ANNEX A · PRACTICAL 5.4 · LINUX PERMISSIONS

Name: _____ **Date:** _____ **Group:** _____

Work in `deb-lab`. Write what you **see**, not what you expect. Hand in: this sheet, and on Classroom the report `practical-5.4-surname.md` with the commands and outputs of tasks 7–9. Marking: tasks 1–6: 4 points · task 7: 2 · task 8: 2 · task 9: 1 · clear report: 1.

PART A · READING AND CHANGING PERMISSIONS

Task 1 · Look. Create a lab folder with a file and a directory, and list them.

```
mkdir ~/lab && cd ~/lab
touch notes.txt
mkdir box
ls -l
```

Permissions of `notes.txt`: _____ of `box`: _____ owner: _____ group: _____

DONE WHEN you have copied both ten-character strings exactly.

Task 2 · Decode. Fill in the table. Leave "Octal" empty until task 4.

String	Type	Owner can	Group can	Others can	Octal
`-rw-r-----`					
`drwxr-x---`					
`-rwxr-xr-x`					

Task 3 · Make a script run. Create the script, try to run it, give yourself `x`, run it again.

```
printf '#!/bin/bash\necho Hello from Tramuntana\n' > hello.sh
./hello.sh
chmod u+x hello.sh
./hello.sh
```

Error of the first try: _____ Permissions after `chmod`: _____

DONE WHEN the second run prints `Hello from Tramuntana`.

Task 4 · Octal. r = 4, w = 2, x = 1. Run each command, then `ls -l notes.txt`, and write the string.

`chmod 640 notes.txt` → _____ `chmod 600 notes.txt` → _____ `chmod 755 notes.txt` → _____

Now fill in the "Octal" column of task 2. Which octal number is `rwxr-x---`? _____

DONE WHEN the three strings match what you predicted before pressing Enter.

Task 5 · A directory is a list. Put a file in `box`, then change the directory's permissions three times. After each `chmod` run the two test commands and write **works** or **denied**.

```
echo secret > box/a.txt
```

First run	Test 1	Test 2
`chmod u-x box`	`ls box` →	`cat box/a.txt` →
`chmod u+x,u-r box`	`ls box` →	`cat box/a.txt` →
`chmod 500 box`	`touch box/b.txt` →	`rm box/a.txt` →

Finish the sentences. On a directory, **r** lets me _____ **x** lets me _____

and **w** lets me _____

DONE WHEN the table has six results and you ran `chmod 700 box` to repair the directory.

Task 6 · The surprise. Make the file read-only, try to write in it, then delete it.

```
chmod 400 box/a.txt
echo more >> box/a.txt
rm -f box/a.txt
ls box
```

Could you write? _____ Could you delete? _____ Why? _____

DONE WHEN you can explain it with the word "list".

PART B · TRAMUNTANA APPS: ONE FOLDER PER DEPARTMENT

Tramuntana Apps wants a folder for each department under `/srv/tramuntana`. Only the members of the department may enter. The owner is `root`, so no employee can change the rules.

Task 7 · Build. Create the three folders with a loop, then list them.

```
for g in dev design admin; do
    sudo mkdir -p /srv/tramuntana/$g
    sudo chown root:$g /srv/tramuntana/$g
    sudo chmod 770 /srv/tramuntana/$g
done
ls -l /srv/tramuntana
```

Permission string of `dev`: _____ owner: _____ group: _____

DONE WHEN the three folders show `drwxrwx---`, owner `root`, and each one its own group.

Task 8 · Test as two other people. A permission you have not tested is a guess. Become Pau (dev), then Joan (design). Leave each session with `exit`.

```
sudo su - pau
whoami
touch /srv/tramuntana/dev/pau.txt
exit
sudo su - joan
ls /srv/tramuntana/dev
exit
sudo ls -l /srv/tramuntana/dev
```

Pau: works / denied _____ Joan: works / denied _____ Group of `pau.txt`: _____

Marta is in `dev` too. Can she **change** `pau.txt`? Explain with the three triplets.

DONE WHEN Pau creates the file, Joan gets `Permission denied`, and your answer names the triplet that applies to Marta.

Task 9 · umask. Run `umask` and write the value: _____. Predict **before** you run:

```
umask 027
touch u027.txt
mkdir d027
ls -ld u027.txt d027
```

Prediction for the file: _____ directory: _____ Real: _____ and _____

DONE WHEN prediction and result are the same, or you can say where your prediction went wrong.

EXIT TICKET (NO VM, ALONE)

1. Which octal number is `-rw-r-----`?

☐ **a)** 600 ☐ **b)** 640 ☐ **c)** 644 ☐ **d)** 750

2. What does `x` allow on a directory?

☐ **a)** Running every file inside it ☐ **b)** Reading the list of names
☐ **c)** Entering it and reaching its files ☐ **d)** Deleting it

3. `report.txt` is `-r--r--r--` and belongs to you. The directory is `drwxrwxr-x` and yours. Can you delete the file?

☐ **a)** Yes: the directory decides ☐ **b)** No: the file is read-only
☐ **c)** Only with `sudo` ☐ **d)** Only after `chmod u+w report.txt`

4. Marta wants to give her file to Pau with `chown pau notes.txt`. What happens?

☐ **a)** It works: she is the owner ☐ **b)** It works if Pau is in her group
☐ **c)** It asks for Pau's password ☐ **d)** Operation not permitted: only root can

5. With `umask 027`, a new file gets…

☐ **a)** `rwxr-x---` ☐ **b)** `rw-r-----` ☐ **c)** `----w-rwx` ☐ **d)** `rw-rw-r--`