

# Linux Fundamentals – Part 1

Setup and the stuff you didn't know you know ...

# Objective of today's byte

## Installation of a Virtual Machine and Linux distribution

First step to understanding Linux, is to quite simply install it! We will cover:

1. Basic installation on a windows based PC of a Virtual Machine (VM)
2. Installation of a Linux distribution
3. Startup of the Linux distribution ready for use

## Observation

Observation and navigation of the Graphical user Interface (GUI) of different Linux distributions:

1. Understanding the layout
2. Identify icons
3. Identify Programs
4. Link known windows based programs to similar Linux programs

## Application

Use common Linux programs:

1. Use common Linux programs to
  - Create a document
  - Create a Picture
  - Use the web and search

# The Why

This one is simple, the IT world is ever changing and ever growing. With the exception of Skynet becoming active (joke) humans and the interactions they have with software will continually evolve. The technology we have in our pocket is vastly superior to the technological age of 20 years ago. And if that phone in your pocket is "obsolete" in a year or two, we as IT professionals must keep up with the current advances or strive to push it forward.

The basics of this is awareness and understanding. Maybe before today you didn't know even what Linux was, believing that there were only two, Windows and Apple OS. Hopefully by the end of this byte, you will have a rough awareness of another system, and be surprised at what you already new about it.

# Installation of a Virtual Machine and Linux distribution

Linux distributions are wide and varied. Most have specific purposes or reasons for existence. Microsoft Windows is an internationally recognised business brand that you will more than likely see on most office computers. But did you know that the servers controlling it (sometimes called the “back end”) could very well be Linux based? This is primarily due to the simplicity of action and processing of Linux.

Now we could wipe your current computer and install a fresh version of Linux on there, however it is probably counter intuitive as you may need your current operating software for your daily tasks. In this instance there is something called a Virtual Machine. What this does is simulate a computer in a computer. It is handy for small tasks, where you don't want a full installation or when you may be testing capabilities and dont want to “brick” your computer.

An important thing to note about a VM is that it shares the resources of your current computer. For example if your computer specs are 8gb of RAM, and you assign 4gb to the VM, while it is in operation your original Windows Operating Software (OS) will have only half the capacity of memory available. This goes for all shared resources, like CPU power and such. Consequently if you assign all the resources to the VM, you will probably have a bad day.

One of the greatest things about VM software is that it allows you to try any version of OS and pull them up for use at any time.

## Step 1 – Installation of Virtual Machine Software

**Overview.** You will need to download some VM software such as VirtualBox to use a VM.

Virtual box can be downloaded from [www.virtualbox.org](http://www.virtualbox.org)

**Download steps.** For ease of navigation follow the below help:

- **Navigate** to the downloads and select the windows hosts package if you are on a windows computer or OS X if you are using mac.
- **Install:** perform installation of Virtual box as per normal package installation for your system

**Endstate.** Your virtual machine should be ready to accept an alternative operating software.

## Step 2 – Getting a virtual machine ISO

**Overview.** In days gone by you would get an OS on a CD, and although this was a great way to get something sometimes people would like to have a backup of this. One option was to make another physical copy of the CD, another was to perform a digital backup which was called an ISO. This is due to it being based on the ISO-9660 digital backup standard.

Nowdays it is common to have an ISO of large files for backup, and in this instance is what we sill use to install on our VM. For this exercise we will be using Parrot Security OS. Chosen for no particular reason that it looks nice and may come in use on your journey with other WYWM courses.

**Download steps.** For ease of navigation follow the below help:

- **Navigate** to the downloads <https://parrotsec.org/> , go to the downloads page and download “Parrot Security MATE ISO (default)”
- **Note:** The download size of this file is approximately 4gb, so be aware.

**Endstate.** You will have acquired an ISO for a Linux distribution

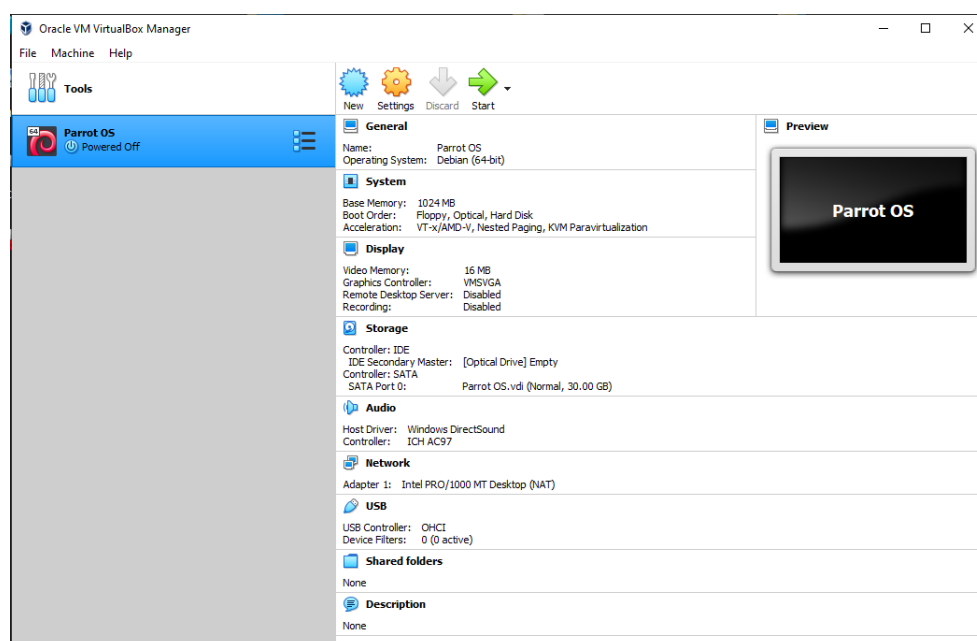
## Step 3 – Installation of a Virtual Machine

**Overview.** The installation of the VM onto the VM Software. We will be using the Parrot OS ISO to install into VirtualBox

**Process steps.** For ease of installation follow the below help:

- **Add a new machine** Click “New” to setup a new machine
  - **Name: Parrot OS**
  - **Machine Folder: <leave as is>**
  - **Type: Linux**
  - **Version: Debian (64-bit)**
- **Memory size: 1024mb**
- **Hard Disk: Create a virtual Hard Disk**
- **Hard Disk file type: VDI**
- **Storage on physical hard disk: Dynamically**
- **File location and size: Set to 30GB**
- **Load Optical drive with VM Image**
- **Start the VM by pressing “start”**

**Endstate.** Your virtual machine should be ready. And look similar to the following



# Observation of Linux distributions

Linux is unique in that it has many different variations, and previously to this I have said the word distributions a lot. The different versions of Linux is know as the Distributions, which in essence are just custom versions for specific needs. As Linux is Open source (meaning anyone can create or alter it) it has evolved to fit the needs of the people, and hence the multitudes of distributions.

Here are some examples:

- Redhat – Enterprise level used by governments and buisness
- Suse – consumer version of Redhat
- Mint – community sandbox linux
- Kali – penetration testing
- ParrotOS – penetration testing with sandbox
- CentOS – another sandbox Linux

At the end of this document I have included some screen captures of different Linux distributions with the start bars open. A cursory glance guided with the video should show you some similarities.

## Applications in Linux

So we are here, we have a virtual machine and linux installed and now we are at a stage where we can do things. Primarily people use computers for a few things.

- Creation of Documents
- Creation of pictures
- Web activty
- Command Line Interface (CLI) interations

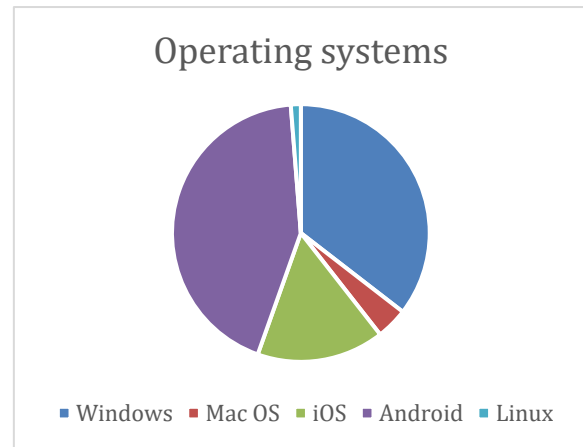
In the video I showed you these things and how to find them. As you can see it isn't too much different from what you know. With even some applications being exactly the same.

## Fade Out – The point part deux

Linux is a significant player in the worlds personal computer IT industry. With a 1.25% share when compared to MacOS with 3.95% and Microsoft Windows dominating with 35.31% in the personal computer sphere.

The numbers in percentage sound small when looked at in this pie chart, but the thing to remember is that it is globally. Also the other applications of Linux are not to be forgotten

The most significant addition to this data though is not just PC Operating systems, but mobile phones. Android phones are based on Linux, and this is where the number makes it shoot through the roof.



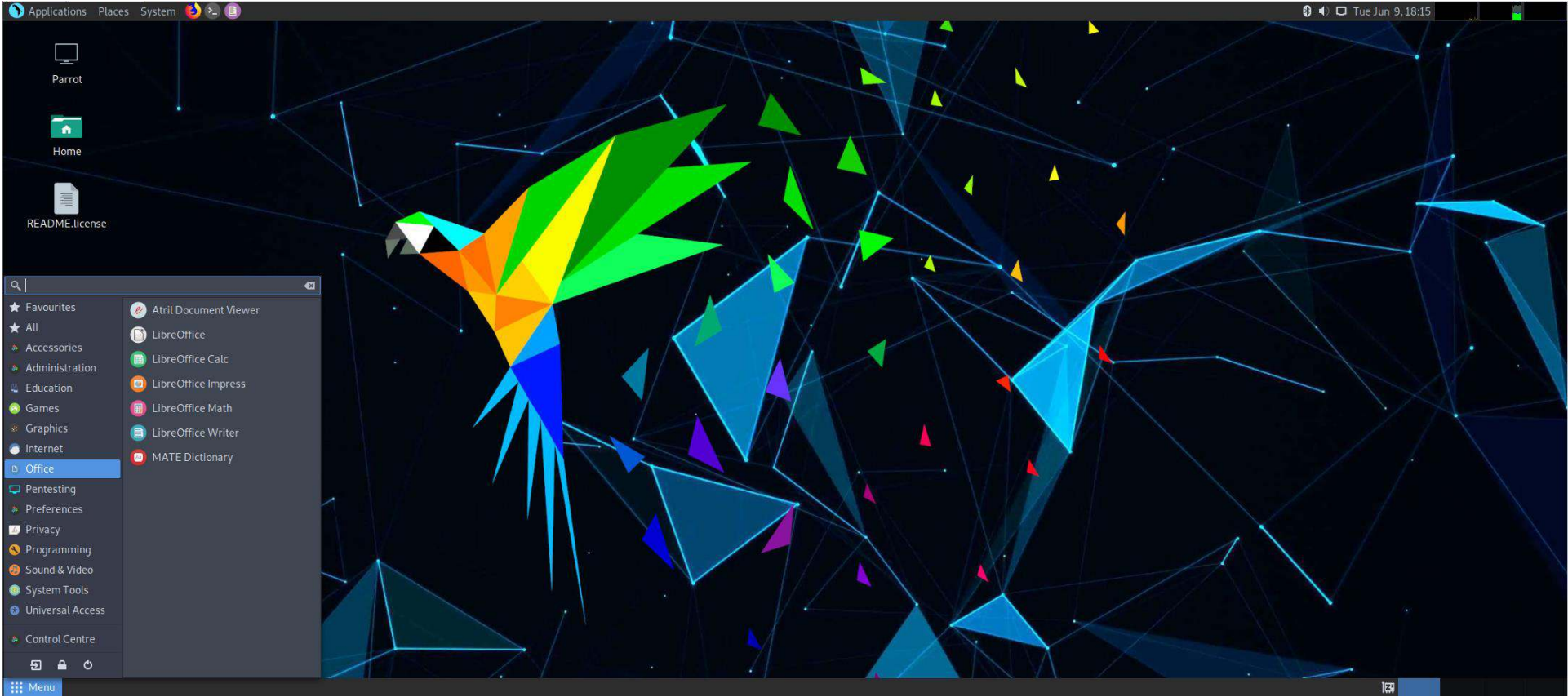
It would be unfair to think of Linux as a mobile phone platform as it is predominantly used in enterprise and industrial solutions. Due to Linux's ease of use and low response times it can operate faultlessly and efficiently for long durations. This is practically useful when they are Linux based servers, switches controls or as even Linux powered Virtual machine servers.

By now you have learnt how to install a VM, an OS onto that VM and the basics of navigation around a Linux Distro whilst identifying key components and indicators of the OS.

You will have also created a basic Document, picture and performed basic web browsing. These Basic tasks will help you in the coming weeks as you increase your knowledge on the Linux system

Like Trevor George Smith Jr. said, "if you don't know, now you know"

# ParrotOS Desktop

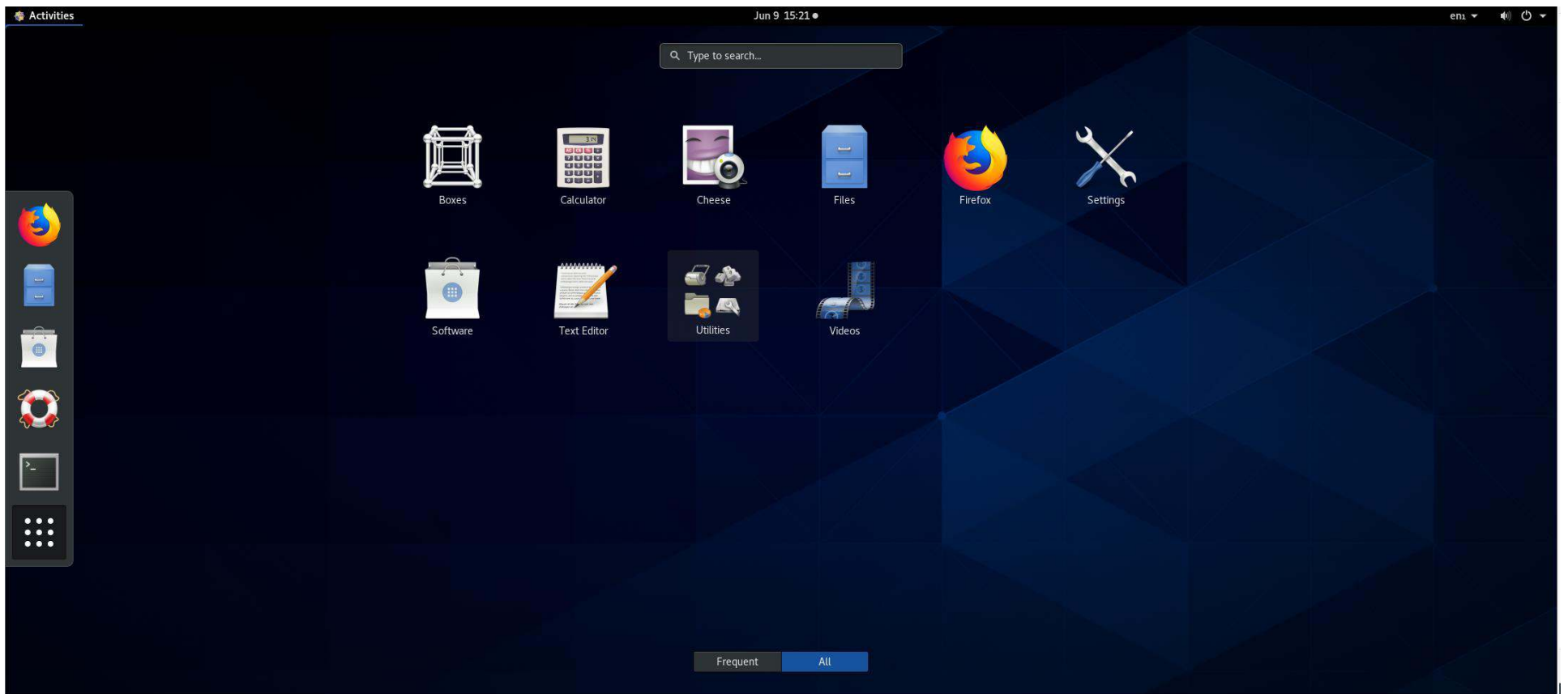


# OpenSUSE





# CentOS



## Kali 2020.1

