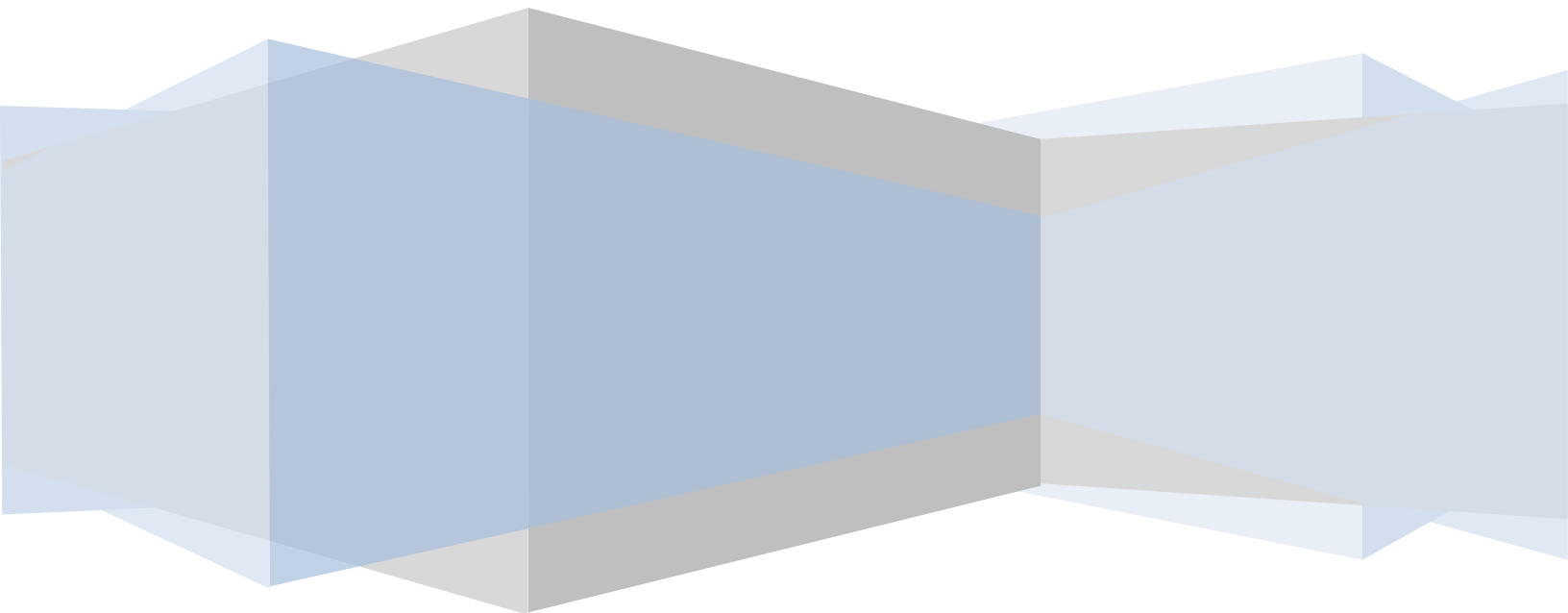


Ubuntu 10.10



Essentials

Ubuntu 10.10 Essentials



Ubuntu 10.10 Essentials – First Edition

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Chapter 1. About Ubuntu Essentials

1.1 Notes from the Author

On October 10, 2010 a company called Canonical Limited officially released Ubuntu 10.10, otherwise known as the Maverick Meerkat release. My journey into the world of Linux and Ubuntu, however, started many years before this latest Ubuntu release.

My first exposure to anything that looked like Linux occurred while providing technical support on a UNIX based system. This was both my first job and my first exposure to an enterprise level operating system. For the first six months I hated the cryptic nature of the UNIX command line tools and woke each weekday morning with a sinking feeling that I was going to once again spend a day battling this operating system. Gradually I began to appreciate the power, flexibility and simplicity of the various components that comprised the UNIX operating system.

In later years I moved into other areas of the IT business and used UNIX less. After relocating across country I found myself faced with setting up a network of systems for a new office and found myself immersed once again in the world of networks and operating systems. I very quickly standardized on Linux as the operating system of choice and equally quickly found myself re-using many of the skills I'd learned from my UNIX days, together with much that is new in Linux (in particular the user friendly graphical desktop environments such as GNOME and KDE).

In order to further broaden my Linux knowledge I decided to attend the monthly local Linux User Group meetings. At these meetings I was humbled by the depth of Linux knowledge of the other attendees and learned more about Linux from these experts than I ever could have hoped for (given that the meetings are held at Red Hat's U.S. headquarters this is hardly surprising).

One month, a member of the user group committee announced that a representative for Ubuntu would be speaking at the next meeting, at which point a loud and sustained cheer rose up from the audience. At this point I had never heard of Ubuntu and had no idea what it was that these experts were so enthusiastic about. All I knew was that if these people thought it was great then I had better find out what it is. I drove home, fired up a web browser and searched for Ubuntu. I quickly found out it was a Linux distribution. How can these people be so excited about "just another Linux distribution"? I had to find out. I slid the Ubuntu Live CD I'd picked up at the meeting into my CDROM tray and booted from it. Several hours later I had my answer. Ubuntu was a nice, easy to use and easy to maintain Linux system. Clearly, a lot of work had gone into making Ubuntu easy to try, install and use, and yet I could still drop down to the low level to perform the more advanced tasks I was used to performing when I needed to.

A few years later I decided it was time to write about Ubuntu and try to give others the chance to find out why Ubuntu is such a popular Linux distribution. It has now been 5 years and this, the latest edition of Ubuntu Essentials, is now complete. I sincerely hope you find this book useful.

1.2 About this Book

According to Linux.org, there are over 200 different Linux distributions available. Many of these are actively maintained and have a loyal following, and some less so. Some Linux distributions are quite new and some have been around for a very long time.

One Linux distribution that has appeared relatively recently is Ubuntu. Despite being a relative newcomer to the Linux landscape, Ubuntu has very quickly gained prominence in what is clearly a very crowded field. Ubuntu routinely tops the Linux distribution page ranking on DistroWatch.com, and has been selected by Dell and other vendors as the Linux to be pre-installed in select systems. Perhaps the most significant achievement for Ubuntu, however, is that it is popular not just to Linux novices, but also with Linux experts, a group of people known for being highly discerning and critical.

The purpose of this book is to provide an overview of the essential knowledge required to use and maintain an Ubuntu system. From the basics of installation, configuring the desktop and implementing wireless networking through to tasks such as configuring firewalls, setting up a web server, adding disk drives and swap space, configuring KVM based virtualization and providing remote desktop access via an SSH tunnel, Ubuntu Essentials takes a step by step approach to installing, using and administering Ubuntu.

Chapter 2. The History of Ubuntu

Ubuntu is one of a number of different flavors of the Linux operating system. The various different brands of Linux are generally known as *Linux Distributions* (usually shortened to *Linux Distros* by Linux experts). In terms of the history of Linux, Ubuntu is something of a newcomer. In the relatively short period of time that it has been available, however, Ubuntu has rapidly gained the respect of both experienced and novice Linux users throughout the world.

In this chapter we will briefly cover the history of Linux and the Ubuntu variant of Linux.

2.1 What exactly is Linux?

Linux is an operating system in much the same way that Windows is an operating system (and there any similarities between Linux and Windows end). The term *operating system* is used to describe the software that acts as a layer between the hardware in a computer and the applications that we all run on a daily basis. When programmers write applications, they interface with the operating system to perform such tasks as writing files to the hard disk drive and displaying information on the screen.

Without an operating system, every programmer would have to write code to directly access the hardware of the system. In addition, the programmer would have to be able to support every single piece of hardware ever created to be sure the application would work on every possible hardware configuration. Because the operating system handles all of this hardware complexity, application development becomes a much easier task. Linux is just one of a number of different operating systems available today.

2.2 Who Created Linux?

The origins of Linux can be traced back to the work and philosophies of two people. At the heart of the Linux operating system is something called the *kernel*. This is the core set of functions necessary for the operating system to function. The kernel manages the system's resources and handles communication between the hardware and the applications. The Linux kernel was developed by Linus Torvalds who needed an operating system but didn't want to have to buy one. When he had finished the first version of the kernel he released it under an *open source* license that enabled anyone to download the source code and freely use and modify it without having to pay Linus any money.

Around the same time Richard Stallman at the Free Software Foundation, a strong advocate of free and open source software, was working on an open source operating system of his own. Rather than focusing initially on the kernel, Stallman decided to begin by developing all the tools, utilities and compilers necessary to use and maintain an operating system. By the time he

had finished developing this *infrastructure* it seemed like the obvious solution was to combine his work with the kernel Linus had written to create a full operating system. This combination became known as GNU/Linux. Purists insist that Linux always be referred to as GNU/Linux (in fact Richard Stallman refuses to give press interviews to any publication which fails to refer to Linux as GNU/Linux). This is not unreasonable given that the GNU tools developed by the Free Software Foundation make up a significant and vital part of GNU/Linux. Unfortunately, most people and publications simply refer to Linux as Linux and this will probably always continue to be the case.

2.3 The History of Ubuntu

As mentioned previously, Ubuntu is one of a number of Linux distributions. The source code that makes up the Ubuntu distribution originates from another, much older Linux distribution known as Debian (so called because it was started by two people named Debra and Ian). Debian is still a widely respected operating system but came under criticism for infrequent updates and less than user friendly installation and maintenance (though these areas have shown improvement recently).

A South African internet mogul (who made his fortune selling his company to VeriSign for around \$500 million) decided it was time for a more user friendly Linux. He took the Debian distribution and worked to make it a more human friendly distribution which he called Ubuntu. He subsequently formed a company called Canonical Ltd to promote and provide support for Ubuntu. In addition Shuttleworth has formed and funded (to the tune of \$10 million) a foundation to guarantee the future of Ubuntu.

The rest, as they say, is history. Ubuntu has since gone from strength to strength. Dell and other hardware vendors now ship computers pre-loaded with Ubuntu and Ubuntu usually tops the chart at DistroWatch.com (a web site that tracks the popularity of the various Linux distributions).

If you are new to Linux, or already use Linux and want to try a different Linux distro it is unlikely you will find a better option than Ubuntu.

2.4 What does the word "Ubuntu" Mean?

The word "Ubuntu" is an ancient Zulu and Xhosa word that means "humanity to others". Ubuntu also means "I am what I am because of who we all are". It was chosen because these sentiments precisely describe the spirit of the Ubuntu distribution.

Chapter 3. How to Download and Try Ubuntu

In order try out Ubuntu you first need to obtain it. By far the best way to obtain Ubuntu is to download it from the Ubuntu web site, though it is also possible to purchase a CDROM containing Ubuntu if downloading is not a viable option.

There are, however, a number of options to consider in terms of the best download for your needs.

3.1 Ubuntu Download Options

A variety of download of options are provided on the Ubuntu web site which is accessible at <http://www.ubuntu.com>. Ubuntu is provided in Desktop, Netbook and Server editions:

- **Desktop Edition**— Intended for desktop and full size laptop computer systems. Includes graphical desktop environments and applications needed by a typical computer user.
- **Netbook Edition** — Optimized for the smaller screens and reduced capacity of netbook computers.
- **Server Edition** — Optimized for enterprise level server deployment. Contains only those packages that are essential for server systems allowing high performance with minimal complexity and resource usage.

Though this book will cover aspects of Ubuntu that are common to all three editions of the operating system, the main focus will be on Ubuntu Desktop Edition.

The next choice involves a decision about the architecture of the operating system. This can take the form of either a 32-bit or 64-bit version of Ubuntu. If your computer contains a 32-bit processor then you must use the 32-bit edition of Ubuntu. Alternatively, if you have a 64-bit processor you can use either the 32-bit or 64-bit version of Ubuntu, though for general use, Canonical recommends the 32-bit system for both 32-bit and 64-bit hardware.

Another option is also provided to use the *Ubuntu Windows Installer* to install Ubuntu alongside an existing Windows installation. Details of this installation process are covered later in this chapter and in the chapter entitled [Installing Ubuntu on a Windows Disk with Wubi](#).

Having made an appropriate architecture choice the download may be initiated by clicking on the *Start download* button. The download will take the form of a single ISO image file which may then be burned onto a CDROM, written to a USB flash drive, or used as an image for a virtual machine.

Check the documentation for your preferred CD writing software or current operating system for steps on how to write an ISO image file to a CD if you do not already know how to do this.

3.2 Writing the Ubuntu Image to a USB Flash Drive

As previously mentioned an alternative to booting from a CDROM is to write the Ubuntu image to a USB flash drive and then boot from that. This has the advantage that Ubuntu will boot and run in live mode much faster from a USB flash drive than from a CDROM drive.

In order to write the Ubuntu image to a USB drive, the Pendrive Linux Universal USB Installer is required. This tool is currently only available for Windows XP, Windows Vista and Windows 7 and can be downloaded from the Pendrive Linux web site at:

<http://www.pendrivelinux.com/universal-usb-installer-easy-as-1-2-3/>

Once the installer has been downloaded and launched, and the license agreement accepted, the main screen should appear. From within this window, select the version of Ubuntu from the drop down menu that matches the image previously downloaded:



After selecting the Ubuntu distribution, use the *Browse* button to navigate to the location of the Ubuntu ISO image. Insert a USB flash drive (at least 2GB is recommended) into a spare USB port of the computer and then select the corresponding drive letter from the menu located in Step 3.

Clicking the *Create* button will begin the process of writing the image to the USB drive.

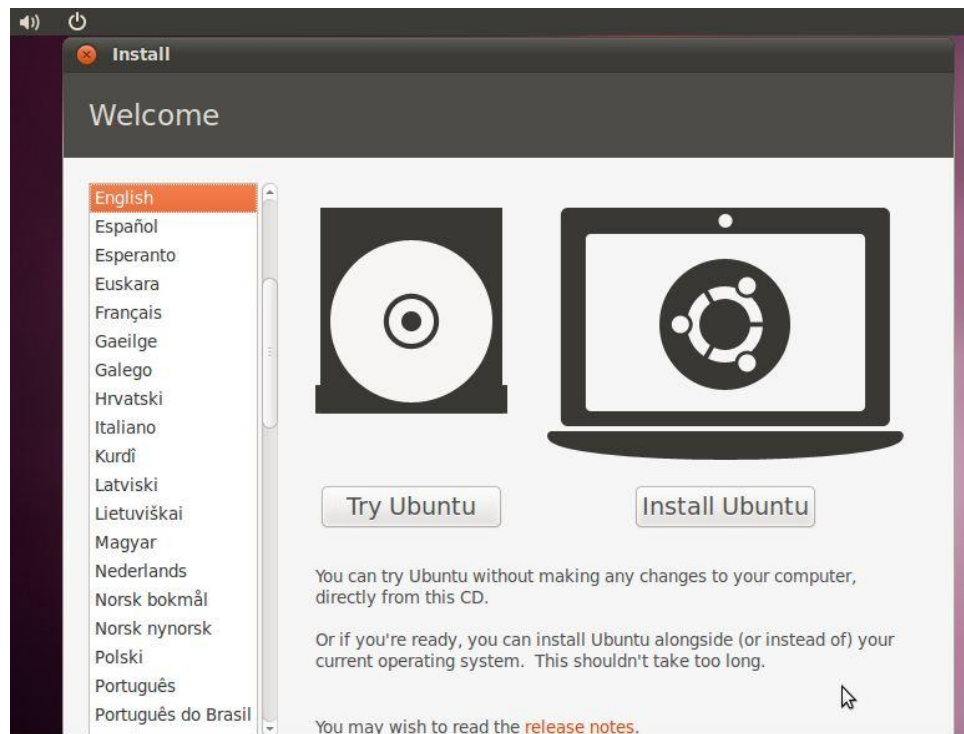
Once the Ubuntu ISO image is either burned to a CDROM or written to a flash drive it is time to move on to the next step.

3.3 Try Ubuntu without Installing it

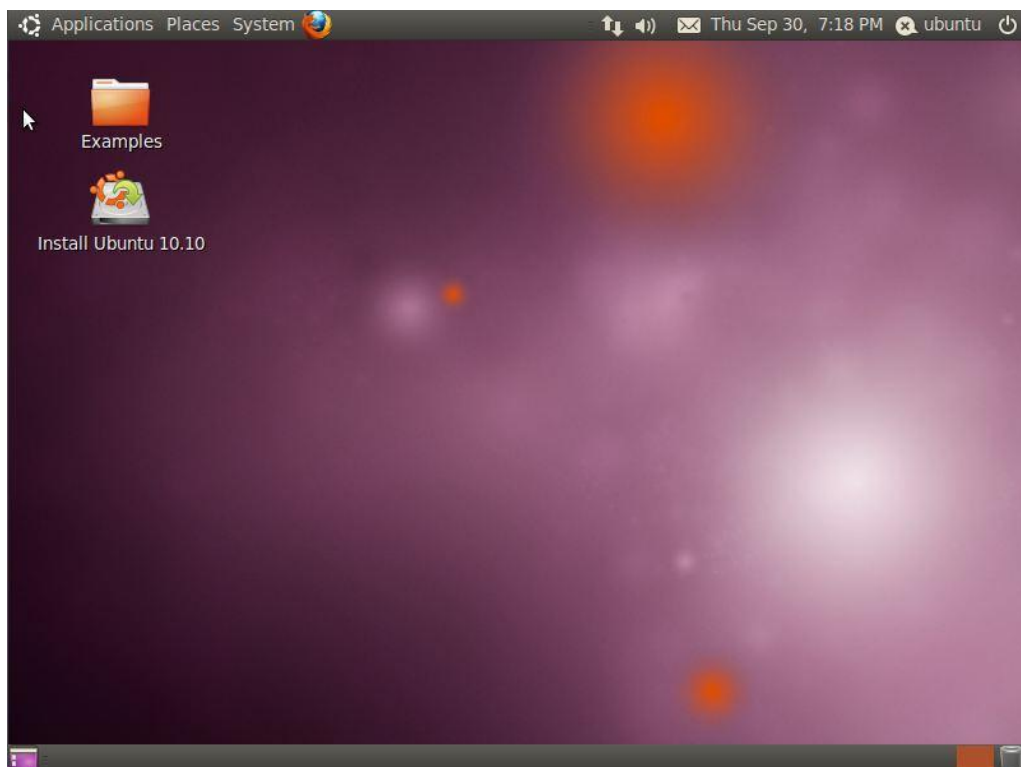
There is a good chance you already own a PC which is probably running Microsoft Windows. If this is the case and you are new to Linux then there is a good chance you don't want to install Ubuntu until you've had a chance to try it out for a few hours, days or weeks. If you'd like to try Ubuntu without having to install you can easily do so. The Ubuntu image you now (hopefully) have in your possession is able to run as a *Live Image*. This essentially means that the operating system can be run from a CD or USB flash drive without having to be installed on your hard disk drive.

To run Ubuntu from the CD/USB flash simply insert the CD or flash drive into your computer and reboot your system. If your system reboots once again as Windows then it is likely you will need to change the boot order in your system BIOS. To achieve this, restart your system and watch closely as the system boots. Early in the boot process the BIOS will display instructions to enter BIOS Setup (which often, but not always, involves pressing DEL or a function key). Press whichever key you are instructed to press and you should find yourself in the BIOS setup menu. Find the setting for the boot sequence, and if it shows your hard disk as being the first device to boot from, change this so that either your CD/DVD drive or USB device appears as the first device in the boot order. Note that the BIOS in some older systems do not support booting from a USB device.

Select the "Save and Exit" option from the BIOS main menu and allow the system to boot. As long as the Ubuntu CD or USB drive is still inserted, you should find that Ubuntu boots instead of Windows. Once loaded, Ubuntu will provide the option to try out Ubuntu without installing, or to perform an installation to a hard drive:



In order to try Ubuntu without installing, click on the *Try Ubuntu* button. The live Ubuntu image will subsequently load and display the GNOME desktop environment ready for use:



There are a few minor downsides to using the live image. The first is that performance will be slow if using a CDROM. This is because Ubuntu needs to load software from the CD drive which is orders of magnitude slower than a hard disk drive (though the USB flash drive option should be fast). Secondly, any files you may create or any changes you make to the system during a live session will be lost when the system shuts down or reboots. One advantage of this, however, is that you also can't break anything, so feel free to experiment as much as you like.

3.4 Installing Ubuntu on a Disk Drive Containing Microsoft Windows

If you already have Windows installed on your PC you can install Ubuntu onto the same disk drive and boot from either operating system (a configuration known as *dual booting*). During the installation process Ubuntu will resize the Windows partition on your hard disk to make room for the Ubuntu installation (you will be asked how much of your disk drive you wish to use for Linux) and set up a special boot manager that will allow you to choose whether to boot Linux or Windows each time you power up your system. All of this is non-destructive, in that your Windows partition and all the applications and data therein will be kept intact. All that will happen is that the Windows part of the disk will be smaller than it was originally.

Another useful feature of a Windows/Ubuntu dual-boot configuration is that your Windows logical drives (C:, D: etc) will be accessible from Ubuntu, so you will be able to access your Windows data files from Linux. This means, for example, that you will be able to access your Microsoft Word and Excel files using the Linux version of OpenOffice included with Ubuntu.

For detailed steps on creating a Windows/Ubuntu dual boot environment see [Installing Ubuntu on a Windows System \(Dual booting\)](#).

3.5 Installing Ubuntu Inside a Windows Installation

A relatively recent development in the world of Ubuntu provides the ability to install Ubuntu onto the file system of an existing Windows installation. This is similar to the dual booting approach outlined above with the exception that the hard disk does not need to be repartitioned to create Linux partitions for the Ubuntu installation. Instead, all the files which make up Ubuntu are installed in a new folder on the Windows disk just like any other files. All that is required is enough disk space on a Windows disk drive to accommodate the Ubuntu installation (around 8GB is recommended).

This type of installation is achieved using technology called the Ubuntu Windows Installer, or *Wubi* for short. The process involves downloading and running the Wubi installation executable, selecting a target disk drive, providing a user name and password for accessing the Ubuntu installation and clicking an *Install* button. Wubi will then download the Ubuntu distribution and perform the installation into a folder on the chosen Windows disk drive. When

the system is subsequently rebooted, the user is given the option to boot either Windows or Ubuntu.

Refer to [Installing Ubuntu on a Windows Disk with Wubi](#) for more details on this installation option.

3.6 Running Ubuntu in a Virtual Machine

If you need to keep your Windows or other environment and want to run Ubuntu concurrently with your current operating system, Ubuntu may also be run within a virtual machine. A number of free virtualization technologies are available for this purpose such as VirtualBox and VMware Server.

3.7 Performing a Clean Ubuntu Installation

If you are installing Ubuntu on a clean hard disk drive, or plan to overwrite the Windows or other operating system installation on the drive then installing Ubuntu is straightforward. Simply follow the steps in [Performing a Clean Ubuntu Installation](#) to install Ubuntu on the entire disk drive.

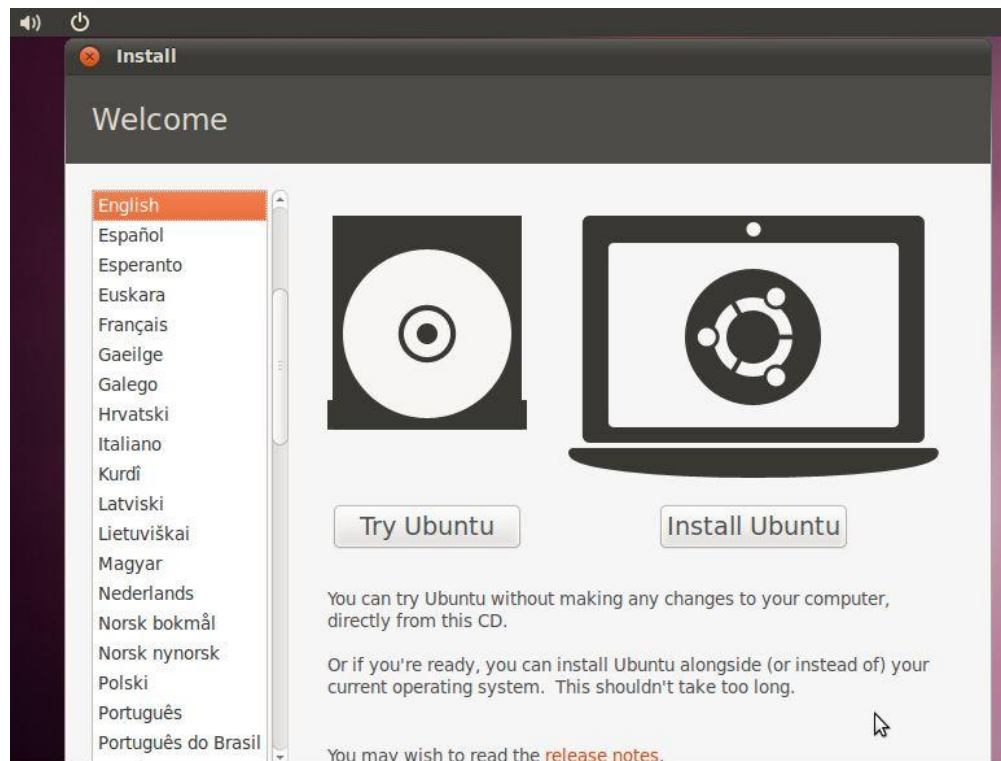
Chapter 4. Performing a Clean Ubuntu Installation

In this chapter of *Ubuntu Essentials* we will cover the steps necessary to install Ubuntu on either a new system with no current operating installed, or a system containing an existing operating system (such as Windows) which you plan to delete and overwrite with Ubuntu. If you already have Windows installed on your hard disk drive and do not wish to overwrite it with Ubuntu you should read [Installing Ubuntu on a Windows System \(Dual booting\)](#) and [Installing Ubuntu on a Windows Disk with Wubi](#).

This chapter assumes you already have the Ubuntu ISO image burned to a CDROM or written to a USB flash drive. If you do not yet have this, first refer to [How to Download and Try Ubuntu](#) for instructions and then return here to begin the installation process.

4.1 Beginning the Ubuntu Installation

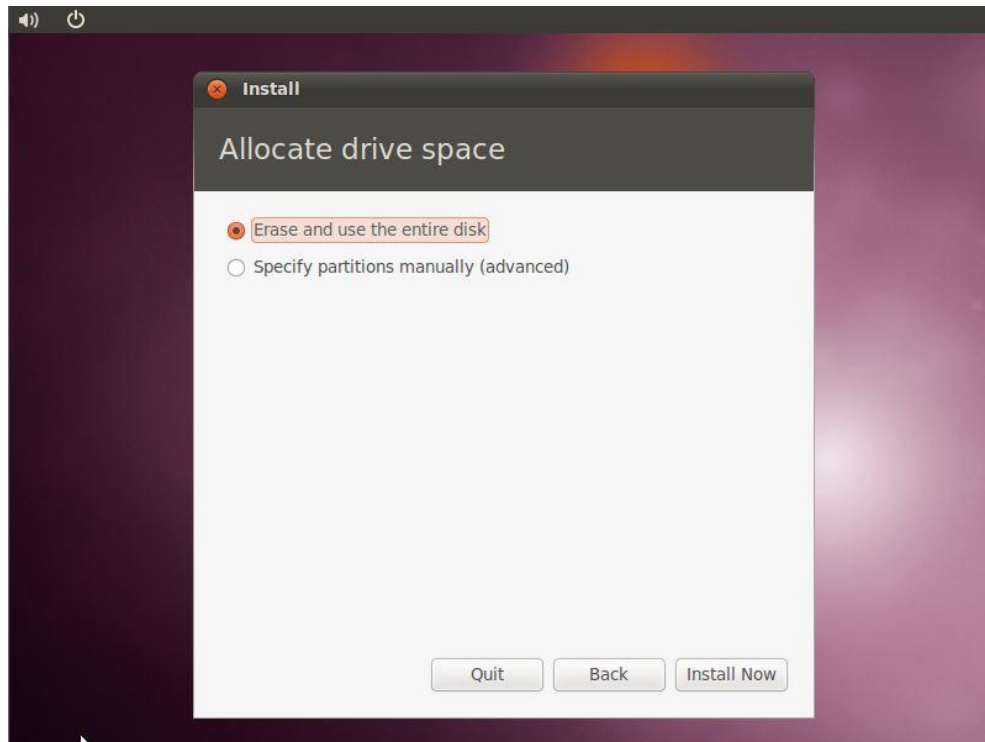
To start the installation, place the Ubuntu CD into the CD-ROM or DVD drive or insert the USB flash drive and reboot your computer system. If the system loads the old operating system, or complains it cannot find an operating system to load you will need to change the boot order in your system BIOS. To do this reboot again. Early in the boot process the BIOS will display a message indicating which key should be pressed to enter Setup. Press the key indicated so that the BIOS Setup menu appears. Navigate the menu system until you find the setting which indicates the boot order used by the BIOS. Change the order so that either the drive containing the Ubuntu CDROM or the USB device is listed before the hard disk drive, then exit and save the settings. Reboot once more and you should find that Ubuntu loads. Once Ubuntu has loaded you will be presented with the following screen:



To begin the installation, click on the "Install Ubuntu" button. The installer will ask a couple of questions relating to the installation process. The first question provides the choice of whether to install 3rd party non-open source software to support the playback of MP3 files on the system. Some users object fervently to using any software to which the source code is not freely available. If you are one of those people then do not select this option. If, on the other hand, you just want the best experience from your Ubuntu installation then this option is recommended.

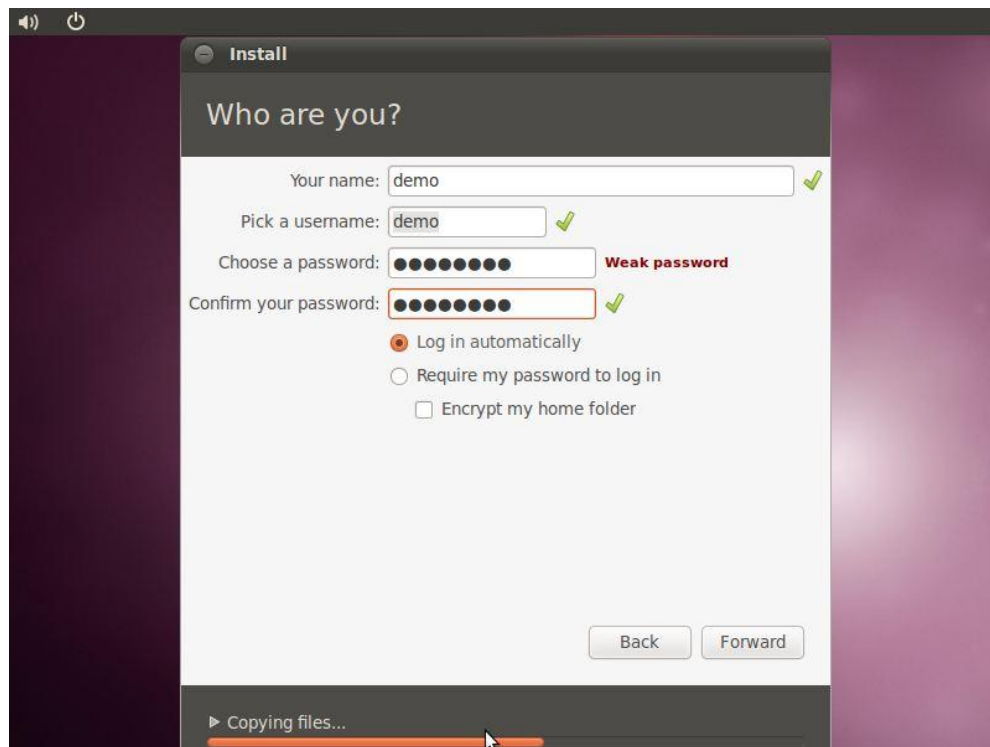
Secondly, the option is provided to update the software packages that comprise the Ubuntu distribution during the installation. Ubuntu, just like most other operating systems, continues to be updated with bug fixes and security patches long after it has been released to the public. If this option is selected, the installer will download any updates issued since the Ubuntu installation image was released and applies them to the system. If you choose not to perform this update during the installation process these updates can still be applied at any time after the installation completes.

Having made appropriate selections, click the *Forward* button to proceed to the disk allocation screen. Assuming that this is a new disk on which an existing operating system is not present, the installer will provide the option to erase the entire disk and use it for Ubuntu (in which case the installer will calculate and implement a typical and recommended partition layout), or to manually configure the partition layout (for experts only):



For the purposes of this chapter, simply select the option to use the entire disk then click on the *Forward* button to proceed. The installer will then display a graphical layout indicating the area of the disk that will be used to accommodate the Ubuntu installation. Review this information and click on *Install Now* to begin the installation.

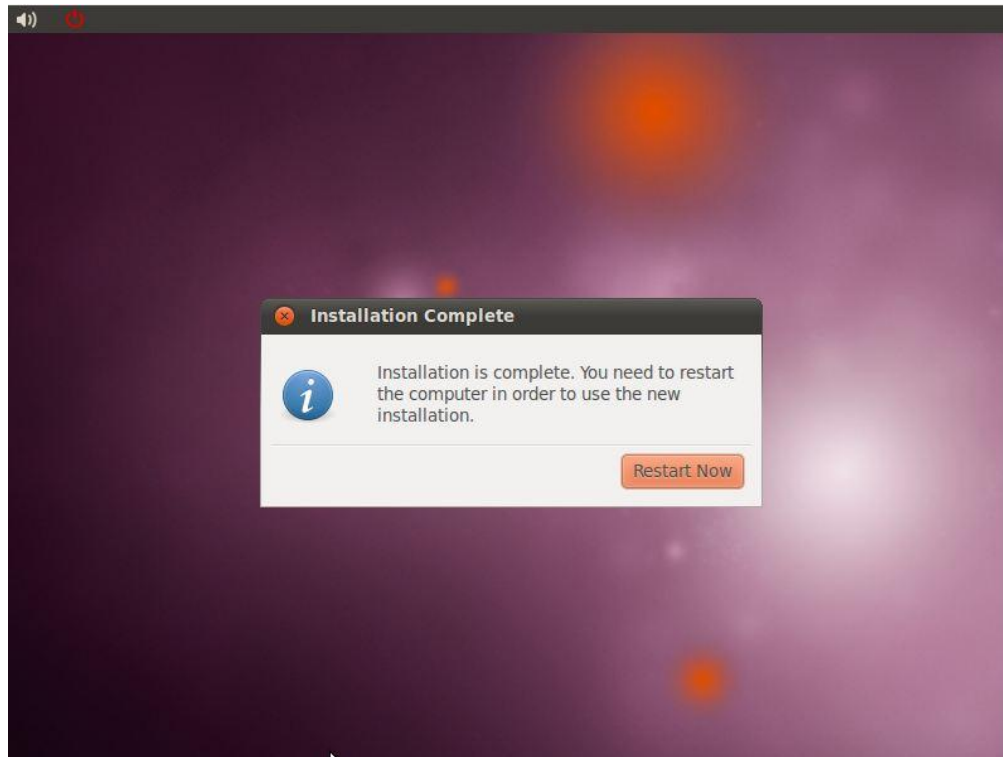
Whilst the installation is in progress, the installer will ask for information about your geographic location in order to configure Timezone settings, your keyboard language configuration, and a user name and password for the first account on the system. The account configuration screen also provides the option to encrypt your home folder to increase the security of your files and data:



The option is also provided to dictate whether the password must be specified each time the user wishes to log into the system. By default, each time Ubuntu starts a login screen will be presented seeking username and password credentials. If you are the sole user of the system and would like to bypass this screen and be logged in automatically each time the system boots, be sure to set the *Log in automatically* checkbox before proceeding.

Once all the questions have been answered, the installer will simply proceed with the installation. Depending on the speed of your system this process can take some time. Unless you feel compelled to sit and watch the progress bar now is good time to find something else to do for a while.

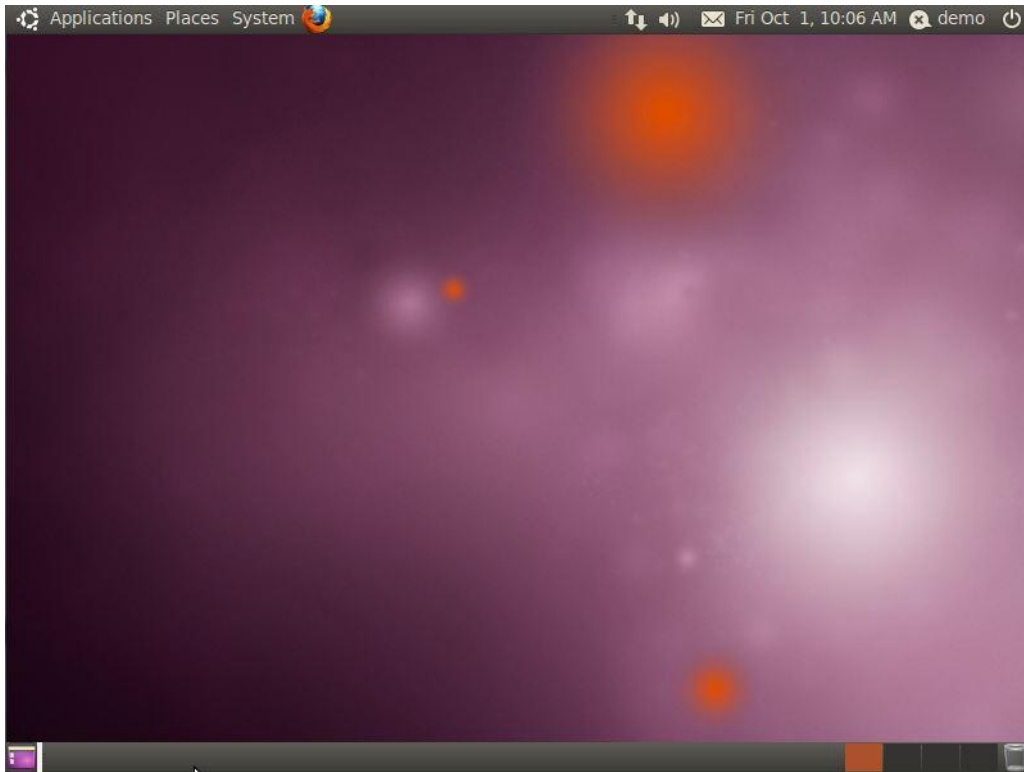
When the installation is complete, the following dialog will appear to inform you the system is ready to be restarted.



When you are ready to reboot, press the *Restart now* button. The system will take a few moments to shut down. The installer will prompt you to remove the installation media. At this point remove the CDROM or USB flash drive (depending on which you used to perform the installation) and press the *Enter* key to proceed.

4.2 Booting Ubuntu for the First Time

When the system reboots Ubuntu will load and the Ubuntu login screen will appear (unless you selected the automatic login option during installation). Enter the user name and password you set up during the installation process if prompted to do so and you will be logged into the Ubuntu Desktop environment:

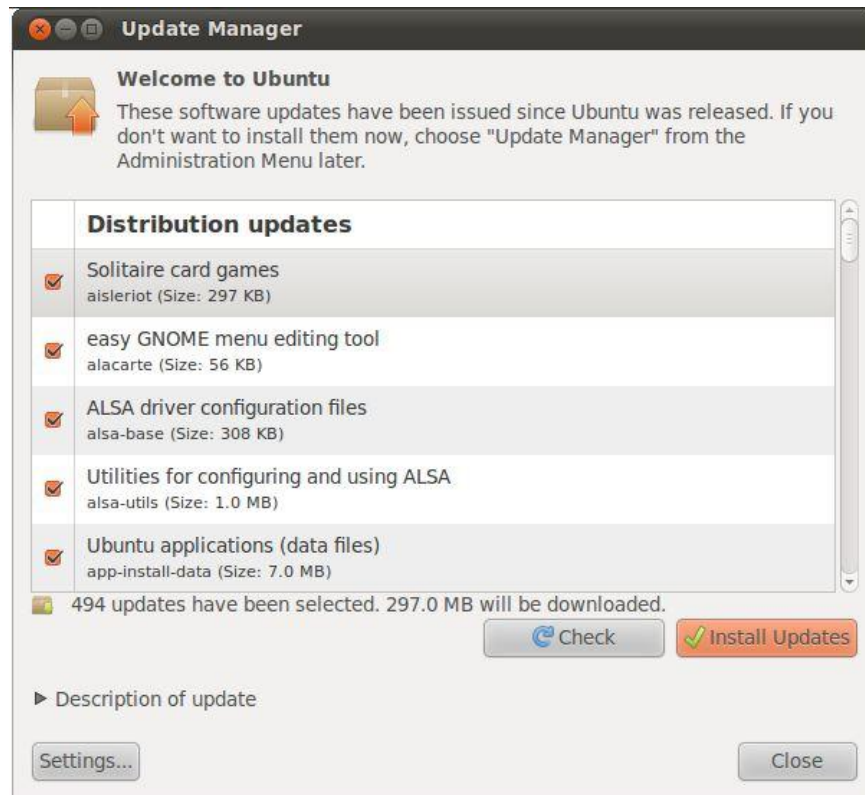


4.3 Installing Updates

As with most operating systems today, the each particular release of the Ubuntu distribution continues to evolve after it has been released to the public. This generally takes the form of bug fixes and security updates and, occasionally, new features that may be downloaded over the internet and installed on your system.

Best practices dictate that the first step after installing Ubuntu is to make sure any available updates are applied to the system. This can be achieved either through the desktop environment or via the command-line prompt in a Terminal window.

To check for updates, select the *System -> Administration -> Update Manager* desktop menu option. This will invoke the software update tool containing a list of the available updates together with references to more detailed information on each one:



Clicking the *Install Updates* button will begin the update process which consists of resolving package dependencies, downloading and installation of the updates. The duration of the update process will depend on the number and size of updates available combined with the speed of the internet connection to which the Ubuntu system is connected.

The update process may be configured by clicking on the *Settings...* button located in the bottom left hand corner of the update manager window. This dialog provides a range of options including the frequency with which the system check to see if updates are available, whether updates should be installed automatically without administrator intervention and which categories of updates are to be downloaded (third party, Canonical-supported, community-supported etc.).

The latest updates may also be applied from within terminal window (*Applications -> System Tools -> Terminal*) using the *apt-get* command:

```
sudo apt-get upgrade
```

Upon execution, the *apt-get* tool will provide a list of packages that are available for update and prompt to perform the update.

Once the update is complete the installation is essentially finished and Ubuntu is ready for use.

Chapter 5. Installing Ubuntu on a Windows System (Dual booting)

Ubuntu, just like most Linux distributions, will happily co-exist on a hard disk drive with just about any version of Windows. This is a concept known as *dual-booting*. Essentially, when you power up your PC you will be presented with a menu that provides the option to boot either Ubuntu or Windows. Obviously you can only run one operating system at a time, but it is worth noting that the files on the Windows partition of your disk drive will be available to you from Ubuntu regardless of whether your Windows partition was formatted using NTFS, FAT16 or FAT32.

During the installation process the Ubuntu installer will detect the Windows installation on the drive and give you the option of deleting it and using the entire disk for Ubuntu, or sharing the disk with Windows. In the latter case you will be able to specify the percentage of the disk to be used for Ubuntu. According to the Ubuntu documentation, a minimum of 2 GB of disk space is required for a full Ubuntu installation, and more space to store any files you may subsequently create. Experience suggests, however, that even with 3 GB of space allocated you will probably run out disk space during your first system update. Ideally, at least 8 GB of disk space should be allocated to the Ubuntu installation to avoid later problems. Once the disk space for Ubuntu has been selected, the installer will resize the Windows partition (without destroying any data) and use the remainder of the disk for Ubuntu.

5.1 Beginning the Ubuntu Installation

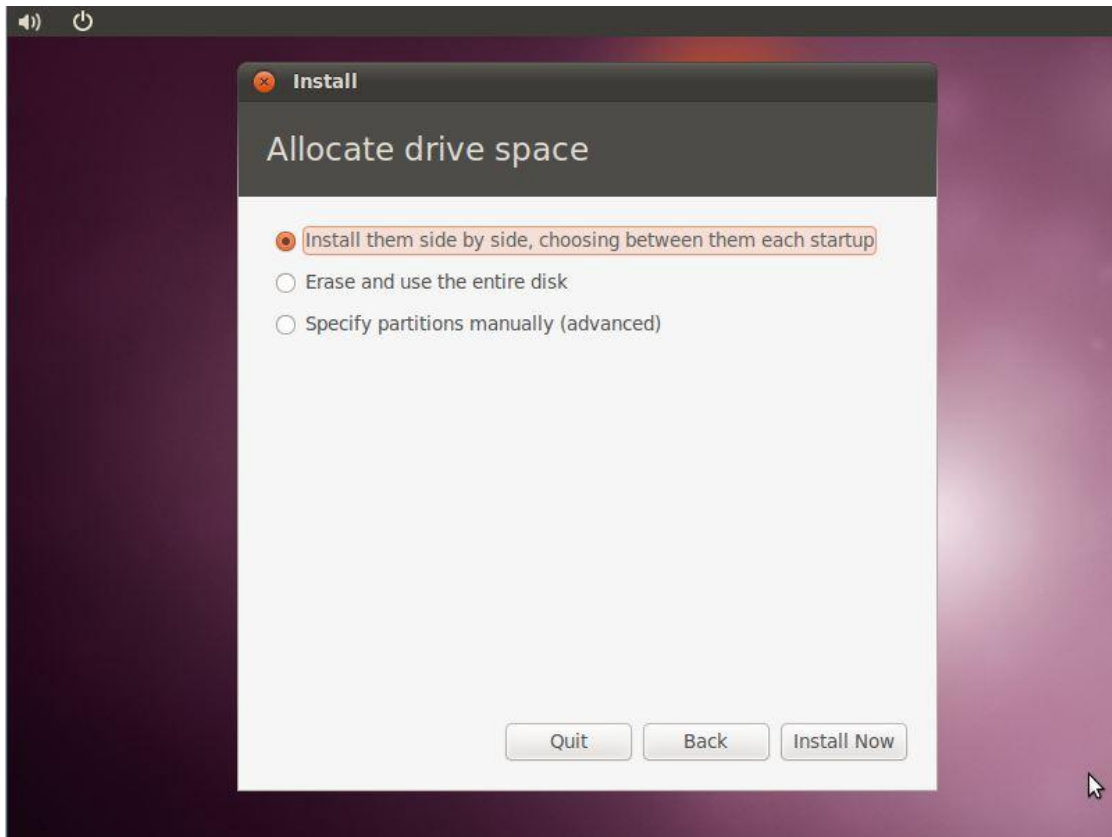
To start the installation, place the Ubuntu CD into the CD-ROM or DVD drive, or insert the USB flash drive and reboot your computer system. If the system loads Windows again you will need to change the boot order in your system BIOS so that the CD or DVD drive or USB device is checked for bootable media before the primary hard disk drive. To do this reboot again. Early in the boot process the BIOS will display a message indicating which key should be pressed to enter Setup. Press the key indicated so that the BIOS Setup menu appears. Navigate the menu system until you find the setting that indicates the boot order used by the BIOS. Change the order so that the drive containing the Ubuntu CDROM or USB drive is listed before the hard disk drive, then exit and save the settings. Reboot once more and you should find that Ubuntu loads. Once Ubuntu has loaded you will be presented with the following screen:



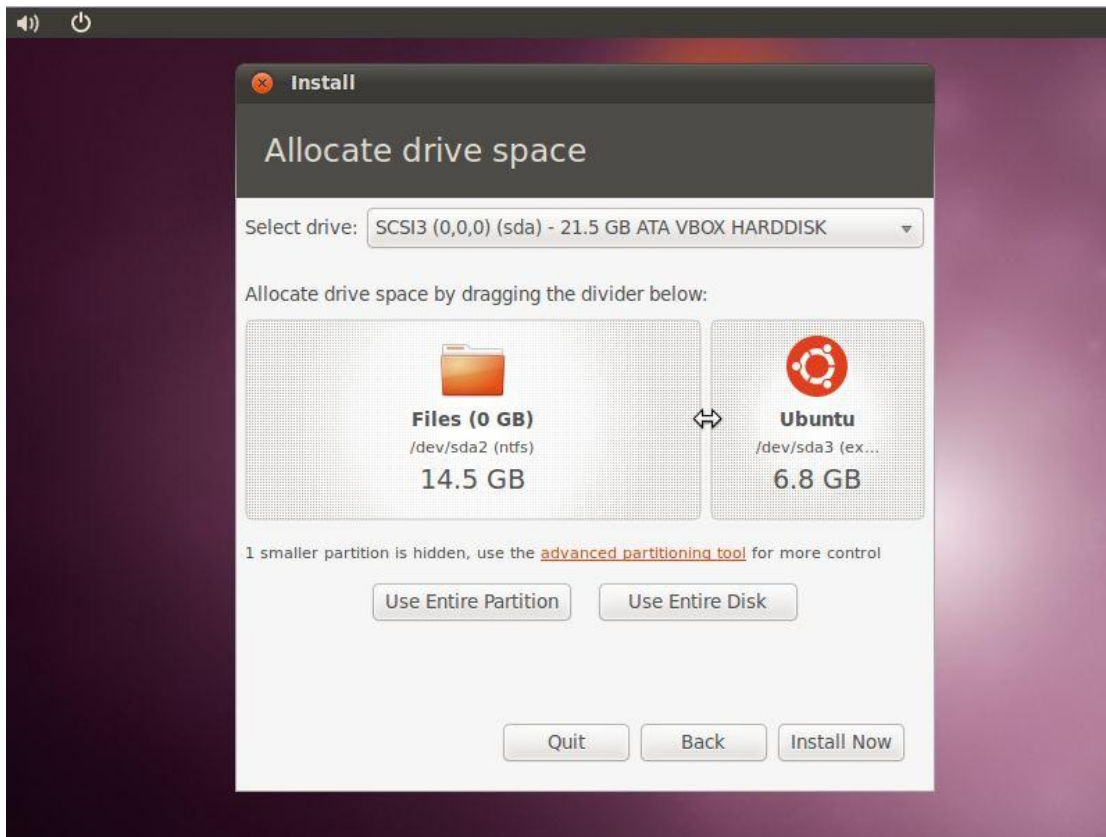
To begin the installation, click on the "Install Ubuntu" button. The installer will ask a couple of questions relating to the installation process. The first question provides the choice of whether to install 3rd party non-open source software to support the playback of MP3 files on the system. Some users object fervently to using any software to which the source code is not freely available. If you are one of those people then do not select this option. If, on the other hand, you just want the best experience from your Ubuntu installation then this option is recommended.

Secondly, the option is provided to update the software packages that comprise the Ubuntu distribution during the installation. Ubuntu, just like most other operating systems, continues to be updated with bug fixes and security patches long after it has been released to the public. If this option is selected, the installer will download any updates issued since the Ubuntu installation image was released and applies them to the system. If you choose not to perform this update during the installation process these updates can still be applied at any time after the installation completes.

Having made appropriate selections, click the *Forward* button to proceed to the disk allocation screen. At this point, the installer will have detected the presence of an existing operating system on the target disk drive and will provide a number of options in terms of how the disk should be used to accommodate the Ubuntu installation:



Given that it is our intention to configure a dual boot system, the option to *Install them side by side, choosing between them at each startup* is the desired choice. With this option selected, click the *Install Now* button to proceed. The subsequent screen allows the amount of disk space allocated to each operating system (in this case Windows and Ubuntu) to be configured:

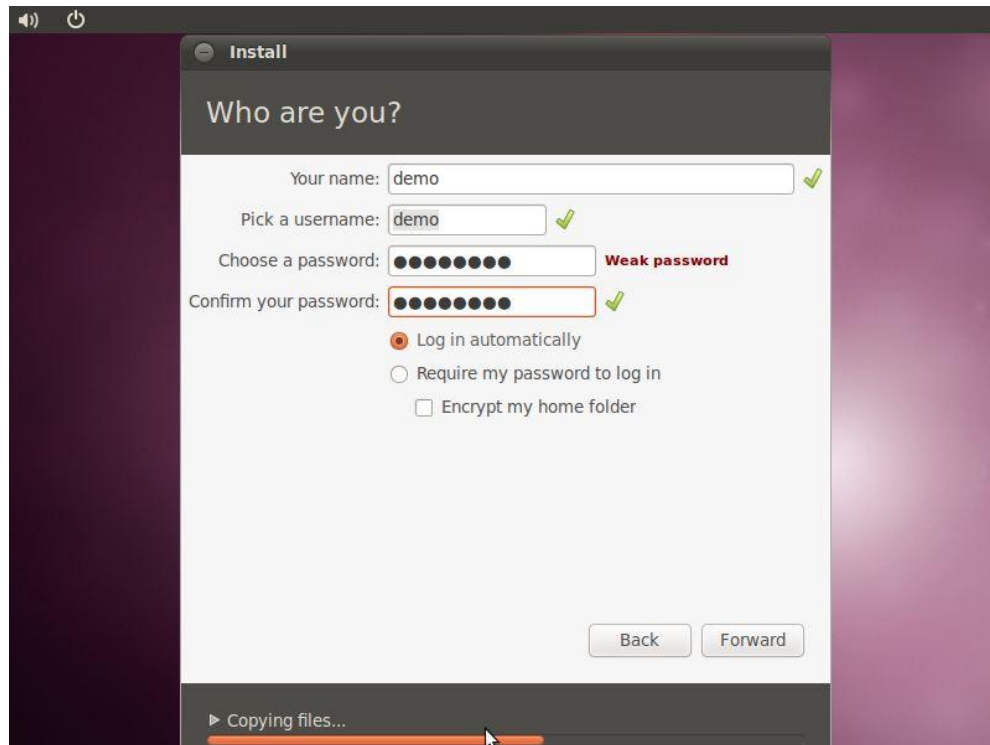


At this point it is necessary to decide how much of your Windows partition you wish to donate to the Ubuntu installation. Move the slider (positioned between the Windows and Ubuntu partitions in the diagram) until the Ubuntu partition allocation is a size you are comfortable with. As mentioned previously, at least 8 GB should be allocated to Ubuntu if possible.

When you have selected the size of the Ubuntu partition, click the *Install Now* button to proceed with the installation. When the warning dialog appears read it carefully and click *Continue* if you are sure you wish to proceed.

5.2 Configuring Time Zone, User and Keyboard Information

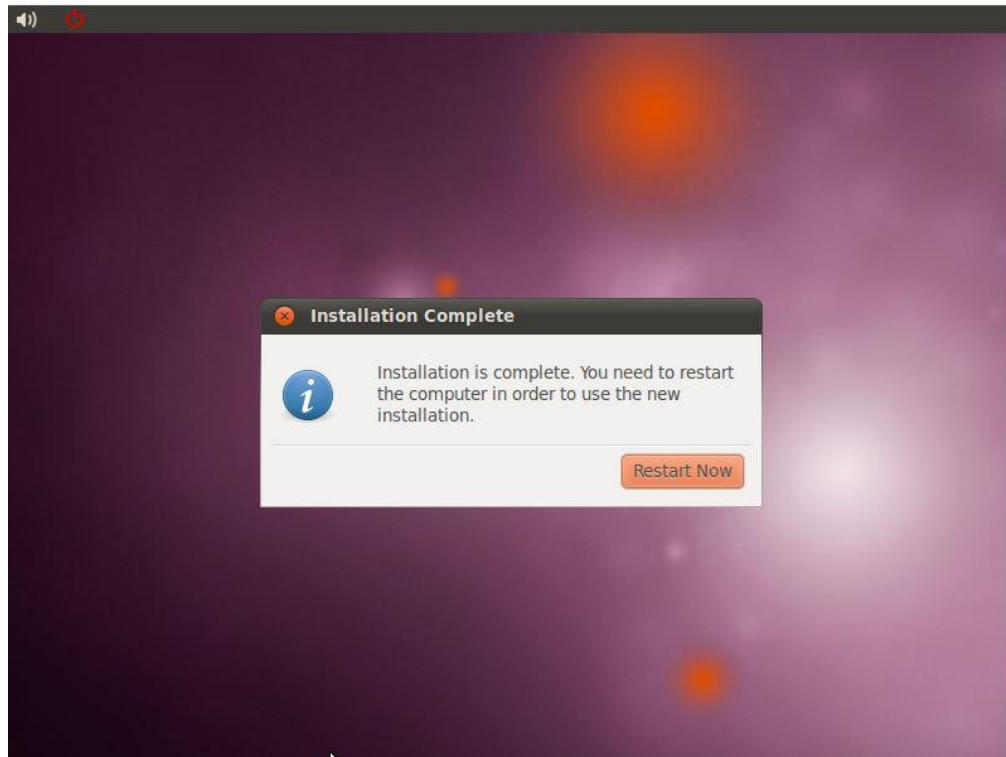
Whilst the installation is in progress, the installer will ask for information about your geographic location in order to configure Timezone settings, your keyboard language configuration, and a user name and password for the first account on the system. The account configuration screen also provides the option to encrypt your home folder to increase the security of your files and data:



The option is also provided to dictate whether the password must be specified each time the user wishes to log into the system. By default, each time Ubuntu starts a login screen will be presented seeking username and password credentials. If you are the sole user of the system and would like to bypass this screen and be logged in automatically each time the system boots, be sure to set the *Log in automatically* checkbox before proceeding.

Once all the questions have been answered, the installer will simply proceed with the installation. Depending on the speed of your system this process can take some time.

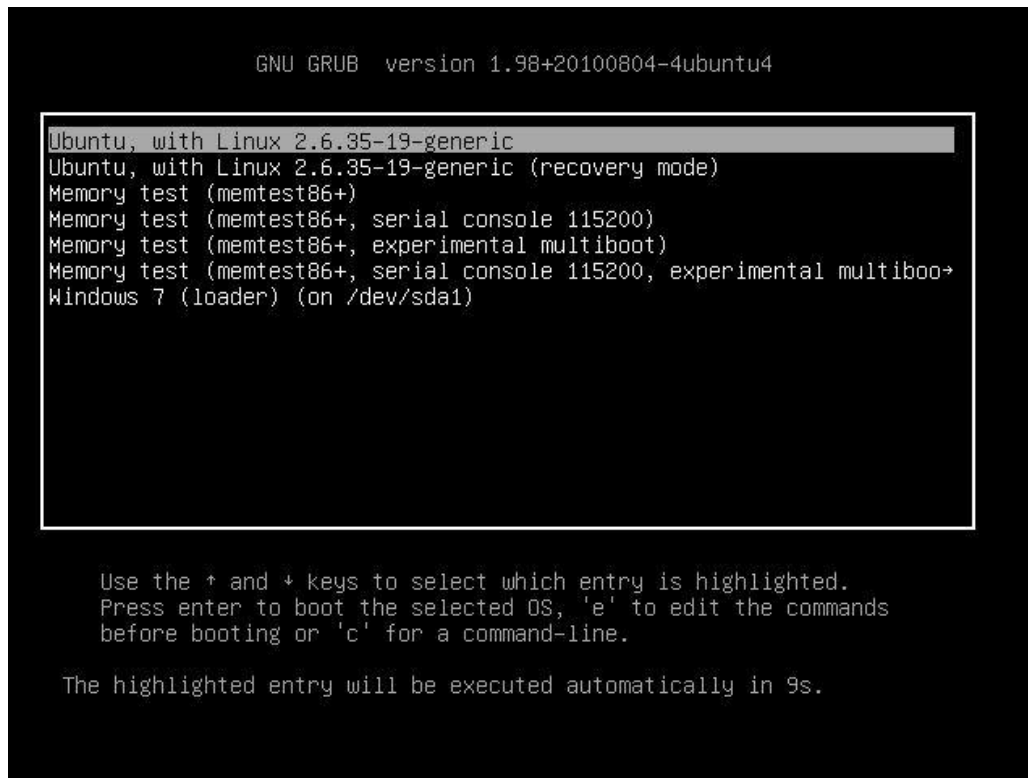
When the installation is complete, the following dialog will appear to inform you the system is ready to be restarted.



When you are ready to reboot, press the *Restart now* button. The system will take a few moments to shut down. The installer will prompt you to remove the installation media. At this point remove the CDROM or USB flash drive (depending on which you used to perform the installation) and press the *Enter* key to proceed.

5.3 Booting Ubuntu for the First Time

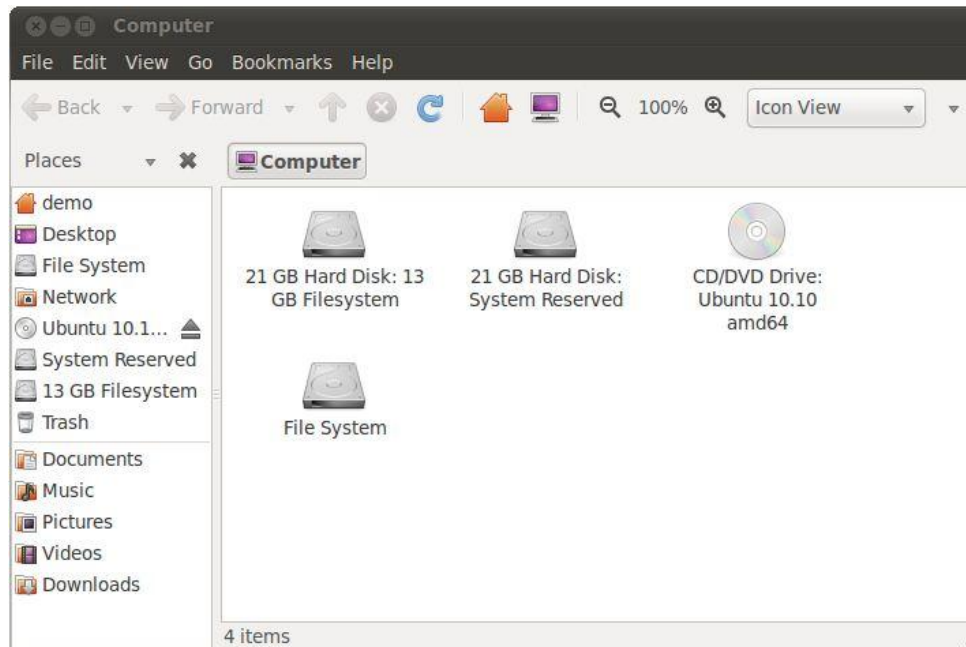
When the system reboots the screen below will appear providing the option to boot either Windows or Ubuntu:



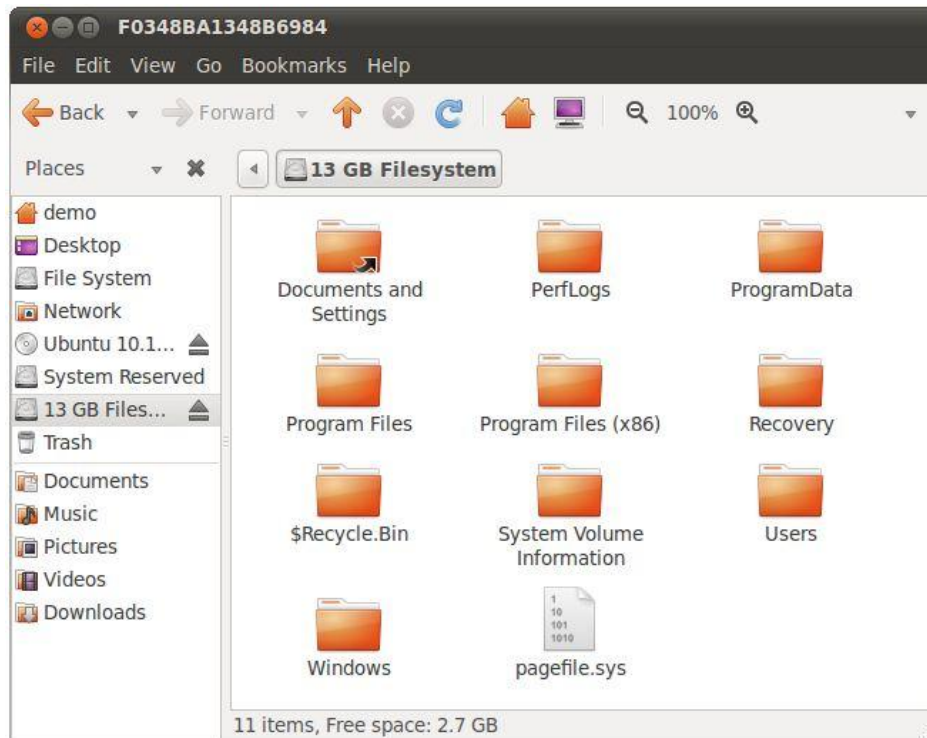
Press *Enter* to boot Ubuntu. If you wish to boot Windows use the keyboard arrow keys to select the Windows option. If you choose to boot Ubuntu the operating system will load and the Ubuntu login screen will appear (unless the automatic login option was selected). Enter the user name and password you set up during the installation process and you will be logged into the Ubuntu Desktop environment.

5.4 Accessing the Windows Partition from Ubuntu

As previously mentioned, Ubuntu provides access to the files and folders stored on the Windows partition of a dual boot configuration. These can be most easily accessed using the desktop file manager tool. From the Ubuntu desktop, select the *Computer* item from the *Places* menu to display the devices attached to the system:



In the above illustration, the visual representation of the system shows a *13 GB Filesystem partition* on the 21GB hard disk drive representing the files and data partition of the Windows system, a *System Reserved* partition which, in this instance, represents the boot partition for Windows 7 and, finally, the *File System*. The *File System* icon represents the Ubuntu partition of the disk. To access the Windows partition, therefore, simply double click on the *13 GB Filesystem* icon to display the contents of the top level of the Windows partition:



In order to provide access to the Windows partition, Ubuntu has essentially *mounted* it as a Linux folder. Once mounted, the filesystem also appears as an icon on the Ubuntu desktop. In order to unmount this filesystem when you have finished accessing the Windows files you needed, simply click on the eject style button next to the filesystem in the left hand pane of the file manager window, or right click on the desktop icon and select *Unmount* from the resulting menu.

Chapter 6. Installing Ubuntu on a Windows Disk with Wubi

As described in [How to Download and Try Ubuntu](#), there are a number of ways to run Ubuntu, including a number of options for running Ubuntu alongside a pre-existing Windows installation.

One such option, and the topic of this chapter, is to use the Windows Ubuntu Installer (Wubi) to install the Ubuntu distribution within a folder on a Windows disk from where it may subsequently be started using a dual boot configuration.

6.1 What is Wubi?

The Windows Ubuntu Installer (Wubi) allows Ubuntu to be installed within a folder of a Windows file system. An option to boot Ubuntu is then added to the Windows boot menu giving the user the ability to boot either into Windows or Ubuntu when the system starts up. In essence, Wubi allows a Windows/Ubuntu dual boot configuration to be set up without the need to reduce the size of a Windows partition and create new Linux partitions to accommodate the Ubuntu installation.

Note that Wubi downloads the Ubuntu installation packages over the internet during the installation process. The target Windows system must, therefore, have an internet connection (preferably broadband given that the download is approximately 700MB in size).

6.2 Downloading Wubi

Wubi consists of a small installer executable which must be downloaded onto the target Windows system. This file can be downloaded from the download page of the Ubuntu web site and may be listed as *Windows Installer* or *Windows Installer for Ubuntu*.

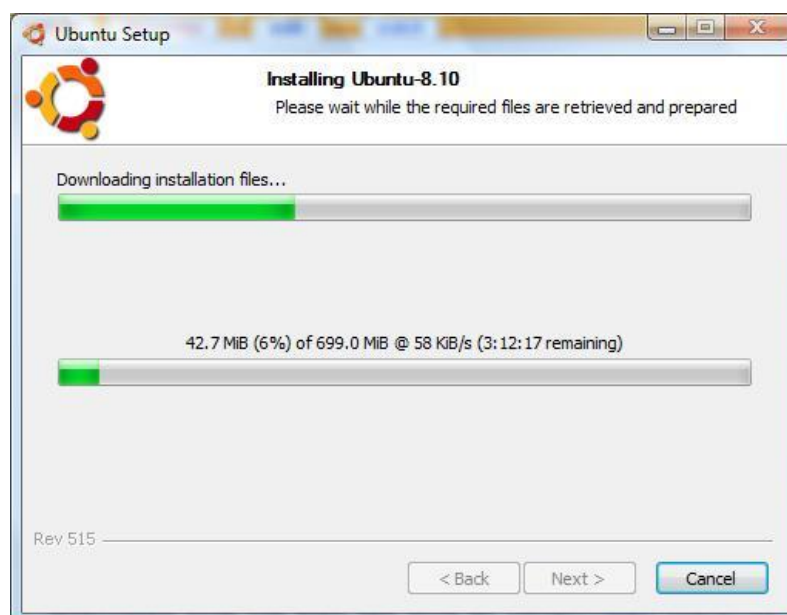
6.3 Starting the Wubi Installer

Once the Wubi installer has been downloaded, navigate to the location to which it was downloaded using Windows Explorer and double click on it to run it. Once invoked, the initial screen will appear as illustrated in the following figure:



From this screen, select the destination Windows disk drive, the amount of disk space on that drive to be allocated to Ubuntu (a minimum of 8GB is recommended), and a suitable user name and password to be used to gain access to Ubuntu once the installation is complete. In addition, specify a language other than English if necessary and choose a desktop environment (unless you have any objection to the default GNOME desktop, which is covered in this book, this option should be left unchanged).

Once the settings are configured, click on *Install* to initiate the download process. The following screen will subsequently appear as Wubi downloads the Ubuntu distribution over the internet:

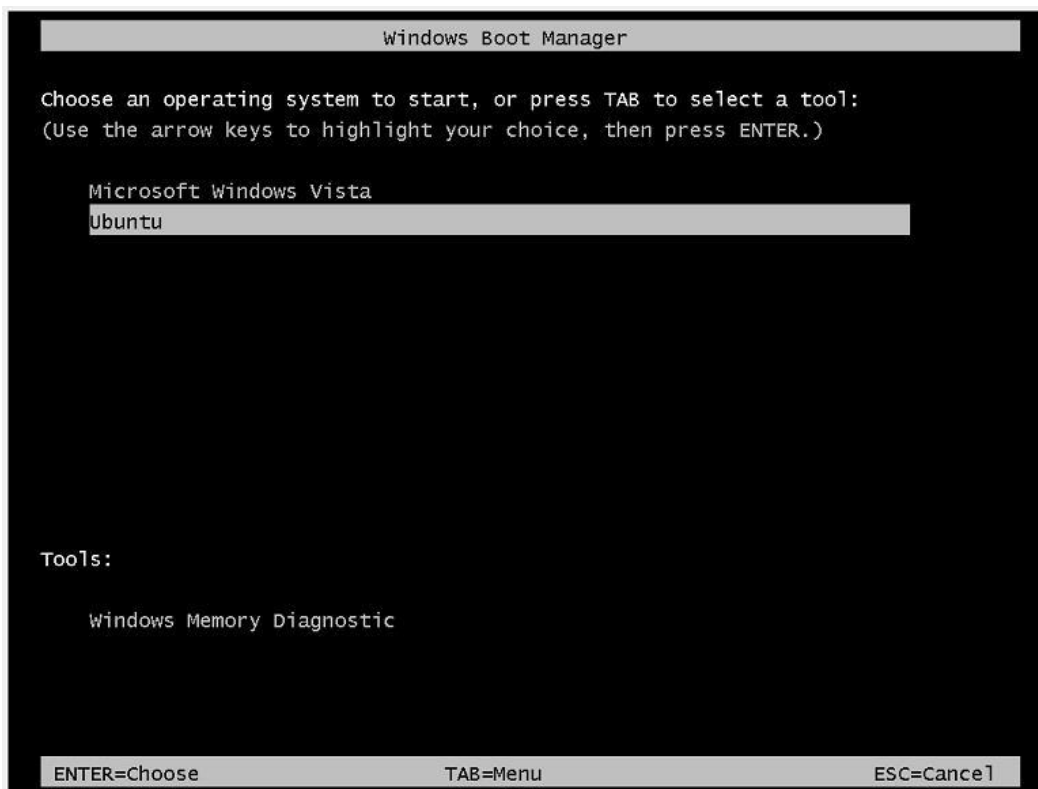


As previously mentioned, the download is approximately 700MB in size so may take some time to complete depending on the speed of the internet connection. During the download process, Wubi will install a number of Ubuntu distribution files in the `\ubuntu` folder of the designated Windows disk drive together with two additional files named *wubldr* and *wubldr.mbr*.

Once the download is complete, the setup program will report that the system needs to be rebooted to complete the Ubuntu installation. This may be performed either now or at a later and more convenient time.

6.4 Completing the Ubuntu Installation

Once the Wubi download process is complete and the system is restarted, Windows will present a boot menu providing the option to boot into either the original Windows system or the Ubuntu system installed by Wubi. A typical boot menu is illustrated in the following figure:



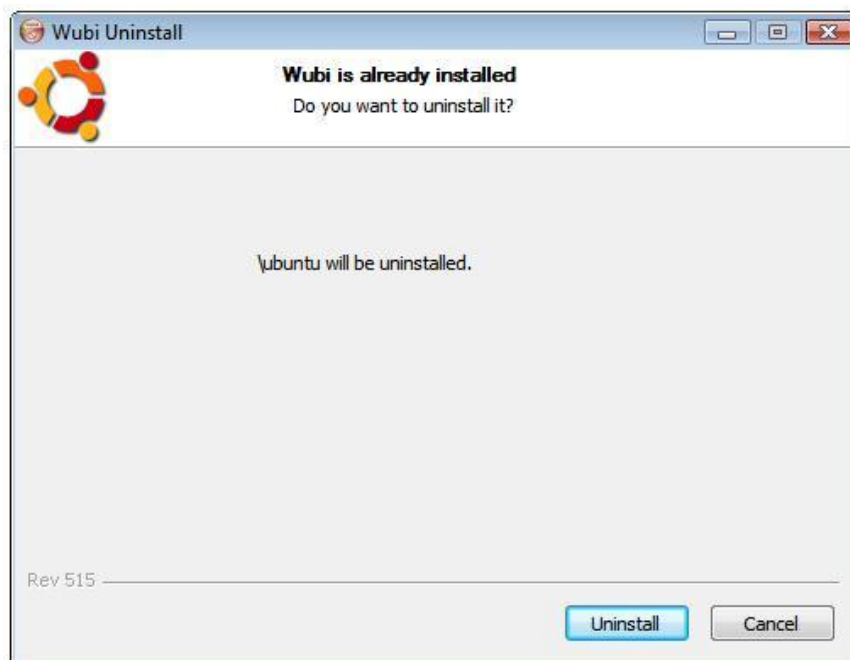
Selecting *Ubuntu* from the menu and pressing the Enter key will start the Ubuntu boot process. If this is the first time that the Ubuntu installation has been started the system will perform a number of tasks to complete the operating system installation process. This process may take some time depending on system performance, but is only necessary the first time the Ubuntu system is started. Subsequent start up times will be significantly reduced. Once the installation is complete, Ubuntu will reboot the system. If the system is unattended at this time, it is likely that the boot menu will default to booting Windows after a short timeout.

6.5 Starting the Ubuntu System

Once the installation is complete, restart the computer and select *Ubuntu* from the boot menu. Once Ubuntu has started, log into the desktop environment using the user name and password specified during the initial Wubi setup configuration.

6.6 Removing Ubuntu

The Ubuntu installation can be removed at any time by booting Windows, navigating to the `\ubuntu` folder on the disk drive onto which Ubuntu was installed and double clicking on the *Uninstall-Ubuntu* executable. The uninstaller will launch and seek confirmation that Ubuntu is to be removed from the system as illustrated below:



Clicking on the *Uninstall* button will initiate the removal process.

Chapter 7. Allocating a Windows Partition to Ubuntu

One of the most common configurations for a new Ubuntu installation involves reducing the size of the pre-existing Windows partition on the disk drive and using the resulting space to install Ubuntu. This so called "dual boot" configuration allows the user to have both operating systems installed on the disk drive with the option to boot one or the other when the system is powered on. Performing this type of installation was covered in [Installing Ubuntu on a Windows System \(Dual booting\)](#).

This chapter is intended for users who have decided they like Ubuntu enough to delete Windows entirely from the disk, and use the resulting space for Linux. In this chapter, therefore, we will work through this process step by step.

7.1 Deleting the Windows Partition from the Disk

The first step in freeing up the Windows partition for use by Linux is to delete it. The Ubuntu distribution includes a tool called *GParted* which is a graphical disk partitioning tool. This tool is not, however, typically installed by default. The tool may be installed either from the command prompt in a terminal window or using the *Ubuntu Software Center*.

To install using the Ubuntu Software Center, select the *Applications -> Ubuntu Software Center* desktop menu. The software center application will subsequently load and appear as outlined in the following figure:

