

Linux lab 1 - Logon, navigation, editing, filters, disks

During this laboration we will learn a basic set of commands that we will need during the remainder of the course. The main idea is to get the skills needed to be able to experiment on your own. As you progress, fill in the empty lines with the correct information so you can repeat the lab if needed.

Goals

- Be able to effortlessly navigate the file structure.
- Being able to copy, move and remove files.
- Being able to create and remove folders.
- Using the text editor vi to open, edit and save a text file.
- Being able to use the embedded manual system.
- Being able to use filters, such as more and grep.
- Being able to redirect out (and in) data.
- Being able to evaluate hard disk status.

Preparations

1. Get familiar with VMWare Player. See the link on the course page.
2. Read about all the commands needed in this laboration. Document their function and arguments for typical use. (bring the command reference book to the lab)

cd _____

ls _____

pwd _____

cp _____

rm _____

mv _____

mkdir _____

rmdir _____

man _____

more _____

grep _____

df _____

du _____

Laboration

1. Copy the virtual machine called Ubuntu_10_10_Server from the template folder on the drive D:\. Log in to the system using user ide and password ide.

2. Navigate the file structure. To be able to navigate the file structure we will use the commands cd (change directory), ls (list) and pwd (print working directory). The command cd could be issued both in relative and absolute terms. In absolute paths you start from the root of the file structure (/). In relative paths you start in the current working directory (./).

Do the following:

Go to the folder /etc using absolute paths. How can you know that you are in this folder?

Go to the home folder of the user ide (/home/ide) using absolute paths.

Now, navigate to the folder /etc using a relative path.

From here, navigate locally from /etc to init.d using a relative path. List all files.

Change directory locally from /etc/init.d to rc.local. There seems to be a problem. Identify the problem and come up with a method to use ls to visualize the problem.

4. Removing, copying and moving single files.

Do the following (replace /home/kalle with the absolute path to your own home folder for your user ide):

Create a file called /home/kalle/textfile.txt using the command

```
touch /home/kalle/textfile.txt
```

Check this using ls.

Copy the file /home/kalle/textfil.txt to the same folder but give the copy the name textfile2.txt .

Check this using ls.

Move the file /home/kalle/textfile2.txt to the temp folder (/tmp).

Check that the file is no longer present in /home/kalle and that it is present in the folder /tmp .

Remove the file /tmp/textfile2.txt .

Check that the file is no longer present.

5. Being able to create and remove folders.

It is important that the folder is empty before trying to issue the rmdir command, otherwise the command will fail.

Do the following:

Create a folder test in your home folder.

Copy the file /home/kalle/textfile.txt to the folder test.

Try to remove the folder test.

Check that the folder was not removed.

Remove the file ./test/textfile.txt .

Try to remove the folder test.

Check that the folder was indeed removed.

6. To use the vim editor. The text editor vim is very powerful.

Command overview

i	insert mode, (ESC to exit insert mode)
a	append to right mode
/txt	move to the occurrence of "txt"
n	locate the next occurrence
w	advance to the next word
dd	delete line
D	delete remainder of a line
dw	delete word
x	delete character
o	open space for new line below the cursor line
O	open a line above the cursor
u	undo last
:w filename	save the file to filename from the command mode
:wq	save and quit
:q!	quit without saving

Try the following:

Make a copy of the file interfaces, using the following command:

```
cp /etc/network/interfaces ~/
```

The copy will end up in your home folder. The file named interfaces contain the following:

```
# This file describes ...
# and how to activate ...

# The loopback network interface
auto lo
iface lo inet loopback

# The primary network interface
auto eth0
iface eth0 inet dhcp
```

Using vim (vim filename) add the line

```
# File edited: [todays date]
```

at the top. Save and exit. View the file with cat or more. Open up the file again using vim. Change all eth0 to eth1 manually. Save the file and exit. Open up the file again and find all occurrences of eth1 using the search command.

What is the command used to insert text? _____

What is the command used to delete text? _____

What is the command used to search for text? _____

What is the command used to save a file and exit? _____

What is the command used to exit without saving? _____

7. Using the manual system (man). The command man is a catalog service that keeps track of all documentation for installed software. The manual pages might be somewhat tricky to get used to, but the only way to learn is unfortunately to read the continuously.

Try the following:

```
man rmdir
apropos rmdir
```

What is the difference between man and apropos? _____

8. Basic use of filters. The out data from a command could be redirected, from the screen to another command, a filter, that performs certain processing of the data. The two filters we will try are more, that formats a text into pages and grep that in its basic form can filter out lines of text containing a certain keyword.

Try the following:

```
ls /etc
ls /etc | more
cat /etc/passwd
cat /etc/passwd | grep ide
```

Explain the result: _____

9. Redirect in and out data. To redirect out data from the screen to a file you simply use the operator >. (To feed keystrokes from a file instead from the keyboard you use the operator <.)

Try the following (replace /home/kalle with the absolute path to your own home folder for your user ide):

```
ls /etc > /home/kalle/data.txt
```

10. Show disk status.

Try the following (replace /home/kalle with the absolute path to your own home folder for your user ide):

```
df
df -h
du /home/kalle
```

Explain the result of each command. You might have to use man or the reference:

df _____

du

11. Shut down your virtual machine and remove it from the host. Perform a correct shutdown. The command shutdown cannot be executed by the user so you will have to use sudo. When the virtual machine is closed down you also delete it from the disk.
