

Laboratory 1

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Introduction to Linux

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1 Activity: Know your hotkeys

1.1 Describe what the next hotkeys do (on a desktop environment)

1. <Ctrl><Alt><Backspace>: Terminates the current graphical shell
2. <Ctrl><Alt><Delete>: Logs out
3. <Alt><Tab>: Switch between windows
4. <Ctrl><Alt><F1...F6>: Switch to a different console
5. <Ctrl><Alt><F7>: Return to a graphical interface
6. <Ctrl><Alt><T>: Start terminal

1.2 Describe what the next hotkeys do (on a terminal environment)

1. <Tab>: Auto-completes the command
2. <Ctrl><C>: Cancel command
3. <Ctrl><D>: End line input
4. <Ctrl><Z>: Suspend a process
5. <Arrow Up> or <Arrow Down>: Rewrites the previous or next command

2 Activity: Commands

2.1 Answer the following questions regarding the MAN Command

1. Explain the purpose of the MAN Command: Interface to the system reference manuals. Display the manual of a certain command.
2. How can you call the MAN Command?: Using "man command"

3. The MAN command has a specific format:

FORMAT	DESCRIPTION
Name	Name of a command with a brief description
Synopsis	The table of contents of the manual
Description	Contains the purpose of the command with a general description
Hardware Dependencies	Contains the required hardware in order to run
Examples	Explains how to run a command with examples
Files	Explains the main files that can be modified to make configurations to the command
Return Value	Explains what the command returns and how
See Also	Another commands you may be interested in related to the command
Diagnostics	Some key advices for diagnostic the command
Bugs	List of bugs found and not fixed yet
Warnings	A description of why the command may produce errors
Author	Contains the name and contact of the author

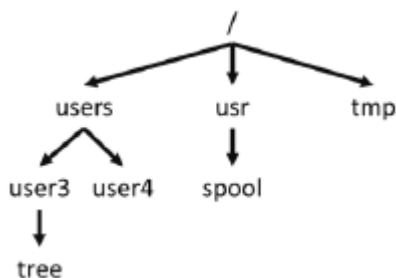
2.2 Answer the following questions regarding the PWD, LS, CD Commands and more.

1. Explain the purpose of the PWD Command and how do you call it: Gives the directory the user is at the moment. Just typing pwd on the terminal
2. Open a terminal on any Linux environment and call the PWD Command. What does it print? /home/javiermome

3. Explain the purpose of the LS Command and how do you call it: Gives the directories that are on the actual directory. Just typing ls on the command line
4. The LS Command has some optional features [-lFaR] (first word is an under case “L”), describe them: The l option displays information about the files and directories, F appends an indicator to classify entry, a includes hidden files and R will list all directories recursively.
5. Match the terminal input with their corresponding output.
 - (a) \$ ls -l dir2 → d)
 - (b) \$ ls -F → b)
 - (c) \$ ls -R → a)
 - (d) \$ ls -a → c)

2.3 Answer the following questions regarding the CD Command.

1. Explain the purpose of the CD command and how do you call it: CD stands for change directory. Writing cd directory changes the position of the terminal to the selected directory.
2. What is the difference between the following terminal inputs?
 - cd . : Stay on the same directory
 - cd .. : Go to the parent directory
 - cd ../../ : Go to the parent of the parent directory
3. Given the following diagram; what would be the effect of the inputs below:



- (a) \$ pwd → [Prints: /user/user3]
- (b) \$ cd .. → [Changes directory to /user]
- (c) \$ pwd → [Prints: /user]
- (d) \$ cd usr → [ERROR: usr is not a subdirectory]
- (e) \$ cd /usr → [Changes directory to /usr]
- (f) \$ pwd → [Prints: /usr]
- (g) \$ cd ../tmp → [Changes directory to /tmp]
- (h) \$ pwd → [Prints: /tmp]
- (i) \$ cd . → [Maintains on the same directory]
- (j) \$ pwd → [Prints: /tmp]

- 4. Which is my final position? /tmp
- 5. Which command causes an error? 4

2.4 Complete the following terminal behavior:

```
$ pwd
/users/user3 ← [default current directory]
$ cd /tmp
$ pwd
/tmp ← [current directory]
$ cd
$ pwd
/users/user3 ← [default directory]
```

2.5 Explain the purpose of the MKDIR Command and how do you call it.

Makes a new directory in the current directory. Writing on terminal: mkdir name

2.6 Explain the purpose of the RMDIR Command and how do you call it.

Deletes an empty directory. Writing on terminal rmdir name

2.7 From HOME directory, make the following directories with a single command line:

Junk/dirA/dir1

Junk/dirA

Junk/dirA/dir2

Junk/dirA/dir1/dirc

What single command did you use?

`mkdir -p Junk/dirA/dir1 Junk/dirA Junk/dirA/dir2 Junk/dirA/dir1/dirc`

2.8 Answer the following questions regarding the CP, MV and LN Commands.

1. Explain the purpose of the CP Command and how do you call it: Makes a copy of a file. Write on terminal: `cp file_name file_destination`
2. Explain the purpose of the MV Command and how do you call it: Moves or renames a file. Write on terminal: `mv file_name file_destination`
3. Explain the purpose of the LN Command and how do you call it: Creates a link for a file. Write on terminal: `ln file_name file_destination`
4. Go to home directory on terminal and then type the following:
\$ nano southPole
Narrator: "Hello Penguin"
Penguin: "Is Mr. Penguin to you, sir".
<Ctrl><x>
<y>
<Enter>
Verify that the file southPole is available. Write a command to copy this file into Junk/dirA/dir2 (retain the name southPole).
5. Once again type:
\$ nano eastPole
Narrator: "Hello Polar Bear"
Polar Bear: "Thats Dr. Polar Bear to you".
<Ctrl><x>
<y>
<Enter>

Verify that the file eastPole file is available. Write a command to rename this file into northPole, also move it to Junk/dirA/dir1 (all in a single command line).

Solution:

```
$ cp southPole Junk/dirA/dir2/.
```

```
$ mv eastPole Junk/dirA/dir1/northPole
```

Output:

```
javiermomc@JavierJr-PC:~$ ls -R; cat southPole; echo "North pole: "; cat Junk/dirA/dir1/northPole; echo "South pole: "; cat Junk/dirA/dir2/southPole
```

```
..:
```

```
Junk  southPole
```

```
./ Junk:
```

```
dirA
```

```
./ Junk/dirA:
```

```
dir1  dir2
```

```
./ Junk/dirA/dir1:
```

```
dirC  northPole
```

```
./ Junk/dirA/dir1/dirC:
```

```
./ Junk/dirA/dir2:
```

```
southPole
```

```
Narrator: "Hello Penguin"
```

```
Penguin: "Is Mr. Penguin to you, sir"
```

```
North pole:
```

```
Narrator: "Hello Polar Bear"
```

```
Polar Bear: "That's Dr. Polar Bear to you."
```

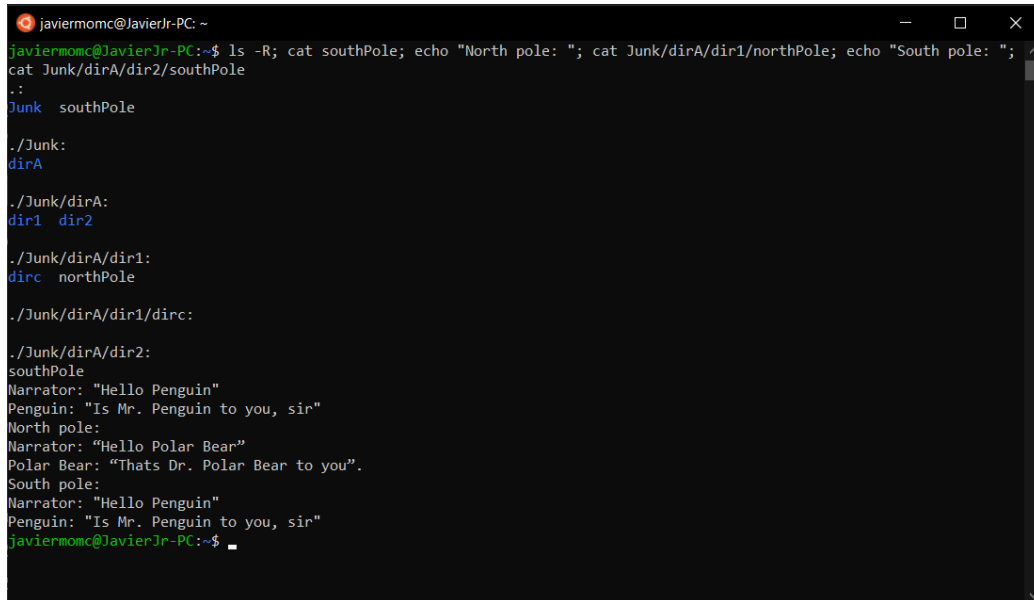
```
South pole:
```

```
Narrator: "Hello Penguin"
```

```
Penguin: "Is Mr. Penguin to you, sir"
```

```
javiermomc@JavierJr-PC:~$
```

Screenshot:



```
javiermomc@JavierJr-PC: ~  
javiermomc@JavierJr-PC:~$ ls -R; cat southPole; echo "North pole: "; cat Junk/dirA/dir1/northPole; echo "South pole: ";  
cat Junk/dirA/dir2/southPole  
.:  
Junk  southPole  
./Junk:  
dirA  
./Junk/dirA:  
dir1  dir2  
./Junk/dirA/dir1:  
dir1  northPole  
./Junk/dirA/dir1/dir1:  
./Junk/dirA/dir2:  
southPole  
Narrator: "Hello Penguin"  
Penguin: "Is Mr. Penguin to you, sir"  
North pole:  
Narrator: "Hello Polar Bear"  
Polar Bear: "That's Dr. Polar Bear to you".  
South pole:  
Narrator: "Hello Penguin"  
Penguin: "Is Mr. Penguin to you, sir"  
javiermomc@JavierJr-PC:~$
```

3 Activity: Super user

3.1 Answer the following questions:

1. Who is the super user in a Linux environment? The administrator
2. What does the command “sudo su” means? Gives the actual user administrator privileges
3. What is the difference between using “sudo su” to go to super user and using only “sudo” at the start of a command? Sudo only runs a single command and sudo su keeps admin privileges along the session.
4. How do I know if I’m in super user mode? Because there is a number symbol at the end of the pointer

4 Description of the problems faced throughout the lab development and the solutions found

During this lab, I didn't find some of the answers online, but with help of the suggestions from the command line, I found the answer of the questions, mainly for the MAN table.

5 Suggestions / commentaries

The MAN table may change depending of the manual, maybe deleting some formats will be more accurate to all manuals.

6 Bibliography

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G.B., S. (2019, November 22). Diferencias Entre su, SUDO su, sudo -i Y sudo -s. Linux para todos. <https://www.sololinux.es/diferencias-entre-su-sudo-su-sudo-i-y-sudo-s/>.

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Hoffman, C. (2016, September 28). What's the difference Between sudo and su in Linux? How. <https://www.howtogeek.com/111479/htg-explains-whats-the-difference-between-sudo-su/#:~:text=Sudo%20runs%20a%20single%20command%20with%20root%20privileges.&text=This%20is%20a%20key%20difference,a%20separate%20root%20user%20password.>

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- Operating System class notes
- Linux info command