**Choosing a Linux Distribution**

In the previous lesson, we learned about the Linux kernel which powers millions of devices a day. One thing before we move forward, the term Linux is actually quite a misnomer, since it actually refers to the Linux kernel. However, many distributions use the Linux kernel so therefore are commonly known as Linux operating systems.

A Linux system is divided into three main parts:

* Hardware - This includes all the hardware that your system runs on as well as memory, CPU, disks, etc.
* Linux Kernel - As we discussed above, the kernel is the core of the operating system. It manages the hardware and tells it how to interact with the system.
* User Space - This is where users like yourself will be directly interacting with the system.

So the first step we’ll need to take is to install Linux on your machine. You have many options to choose from and this course will help inform you and get you started on choosing a Linux distribution.

There are many Linux distributions to choose from, we’ll just go over the most popular options.

1. **Debian**

**Overview**  
Debian is an operating system composed entirely of free and open-source software. It’s widely known and has been in development for over 20 years. There are three branches that you can use, Stable, Testing and Unstable.

Stable is an overall good branch to be on. Testing and Unstable are rolling releases. This means that any incremental changes in those branches will eventually become Stable. For example, if you wanted to get to the next update from Windows XP to Windows 10, you’ll have to do a complete Windows 10 installation. However being on the Testing release, you’ll automatically get updates until it becomes the next operating system release without having to do a full installation.

**Package Management**  
Debian also uses Debian package management tools. Every Linux distribution installs and manages packages differently and they use different package management tools. We’ll get more into this in a later course.

**Configurability**  
Debian may not get the latest updates, but it's extremely stable. If you want a good "core" operating system, this is the one for you.

**Uses**  
Debian is an overall great operating system for any platform.

1. **Red Hat Enterprise Linux**

**Overview**  
Red Hat Enterprise Linux commonly referred to as RHEL is developed by Red Hat. RHEL has strict rules to restrict free re-distribution although it still provides source code for free.

**Package Management**  
RHEL uses a different package manager than Debian, RPM package manager, which we will eventually learn about as well.

**Configurability**  
RHEL-based operating systems will differ slightly from the Debian-based operating systems, most noticeably in package management. If you decide to go with RHEL it’s probably best if you know you’ll be working with it.

**Uses**  
As described by the name it's mostly used in enterprise, so if you need a solid server OS this would be a good one.

1. **Ubuntu**

**Overview**  
One of the most popular Linux distributions for personal machines is Ubuntu. Ubuntu also releases its own desktop environment manager Unity by default.

**Package Management**  
Ubuntu is a Debian-based operating system developed by Canonical. So it uses a core Debian package management system.

**Configurability**  
Ubuntu is a great choice for a beginner who wants to get into Linux. Ubuntu offers ease of use and a great user interface experience that has led to its wide adoption. It’s widely used and supported and is most like other operating systems like OSX and Windows in terms of usability.

**Uses**  
Great for any platform, desktop, laptop and server.

1. **Fedora**

**Overview**  
Backed by Red Hat, the Fedora Project is community driven containing open-source and free software. Red Hat Enterprise Linux branches off Fedora, so think of Fedora as an upstream RHEL operating system. Eventually RHEL will get updates from Fedora after thorough testing and quality assurance. Think of Fedora as an Ubuntu equivalent that uses a Red Hat backend instead of Debian.

**Package Management**

Uses Red Hat package manager.

**Configurability**  
If you want to use a Red Hat based operating system, this is a user friendly version.

**Uses**  
Fedora is great if you want a Red Hat based operating system without the price tag. Recommended for desktop and laptop.

1. **Linux Mint**

**Overview**  
Linux Mint is based off of Ubuntu. It uses Ubuntu’s software repositories so the same packages are available on both distributions. If you prefer a lighter distro than Ubuntu, you may be interested in Linux Mint.

**Package Management**  
Since Linux Mint is Ubuntu based, it uses the Debian package manager.

**Configurability**  
Great user interface, great for beginners and less bloated than Ubuntu. In this course, I’ll be using Linux Mint, but any other distribution can be used.

**Uses**  
Great for desktop and laptop.

1. **Gentoo**

**Overview**  
Gentoo offers ridiculous flexibility with the operating system at a price. It’s made for advanced users who don’t mind getting their hands dirty with the system.

**Package Management**  
Gentoo uses its own package management, Portage. The Portage package management is very modular and easy to maintain, which plays a big part in the operating system as a whole being very flexible.

**Configurability**  
If you’re just getting started with Linux and want to take a more difficult path, I’d choose Gentoo or Arch Linux as your distribution.

**Uses**  
Great for desktop and laptop.

1. **Arch Linux**

**Overview**  
Arch is a lightweight and flexible Linux distribution driven 100% by the community. Similar to Debian, Arch uses a rolling release model so incremental updates eventually become the Stable release. You really need to get your hands dirty to understand the system and its functions, but in turn you get complete and total control of your system.

**Package Management**  
It uses its own package manager, Pacman, to install, update and manage packages.

**Configurability**  
If you want a lightweight operating system and really want to understand Linux use Arch! There’s a bit of a learning curve, but for the hardcore Linux users, this is a great choice.

**Uses**  
Great for desktop and laptop. If you also have a small device such as a Raspberry Pi and need to stick a lightweight OS on it, you can’t go wrong with Arch.

1. **openSUSE**

**Overview**  
openSUSE Linux is created by the openSUSE Project. A community that promotes the use of Linux everywhere, working together in an open, transparent and friendly manner as part of the worldwide Free and Open Source Software community. openSUSE is the second oldest still running Linux Distributions and shares the base system with SUSE's award-winning SUSE Linux Enterprise products.

**Package Management**  
Uses RPM package manager.

**Configurability**  
openSUSE is a great choice for a new Linux user. It offers an easy to use graphical installer/administration application ([YaST](http://yast.github.io/)) and a tiday base system, easy to tinker with. openSUSE includes everything you need to enjoy the Internet worry free of viruses/spy-ware and to live out your creativity, be it with your photos, videos, music or code.

**Uses**  
openSUSE Leap is fully capable of being used on a desktop PC and laptop.