

Linux course syllabus

Beginner / Session 01

Introduction

- Unix philosophy: Do One Thing and Do It Well (DOTADIW)
- How deep is deep enough
- Style is made of certain conscious choices
- Issues: Speed(Google), Concentration(Questions), Boundaries(Sysadmin, DevOps, Programmer)
- Note-taking: Zettelkasten, Second Brain, Obsidian, TiddlyWiki, DokuWiki
- Muscle memory
- Dynamic syllabus
- Linux is a family of open-source Unix-like operating systems based on the Linux kernel, an operating system kernel first released on September 17, 1991, by Linus Torvalds
- <https://distrowatch.com> : Debian/Ubuntu/RedHat/CentOS/Fedora/ArchLinux/Manjaro/Mint/Kali/Slackware
- <http://laxer.com> : Linux News

Installation

- Debian
- amd64 / i386 / netinstall
 - LVM / RAID / Encryption
 - SSH

Quick Tour

- Login
- logout / exit / <ctrl+d>
- clear / <ctrl+l>
- reboot / poweroff
- passwd
- Virtual Terminals: Alt-F1, Alt-F2, ...
- Shift-PgUp, Shift-PgDn
- ssh client / putty
- ls -lha
- pwd
- Home Directory
- mkdir / rmdir
- cd / cd .. / cd - / cd ~
- touch
- file
- Reuse previous commands
- Using TAB for completion
- Relative / Absolute Addresses
- Redirection: send output to a file or read a file as standard input to a command >
- echo "string" > filename
- rm -i -rf
- cp -i -rv
- mv -i
- alias / unalias
- wild cards * ?
- cat / more / less
- head / tail -f
- ln -s
- man
- Shell Variables (SHELL, HOME, PATH)
- which / type / enable -a
- find
- locate / updatedb
- grep
- ps -A / kill / killall
- Piping: pass standard output as standard input to another command
- chown , /etc/passwd
- chmod
- date, cal / unix timestamp
- uptime / free

Editing text files: vi

- Command mode(ESC)
- Insert mode(i)
- Command line mode(:)
- :w :q :wq :q! :w filename
- copy/cut/paste/visual y d p v
- search forward/backward
- h j k l \$ 0 G x o A

Compression

- tar zcvf file.tar.gz directory
- tar xf file.tar.gz
- gzip / gunzip / zcat / zless / zgrep
- tar jcf file.tar.bz directory
- tar xf file.tar.bz
- bzip2 / bunzip2 / bzip2 / bzless / bzgrep
- tar Jcf file.tar.xz directory
- tar xf file.tar.xz
- xz / unxz / xzcat / xzless / xzgrep

Network Settings

- ip address add 192.168.10.100/24 dev ens192
- ip address show
- ip -br -c a s
- ifconfig
- ip route add default via 192.168.10.1
- ip route del default
- ip route show
- ip -c r s
- route -n
- ping
- /etc/network/interfaces

```
auto lo
iface lo inet loopback
```

```
auto ens192
iface ens192 inet static
address 192.168.10.100/24
gateway 192.168.10.1
```

```
iface ens192 inet6 static
address 2a0e:0:1:b:109::/64
gateway 2a0e:0:1:b::1
```

- /etc/resolv.conf

```
nameserver 85.15.1.14
nameserver 85.15.1.15
```

Package Management

- /etc/apt/sources.list

```
deb http://deb.debian.org/debian bullseye main contrib non-free
deb http://deb.debian.org/debian bullseye-updates main contrib non-free
deb http://deb.debian.org/debian bullseye-backports main contrib non-free
deb http://security.debian.org/debian-security bullseye-security main contrib non-free
deb-src http://deb.debian.org/debian bullseye main contrib non-free
deb-src http://deb.debian.org/debian bullseye-updates main contrib non-free
deb-src http://deb.debian.org/debian bullseye-backports main contrib non-free
deb-src http://security.debian.org/debian-security bullseye-security main contrib non-free
```

- apt update
- apt upgrade
- apt install tree
- apt search speedometer