**Installing a \*NIX [Linux/Unix] Distribution on your PC**

*Disclaimer: This is a general guide aimed at helping users install a \*NIX distribtion on their system, do so at your own discretion. Feel free to contact us on the PESITSouth ACM Student Chapter Group on Facebook [https://www.facebook.com/groups/pesitacm/] if you face any problems.*

**Know Thy System**

1. We're using Ubuntu 16.04 for our installation today. Other distributions can be installed in a similar manner.

2. Know your system. What are its specifications, how the hard disk is partitioned, which partition is active and is used for booting. [Yes, we can help you figure that out, too. Just ask on the Facebook group!]

Firstly, before installing Linux, one should know the different ways an operating system (OS) boots from a drive. There are two ways by which an OS can boot - BIOS an UEFI.

* BIOS: This is the Basic Input Output System of your PC.BIOS (basic input/output system) is the program a personal computer's microprocessor uses to get the computer system started after you turn it on. It also manages data flow between the computer's operating system and attached devices such as the hard disk, video adapter, keyboard, mouse and printer. This mode is also called Legacy mode.
* UEFI: Unified Extensible Firmware Interface (UEFI) is a specification for a software program that connects a computer's firmware to its OS. UEFI is expected to eventually replace BIOS. Like BIOS, UEFI is installed at the time of manufacturing and is the first program that runs when a computer is turned on. It checks to see what hardware components the computing device has, wakes the components up and hands them over to the operating system. The new specification addresses several limitations of BIOS, including restrictions on hard disk partition size and the amount of time BIOS takes to perform its tasks.

When you are going to use two OSes then we have to make sure that both the OSes are on the same type of booting method - that is either on BIOS or UEFI.

Boot into the BIOS/UEFI menu of your PC [Google it: “Boot into \*insert LAPTOP\_BRAND + MODEL\* BIOS/UEFI menu”] and check how your primary OS boots up. Usually that is done by pressing any of the function keys.

The below link will be useful to know how to boot into your UEFI/BIOS: http://www.makeuseof.com/tag/enter-bios-computer/

**Let’s Get Started**

Once that is determined the following steps will be helpful in the installation:

**1. Required Downloads and Writing to a Flash Drive**

* + Download a copy of Ubuntu 16.04 from http://www.ubuntu.com/download/desktop
  + Download Rufus from https://rufus.akeo.ie
  + Make sure there isn’t any important data on the flash drive as Rufus formats it to make a bootable USB for installation of Ubuntu.
  + In the device drop down menu, make sure you select the right flash drive.
  + Do not touch any other option as Rufus sets them to the defaults required for the booting from the USB.
  + In the "Create a bootable disk using" drop down menu, select ISO Image. Click on the Disc icon next to it and locate your ISO file of Ubuntu 16.04.
  + Click on Start and wait for about 5-10 minutes, till the bootable USB gets created
  + Please refer to Fig. 1 on the picture above.

**2. DISK PARTITIONING**

***\*This is one of the most crucial step during the installation.\****

* + On windows, go to the Disk Management utility and select which partition to shrink.
  + Note at least 25GB of space is required for Ubuntu.
  + Right Click on the partition and click on Shrink Volume.
  + Now enter the amount to be shrunk. For 25GB it amounts to 25,000MB.
  + Click on Shrink and you'll find that 25GB from that partition becomes unallocated.
  + Please refer to Fig. 2 and Fig. 3 on the picture above.

Now, reward yourself a cookie. The Windows part of the installation is done.

**3. INSTALLATION OF UBUNTU**

* + Boot into the USB by selecting the appropriate option and you'll land on this screen. Click on "Install Ubuntu"
  + In the "Preparing to install" screen, you can choose to install updates and 3rd party apps or it isn’t necessary.
  + Now is when the installation gets a slight bit complicated. On this "Installation type" screen, choose the "Something else" option and click "Install Now".
  + You'll reach a point where you'll be noticing all your partitions of your hard drive.
  + Now you have to choose the partition which says "Free space" and click on the '+'. Now, enter size as 2000 and click on "Primary". And in the "Use as" drop down menu, select "Swap Area".(Swap area is hard drive space that is reserved to act as extra RAM for when your computer needs more RAM than what is available.)
  + Now select the partition which says "Free space" again and click on the '+' again. Now let the size remain whatever it says, select "Primary" and in the "Use as" drop down menu select "Ext4 journaling File System". And in the "Mount Point" drop down menu, select "/" as the mount point.
  + Fig. 4 to Fig. 13 can be referred to for this. Fig. 7 and Fig. 8 show the bootloader options for BIOS(Legacy)/UEFI boot modes, which is covered in the following steps.

***\*\*\*\*NOW FOR THE IMPORTANT STEP. PLEASE NOTE THIS STEP CAN LITERALLY BREAK YOU APART IF NOT DONE PROPERLY\*\*\*\****

* + In the "Device for bootloader installation" drop down menu follow the below mentioned instructions.
  + If your system boots with the BIOS method aka Legacy Mode, select the Hard drive itself for the installation.
  + If your system boots with the UEFI method, select the partition which has the EFI File system.
  + Hit the “Install Now” button and it will ask you for the partitioning confirmation.

After this step, it is pretty much easy to figure out the steps for installation as the setup will ask about Time zones and User information.

After installation, wait for the system to reboot and you’ll be greeted with the GRUB bootloader screen. Where you can choose which OS to boot into.

Hence you have successfully made sure, you can use both Linux and Windows on the same system.