Mittuniversitetet
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DT149G Administration of UNIX-like systems

Laboratory Assignment— Introduction

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Contents

1 Introduction

This is a voluntary assignment, that covers basic installation of a Linux system, and some basic commands that is necessary to know for this course.

2 Aim

After completion of this assignment you will have:

- A working installation of a Linux-based system.
- Knowledge of the fundamental commands used to navigate and work with the system.

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3 Reading instructions

Before starting this assignment you should have read in Nemeth et al. [1, 1,6.1-6.4,6.6]

4 Using a previous installation

If you already have a working installation of a UNIX-like system, you can skip ahead to 5.2.

5 Tasks

All examples and instructions in this course will be performed in Ubuntu server operating system which is based on the Debian distribution [2], because of this, some instructions will be refering to Debian instead of Ubuntu.

However, you can choose any other flawor of Linux (or BSD) if you like. You will then have to adapt the instructions for your system.

5.1 Installation

Installing Ubuntu is a fairly easy process. There are numerous guide available online, however using the official installation instructions for the Linux distribution of your chosing, is preferred.

You can choose to either install your operating system using dual boot or by using a virtual machine such as virtualbox[3].

For help in installing the Ubuntu server operating system, please refer to the official documentation for Ubuntu Server[4].

5.1.1 Setting up the network

Once your system is up and running you will have to ensure that you have a working network connection. This is often managed during the installation process, and there is seldom a need to do any changes afterwards, however in this course, you will later have to change your network settings. It is therefore a good idea to get acquinted with how to configure your network settings. Debian uses the command `ip(8)` for managing network interface related configuration. e.g. if you would like to view your current ip configuration for your network interfaces you can use the command:

```
ip address
```

for more usage examples see `ip(8)`.

`ip(8)` is part of the iproute2 tool kit[5] that have replaced `ifconfig(8)` and `route(8)` in most, but not all distributions, so you should start to familiarize yourself with this command as well as the old `ifconfig(8)` and `route(8)` commands.

If you haven't gotten an IP-address you might have to manually configure this. This is done in the interfaces configuration file which is located at `/etc/network/interfaces`. See interfaces(5) for information how to set up your network card. Alternatively using `Netplan(5)`

You might also have to configure your DNS-server. This is done in the `/etc/resolv.conf`, see resolv.conf(5) for information on how to configure the dns resolver, alternatively in the netplan configuration.

5.1.2 Installation of complementary programs

In most GNU/Linux systems there is some form of package manager. Debian and Ubuntu uses dpkg. Since there are alot of packages available to the Debian distribution, the APT (Advanced Packaging Tool) was created to easily manage software and library installations for the users. For more information about APT, see apt-get(8). When using APT its important to first make sure that the package index is synchronized, for this we use the update command, `apt-get update`, after which we can start to install any software that might be needed.

5.2 Fundamental UNIX commands

The following section contains a list of some fundamental UNIX commands that you need to have a knowledge of for proper usage of the system. See the man page for each of the commands to get familiar with the usage. File management

- `ls(1)`
- `cd`
- `pwd(1)`
- `mkdir(1)`
- `rmdir(1)`
- `cp(1)`
- `mv(1)`
- `rm(1)`
- `find(1)`
- `which(1)`
- `touch(1)`
- `stat(1)`

Working with files

- `cat(1)`
- `more(1)`
- `less(1)`
- `head(1)`
- `tail(1)`
- `grep(1)`
- `vi(1)`
- `nano(1)`

For more commands see coreutils in GNUs info manual by running `info coreutils`.

6 Examination

No examination is done on this assignment

References

[1] Evi Nemeth, Garth Snyder, Trent R. Hein, Ben Whaley, and Dan Mackin. *Unix and Linux system administration handbook*. Addison-Wesley/Pearson, Boston, fifth edition. edition, 2017. ISBN 9780134277554.

[2] Debian – the universal operating system. URL `http://www.debian.org`.

[3] Oracle vm virtualbox. URL `https://www.virtualbox.org`.

[4] Ubuntu server. URL `http://www.ubuntu.com/download/server`.

[5] The Linux Foundation. Oracle vm virtualbox. URL `http://www.linuxfoundation.org/collaborate/workgroups/networking/iproute2`.