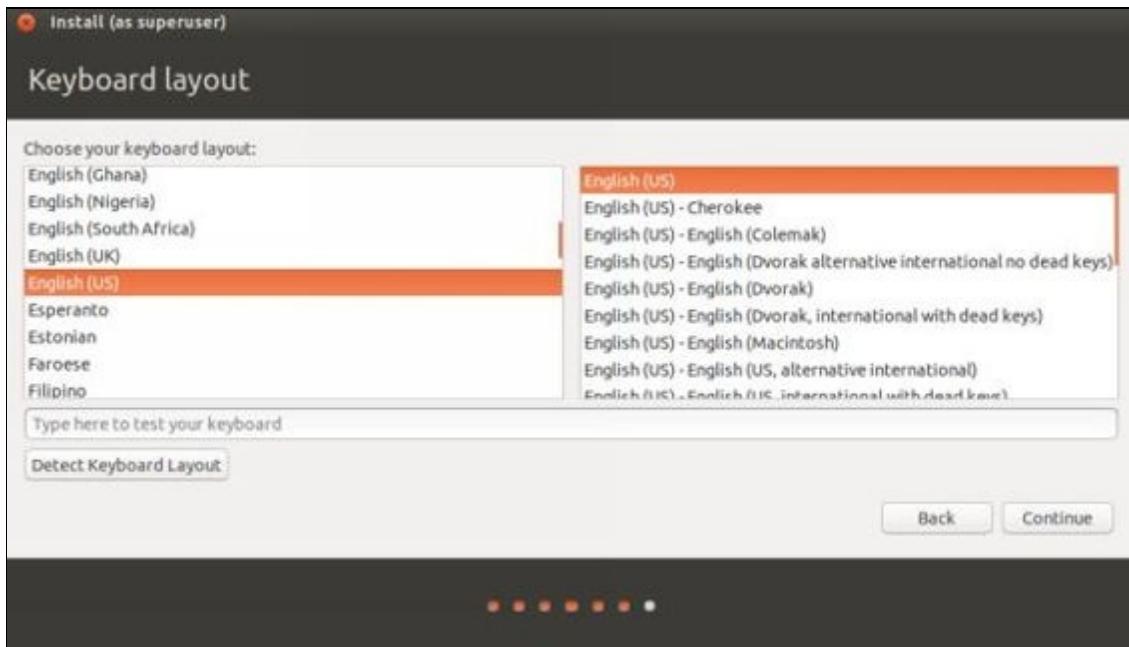


Figure 2-5. Install - Keyboard Layout

Who Are You?

The next screen, Figure 2-6, will ask you to enter your name, your computer name, pick a username, and set your password. You can also choose to have Ubuntu log you in automatically when the system boots or require a password to login and to encrypt your home folder.

Choosing to require a password and to encrypt your home folder is the most secure method to use so I highly recommend these options for any system that you are going to use outside of a lab or testing environment. You should not use the automatic logon option as it is very insecure.

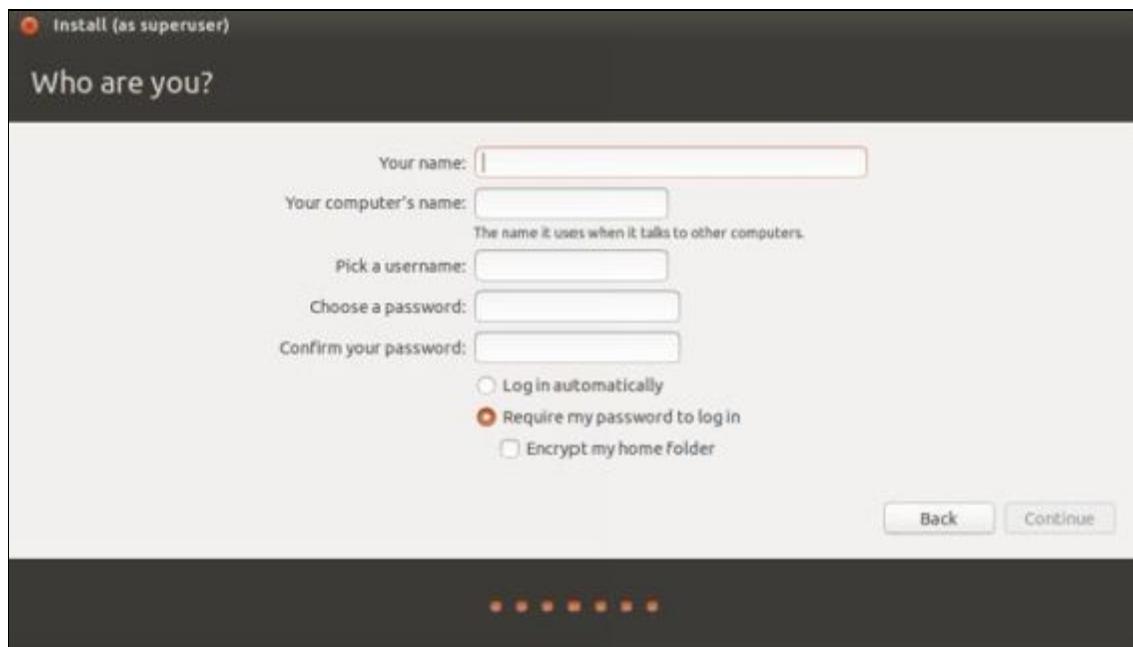


Figure 2-6. Install - Setting up a username and password

Installation Complete

You have finished the Ubuntu installation, Figure 2-8. Click **Restart Now** to boot into your new Ubuntu 14.10 system.

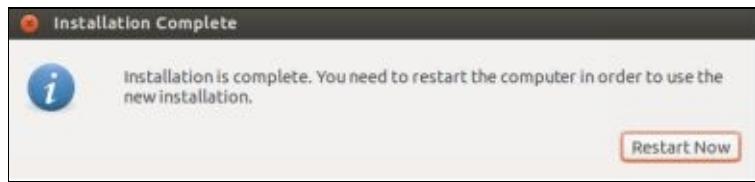


Figure 2-8. Installation Complete - Restart Now

3. The Ubuntu Desktop

Unity Desktop

Now that you have installed your Ubuntu 14.10 system it is time to take a tour. Figure 3-1 shows the Ubuntu Unity desktop. The Unity desktop features a Launcher on the left hand side of the screen which allows you to launch some of the most common applications such as the File Manager, Firefox web browser, LibreOffice, and the settings application by just clicking on the icon for the corresponding application.

In the top right hand corner of the screen you will find Indicators such as the network indicator which is the two arrows, one pointing up and the other pointing down, the language indicator, the battery indicator if you are using a laptop, the volume indicator, the time, and the System indicator. Other indicators can be added as software is added to your system and in use.

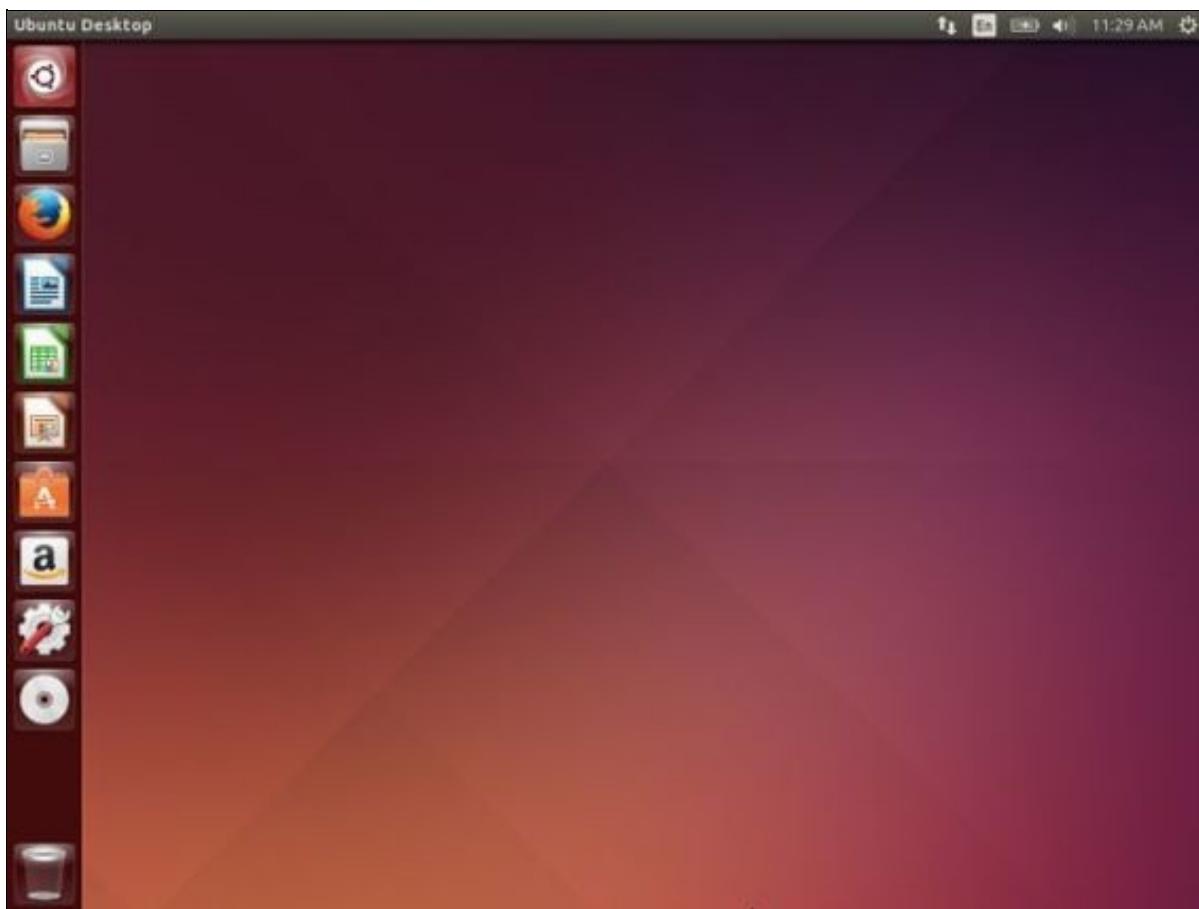


Figure 3-1. The Ubuntu Desktop

Searching for Applications

The very top icon on the Launcher will bring up a search box that will let you search for any application installed on Ubuntu. Figure 3-2 shows an example of what the search box will look like.

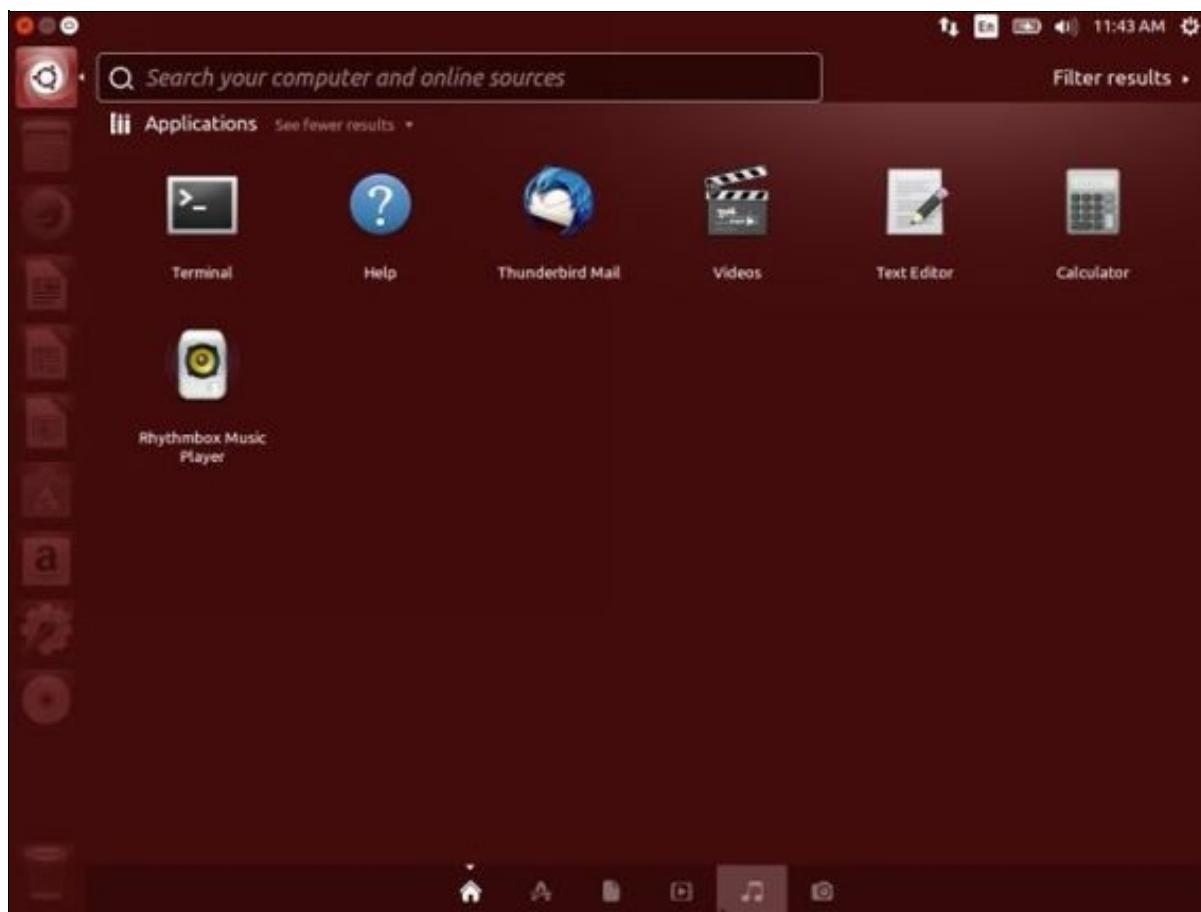


Figure 3-2. Searching for Applications

For example typing Firefox in the search box will bring up the Firefox application which can then be launched by clicking on the Firefox icon once. Figure 3-3 shows an example of searching for the Firefox application.



Figure 3-3. Searching for Firefox

File Manager

The next icon is the File Manager icon which will bring up the File Manager application. Figure 3-4 shows an example of the File Manager. The File Manager lists the location of files on the left and the actual files in the selected location on the right. The default location when the File Manager is launched is the current user's home folder. The File Manager works much like file managers in most other operating systems.

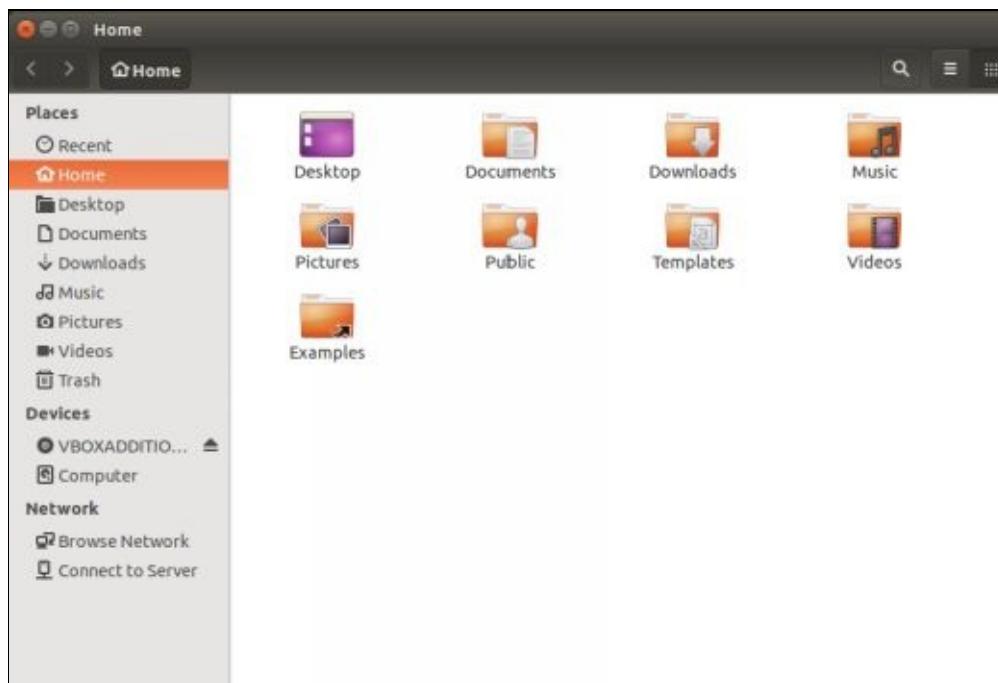


Figure 3-4. File Manager

The default view of the File Manager is the grid view which shows files and folders across in columns and down in rows. You can also switch to list view which will allow you to sort by the file name, size, type, or date modified. The grid and list icons are in the upper right hand corner of the File Manager window. Figure 3-4 shows as example of the File Manager in grid view and Figure 3-5 shows an example of the File Manager in list view.

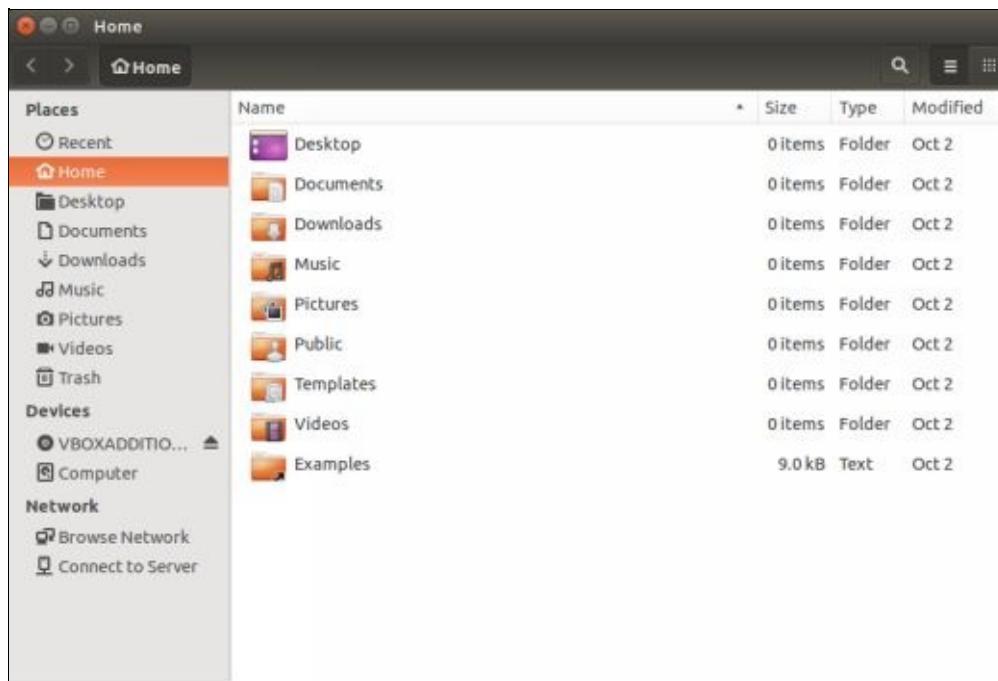


Figure 3-5. File Manager - List View

You can also use the magnifying glass in the upper right hand corner of the File Manager windows to search for a file or directory. Clicking on the magnifying class brings up the search box near the top of the window. Figure 3-6 shows an example of using the search

function to locate the Music directory. Typing Music in the search box will find any files or folders with Music in the name.

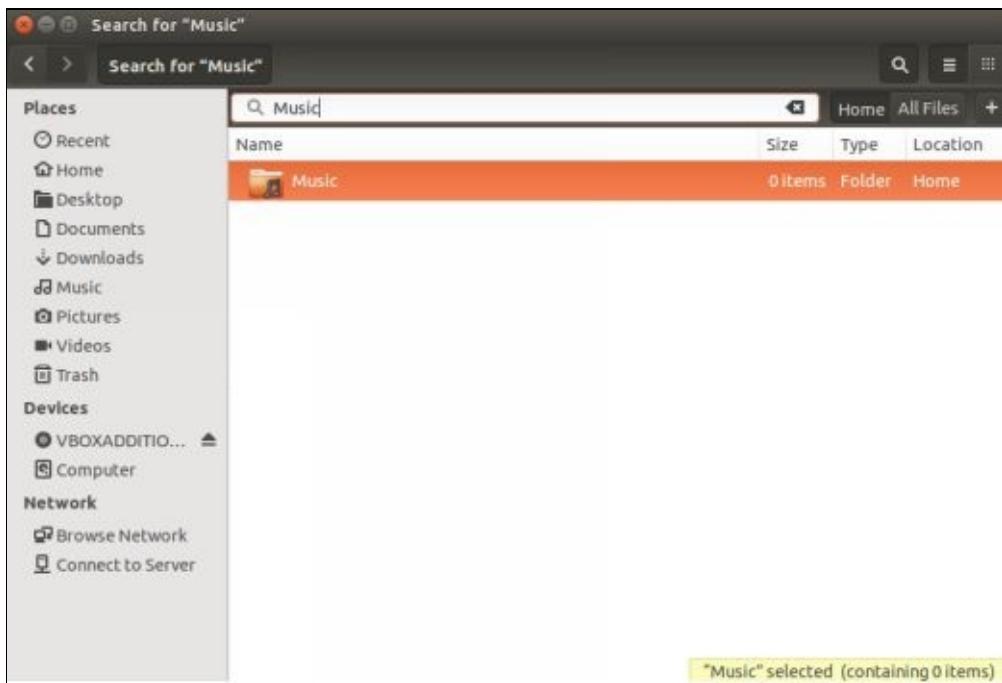


Figure 3-6. File Manager - Search

If you click on a directory in the left hand side of the window and the File Manager will display the current directory show in the right hand side of the windows and the parent or higher level directories at the top of the file manager window. You can click on any of the directories listed at the top of the window or you can use the back and forward buttons in the upper left hand corner to navigate through the file structure. Figure 3-7 shows an example of the Documents directory. Since the Documents directory is inside of the Home directory both the Home and Documents directory are displayed at the top of the File Manager window as tabs.

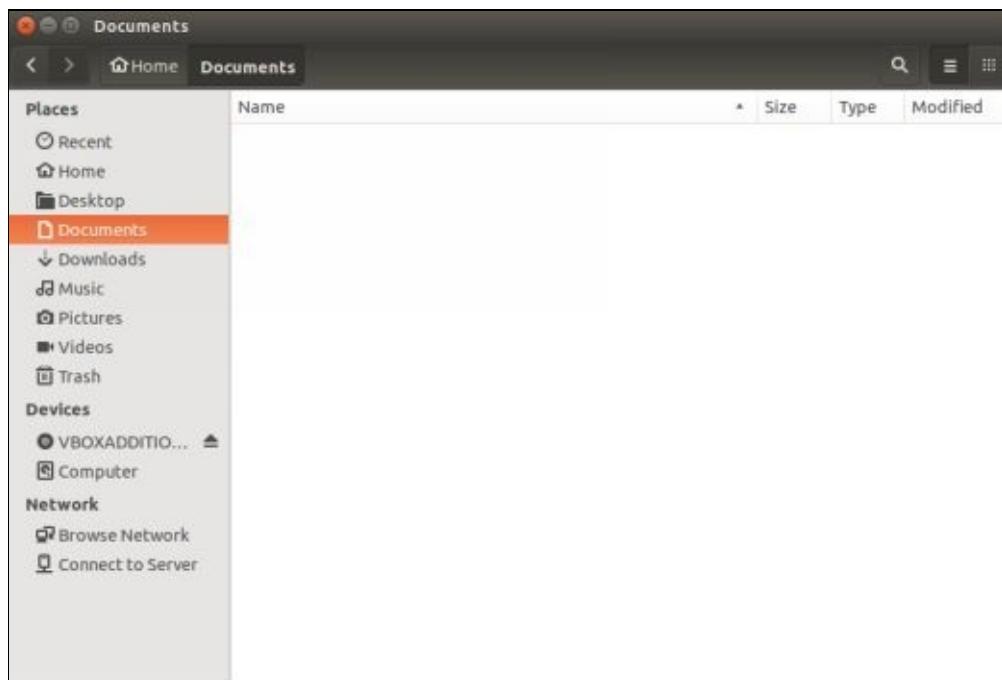


Figure 3-7. File Manager - Documents

Right clicking on any free space in the right hand side of the File Manager window will bring up a floating menu that will allow you to create a New Folder, a New Document, Restore Missing Files, Paste, and view the Properties of a file or folder. Figure 3-8 shows an example of the menu that appears when you right click in the File Manager.

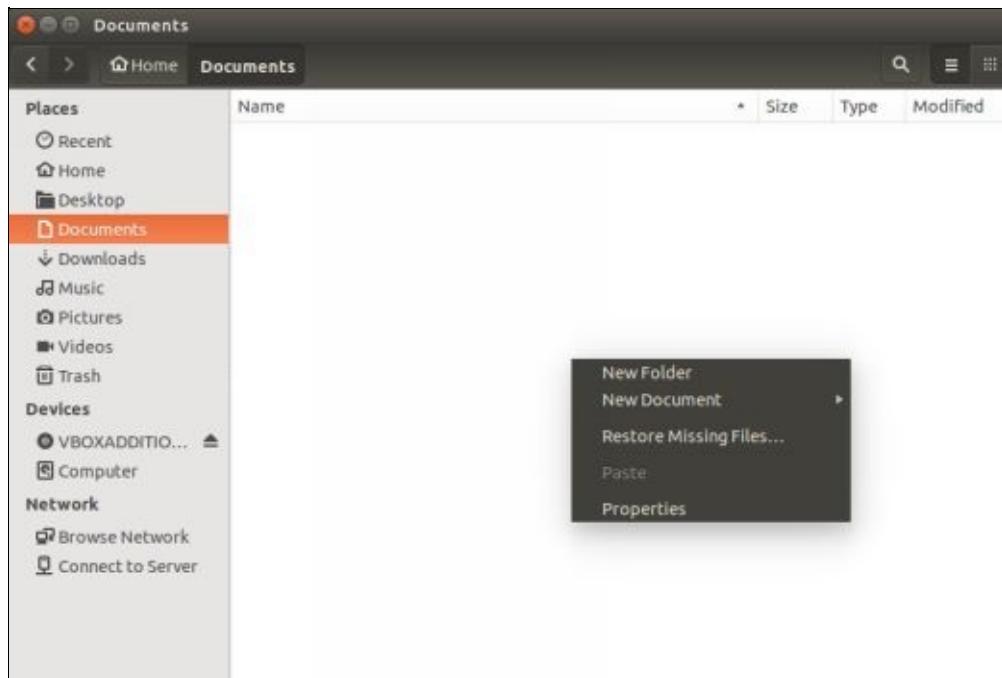


Figure 3-8. File Manager - Right Click

Firefox

The third icon is the Firefox icon which will launch the Firefox browser.

The next three icons are used to launch LibreOffice applications. LibreOffice is a free and open source software suite that includes a word processor, a spreadsheet program, a program for creating slide presentations, a drawing program, and a database program. LibreOffice is compatible with many different types of office suites and can import and export various file formats. Figure 3-9 shows an example of LibreOffice Writer.

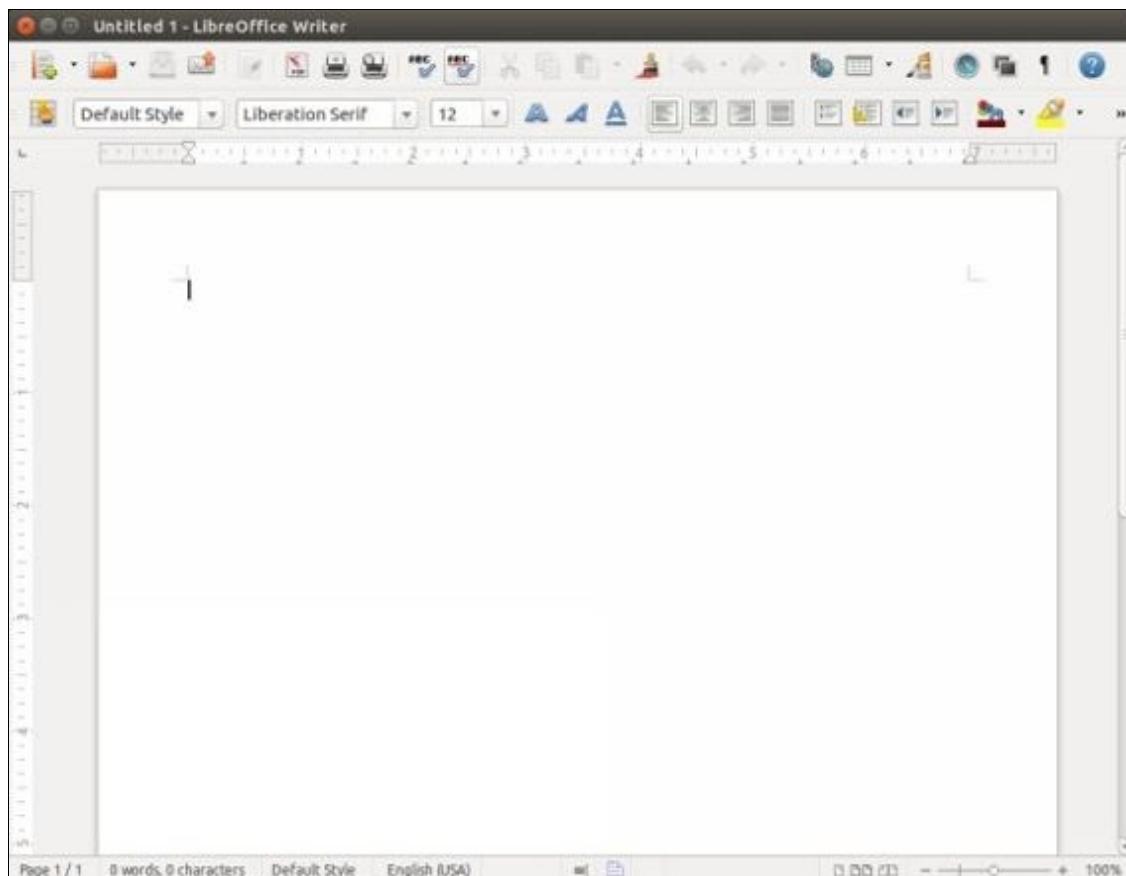


Figure 3-9. LibreOffice Writer

Ubuntu Software Center

The next icon on the Launcher is the Ubuntu Software Center. The Ubuntu Software Center allows to install software, view installed software, remove software, view the history of installed software, and track the progress of software installs.

Software is grouped into categories or can be located by using the search function located in the top right hand corner of the Ubuntu Software Center window. Figure 3-10 shows an example of the Ubuntu Software Center.

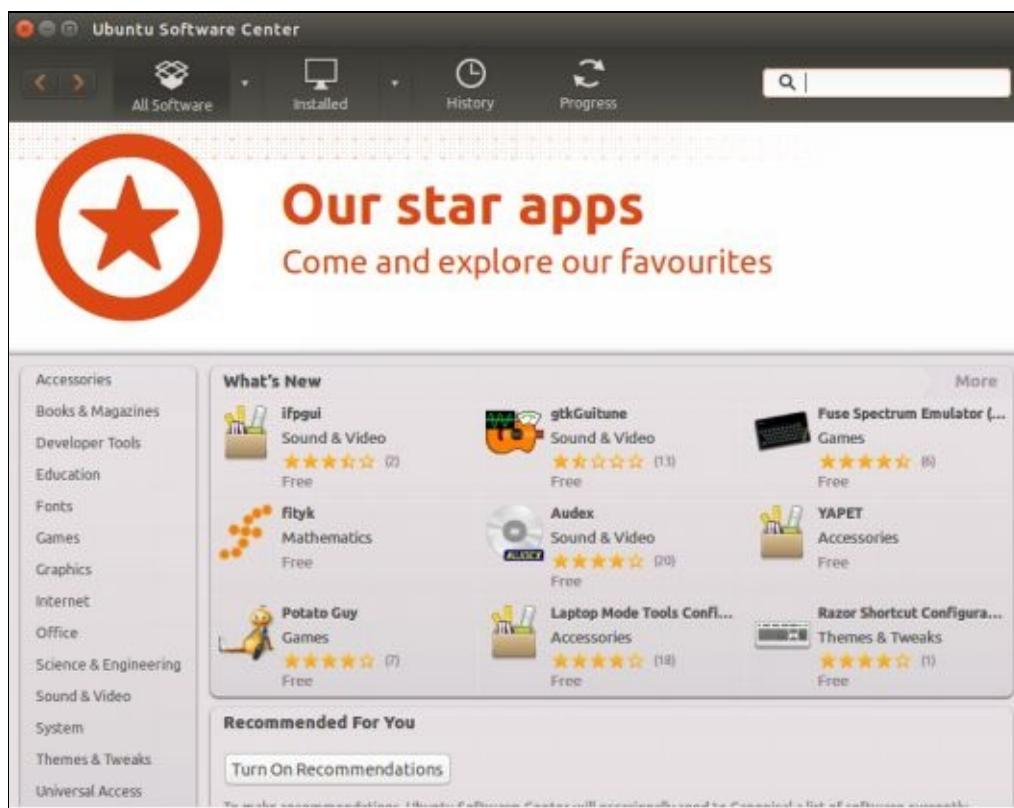


Figure 3-10. Ubuntu Software Center

Once you have located a software package that you want to install, click on the install button to install the software. Figure 3-11 shows an example of the a software package selected in the Ubuntu Software Center.

The Ubuntu Software Center will be covered in more detail in Chapter 7.

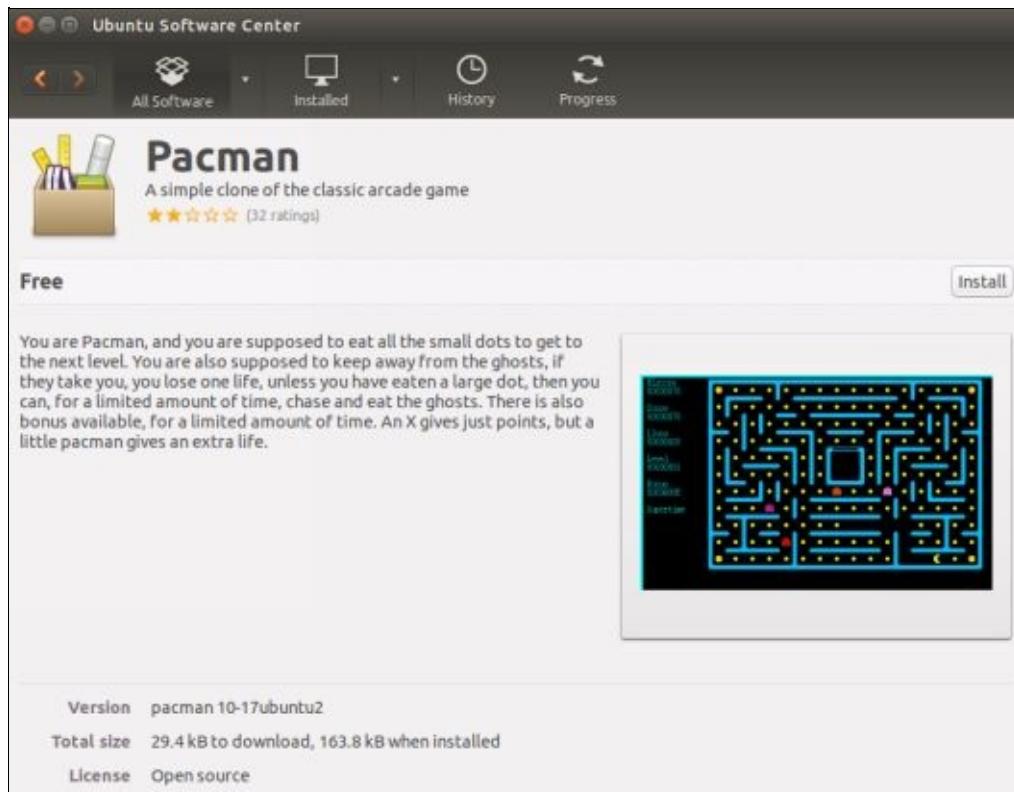


Figure 3-11. Ubuntu Software Center - Software Install

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Amazon

The next icon is the Amazon icon. The Amazon icon will open the Ubuntu Web Browser and take you directly to the Amazon.com website.

System Settings

The last icon on the dashboard is the System Settings icon. System Settings will be covered in Chapter 5.

The Upper Left Hand Corner

In the upper left hand corner of the desktop you will find several system status icons. The first icon is the Network icon which will be two arrows, one pointing up and one pointing down when the system is connected via an ethernet connection. When using wireless the network connection will be a wireless icon. Figure 3-12 shows an example of the Network Connections drop down menu. Network connections will be covered in more detail in Chapter 6.

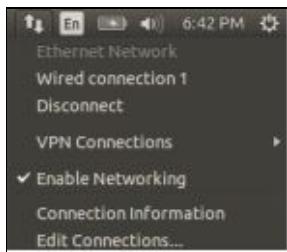


Figure 3-12. Ubuntu Desktop - Network Connections

The next icon is the Language Status icon. The default is English if you picked English as your language during the install and will be shown as EN. Figure 3-13 shows an example of the Language Status drop down menu. Languages will be covered in more detail in Chapter 5.

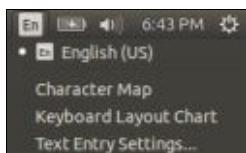


Figure 3-13. Ubuntu Desktop - Language Status

The next icon which is the Battery Status icon, may or may not exist on your system. The Battery Status icon only appears when you load Ubuntu on a laptop. Figure 3-14 shows an example of the Battery Status drop down menu.



Figure 3-14. Ubuntu Desktop - Battery Status

The next icon will be the Volume Status icon which will look like a small speaker. The sound level will be indicated by the shaded lines coming out of the speaker. Clicking on the speaker will bring up the Volume Settings drop down menu. In the Volume Settings drop down menu you will be able to adjust the Volume Settings by moving the slider left or right and mute the sound by clicking on **Mute**. You can also access the Sounds Settings from the drop down menu. Sounds Settings will be covered in more detail Chapter 5. Figure 3-15 shows an example of the Volume Settings drop down menu.

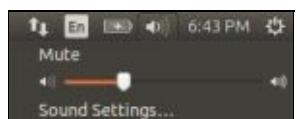


Figure 3-15. Ubuntu Desktop - Volume Status

The next icon will be the Time icon which is also the time display. Clicking on the time will bring up the Time and Date drop down menu which will include the date, a calendar showing the current month, the timezone, and the current time. You can access the Time & Date Settings from the drop down menu as well as add an event to the calendar by clicking on a day. Arrows next to the month and year will allow you to change the view of the calendar but will not change the system date. Figure 3-16 shows an example of the Time and Date drop down menu.

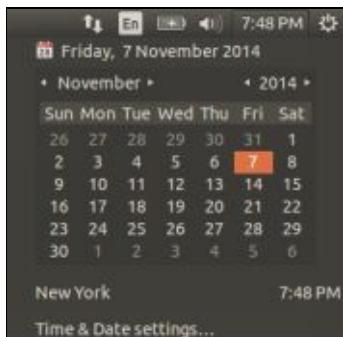


Figure 3-16. Ubuntu Desktop - Time and Date

The last icon will be the System Settings icon. Clicking on the System Settings icon will bring up the System Settings drop down menu. From the drop down menu you can do the following:

- learn about your computer
- access Ubuntu Help
- access System Settings
- lock the screen
- switch users
- log out of the system
- suspend the system
- restart the system
- shut down the system

Figure 3-17 shows an example of the System Settings drop down menu.

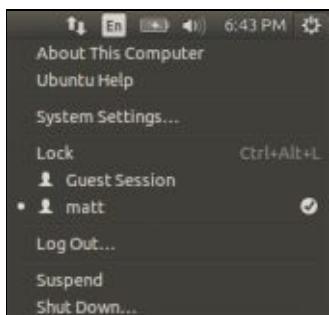


Figure 3-17. Ubuntu Desktop - System Settings

4. Post Installation

Now that you have your Ubuntu 14.10 system installed and you have had a little tour of the desktop it is time to get serious. You need to update your system with the latest patches and software updates. Ubuntu comes with a very easy to use software update system that will update all installed software provided it was installed with the Ubuntu Software Center or via apt-get which is a command line tool to update your Ubuntu system. More on apt-get and the command line later in Chapter 10.

To update an Ubuntu system you can use the Software Updater. To access the Software Updater click on the top icon in the Launcher to bring up the search function and type update. The Software Updater should be one of the applications that is listed. To launch the Software Updater just click on the icon. Figure 4-1 shows an example of searching for the Software Updater. Click on the Software Updater to start the update process.

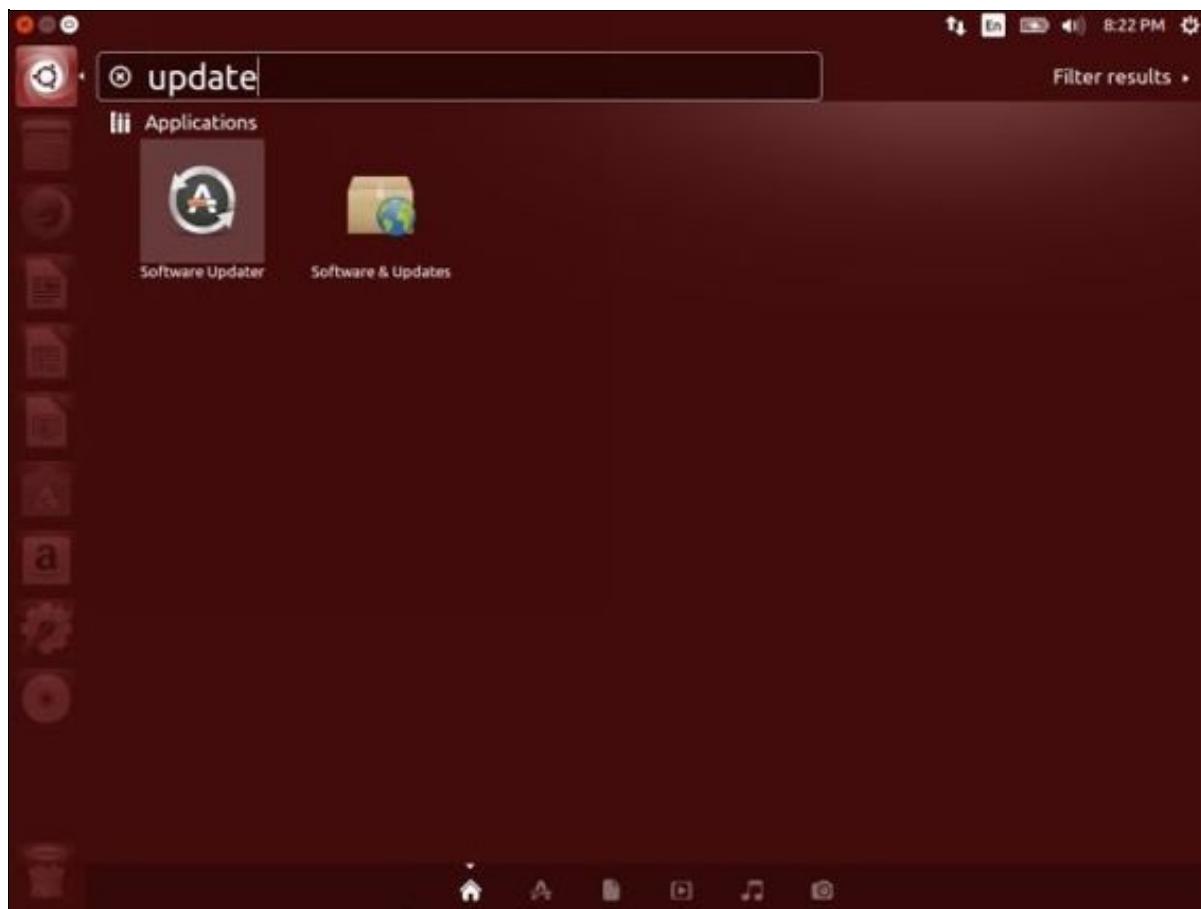


Figure 4-1. Searching for the Software Updater

Updating software is a multi part process. First the Software Updater has to update the

software sources. The sources contain a list of all the current available software and the latest versions. Once the Software Updater has updated the sources, it compares the current installed versions of software against the current list and recommends upgrading any installed software package that has a newer version.

You should update your Ubuntu system frequently. I update my system every time I use it which is daily. The Software Updater will also warn you when new updates are available.

Figure 4-2 shows an example of the Software Updater checking for updates.

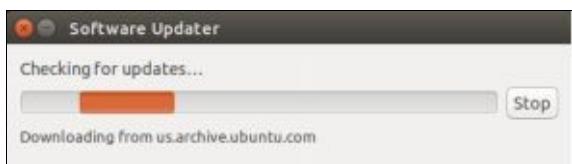


Figure 4-2. Software Updater checking for updates

Once the Software Updater has finished checking for updates you will be prompted to install the updates. You can also choose to install the updates at a later time. Figure 4-3 shows an example of the Software Updater asking if you want to install the updates.

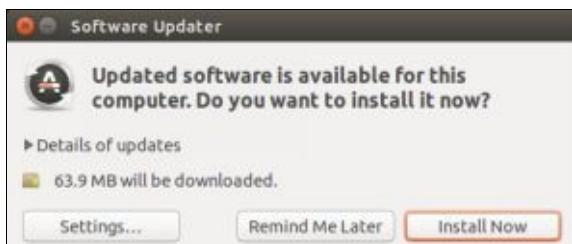


Figure 4-3. Software Updater Install Updates

If you choose to install the updates you will have to provide your password for authentication. During the Ubuntu install, the user account you created was given special privileges that allow your account to use root (administrator in Linux speak) level privileges by supplying your password. Figure 4-4 shows an example of the Software Updater authentication. You will only be given root level privileges for the task requesting authentication.

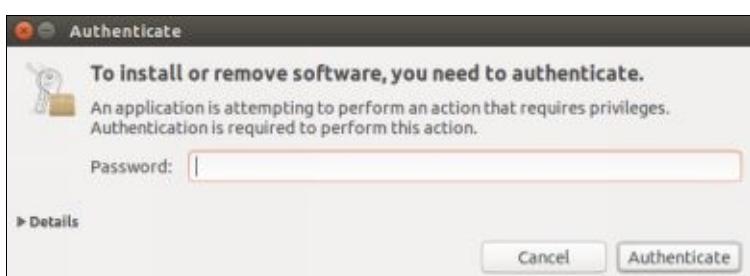


Figure 4-4. Software Updater Authentication

Once you authenticate, the updates will start to install. Depending upon the number of updates required, this could take a little while to complete. Make sure not to turn off your system during the update process and it can cause problems with your system. Figure 4-5 shows an example of the Software Updater installing updates.



Figure 4-5. Software Updater Installing Updates

Some updates may require a system restart to take effect. If this is the case, a dialog box at the end of the updates will ask you if you want to restart now or later. Figure 4-6 shows an example of the Software Updater asking for a restart.



Figure 4-6. Software Updater Restart

5. System Settings

The System Settings can be accessed by clicking on the System Settings icon on the Launcher on the left side of the screen or by clicking the System Setting icon in the top right hand side of the screen and choosing System Settings from the drop down menu. Figure 5-1 shows an example of the System Settings window. The System Settings are divided into three main sections, Personal, Hardware, and System.



Figure 5-1. System Settings

The Personal section has the following settings:

- Appearance
- Brightness & Lock
- Language Support
- Online Accounts
- Security & Privacy
- Text Entry

The Hardware section has the following settings:

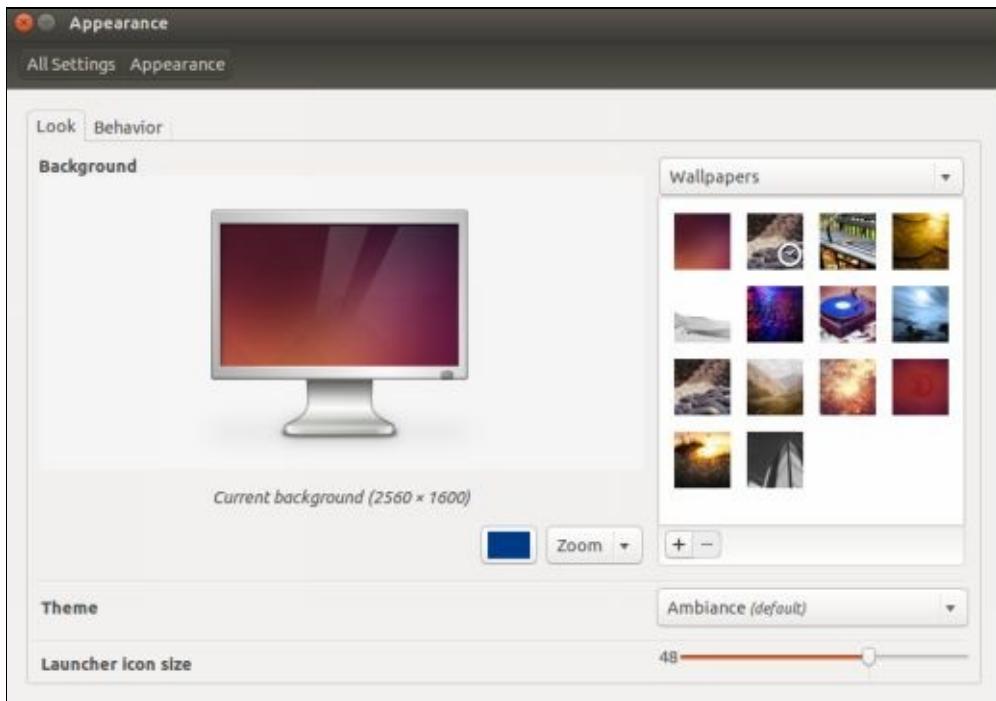
- Bluetooth
- Color
- Displays
- Keyboard
- Mouse & Touchpad
- Network
- Power
- Printers
- Sound
- Wacom Tablet

The System section has the following settings:

- Backup
- Details
- Landscape Service
- Software & Updates
- Time & Date
- Universal Access
- User Accounts

Appearance

Figure 5-2 shows an example of the Appearance settings. The Appearance settings window has two tabs, Look and Behavior. In the Look tab you can choose the background color, choose a wallpaper, choose a desktop theme, and change the size of the launcher icon.



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Figure 5-2. System Settings - Appearance - Look

Wallpapers

Using the + and - buttons under the Wallpapers section you can add and remove pictures to use as wallpaper. You can even use your own pictures. Clicking on any of the pictures in the wallpaper section will make that picture your wallpaper on your desktop.

Launcher Icon

Changing the size of the Launcher icon changes the size of the icons on the Launcher on the left side of the screen. Increasing the size makes the icons easier to see and use, reducing the size creates more desktop space.

Theme

Changing the theme changes the look of all windows and menus on the desktop.

As changes are made in the Look section you will be able to see the actual changes happening to the desktop in real time.

Behavior

The Behavior tab of the Appearance settings, Figure 5-3, allows you to enable Auto-Hide

of the Launcher bar on the left hand side of the screen . Enabling Auto-Hide will cause the Launcher to disappear when not being used. To make the Launcher reappear just move your mouse to the left side of the screen. You can also adjust the reveal sensitivity.

You can restore the default Behavior settings by clicking the button at the bottom left hand side of the window.

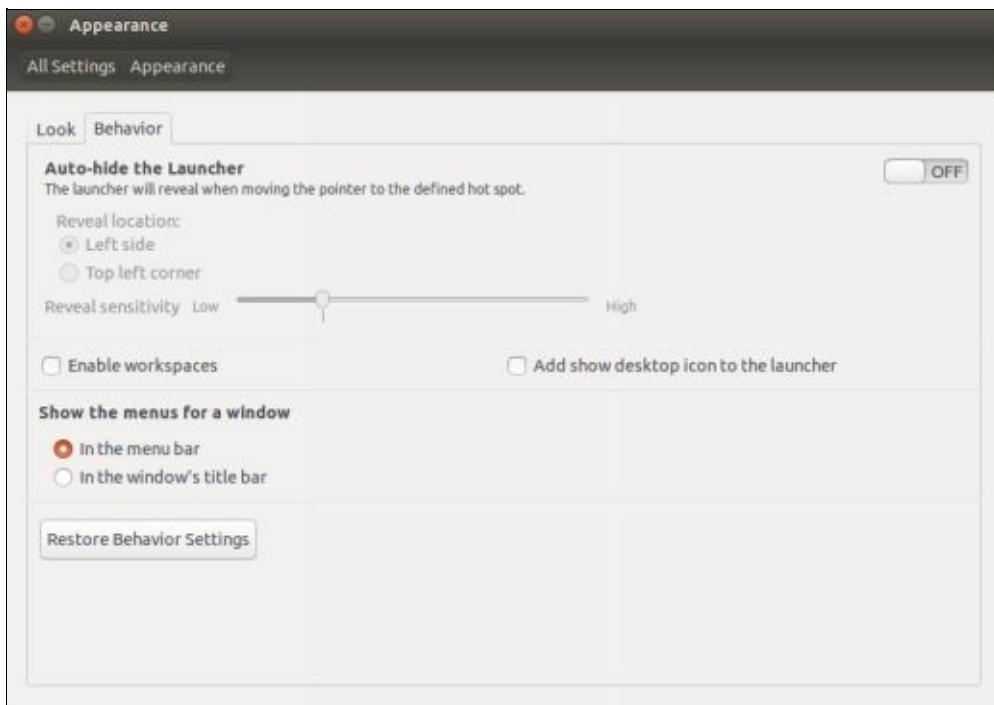


Figure 5-3. System Settings - Appearance - Behavior

Workspaces

Workspaces are like virtual desktops. You can have different applications open in different workspaces and switch between the workspaces. Once enabled the Workspaces icon will appear on the Launcher, Figure 5-4. Figure 5-5 shows an example of Workspaces in action. Click on any of the workspaces will make that workspace the current workspace. When you switch from one workspace to another, applications active in one workspace will stay active on that workspace and the new workspaces will be clear.



Figure 5-4. Workspaces icon in the launcher

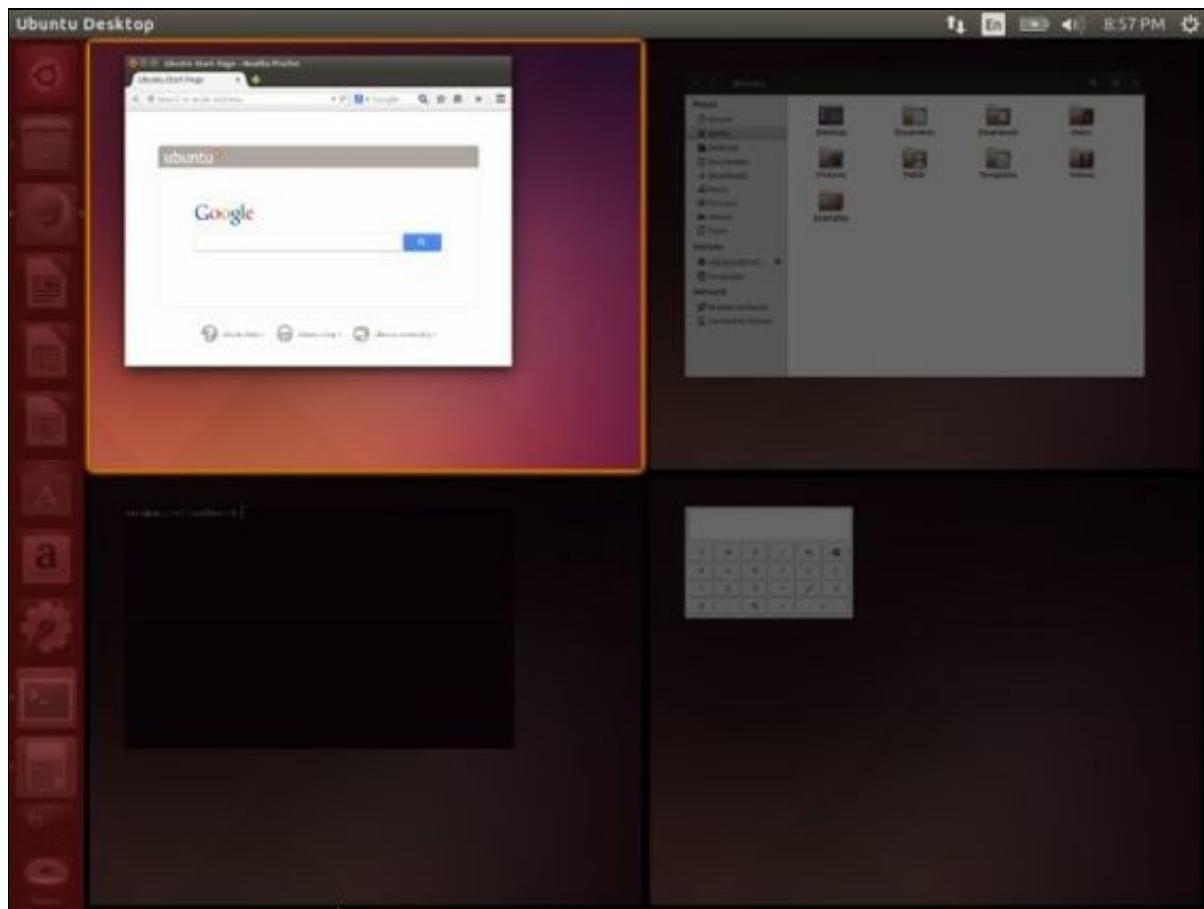


Figure 5-5. Workspaces

Brightness & Lock

The Brightness & Lock settings, Figure 5-6, allow you to adjust the time Ubuntu will wait before turning off the screen and locking the screen. You can also enable and disable the requirement to provide a password to unlock the screen. Locking the screen automatically after a short period of inactivity and requiring a password to unlock the screen is considered a good security practice and should not be turned off.

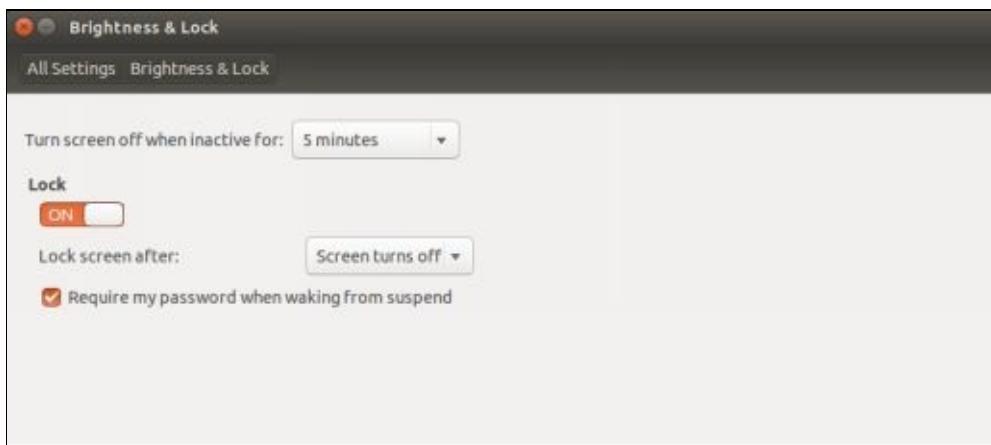


Figure 5-6. System Settings - Brightness & Lock

Language Support

Language support allows you to install other input languages for your keyboard. Before you can install additional language support, you will need to complete the Language Support install as it is not fully installed by default, Figure 5-7.

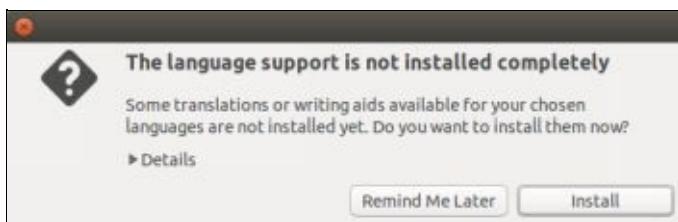


Figure 5-7. System Settings - Language Support - Install

Once the Language Support is fully installed you can select **Install / Remove Languages** to choose the language to install, Figure 5-8.

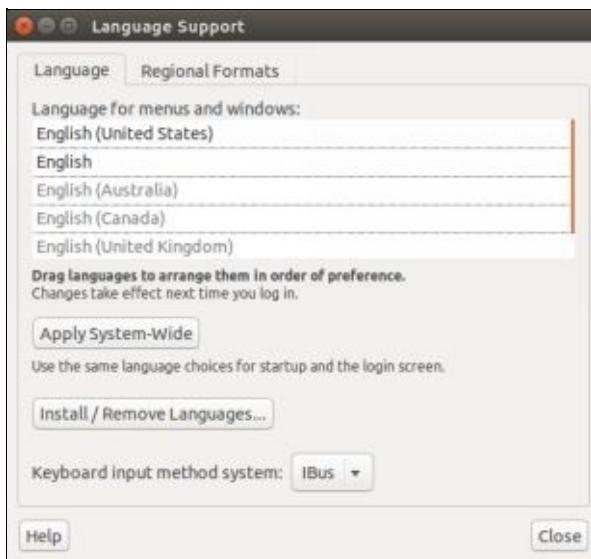


Figure 5-8. System Settings - Language Support

Select the language you want to add then click **Apply Changes**, Figure 5-9.



Figure 5-9. System Settings - Language Support - Install/Remove Languages

Regional Formats

The Regional Formats tab, Figure 5-10, allows you to control the way that numbers, dates, and currency is displayed on your system.

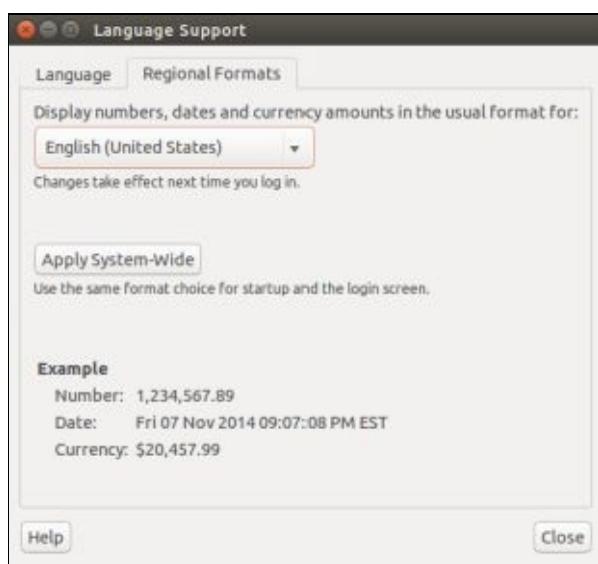


Figure 5-10. System Settings - Language Support - Regional Formats

Online Accounts

The Online Accounts settings, Figure 5-11, allow you to integrate your online accounts with various Ubuntu programs. For example, Shotwell is a digital picture manager which

can be setup to upload photos directly to your Facebook, Flickr, or Google accounts. Use the plus on the left side to add an online account your Ubuntu system. For security reasons I do not recommend using online accounts. I recommend that you provide a username and password each time your applications want to access an account.

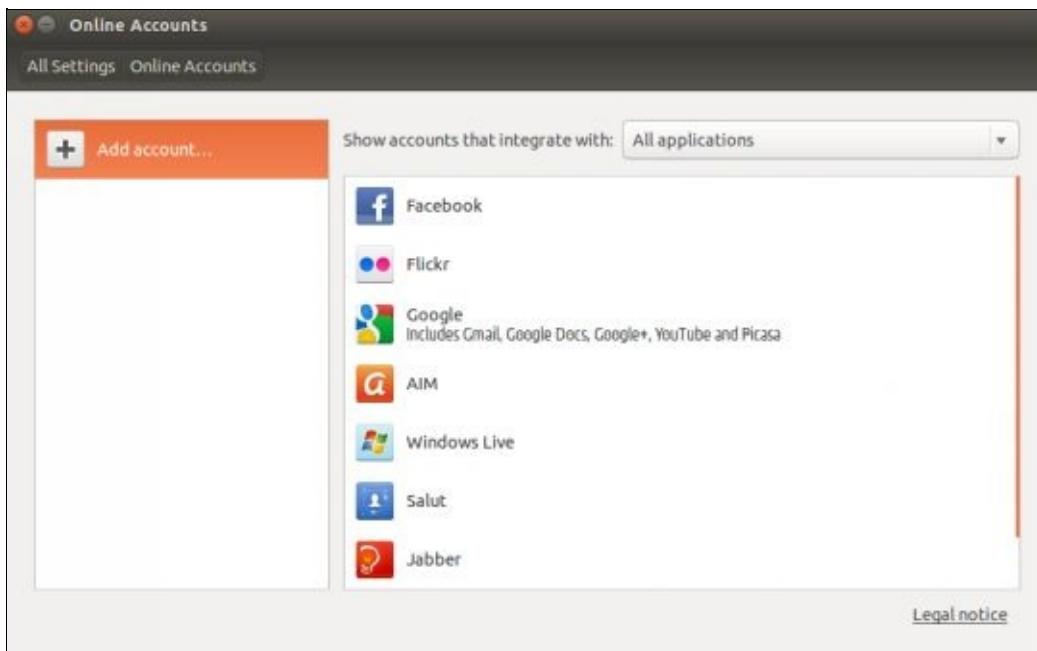


Figure 5-11. System Settings - Online Accounts

Security & Privacy

Security and Privacy are serious concerns to most people who are active on the Internet. The Security & Privacy settings allow you to control the Security and Privacy settings on your system.

The Security & Privacy settings has four tabs:

- Security
- Files & Applications
- Search
- Diagnostics

Security Tab

The Security tab, Figure 5-12, allows you to enable and disable the requirement to provide a password when waking from suspend mode and when returning from a blank screen.

You can also configure the amount of time a screen has been blank for before a password is required.

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Requiring a password for both **Waking from suspend** and **Returning from blank screen** are good security practices and should not be disabled.

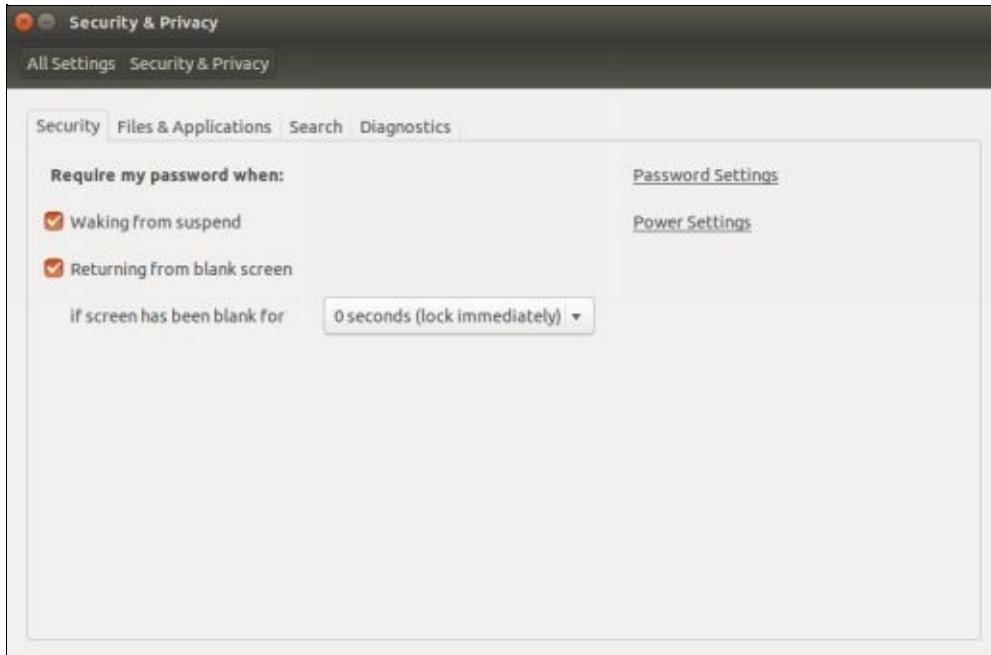


Figure 5-12. System Settings - Security & Privacy - Security

Files & Applications Tab

The File & Applications tab, Figure 5-13, allows you to select which applications to track usage for. Since applications can be configured to automatically logon using a username and password, tracking the usage will allow you to see if anyone is using the applications without your permission.

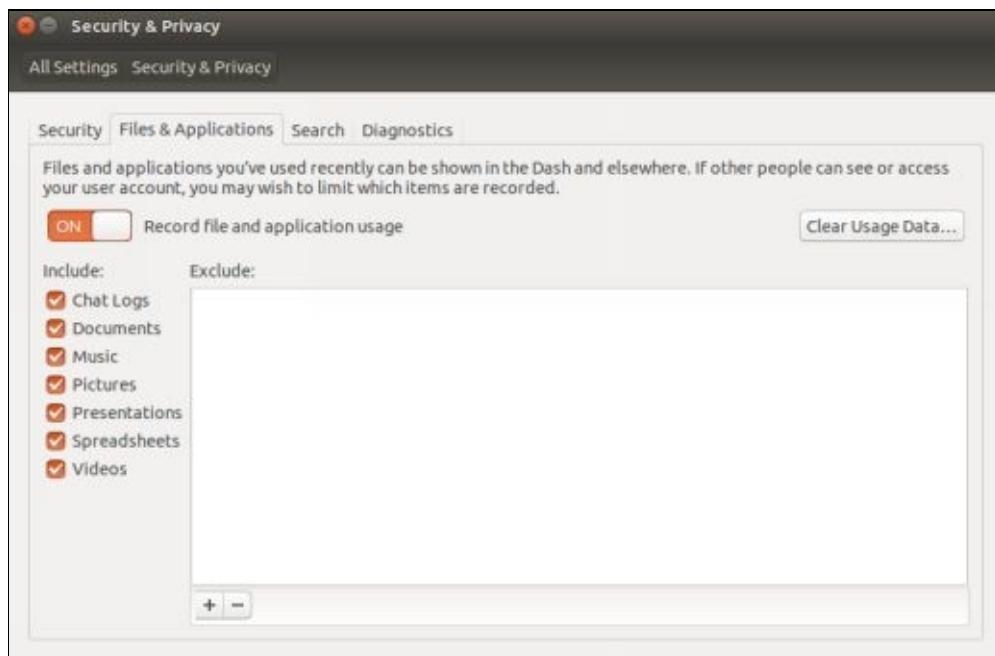


Figure 5-13. System Settings - Security & Privacy - Files & Applications

Search Tab

The Search tab, Figure 5-14, allows you control the inclusion of online search results when searching in Dash, which is the top icon on the Launcher. With online search turned on, Ubuntu will provide answers that will include online results. Turning online search off will disable this feature. I prefer to disable this feature as it make for cleaner search results.

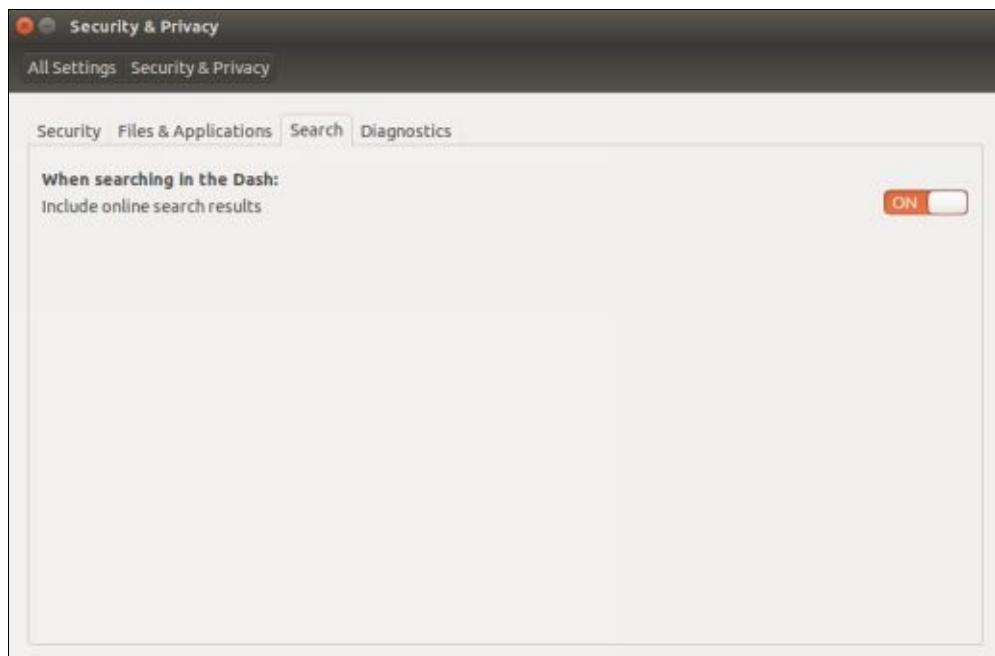


Figure 5-14. System Settings - Security & Privacy - Search

Diagnostics Tab

The Diagnostic tab, Figure 5-15, allows you to control what information is sent from your system to Canonical, the makers of Ubuntu, when there are errors with the operating system. By default Ubuntu will ask for permission anytime it tries to send an error report.

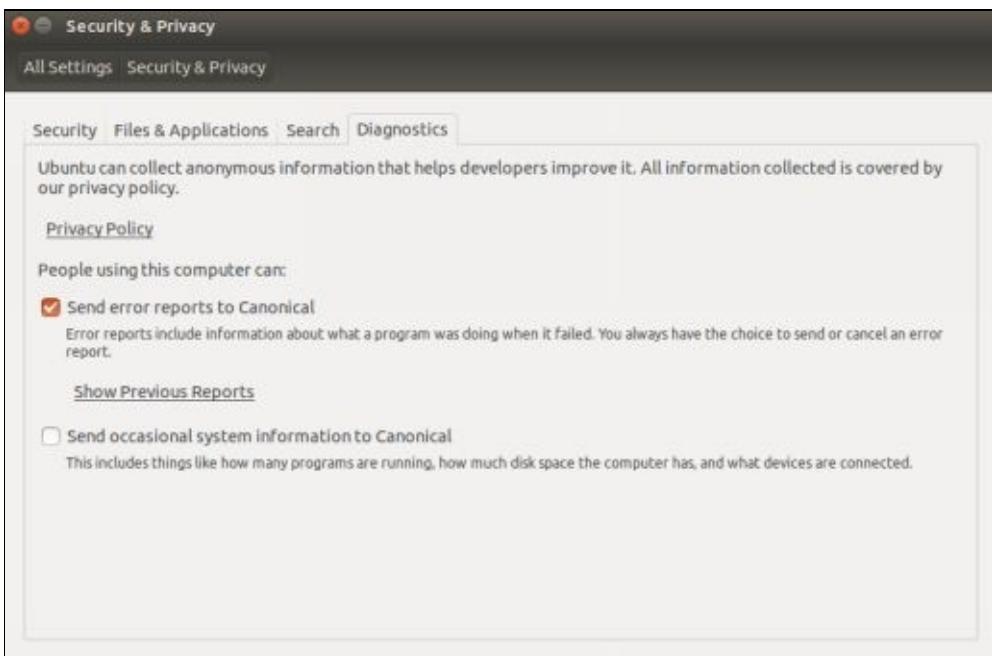


Figure 5-15. System Settings - Security & Privacy - Diagnostics

Text Entry

The Text settings apply when you have more than one input language installed. In Figure 5-16, the installed language listed is just English even though language support for other languages may have already been installed. Clicking the + under the **Input sources to use:** menu will allow you to add additional language input. You can also define the key combinations that will allow you to toggle between input methods. The Super key is the logo key on most keyboards. Clicking on the Keyboard Settings link in the bottom right hand corner will take you to the keyboard settings.

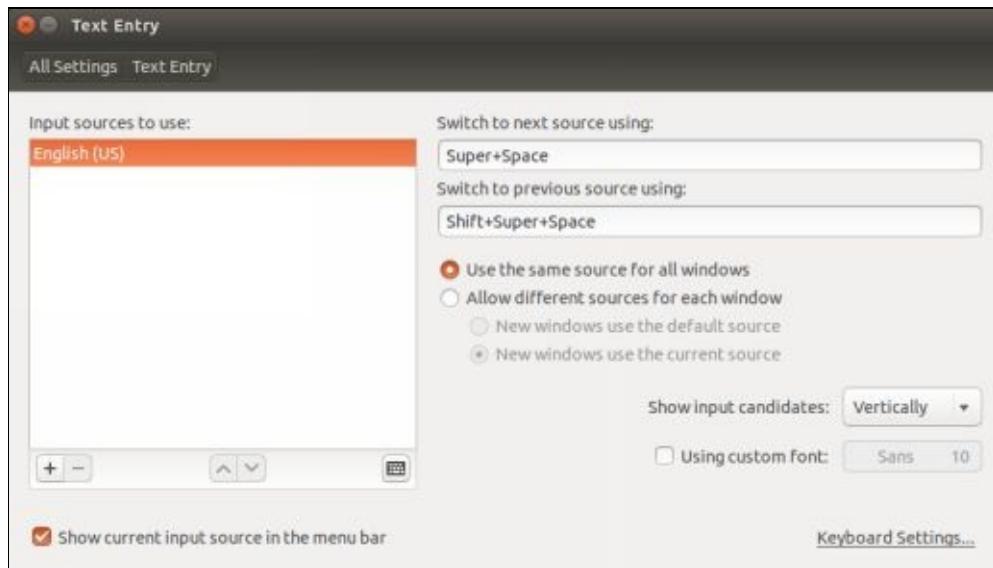


Figure 5-16. System Settings - Text Entry

Bluetooth

The Bluetooth settings, Figure 5-17, allow you to control Bluetooth if it is part of your installed hardware. You can turn Bluetooth on and off and control the visibility of your Bluetooth device. For security purposes, I recommend turning off Bluetooth when not needed.

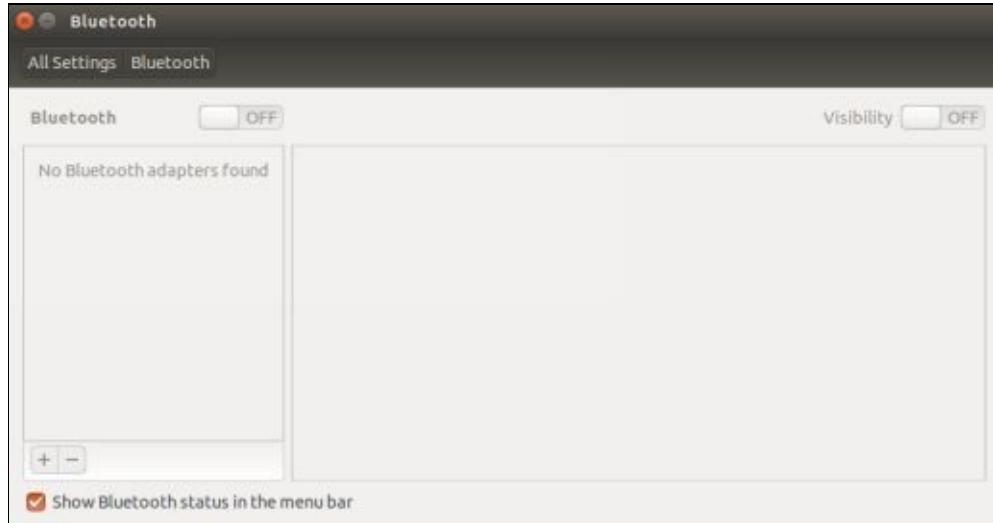
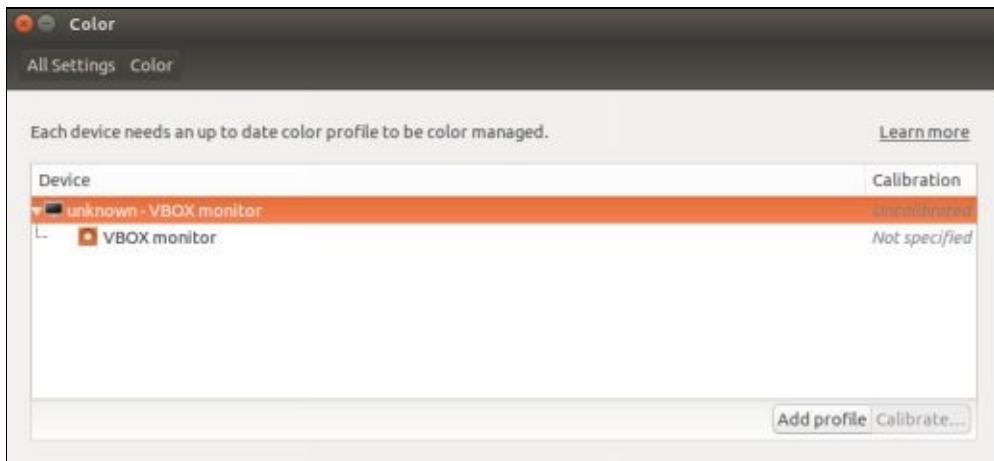


Figure 5-17. System Settings - Bluetooth

Color

The Color settings, Figure 5-18, allow you to control the color profile of your monitor.



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Figure 5-18. System Settings - Color

Displays

The Display settings, figure 5-19, allow you to set the resolution and rotation of your display. You can also scale the menu and title bars making the icons larger or smaller depending upon your preference. You can detect connected displays. If you have multiple displays connected to your system you can choose to have the launcher visible on all displays or only a select display.

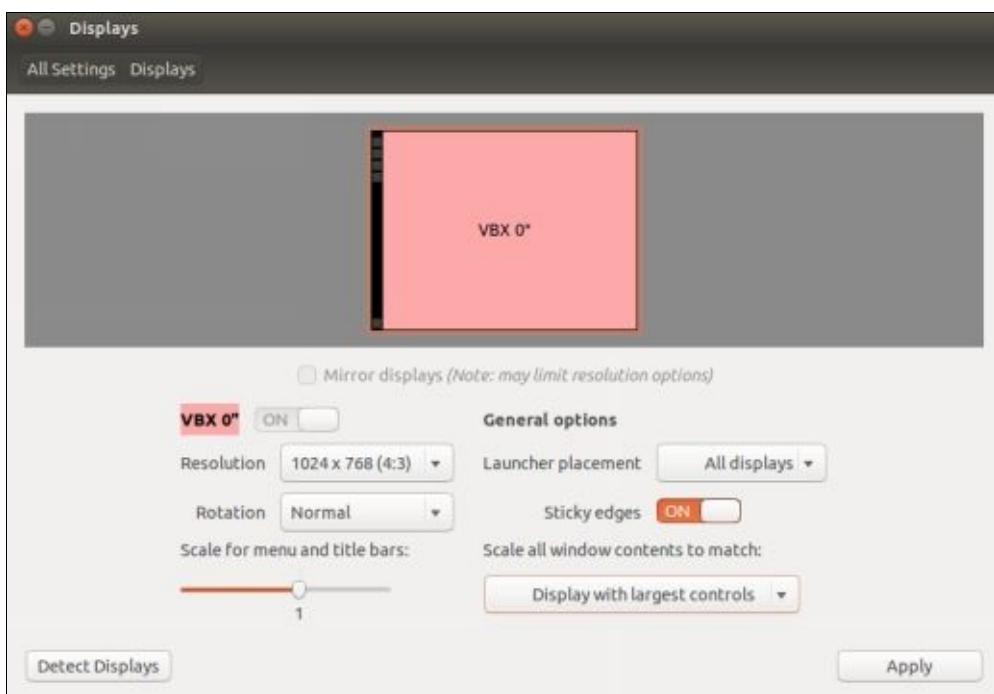


Figure 5-19. System Settings - Displays

Keyboard

Typing Tab

The Typing Tab, Figure 5-20, allows you to control the delay and speed of repeating letters when holding a key on the keyboard. You can also control the blinking speed of the cursor. The Text Entry link in the bottom left hand corner of the screen will take you to the Text Entry settings.



Figure 5-20. System Settings - Keyboard - Typing

Shortcuts Tab

The Shortcuts Tab, Figure 5-21, allows you to control keyboard shortcuts. You can edit default shortcuts, remove shortcuts, or add your own shortcuts.

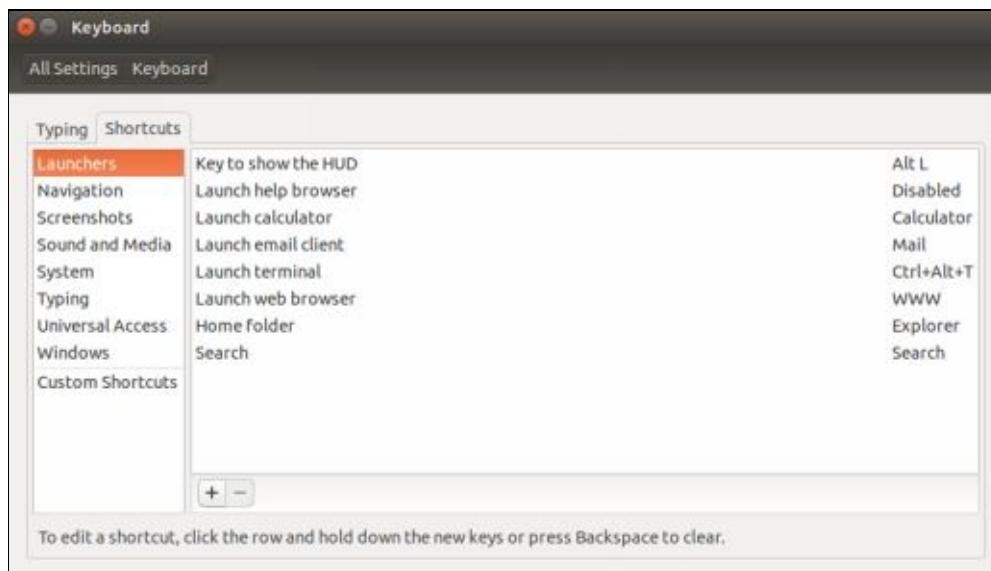


Figure 5-21. System Settings - Keyboard - Shortcuts

Mouse & Touchpad

The Mouse & Touchpad settings, Figure 5-22, allows you to control the primary button, the double click speed, and the pointer speed of the mouse. You can also test your settings by clicking the button in the upper right hand corner of the window.

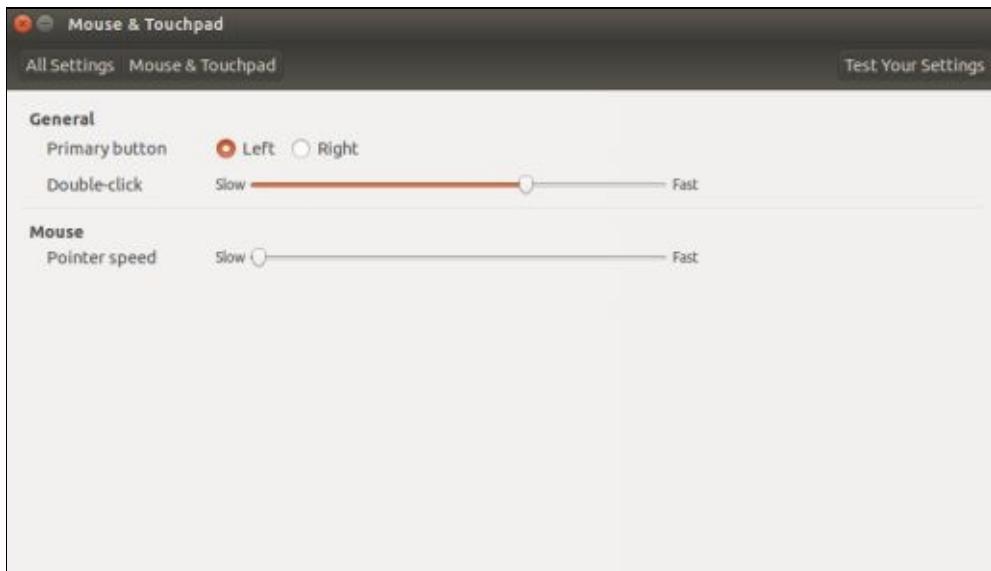


Figure 5-22. System Settings - Mouse & Touchpad

Network

The Network settings, Figure 5-23, will be covered in more detail in Chapter 6.

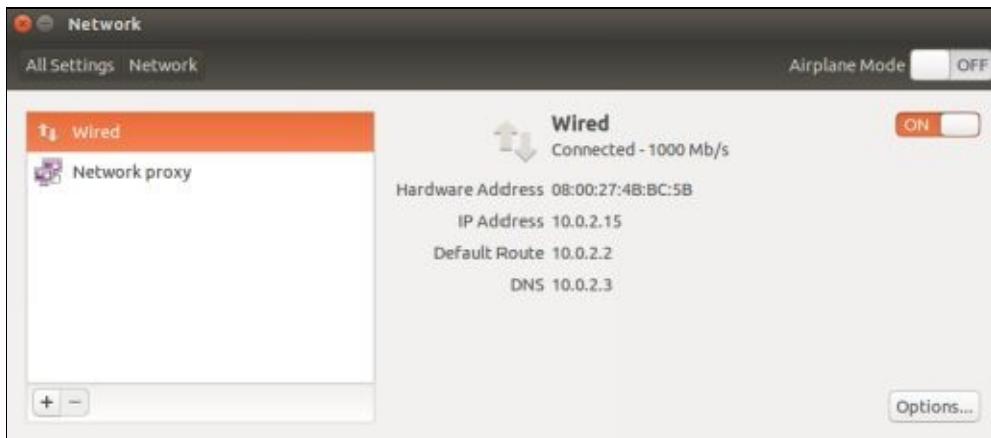


Figure 5-23. System Settings - Network

Power

The Power settings, Figure 5-24, allow you to control the following:

- battery usage when using a laptop
- suspend time for a laptop or desktop

- visibility of the battery status in the menu bar

There will also be a battery charge level display at the bottom of the window when Ubuntu is installed on a laptop.

For the first two options you have choices for battery power and plugged in.



Figure 5-24. System Settings - Power

Printers

The Printer settings, Figure 5-25, allow you add and delete printers from your system. To Add a printer click the **Add** button.

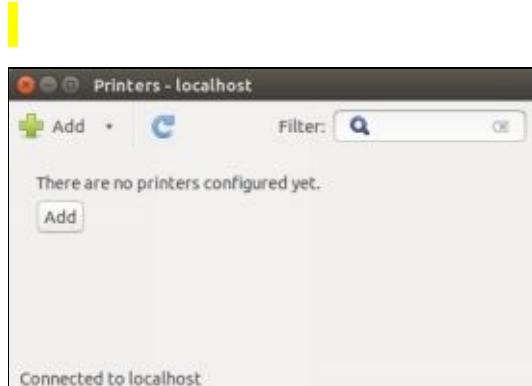


Figure 5-25. System Settings - Printers

Most printers will be auto-detected by Ubuntu and will include the correct name. In Figure 5-26, the printer is connected via a USB cable. You can also add a network printer. Network printers are beyond the scope of this book.

Once your device is selected, press **Forward**.



Figure 5-26. System Settings - Printers - Select Device

Ubuntu needs a printer driver for the printer to function properly, Figure 5-27. You can choose from the printer database, provide a printer driver, or search for a driver on the Internet.

If you choose from the database you will have to select the manufacture and click **Forward** then select the appropriate driver.

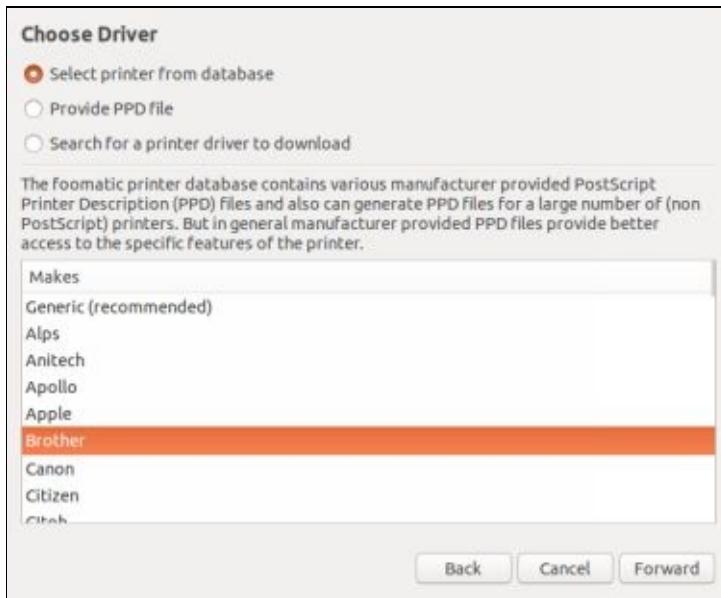


Figure 5-27. System Settings - Printers - Choose Driver

The last step is to provide a description of the printer, Figure 5-28. All of the details should be auto-populated but you can always modify the description if you want.

Click **Apply** to add the printer.

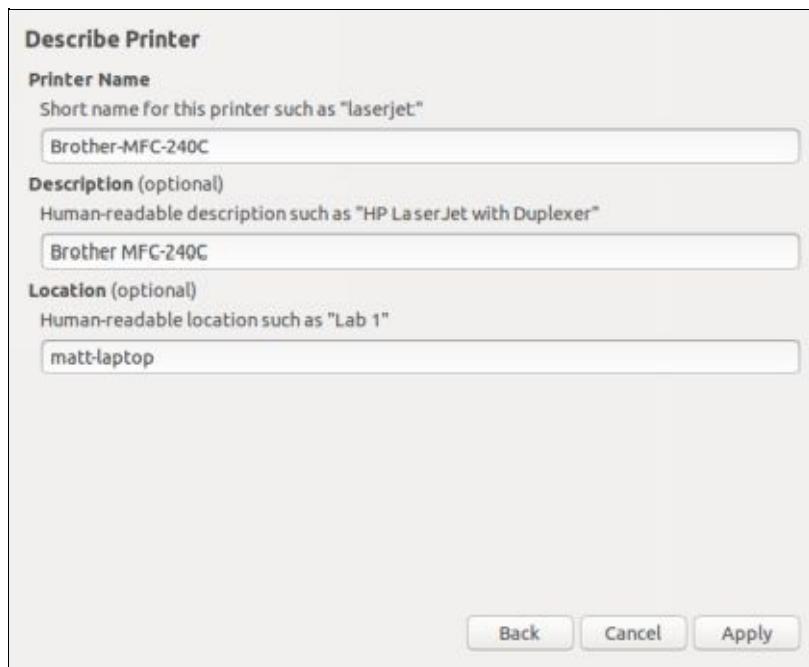


Figure 5-28. System Settings - Printers - Describe Printer

You will be asked if you want to print a test page, Figure 5-29.



Figure 5-29. System Settings - Printers - Print Test Page

Now that your printer has been added, Figure 5-30, you are ready to print.

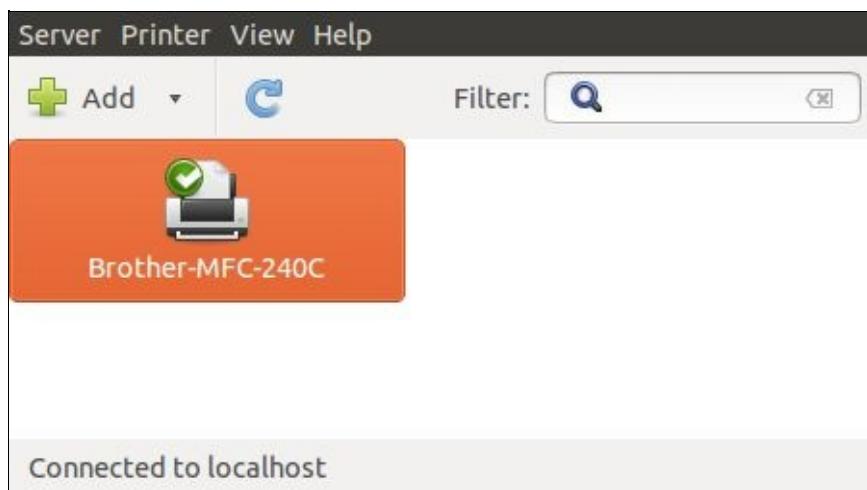


Figure 5-30. System Settings - Printers

Sound

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The Sound settings Output tab, Figure 5-31, allows you to control the output settings for the sound card. You can control the following:

- output volume
- mute
- louder than 100%
- balance
- fade
- subwoofer
- sound volume in the menu bar

You can also choose where the sound will be played through if there are multiple outputs and test the sound by clicking the **Test Sound** button.

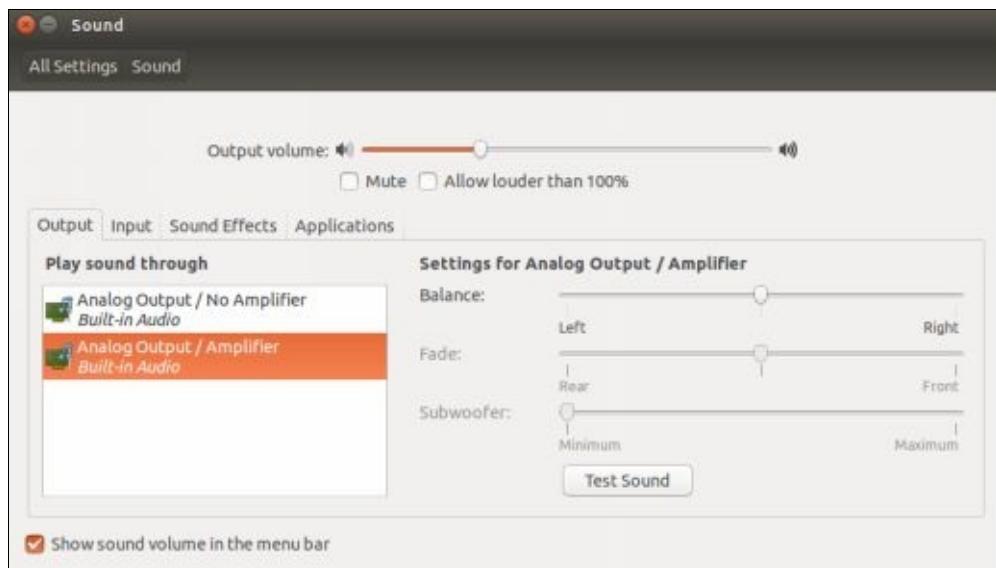


Figure 5-31. System Settings - Sounds - Output

The Input tab, Figure 5-32, allows you to control the sound input. You can control the following:

- where to record sound from
- input volume
- sound volume in the menu bar

There is also an input level display at the bottom of the window.

The **Output volume, Mute, and Allow louder than 100%** remain at the top of the window and the **Show sound volume in the menu bar** stays at the bottom of the window no matter what tab you are on.

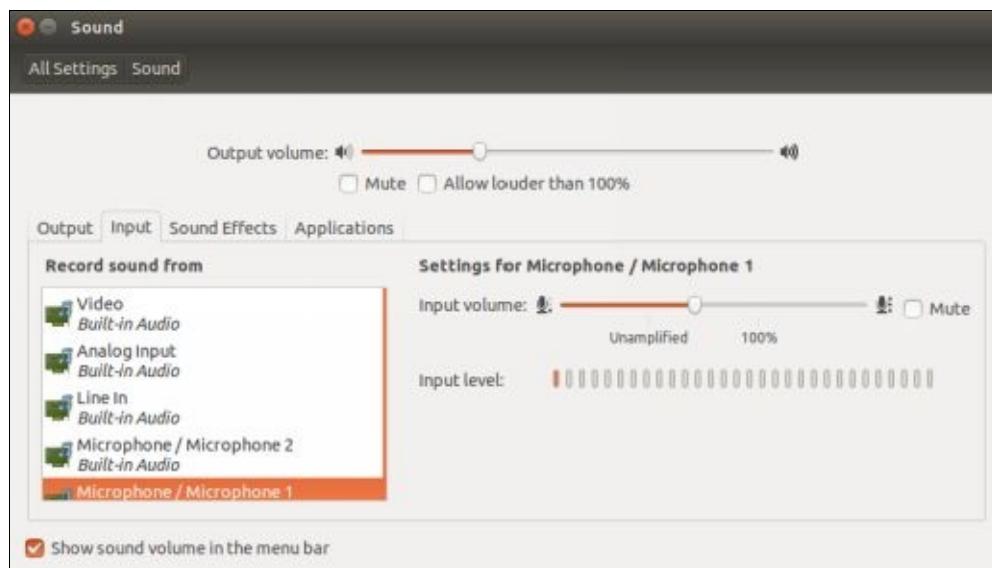


Figure 5-32. System Settings - Sounds - Input

The Sound Effects tab, Figure 5-33, allows you to control the volume of the alert sound. This is the sound the computer makes where there is an error or some other issue. You can also mute the sound.

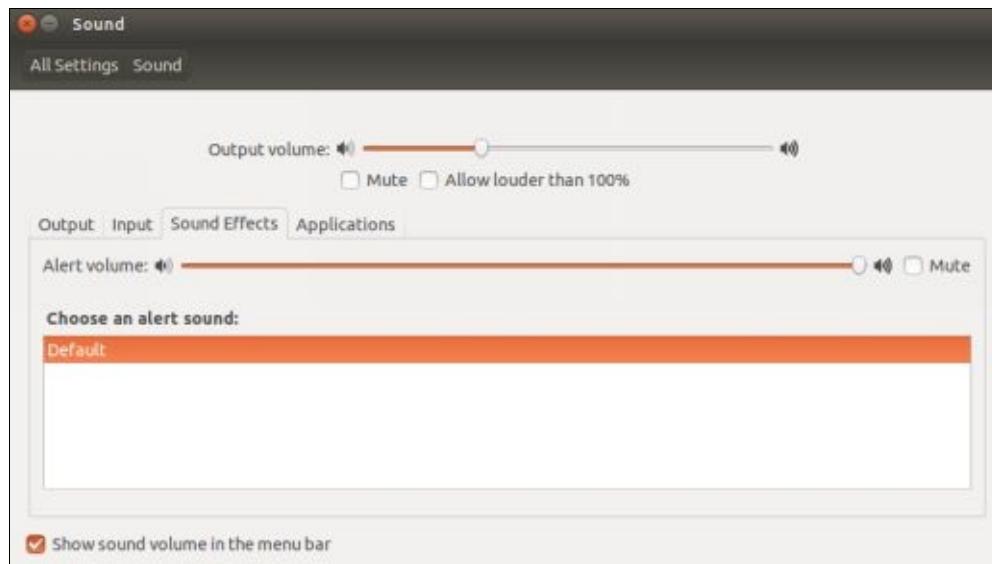


Figure 5-33. System Settings - Sounds - Sound Effects

The Applications tab, Figure 5-34, allows you to control the volume of an application that is playing sounds. In this example, Rhythmbox is playing sound so the Rhythmbox shows

up with a volume slider bar and mute check box.

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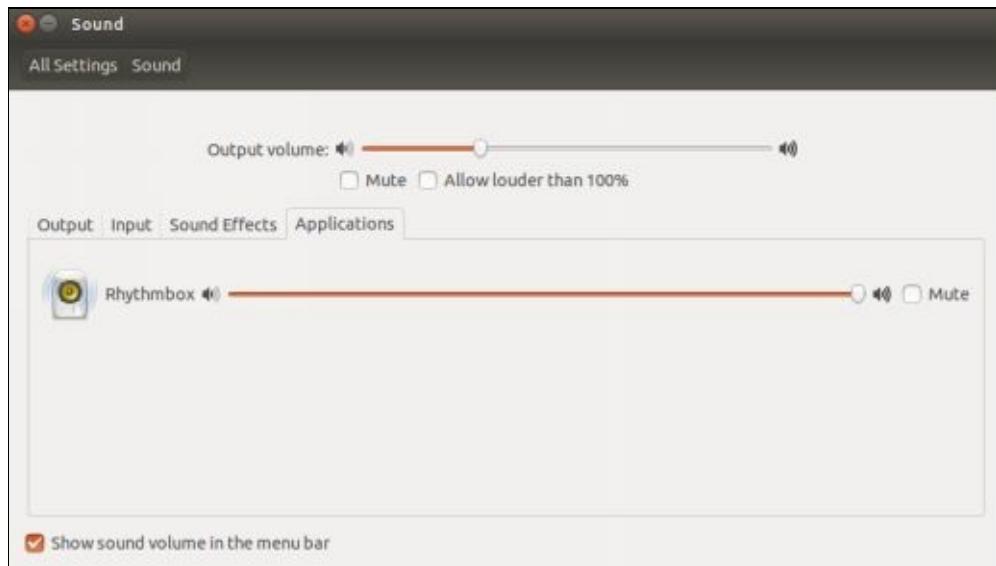


Figure 5-34. System Settings - Sounds - Applications

Wacom Tablet

The Wacom tablet settings, Figure 5-35, shows information about any attached Wacom tablets.

You can modify the performance of the Wacom tablet by adjusting the following items:

- Tracking Mode
- Left-Handed Orientation
- Eraser Pressure Feel
- Top Button
- Lower Button
- Tip Pressure Feel

You can also map the tablet to the monitor by clicking the button on the right hand side of the window.

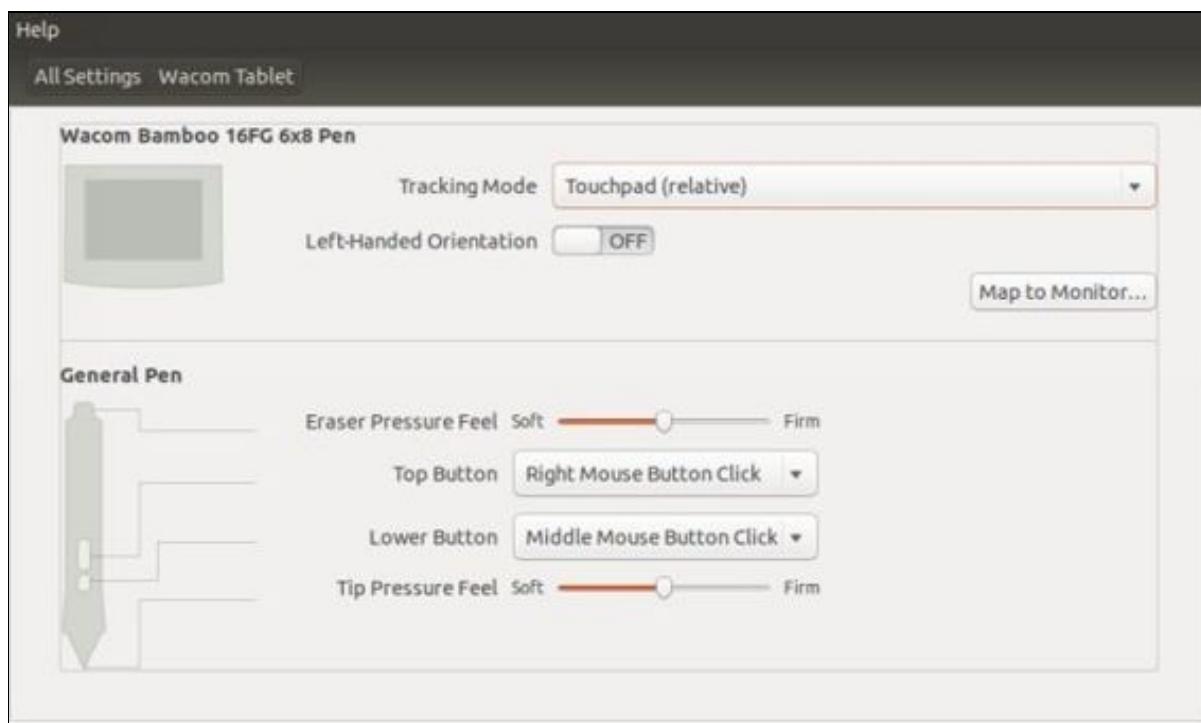


Figure 5-35. System Settings - Wacom Tablet

Backup

Backing up is a good idea to keep from losing important files and being able to restore files that are lost or accidentally deleted. Figure 5-36, shows the Back settings. Backups will be covered in more detail in Chapter 9.

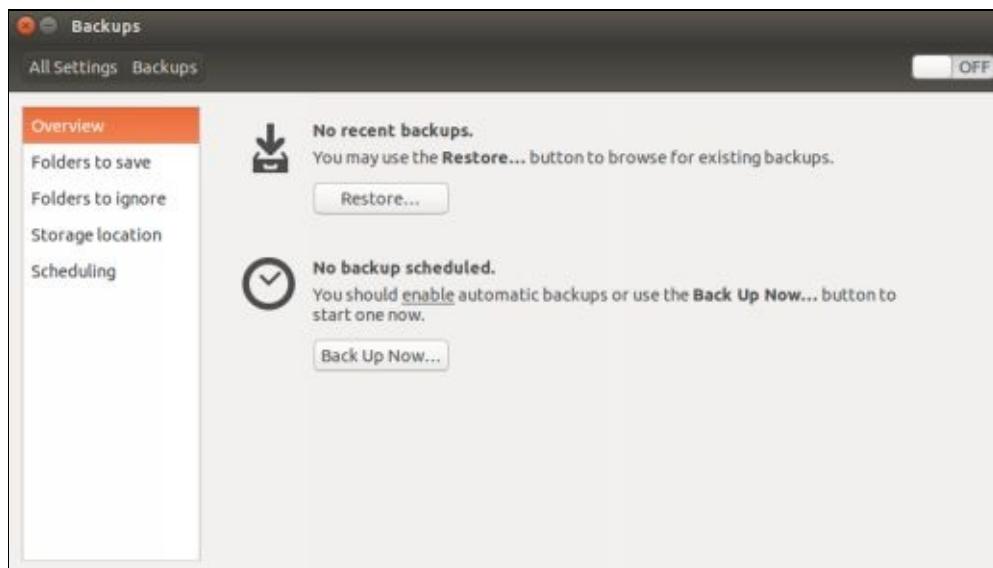


Figure 5-36. System Settings - Backup - Overview

Details

The Details settings show information regarding your Ubuntu system.

The Overview section, Figure 5-37, shows the basic details of your Ubuntu system. The following items can be viewed:

- Device name
- Memory
- Processor
- Graphics
- OS Type (32-bit or 64-bit)
- Disk size



Figure 5-37. System Settings - Details - Overview

Default Applications

The Default Applications section, Figure 5-38, allows you to control what the different default applications are for various functions and media. The following functions and media can be set:

- Web
- Mail
- Calendar
- Music

- Video
- Photos

Next to each function or media type is a drop down menu that allows to specify a default application.

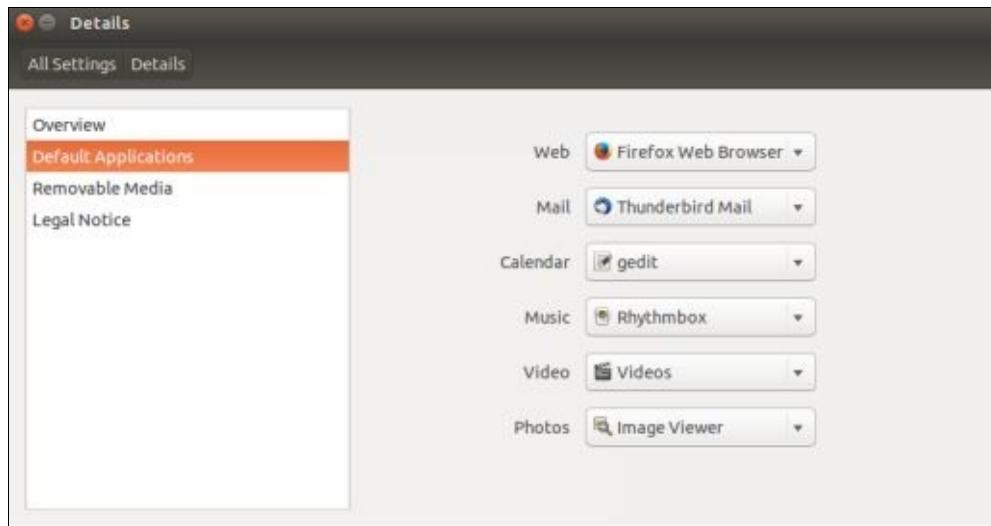


Figure 5-38. System Settings - Details - Default Applications

Removable Media

The Removable Media section, Figure 5-39, allows you control what your system does with different types of media. The following types of media can be controlled:

- CD Audio
- DVD Video
- Music player
- Photos
- Software

For each type of media, the drop down menu on the right will allow you to choose what action to take when that particular type of media is on removable media and connected to the system. The default for the media is **Ask what to do**. The default for Software is **Run Software**. Other options include:

- Open with an application
- Do Nothing

- Open Folder

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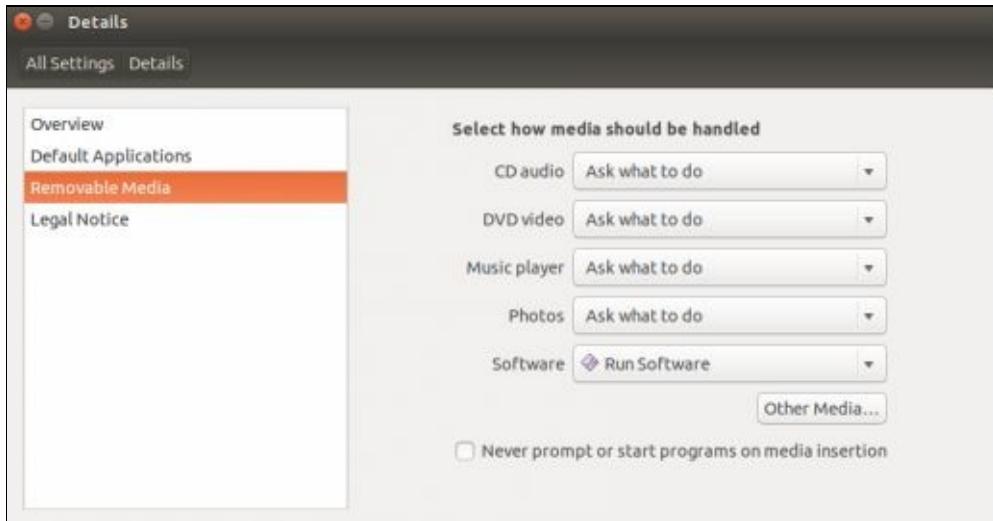


Figure 5-39. System Settings - Details - Removable Media

You can also adjust the settings for other type of media by clicking on the **Other Media** button. Figure 5-40 shows for the listing of the other media.

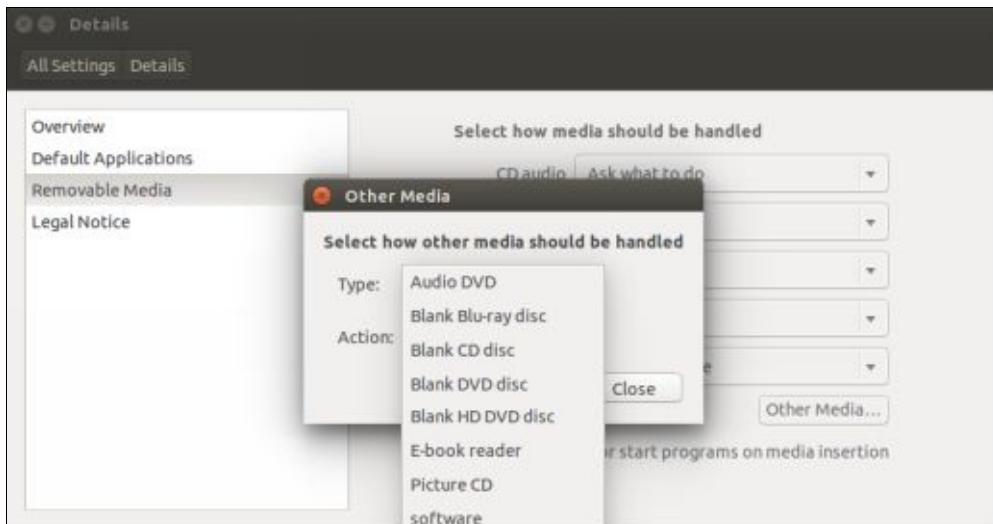


Figure 5-40. System Settings - Details - Removable Media - Other Media

Allowing media and software to launch automatically when removable media is connected to a system is not a good security practice. To mitigate the risk, you can stop this behavior by checking the **Never prompt or start programs on media insertion** check box at the bottom of the window, Figure 5-41.

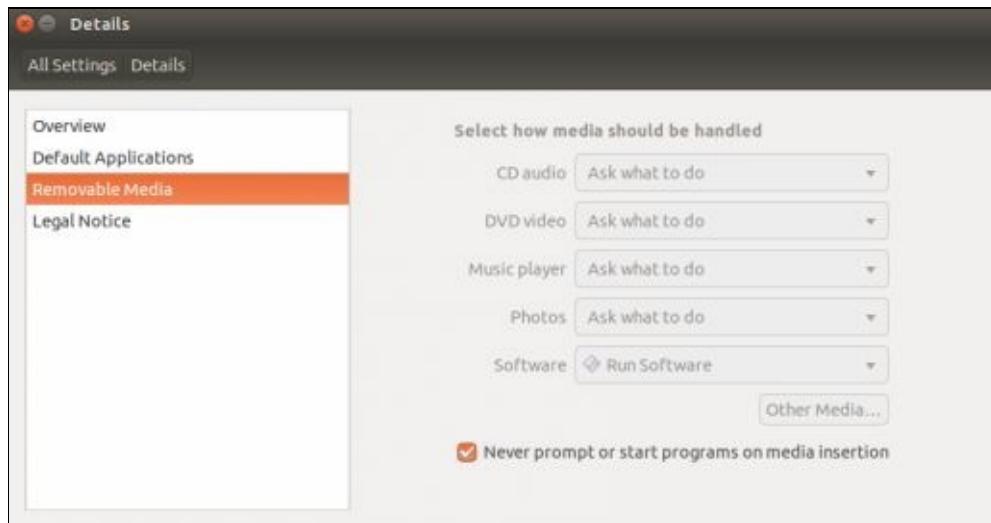


Figure 5-42. System Settings - Details - Removable Media - Never prompt

Legal Notice

The Legal notice section, Figure 5-43, contains various legal notices pertaining to the use of the Ubuntu operating system.

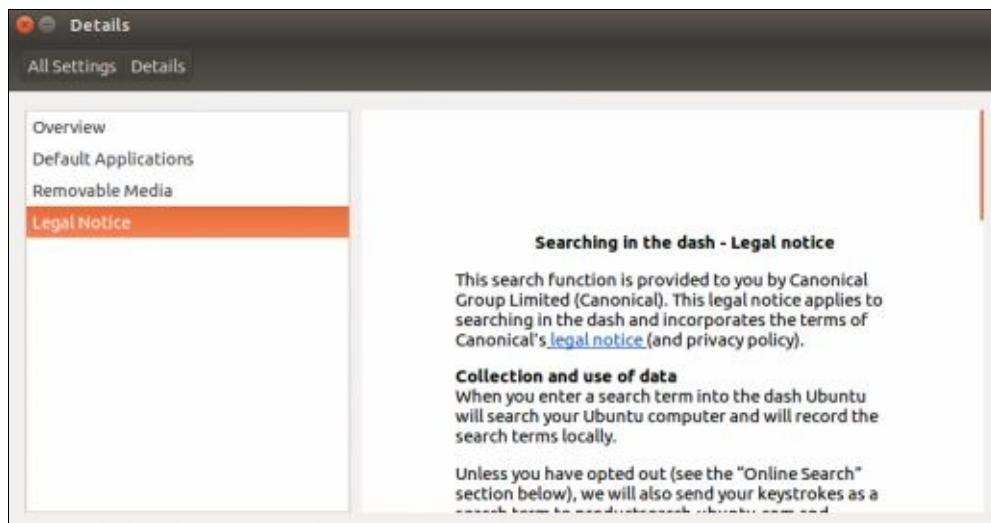


Figure 5-43. System Settings - Details - Legal Notice

Landscape Service

Landscape Service, Figure 5-44, is a system management application that allows an administrator to monitor and administer an Ubuntu network. Landscape Service is outside the scope of this book.



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Figure 5-44. System Settings - Landscape Client

Software & Updates

Software & Updates settings are used to control such things as where software and updates for your system are downloaded from, what type of software to install, and when to check for updates.

Ubuntu Software

The Ubuntu Software tab, Figure 5-45, controls what type of software will be downloaded from the Internet. The tab has the following types:

- Main - Canonical supported free and open-source software
- Universe - Community maintained free and open-source software
- Restricted - Proprietary drivers for devices
- Multiverse - Software restricted by copyright, in other words not free and open-source
- Source code

You can also control which country and server updates are downloaded from. Choosing a server close to your current location can improve the download performance.

At the very bottom of the screen you can also choose to install software updates from the CD-Rom that was used to install Ubuntu, however, this is not ideal as the software on the CD-Rom will most likely be out of date.



Figure 5-45. System Settings - Software & Updates - Ubuntu Software

Other Software

The Other Software tab, Figure 5-46, allows you to choose to add Canonical Partners and Independent third-party software developers.

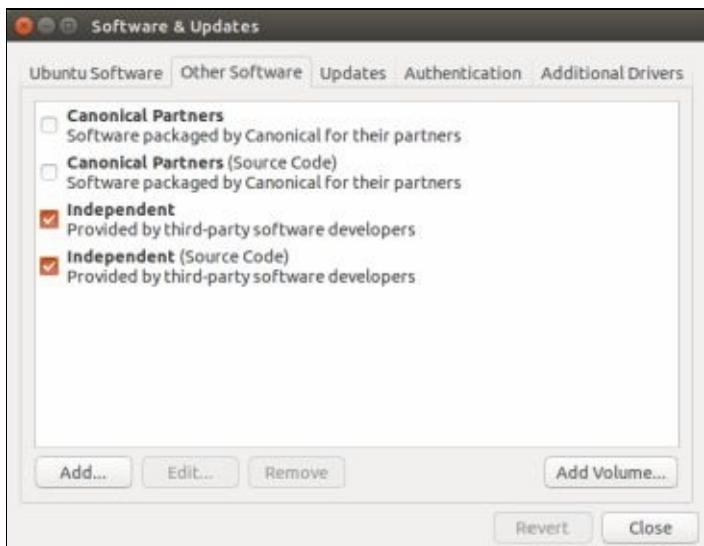


Figure 5-46. System Settings - Software & Updates - Other Software

Updates

The Updates tab, Figure 5-47, controls the types of updates to install, when to check for updates, when to display security and regular updates, and when to display the availability of new versions of Ubuntu.

The following types of update are available:

- Important security updates - These updates should be installed as soon as possible. **Free ebooks => www.ebook777.com**
- Recommend updates - These updates should be installed but do not have potential security issue.
- Pre-released updates - Not recommended
- Unsupported update - Updates for software not supported by Canonical

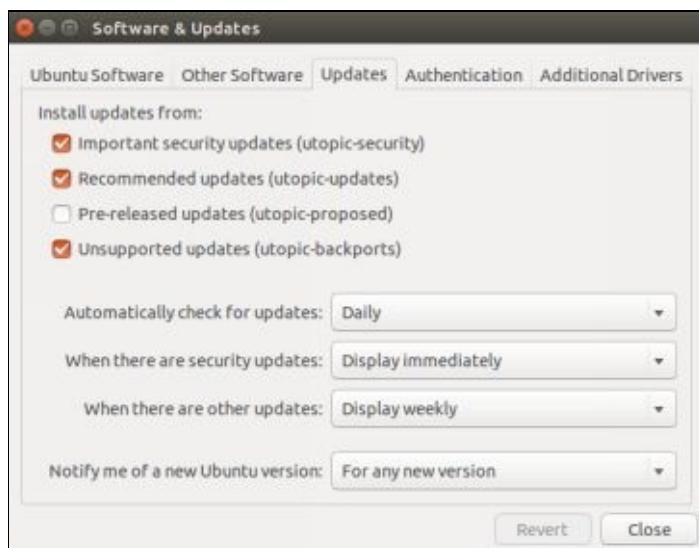


Figure 5-47. System Settings - Software & Updates - Updates

Authentication

The Authentication tab, Figure 5-48, shows the current authentication keys for trusted software sources. These keys are used to verify that software and updates are coming from trusted and verified sources. You can import and delete keys from this tab.

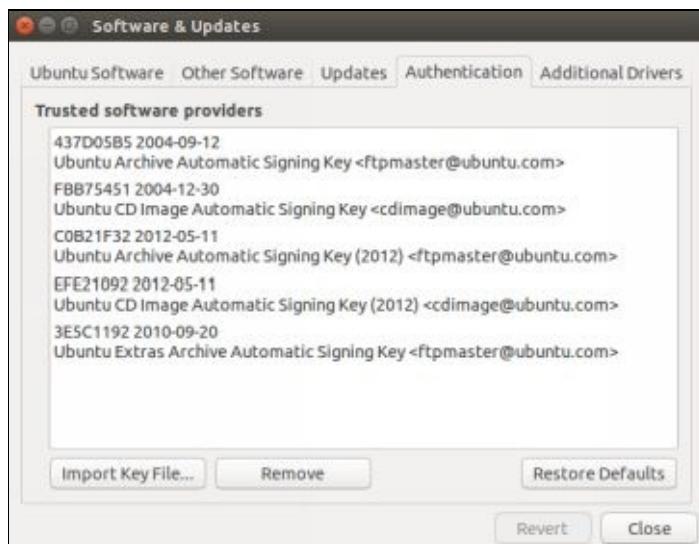


Figure 5-48. System Settings - Software & Updates - Authentication

Additional Drivers

When Ubuntu detects hardware that may have a proprietary drives it will be displayed in the Additional Drivers tab, Figure 5-49. You will be to enable and disable the use of proprietary drivers on this tab.

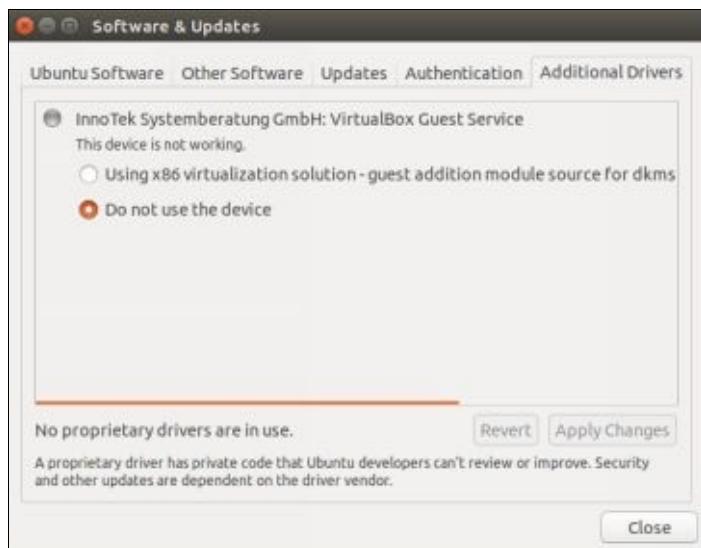


Figure 5-49. System Settings - Software & Updates - Additional Drivers

Time & Date

The Time & Date tab, Figure 5-50, allows you control what time zone your system time is set to. The tab has an interactive map that allows you to choose your timezone by clicking on the location on the map. This map is that same map that was used to set the timezone during the installation process.

You can also choose to set the system time manually or set the time from the Internet via the Network Time Protocol (NTP). Using NTP is the most accurate way to set the time on your system.

If you choose to set the time manually the time controls at the bottom of the windows will be activated.

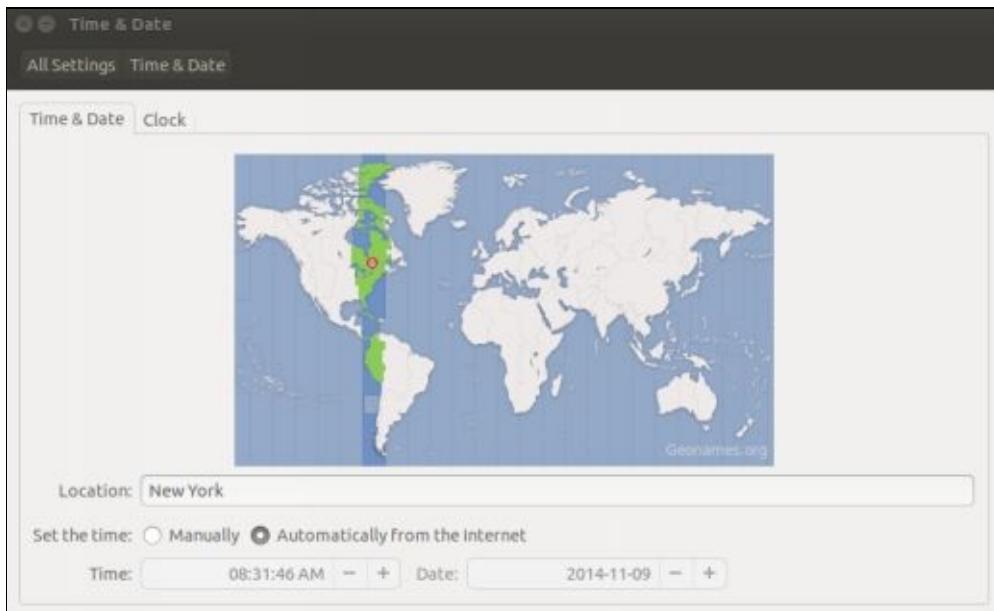


Figure 5-50. System Settings - Time & Date

Clock

The Clock tab, Figure 5-51, allows you to control the behavior of the clock. You can control where the clock is displayed and the format of the clock.

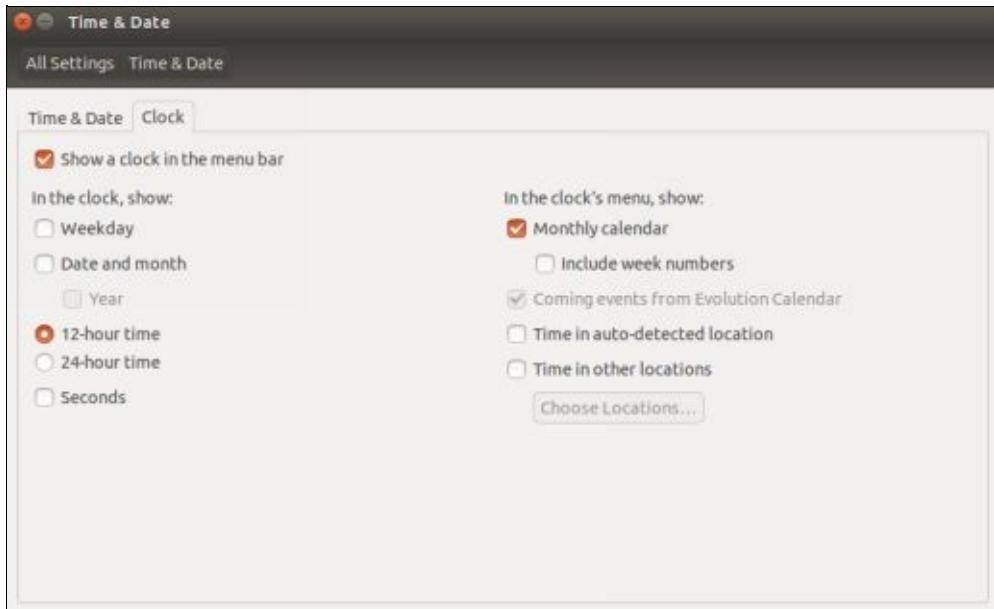


Figure 5-51. System Settings - Time & Date - Clock

Universal Access

The Universal Access settings are for users who require assistive technologies to interact with and control their systems.

Seeing

The Seeing tab, Figure 5-52, allows you to turn on a high contrast screen, large text, a screen reader, and a beep on caps and num lock for easier viewing and to assist people who have difficulty viewing the screen.



Figure 5-52. System Settings - Universal Access - Seeing

Hearing

The Hearing tab, Figure 5-53, allows you to turn on Visual Alerts for people who have difficulty hearing. You can choose to have the window title flash or the entire screen. You can also test the flash.



Figure 5-53. System Settings - Universal Access - Hearing

Typing

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The Typing tab, Figure 5-54, allows you to turn on Sticky Keys, Slow Keys, and Bounce Keys. This tab also allows you to enable the ability to turn accessibility features on and off using the keyboard.

Sticky Keys allows the use of key such as Alt, Ctrl, or Shift by pressing the key once and it will remain active without having to hold the key. This helps reduce strain on the hands when typing for a long period of time.

Slow Keys creates a delay between when a key is pressed and when the input is accepted. The key must be held for the specified duration before the input is accepted.

Bounce Keys allows you to configure the ignoring of repeated rapid pressing of the same key.



Figure 5-54. System Settings - Universal Access - Typing

Pointing and Clicking

The Pointing and Clicking tab, Figure 5-55, allows you to enable Mouse Keys, Simulated Secondary Click, and Hover Click as well and access the Mouse Settings by clicking the link in the bottom right hand corner.

Mouse Keys allows you to use the number pad on your keyboard to control the mouse pointer vice using an actual mouse.

Simulated Secondary Click allows you to configure the mouse to interpret holding a mouse button as double click vice a single click.

Hover Click allows you to configure the mouse to trigger a click when you hover over an area of the screen such as a hyperlink.

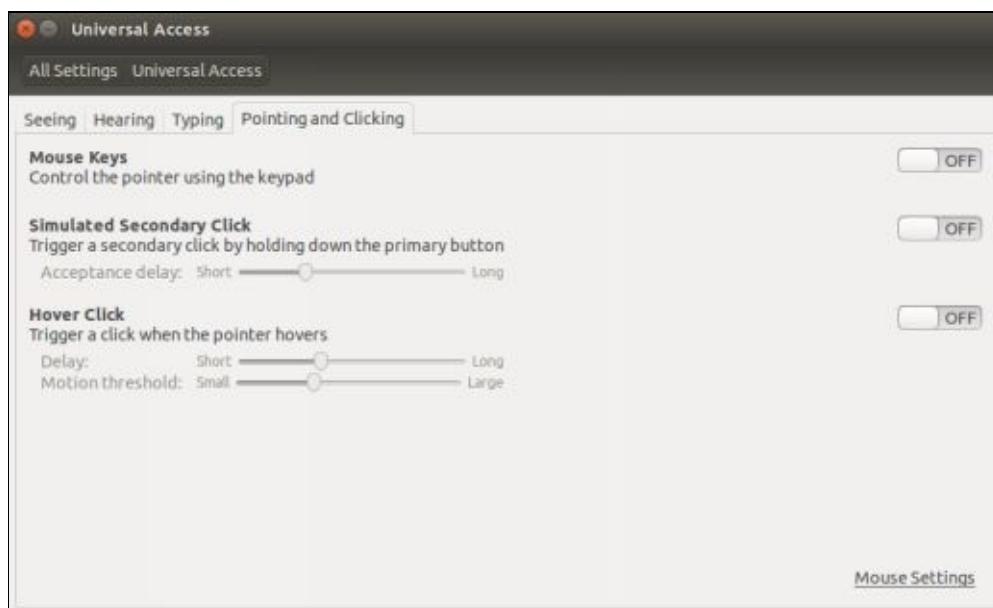


Figure 5-55. System Settings - Universal Access - Pointing and Clicking

User Accounts

The User Accounts settings, Figure 5-56, allows you to create new users and administer and delete existing users. In the upper right hand corner of the window is the **Unlock** button. Prior to making any changes to a user account you will need to click this button and provide your password.

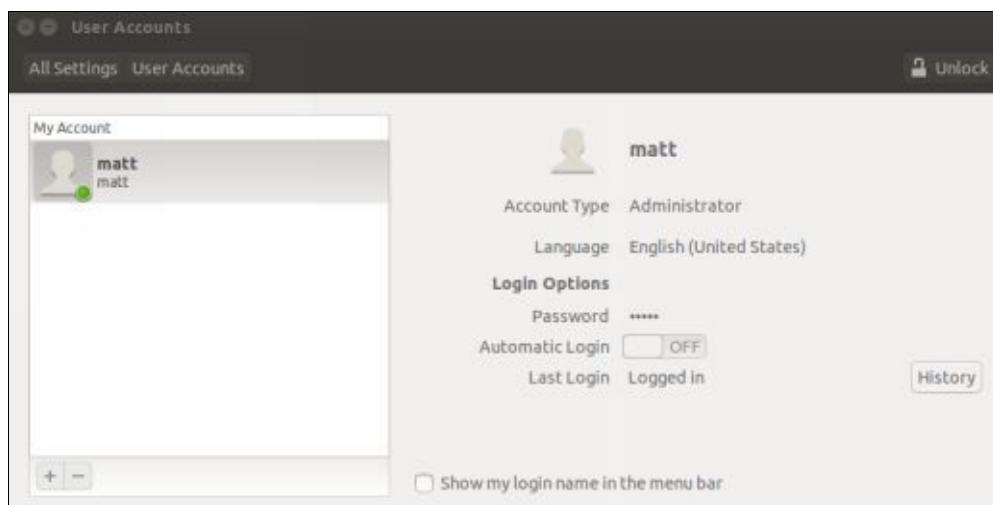


Figure 5-56. System Settings - User Accounts

The usernames are listed on the left with the information for the highlighted user on the right. For each user the following information is provided:

- Username
- Account type
- Language
- Password (hidden)
- Automatic Login
- Last Login

Change Password

To change a users password click on the 5 dots next to Password which will bring up the password change dialog box, Figure 5-57. If you are changing the password for the current account in use you will need to provide the current password as well as the new password. Clicking the small gears on the right of the new password text box will create a random password.

As you enter the new password the password strength bar will indicate the strength of the password. For security purposes you want to always create a strong password. Clicking on the link in the lower left hand corner will open a browser window with a tutorial on how to create a strong password.

Once you are done entering the new password and confirming the password by entering in again you click **Change** to change the password.



Figure 5-57. System Settings - User Accounts - Changing Password

Login History

For each account there is a history of system access. Highlighting an account and clicking the history button in the bottom right hand corner of the window will bring up the Login History dialog box, Figure 5-58.

Using the arrow buttons on the right and left on the top of the dialog box you can page through the history one week at a time.

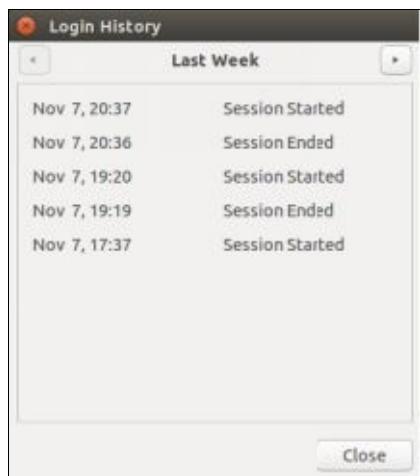


Figure 5-58. System Settings - User Accounts - History

Add User Account

To add a user account press the + button under the list of user accounts on the right side of the Account settings window. The Add Account dialog box is show in Figure 5-59. The Add Account dialog box allows you to choose what type of user to add, a standard user or an administrator, fill in the full name, and specify a username.

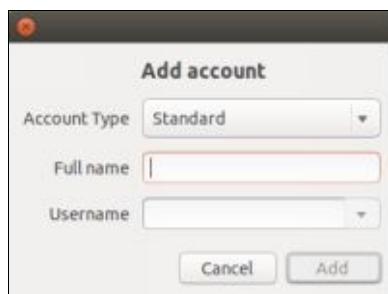


Figure 5-59. System Settings - User Accounts - Add Account

Figure 5-60 shows the Add Account dialog filled in with a dummy account. Click the **Add** button to add the account.



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Figure 5-60. System Settings - User Accounts - Add Account filled in

Setting an Initial Password

The new account will now be displayed on the left of the User Accounts settings windows, Figure 5-61. By default, new accounts are disabled until a password is set. To set the password, make sure the User Accounts settings is unlocked, upper right hand corner, and then click on **Account Disabled** to bring up the Changing password dialog box, Figure 5-62.



Figure 5-61. System Settings - User Accounts - New Account

This dialog box is a little different from the dialog box you get when changing the password on an account that already has a password. Since this is the initial password for the new account you will not be asked for the current password, just the new password and to confirm the password. You also have the following options in the drop down menu at the top of the dialog box:

- Set a password now
- Login without a password
- Disable this account

The dialog box also contains the password strength meter, the gears to create a random password, the **Show password** check box, and a link to the help page to choose a strong password.



Figure 5-62. System Settings - User Accounts - Change Password

Once a user's password is set, click the **Change** button, Figure 5-63, to change the password.



Figure 5-63. System Settings - User Accounts - Set a password

Now that the initial password has been set the user account is enable and ready for use, Figure 5-64.



Figure 5-64. System Settings - User Accounts - New Account password set

Deleting a User

To delete a user account press the - button under the list of user accounts on the right side of the Account settings window. The Delete Account dialog box is show in Figure 5-65. You will have three options:

- Delete Files
- Keep Files
- Cancel



Figure 5-65. System Settings - User Accounts - Delete an account

6. Network Configuration

Wired (Ethernet)

The Network Settings screen is show in Figure 6-1. For the most part there is little to no network configuration required for your Ubuntu system unless you require more advanced configurations such as static IP addresses or VPN connections. Out of the box Ubuntu will auto-detect Ethernet connections and obtain an IP address from a Dynamic Host Control Protocol (DHCP) server, most likely your wireless router, automatically. The same is true of wireless connections, however, a password may be required to access a wireless network.

The main Network Settings screen will show that your computer is connected, the hardware or MAC address, the IP address, Default Route or Default Gateway, and the DNS. There are also buttons on the right turning Airplane mode on and off and turning the network connection on and off.

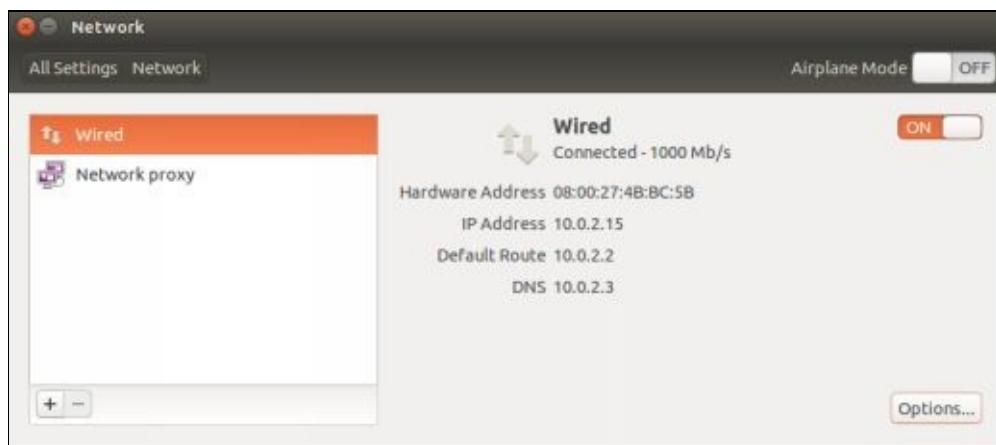


Figure 6-1. Network Settings - Wired

In Figure 6-2, the network connection has been turned off so all of the corresponding network information is gone. The only information displayed is the hardware address which is not dependent upon the network connection.



Figure 6-2. Network Settings - Disconnected

To configure a network connection, click on the network connection name and then click the Options button in the bottom right hand corner. Figure 6-3 shows the options on the Ethernet tab for the Wired network connection. On this screen you can edit the name of the connection, clone the MAC address, and adjust the MTU. All of these items are advanced configuration options and will not be covered in this book. I do not recommend changing anything on this screen other than the connection name if you really want to.



Figure 6-3. Network Settings - Ethernet Tab

General

Figure 6-4 shows the General Tab of the Network Settings. On this tab there are checkboxes for automatic connections for both networks and Virtual Private Network (VPN) as well as allowing or disallowing all users to connect to the network. For most users these options will not be changed unless you are using a VPN.



Figure 6-4. Network Settings - General

802.1x

Figure 6-5 shows the 802.1x Security tab of the Network Settings. 802.1x is a protocol that allows authentication of devices attempting to connect to a Local Area Network (LAN) and is beyond the scope of this book. Unless you are connecting to a network that requires 802.1x authentication you will normally not change any of the settings on this tab. If you do need to connect to an 802.1x protected network, consult your network administrator for the proper settings.



Figure 6-5. Network Settings - 802.1x Security

IPv4

Figure 6-6 shows the IPv4 Settings tab of the Network Settings. On this tab you can

configure Automatic (DHCP) or static IPv4 addresses for your network connection. Most users will utilize DHCP to obtain an IP address and will not need to make any changes to this tab.



Figure 6-6. Network Settings - IPv4 Settings

IPv6

Figure 6-7 shows the IPv6 Settings tab of the Network Settings. IPv6 is a replacement for IPv4 but has not taken hold as fast as was originally expected. On this tab you can configure Automatic (DHCP) or static IPv6 addresses for your network connection. Most users will utilize IPv4 for their network connections and will not need to make any changes on this tab. IPv6 is outside the scope of this book.



Figure 6-7. Network Settings - IPv6 Settings

IPv4 Configuration

Most of your network connections will be utilizing IPv4. Figure 6-8 shows the IPv4 Settings tab of the Network Settings with the connection methods displayed. Of the options displayed, the two most common settings are **Automatic (DHCP)** and **Manual**.

DHCP

The **Automatic (DHCP)** setting is the default setting and is the setting used by most users. When utilizing DHCP all of the necessary network parameters are provided over the network, either wired or wireless by a DHCP server and no configuration is required by the user.

The **Manual** setting allows for the assignment of a static IP address to the network adapter. This may be needed in certain situations where a DHCP server is not in use. You will need to obtain the IP address, network mask, gateway IP, and DNS IP from your network administrator in order to complete the configuration.



Figure 6-8. Network Settings - IPv4 - Method

Static IP

Figure 6-9 shows the IPv4 Settings tab of the Network Settings with the **Manual** Method selected. Once selected the Addresses section will become editable. Click the **Add** button on the right and you will be able to enter the IP address, Netmask, and Gateway for this connection. You will also need to add a DNS server IP.

Once complete press **Save** to save the connection configuration.



Figure 6-9. Network Settings - IPv4 - Static IP address

Once the configuration is saved you will be taken back to the main Network Settings screen, Figure 6-10, which will show the changes you have made.

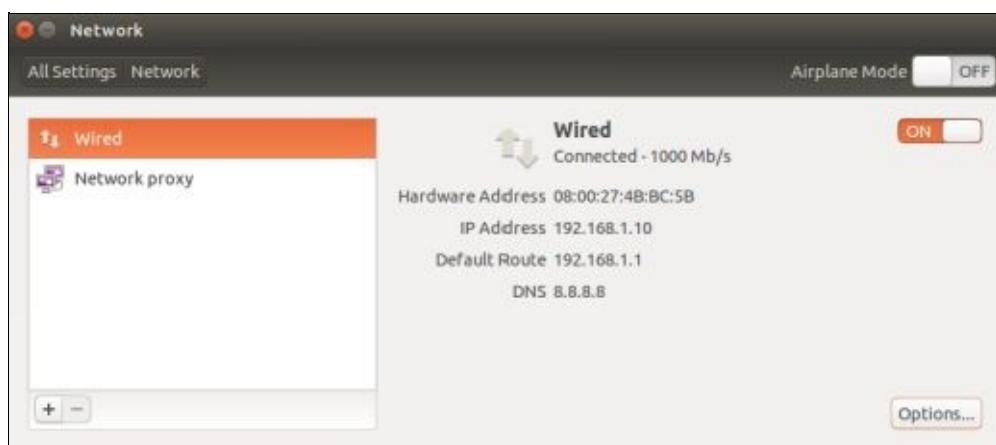


Figure 6-10. Network Settings - Wired with static IP address

Network Proxy

A Network Proxy is a server that sits in between computers on a network and the Internet and acts as an intermediary for the computers. The proxy will hide the internal IP addresses of the computers on the network and can be used to filter web traffic.

The Network Proxy settings, Figure 6-11, allow you to configure a Network Proxy. You will have to contact your network administrator to find out if your network uses a Network Proxy. Most home networks do not use a Network Proxy.

The first configuration option is the Method which will be Manual or Automatic.

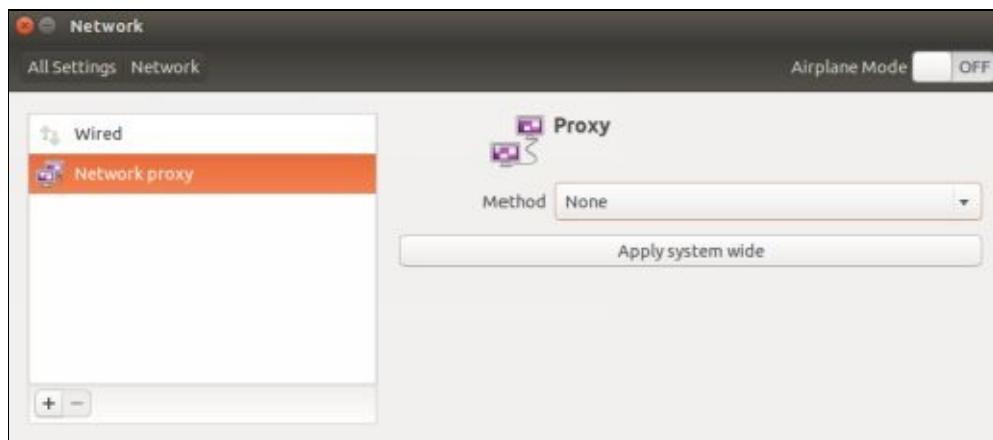


Figure 6-11. Network Settings - Network Proxy

The Manual configuration method, Figure 6-12, allows for the configuration of an HTTP, HTTPS, FTP, and Socks proxies.

- HTTP is for normal web traffic. This is any web site that starts with http:\ in the URL.
- HTTPS is for encrypted SSL/TLS sessions. This is any web site that starts with https:\ in the URL.
- FTP for is the File Transfer Protocol and is used to transfer files between computers.
- Socks Host is a SOCKS server that proxies TCP and UDP connections. A SOCKS proxy can handle more than just HTTP, HTTPS, and FTP.

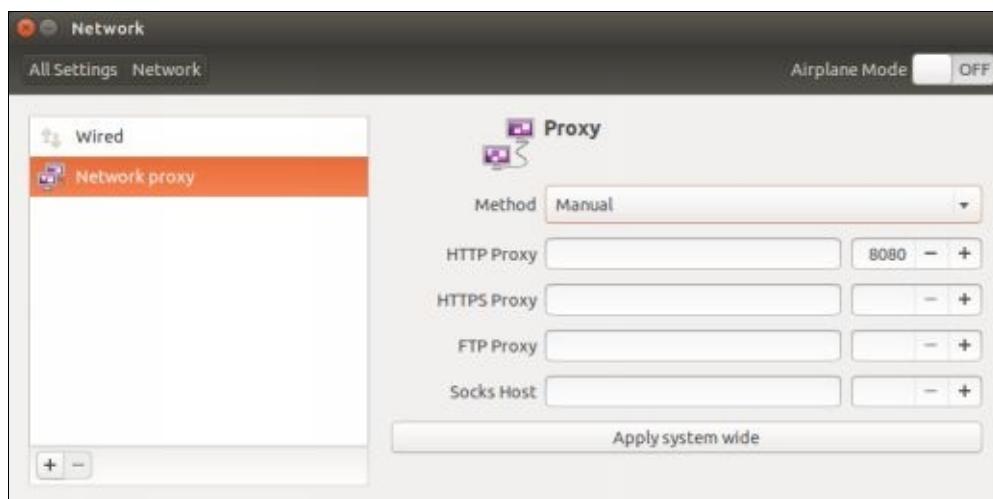


Figure 6-12. Network Settings - Proxy Settings - Manual

The Automatic configuration method, Figure 6-13, allows for the configuration of a

Network Proxy by providing a configuration URL that will tell your system where to pull the configuration information from. You will have to contact your network administrator to find out if your configuration URL.

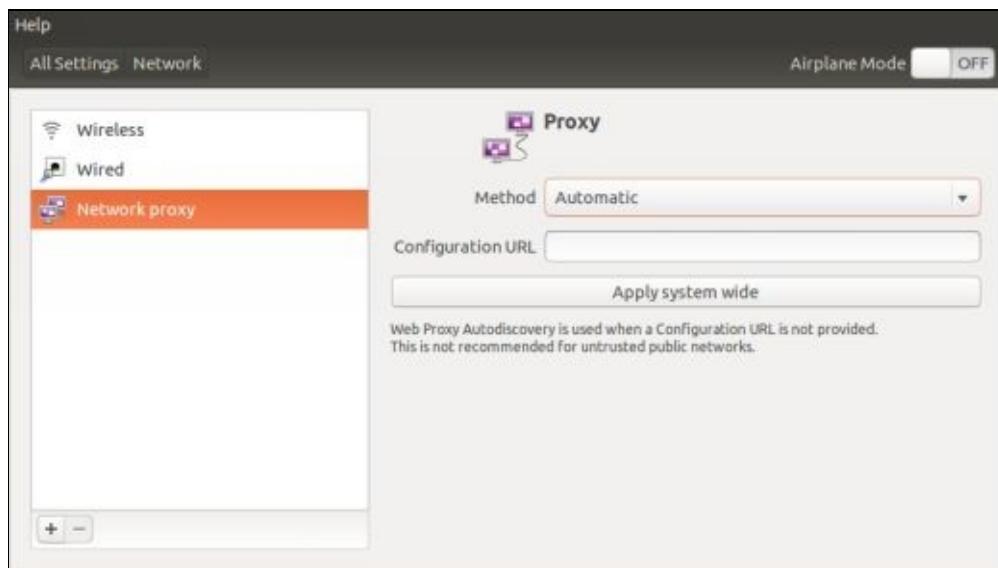


Figure 6-13. Network Settings - Proxy Settings - Automatic

7. Installing Software

Ubuntu Software Center

One of the things I really like about Linux and especially Ubuntu is the amount of free software that is available. In the past, you would have to search the Internet for software to install on your Linux system and go through very difficult installation procedures. The Ubuntu Software Center, Figure 7-1, makes the task of finding and installing software on your system a snap.

The Ubuntu Software Center main screen contains a list of software categories on the left hand side, a list of new software in the middle, and tabs on the top for All Software, Installed, History, and Progress as well as a search bar in the top right hand corner.

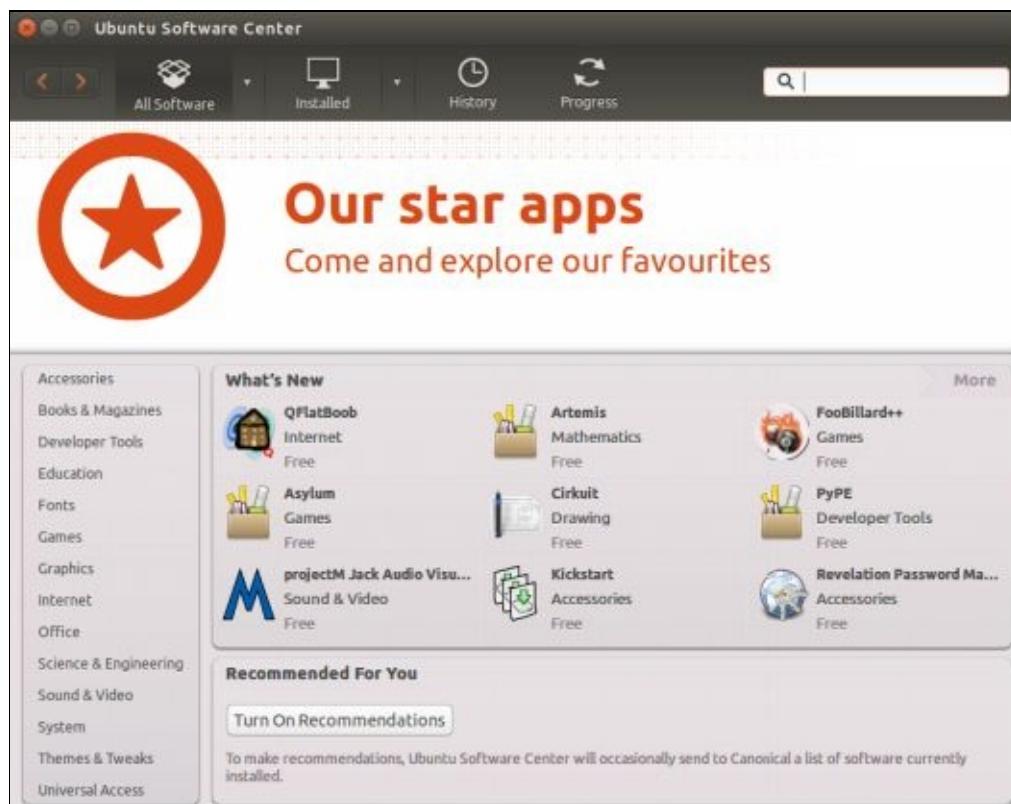


Figure 7-1. Ubuntu Software Center

Clicking the down arrow next to the All Software tab, Figure 7-2, brings up a drop down menu that shows the sub categories of software, Provided by Ubuntu, Canonical Partners, and For Purchase. Clicking on any of these menu items will show a subset of the available software associated with that category.

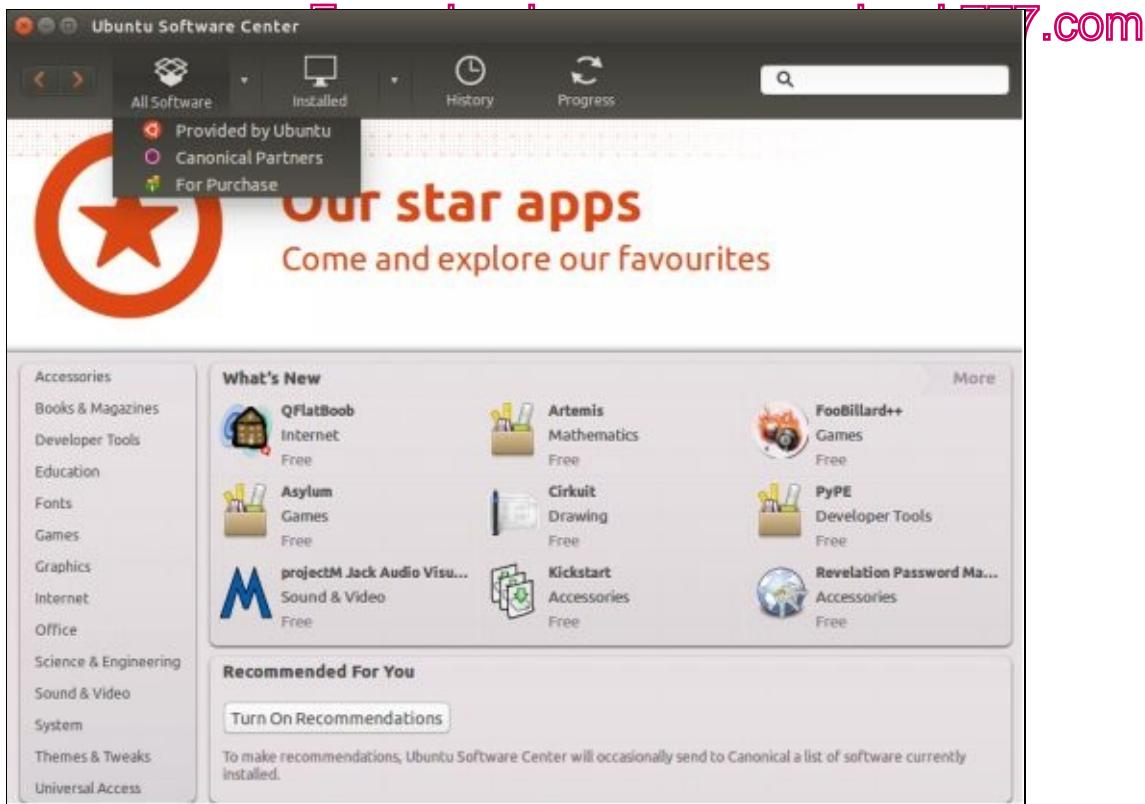


Figure 7-2. Ubuntu Software Center - All Software

At the bottom of the Ubuntu Software Center screen you can find the top rated software, Figure 7-3.

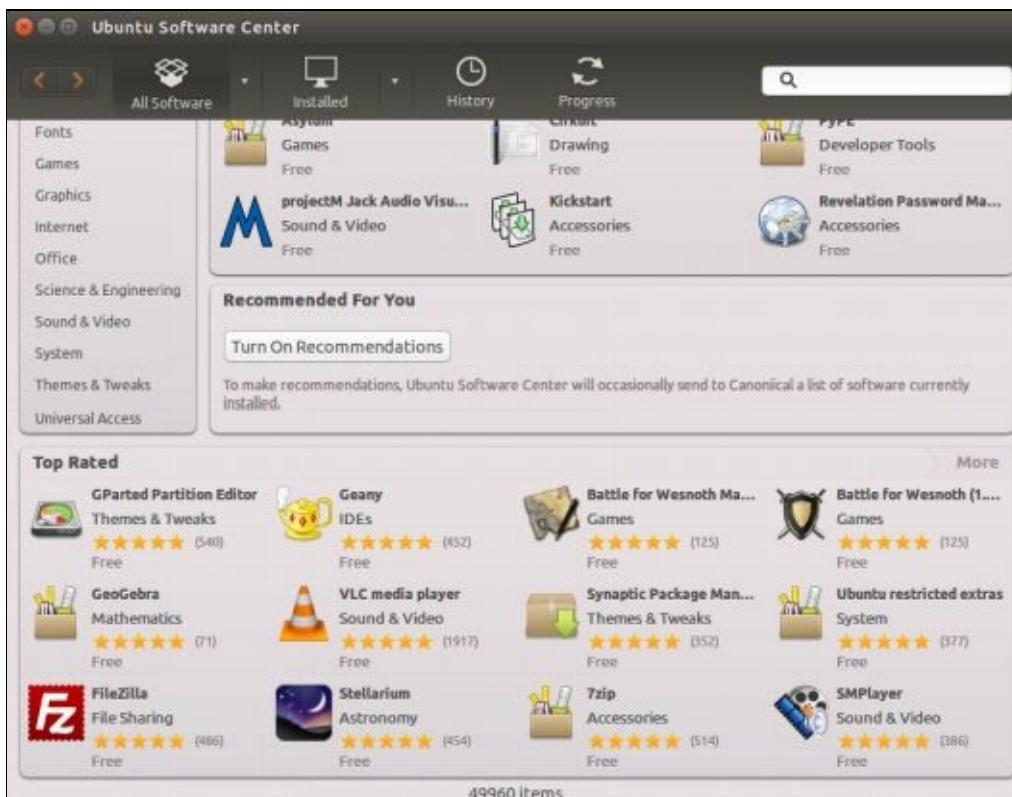


Figure 7-3. Ubuntu Software Center - Top Rated

The History tab, Figure 7-4, will show the history of software installations. The list will show the date installed, the software package name, and the time installed.

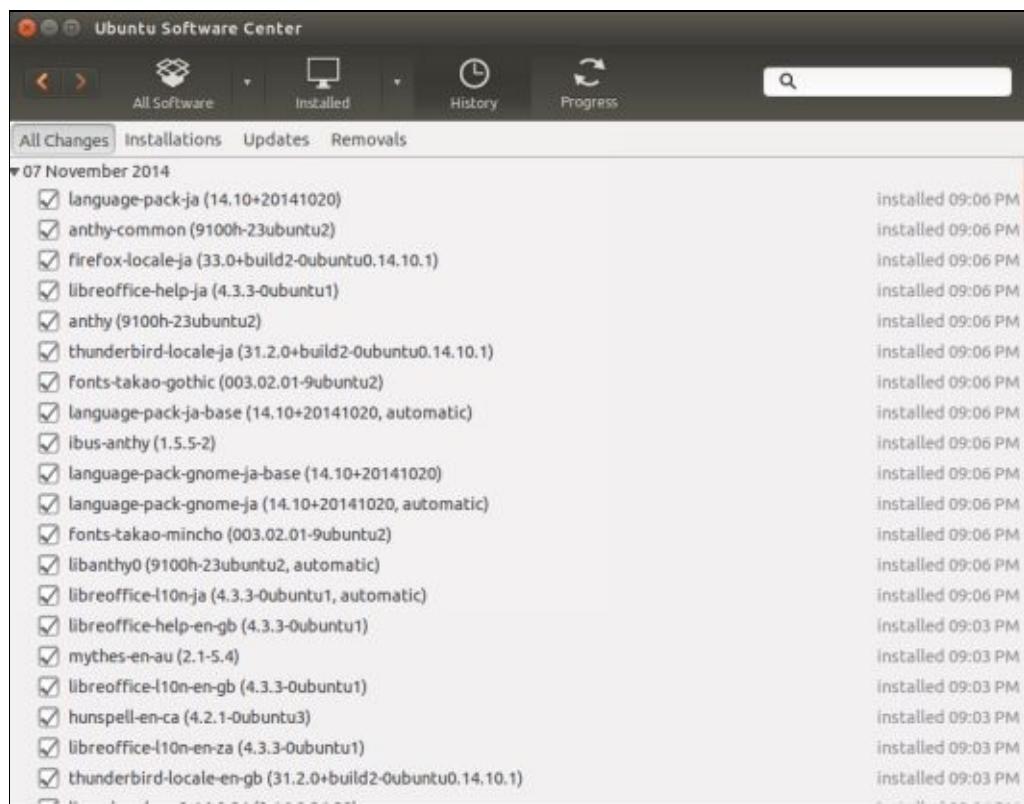


Figure 7-4. Ubuntu Software Center - History

Installing Software

Once you identify a software package you want to install, highlight the software package and click the install button on the right hand side, Figure 7-5. You can also click on the More Info button to see additional information about the software package before you install the software.

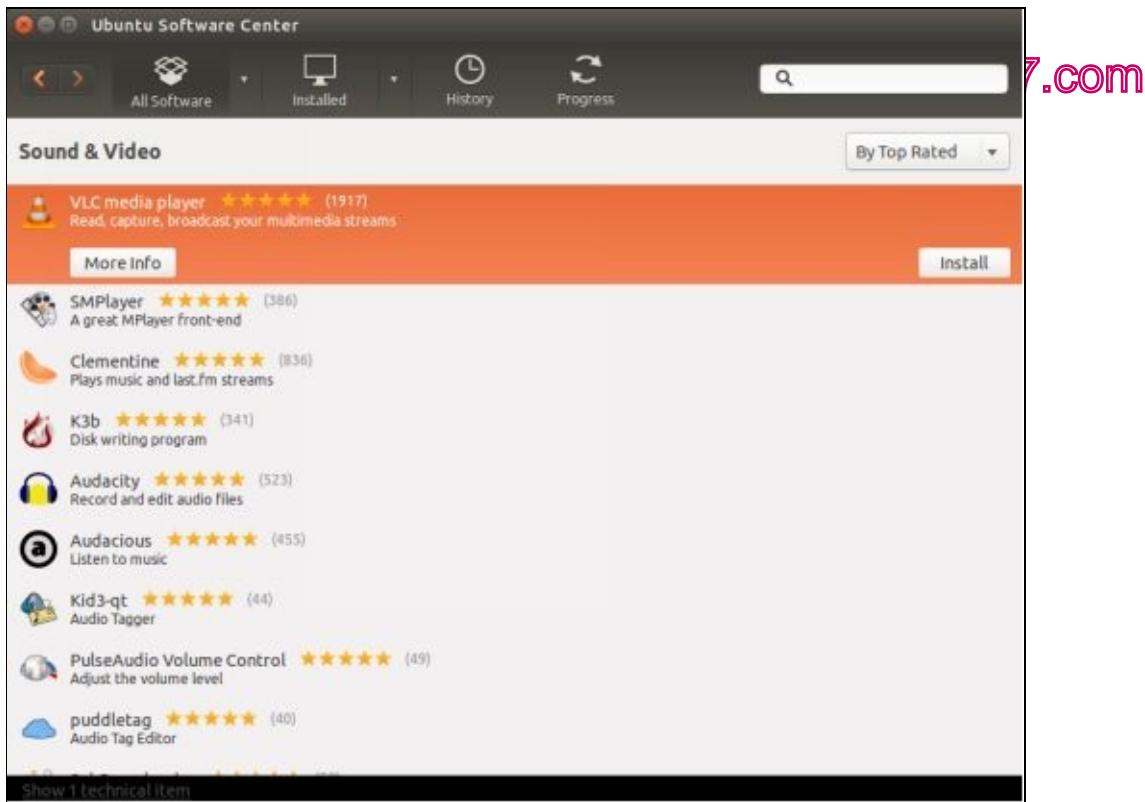


Figure 7-5. Ubuntu Software Center - Install

Figure 7-6 and 7-7 show the More Info screen about a popular software package named VLC which is a media player. If this is the software package you want to can click the Install button on the right hand side to start the installation.



Figure 7-6. Ubuntu Software Center - More Info

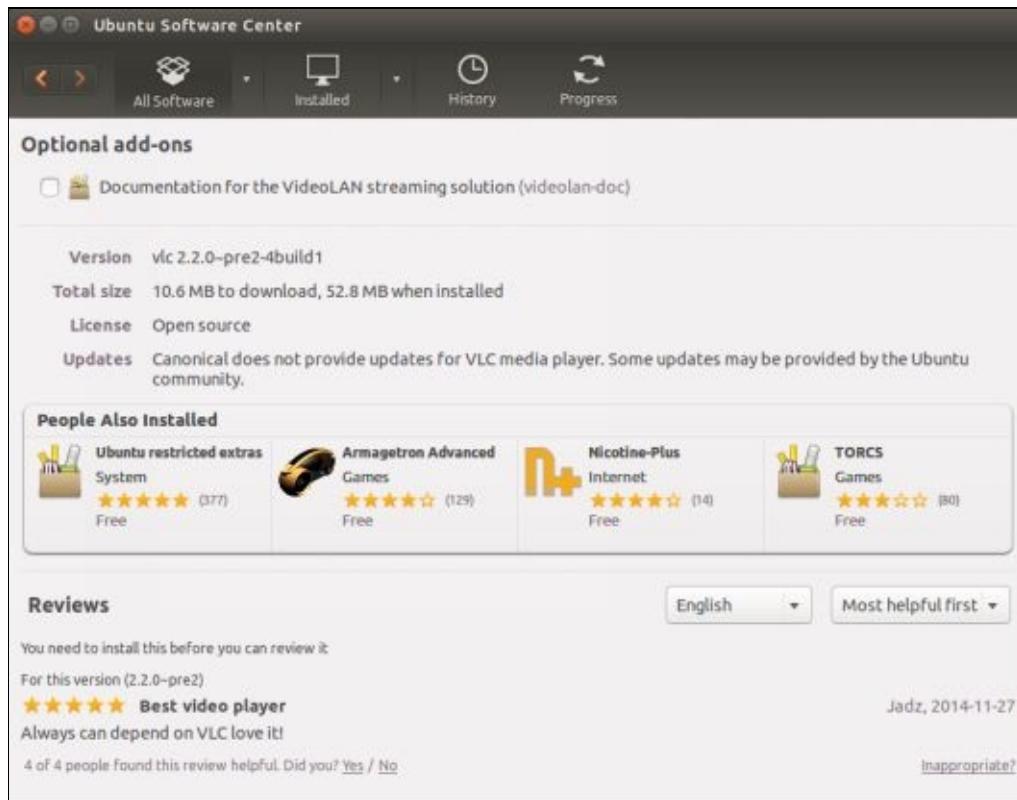


Figure 7-7. Ubuntu Software Center - More Info

Before the software can be installed you must authenticate by providing your password, Figure 7-8.

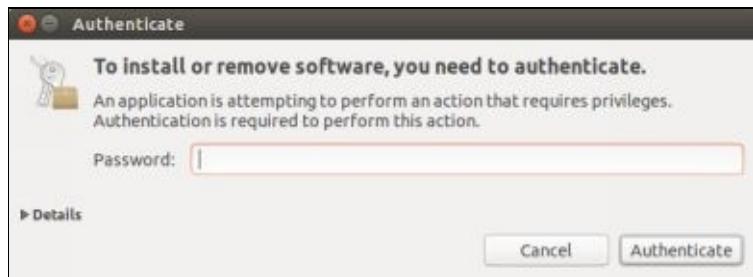


Figure 7-8. Ubuntu Software Center - Authentication

Once authenticated the installation will begin, Figure 7-9, and show the status of the install with a status bar on the right hand side.

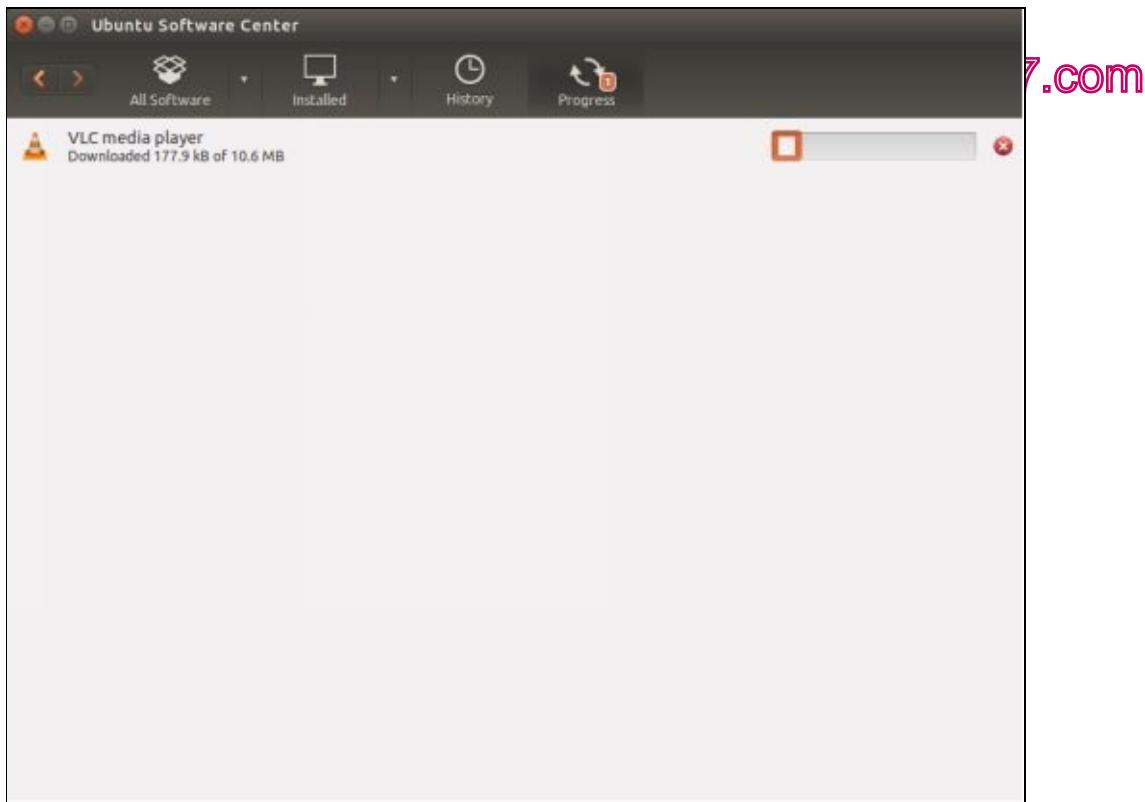


Figure 7-9. Ubuntu Software Center

Once the installation is complete the software will show as installed, Figure 7-10, and the Install button will change to a Remove button which can be used to remove the software package.

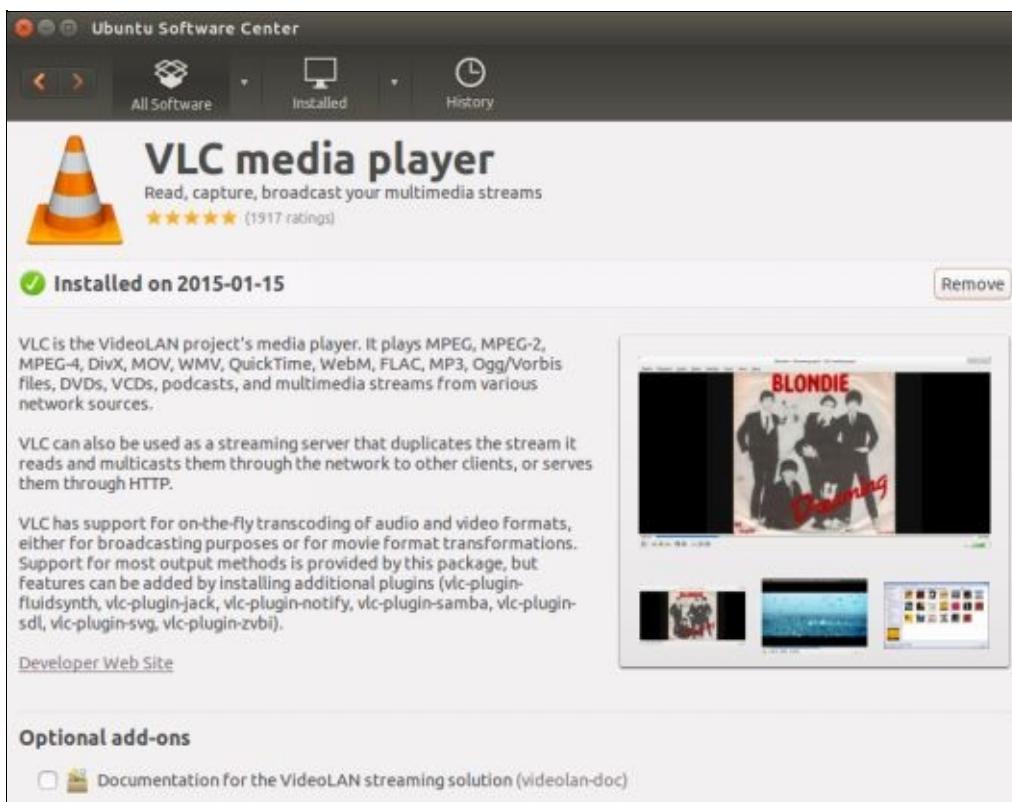


Figure 7-10. Ubuntu Software Center

8. E-mail

While most people today tend to get their e-mail either on their smart phones or via a webmail service, some people still like to get their email via email software on their desktop or laptop. Ubuntu comes with an email client named Thunderbird. While there are numerous other email client programs out there I am only going to cover Thunderbird in this book.

To find Thunderbird, open a search and type **thun** and the Thunderbird Mail icon should appear, Figure 8-1. Click on the Thunderbird Mail icon to open the email program.



Figure 8-1. Thunderbird - Search

If this is the first time you have run Thunderbird you will have to configure the email program to fetch your email from your ISP or email provider. Thunderbird will also give you the option of setting up a new email address with gandi.net if you want to, Figure 8-2. You have the option of skipping this step and using your existing email account or configuring your email client later.

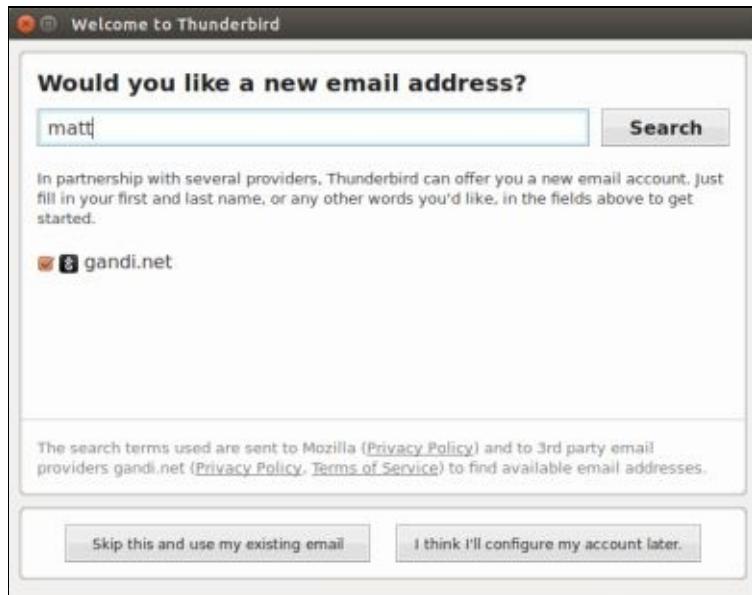


Figure 8-2. Thunderbird - New email address

If you choose to continue with the configuration, you will be asked for name, email address, and password for your email account, Figure 8-3. You will also have the option of allowing the software to remember your password to make accessing your email account easier. For security reasons I do not recommend selecting this option.



Figure 8-3. Thunderbird - Mail Account Setup

When you click **Continue**, the software will look in its ISP database for configuration information and may present you with an option for IMAP or POP3, Figure 8-4.

IMAP is a protocol that allows access to folders on a remote email server. The email is stored on the server and your email client can access the email when online and will retain an offline copy when not connected. When connected the email client will synchronize with the remote server so that the server and the email client have the same information.

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POP3 is a protocol that pulls a copy of the email from the server and stores it on the local desktop or laptop. The email client only connects to the server to retrieve the email.

There is also the option for manual configuration of your e-mail accounts.

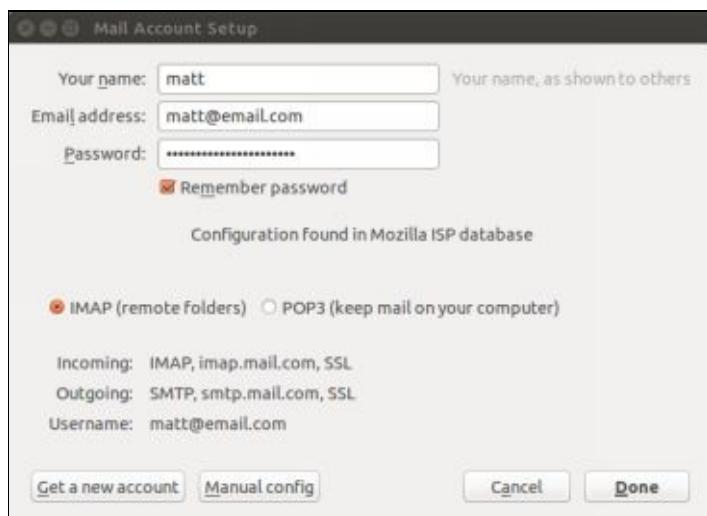


Figure 8-4. Thunderbird - IMAP or POP3

Once the configuration is done and if the username and password are correct, you will be presented with your email, Figure 8-5.

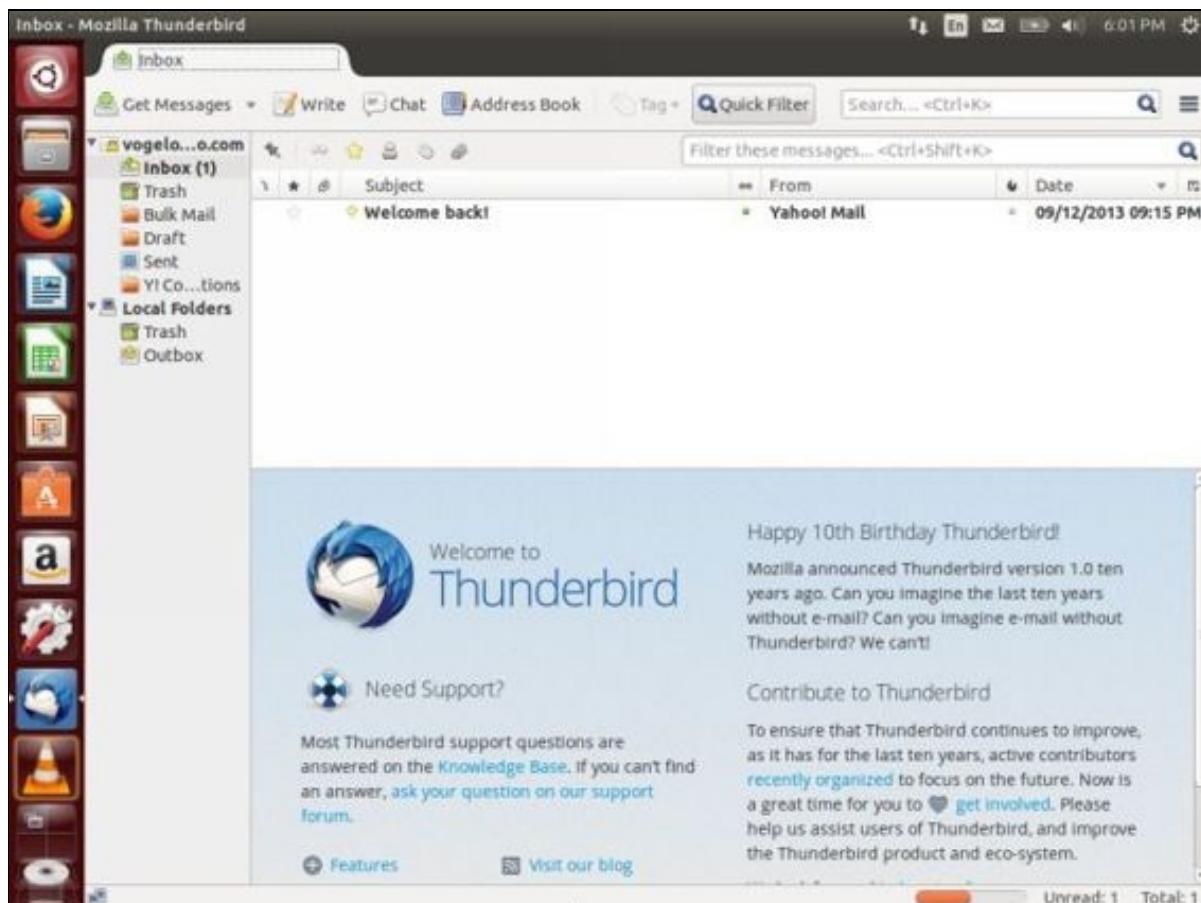


Figure 8-5. Thunderbird

9. Backups

Backing up is a good idea to keep from losing important files and being able to restore files that are lost or accidentally deleted. The Backups settings allow you to configure backups for your system.

Overview

The Overview tab, Figure 9-1, allows you to restore from a previous backup and to schedule a future backup. You can also turn backups on and off by using the slider on the right hand side.

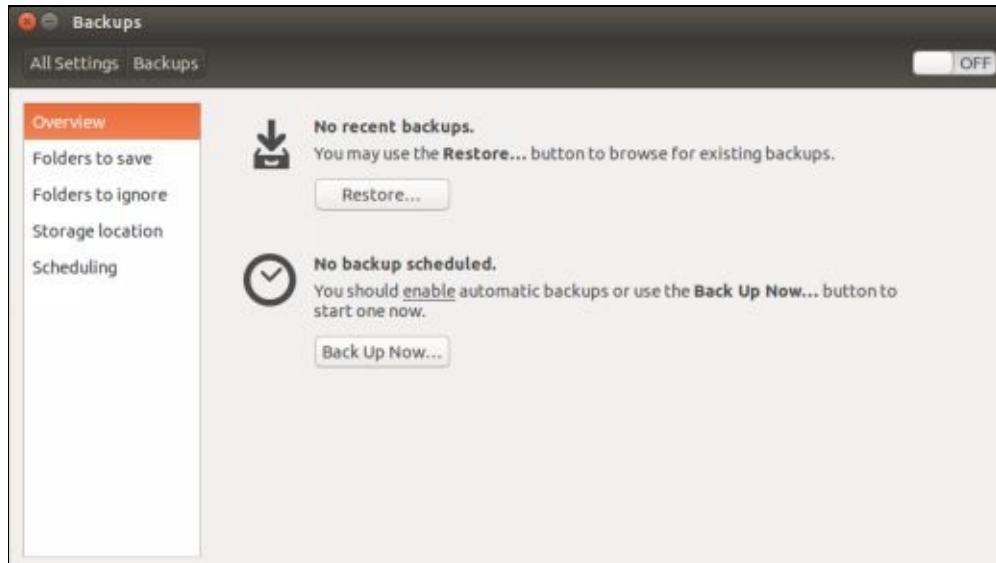


Figure 9-1. System Settings - Backup - Overview

Folders to Save

In the Folders to save settings, Figure 9-2, you can add and remove folders to include in your backup. By default your home folder is added to the backup.

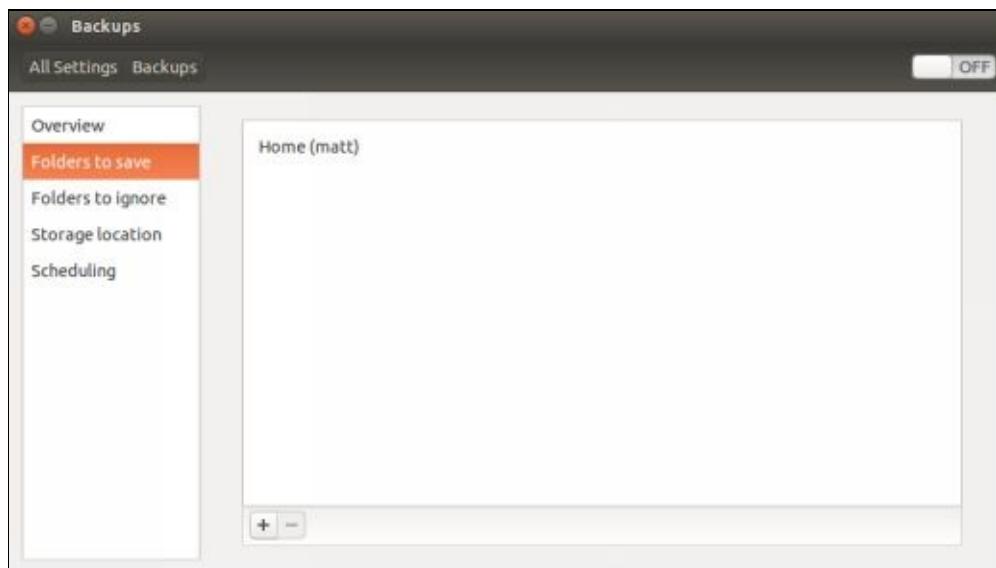


Figure 9-2. System Settings - Backup - Folders to save

Folders to Ignore

The Folders to ignore settings, Figure 9-3, allows you to exclude folders from the backup. By default the Trash and Downloads folder from your Home folder is excluded from backups.

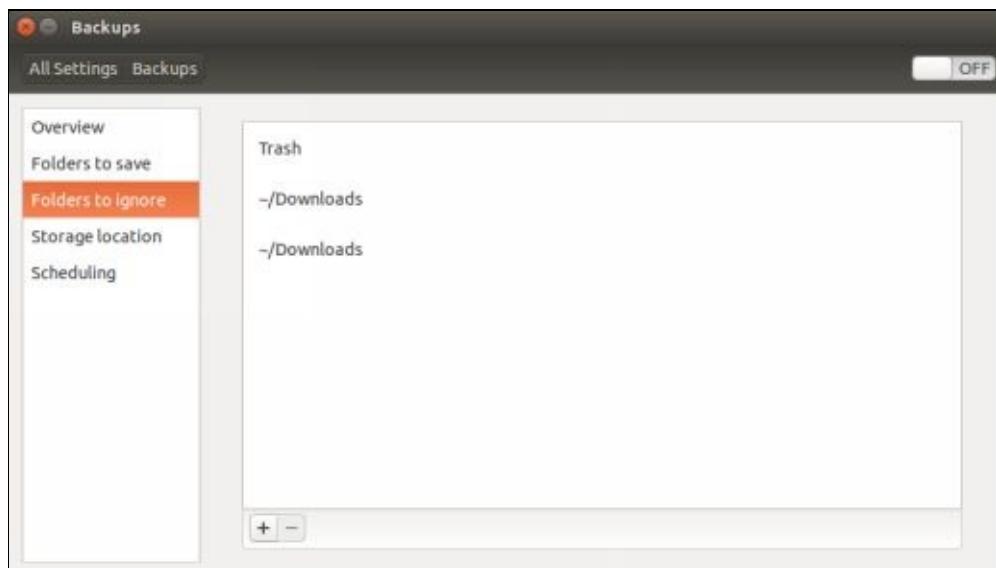


Figure 9-3. System Settings - Backup - Folders to ignore

Storage Location

The Storage Location settings, Figure 9-4, allow you to specify the location to store the backup.

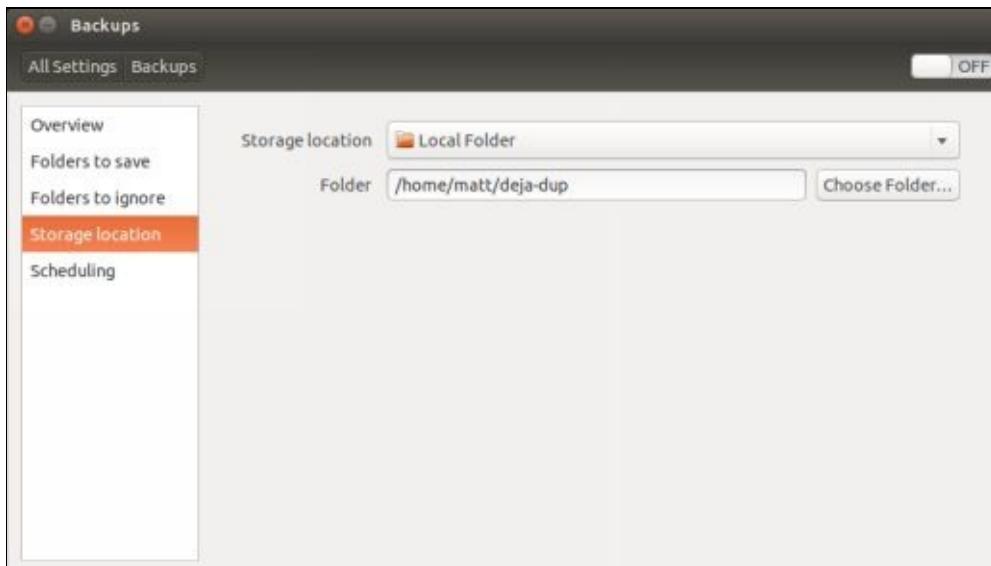


Figure 9-4. System Settings - Backup - Storage Locations

Scheduling

The Scheduling settings, Figure 9-5, allow you to schedule when you want your backup to occur and how long to keep backups.

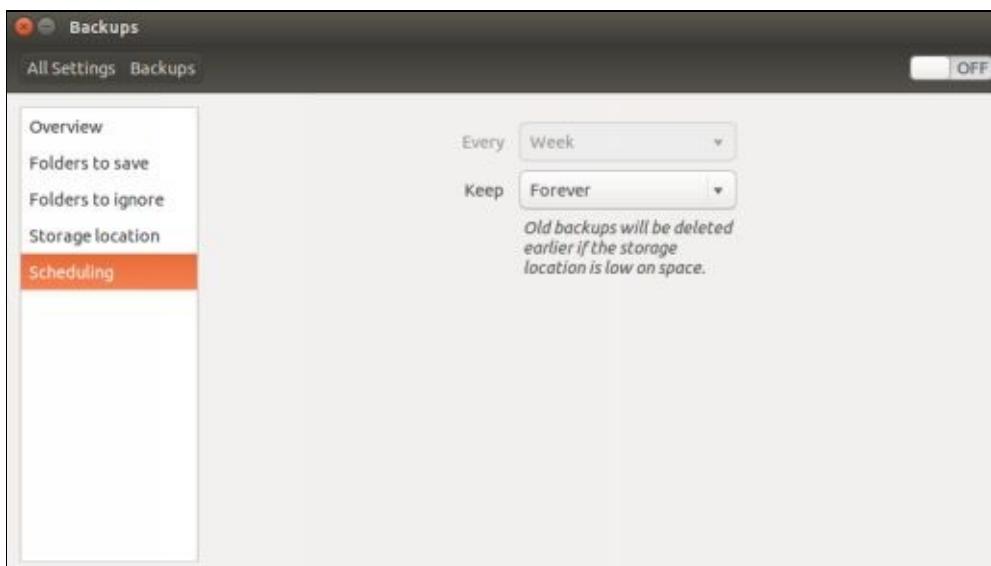


Figure 9-5. System Settings - Backup - Scheduling

10. Using the Terminal or Command Line Interface (CLI)

While this book is a beginner book and most Linux beginners do not need to access the terminal, no book on Linux would be complete without a some discussion of the terminal or command line interface (CLI).

The real power of Linux is found in the terminal. It is a text based interactive shell that allows you to enter commands and gives you direct access, with the proper permissions, to the configuration files that make Linux run. If you really want to be a Linux guru then you have to become comfortable in the command line.

In this book I am just going to touch on a few basic commands.

The Terminal

Figure 10-1 shows an example of the terminal window. You can open a terminal window by pressing Ctrl+Alt+t or searching for the terminal applications.

Any time you open a terminal window you will get a terminal prompt. The terminal prompt includes basic information about your system. The first part is your username followed by the @ symbol. Next is the hostname of your system followed by :~\$ then a flashing square.

You use the terminal by typing commands that you want the interactive shell to execute.

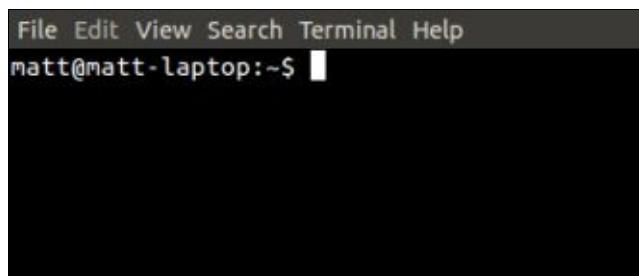


Figure 10-1. The terminal

cd

The first command we will discuss is **cd** which stands for change directory. Figure 10-2 shows an example of changing to a directory named **myfolder**.

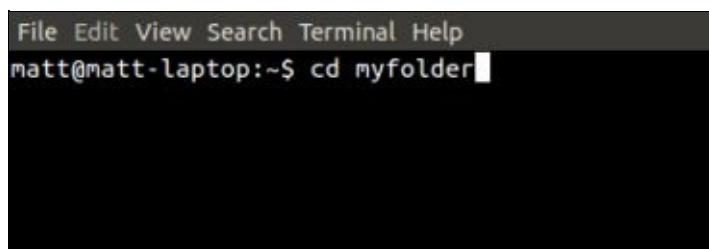


Figure 10-2. CLI - cd

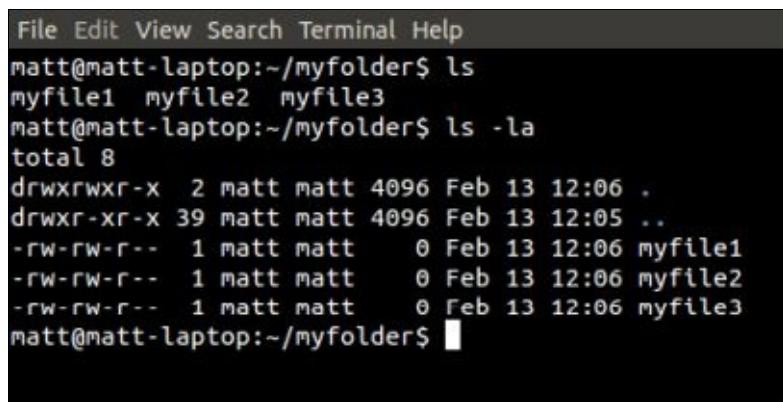
ls

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Another useful command is **ls** which stands for list. The **ls** command is used to list the contents of a directory. In Linux a folder is called a directory.

Figure 10-3 shows examples of the **ls** command being used. In the first example the **ls** command only. This gives list of the file names only.

The second example uses the **ls** command with the **-la** options. The **-** character is used to specify an option or options to use with the command. In this example the **-l** stands for long list and the **-a** stands for show all files including hidden files. Since there are two options you can combine the options and use a single **-** character.

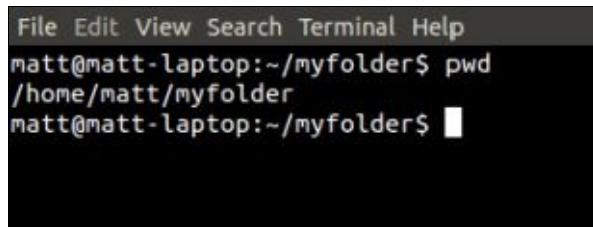


```
File Edit View Search Terminal Help
matt@matt-laptop:~/myfolder$ ls
myfile1 myfile2 myfile3
matt@matt-laptop:~/myfolder$ ls -la
total 8
drwxrwxr-x 2 matt matt 4096 Feb 13 12:06 .
drwxr-xr-x 39 matt matt 4096 Feb 13 12:05 ..
-rw-rw-r-- 1 matt matt 0 Feb 13 12:06 myfile1
-rw-rw-r-- 1 matt matt 0 Feb 13 12:06 myfile2
-rw-rw-r-- 1 matt matt 0 Feb 13 12:06 myfile3
matt@matt-laptop:~/myfolder$ █
```

Figure 10-3. CLI - **ls**

pwd

The **pwd** command is used to print the current working directory. This allows you to see where you are in the file system. Figure 10-4 shows an example of using the **pwd** command.

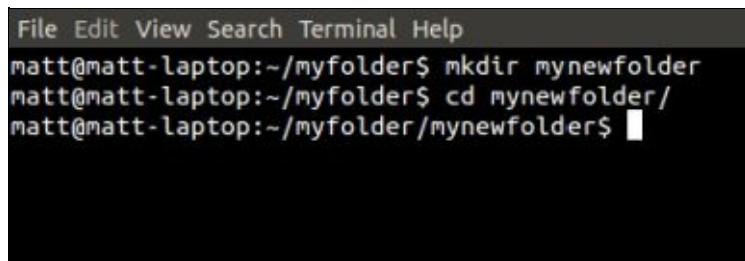


```
File Edit View Search Terminal Help
matt@matt-laptop:~/myfolder$ pwd
/home/matt/myfolder
matt@matt-laptop:~/myfolder$ █
```

Figure 10-4. CLI - **pwd**

mkdir

In any filesystem, you will want to be able to make a directory or folder to hold your files. The **mkdir** command will allow you to make a directory or folder. Figure 10-5 shows an example of using the **mkdir** command to make a new directory named **mynewfolder**.

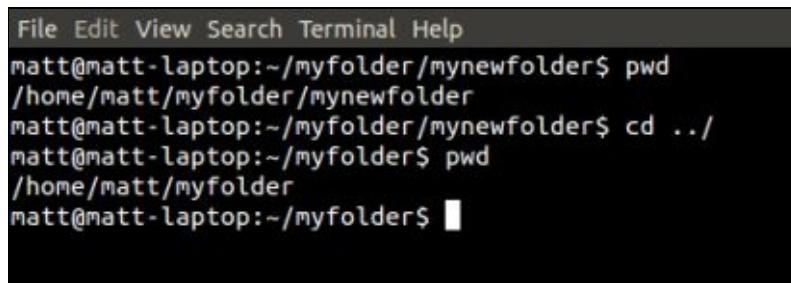
A screenshot of a terminal window with a dark background and light-colored text. The window title bar says "File Edit View Search Terminal Help". The command history shows:

```
matt@matt-laptop:~/myfolder$ mkdir mynewfolder
matt@matt-laptop:~/myfolder$ cd mynewfolder/
matt@matt-laptop:~/myfolder/mynewfolder$
```

The cursor is visible at the end of the third line.

Figure 10-5. CLI - mkdir

Figure 10-6 shows an example of putting several of the command together. The **pwd** command is used to find the current location. The current directory is the **/home/matt/myfolder/mynewfolder** directory. To move back one level to **/home/matt/myfolder**, use the **cd** command with the **..** operator which means go back one level. The **pwd** command is used again to verify the location.

A screenshot of a terminal window with a dark background and light-colored text. The command history shows:

```
matt@matt-laptop:~/myfolder/mynewfolder$ pwd
/home/matt/myfolder/mynewfolder
matt@matt-laptop:~/myfolder/mynewfolder$ cd ..
matt@matt-laptop:~/myfolder$ pwd
/home/matt/myfolder
matt@matt-laptop:~/myfolder$
```

The cursor is visible at the end of the third line.

Figure 10-6. CLI - pwd and cd

rmdir

In order to remove a directory or folder you can use the **rmdir** command. Figure 10-7 shows an example of using the **rmdir** command to remove the **mynewfolder** directory. Before you can remove the directory it must be empty unless you use the **--ignore-fail-on-non-empty** option. You can also use the **rm** command with the **-r** option to remove non-empty directories.

```
File Edit View Search Terminal Help
matt@matt-laptop:~/myfolder$ ls
myfile1 myfile2 myfile3 mynewfolder
matt@matt-laptop:~/myfolder$ rmdir mynewfolder/
matt@matt-laptop:~/myfolder$ ls
myfile1 myfile2 myfile3
matt@matt-laptop:~/myfolder$
```

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Figure 10-7. CLI - rmdir

rm

The **rm** command, remove, can be used to remove file or directories. Figure 10-8 shows an example of using the **rm** command to remove a file named **myfile1**.

```
File Edit View Search Terminal Help
matt@matt-laptop:~/myfolder$ ls
myfile1 myfile2 myfile3 mynewfolder
matt@matt-laptop:~/myfolder$ rmdir mynewfolder/
matt@matt-laptop:~/myfolder$ ls
myfile1 myfile2 myfile3
matt@matt-laptop:~/myfolder$ rm myfile1
matt@matt-laptop:~/myfolder$ ls
myfile2 myfile3
matt@matt-laptop:~/myfolder$
```

Figure 10-8. CLI - rm

The **rm** command can also use the wildcard character * to delete more than one file at a time. Figure 10-9 shows an example of using the **rm** command to delete all files that start with **myfile** and end with any characters by using **myfile***.

```
File Edit View Search Terminal Help
matt@matt-laptop:~/myfolder$ ls
myfile1 myfile2 myfile3 mynewfolder
matt@matt-laptop:~/myfolder$ rmdir mynewfolder/
matt@matt-laptop:~/myfolder$ ls
myfile1 myfile2 myfile3
matt@matt-laptop:~/myfolder$ rm myfile1
matt@matt-laptop:~/myfolder$ ls
myfile2 myfile3
matt@matt-laptop:~/myfolder$ rm myfile*
matt@matt-laptop:~/myfolder$ ls
matt@matt-laptop:~/myfolder$
```

Figure 10-9. CLI - rm with wildcard

uname

The **uname** command is used to display information about your Ubuntu system such as the hostname, version, and the current date and time. Figure 10-10 shows an example of using the **uname** command without any options and with the **-a** option which lists all information **uname** provides.

```
File Edit View Search Terminal Help
matt@matt-laptop:~/myfolder$ uname
Linux
matt@matt-laptop:~/myfolder$ uname -a
Linux matt-laptop 3.16.0-24-generic #32-Ubuntu SMP Tue Oct 28 13:07:32 UTC 2014
x86_64 x86_64 x86_64 GNU/Linux
matt@matt-laptop:~/myfolder$ █
```

Figure 10-10. CLI - uname

help

The **help** command can be used to get a listing of the shell commands and their options. There is too much text to fit in one screen when using the help command so you can use the | character and the **more** command to make the output fit into the command line windows. Pressing the spacebar will take you forward one page. You can also use the **less** command in place of **more** which will allow you to scroll back and forth through the output. Press the **q** key to exit when using **more** and **less**.

If you know the command you want help with you can use **help** command with the command name. For example **help exit** will show you just information about the exit command.

```
File Edit View Search Terminal Help
GNU bash, version 4.3.30(1)-release (x86_64-pc-linux-gnu)
These shell commands are defined internally. Type 'help' to see this list.
Type 'help name' to find out more about the function 'name'.
Use 'info bash' to find out more about the shell in general.
Use 'man -k' or 'info' to find out more about commands not in this list.

A star (*) next to a name means that the command is disabled.

job_spec [&]
(( expression ))
. filename [arguments]
:
[ arg... ]
[[ expression ]]
alias [-p] [name[=value] ... ]
bg [job_spec ...]
bind [-lpsvPSVX] [-m keymap] [-f file]
break [n]
builtin [shell-builtin [arg ...]]
caller [expr]
case WORD in [PATTERN [| PATTERN]...)>
cd [-L|[-P [-e]] [-@]] [dir]
command [-pVv] command [arg ...]
--More-- █
```

Figure 10-11. CLI - help | more

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man

The **man** command is used to view the manual page for a specific command. You use the **man** command by typing **man** and the name of the command you want to get information about. For example, **man ls**. Figure 10-12 shows an example of the man page for the **ls** command. You can scroll down and up through the man page and press **q** at any time to quit.

```
File Edit View Search Terminal Help
LS(1) User Commands LS(1)

NAME
    ls - list directory contents

SYNOPSIS
    ls [OPTION]... [FILE]...

DESCRIPTION
    List information about the FILEs (the current directory by default).
    Sort entries alphabetically if none of -cftuvSUX nor --sort is specified.

    Mandatory arguments to long options are mandatory for short options too.

    -a, --all
        do not ignore entries starting with .

    -A, --almost-all
        do not list implied . and ..

    --author
Manual page ls(1) line 1 (press h for help or q to quit)
```

Figure 10-12. CLI - man page

sudo

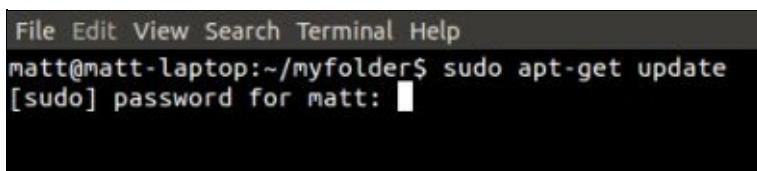
The **sudo** command allows you to elevate your privileges to root, administrator in Linux speak, in order to execute a single command. This is a much more secure method of using root privileges. You should avoid logging in as root as much as possible for security reasons.

To use the sudo command you just put it in front of the command that you want to run with root privileges. You will have to supply your password in order to execute the command.

apt-get

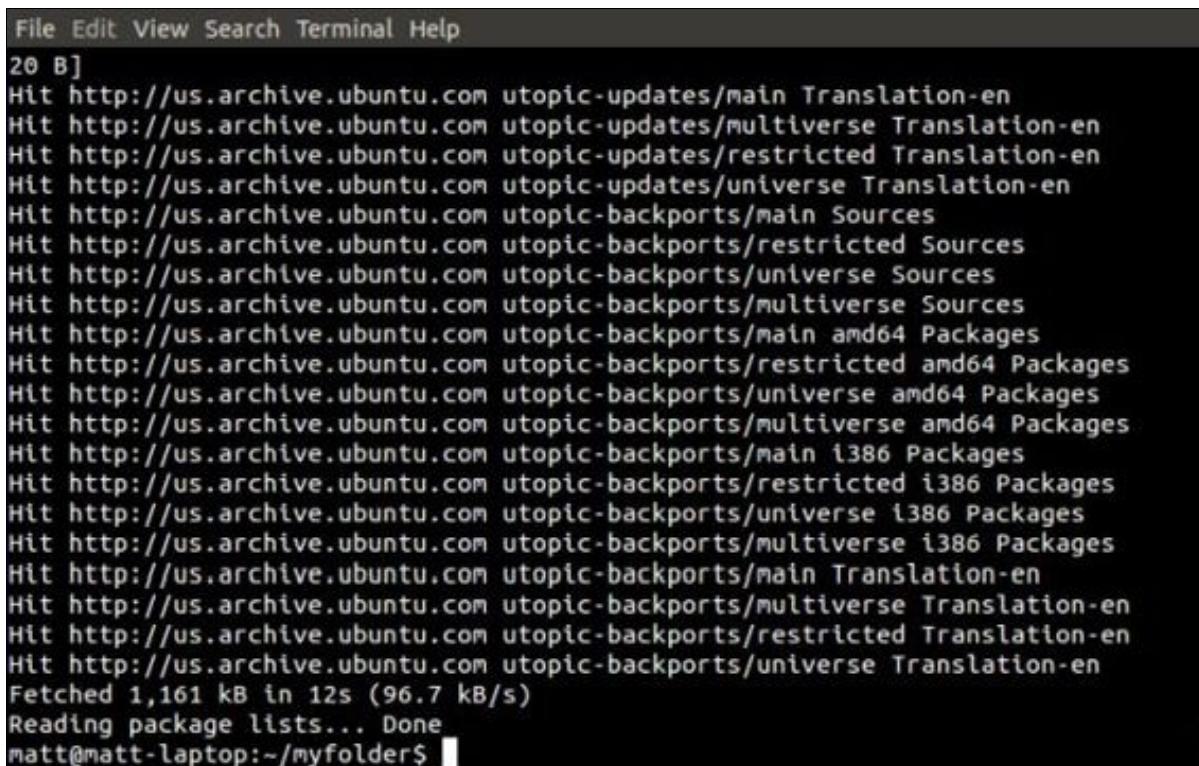
The **apt-get** command is used to update and install software from the command line. This is my preferred method for updating my system and installing software.

The **apt-get** command with the **update** option will refresh all of the sources and look for any new software. Figure 10-13 and 10-14 show examples of this command. Notice in Figure 10-13 that the sudo command is used and a password is requested. This is required to update software on a Linux system



```
File Edit View Search Terminal Help
matt@matt-laptop:~/myfolder$ sudo apt-get update
[sudo] password for matt: [REDACTED]
```

Figure 10-13. CLI - apt-get update



```
File Edit View Search Terminal Help
20 B]
Hit http://us.archive.ubuntu.com utopic-updates/main Translation-en
Hit http://us.archive.ubuntu.com utopic-updates/multiverse Translation-en
Hit http://us.archive.ubuntu.com utopic-updates/restricted Translation-en
Hit http://us.archive.ubuntu.com utopic-updates/universe Translation-en
Hit http://us.archive.ubuntu.com utopic-backports/main Sources
Hit http://us.archive.ubuntu.com utopic-backports/restricted Sources
Hit http://us.archive.ubuntu.com utopic-backports/universe Sources
Hit http://us.archive.ubuntu.com utopic-backports/multiverse Sources
Hit http://us.archive.ubuntu.com utopic-backports/main amd64 Packages
Hit http://us.archive.ubuntu.com utopic-backports/restricted amd64 Packages
Hit http://us.archive.ubuntu.com utopic-backports/universe amd64 Packages
Hit http://us.archive.ubuntu.com utopic-backports/multiverse amd64 Packages
Hit http://us.archive.ubuntu.com utopic-backports/main i386 Packages
Hit http://us.archive.ubuntu.com utopic-backports/restricted i386 Packages
Hit http://us.archive.ubuntu.com utopic-backports/universe i386 Packages
Hit http://us.archive.ubuntu.com utopic-backports/multiverse i386 Packages
Hit http://us.archive.ubuntu.com utopic-backports/main Translation-en
Hit http://us.archive.ubuntu.com utopic-backports/multiverse Translation-en
Hit http://us.archive.ubuntu.com utopic-backports/restricted Translation-en
Hit http://us.archive.ubuntu.com utopic-backports/universe Translation-en
Fetched 1,161 kB in 12s (96.7 kB/s)
Reading package lists... Done
matt@matt-laptop:~/myfolder$ [REDACTED]
```

Figure 10-14. CLI - apt-get update sources

Once the sources have been updated, you can issue the **apt-get** command with the upgrade option to install any updates. The **apt-get** command will only update installed software.

Figure 10-15 shows an example of the **apt-get upgrade** command being used. Before software is updated you will have to press **y** to agree to continue.

I perform an update and upgrade each time I use my Linux system to make sure that

system is up-to-date.

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```
File Edit View Search Terminal Help
Hit http://us.archive.ubuntu.com utopic-backports/multiverse i386 Packages
Hit http://us.archive.ubuntu.com utopic-backports/main Translation-en
Hit http://us.archive.ubuntu.com utopic-backports/multiverse Translation-en
Hit http://us.archive.ubuntu.com utopic-backports/restricted Translation-en
Hit http://us.archive.ubuntu.com utopic-backports/universe Translation-en
Fetched 1,161 kB in 12s (96.7 kB/s)
Reading package lists... Done
matt@matt-laptop:~/myfolder$ sudo apt-get upgrade
Reading package lists... Done
Building dependency tree
Reading state information... Done
Calculating upgrade... Done
The following packages have been kept back:
 liboxideqt-qmlplugin liboxideqtcore0 linux-generic linux-headers-generic
 linux-image-generic oxideqt-codecs-extra
The following packages will be upgraded:
 binutils chromium-browser chromium-browser-l10n chromium-codecs-ffmpeg-extra
 gvfs gvfs-backends gvfs-bin gvfs-common gvfs-daemons gvfs-fuse gvfs-libs
 krb5-locales libgssapi-krb5-2 libk5crypto3 libkrb5-3 libkrb5support0
 libprocps3 ntpdate procps
19 upgraded, 0 newly installed, 0 to remove and 6 not upgraded.
Need to get 56.8 MB of archives.
After this operation, 3,745 kB of additional disk space will be used.
Do you want to continue? [Y/n] |
```

Figure 10-15. CLI - apt-get upgrade

The **apt-get** command with the **install** option can also be used to install software. You just follow the **install** option with the name of the software package to start the install. You may or may not have to answer **y** to start the install depending upon the software package. Make sure to use **apt-get update** and **apt-get upgrade** before installing any software to make sure you have all of the latest updates for your system.

CLI Tabs

While you are performing the upgrade the command line will be tied up and cannot be used. One way around this is to open a new tab by clicking on File - Open Tab, Figure 10-16. The new tab will appear to the right of the current tab and will automatically get the focus, Figure 10-17. You can switch between tabs by clicking on the tab.

```

File Edit View Search Terminal Help
Open Terminal Shift+Ctrl+N
Open Tab Shift+Ctrl+T led, 0 to remove and 6 not upgraded.
New Profile...
Close Tab Shift+Ctrl+W lves.
Close Window Shift+Ctrl+Q .2 [56.5 kB]
Get:2 http://us.archive.ubuntu.com/ubuntu/ utopic-updates/main ntpdate amd64 1:4
1:3.3.9-1ubuntu5.2 [31.8 kB]
Get:3 http://us.archive.ubuntu.com/ubuntu/ utopic-updates/main libgssapi-krb5-2
amd64 1.12.1+dfsg-10ubuntu0.1 [119 kB]
Get:4 http://us.archive.ubuntu.com/ubuntu/ utopic-updates/main libkrb5-3 amd64 1
.12.1+dfsg-10ubuntu0.1 [269 kB]
Get:5 http://us.archive.ubuntu.com/ubuntu/ utopic-updates/main libkrb5support0 a
md64 1.12.1+dfsg-10ubuntu0.1 [31.2 kB]
Get:6 http://us.archive.ubuntu.com/ubuntu/ utopic-updates/main libk5crypto3 amd6
4 1.12.1+dfsg-10ubuntu0.1 [82.5 kB]
Get:7 http://us.archive.ubuntu.com/ubuntu/ utopic-updates/universe chromium-brow
ser-l10n all 40.0.2214.111-0ubuntu0.14.10.1.1111 [3,144 kB]
Get:8 http://us.archive.ubuntu.com/ubuntu/ utopic-updates/universe chromium-code
cs-ffmpeg-extra amd64 40.0.2214.111-0ubuntu0.14.10.1.1111 [841 kB]
Get:9 http://us.archive.ubuntu.com/ubuntu/ utopic-updates/universe chromium-brow
ser amd64 40.0.2214.111-0ubuntu0.14.10.1.1111 [49.2 MB]
13% [9 chromium-browser 2,784 kB/49.2 MB 6%] 181 kB/s 4min 33s

```

Figure 10-16. CLI - Open Tab

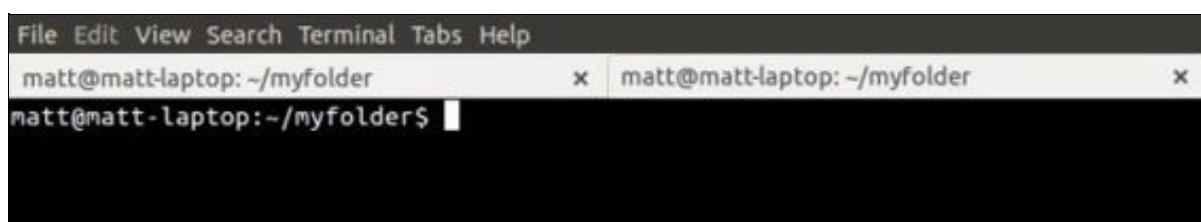


Figure 10-17. CLI - Tab

Root Directory

The Linux operating system is built off of the root directory which holds all of the other directories in the system. If you want to get to the root directory use the **cd /** command. Figure 10-18. The **/** designates the root directory.

```

File Edit View Search Terminal Tabs Help
matt@matt-laptop:~/myfolder x matt@matt-laptop:/ x
matt@matt-laptop:~/myfolder$ pwd
/home/matt/myfolder
matt@matt-laptop:~/myfolder$ cd /
matt@matt-laptop:/$ ls
bin dev initrd.img lib64 mnt root srv usr vmlinuz.old
boot etc initrd.img.old lost+found opt run sys var vmlinuz
cdrom home lib media proc sbin tmp vmlinuz
matt@matt-laptop:/$ 

```

Figure 10-18. CLI - root directory

Home Directory

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Using the **cd ~** command will take you to your home directory, Figure 10-19.

The screenshot shows a terminal window with two tabs. The left tab shows the user is in a folder named 'myfolder'. The right tab shows the user's home directory. The terminal history is as follows:

```
File Edit View Search Terminal Tabs Help
matt@matt-laptop: ~/myfolder          x matt@matt-laptop: ~
matt@matt-laptop:~/myfolder$ pwd
/home/matt/myfolder
matt@matt-laptop:~/myfolder$ cd /
matt@matt-laptop:/$ ls
bin  dev  initrd.img   lib64    mnt    root   srv   usr      vmlinuz.old
boot etc  initrd.img.old lost+found opt     run    sys   var
cdrom home lib           media    proc   sbin   tmp   vmlinuz
matt@matt-laptop:/$ cd ~
matt@matt-laptop:~$ pwd
/home/matt
matt@matt-laptop:~$
```

Figure 10-19. CLI - home directory

Last Directory

Using the **cd -** command will take you to the last directory that you were in, Figure 10-20.

The screenshot shows a terminal window with two tabs. The left tab shows the user is in a folder named 'myfolder'. The right tab shows the user's home directory. The terminal history is as follows:

```
File Edit View Search Terminal Tabs Help
matt@matt-laptop: ~/myfolder          x matt@matt-laptop: /
matt@matt-laptop:~/myfolder$ pwd
/home/matt/myfolder
matt@matt-laptop:~/myfolder$ cd /
matt@matt-laptop:/$ ls
bin  dev  initrd.img   lib64    mnt    root   srv   usr      vmlinuz.old
boot etc  initrd.img.old lost+found opt     run    sys   var
cdrom home lib           media    proc   sbin   tmp   vmlinuz
matt@matt-laptop:/$ cd ~
matt@matt-laptop:~$ pwd
/home/matt
matt@matt-laptop:~$ cd -
/
matt@matt-laptop:/$ pwd
/
matt@matt-laptop:/$
```

Figure 10-20. CLI

Final Thoughts

I would like to thank all of my readers for purchasing this book and giving me a chance. I hope that you found what you were looking for.

Please keep your eyes open for my future Linux and Network Security books.

About the Author

Matt Vogel works in the field of and teaches Network Security. He holds CISSP, CISSP-ISSMP, CEH, and MCSE certifications. He is a dedicated Linux user and uses Linux in his Network Security classes. He lives in Virginia Beach, Virginia where he works for the government.