

Laboration 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.

Required material

You are required to print out this document. It will serve as a guide during the laboration.

You are going to need your student user name and the password in order to login in the lab computers.

Preparation

BEFORE each laboration exercise, you will be required to prepare the PREPARATION assignment (Page 2).

Doing this preparation before the exercise will help you solve the exercises and, more important, understand what you are doing in the exercise.

Preparations

1. Read about the following commands. Document their function and arguments for typical use.

~/	_____
alias	_____
apropos	_____
cat	_____
cd	_____
cp	_____
df	_____
du	_____
exit	_____
find	_____
grep	_____
logout	_____
ls	_____
man	_____
mkdir	_____
more	_____
mv	_____
pwd	_____
rm	_____
rmdir	_____
shutdown	_____
sudo	_____
touch	_____

Laboration

1. Setting up the environment.

- 1.1. Check the course web page for information about where the virtual machine repository is located.
- 1.2. Copy the virtual machine folder called DO2003 from the repository to D:\VMW\DO2003.
- 1.3. Execute (double click) the file do2003.vmx (VMware virtual machine configuration).
- 1.4. Log in to the system
User: ide
Password: ide

2. Navigate the file structure.

- 2.1. To be able to navigate the file structure we will use the commands **cd** (change directory), **ls** (list) and **pwd** (print working directory).
- 2.2. 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 (./).

3. Navigation.

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

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

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

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

3.5. Change directory 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.

4.1. What does the command **touch** do?

4.2. Use the command above to create a file called /home/ide/textfile.txt.

4.3. How can you check if that command succeeds?

4.4. Copy the file /home/ide/textfile.txt to the same folder but give the copy the name textfile2.txt.

4.5. How can you check if that command succeeds?

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

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

4.8. Remove the file /tmp/textfile2.txt

4.9. 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.

5.1. Create a folder test in your home folder.

5.2. Copy the file /home/ide/textfile.txt to the folder test.

5.3. Try to remove the folder test. Did it succeed? Is there any problem?

5.4. Check that the folder was not removed.

5.5. Remove the file ./test/textfile.txt .

5.6. Try to remove the folder test.

5.7. Check that the folder was indeed removed.

6. 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

- 6.1. Navigate to the `ide` directory.
 - 6.2. Using `vi` (`vi filename`) edit the `.bashrc` file.
 - 6.3. What is the command used to insert text?
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6.4. What is the command used to delete text?

6.5. What is the command used to search for text?

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

6.7. What is the command used to exit without saving?

6.8. Add the following line at the top of the file
`edited: [todays date]`

6.9. Save and exit.

6.10. View the file with `cat` or `more`. Make sure that your changes are there.

6.11. Open up the file again and find the first occurrence of `alias` using the search command.

6.12. There are three `alias` commands immediately below. Describe briefly their purpose.

6.13. Add an `alias`, just after the existing ones, replacing the `rm` command with `rm -I`.

6.14. Save the file and exit.

6.15. How do you list all defined `aliases`? Is your newly created `alias` on the list?

6.16. Logout and login again.

6.17. List all defined `aliases` again. Is your newly created `alias` on the list now?

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 and understand, but the only way to learn is unfortunately to read them continuously.

7.1. Try the following:

```
man rmdir
apropos rmdir
```

7.2. 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, which 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.

8.1. Try the following:

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

8.2. 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 `<`.

9.1. Execute the following command: `ls /etc > /home/ide/data.txt`.

9.2. Describe the file content.

10. Show disk status.

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

10.1. `df`

10.2. `df -h`

10.3. `du /home/ide`

11. Finishing the exercise

11.1. Ask the laboration assistant to check your work.

11.2. Shut down your virtual machine. Which command do you use to shut down?

11.3. Did it succeed? Is there any problem? Remember, the command shutdown cannot be executed by the user so you will have to execute it as administrator. How do you execute a command as administrator?

12. After the virtual machine is closed down, REMOVE it from the host.

Congratulations