



**Université:** Institut Universitaire des Sciences (IUS)

**Faculté:** Sciences Informatiques

**TD N°4 –:** Systèmes

**Nom & Prénom:** SAINT-JEAN Marc-Evenort

**Professeur:** Imaël SAINT AMOUR

**Niveau:** 3ème Année

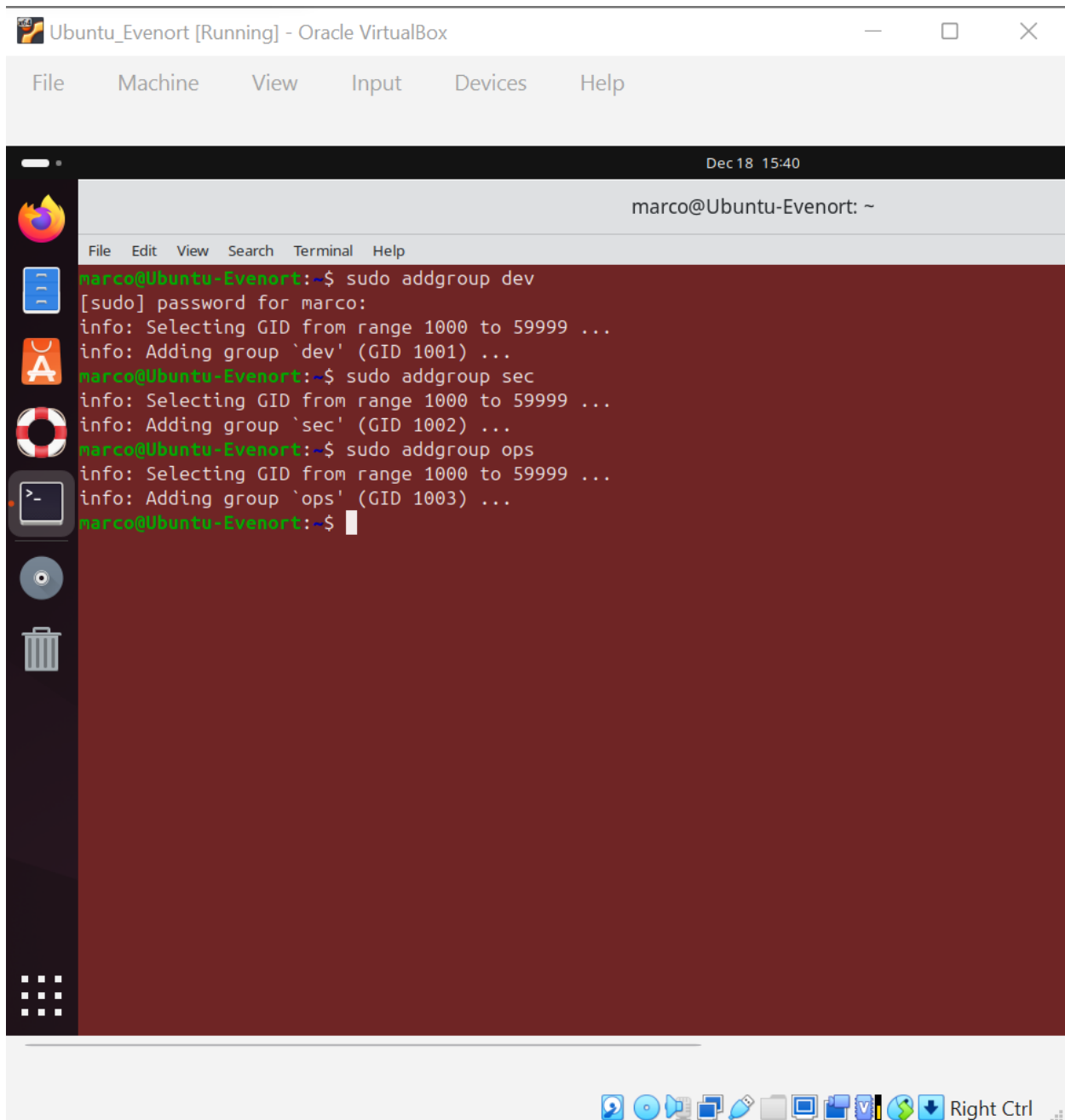
**Date:** le 21/Décembre/2025

## **Objectif de TD**

**L'objectif de ce TD est:**

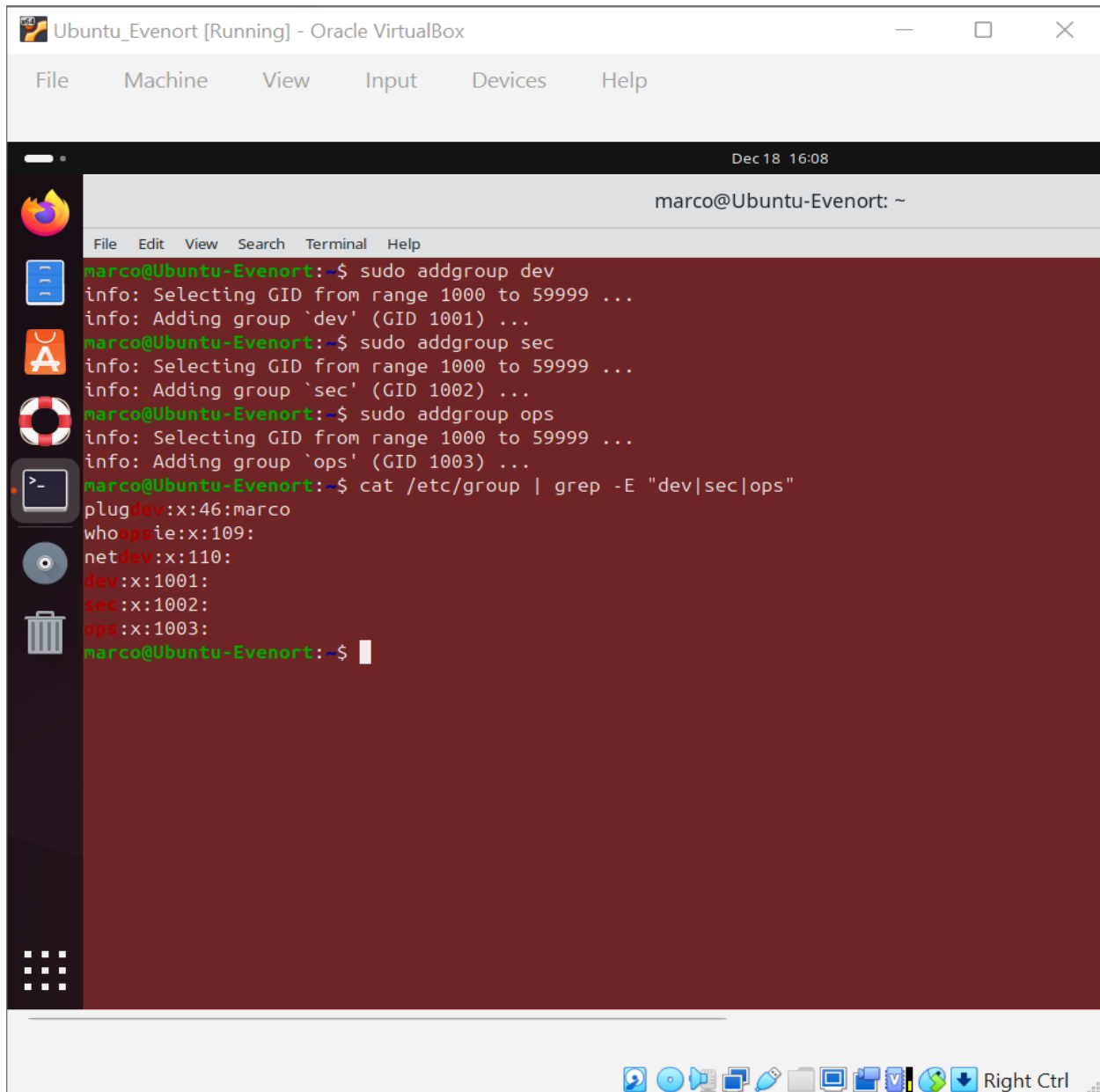
- 1- De mettre en place une politique de sécurité Linux pour un serveur de fichiers organisé par départements.
- 2- De créer les groupes et utilisateurs, de structurer l'arborescence des répertoires
- 3- De configurer les permissions afin d'assurer l'isolement des équipes.
- 4- Une collaboration contrôlée, en utilisant les permissions Linux, le SGID, le Sticky bit et les ACL.

# 1. Création des groupes



- Sur cette image, j'ai créé les groupes (dev, sec et ops)

## - Vérification:



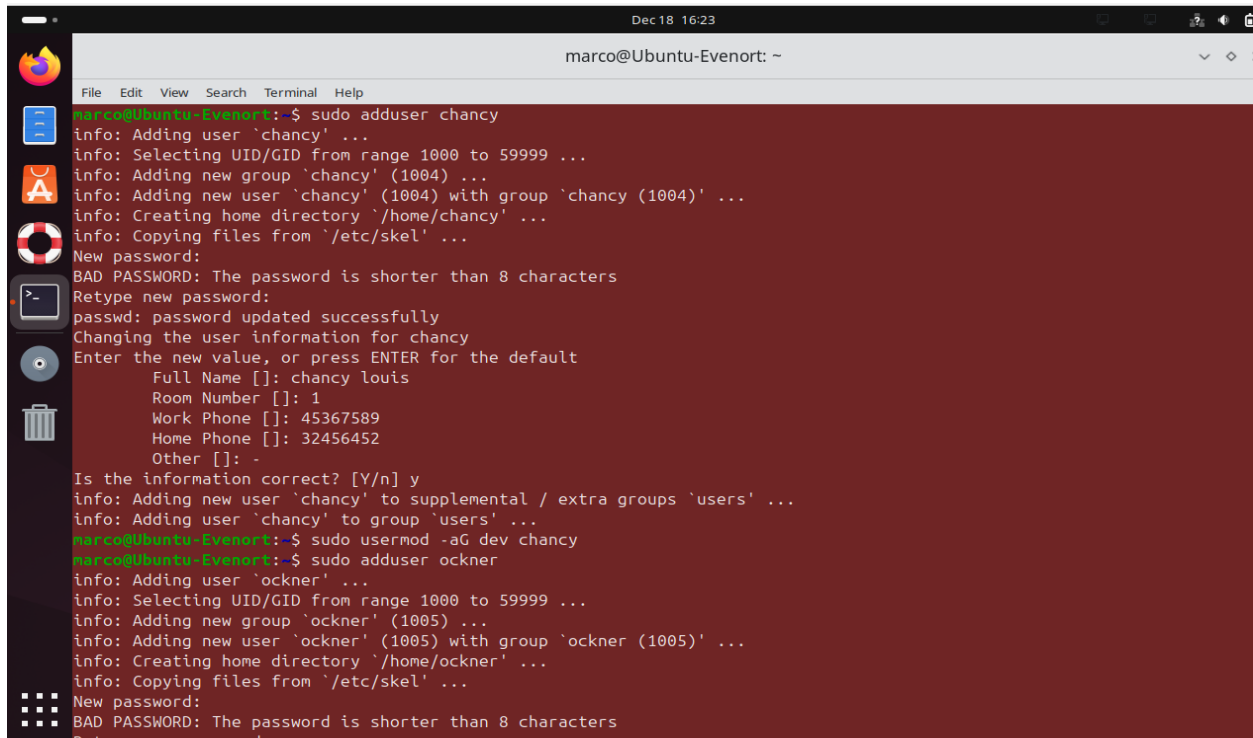
The screenshot shows a terminal window titled "Ubuntu\_Evenort [Running] - Oracle VirtualBox". The terminal output is as follows:

```
marco@Ubuntu-Evenort:~$ sudo addgroup dev
info: Selecting GID from range 1000 to 59999 ...
info: Adding group `dev' (GID 1001) ...
marco@Ubuntu-Evenort:~$ sudo addgroup sec
info: Selecting GID from range 1000 to 59999 ...
info: Adding group `sec' (GID 1002) ...
marco@Ubuntu-Evenort:~$ sudo addgroup ops
info: Selecting GID from range 1000 to 59999 ...
info: Adding group `ops' (GID 1003) ...
marco@Ubuntu-Evenort:~$ cat /etc/group | grep -E "dev|sec|ops"
plugdev:x:46:marco
whoopsie:x:109:
netdev:x:110:
dev:x:1001:
sec:x:1002:
ops:x:1003:
marco@Ubuntu-Evenort:~$
```

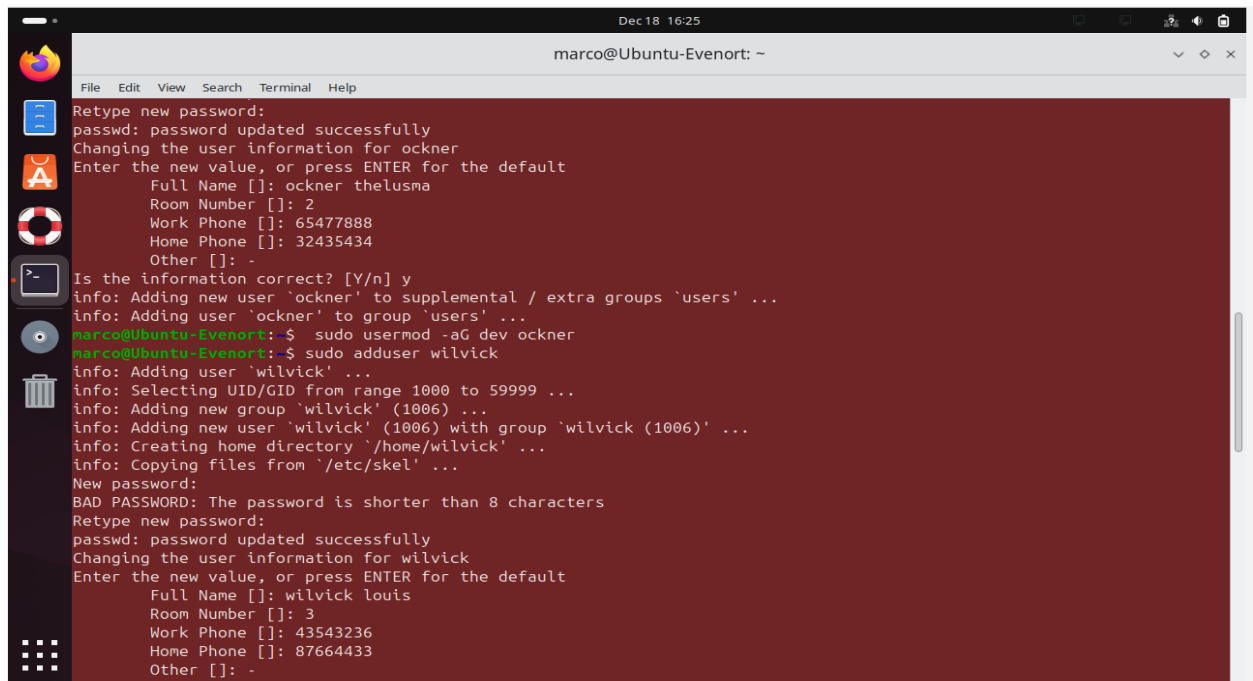
- Sur cette image, j'ai créé les groupes (dev, sec et ops) puis j'ai utilisé la commande **cat /etc/group** pour lister le contenu.

## 2. J'ai Créé les 15 utilisateurs

### a) En ajoutant dans les groups



```
marco@Ubuntu-Evenort: ~  
File Edit View Search Terminal Help  
marco@Ubuntu-Evenort:~$ sudo adduser chancy  
info: Adding user 'chancy' ...  
info: Selecting UID/GID from range 1000 to 59999 ...  
info: Adding new group 'chancy' (1004) ...  
info: Adding new user 'chancy' (1004) with group 'chancy (1004)' ...  
info: Creating home directory '/home/chancy' ...  
info: Copying files from '/etc/skel' ...  
New password:  
BAD PASSWORD: The password is shorter than 8 characters  
Retype new password:  
passwd: password updated successfully  
Changing the user information for chancy  
Enter the new value, or press ENTER for the default  
Full Name []: chancy louis  
Room Number []: 1  
Work Phone []: 45367589  
Home Phone []: 32456452  
Other []: -  
Is the information correct? [Y/n] y  
info: Adding new user 'chancy' to supplemental / extra groups 'users' ...  
info: Adding user 'chancy' to group 'users' ...  
marco@Ubuntu-Evenort:~$ sudo usermod -aG dev chancy  
marco@Ubuntu-Evenort:~$ sudo adduser ockner  
info: Adding user 'ockner' ...  
info: Selecting UID/GID from range 1000 to 59999 ...  
info: Adding new group 'ockner' (1005) ...  
info: Adding new user 'ockner' (1005) with group 'ockner (1005)' ...  
info: Creating home directory '/home/ockner' ...  
info: Copying files from '/etc/skel' ...  
New password:  
BAD PASSWORD: The password is shorter than 8 characters  
Retype new password:
```



```
marco@Ubuntu-Evenort: ~  
File Edit View Search Terminal Help  
Retype new password:  
passwd: password updated successfully  
Changing the user information for ockner  
Enter the new value, or press ENTER for the default  
Full Name []: ockner thelusma  
Room Number []: 2  
Work Phone []: 65477888  
Home Phone []: 32435434  
Other []: -  
Is the information correct? [Y/n] y  
info: Adding new user 'ockner' to supplemental / extra groups 'users' ...  
info: Adding user 'ockner' to group 'users' ...  
marco@Ubuntu-Evenort:~$ sudo usermod -aG dev ockner  
marco@Ubuntu-Evenort:~$ sudo adduser wilvick  
info: Adding user 'wilvick' ...  
info: Selecting UID/GID from range 1000 to 59999 ...  
info: Adding new group 'wilvick' (1006) ...  
info: Adding new user 'wilvick' (1006) with group 'wilvick (1006)' ...  
info: Creating home directory '/home/wilvick' ...  
info: Copying files from '/etc/skel' ...  
New password:  
BAD PASSWORD: The password is shorter than 8 characters  
Retype new password:  
passwd: password updated successfully  
Changing the user information for wilvick  
Enter the new value, or press ENTER for the default  
Full Name []: wilvick louis  
Room Number []: 3  
Work Phone []: 43543236  
Home Phone []: 87664433  
Other []: -
```

The image consists of two screenshots of a terminal window titled 'marco@Ubuntu-Evenart: ~'. The terminal shows the process of adding two new users, 'thiochemistry' and 'stanley', to the system. Both users are being added to the 'users' group and the 'dev' group. The terminal output includes prompts for password and user information, and status messages from the system.

```
Dec 18 16:27
marco@Ubuntu-Evenart: ~
File Edit View Search Terminal Help
Is the information correct? [Y/n] y
info: Adding new user 'wilvick' to supplemental / extra groups 'users' ...
info: Adding user 'wilvick' to group 'users' ...
marco@Ubuntu-Evenart:~$ sudo usermod -aG dev wilvick
marco@Ubuntu-Evenart:~$ sudo adduser thiochemistry
info: Adding user 'thiochemistry' ...
info: Selecting UID/GID from range 1000 to 59999 ...
info: Adding new group 'thiochemistry' (1007) ...
info: Adding new user 'thiochemistry' (1007) with group 'thiochemistry (1007)' ...
info: Creating home directory '/home/thiochemistry' ...
info: Copying files from '/etc/skel' ...
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: password updated successfully
Changing the user information for thiochemistry
Enter the new value, or press ENTER for the default
    Full Name []: thiochemistry jean
    Room Number []: 4
    Work Phone []: 56443327
    Home Phone []: 32445566
    Other []: -
Is the information correct? [Y/n] y
info: Adding new user 'thiochemistry' to supplemental / extra groups 'users' ...
info: Adding user 'thiochemistry' to group 'users' ...
marco@Ubuntu-Evenart:~$ sudo usermod -aG dev thiochemistry
marco@Ubuntu-Evenart:~$ sudo adduser stanley jean
fatal: The user 'stanley' does not exist.
marco@Ubuntu-Evenart:~$ sudo adduser stanley
info: Adding user 'stanley' ...
info: Selecting UID/GID from range 1000 to 59999 ...

Dec 18 16:28
marco@Ubuntu-Evenart: ~
File Edit View Search Terminal Help
    Home Phone []: 32445566
    Other []: -
Is the information correct? [Y/n] y
info: Adding new user 'thiochemistry' to supplemental / extra groups 'users' ...
info: Adding user 'thiochemistry' to group 'users' ...
marco@Ubuntu-Evenart:~$ sudo usermod -aG dev thiochemistry
marco@Ubuntu-Evenart:~$ sudo adduser stanley jean
fatal: The user 'stanley' does not exist.
marco@Ubuntu-Evenart:~$ sudo adduser stanley
info: Adding user 'stanley' ...
info: Selecting UID/GID from range 1000 to 59999 ...
info: Adding new group 'stanley' (1008) ...
info: Adding new user 'stanley' (1008) with group 'stanley (1008)' ...
info: Creating home directory '/home/stanley' ...
info: Copying files from '/etc/skel' ...
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: password updated successfully
Changing the user information for stanley
Enter the new value, or press ENTER for the default
    Full Name []: stanley jean
    Room Number []: 5
    Work Phone []: 56435477
    Home Phone []: 55664347
    Other []: -
Is the information correct? [Y/n] y
info: Adding new user 'stanley' to supplemental / extra groups 'users' ...
info: Adding user 'stanley' to group 'users' ...
marco@Ubuntu-Evenart:~$ sudo usermod -aG dev stanley
marco@Ubuntu-Evenart:~$
```

- Sur ces images, il nous montrent les utilisateurs suivant au groupe **DEV** (vue de la page 5 à 6)

b)

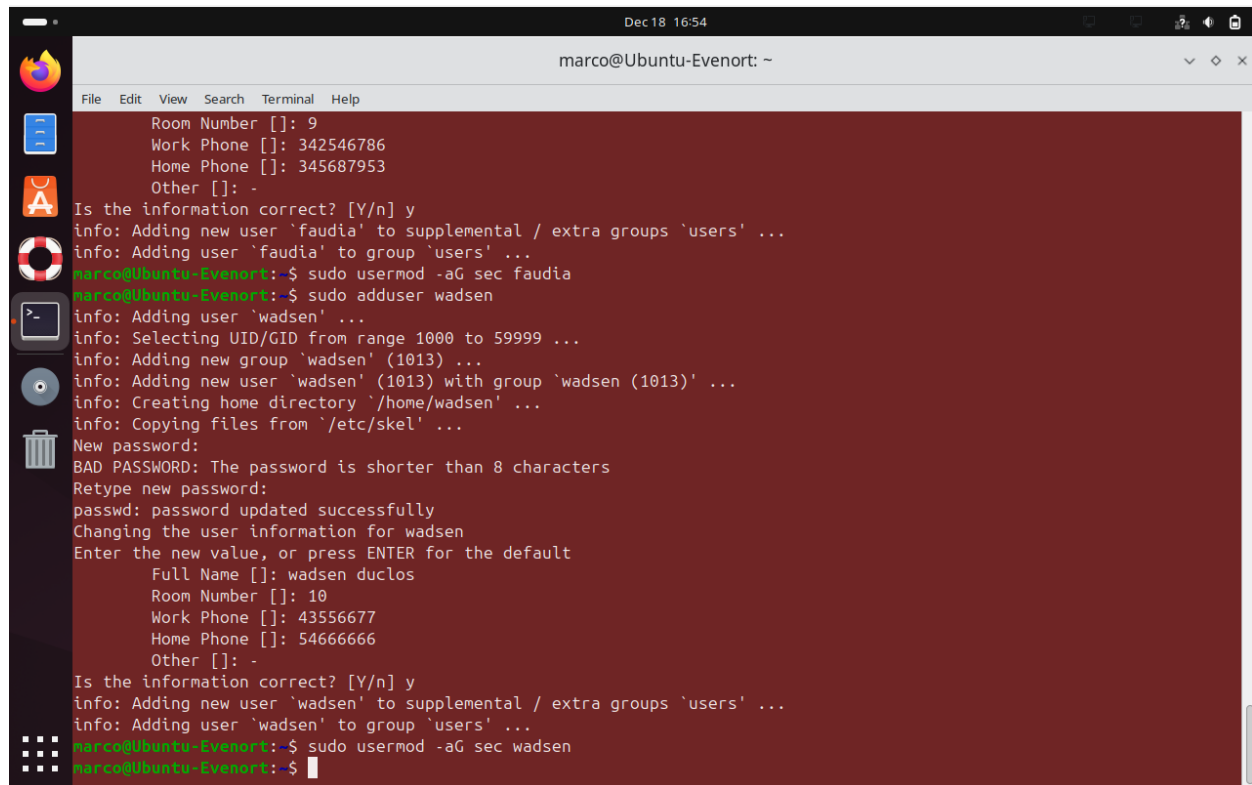
```
marco@Ubuntu-Evenort: ~  
File Edit View Search Terminal Help  
marco@Ubuntu-Evenort:~$ sudo adduser william  
info: Adding user 'william' ...  
info: Selecting UID/GID from range 1000 to 59999 ...  
info: Adding new group 'william' (1009) ...  
info: Adding new user 'william' (1009) with group 'william (1009)' ...  
info: Creating home directory '/home/william' ...  
info: Copying files from '/etc/skel' ...  
New password:  
BAD PASSWORD: The password is shorter than 8 characters  
Retype new password:  
passwd: password updated successfully  
Changing the user information for william  
Enter the new value, or press ENTER for the default  
Full Name []: william gabriel  
Room Number []: 6  
Work Phone []: 54667767  
Home Phone []: 33445654  
Other []: -  
Is the information correct? [Y/n] y  
info: Adding new user 'william' to supplemental / extra groups 'users' ...  
info: Adding user 'william' to group 'users' ...  
marco@Ubuntu-Evenort:~$ sudo usermod -aG sec william  
marco@Ubuntu-Evenort:~$ sudo adduser rica  
info: Adding user 'rica' ...  
info: Selecting UID/GID from range 1000 to 59999 ...  
info: Adding new group 'rica' (1010) ...  
info: Adding new user 'rica' (1010) with group 'rica (1010)' ...  
info: Creating home directory '/home/rica' ...  
info: Copying files from '/etc/skel' ...  
New password:  
BAD PASSWORD: The password is shorter than 8 characters  
Retype new password:
```

```
marco@Ubuntu-Evenort: ~  
File Edit View Search Terminal Help  
marco@Ubuntu-Evenort:~$ sudo adduser rica  
info: Adding user 'rica' ...  
info: Selecting UID/GID from range 1000 to 59999 ...  
info: Adding new group 'rica' (1010) ...  
info: Adding new user 'rica' (1010) with group 'rica (1010)' ...  
info: Creating home directory '/home/rica' ...  
info: Copying files from '/etc/skel' ...  
New password:  
BAD PASSWORD: The password is shorter than 8 characters  
Retype new password:  
passwd: password updated successfully  
Changing the user information for rica  
Enter the new value, or press ENTER for the default  
Full Name []: rica saint fleur  
Room Number []: 7  
Work Phone []: 32445566  
Home Phone []: 32444555  
Other []: -  
Is the information correct? [Y/n] y  
info: Adding new user 'rica' to supplemental / extra groups 'users' ...  
info: Adding user 'rica' to group 'users' ...  
marco@Ubuntu-Evenort:~$ sudo usermod -aG sec rica  
marco@Ubuntu-Evenort:~$ sudo adduser wideline  
info: Adding user 'wideline' ...  
info: Selecting UID/GID from range 1000 to 59999 ...  
info: Adding new group 'wideline' (1011) ...  
info: Adding new user 'wideline' (1011) with group 'wideline (1011)' ...  
info: Creating home directory '/home/wideline' ...  
info: Copying files from '/etc/skel' ...  
New password:  
BAD PASSWORD: The password is shorter than 8 characters  
Retype new password:
```

```
Dec 18 16:51
marco@Ubuntu-Evenort: ~
File Edit View Search Terminal Help
Retype new password:
passwd: password updated successfully
Changing the user information for rica
Enter the new value, or press ENTER for the default
    Full Name []: rica saint fleur
    Room Number []: 7
    Work Phone []: 32445566
    Home Phone []: 32444555
    Other []: -
Is the information correct? [Y/n] y
info: Adding new user 'rica' to supplemental / extra groups 'users' ...
info: Adding user 'rica' to group 'users' ...
marco@Ubuntu-Evenort:~$ sudo usermod -aG sec rica
marco@Ubuntu-Evenort:~$ sudo adduser wideline
info: Adding user 'wideline' ...
info: Selecting UID/GID from range 1000 to 59999 ...
info: Adding new group 'wideline' (1011) ...
info: Adding new user 'wideline' (1011) with group 'wideline (1011)' ...
info: Creating home directory '/home/wideline' ...
info: Copying files from '/etc/skel' ...
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: password updated successfully
Changing the user information for wideline
Enter the new value, or press ENTER for the default
    Full Name []: wideline julien
    Room Number []: 8
    Work Phone []: 34556674
    Home Phone []: 42334433
    Other []: -
Is the information correct? [Y/n] y
```

```
Dec 18 16:53
marco@Ubuntu-Evenort: ~
File Edit View Search Terminal Help
    Other []: -
Is the information correct? [Y/n] y
info: Adding new user 'wideline' to supplemental / extra groups 'users' ...
info: Adding user 'wideline' to group 'users' ...
marco@Ubuntu-Evenort:~$ sudo usermod -aG sec wideline
marco@Ubuntu-Evenort:~$ sudo adduser faudia
info: Adding user 'faudia' ...
info: Selecting UID/GID from range 1000 to 59999 ...
info: Adding new group 'faudia' (1012) ...
info: Adding new user 'faudia' (1012) with group 'faudia (1012)' ...
info: Creating home directory '/home/faudia' ...
info: Copying files from '/etc/skel' ...
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: password updated successfully
Changing the user information for faudia
Enter the new value, or press ENTER for the default
    Full Name []: faudia dorvilus
    Room Number []: 9
    Work Phone []: 342546786
    Home Phone []: 345687953
    Other []: -
Is the information correct? [Y/n] y
info: Adding new user 'faudia' to supplemental / extra groups 'users' ...
info: Adding user 'faudia' to group 'users' ...
marco@Ubuntu-Evenort:~$ sudo usermod -aG sec faudia
marco@Ubuntu-Evenort:~$ sudo adduser wadsen
info: Adding user 'wadsen' ...
info: Selecting UID/GID from range 1000 to 59999 ...
info: Adding new group 'wadsen' (1013) ...
info: Adding new user 'wadsen' (1013) with group 'wadsen (1013)' ...
info: Creating home directory '/home/wadsen' ...
info: Copying files from '/etc/skel' ...
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: password updated successfully
Changing the user information for wadsen
Enter the new value, or press ENTER for the default
    Full Name []: wadsen
    Room Number []: 10
    Work Phone []: 342546786
    Home Phone []: 345687953
    Other []: -
Is the information correct? [Y/n] y
```





```
Dec 18 16:54
marco@Ubuntu-Evenort: ~
File Edit View Search Terminal Help
Room Number []: 9
Work Phone []: 342546786
Home Phone []: 345687953
Other []: -
Is the information correct? [Y/n] y
info: Adding new user 'faudia' to supplemental / extra groups 'users' ...
info: Adding user 'faudia' to group 'users' ...
marco@Ubuntu-Evenort:~$ sudo usermod -aG sec faudia
marco@Ubuntu-Evenort:~$ sudo adduser wadsen
info: Adding user 'wadsen' ...
info: Selecting UID/GID from range 1000 to 59999 ...
info: Adding new group 'wadsen' (1013) ...
info: Adding new user 'wadsen' (1013) with group 'wadsen (1013)' ...
info: Creating home directory '/home/wadsen' ...
info: Copying files from '/etc/skel' ...
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: password updated successfully
Changing the user information for wadsen
Enter the new value, or press ENTER for the default
Full Name []: wadsen duclos
Room Number []: 10
Work Phone []: 43556677
Home Phone []: 54666666
Other []: -
Is the information correct? [Y/n] y
info: Adding new user 'wadsen' to supplemental / extra groups 'users' ...
info: Adding user 'wadsen' to group 'users' ...
marco@Ubuntu-Evenort:~$ sudo usermod -aG sec wadsen
marco@Ubuntu-Evenort:~$
```

- Sur ces images, il nous montrent les utilisateurs suivant au groupe **SEC**
- (vue à la page 7 à 9).

c)

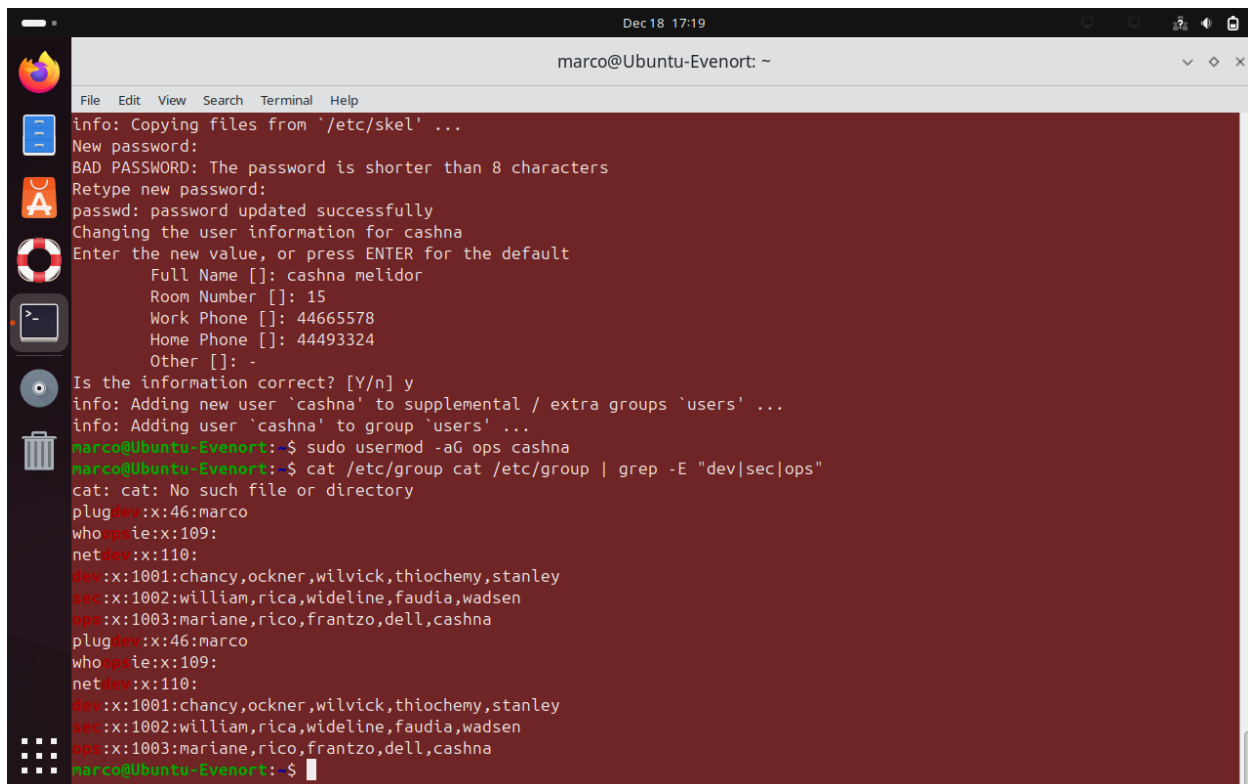
```
Dec 18 17:06
marco@Ubuntu-Evenort: ~
File Edit View Search Terminal Help
marco@Ubuntu-Evenort:~$ sudo adduser mariane
info: Adding user 'mariane' ...
info: Selecting UID/GID from range 1000 to 59999 ...
info: Adding new group 'mariane' (1014) ...
info: Adding new user 'mariane' (1014) with group 'mariane (1014)' ...
info: Creating home directory '/home/mariane' ...
info: Copying files from '/etc/skel' ...
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: password updated successfully
Changing the user information for mariane
Enter the new value, or press ENTER for the default
    Full Name []: mariane joachim
    Room Number []: 11
    Work Phone []: 54332233
    Home Phone []: 55443366
    Other []: -
Is the information correct? [Y/n] y
info: Adding new user 'mariane' to supplemental / extra groups 'users' ...
info: Adding user 'mariane' to group 'users' ...
marco@Ubuntu-Evenort:~$ sudo usermod -aG ops mariane
marco@Ubuntu-Evenort:~$ sudo adduser rico
info: Adding user 'rico' ...
info: Selecting UID/GID from range 1000 to 59999 ...
info: Adding new group 'rico' (1015) ...
info: Adding new user 'rico' (1015) with group 'rico (1015)' ...
info: Creating home directory '/home/rico' ...
info: Copying files from '/etc/skel' ...
New password:
BAD PASSWORD: The password is shorter than 8 characters
```

```
Dec 18 17:07
marco@Ubuntu-Evenort: ~
File Edit View Search Terminal Help
Retype new password:
passwd: password updated successfully
Changing the user information for rico
Enter the new value, or press ENTER for the default
    Full Name []: rico labranche
    Room Number []: 12
    Work Phone []: 55436677
    Home Phone []: 33444454
    Other []: -
Is the information correct? [Y/n] y
info: Adding new user 'rico' to supplemental / extra groups 'users' ...
info: Adding user 'rico' to group 'users' ...
marco@Ubuntu-Evenort:~$ sudo usermod -aG ops rico
marco@Ubuntu-Evenort:~$ sudo adduser frantzo
info: Adding user 'frantzo' ...
info: Selecting UID/GID from range 1000 to 59999 ...
info: Adding new group 'frantzo' (1016) ...
info: Adding new user 'frantzo' (1016) with group 'frantzo (1016)' ...
info: Creating home directory '/home/frantzo' ...
info: Copying files from '/etc/skel' ...
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: password updated successfully
Changing the user information for frantzo
Enter the new value, or press ENTER for the default
    Full Name []: frantzo julmiste
    Room Number []: 13
    Work Phone []: 44332265
    Home Phone []: 87665548
    Other []: -
```

```
Dec 18 17:08
marco@Ubuntu-Evenart: ~
File Edit View Search Terminal Help
Is the information correct? [Y/n] y
info: Adding new user 'frantzo' to supplemental / extra groups 'users' ...
info: Adding user 'frantzo' to group 'users' ...
marco@Ubuntu-Evenart:~$ sudo usermod -aG ops frantzo
marco@Ubuntu-Evenart:~$ sudo adduser dell
info: Adding user 'dell' ...
info: Selecting UID/GID from range 1000 to 59999 ...
info: Adding new group 'dell' (1017) ...
info: Adding new user 'dell' (1017) with group 'dell (1017)' ...
info: Creating home directory '/home/dell' ...
info: Copying files from '/etc/skel' ...
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: password updated successfully
Changing the user information for dell
Enter the new value, or press ENTER for the default
Full Name []: dell calixte
Room Number []: 14
Work Phone []: 56443232
Home Phone []: 55464327
Other []: -
Is the information correct? [Y/n] y
info: Adding new user 'dell' to supplemental / extra groups 'users' ...
info: Adding user 'dell' to group 'users' ...
marco@Ubuntu-Evenart:~$ sudo usermod -aG ops dell
marco@Ubuntu-Evenart:~$ sudo adduser cashna
info: Adding user 'cashna' ...
info: Selecting UID/GID from range 1000 to 59999 ...
info: Adding new group 'cashna' (1018) ...
info: Adding new user 'cashna' (1018) with group 'cashna (1018)' ...
```

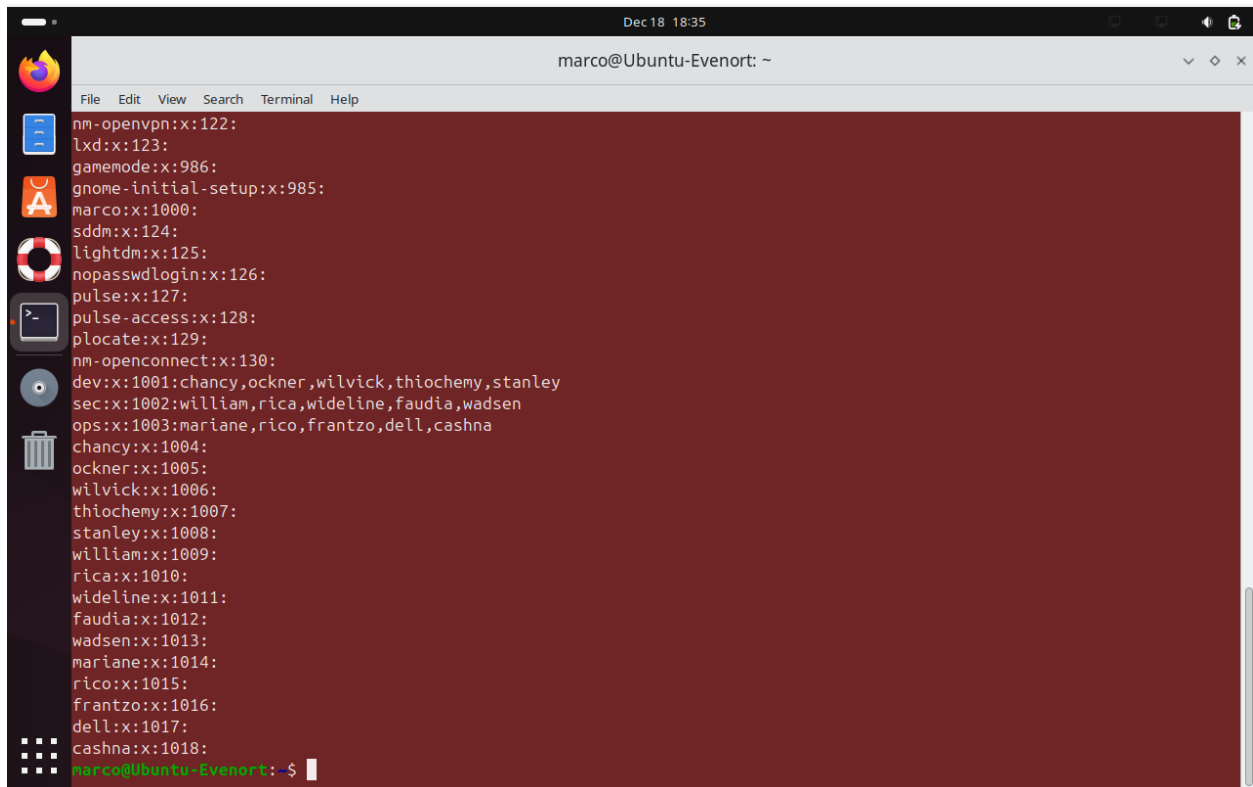
```
Dec 18 17:09
marco@Ubuntu-Evenart: ~
File Edit View Search Terminal Help
Room Number []: 14
Work Phone []: 56443232
Home Phone []: 55464327
Other []: -
Is the information correct? [Y/n] y
info: Adding new user 'dell' to supplemental / extra groups 'users' ...
info: Adding user 'dell' to group 'users' ...
marco@Ubuntu-Evenart:~$ sudo usermod -aG ops dell
marco@Ubuntu-Evenart:~$ sudo adduser cashna
info: Adding user 'cashna' ...
info: Selecting UID/GID from range 1000 to 59999 ...
info: Adding new group 'cashna' (1018) ...
info: Adding new user 'cashna' (1018) with group 'cashna (1018)' ...
info: Creating home directory '/home/cashna' ...
info: Copying files from '/etc/skel' ...
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: password updated successfully
Changing the user information for cashna
Enter the new value, or press ENTER for the default
Full Name []: cashna melidor
Room Number []: 15
Work Phone []: 44665578
Home Phone []: 44493324
Other []: -
Is the information correct? [Y/n] y
info: Adding new user 'cashna' to supplemental / extra groups 'users' ...
info: Adding user 'cashna' to group 'users' ...
marco@Ubuntu-Evenart:~$ sudo usermod -aG ops cashna
marco@Ubuntu-Evenart:~$
```

- Sur ces images, il nous montrent les utilisateurs suivant au groupe **OPS** (vue à la page 10 à 11).



```
Dec 18 17:19
marco@Ubuntu-Evenort: ~
File Edit View Search Terminal Help
info: Copying files from '/etc/skel' ...
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: password updated successfully
Changing the user information for cashna
Enter the new value, or press ENTER for the default
Full Name []: cashna melidor
Room Number []: 15
Work Phone []: 44665578
Home Phone []: 44493324
Other []: -
Is the information correct? [Y/n] y
info: Adding new user 'cashna' to supplemental / extra groups 'users' ...
info: Adding user 'cashna' to group 'users' ...
marco@Ubuntu-Evenort:~$ sudo usermod -aG ops cashna
marco@Ubuntu-Evenort:~$ cat /etc/group | grep -E "dev|sec|ops"
cat: cat: No such file or directory
plugdev:x:46:marco
whospie:x:109:
netdev:x:110:
dev:x:1001:chancy,ockner,wilvick,thiochemistry,stanley
sec:x:1002:william,rica,wideline,faudia,wadsen
ops:x:1003:mariane,rico,frantzo,dell,cashna
plugdev:x:46:marco
whospie:x:109:
netdev:x:110:
dev:x:1001:chancy,ockner,wilvick,thiochemistry,stanley
sec:x:1002:william,rica,wideline,faudia,wadsen
ops:x:1003:mariane,rico,frantzo,dell,cashna
marco@Ubuntu-Evenort:~$
```

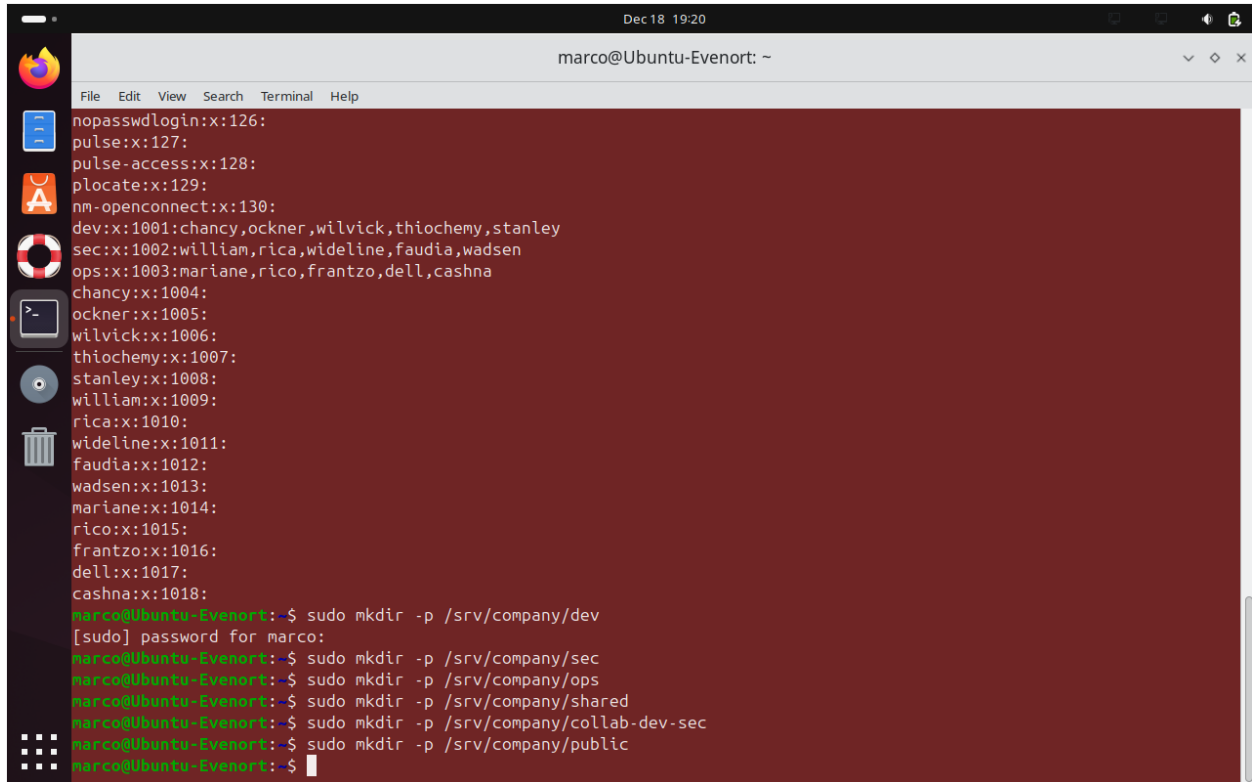
- Sur cette image, j'ai fait la vérification en utilisant la commande habituelle **cat /etc/group | grep -E "dev|sec|ops"**.



- Dans cette image, j'ai listé les groupes (**dev, sec et ops**)

### 3. Mise en place de l'arborescence

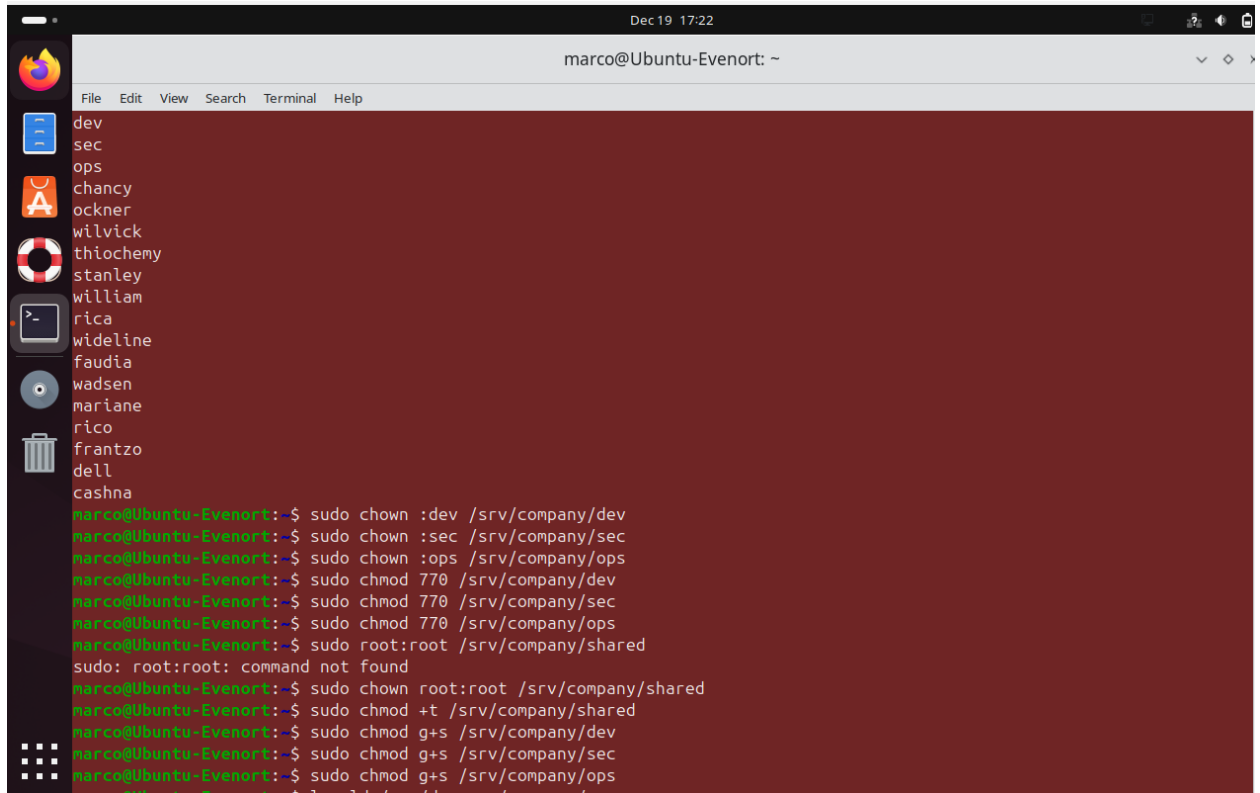
- J'ai Créé les 6 répertoires du schéma.



```
marco@Ubuntu-Evenart: ~  
File Edit View Search Terminal Help  
nopasswdlogin:x:126:  
pulse:x:127:  
pulse-access:x:128:  
plocate:x:129:  
nm-openconnect:x:130:  
dev:x:1001:chancy,ockner,wilvick,thiochemy,stanley  
sec:x:1002:william,rica,wideline,faudia,wadsen  
ops:x:1003:mariane,rico,frantzo,dell,cashna  
chancy:x:1004:  
ockner:x:1005:  
wilvick:x:1006:  
thiochemy:x:1007:  
stanley:x:1008:  
william:x:1009:  
rica:x:1010:  
wideline:x:1011:  
faudia:x:1012:  
wadsen:x:1013:  
mariane:x:1014:  
rico:x:1015:  
frantzo:x:1016:  
dell:x:1017:  
cashna:x:1018:  
marco@Ubuntu-Evenart:~$ sudo mkdir -p /srv/company/dev  
[sudo] password for marco:  
marco@Ubuntu-Evenart:~$ sudo mkdir -p /srv/company/sec  
marco@Ubuntu-Evenart:~$ sudo mkdir -p /srv/company/ops  
marco@Ubuntu-Evenart:~$ sudo mkdir -p /srv/company/shared  
marco@Ubuntu-Evenart:~$ sudo mkdir -p /srv/company/collab-dev-sec  
marco@Ubuntu-Evenart:~$ sudo mkdir -p /srv/company/public  
marco@Ubuntu-Evenart:~$
```

- Ici cette image nous montre la mise en place de l'arborescence c'est-à-dire les six (6) répertoires créés.

## 4. Configuration des permissions



```
marco@Ubuntu-Evenort: ~  
File Edit View Search Terminal Help  
dev  
sec  
ops  
chancy  
ockner  
wilvick  
thiochemy  
stanley  
william  
rica  
wideline  
faudia  
wadsen  
mariane  
rico  
frantzo  
dell  
cashna  
marco@Ubuntu-Evenort:~$ sudo chown :dev /srv/company/dev  
marco@Ubuntu-Evenort:~$ sudo chown :sec /srv/company/sec  
marco@Ubuntu-Evenort:~$ sudo chown :ops /srv/company/ops  
marco@Ubuntu-Evenort:~$ sudo chmod 770 /srv/company/dev  
marco@Ubuntu-Evenort:~$ sudo chmod 770 /srv/company/sec  
marco@Ubuntu-Evenort:~$ sudo chmod 770 /srv/company/ops  
marco@Ubuntu-Evenort:~$ sudo root:root /srv/company/shared  
sudo: root:root: command not found  
marco@Ubuntu-Evenort:~$ sudo chown root:root /srv/company/shared  
marco@Ubuntu-Evenort:~$ sudo chmod +t /srv/company/shared  
marco@Ubuntu-Evenort:~$ sudo chmod g+s /srv/company/dev  
marco@Ubuntu-Evenort:~$ sudo chmod g+s /srv/company/sec  
marco@Ubuntu-Evenort:~$ sudo chmod g+s /srv/company/ops
```

- Sur cette image, j'ai donné la permission avec les différentes groupes (dev,sec et ops).

```
marco@Ubuntu-Evenort: ~  
File Edit View Search Terminal Help  
marco@Ubuntu-Evenort:~$ sudo chmod g+s /srv/company/sec  
marco@Ubuntu-Evenort:~$ sudo chmod g+s /srv/company/ops  
marco@Ubuntu-Evenort:~$ ls -ld /srv/dev srv/sec srv/ops  
ls: cannot access '/srv/dev': No such file or directory  
ls: cannot access 'srv/sec': No such file or directory  
ls: cannot access 'srv/ops': No such file or directory  
marco@Ubuntu-Evenort:~$ ls -ld /srv/company/dev srv/company/sec srv/company/ops  
ls: cannot access 'srv/company/sec': No such file or directory  
ls: cannot access 'srv/company/ops': No such file or directory  
drwxrws-- 2 root dev 4096 Dec 18 19:14 /srv/company/dev  
marco@Ubuntu-Evenort:~$ sudo chown :dev /srv/company/collab-dev-sec  
marco@Ubuntu-Evenort:~$ sudo chmod 770 /srv/company/collab-dev-sec  
marco@Ubuntu-Evenort:~$ sudo setfacl -m g:sec:r-- /srv/company/collab-dev-sec  
marco@Ubuntu-Evenort:~$ sudo setfacl -m g:ops:--- /srv/company/collab-dev-sec  
marco@Ubuntu-Evenort:~$ getfacl /srv/company/collab-dev-sec  
getfacl: Removing leading '/' from absolute path names  
# file: srv/company/collab-dev-sec  
# owner: root  
# group: dev  
user::rwx  
group::rwx  
group:sec:r--  
group:ops:---  
mask::rwx  
other:---  
default:user::rwx  
default:group::rwx  
default:group:sec:r-x  
default:mask::rwx  
default:other:---
```

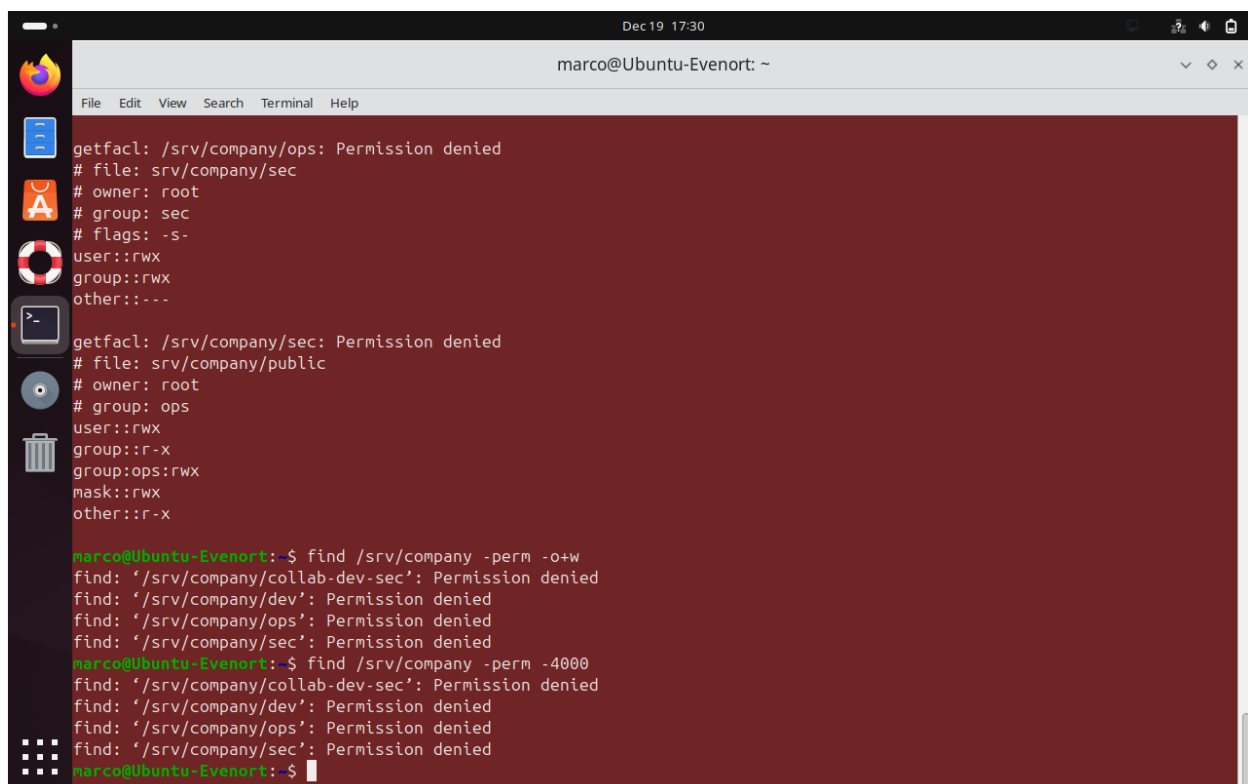
```
marco@Ubuntu-Evenort: ~  
File Edit View Search Terminal Help  
marco@Ubuntu-Evenort:~$ sudo chown :ops /srv/company/public  
marco@Ubuntu-Evenort:~$ sudo chmod 755 /srv/company/public  
marco@Ubuntu-Evenort:~$ sudo setfacl -m g:ops:rwx /srv/company/public  
marco@Ubuntu-Evenort:~$ ls -lR /srv  
/srv:  
total 4  
drwxr-xr-x 8 root root 4096 Dec 18 19:16 company  
/srv/company:  
total 28  
drwxrwx-+++ 2 root dev 4096 Dec 18 19:15 collab-dev-sec  
drwxrws--- 2 root dev 4096 Dec 18 19:14 dev  
drwxrws--- 2 root ops 4096 Dec 18 19:14 ops  
drwxrwxr-x+ 2 root ops 4096 Dec 18 19:16 public  
drwxrws--- 2 root sec 4096 Dec 18 19:14 sec  
drwxr-xr-t 2 root root 4096 Dec 18 19:15 shared  
ls: cannot open directory '/srv/company/collab-dev-sec': Permission denied  
ls: cannot open directory '/srv/company/dev': Permission denied  
ls: cannot open directory '/srv/company/ops': Permission denied  
/srv/company/public:  
total 0  
ls: cannot open directory '/srv/company/sec': Permission denied  
/srv/company/shared:  
total 0
```

- Sur ces deux images, j'ai réalisé un audit en listant toutes les permissions de /srv.



```
marco@Ubuntu-Evenort: ~  
File Edit View Search Terminal Help  
marco@Ubuntu-Evenort:~$ getfacl -R /srv/company  
getfacl: Removing leading '/' from absolute path names  
# file: srv/company  
# owner: root  
# group: root  
user::rwx  
group::r-x  
other::r-x  
  
# file: srv/company/collab-dev-sec  
# owner: root  
# group: dev  
user::rwx  
group::rwx  
group:sec:r--  
group:ops:---  
mask::rwx  
other:---  
default:user::rwx  
default:group::rwx  
default:group:sec:r-x  
default:mask::rwx  
default:other:---  
  
getfacl: /srv/company/collab-dev-sec: Permission denied  
# file: srv/company/shared  
# owner: root  
# group: root  
# flags: --t  
user::rwx  
group::r-x  
  
# file: srv/company/dev  
# owner: root  
# group: dev  
# flags: -s-  
user::rwx  
group::rwx  
other:---  
  
getfacl: /srv/company/dev: Permission denied  
# file: srv/company/ops  
# owner: root  
# group: ops  
# flags: -s-  
user::rwx  
group::rwx  
other:---  
  
getfacl: /srv/company/ops: Permission denied  
# file: srv/company/sec  
# owner: root  
# group: sec  
# flags: -s-  
user::rwx  
group::rwx  
other:---  
  
getfacl: /srv/company/sec: Permission denied  
# file: srv/company/public  
# owner: root  
# group: ops
```

- Sur ces deux images, j'ai utilisé la commande **getfacl -R /srv/company** pour faire la vérification.



The screenshot shows a terminal window titled "marco@Ubuntu-Evenort: ~" with a menu bar (File, Edit, View, Search, Terminal, Help). The terminal output is as follows:

```
getfacl: /srv/company/ops: Permission denied
# file: srv/company/sec
# owner: root
# group: sec
# flags: -s-
user::rwx
group::rwx
other::---

getfacl: /srv/company/sec: Permission denied
# file: srv/company/public
# owner: root
# group: ops
user::rwx
group::r-x
group:ops:rwx
mask::rwx
other::r-x

marco@Ubuntu-Evenort:~$ find /srv/company -perm -o+w
find: '/srv/company/collab-dev-sec': Permission denied
find: '/srv/company/dev': Permission denied
find: '/srv/company/ops': Permission denied
find: '/srv/company/sec': Permission denied
marco@Ubuntu-Evenort:~$ find /srv/company -perm -4000
find: '/srv/company/collab-dev-sec': Permission denied
find: '/srv/company/dev': Permission denied
find: '/srv/company/ops': Permission denied
find: '/srv/company/sec': Permission denied
marco@Ubuntu-Evenort:~$
```

- Sur cette image, j'ai détecté les fichiers trop permissifs en vérifiant aussi les dossiers avec SUID/SGID/Sticky Bit.

## **Conclusion**

Ce TD a permis de mettre en pratique les mécanismes de sécurité des fichiers sous Linux dans un contexte professionnel. Malgré certaines difficultés rencontrées, notamment dans la compréhension et la configuration du SGID, du sticky bit et des ACL, les objectifs ont pu être atteints. Les tests réalisés et l'audit final ont confirmé le bon fonctionnement des permissions mises en place. Ce travail a ainsi contribué à renforcer la compréhension de la gestion des droits et de la sécurité sous Linux.