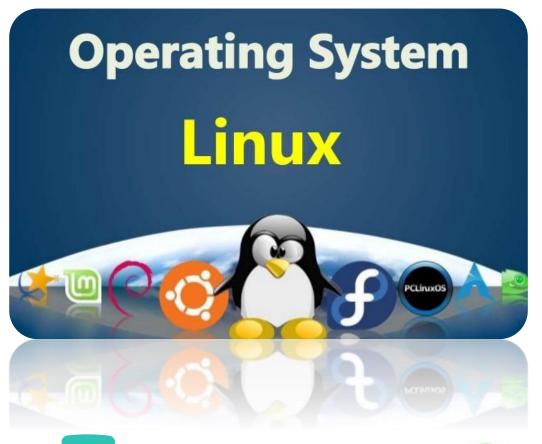
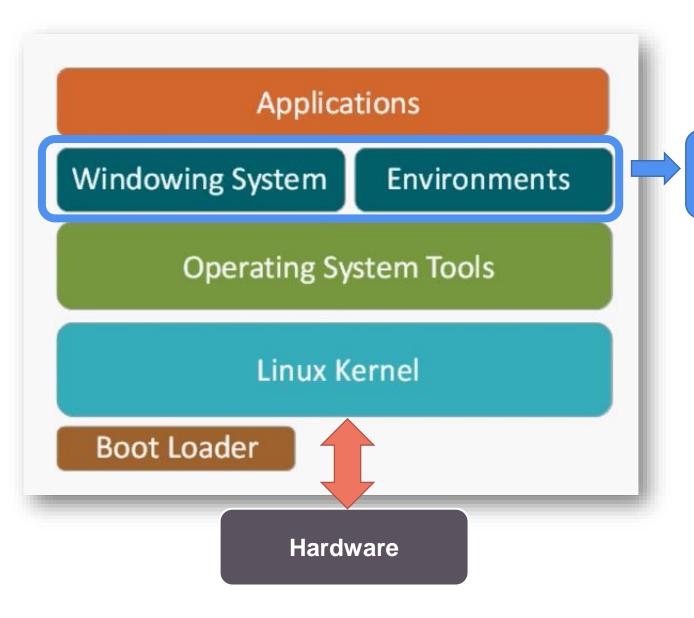
# Introduction to Linux 2/2







Graphical User Interface

#### What is Linux?

Linux® is an open source operating system (OS). An operating system is the software that directly manages
 a system's hardware and resources, like CPU, memory, and storage. The OS sits between applications and hardware and makes the connections between all of your software and the physical resources that do the work.























Most Used Linux Distros

https://itsfoss.com/best-linux-distributions/





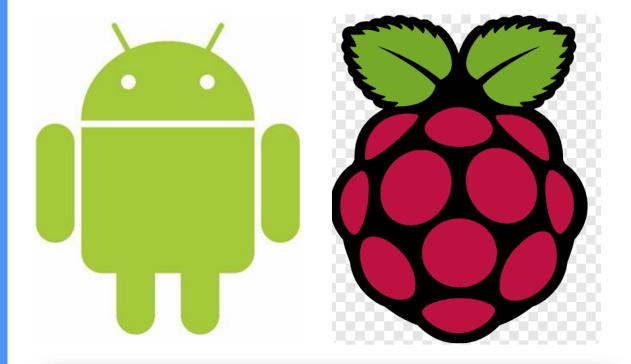
Which Linux?

https://www.youtube.com/watch?v=ktkHr7Emegs



# EMBEDED SYSTEMS

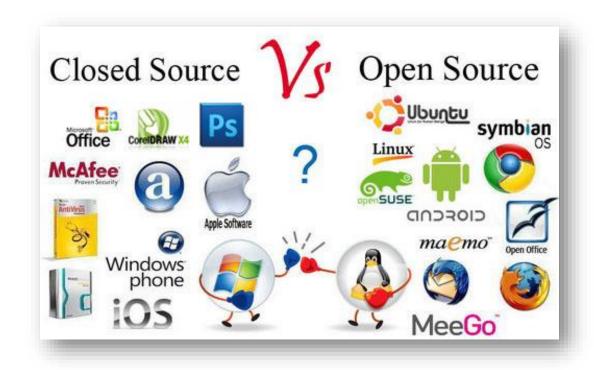
An embedded system is a computer system—a combination of a computer processor, computer memory, and input/output peripheral devices—that has a dedicated function within a larger mechanical or electronic system. Wikipedia





# Why Open Source?

- Inspect
- Modify
- Enhance

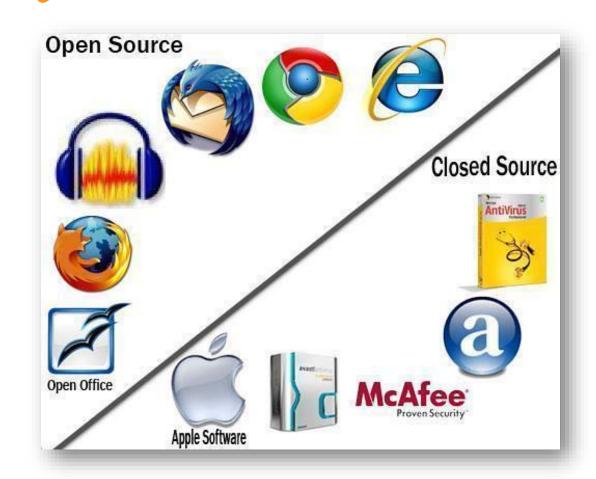






# Why Open Source?

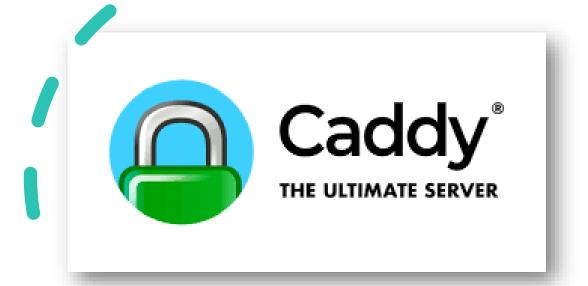
- Control
- Secure
- Stability





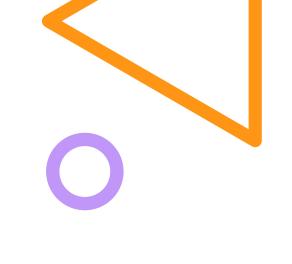
#### Open Source Applications For Server

- Apache HTTP Server. ...
- Nginx Web Server
- Lighttpd Web Server
- Apache Tomcat
- Caddy Web Server
- OpenLiteSpeed Web Server
- Hiawatha Web Server
- NodeJS















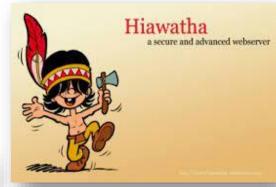
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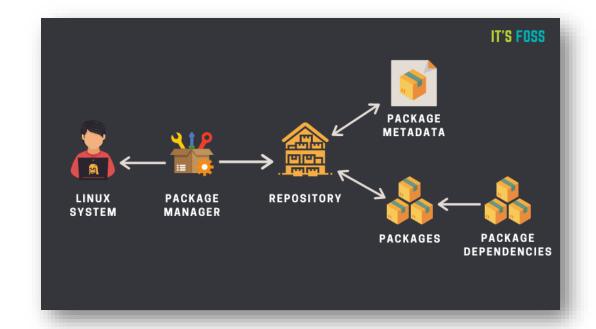






# What is Package Management Tools

A package manager is a tool that allows users to install, remove, upgrade, configure and manage software packages on an operating system. The package manager can be a graphical application like a software center or a command line tool like apt-get or pacman.







The \_-s or \_--search option search for a filename from installed packages. You can also obtain detailed status information about coreutils package, enter:

\$ dpkg -s coreutils



#### Sample output:

Package: coreutils Essential: yes

Status: install ok installed

Priority: required Section: utils Installed-Size: 9040

Maintainer: Ubuntu Core Developers <ubuntu-devel-discuss@lists.ubuntu.com>

Architecture: i386 Version: 5.97-5.3ubuntu3

Replaces: textutils, shellutils, fileutils, stat, debianutils (<= 2.3.1), dpkg (<< 1.13.2)

Provides: textutils, shellutils, fileutils

Pre-Depends: libacl1 (>= 2.2.11-1), libc6 (>= 2.6-1), libselinux1 (>= 2.0.15)

Conflicts: stat

Description: The GNU core utilities

This package contains the essential basic system utilities.

Specifically, this package includes:

basename cat chgrp chmod chown chroot cksum comm cp csplit cut date dd df dir dircolors dirname du echo env expand expr factor false fmt fold groups head hostid id install join link ln logname ls md5sum mkdir mkfifo mknod mv nice nl nohup od paste pathchk pinky pr printenv printf ptx pwd readlink rm rmdir shalsum seq shred sleep sort split stat stty sum sync tac tail tee test touch tr true tsort tty uname unexpand uniq unlink users vdir wc who whoami yes Original-Maintainer: Michael Stone <mstone@debian.org>

#### Packages contains

- Metadata
  - Software name
  - Description
  - Purposes
  - Version number
  - List of dependencies



#### Pacman

The pacman package manager is one of the major distinguishing features of Arch Linux. It combines a simple binary package format with an easy-to-use build system.

The goal of **pacman** is to make it possible to easily manage **packages**, whether they are from the official repositories or the user's own builds.





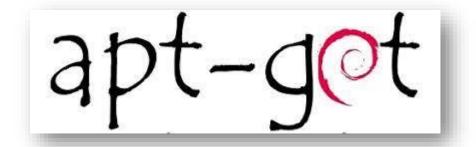
## What is dpkg

dpkg is the software at the base of the package management system in the free operating system Debian and its numerous derivatives. dpkg is used to install, remove, and provide information about .deb packages. dpkg itself is a low-level tool. Wikipedia



### apt-get

Advanced Package Tool, or APT, is a free-software user interface that works with core libraries to handle the installation and removal of software on Debian, Ubuntu, and related Linux distributions. Wikipedia





## What is rpm?

**RPM** Package Manager (**RPM**) (originally Red Hat Package Manager) is a free and open-source package management system.

Although it was created for use in Red Hat Linux, RPM is now used in many Linux distributions such as Fedora, CentOS, OpenSUSE, OpenMandriva and Oracle Linux.





#### What is yum?

- **YUM** is the primary package management tool for installing, updating, removing, and managing software packages in Red Hat Enterprise **Linux**.
- **YUM** performs dependency resolution when installing, updating, and removing software packages.
- **YUM** can manage packages from installed repositories in the system or from.





#### FSF and OSI

The Open Source Initiative (**OSI**) is one such organization keeping a list of open-source licences.

The **Free Software Foundation** (**FSF**) maintains a list of what it considers free.

**FSF's** free software and **OSI's** open-source licences together are called FOSS licences.

#### Open Source vs. Free Software

- Development Technique
- Better Software
- Allows software to 'evolve'
- Sun, Apple, Netscape,



Eric Raymond (OSI)

- Political Philosophy
- Ethical Rights
- Allows unconditional 'sharing' and collaboration
- Only GNU/FSF meet standards



Richard M. Stallman (FSF)



https://www.fsf.org/



https://opensource.org/





**Approved License** 

#### Popular Licenses

- Apache License 2.0
- BSD 3-Clause "New" or "Revised" license
- BSD 2-Clause "Simplified" or "FreeBSD" license
- GNU General Public License (GPL)
- GNU Library or "Lesser" General Public License (LGPL)
- MIT license
- Mozilla Public License 2.0
- Common Development and Distribution License
- Eclipse Public License version 2.0



#### Tools

- https://cocalc.com/
- http://copy.sh/
- https://linuxcontainers.org/



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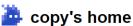




Zero setup all you need is a web browser

It takes less time to run a Jupyter Notebook than grabbing a cup of coffee!

Run CoCalc Now



You can email me at copy@copy.sh. Use my GnuPG key.

#### **Projects**



Virtual x86

Run KolibriOS, Linux or Windows 98 in your



I Wanna Be Thy Copy

A platformer fangame with 2 levels so far. The game engine is available.



Game of Life

A JavaScript version of Conway's Game of Life, based on the Hashlife-algorithm. Source code available here



El Brainfuck

A Brainfuck editor & optimizing interpreter, written i



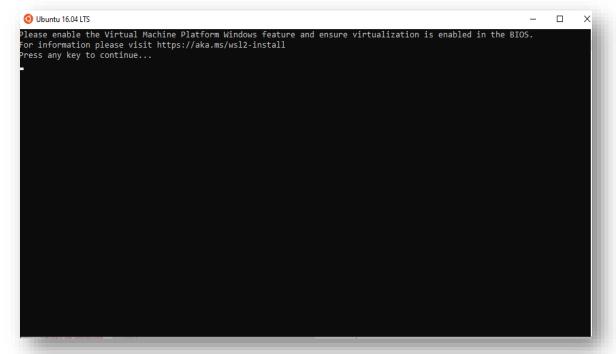
- · Rich man's profiler, a profiler for native executables
- My Github





#### Tools

- https://linuxzoo.net/
- WSL 2



← → C 🗎 linuxzoo.net



#### Welcome to linuxzoo

Learn Linux from the safety of your chair using a remote private linux machine with root access.

• Welcome to linuxzoo
Our environment
Essential Linux

System Administration

Status: Normal. Service is running normally.

Look at the Our Environment link, and then Running Your Machine for getting started.

Quick start hints: register/login, Join Queue, Switch On (in Control tab), Wait for successful boot, click the Connect tab, and then click "telnet: linuxzoo net" (or type telnet linuxzoo net at your command prompt) Username root, password secure.

Image	Username	Password
Linux Centos 7	root	secure
	alice	secure
Caine Forensics 10.0	caine	caine
Kali 2020-4	root	kali

FAQ for VNC: There are a few options to getting a remote graphical desktop. In "connect" you can click on Java VNC, which requires java 7 installed on your machine. JavaScript VNC is more flexable, but it mayou logging in graphically as root.

Centos 7 intro: Paths | BasicShell | Search

Linux tutorials: intro1 intro2 wildcard permission pipe vi essential admin net SELinux1 SELinux2 fwall DNS diag Apache1 Apache2 log Mail
Caine 10.0: Essentials | Basic | Search | Acquisition | Sysintro | grep | MBR | GPT | FAT | NTFS | FRMeta | FRTools | Browser | Mock Exa

CPD: Cygwin | Paths | Files and head/tail | Find and regex | Sort | Log Analysis

 Kali
 1a | 1b | 1c | 2 | 3 | 4a | 4b | 5 | 6 | 7a | 8a | 8b | 9 | 10 |

 Kali
 2020-4:
 1a | 1b | 1c | 2 | 3 | 4a | 4b | 5 | 6 | 7 | 8a | 8b | 9 | 10 |

 Useful:
 Quiz | Forums | Privacy Policy | Terms and Conditions

 Site Links:
 XMLZoo ActiveSQL ProgZoo SQLZoo

Linuxzoo created by Gordon Russell.

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#### Kahoot

