

**Tlemcen University**  
**Department of Computer Science**  
**1<sup>st</sup> Year Engineering**

**" Introduction to operating systems 1"**

*Sessions 11 : Introduction to administration:  
Managing user accounts*

Academic year: 2023-2024

# *Outline*

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- ❑ Unix accounts
- ❑ Groups
- ❑ User accounts
- ❑ Login to an account

# *Process concepts*

- ❑ An account allows you to use a computer
  - *You log on, you work, you log off*
- ❑ There are 3 types of account:
  - *Administrator: referred to as a superuser, the account name is root.*
    - *Some systems make it impossible to connect directly to this account because it has all the rights. See below.*
  - *System accounts: associated with certain services,*
    - *Example: printer, network, etc.*
    - *Generally not connectable*
  - *Ordinary users*

- ❑ Accounts are placed in groups
  - *Example: students, teachers, etc.*
- ❑ An account can belong to several groups
- ❑ Belonging to a group can give rights to files and folders
  - *Example: if you are in the cdrom group, you can use /dev/cdrom*

□ Groups are listed in the file “/etc/group”

■ *Format: name:x:no:users*

➤ *Group name*

➤ *Group password: x = none*

➤ *Group number called GID*

– *GID > 999 for normal users*

➤ *List of users who belong to the group*

■ *There are 3 commands for managing this file*

➤ *addgroup*

➤ *modgroup*

➤ *delgroup*

# Creating a group

- ❑ The command ***addgroup*** adds a group using the following syntax:

***sudo addgroup name***

- *The --gid GID option is used to force the GID to a certain value*
- *Adding the --system option creates a system group (for a service)*
- *Example:*

***addgroup --gid 1010 software***

- *There is also the command ***groupadd****

# *Modifying a group*

- ❑ You can change the name of a group

***groupmod -n new old***

■ *Example: groupmod -n software programs*

- ❑ You can change the GID of a group

***groupmod -g GID group***

■ *Example: groupmod -g 1002 programs*

- ❑ Changing the GID does not update the files and folders assigned to the group => there will be an anomaly, these files will have no group.

# *Deleting a group*

- ❑ The command `delgroup` deletes a group whose name is passed as an argument:

***delgroup name***

■ *Example: **delgroup programs***

- ❑ The command is rejected if there are users for whom this is the main group



□ An account is characterised by :

- *A name (logname), e.g. Djamel*
- *A password*
- *A unique number called UID, e.g. 1100*
- *A home directory, e.g. /home/Djamel*
- *A main group identified by the GID, e.g. admin and secondary groups, e.g. cdrom, lpr, sudoer...*
- *A shell to launch, e.g. /bin/bash*
- *Other information called GECOS: plain name, e-mail address, etc.*

❑ Accounts are defined in the `/etc/passwd` file

■ *Format :*

***login:x:UID:GID:infos:homedir:shell***

❑ Passwords are stored in the file `/etc/shadow`

■ *This file is protected, only root can see it*

■ *Format :*

***login:mdp:date:min:max***

➤ *Password date, minimum duration in days and maximum duration in days (empty or 0 = no limit)*

# *PAM authentication*

- ❑ “Pluggable Authentication Modules” store passwords in encrypted form in /etc/shadow
  - *Ex: @#46\$ntyFGHio\$zqgv0Qdsam@3#%\$*
- ❑ They cannot be decrypted:
  - *use of non-reversible algorithms (a kind of projection)*
- ❑ When you connect, the PAM system encrypts the word you type and compares it with what is stored in /etc/shadow.

# *Adding a user*

- ❑ The command `adduser` adds a user using the command:

***adduser --ingroup group name***

- *Example :*

*adduser --ingroup programs pay*

- ❑ `adduser` asks for additional information (password, telephone, full name, office number, etc.)
- ❑ You can force certain characteristics:
  - *--uid UID*
  - *--shell shell, Example: --shell /bin/bash*
  - *--home homedir*

# Viewing information

- ❑ The command “***id***” displays various items of information:
  - *UID and logname, GID and main group, then other secondary group identifiers*
  - *If you enter a logname, the following information is displayed for this user*
  - *The command “***id -nG***” only displays the names of groups to which the user belongs*
  - *The command “***groups***” displays the same list*

## *Modifying an account*

❑ The command “**usermod**” changes what you want with the following options:

- g group: changes the main group
- c info: changes the information
- u UID : changes the user's UID
- s shell : change the connection shell

**Example:**

```
usermod -s /bin/bash Djamel
```

# Group membership

- ❑ Every user has a main group, the one shown in “/etc/passwd”.
- ❑ They can be added to other groups, known as secondary groups:

***usermod -G group2,group3... User***

- *Example:*

***usermod -G students,engineers Djamel***

- *To remove it from a group, repeat the command with only the other groups.*
- ❑ This grants additional privileges.

# *Change password*

- ❑ The command “passwd” is used to change the password
  - *passwd (without parameters): changes the password of the user running the command*
  - *sudo passwd djamel : changes this user's password*



# *Delete an account*

- The command deluser allows to delete an account:

***deluser --remove-all-files user-name***

- *Without the option, the command does not delete the files owned by this user.*

# *Login to an account*

- ❑ You can connect to an account when you start up the system
- ❑ Once logged in, you can change account using the command “*su*”
  - *su: (without parameters) connect as root*
  - *su user: connect as this user, but remain in the current folder*
  - *su - user: log in and go to this user's account*

- ❑ The command “*whoami*” displays the name of the account in which you are working.
- ❑ The command “*who*” lists the users connected to the same system.

# *Run a command as superuser*

- ❑ The command “*sudo*” lets you temporarily change your identity to run a command:
  - *sudo command*: runs the command as root.
  - There are options, but they are generally restricted: you need to be logged in as root.