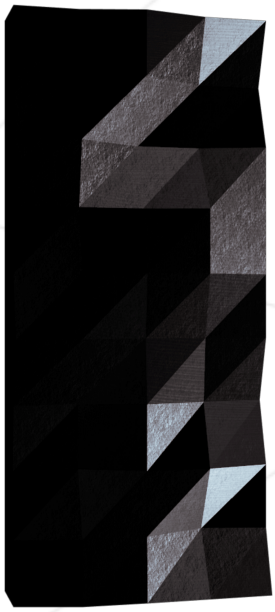

ft_linux

how_to_train_your_kernel

Summary: Make your own linux distribution

Version: 2

Contents

Chapter I

Introduction

Welcome to ft_linux. In this subject, you have to build a basic, but functional, linux distribution.

This subject is not about Kernel programming, but it's highly related.
This distro will be the base for all your kernel projects, because all your kernel-code will be executed here, on your distro.
Try to implement what you want/need to. This is your userspace, take care of it!

Chapter II

Goals

- Build a Linux Kernel
- Install some binaries (See the list below)
- Implement a filesystem hierarchy compliant with the standards
- Connect to the Internet

Chapter III

General instructions

III.0.1 The links

- The Bible
- How to build a Kernel
- Autotools

III.0.2 Instructions

- For this subject, you must use a virtual machine, live VirtualBox or VMWare.
- Though it is not REQUIRED, you SHOULD read this and that right now. Keep those standards in mind. You won't be graded on your compliance with them, but still, it would be good practice.
- You must use a kernel version >= 4.0. Stable or not, as long as it's a 4.0 >= version.
- The kernel sources must be in /usr/src/kernel-$(version)
- You must use at least 3 differents partitions. (root, /boot and a swap partition). You can of course make more partitions if you want to.
- Your distro must implement a kernel_module loader, like udev.
- The kernel version must contain your student login in it. Something like 'Linux kernel 4.1.2-<student_login>'
- The distribution hostname must be your student login
- You're free to choose between a 32 or 64-bit system.
- You must use a sofware for central management and configuration, like SysV or SystemD.
- Your distro must boot with a bootloader, like LILO or GRUB.
- The kernel binary located in /boot must be named like this: vmlinuz-<linux_version>-<student_login>. Adapt your bootloader configuration to that.

Chapter IV

Mandatory part

IV.0.1 Packages to Install

The following versions are known to work together correctly. However, you are free to use the versions you want.

Some packages below (vim, bash, grub, udev) are examples. Feel free to change them by any equivalent you like.

- Acl (2.2.52)
- Attr (2.4.47)
- Autoconf (2.69)
- Automake (1.15)
- Bash (4.3.30)
- Bc (1.06.95)
- Binutils (2.25.1)
- Bison (3.0.4)
- Bzip2 (1.0.6)
- Check (0.10.0)
- Coreutils (8.24)
- DejaGNU (1.5.3)
- Diffutils (3.3)
- Eudev (3.1.2)
- E2fsprogs (1.42.13)
- Expat (2.1.0)

- Expect (5.45)
- File (5.24)
- Findutils (4.4.2)
- Flex (2.5.39)
- Gawk (4.1.3)
- GCC (5.2.0)
- GDBM (1.11)
- Gettext (0.19.5.1)
- Glibc (2.22)
- GMP (6.0.0a)
- Gperf (3.0.4)
- Grep (2.21)
- Groff (1.22.3)
- GRUB (2.02 beta2)
- Gzip (1.6)
- Iana-Etc (2.30)
- Inetutils (1.9.4)
- Intltool (0.51.0)
- IPRoute2 (4.2.0)
- Kbd (2.0.3)
- Kmod (21)
- Less (458)
- Libcap (2.24)
- Libpipeline (1.4.1)
- Libtool (2.4.6)
- M4 (1.4.17)
- Make (4.1)
- Man-DB (2.7.2)
- Man-pages (4.02)
- MPC (1.0.3)
- MPFR (3.1.3)
- Ncurses (6.0)
- Patch (2.7.5)
- Perl (5.22.0)

- Pkg-config (0.28)
- Procps (3.3.11)
- Psmisc (22.21)
- Readline (6.3)
- Sed (4.2.2)
- Shadow (4.2.1)
- Sysklogd (1.5.1)
- Sysvinit (2.88dsf)
- Tar (1.28)
- Tcl (8.6.4)
- Texinfo (6.0)
- Time Zone Data (2015f)
- Udev-lfs Tarball (udev-lfs-20140408)
- Util-linux (2.27)
- Vim (7.4)
- XML::Parser (2.44)
- Xz Utils (5.2.1)
- Zlib (1.2.8)

Chapter V

Bonus part

You have a stable system ? Nice. Now let's have some fun ! Install whatever you want. Any software, GUI, ANYTHING.
Make this system yours, with your touch.
Special points for an X Server, and window managers / desktop environments, like GNOME / LXDE / KDE / i3 / dwm ...

Chapter VI

Turn-in and peer-evaluation

Turn your work in using your `GiT` repository, as usual. Only work present on your repository will be graded in defense.

For obvious reasons, you will not push your entire virtual machine but a checksum of your disk image instead.
That can be done with something like:

```
shasum < disk.vdi
```

Keep your disk image somewhere for the peer-evaluation.