Mittuniversitetet
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DT149G Administration of UNIX-like systems

Laboratory Assignment: Introduction

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Contents

1 Introduction

This laboratory assignment is a mandatory assignment that must be handed in within the first three weeks of the 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 chapters 1, 12.1, 12.5-12.7 12.10 in Nemeth et al. [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

In this course we are going to base the lab instructions on the ubuntu-server operating system which is based on the Debian distribution [1], because of this, some instructions will be refering to Debian instead of Ubuntu. You can however choose any other flawor of Linux (or BSD) if you like, however then you will have to adapt the instructions for your system.

5.1 Installation

You can choose to either install your operating system using dual boot or by using a virtual machine such as virtualbox[4].

For help in installing the Ubuntu server operating system, please refer to the official documentation for Ubuntu Server[3].

During the partitioning of the harddrive make sure to leave 5-10GB unpartitioned for a later assignment.

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. 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 will eventually replace `ifconfig(8)` and `route(8)` 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.

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.

5.1.2 Installation of complementary programs

Once the connection to the Internet is working, we can start to install software to our server. In most GNU/Linux systems there is some form of package manager. Debian uses dpkg. Since there are alot of packages available to the Debian distribution APT (Advanced Packaging Tool) was created for easy access and installation for the users, to get 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. See [2] for information on how to install Gnome desktop manager using APT.

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

To pass this assignment you must give an explanation together with a usage example to each of the commands that have been listed in 5.2

References

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

[2] Gnome - debian wiki, . URL http://wiki.debian.org/Gnome.

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

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

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

[6] Evi Nemeth, Garth Snyder, Trent R. Hein, and Ben Whaley. *UNIX and Linux system administration handbook*. Prentice Hall, Upper Saddle River, NJ, 4th ed. edition, 2011. ISBN 978-0-13-148005-6 (pbk. : alk. paper).