# Introduction to Linux

Advanced Programming

# What is linux?

Free, Low pc requirement, Stable, Source code , Secure

Just like Windows, iOS, and Mac OS, Linux is an operating system. In fact, one of the most popular platforms on the planet, Android, is powered by the Linux operating system. An operating system is software that manages all of the hardware resources associated with your desktop or laptop. To put it simply, the operating system manages the communication between your software and your hardware. Without the operating system (OS), the software wouldn't function.

# Linus Benedict Torvalds

born December 28, 1969, Helsinki, Finland

- Finnish-American software engineer who is the creator and, historically, the main developer of the Linux kernel, used by Linux distributions and other operating systems such as Android. He also created the distributed version control system Git.

- He created Linux because he didn't have money for UNIX. In early 1991, unhappy with MS-DOS and MINIX, Torvalds wanted to buy a UNIX system. Luckily for us, he didn't have enough money. So he decided to make his own clone of UNIX, from scratch

# install linux methods

- Virtual machine
- Dual boot

# Virtual Machine

- **What Is a Virtual Machine?** A virtual machine (VM) is the virtualization/emulation of a computer system. Most people will use VM software to create and manage multiple VMs on their local PCs.

- **How do virtual machines work?** When you create VMs, you should install the VM software first. And then, you can use the VM software to create VMs. The VM you created will be stored as files. You don't need to create a new partition for the VM. You install operating systems on the VMs and run these systems via the VM software. In general, the VM software allows you to run multiple systems at the same time. And the OS switch is very easy.

- **How to create a virtual machine?** To create a virtual machine, you should use VM software. Please choose the best VM software and then you can refer to its tutorial to create VMs.

# Suggestions :


# Dual Boot

- **What Is Dual Booting?** As we all know, the operating system is installed on the C drive of the PC. In general, one PC has only one OS. However, through the dual-boot method, you can install two operating systems on the PC.

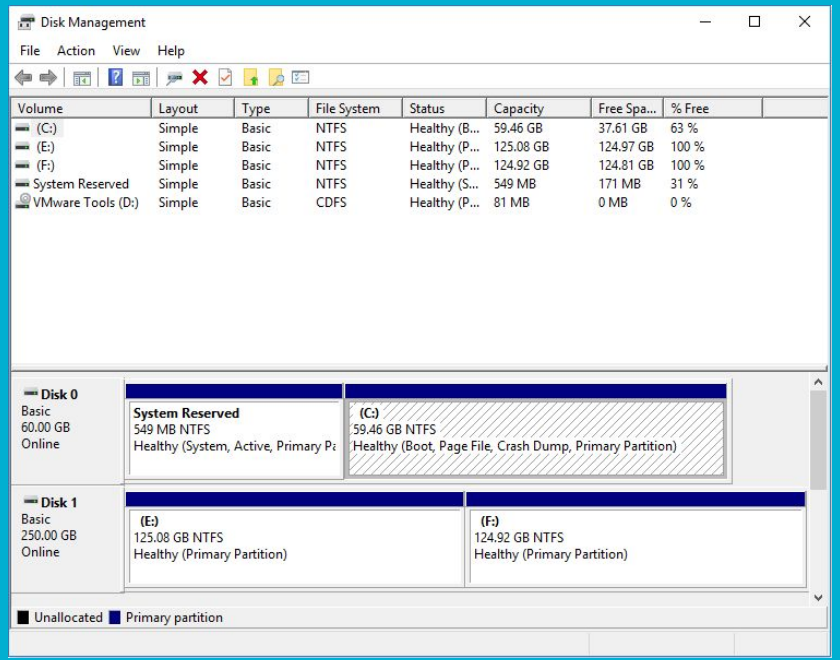
- **How does dual boot work?** When dual systems are installed, the two systems are installed in different partitions, and the system installed later will not overwrite the previous system. Each individual system has its own partition format, which will not cause conflicts.

- **Is dual booting safe?** When you do dual booting, it means that you will install a second OS on the hard drive. this process will write data on the hard drive and the system partition. If your operation is improper, the existing system may become unbootable. In addition, both of the two systems are the real OS. It means that what you do in them will affect the whole PC. Therefore, if you get virus in one system, the whole PC may be infected with the virus.

# Are there popular dual boot partition schemes?

In general, when you install an OS, it will require at least 2 partitions. One partition is the active system partition, which is very small (around 500MB) and stores data used for loading the OS. Another partition is the boot partition, which stores all data used for running the OS. This partition is large and some people may also use it to store personal apps and files.

In Windows, the active system partition is usually called System Reserved or EFI partition. The boot partition is the C drive. In Linux, the active system partition is usually mounted under the /boot directory and the boot partition is usually mounted under the root directory (/).



# Are there popular dual boot partition schemes?

If there is only one hard drive on the PC and you want to make a dual boot, you should make at least 3 partitions on the hard drive. The first partition is used as the shared system partition for the 2 operating systems, the second partition is used to store the 1st system, and the third partition is used to store the 2nd system.

However, if your PC has 2 disks, you can adopt a different dual-boot scheme. You should install an OS on a disk and then install the second OS on another disk. In addition, you can also create a system partition for each of the operating systems. In this case, if you want to switch to another OS, you should change the BIOS.

The two schemes have their advantages. For example, the first scheme makes the OS switch easy, while the second scheme provides stability. In the first scheme, if some errors happen to the system partition, the 2 systems will fail to boot. But the second scheme can avoid this case.

# PC Performance

In dual booting, the system is running on the real PC, and only one system is running at a time, so the speed of the system is fast. However, if you use the virtual machine, your PC will run the host OS, the VM software, and the guest OS at the same time. Therefore, the PC performance is affected greatly.

# Which one?

- Do you have a powerful computer?
- Do you want to run resource-intensive programs on the second OS?

# Terminal

- directories
- pwd
- cd
- cat
- cp
- mv
- mkdir
- rmdir
- chmod
- apt-get
- dpkg

# Links

Install vmware :

https://www.makeuseof.com/tag/install-linux-windows-vmware-virtual-machine/

Dual boot :

https://itsfoss.com/install-ubuntu-1404-dual-boot-mode-windows-8-81-uefi/