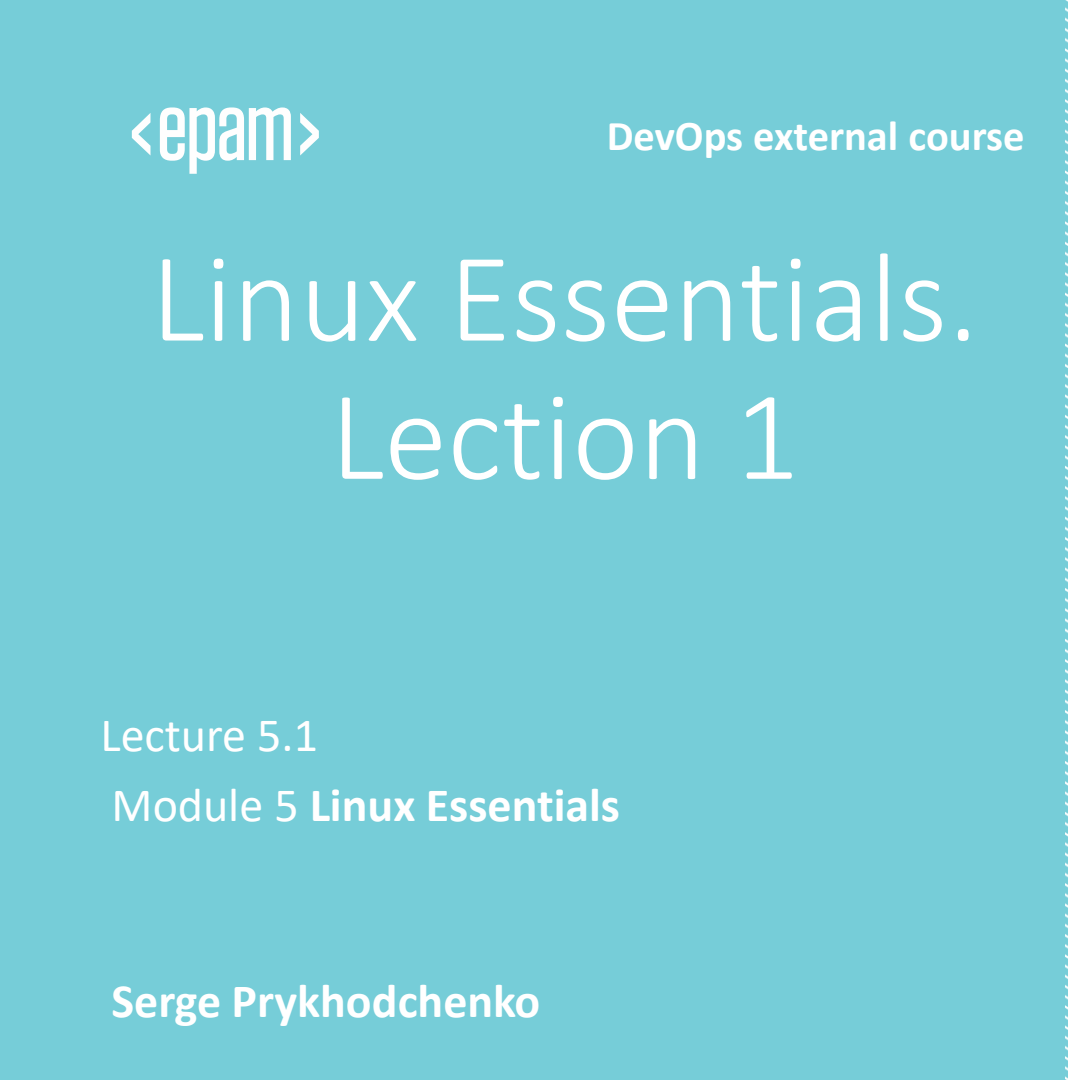


DevOps external course

Linux Essentials. Lection 1

Lecture 5.1

Module 5 **Linux Essentials**

Serge Prykhodchenko

Agenda

- Open Source Software
- OS
- Linux
- First commands
- Embedded
- Q&A

OPEN SOURCE SOFTWARE

Definitions

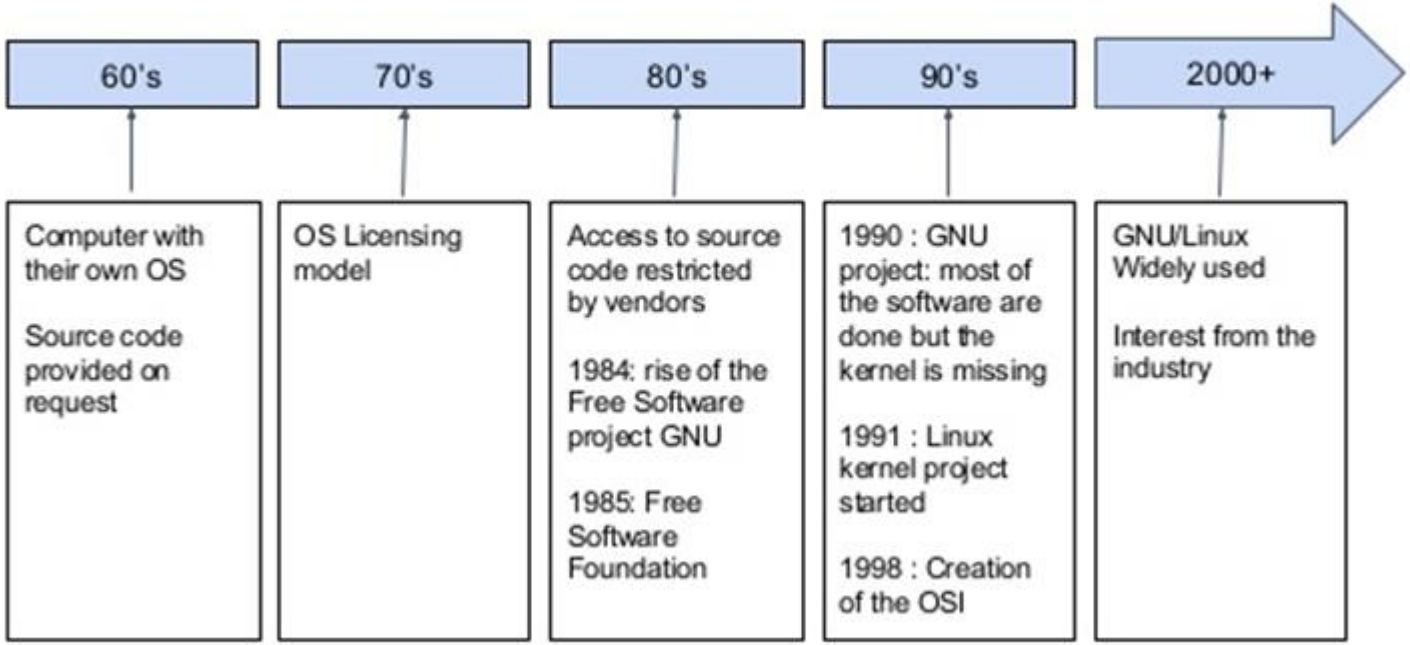
- Open Source : Promoting access to the end product's source materials
- Free software : Matter of liberty, not price.
- GNU : A recursive acronym that stands for "GNU's Not Unix"

Definitions

The philosophy of Open Source

- The freedom to run the program, for any purpose (freedom 0).
- The freedom to study how the program works, and change it to make it do what you wish (freedom 1).
- The freedom to redistribute copies so you can help your neighbor (freedom 2).
- The freedom to distribute copies of your modified versions to others (freedom 3).

Open Source Origin



Ranking	Project	Leading company	Market Value
1	Linux	Red Hat	$16 billion
2	Git	GitHub	$2 billion
3	MySQL	Oracle	$1.87 billion
4	Node.js	NodeSource	?
5	Docker	Docker	$1 billion
6	Hadoop	Cloudera	$3 billion
7	Elasticsearch	Elastic	$700 million
8	Spark	Databricks	$513 million
9	MongoDB	MongoDB	$1.57 billion
10	Selenium	Sauce Labs	$470 million

With Open Source Software you can:

- Get access to the source code.
- Permission to change the software.
- Free distribution of original and modified code.
- Having derived work that can be distributed under the same terms of original software.
- The same license of the original software. You can take a new license, but it is not necessary.
- Sometimes, If you use it, it is not necessary that your program has to be open source too.
- The principle here is to promote the collaboration inside a community to generate mutual benefits.
- Not all software open source is necessarily free. And free software can be also open source at the same time.

With free software you can:

- Use the software.
- Run it.
- Understand who it works.
- Share and distribute it.
- Create another software only if you respect these aspects.
- And what you think? Software for commercial use also can be free software. Why? Well, if you respect all these points, you can charge a rate for distribution.

Proprietary software meaning:

- Software that you have to buy if you want to use it.
- This software belongs to someone else, but what does it mean? The code is closed, it is copyrighted, its use is limited at some point, especially when it is referred to distribution or modification.
- Proprietary software also is called commercial software or closed-source software inattention to one of its most important characteristics.
- This software also is really good and unique and sometimes, they can be modified within creators limits.
- Some of the most important software programs that revolutionized the world years ago were in this category.

Characteristic of proprietary software

- It has to be bought
- Has a license which is the property of a developer, company or the owner.
- Without access to its source code
- Free distribution or copy is prohibited. Actually, it is a crime
- Its use depends on the end-users agreement
- They can take you to jail if you violate any rule or agreement you accepted before.

GNU not Unix

- GNU project
  - Established in 1984 by Richard Stallman, who believes that software should be free from restrictions against copying or modification in order to make better and efficient computer programs
  - GNU is a recursive acronym for “GNU's Not Unix”
  - Aim at developing a complete Unix-like operating system which is free for copying and modification
  - Companies make their money by maintaining and distributing the software, e.g. optimally packaging the software with different tools (Redhat, Slackware, Mandrake, SuSE, etc)
  - Stallman built the first free GNU C Compiler in 1991. But still, an OS was yet to be developed

Free Software Foundation

- The Free Software Foundation (FSF) is a non-profit organization founded by Richard Stallman on 4 October 1985 to support the free software movement, which promotes the universal freedom to study, distribute, create, and modify computer software, with the organization's preference for software being distributed under copyleft ("share alike") terms, such as with its own GNU General Public License. The FSF was incorporated in Boston, Massachusetts, US, where it is also based.
- From its founding until the mid-1990s, FSF's funds were mostly used to employ software developers to write free software for the GNU Project. Since the mid-1990s, the FSF's employees and volunteers have mostly worked on legal and structural issues for the free software movement and the free software community.

GNU General Public License

- The GNU General Public License (GNU GPL or GPL) is a series of widely used free software licenses that guarantee end users the freedom to run, study, share, and modify the software.[7] The licenses were originally written by Richard Stallman, former head of the Free Software Foundation (FSF), for the GNU Project, and grant the recipients of a computer program the rights of the Free Software Definition.[8] The GPL series are all copyleft licenses, which means that any derivative work must be distributed under the same or equivalent license terms. This is in distinction to permissive software licenses, of which the BSD licenses and the MIT License are widely-used less-restrictive examples. GPL was the first copyleft license for general use.

GNU Lesser General Public License

The GNU Lesser General Public License (LGPL) is a free-software license published by the Free Software Foundation (FSF). The license allows developers and companies to use and integrate a software component released under the LGPL into their own (even proprietary) software without being required by the terms of a strong copyleft license to release the source code of their own components. However, any developer who modifies an LGPL-covered component is required to make their modified version available under the same LGPL license. For proprietary software, code under the LGPL is usually used in the form of a shared library, so that there is a clear separation between the proprietary and LGPL components. The LGPL is primarily used for software libraries, although it is also used by some stand-alone applications.

The LGPL was developed as a compromise between the strong copyleft of the GNU General Public License (GPL) and more permissive licenses such as the BSD licenses and the MIT License. The word "Lesser" in the title shows that the LGPL does not guarantee the end user's complete freedom in the use of software; it only guarantees the freedom of modification for components licensed under the LGPL, but not for any proprietary components.

BSD licenses

- BSD licenses are a family of permissive free software licenses, imposing minimal restrictions on the use and distribution of covered software. This is in contrast to copyleft licenses, which have share-alike requirements. The original BSD license was used for its namesake, the Berkeley Software Distribution (BSD), a Unix-like operating system. The original version has since been revised, and its descendants are referred to as modified BSD licenses.
- BSD is both a license and a class of license (generally referred to as BSD-like). The modified BSD license (in wide use today) is very similar to the license originally used for the BSD version of Unix. The BSD license is a simple license that merely requires that all code retain the BSD license notice if redistributed in source code format, or reproduce the notice if redistributed in binary format. The BSD license (unlike some other licenses) does not require that source code be distributed at all.

Types of licenses

	Public domain & equivalents	Permissive license	Copyleft (protective license)	Noncommercial license	Proprietary license	Trade secret
Description	Grants all rights	Grants use rights, including right to relicense (allows proprietization, license compatibility)	Grants use rights, forbids proprietization	Grants rights for noncommercial use only. May be combined with copyleft.	Traditional use of copyright; no rights need be granted	No information made public
Software	PD, CC0	MIT, Apache, MPL	GPL, AGPL	JRL, AFPL	proprietary software, no public license	private, internal software
Other creative works	PD, CC0	CC-BY	CC-BY-SA	CC-BY-NC	Copyright, no public license	unpublished

Software open source vs proprietary software: advantages and disadvantages

Software open source Advantages

- You can adapt it to your necessities even from source code.
- All replica or distribution it is possible although you haven’t paid it.
- Free support because the same community that uses the software, frequently tend to answer questions, giving advice, making forums and provide detail documentation.
- Fewer errors and faster solutions. This is related to the previous point. Projects with open source literally could have millions of people looking it, using it, and getting better.
- For that reason, some experts think that open source software is safer.
- It is universal.

Software open source Disadvantages

- Limited warranty. This happens because lots of people can change it. Also usually they haven’t liability or infringement indemnity protection.
- Open source software can have compatibility issues, and solving it could cost a lot of money.

Software open source vs proprietary software: advantages and disadvantages

Proprietary Software Advantages

- Stability. This maybe is the most important advantage. Creator gives you a software which it was probed and it is capable to do perfectly all things an actions you saw before buying it.
- Reliability and warranty of 100% from creators.
- Proprietary software is unique. You won’t find it in any place different from the provider.
- Most compatibility in some cases.

Proprietary Software Disadvantages

- Higher cost. But if you look at how an invest, it doesn’t matter much.
- You cannot modify the source code.
- You cannot share it or distribute it.
- You will be totally dependent on creators to upgrade and maintain the software in the source.
- Some specialist thinks that Proprietary software is less safe because security will depend on software producers.

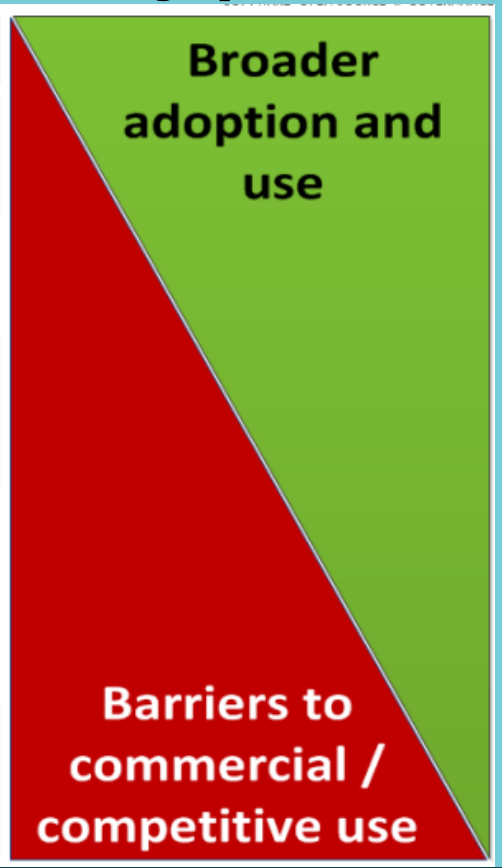
Open-source Business Models

Open-source business models usually rely upon one or more of the following strategies:

1. Dual-licensing proprietary company software;
2. Providing commercial or enterprise versions, plugins, or extensions to open-source products;
3. Offering maintenance, support, consulting, or other services that support or complement open-source products;
4. Offering hosting, warranty, indemnity, or other products that complement open-source products; and
5. Closed-source modified distributions of open-source products.

Open-source License Types

License Type	Intended Copyleft Effect
Permissive (Apache-2.0, BSD)	None
Weak Copyleft (LGPL, MPL, CDDL)	Modifications/enhancements to the open-source software
Strong Copyleft (GPL, AGPL, OSL)	Certain software distributed in combination with the open-source software.
Network Strong Copyleft (AGPL, OSL-3.0)	Certain software distributed or hosted in combination with the open-source software.
Prohibitive (Ms-LPL, BCLA)	Typically none, but specific uses (e.g., commercial) are prohibited



OPERATING SYSTEM

Operating system

An operating system is a collection of programs, both conventional and firmware that provide an interface between user applications and computer hardware.

OS functions:

- define the so-called "user interface";
- ensure the sharing of hardware resources between users and / or applications;
- to give an opportunity to work with common data in the mode of collective use;
- plan user access to shared resources;
- to ensure efficient performance of input-output operations;
- to carry out the recovery of information and computing process in case of errors;
- provide an opportunity for software development;
- keep records of the use of resources.

Operating system

The operating system manages the following main resources:

- processors;
- memory;
- input-output devices;
- data.

During its operation, the OS interacts with:

- hardware;
- system programmers;
- application programmers;
- programs;
- users.

Hardware - the computer hardware itself.

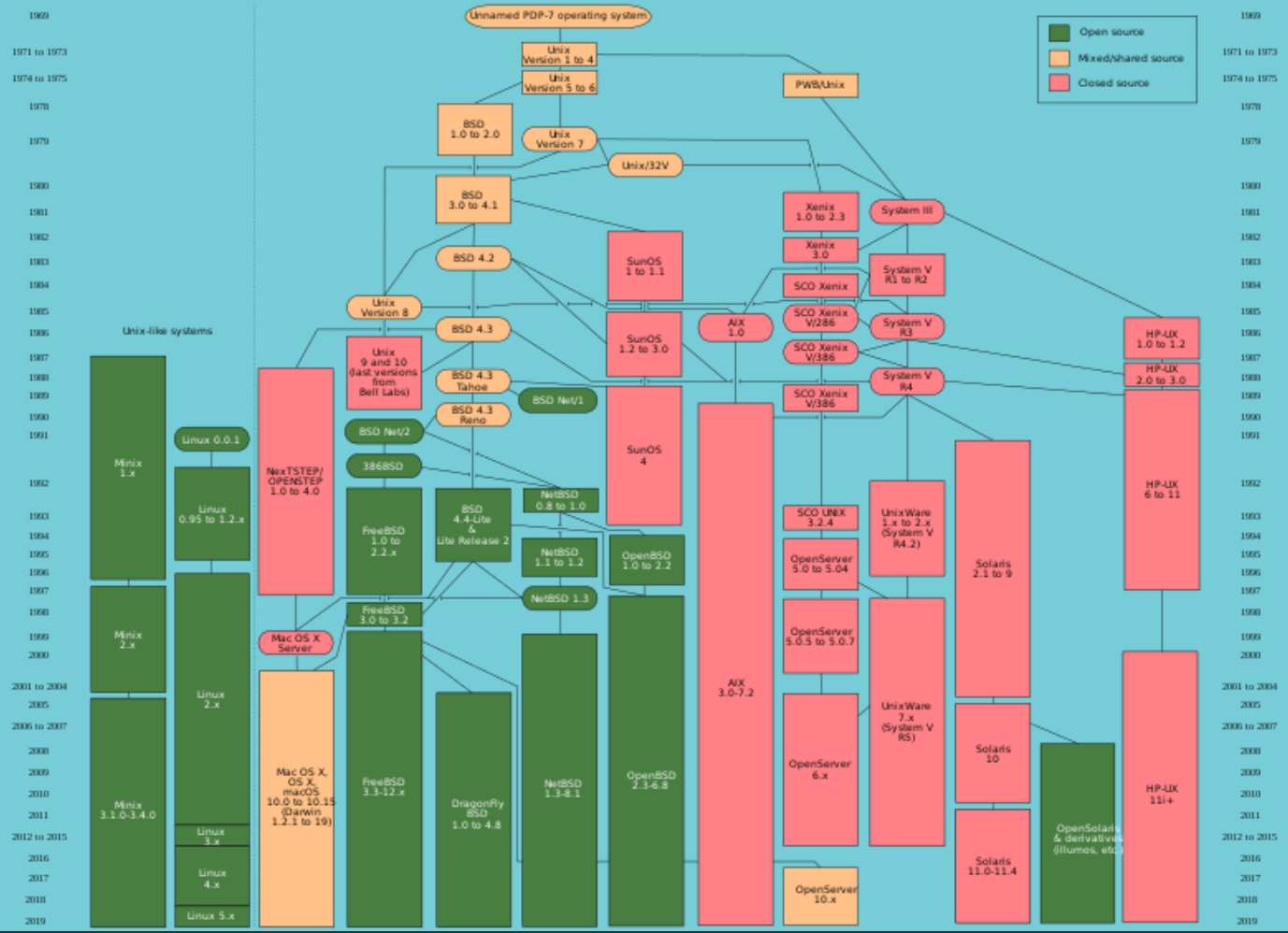
System programmers - usually involved in maintaining the operating system, writing device drivers and various system utilities, etc.

Application programmers - write programs that will be used by users to solve specific problems.

Users are subscribers of a computer system who use a computer to do useful work.

Programs access an operating systems using special commands, procedures and functions. This enables users to use the services provided by the operating system without compromising an integrity and performance.

The evolution of a Linux operation systems family.



https://en.wikipedia.org/wiki/File:Unix_history-simple.svg

What is Linux?

- First released in 1991 by a University of Finland student Linus Torvalds.
- Basically a kernel, it was combined with the various software and compilers from GNU Project to form an OS, called GNU/Linux
- Linux is a full-fledged OS available in the form of various Linux Distributions
- RedHat, Fedora, SuSE, Ubuntu, Debian are examples of Linux distros
- Linux is supported by big names as IBM, Google, Sun, Novell, Oracle, HP, Dell, and many more

What is a Linux Distribution?

- Linux Kernel
- Supporting features and programs
  - Usually tailored to a particular purpose
- With so many options, it is easy to find the perfect solution.

What are the Major Ones?

- **Red Hat**: One of the earliest players in the game, Red Hat now position itself strongly in the business market. It has created a community-supported distribution, Fedora Core, which is the choice of many for desktop use.
- **Debian**: The most popular community-created distribution. Debian is an excellent choice for server environments. Debian has also been used as the base for many specialist distributions.
- **Ubuntu**: Desktop usability, out of the box. Taglined "Linux for human beings,” Based on Debian.
- **SUSE**: Novell's answer to Red Hat, comes in “enterprise” and a community-based OpenSUSE
- All Distributions have their respective strengths.

References

- Wikipedia

  http://en.wikipedia.org/wiki/SUSE_Linux

  http://en.wikipedia.org/wiki/Red_Hat_Linux

  http://en.wikipedia.org/wiki/Ubuntu_%28Linux_distribution%29

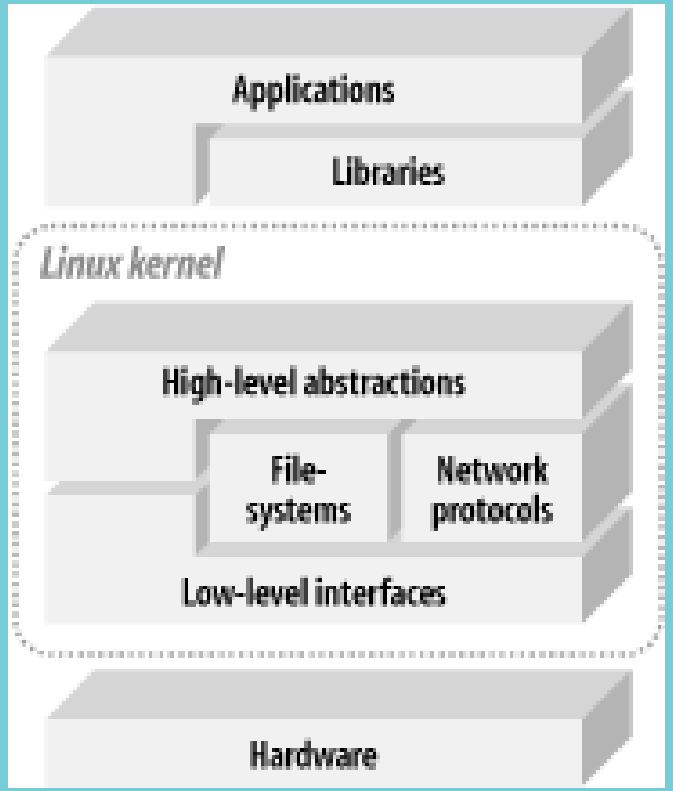
  http://en.wikipedia.org/wiki/Yellow_Dog_Linux

- DistroWatch

http://distrowatch.com/

https://www.ibiblio.org/software/distributions/

Architecture of Linux

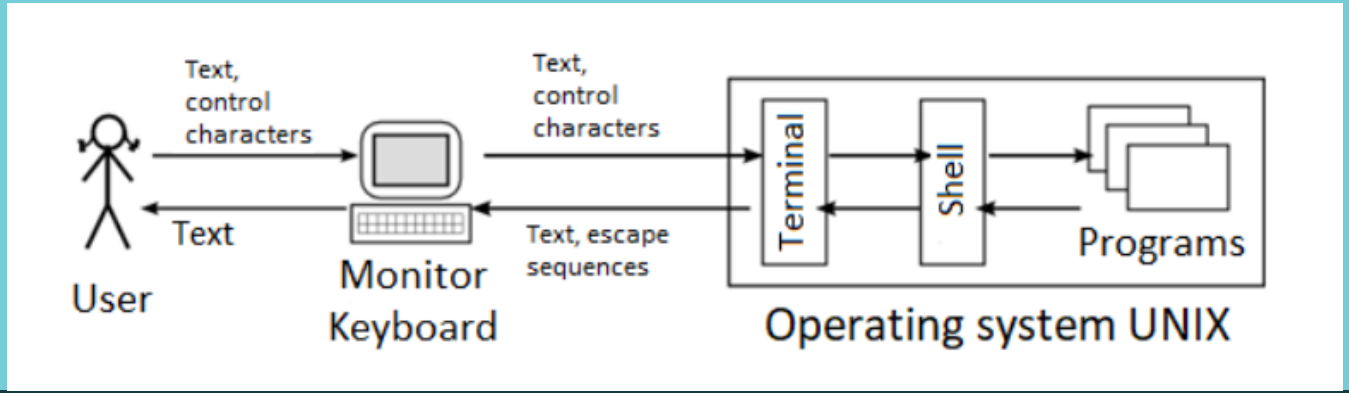


THE MAIN CHARACTERISTICS OF LINUX OSes

A distribution kit is a set of software that includes all 4 main components of the OS, i.e. the kernel, file system, shell and set of utilities, as well as some set of application programs. Typically, all programs included in a Linux distribution are distributed under the GPL.

Using diskless stations. On the server computer (in fact, the server can be a regular Linux PC), special software is installed to boot a small Linux kernel (specially assembled to run on a morally obsolete computer) over the network, as well as a set of initialization scripts.

Terminal. In the UNIX operating system, the primary means of user interaction with the system are the keyboard and the text-mode monitor screen



THE MAIN CHARACTERISTICS OF LINUX OSes

Terminal login procedure. As mentioned earlier, you must provide a unique name (account) and password to log in.

Account (account) - a system object with which Linux keeps track of the user's work in the system. The account contains the user data needs for registration in the system and further work with it.

Login name - the name of the user account that must be entered when registering in the system.

Home directory. in Linux all users files are stored separately, each user has his own home directory in which he can store his data. Other users' access to the user's home directory may be restricted. Information about the home directory must be in the account, because the registrated user start work with it.

Often, the user's **home directory** is /home/username, but the administrator is free to customize it.

THE MAIN CHARACTERISTICS OF LINUX OSes

Command shell. Each user needs to provide a way to interact with the system: sending commands to system and getting responses from it. For this used, a special program - the command shell (or command line interpreter). It must be launched for every user who logs on to the system.On Linux are available different command line interpreters,in account you have a information which one to run for each users
If you do not specify a command shell when creating an account, it will be default, most likely it will be bash.

A command line interpreter (command interpreter, command shell, shell, CLI) its a program, which Linux used to organize a "dialogue" between a person and a system. The command interpreter has three main components: (1) a command line editor and analyzer, (2) a high-level system-oriented programming language, (3) a means of organizing the interaction of commands with each other and with the system.

Command line syntax. Most of all, communication in this language resembles a written dialogue with the system - an alternate exchange of texts. The user's statement in this language is a command, each command is a separate line. Until enter is pressed, the line can be edited, then it will be send to the shell. The shell parses the received command - translates it into the language of system objects and functions, and then sends it to the system for execution.

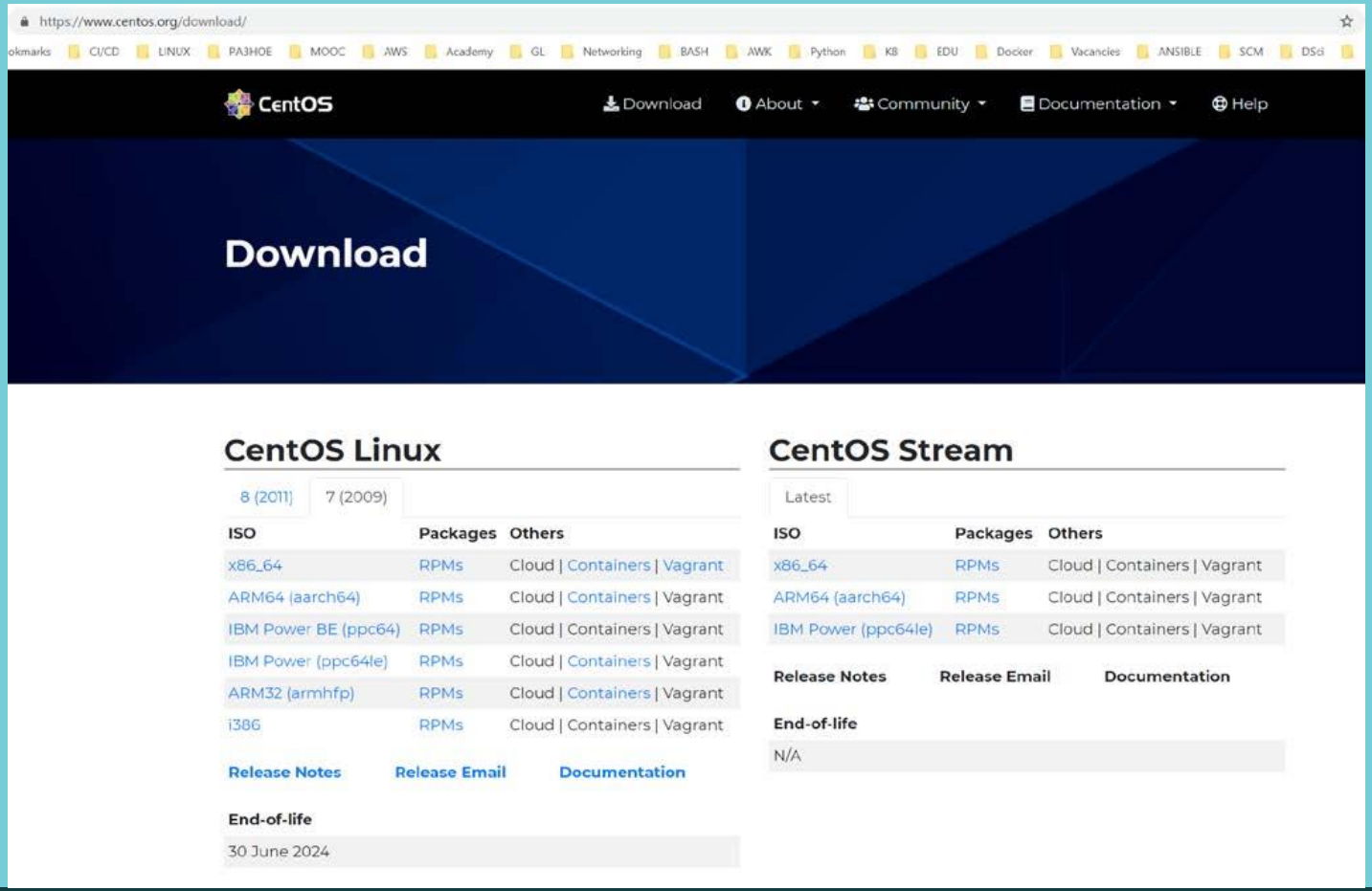
THE MAIN CHARACTERISTICS OF LINUX OSes

Reference guides are divided into sections - depending on the type of objects described. If the same term is described in more than one section, you must explicitly specify which one to use.

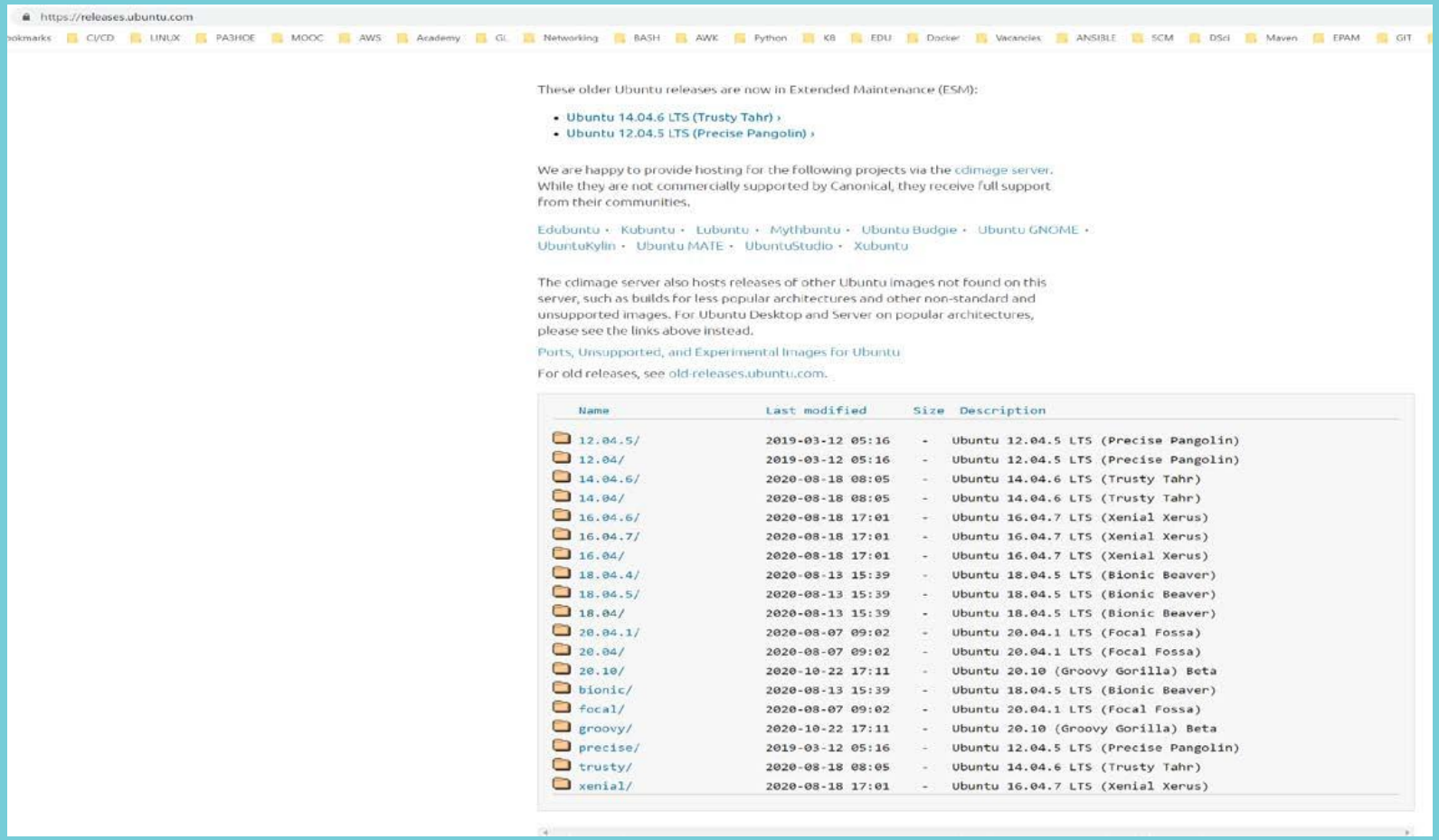
There are 8 sections in total:

1	Commands available to users
2	Unix and C system calls
3	C library routines for C programs
4	Special file names
5	File formats and conventions for files used by Unix
6	Games
7	Misc.
8	System administration commands and procedures

WHERE TO GET. https://www.centos.org/download/

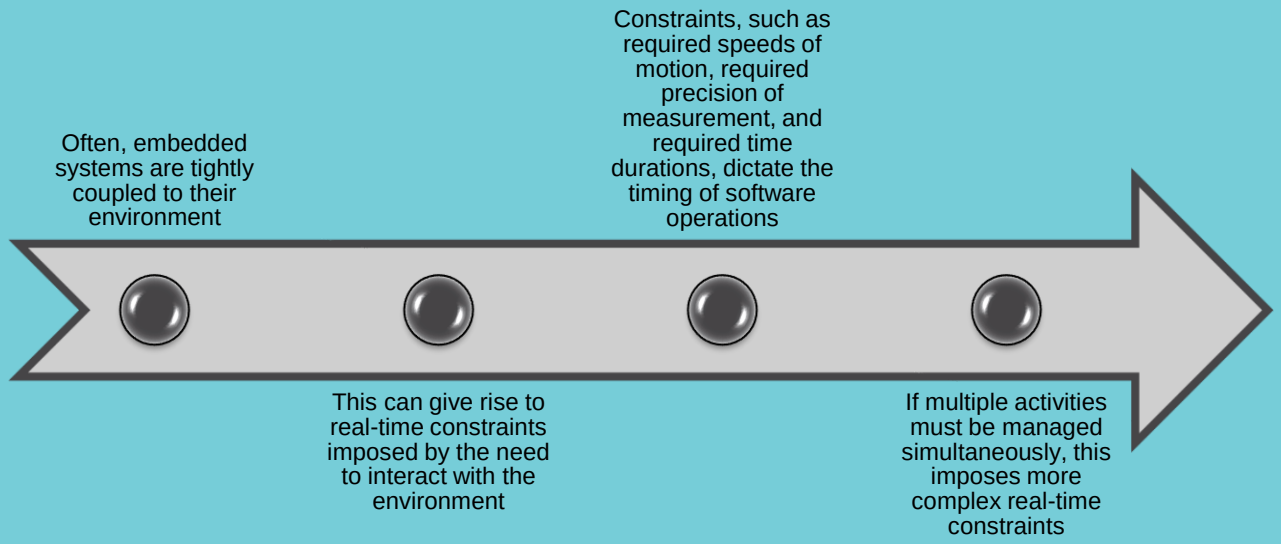


WHERE TO GET. https://releases.ubuntu.com/



EMBEDDED SYSTEMS

Embedded System



What makes a good Embedded OS ?

- Modular
- Configurable
- Scalable
- Wide CPU support
- Device Drivers
- Small size
- Etc…

Real Time in OS

- The ability of the operating system to provide a required level of service in a bounded response time.
  – POSIX standard 1003.1
- Hard & Soft Real Time.

What makes a good RTOS?

- Multi-threaded and pre-emptible
- Must support predictable thread synchronization mechanisms
- A system of priority inheritance must exist

Embedded Linux

- A version of Linux running in an embedded system
- Embedded devices typically require support for a specific set of devices, periphrals, and protocols, depending on the hardware that is present in a given device and the intended purpose of that device
- An embedded Linux distribution is a version of Linux to be customized for the size and hardware constraints of embedded devices
    - Includes software packages that support a variety of services and applications on those devices
    - An embedded Linux kernel will be far smaller than an ordinary Linux kernel

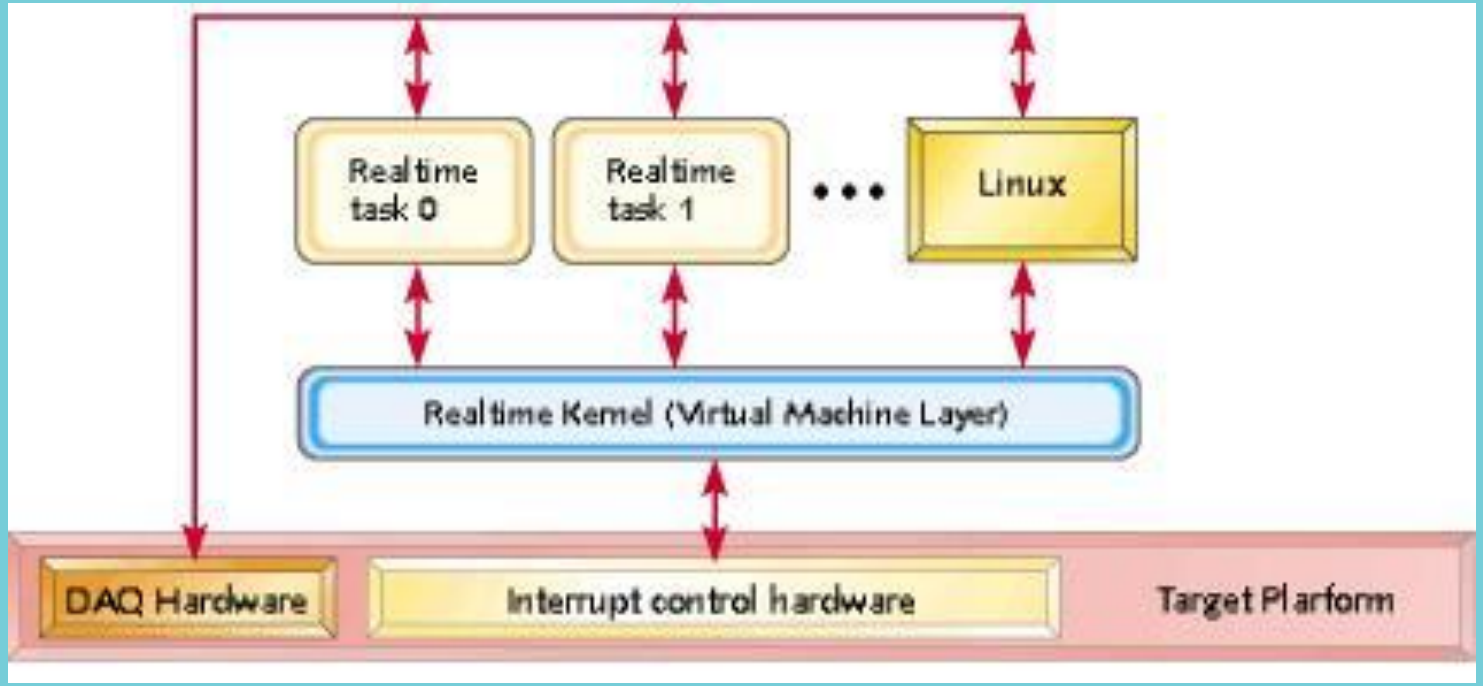
Commercial Embedded Linux & RTOS

- Raspbian
- Red Hat Embedded Linux
- FSMLabs - Open RT Linux
- LynuxWorks - BlueCat RT
- TimeSys - Linux/Real-Time
- uClinux
- Emdebian
- OpenWRT/LEDE

RTLinux

- A “hard real-time” mini operating system
- runs Linux as it’s lowest priority execution thread
- Linux thread completely preemptible
- Real time threads and interrupt handlers never delayed by non-realtime operations
- Supports user level programming

RTLinux Architecture



Development tools

- Compiler, assembler, linker, etc..
- Commercial
- Open Source.

Open Source Tool chain

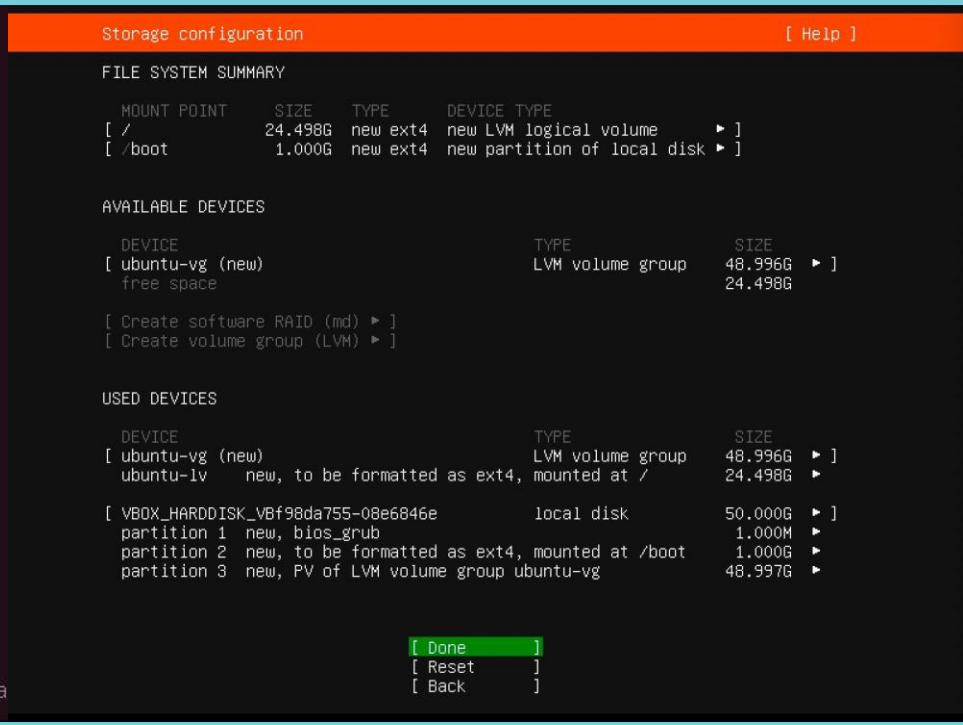
- Kernel headers
- gcc – Compiler
- binutils – assembler,linker,debugger etc..
- glibc – Libraries
- Patches if any

Applications

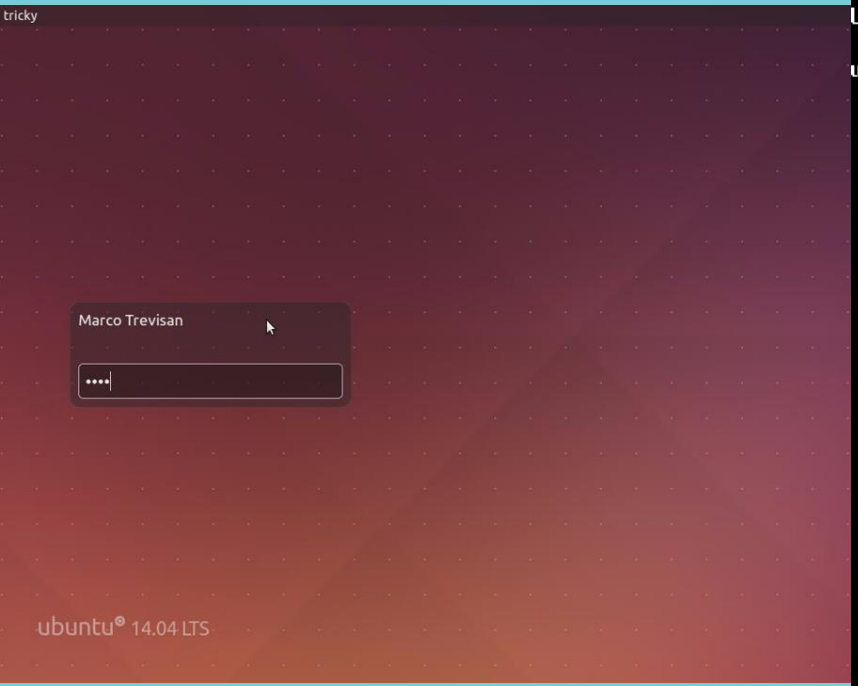
- Industrial Controllers
- Mobiles, PDA, Media Centers.
- Telecomm and Networking Hardware
- Automobile Computers
- Robotics
- Vision Systems
- Etc.

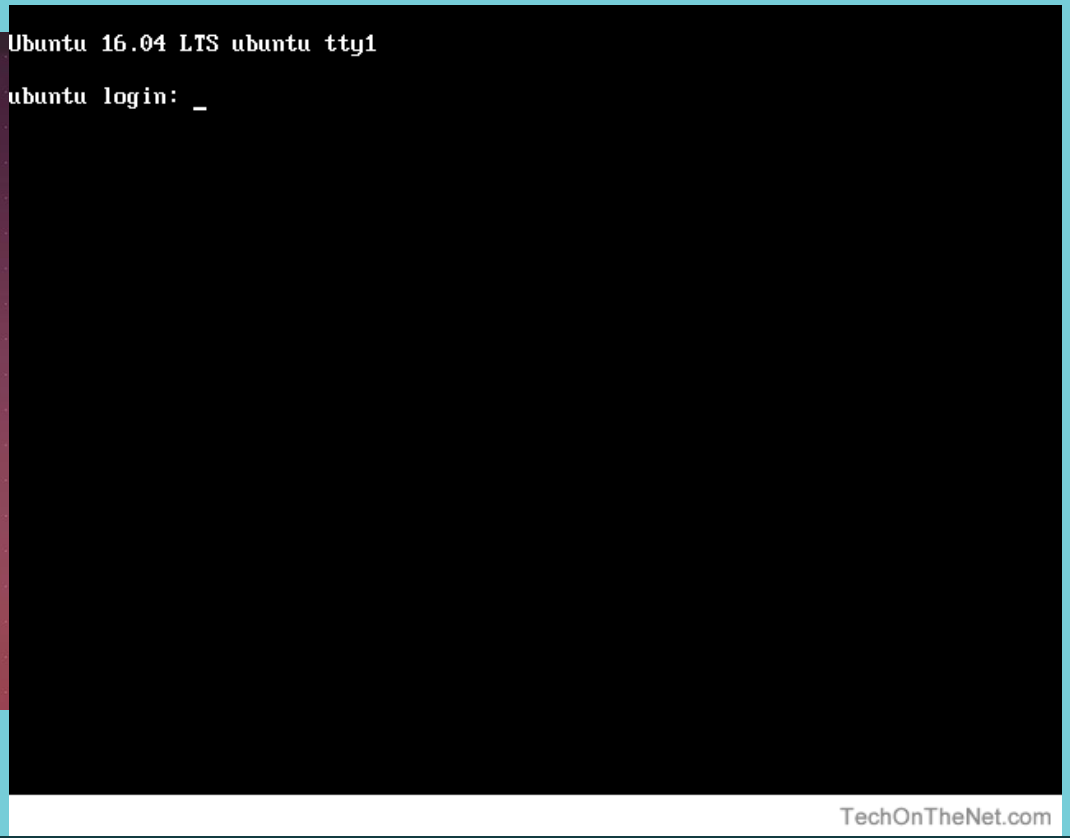
FIRST STEPS

Installation

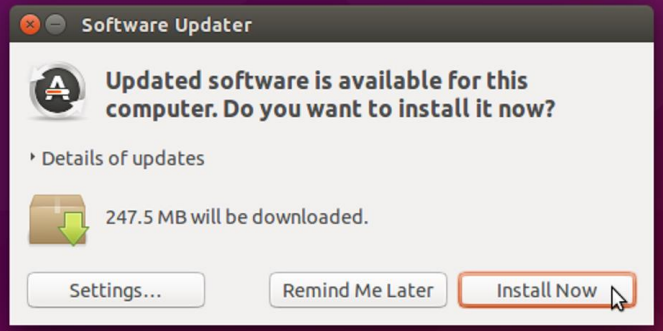


login


tricky
Marco Trevisan
ubuntu® 14.04 LTS


Ubuntu 16.04 LTS ubuntu tty1
ubuntu login: _
TechOnTheNet.com

update/upgrade




```
caezsar@cdesktop:~$ sudo apt-get update
[sudo] password for caezsar:
Hit http://ro.archive.ubuntu.com wily InRelease
Hit http://ro.archive.ubuntu.com wily-updates InRelease
Hit http://security.ubuntu.com wily-security InRelease
Hit http://ro.archive.ubuntu.com wily-backports InRelease
Hit http://security.ubuntu.com wily-security/main Sources
Hit http://ro.archive.ubuntu.com wily/main Sources
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                                                ly/multiverse amd64 Packages
                                                ly/main i386 Packages
                                                -security/universe amd64 Packages
                                                ly/restricted i386 Packages
                                                -security/multiverse amd64 Packages
```

caezsar@cdesktop: ~

```
caezsar@cdesktop:~$ sudo apt-get upgrade
Reading package lists... Done
Building dependency tree
Reading state information... Done
Calculating upgrade... The following packages were automatically installed and a
re no longer required:
  libntdb1 python-ntdb
Use 'apt-get autoremove' to remove them.
Done
The following packages have been kept back:
  liboxideqt-qmlplugin liboxideqtcore0 liboxideqtquick0 linux-generic
  linux-headers-generic linux-image-generic oxideqt-codecs
The following packages will be upgraded:
  apport apport-gtk bind9-host binutils ca-certificates compiz compiz-core
  compiz-gnome compiz-plugins-default cpio cups-browsed cups-filters
  cups-filters-core-drivers curl dnsutils dpkg dpkg-dev eog firefox
  fonts-opensymbol gir1.2-gst-plugins-base-1.0 gir1.2-gstreamer-1.0
  gir1.2-javascriptcoregtk-3.0 gir1.2-rb-3.0 gir1.2-webkit-3.0 glib-networking
  glib-networking-common glib-networking-services grub-common grub-pc
  grub-pc-bin grub2-common gstreamer1.0-alsa gstreamer1.0-plugins-base
  gstreamer1.0-plugins-base-apps gstreamer1.0-plugins-good
  gstreamer1.0-pulseaudio gstreamer1.0-tools gstreamer1.0-x ifupdown im-config
  initscripts isc-dhcp-client isc-dhcp-common krb5-locales libbind9-90
```

update/upgrade

```
[root@centos8-nixcraft ~]# yum update
Last metadata expiration check: 0:08:45 ago on Tuesday 17 December 2019 08:05:55 AM UTC.
Dependencies resolved.
================================================================================
 Package                  Arch   Version                                  Repository
                                                                             Size
================================================================================
Installing:
 kernel                   x86_64 4.18.0-80.11.2.el8_0                     BaseOS    424 k
 kernel-core              x86_64 4.18.0-80.11.2.el8_0                     BaseOS     24 M
 kernel-modules           x86_64 4.18.0-80.11.2.el8_0                     BaseOS     20 M
Upgrading:
 qemu-guest-agent         x86_64 15:2.12.0-65.module_el8.0.0+189+f9babebb.5 AppStream 188 k
 bash                     x86_64 4.4.19-8.el8_0                           BaseOS    1.5 M
 dracut                   x86_64 049-10.git20190115.el8_0.1               BaseOS    361 k
 dracut-config-rescue     x86_64 049-10.git20190115.el8_0.1               BaseOS     51 k
 dracut-network           x86_64 049-10.git20190115.el8_0.1               BaseOS     96 k
 dracut-squash            x86_64 049-10.git20190115.el8_0.1               BaseOS     52 k
 grub2-common             noarch 1:2.02-66.el8_0.1                        BaseOS    880 k
 grub2-pc                 x86_64 1:2.02-66.el8_0.1                        BaseOS     35 k
 grub2-pc-modules         noarch 1:2.02-66.el8_0.1                        BaseOS    899 k
 grub2-tools              x86_64 1:2.02-66.el8_0.1                        BaseOS    1.9 M
 grub2-tools-extra        x86_64 1:2.02-66.el8_0.1                        BaseOS    1.0 M
 grub2-tools-minimal      x86_64 1:2.02-66.el8_0.1                        BaseOS    196 k
 initscripts              x86_64 10.00.1-1.el8_0.1                        BaseOS    337 k
 kernel-tools             x86_64 4.18.0-80.11.2.el8_0                     BaseOS    574 k
 kernel-tools-libs        x86_64 4.18.0-80.11.2.el8_0                     BaseOS    433 k
 kpartx                   x86_64 0.7.8-7.el8_0.2                          BaseOS    100 k
 libnfsidmap              x86_64 1:2.3.3-14.el8_0.2                       BaseOS    121 k
 platform-python          x86_64 3.6.8-4.el8_0                            BaseOS     79 k
 python3-libs             x86_64 3.6.8-4.el8_0                            BaseOS    7.9 M
 python3-perf             x86_64 4.18.0-80.11.2.el8_0                     BaseOS    531 k
 python3-rpm              x86_64 4.14.2-11.el8_0                          BaseOS    147 k
 rpm                      x86_64 4.14.2-11.el8_0                          BaseOS    537 k
 rpm-build-libs           x86_64 4.14.2-11.el8_0                          BaseOS    150 k
 rpm-libs                 x86_64 4.14.2-11.el8_0                          BaseOS    333 k
 rpm-plugin-selinux       x86_64 4.14.2-11.el8_0                          BaseOS     71 k
 rpm-plugin-systemd-inhibit
                          x86_64 4.14.2-11.el8_0                          BaseOS     72 k
 selinux-policy           noarch 3.14.1-61.el8_0.2                        BaseOS    591 k
 selinux-policy-targeted  noarch 3.14.1-61.el8_0.2                        BaseOS     15 M
Installing dependencies:
 grub2-tools-efi          x86_64 1:2.02-66.el8_0.1                        BaseOS    444 k

Transaction Summary
================================================================================
Install   4 Packages
Upgrade  28 Packages
```

```
[vivek@centos8-nixcraft ~]$ uname -mrs
Linux 4.18.0-80.11.2.el8_0.x86_64 x86_64
[vivek@centos8-nixcraft ~]$
[vivek@centos8-nixcraft ~]$ sudo yum check-update
Last metadata expiration check: 0:15:27 ago on Tuesday 17 December 2019
[vivek@centos8-nixcraft ~]$
[vivek@centos8-nixcraft ~]$ echo $?
0
[vivek@centos8-nixcraft ~]$ cat /etc/redhat-release
CentOS Linux release 8.0.1905 (Core)
[vivek@centos8-nixcraft ~]$
```

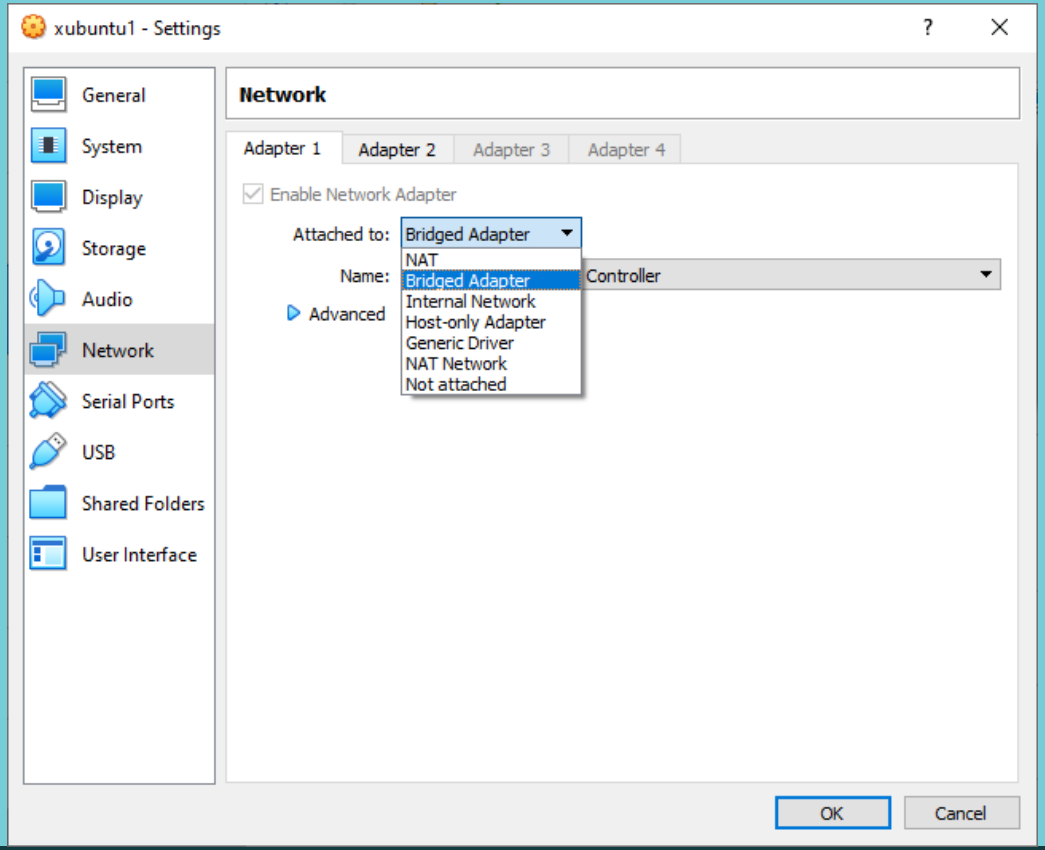
Packet installation (CentOS)

```
#yum help
#yum list
#yum list available
#yum list installed
#yum list installed httpd
#yum list all
#yum list kernel
#yum info httpd
#yum deplist httpd
#yum provides "*bin/top"
#yum search httpd
#yum search yum
#yum updateinfo list security
```

Packet installation (Ubuntu)

```
sudo apt-get install package1 package2 package3 ...
sudo apt-get install vim
sudo apt-get remove package_name
sudo apt-get purge package_name
sudo apt-get autoremove
```

Fast network settings



ip a
ifconfig
ping 8.8.8.8
traceroute 8.8.8.8

THE MAIN CHARACTERISTICS OF LINUX OSes

Command history. The Bash shell provides to the user command line tools to manage command history. Command history is, first of all, a very handy tool that shortens manual input.
For command history, you can use the Bash command: ***history***

```
[globus @ fedora ~] $ history
……
365 history | less
366 history
367 echo $ HISTCMD
368 echo $ HISTFILE
369 history
[globus @ fedora ~] $
```

To view the commands history, are often used the keys ↑ ↓ - which allow you to navigate in commands history.

Completion mechanism. Abbreviations allow you to quickly type commands, and file names, which most often are parameters of these commands. It happens when typed line - the path to the file and the first few letters of its name - is enough to unambiguously point to this file, because there are no more files along the entered path, whose name begins with these letters. In order not to add the remaining letters in bash, you need press the **Tab** key

Getting / changing personal information

To obtain personal information, should be used this commands:
who - shows who is currently logged into the system.
w - shows who is currently in the system and what he is doing.
whoami - Prints out the user's UID(the name of the user executing this command.)
id - prints extended user information (group, uid, gid).
finger - displays information about the user.

To change personal information:
chfn - change personal information displayed by finger.
chsh - change the commands interpratator .
passwd - change the user's password.

QUESTIONS & ANSWERS


THANK YOU!