

## HANDS-ON 1

Task	Hint
1. Open the VM and play Linux (Ubuntu)  Check the Applications menu  Run the command line	   (Dash home -> Terminal)
2. Identify if you are a normal user or a superuser  Try to switch to root (superuser) and report what happens	 whoami   su
3. Identify your shell	echo \$SHELL
4. Check the kernel version  Check the system distribution  Check the glibc version	uname -r  uname -a  ls -l /lib/i386-linux-gnu/libc.so*



## HANDS-ON 2

Task	Hint
Start Terminal	
1. Display the list of your files and directories	ls
2. Check more options about the ls command and  display all files	ls --help man ls info ls  ls -a
3. Clear the screen	clear
4. Compare the information given by different kinds of help about pwd command	whatis pwd help pwd man pwd info pwd
5. Go to the Downloads directory  List the files in it  Go to Desktop directory  List the files  Go back to Downloads directory  Go back to your home directory	cd Downloads  ls  cd ../Desktop  ls  cd ../Downloads (or cd -)  cd ~ cd
6. Review a few used commands with arrow and compare with output from history	history
7. Print the date on the screen  Save date into date.txt file  Add another line with date into that file	date  date > date.txt  date >> date.txt
8. Exit the shell	exit
9. Start terminal again  print the current directory	  pwd

<p>go to the Desktop directory</p> <p>print the current directory</p> <p>go back to your home directory</p> <p>print the current directory</p> <p>go to the /tmp directory</p> <p>print the current directory</p> <p>go back to your home directory using the absolute path</p> <p>list all the directories starting from root directory</p> <p>try to guess what kind of files can be stored there</p>	<pre>cd Desktop</pre> <pre>pwd</pre> <pre>cd .. ( or cd - or cd ~)</pre> <pre>pwd</pre> <pre>cd /tmp</pre> <pre>pwd</pre> <pre>cd /home/student</pre> <pre>ls /</pre> <p>(see slides 46-47)</p>
<p>10. Display more information about date.txt file</p>	<pre>ls -l d*</pre> <pre>stat date.txt</pre>

### HANDS-ON 3

Task	Hint
<p>Start the Terminal</p> <ol style="list-style-type: none"> <li>1. Make a directory called CourseLinux in your home directory</li> <li>• Copy the directory /usr/share/icons to the created 'CourseLinux' directory</li> <li>• Make a directory called test in CourseLinux directory</li> <li>• Make a directory called test1 in CourseLinux directory</li> <li>• Rename test1 into test2</li> <li>• Copy the files from directory /usr/share/icons to the created 'CourseLinux/test' directory</li> <li>• Change the filename of photos.svg to fl.svg in CourseLinux/test directory</li> <li>• Copy the file fl.svg in CourseLinux/test into fl2.svg in your home directory</li> <li>• Display the new file, close the display</li> <li>• Create a symbolic link called mylink2file to CourseLinux/test/fl.svg file in your home directory</li> <li>• Display mylink2file, close the display</li> <li>• Remove CourseLinux/test/fl.svg</li> <li>• Try to display again mylink2file and report the problem</li> </ol>	<pre>mkdir CourseLinux  cp -r -v -i /usr/share/icons/ ./CourseLinux  mkdir CourseLinux/test  mkdir CourseLinux/test1  mv CourseLinux/test1 CourseLinux/test2  cp -r -v -i /usr/share/icons/* CourseLinux/test  mv CourseLinux/test/unity-icon- theme/apps/128/photos.svg CourseLinux/test/fl.svg  cp -v -i CourseLinux/test/fl.svg fl2.svg  display fl2.svg  ln -s CourseLinux/test/fl.svg mylink2file  display mylink2file (do not forget to close the display)  rm -i CourseLinux/test/fl.svg  display mylink2file (do not forget to close the display)</pre>
<ol style="list-style-type: none"> <li>2. Clear the screen</li> <li>• Go to CourseLinux directory</li> </ol>	<pre>clear  cd CourseLinux</pre>

<ul style="list-style-type: none"> <li>• Download the file <a href="https://sites.google.com/site/frankvanpuyvelde/home/downloadfiles/tabel.dat">https://sites.google.com/site/frankvanpuyvelde/home/downloadfiles/tabel.dat</a> and matstats.log</li> <li>• Show the content of the file tabel.dat and matstats.log</li> <li>• Show the last part and the first part of matstat.log (show 30 lines)</li> <li>• Check if the patterns ardaa and ardbb appear in the file matstats.log</li> <li>• List the files of the directory in less</li> <li>• Check if the file tabel.dat is in the list</li> </ul>	<pre>wget https://sites.google.com/site /frankvanpuyvelde/home/downlo adfiles/tabel.dat  wget https://sites.google.com/site /frankvanpuyvelde/home/downlo adfiles/matstats.log  cat tabel.dat (or less tabel.dat or more tabel.dat)  less matstats.log (or more matstats.log)  tail -30 matstats.log head matstats.log  grep ardaa matstats.log grep ardbb matstats.log  ls -al   less  ls -al   grep tabel.dat</pre>
<p>3. Create a file called test4edit</p> <p>Edit the file with Gedit, nano, vi editors</p>	<pre>touch test4edit  gedit test4edit nano test4edit vi test4edit</pre>

## HANDS-ON 4

Task	Hint
<p>Start the Terminal</p> <ol style="list-style-type: none"> <li>Show the path of gcc command</li> <li>Check the path of libraries for gcc command</li> <li>Display the current user</li> <li>Display the sentence "I like Linux" with "I" removed and letters converted into capital letters</li> <li>Run the command line calculator and check the result of 1/2</li> <li>Do the same but display 2 digits</li> <li>Save date to file date.txt</li> <li>Add another line displaying the date into date.txt file</li> <li>Copy the date.txt into date1.txt file</li> <li>Add the text "I like Linux" to date1.txt file</li> <li>Add the text "And I do not" to date.txt file</li> <li>Display the information about changes between date.txt and date1.txt files</li> <li>Check the disk usage of CourseLinux directory</li> <li>Count words and lines in date.txt file</li> </ol>	<pre>which gcc  whereis gcc grep lib  whoami  echo "I like Linux"   tr -d 'I' tr a-z A-Z  bc within bc type 1/2 (enter will show the result) change the display format with scale=2 (confirm with enter) type again 1/2 (enter will display the correct value) to exit bc type quit  date &gt; date.txt  date &gt;&gt; date.txt  cp date.txt date1.txt  echo "I like Linux" &gt;&gt; date1.txt  echo "And I do not" &gt;&gt; date.txt paste date1.txt date.txt  diff date.txt date1.txt  du -kah CourseLinux  wc date.txt</pre>

<p>2. Clear the screen</p> <ul style="list-style-type: none"> <li>• Go to CourseLinux directory</li> <li>• Check if you have icons directory there</li> <li>• Archive the centos-logos directory</li> <li>• Archive and gzip the centos-logos directory</li> <li>• Create a new directory newtest under CourseLinux and unpack the archive into it</li> </ul>	<pre>clear  cd ~/CourseLinux  ls ico*  tar -cvf ico.tar icons/  tar -czvf ico.tar.gz icons/ mkdir newtest  cd newtest cp ../ico.tar.gz . tar -xzvf ico.tar.gz (or tar -xvf ico.tar)</pre>
<p>3. Go to 'CourseLinux' directory</p> <ul style="list-style-type: none"> <li>• Create a directory 'testfiles', create in it a file 'file1' containing a few numbers</li> <li>• Copy file1 into file2, remove the user write permission to file2, edit file2, print the files and permissions in testfiles directory</li> <li>• Try to edit file2 and add some numbers. Does it work?</li> </ul> <p>Change the permissions of the directory 'testfiles': remove write access for the user, print the files and permissions in the current directory</p> <ul style="list-style-type: none"> <li>• Try to copy file1 in that directory to a file file3. What happens?</li> <li>• Remove read all the access to testfiles for the others, print the files and permissions in the current directory</li> <li>• Try to list the files in testfiles directory.</li> <li>• Remove read access for the user for testfiles directory, print the files and permissions in the current directory</li> </ul>	<pre>cd ~/CourseLinux  mkdir testfiles cd testfiles touch file1 gedit file1  cp file1 file2 chmod u-w file2 ls -la  gedit file2  cd .. chmod u-w testfiles ls -la  cp testfiles/file1 testfiles/file3  chmod o-rwx testfiles ls -la  ls testfiles  chmod u-r testfiles ls -la</pre>



<ul style="list-style-type: none"> <li>• Try to list the files in testfiles directory. What happens?</li> <li>• Go to the testfiles directory and go back one level up</li> <li>• Remove read access for the user for testfiles directory, print the files and permissions in the current directory</li> <li>• Try to go to the testfiles directory. What happens?</li> </ul>	<pre>ls testfiles  cd testfiles cd ..  chmod u-x testfiles ls -la  cd testfiles</pre>
<p>4. Clear the screen</p> <ul style="list-style-type: none"> <li>• Check the processes running</li> <li>• Start the gedit editor (from the command line)</li> <li>• Open a second terminal</li> <li>• Search there for the process id of the gedit editor</li> <li>• Kill the editor</li> <li>• Start the gedit editor in background</li> </ul>	<pre>clear  ps -aux  gedit  in a new terminal: ps -u student   grep gedit  kill &lt;pid&gt; (killall gedit)  gedit &amp;</pre>