ANNEX A · SPECIAL PERMISSIONS & ACL · WORKSHEET

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

Work in `deb-lab`. You need yesterday's folders in `/srv/tramuntana`. Before every test as another user, run `whoami`; leave with `exit`.

PART A · THREE SPECIAL BITS

Task 1 · Hunt. List the programs that have the setuid bit.

```
find /usr/bin /usr/sbin -perm -4000 2>/dev/null | sort
ls -l /usr/bin/passwd
```

How many? _____ Who owns them? _____ Three that you know: _____

DONE WHEN you can point at the `s` in the permission string of `passwd`.

Task 2 · Four digits. Ask for the octal number with four digits.

```
stat -c '%a %A %n' /usr/bin/passwd /tmp
```

`passwd`: _____ = special bit _____ `/tmp`: _____ = special bit _____

Task 3 · Small s, capital S. Write the string after each command.

```
cd ~/lab && touch x
chmod 4644 x && ls -l x
chmod 4755 x && ls -l x
```

After `4644`: _____ After `4755`: _____ Capital `S` means: _____

DONE WHEN you can say which of the two strings is almost always a mistake.

PART B · REPAIR THE DEPARTMENT FOLDERS

Task 4 · setgid. Pau creates a file before the repair and another one after it.

```
sudo su - pau
touch /srv/tramuntana/dev/before.txt
exit
sudo chmod g+s /srv/tramuntana/dev
ls -ld /srv/tramuntana/dev
sudo su - pau
touch /srv/tramuntana/dev/after.txt
mkdir /srv/tramuntana/dev/sub
exit
sudo ls -l /srv/tramuntana/dev
```

Folder string: _____ Group of `before.txt`: _____ of `after.txt`: _____ String of `sub`: _____

Now give `design` and `admin` the same bit with one command using octal:

_____

DONE WHEN `after.txt` belongs to group `dev`, and the three department folders show `drwxrws---`.

Task 5 · The common folder. Everybody may write, nobody deletes other people's files.

```
sudo mkdir /srv/tramuntana/shared
sudo chmod 1777 /srv/tramuntana/shared
ls -ld /srv/tramuntana/shared
```

String: _____

Task 6 · Prove it. Marta creates a file. Pau tries to delete it. Then switch the sticky bit off and try again.

```
sudo su - marta
touch /srv/tramuntana/shared/m.txt
exit
sudo su - pau
rm -f /srv/tramuntana/shared/m.txt
exit
sudo chmod 777 /srv/tramuntana/shared      # sticky OFF: repeat Pau's three lines
sudo chmod +t /srv/tramuntana/shared       # sticky ON again
```

Message with the sticky bit: _____ Without it, the file is: _____

DONE WHEN Pau fails with the bit and succeeds without it, and the folder ends as `drwxrwxrwt`.

PART C · ACL: PAU MAY LOOK AT DESIGN, AND NOTHING ELSE

Joan asks: "Pau helps us for two weeks. He must **see** the design folder and **read** the files. He must not change anything."

Task 7 · Prepare. Install the tools, let Joan create a file, and check that Pau is locked out.

```
sudo apt install acl
sudo su - joan
echo logo > /srv/tramuntana/design/logo.txt
exit
sudo su - pau
ls /srv/tramuntana/design
exit
```

Pau's message: _____

Task 8 · The first ACL. Give Pau `r-x` on the folder. Test. Then give him `r` on the file. Test again.

```
sudo setfacl -m u:pau:rx /srv/tramuntana/design
sudo getfacl /srv/tramuntana/design
ls -ld /srv/tramuntana/design
```

New line in `getfacl`: _____ New character at the end of the `ls -ld` string: _____

As Pau, write **works** or **denied**: `ls` the folder _____ `cat logo.txt` _____ `touch p.txt` in it _____

```
sudo setfacl -m u:pau:r /srv/tramuntana/design/logo.txt
```

As Pau again, `cat /srv/tramuntana/design/logo.txt` → _____

DONE WHEN Pau lists the folder and reads `logo.txt`, and still cannot create a file.

Task 9 · New files too. Add a default ACL, let Joan create a new file, and read its card.

```
sudo setfacl -d -m u:pau:rx /srv/tramuntana/design
sudo su - joan
touch /srv/tramuntana/design/new.txt
exit
sudo getfacl /srv/tramuntana/design/new.txt
```

Pau's line: _____ `#effective:` _____ `mask::` _____ Can Pau change `new.txt`? _____

DONE WHEN `new.txt` has a line for Pau that nobody typed.

Task 10 · The ceiling. Lower the mask by accident, see the damage, repair it.

```
sudo chmod g-rwx /srv/tramuntana/design/logo.txt
sudo getfacl /srv/tramuntana/design/logo.txt
sudo setfacl -m m::rw /srv/tramuntana/design/logo.txt
```

After `chmod`: `mask::` _____ Pau's `#effective:` _____ After the repair, Pau can read again? _____

DONE WHEN you can explain in one sentence what the mask does.

EXIT TICKET (NO VM, ALONE)

1. `/usr/bin/passwd` is `-rwsr-xr-x root root`. When Pau runs it, the program runs as…

☐ **a)** Pau ☐ **b)** group `root` only ☐ **c)** root ☐ **d)** nobody

2. Which command makes new files in `/srv/tramuntana/admin` belong to group `admin`?

☐ **a)** `chmod 2770 /srv/tramuntana/admin` ☐ **b)** `chmod 1770 /srv/tramuntana/admin`
☐ **c)** `chmod 4770 /srv/tramuntana/admin` ☐ **d)** `chown admin /srv/tramuntana/admin`

3. A folder shows `drwxrwxrwt`. Who can delete Marta's file inside it?

☐ **a)** Everybody ☐ **b)** Nobody
☐ **c)** Anyone in her group ☐ **d)** Marta and root

4. `ls -l` shows `-rw-rw----+`. What does the `+` tell you?

☐ **a)** The file is a link ☐ **b)** The file has an ACL
☐ **c)** The sticky bit is set ☐ **d)** The file is setuid

5. `getfacl` shows `user:pau:r-x` and `mask::r--`. What can Pau really do?

☐ **a)** Read and run ☐ **b)** Nothing ☐ **c)** Only read ☐ **d)** Read and write