

Operating Systems

Lecture 02: Linux introduction

Contents

- 1) **Familiarizing yourself with linux**
- 2) **Managing user and group accounts**
- 3) **Managing partitions and the linux filesystem**
- 4) **Managing files in linux**
- 5) **Working with linux permissions and ownership**
- 6) **Printing files**
- 7) **Managing packages**
- 8) **Managing kernel services**
- 9) **Working with the bash shell and shell scripts**
- 10) **Managing jobs and processes**
- 11) **Managing system services**
- 12) **Configuring network services**
- 13) **Configuring basic internet services**
- 14) **Securing linux**
- 15) **Managing hardware**

Familiarizing yourself with linux

Why Linux Differs from Other Operating Systems

- You cannot see the code used to create the operating system.
- You, therefore, cannot change the operating system at its most basic levels if it doesn't suit your needs—and you can't use the operating system to build your own operating system from source code.
- You cannot check the code to find bugs, explore security vulnerabilities, or simply learn what that code is doing.
- You may not be able to easily plug your own software into the operating system if the creators of that system don't want to expose the programming interfaces you need to the outside world.

Familiarizing yourself with linux

History

The GNU Project (GNU's Not Unix)

- Unix and Richard Stallman
- The Free Software Foundation (FSF) 1984
- <http://www.fsf.org>



Copyleft vs Copyright

- The term “copyleft” is used to define a concept that is essentially the opposite of “copyright.”
- Richard Stallman proposed this concept to create a licensing arrangement under which software can be freely used, modified, and copied by others.

Familiarizing yourself with linux

Open source vs Free software

- Free

- FREE RUN
- Open source
- Free copy
- Free edit and distribute

- Open source

- Not free

Familiarizing yourself with linux

General Public License (GPL)

GPL is a licensing agreement that effectively enforces public ownership of software released under it.

Version	Date of Release
GPLv1	January 1989
GPLv2	June 1991
GPLv3	June 2007

Familiarizing yourself with linux

Others licenses

- OSI (open source initiative)
- LGPL (The GNU Lesser General Public License)
- BSD (The Berkeley Software Distribution License)
- MIT (The MIT license)
- Mozilla (The Mozilla license)
- Apache

Familiarizing yourself with linux

The Linux Operating System

- The Linux operating system is a complete, open source operating system that combines GNU utilities and the Linux kernel

The kernel

- Is the central core of the Linux operating system that manages all the computer's physical devices
- The Linux kernel was developed by Linus Torvalds in 1991

Familiarizing yourself with linux

Uses of Linux

Servers

Workstations

Desktops

Software development platforms

Parallel processors

Familiarizing yourself with linux

Benefits of Linux

- Open source operating system
- Low cost.
- Easy licensing.
- Increased likelihood of bug detection.
- Better performance and stability.
- Ability to be easily customized.
- Increased security.
- Compatibility of software across different versions.
- Smaller file sizes and reduced use of system resources.

Familiarizing yourself with linux

The features that make up Linux and similar computer operating systems include the following:

- Detecting and preparing hardware
- Managing processes
- Managing memory
- Providing user interfaces
- Controlling filesystems
- Providing user access and authentication
- Offering administrative utilities
- Starting up services
- Programming tools

Familiarizing yourself with linux

Linux Distributions

Debian

Slackware

Red Hat

SUSE

Familiarizing yourself with linux

- Installation of ubuntu

- Download

<https://www.ubuntu.com/#download>

- Normal or Encryption

Automatic or Manual

- BIOS

- Secure boot

- Legacy

Old

Max size 64 bit

Assembly language

Compatible with Linux

- Extensible Firmware Interface (EFI)

New

Max size 512 MB

C language

Faster boot

RAID

Passwords choosing

Beside windows

Configure Linux settings

Thanks For Attention