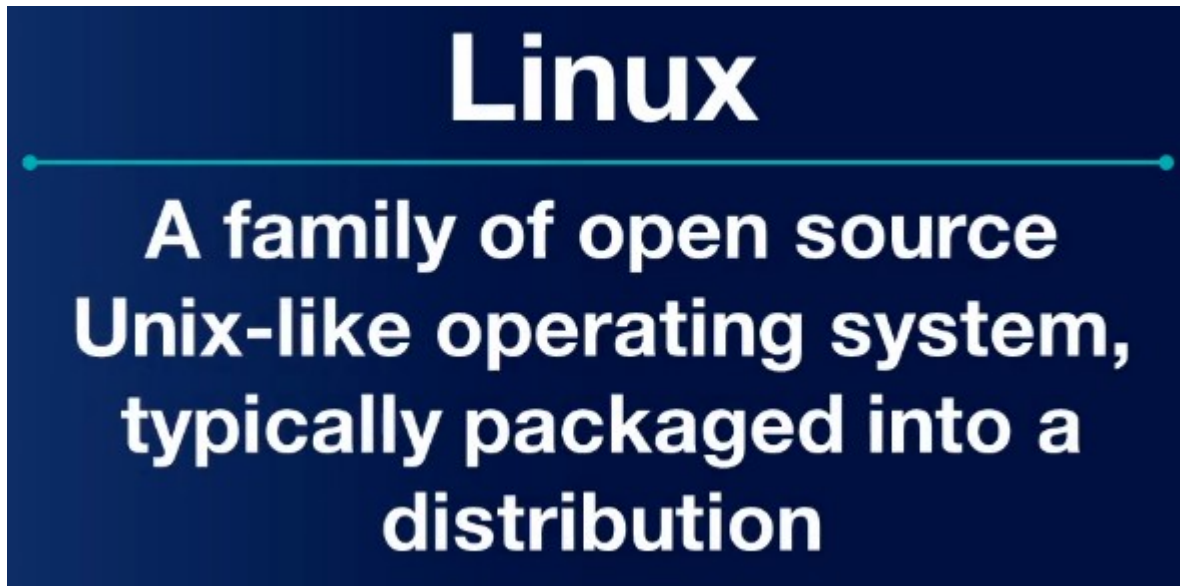


Basics

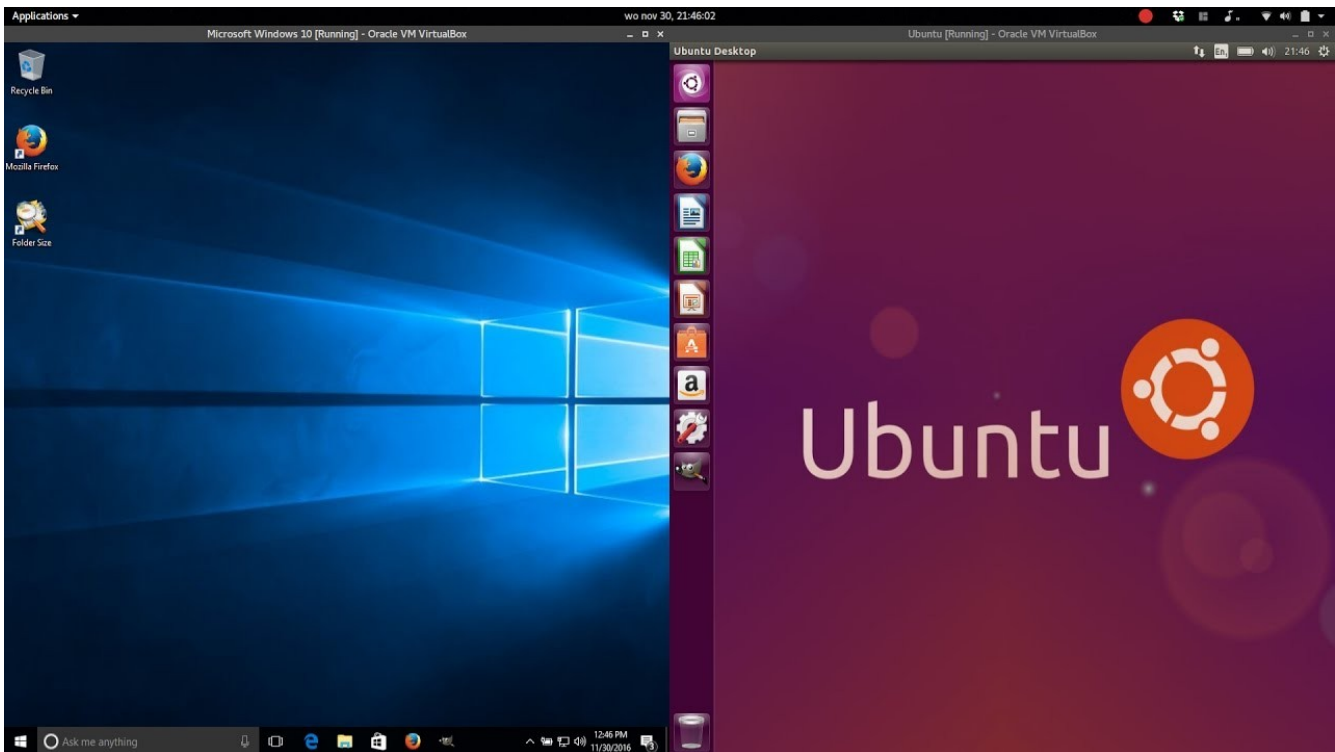
Linux is a family of freely available operating systems that are developed as a distribution. It has been the operating system of choice for most colleges and businesses due to its robustness and its extremely low cost of acquisition. Linux runs everything including your phone. If you have an iPhone, it runs Unix which is the predecessor of Linux and is essentially the same thing.



You may have heard of popular Linux distributions such as Ubuntu, Debian, and Fedora, but there are hundreds, if not thousands of others currently in development. To determine the distribution you're using execute the following command: `cat /etc/os-release`



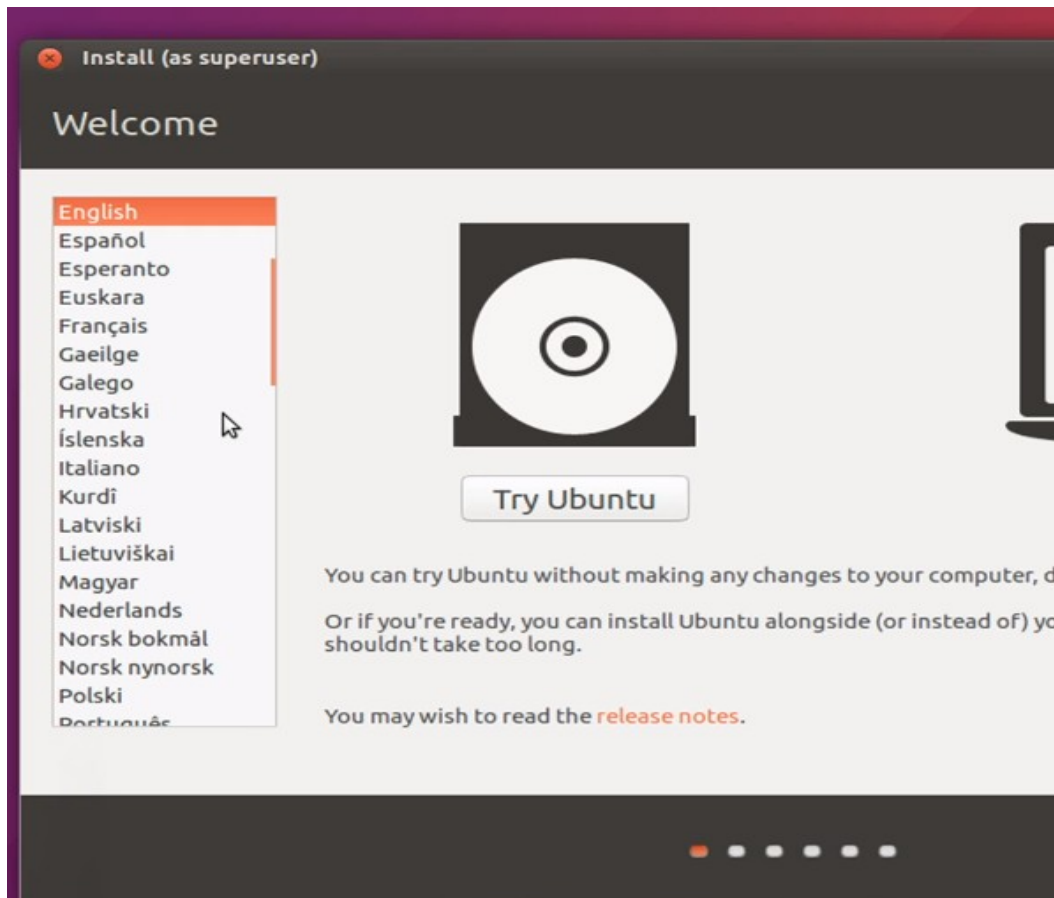
The popularity of Linux is mainly due to it being Open Source Software, which means its free to download, modify, and redistribute. Some Linux distributions, or distros, are similar to Windows 10 as they offer a GUI (Graphic User Interface). However, many distros will ONLY include a terminal to run your command line.



```
dominickhrndz314@cloudshell:/$ ls -l
total 14748
lrwxrwxrwx 1 root root 7 Jan 1 1970 bin -> usr/bin
drwxr-xr-x 2 root root 4096 Jan 1 1970 boot
drwxr-xr-x 10 root root 1300 Mar 18 16:07 dev
drwxr-xr-x 1 root root 4096 Mar 18 16:07 etc
-rw-r--r-- 1 root root 1908226 Feb 22 2021 get-pip.py
drwxr-xr-x 1 root root 4096 Mar 18 16:07 google
drwxr-xr-x 4 root root 4096 Mar 2 20:12 home
-rw-r--r-- 1 root root 3535 Mar 10 08:44 install_kustomize.sh
lrwxrwxrwx 1 root root 7 Jan 1 1970 lib -> usr/lib
lrwxrwxrwx 1 root root 9 Jan 1 1970 lib32 -> usr/lib32
lrwxrwxrwx 1 root root 9 Jan 1 1970 lib64 -> usr/lib64
drwxr-xr-x 14 root root 4096 Mar 10 08:11 libgit2
lrwxrwxrwx 1 root root 10 Jan 1 1970 libx32 -> usr/libx32
drwxr-xr-x 2 3434 3434 4096 Mar 10 08:41 linux-amd64
drwxr-xr-x 2 root root 4096 Jan 1 1970 media
drwxr-xr-x 2 root root 4096 Jan 1 1970 mnt
-rw-r--r-- 1 root root 35592 Apr 12 2021 mysql-apt-config_0.8.17-1_all.deb
drwxr-xr-x 1 root root 4096 Mar 18 16:07 opt
-rw-r--r-- 1 root root 3134 Aug 16 2021 packages-microsoft-prod.deb
dr-xr-xr-x 211 root root 0 Mar 18 16:07 proc
drwxrwxrwx 2 root root 4096 Mar 18 16:07 [redacted]
drwxr-xr-x 1 root root 4096 Mar 18 16:07 run
lrwxrwxrwx 1 root root 8 Jan 1 1970/sbin -> usr/sbin
drwxr-xr-x 2 root root 4096 Jan 1 1970 srv
dr-xr-xr-x 12 root root 0 Mar 18 16:07 sys
-rw-r----- 1 150328 89939 39 Oct 15 2020 tinkey.bat
-r-xr-x--- 1 150328 89939 13060053 Oct 15 2020 tinkey_deploy.jar
drwxrwxrwt 1 root root 4096 Mar 18 16:07 [redacted]
drwxr-xr-x 1 root root 4096 Mar 10 08:03 usr
drwxr-xr-x 1 root root 4096 Mar 18 16:07 var
dominickhrndz314@cloudshell:/$
```

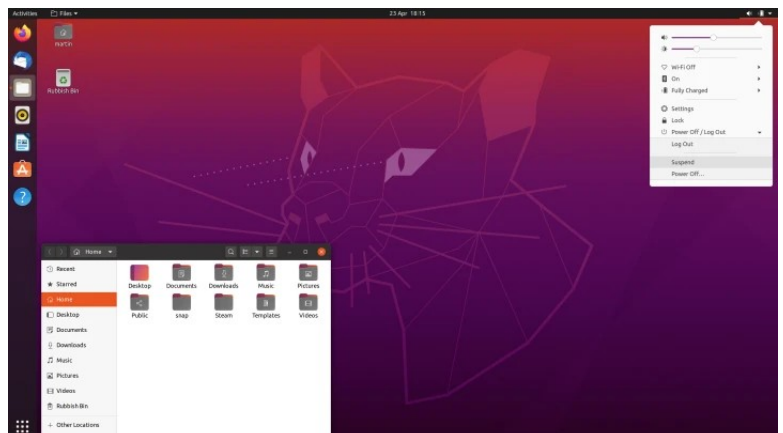
If you are new to Linux, it is highly advised that you either install WSL into Vscode or you deploy your own virtual machine running Ubuntu Linux. If you are on Mac, you can simply use your terminal to run Linux commands.

The core of any Linux distro is the **Kernel**. The kernel is a low-level computer program that serves as a bridge between the user and computer resources. Typically, Linux distros are available for download and can be burned to a CD or USB, then installed onto your computer. If you're using AWS or GCP, compute instances can run Linux directly.



If you would like to install Linux on your Windows machine, you will need to follow the instruction in this link: <https://www.lifewire.com/install-ubuntu-linux-windows-10-steps-2202108>

Doing so will allow you to run Linux with a desktop similar to what you would expect from Windows.



As mentioned everything in the world runs on some form of Linux. Phones, TVs, smart devices, vehicles, web site, etc. Some Linux distributions are specific to the development of these consumer products. For example a distro like Kali Linux is specifically built with a suite of cyber security tools used by pen-testers and cyber security analysts.

Beginner-friendly	Intermediate	Hard mode
		
 Ubuntu Based on Debian	 Garuda Linux Based on Arch	 Arch [Independent] – DIY
 Pop!_OS Based on Ubuntu	 EndeavourOS Based on Arch	 Gentoo [Independent] – DIY
 elementary OS Based on Ubuntu (LTS)	 Manjaro Based on Arch	 Slackware [Independent]
 Mint Based on Ubuntu	 MX Linux Based on Debian	 Linux From Scratch [Independent] – DIY
 Zorin Based on Ubuntu	 Fedora Based on Red Hat	 Qubes OS Based on Fedora – Security
 Solus [Independent]	 OpenSUSE [Independent]	 NixOS [Independent] – DIY

If you're installing Linux on a new laptop or your installing on a virtual machine from your existing computer, you have to ensure the following requirements:

- **2 GB RAM**
- **Dual Core Processor (2GHz Speed)**
- **20 GB free hard disk space**
- **Bootable Media like USB or DVD**