

LEC3

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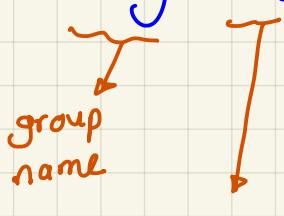
GitHub : <https://github.com/IsraaAbdelghany9>

Lecture 3

24/10/2024

* to create group → groupadd

* to add users to group → sudo usermod -aG friday noha



* sudo groupmems -g friday -l → shows if any users are subscribed as secondary group

* Sudo groupmod -g 6666 friday → change group ID

* Sudo chage -l weekend

↳ All data about that user

* su weekend -c date
↳ do this in weekend then return back

Switch user Command

who
↳ who open the terminal tty
↳ who login

whoami
↳ active user



ls -ld d3
sudo chown weekend abc → change owner
Sudo Chown : weekend abc → change group owner

modifying an existing group:-

groupmod [options] groupname

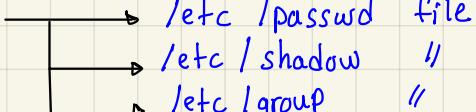
- groupmod can be used to change the name or group ID of the group , BUT it does not allow you to add group members.

options:-

- change group name -n
- change group ID -g

```
noha@noha-HP-EliteDesk-800-G4-WKS-TWR:~$ sudo groupmems -g friday -l
noha
noha@noha-HP-EliteDesk-800-G4-WKS-TWR:~$ tail -n2 /etc/group
weekend:x:10003:
friday:x:10004:noha
noha@noha-HP-EliteDesk-800-G4-WKS-TWR:~$ sudo groupmod -g 666666 friday
noha@noha-HP-EliteDesk-800-G4-WKS-TWR:~$ tail -n2 /etc/group
weekend:x:10003:
friday:x:666666:noha
noha@noha-HP-EliteDesk-800-G4-WKS-TWR:~$ sudo groupmod -n funday friday
noha@noha-HP-EliteDesk-800-G4-WKS-TWR:~$ tail -n2 /etc/group
weekend:x:10003:
funday:x:666666:noha
noha@noha-HP-EliteDesk-800-G4-WKS-TWR:~$
```

deleting a user account:-

① manually remove user from  /etc/passwd file
 //
 /etc/shadow //
 //
 /etc/group //

② remove the user's home directory (/home/username)

and mail spool file (/var/spool/mail/username).

OR

* userdel -r username
 ↓

will remove user's home directory and user's mail spool.
files located in other file systems will have to be searched for and deleted

delete a group

groupdel groupname

find / -nongroup \Rightarrow List all files which are owned by groups not defined in /etc/group file

passwd

* the passwd command updates authentication tokens:-

passwd [options] username

options:-

Password Aging Policies

- The passwd command updates authentication tokens.
- passwd [options] username

Options

- To change the min number of days between password changes use -n
- To change the max number of days between password changes use -x
- To change the expiration date for the account use -i
- To change the number of days to start warning before a password change will be required use -w
- To lock the password use -l
- To unlock the password use -u

```
sha-HP-EliteDesk-800-G4-WKS-TWR:~$ sudo chage -l weekend
          : Oct 24, 2024
          : Nov 03, 2024
          : Nov 05, 2024
          : Dec 01, 2024
n number of days between password change      : 3
n number of days between password change      : 10
of days of warning before password expires   : 1
sha-HP-EliteDesk-800-G4-WKS-TWR:~$ sudo passwd -n 5 weekend
: password changed.

sha-HP-EliteDesk-800-G4-WKS-TWR:~$ sudo chage -l weekend
          : Oct 24, 2024
          : Nov 03, 2024
          : Nov 05, 2024
          : Dec 01, 2024
n number of days between password change      : 5
n number of days between password change      : 10
of days of warning before password expires   : 1
sha-HP-EliteDesk-800-G4-WKS-TWR:~$
```

Switching accounts

SU [-] [username]

SU [-] [username] -c command

```
Israa@HP-EliteDesk-800-G4-WKS-TWR:~$ su weekend -c date
-d:
t 24 09:33:41 AM EEST 2024
Israa@HP-EliteDesk-800-G4-WKS-TWR:~$ su weekend -c ls
-d:
cannot open directory '.': Permission denied
Israa@HP-EliteDesk-800-G4-WKS-TWR:~$
```

The whoami Command

- After switching into several users, it is a sever issue to know your current (effective) user
- **whoami**
root

The id Command

- Displays
 - Effective user id.
 - Effective user name.
 - Effective group id.
 - Effective group name.
- **Example**
`id user1`
`uid=101(user1) gid=100(user1)groups=101(user1)`

The who Command

- Who is on the system.
- Displays
 - User Login name .
 - Login device(tty).
 - Login date and time.
- **Example**

who

```
Israa@israa-Thin-GF63-12VE:~$ who
Israa :1 2024-11-12 02:09 (:1)
Israa@israa-Thin-GF63-12VE:~$ w
04:48:27 up 1 day, 4:39, 1 user, load average: 5.87, 5.35, 4.80
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT
Israa :1 :1 Tue02 ?xdm? 5:27m 0.00s /usr/libexec/gd
```

The w Command

- The **w** command displays a summary of the current activity on the system, including what each user is doing.
- **W [user]**
- **Example**

w

```
israa@israa-Thin-GF63-12VE:~$ who
israa :1 2024-11-12 02:09 (:1)
israa@israa-Thin-GF63-12VE:~$ w
04:48:27 up 1 day, 4:39, 1 user, load average: 5.87, 5.35, 4.80
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT
israa :1 :1 Tue02 ?xdm? 5:27m 0.00s /usr/libexec/gd
israa@israa-Thin-GF63-12VE:~$
```

* every file and directory has both user and group ownership.

* A newly created file will be owned by:-

① User who created it

② that user's primary group

* only the admin can change that ownership

Sudo chown username file name

Sudo chown :groupname file name

chown user1 file1

chown user1:group1 file1

chown :group1 file1

chown -R user2 dir1

OR

Sudo chown owneruser:ownergroup file name

Security Scheme

- Each file has an owner and assigned to a group.
- Linux allows users to set permissions on files and directories to protect them.
- Permissions are assigned to:
 - File owner.
 - Members of the group the file assigned to.
 - All other users.
- The most specific permissions apply.
- Permissions can only be changed by the owner and root.

Listing Directory Contents

• ls -l dir1

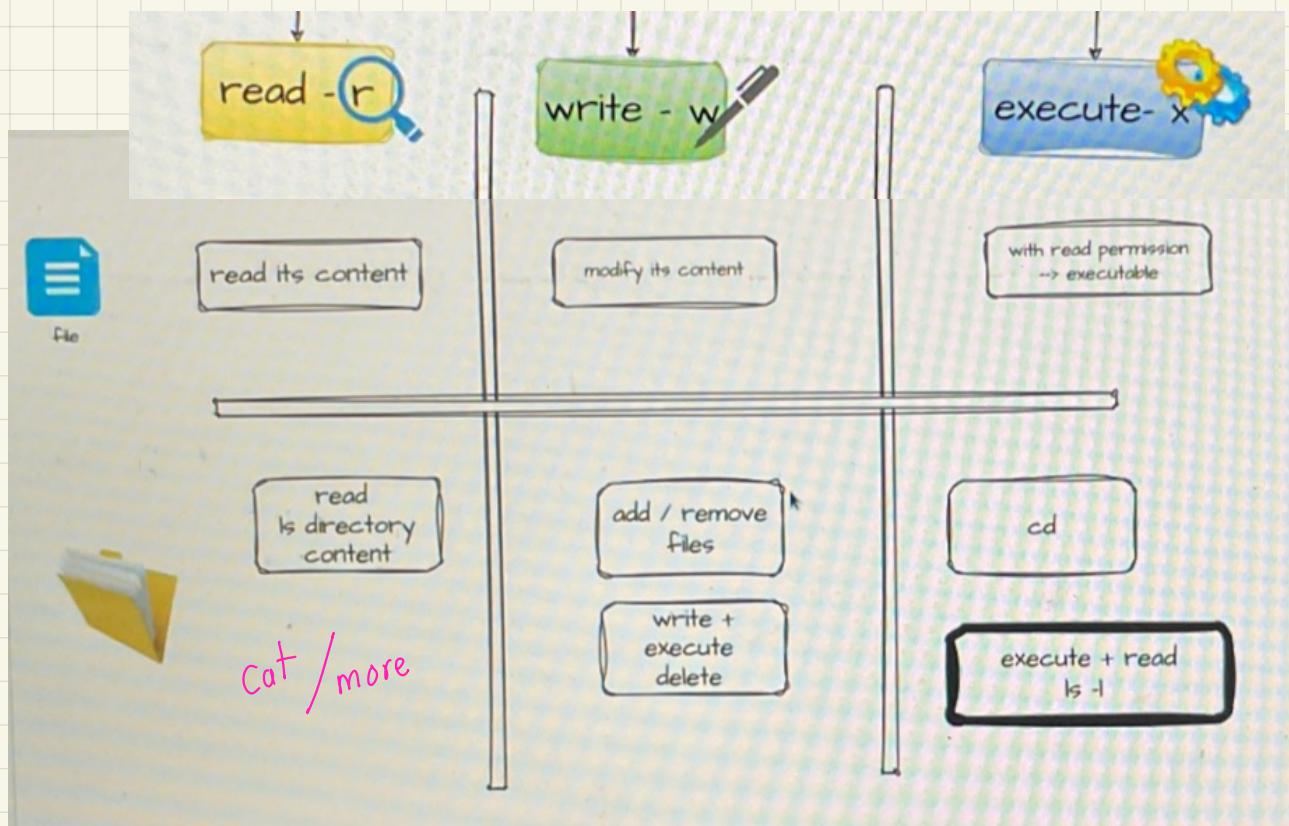
```
-rwxr-xr-x 2 root root 20 512 May 21 16:06 file1  
drwxrwxrwx 2 fatma fatma 20 512 May 21 16:06 dir2
```

User Group others Owner Group
owner
Permission



Permission Notations

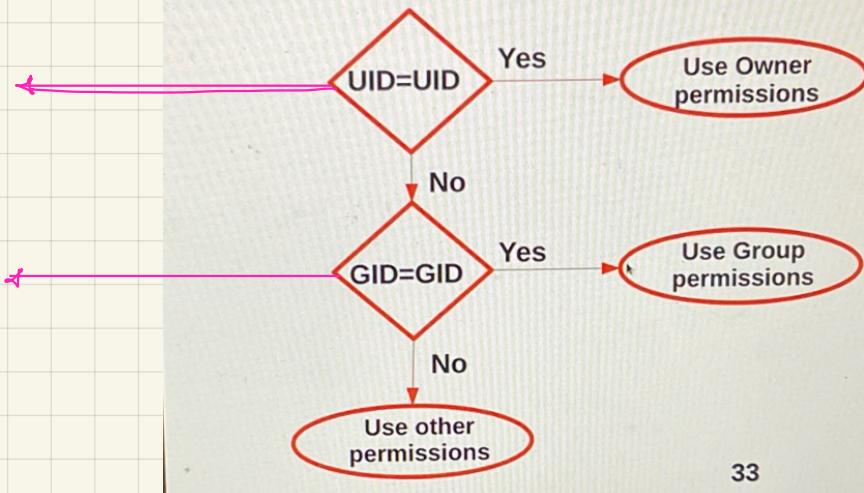
Permission	Access for a File	Access for a Directory
Read	You can display file contents and copy the file.	You can list the directory contents with the ls command.
Write	You can modify the file contents.	If you also have execute access, you can add and delete files in the directory.
Execute	You can execute the file if it is an executable. You can execute a shell script if you also have read and execute permissions.	You can use the cd command to access the directory. If you also have read access, you can run the ls -l command on the directory to list contents.



Determining Permissions

most priority

2nd



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CHANGING

permissions

Changing Permissions

- chmod permission filename
- Permissions are specified in either Symbolic mode

Who

- ◆ u: Owner permissions
- ◆ g: Group permissions
- ◆ o: Other permissions
- ◆ a: all permissions

Operator

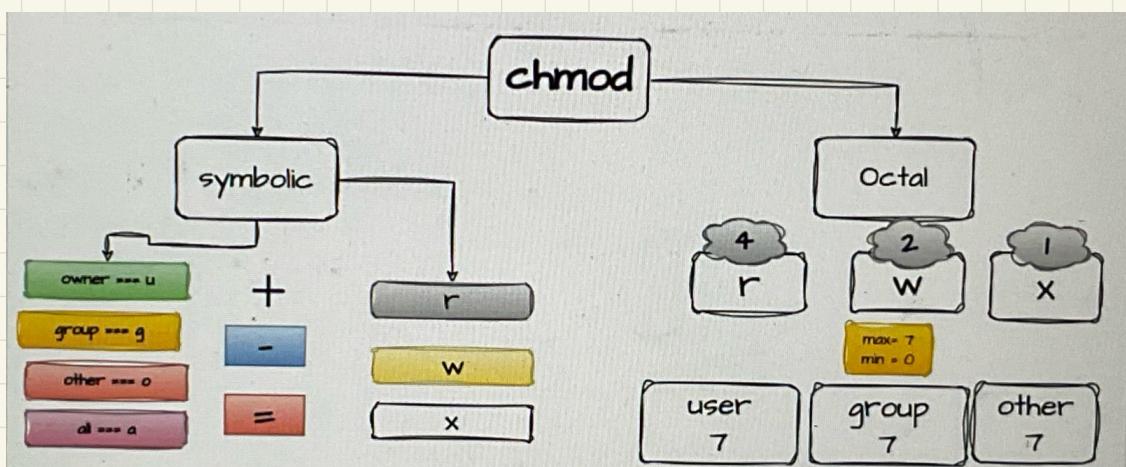
- ◆ + Add permissions
- ◆ - Remove permissions
- ◆ = Assign permissions absolutely

Permissions

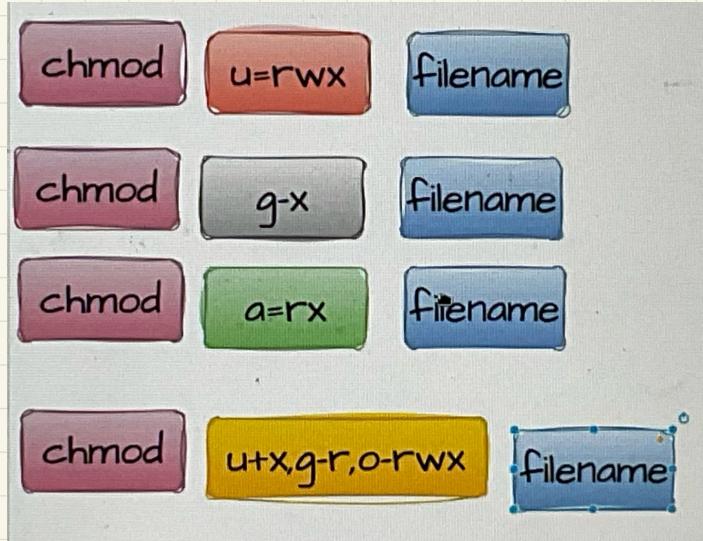
- ◆ r: read
- ◆ w: write
- ◆ x: execute

To change the file permissions for an existing file or directory.

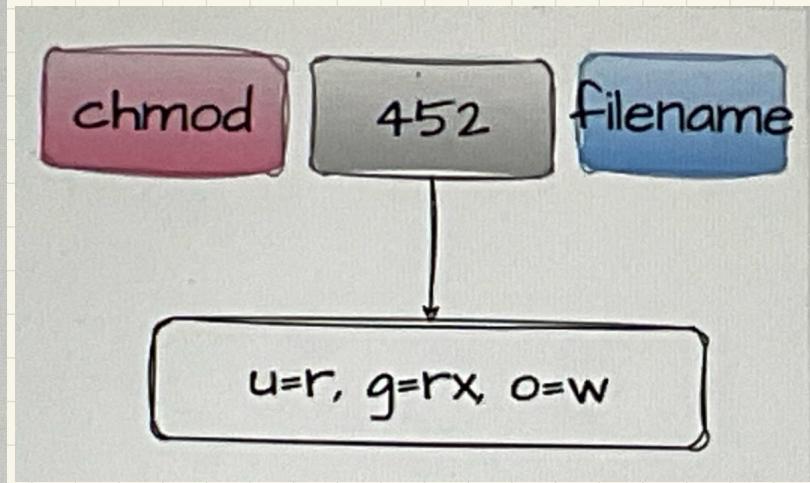
`chmod u=symbolic_value,g+symbolic_value,o-symbolic_value filename`



*Symbolic:-



*Octal:-



```
sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions$ 
sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions$ # remove all permissions from mycv
sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions$ ls -l
total 0
drwxr-xr-x 2 noha noha 4096 Oct 24 10:56 stds
sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions$ 
sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions$ chmod a-rwx mycv
sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions$ ls -l
total 0
drwxr-xr-x 2 noha noha 4096 Oct 24 10:56 mycv
sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions$ 
sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions$ chmod u=rw,g=rw mycv
sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions$ ls -l
total 0
drwxrwxrwx 2 noha noha 4096 Oct 24 10:56 mycv
sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions$ 
sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions$ chmod o+xt mycv
sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions$ ls -l
total 0
drwxrwxrwt 2 noha noha 4096 Oct 24 10:56 mycv
sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions$ 
```

⇒ to execute file we need read & execute

⇒ ls -ld std ⇒ print full info about std directory

Folder permissions:-

⇒ cd ⇒ execute

⇒ touch c1 ⇒ write + execute

```
sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions$ ls -l stds
ls: cannot open directory 'stds': Permission denied
sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions$ ls -ld stds
drwxr-xr-x 2 noha noha 4096 Oct 24 11:13 stds
sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions$ 
```

⇒ after removing all permissions on the folder ls -l denied
need execute & read

ls std will also be denied

even though the ls -ld is accepted because its info about the directory itself not its content

```

sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions$ ls -l stds
not open directory 'stds': Permission denied
sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions$ ls -ld stds
.... 2 noha noha 4096 Oct 24 11:13 stds
sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions$ ls stds
not open directory 'stds': Permission denied
sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions$ chmod u+r stds
sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions$ ls -ld stds/
.... 2 noha noha 4096 Oct 24 11:13 stds/
sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions$ ls stds
not access 'stds/s1': Permission denied
not access 'stds/s2': Permission denied
not access 'stds/s3': Permission denied
s3
sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions$ chmod u+x stds
sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions$ ls stds

```

worked after

adding r+x

Ex 1:



add read and write perm for owner,
group no permission
other w permission

chmod u=rw, g-rwx, o=w filename

chmod 602 filename

Extra examples:

Examples

- **chmod u+x,go+r file1**

- **ls -l file1**

-rwxr--r-- 1 user1 staff 1319 Mar 22 14:54 file1

- **chmod a=rw file1**

- **ls -l file1**

-rw-rw-rw- 1 user1 staff 1319 Mar 22 14:55 file1

- **chmod 555 file1**

- **ls -l file1**

-r-xr-xr-x 1 user1 staff 1319 Mar 22 14:56 file1

Examples

- **chmod 775 file1**

- **ls -l file1**

-rwxrwxr-x 1 user1 staff 1319 Mar 22 14:54 file1

- **chmod 755 file1**

- **ls -l file1**

-rwxr-xr-x 1 user1 staff 1319 Mar 22 14:55 file1

echo "Hi" \Rightarrow will print Hi in the terminal

* echo "Hi" >> israa \Rightarrow will save Hi as text in new file (israa)

echo "Hi" > israa \Rightarrow will save Hi as text in existing file (israa)

* python 3 myscript \Rightarrow no need for the execute permissions (interpreter defined)

```
sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions/stds$ touch pyscript
sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions/stds$ gedit pyscript
[...]/pyscript: Permission denied
sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions/stds$ ./pyscript
[...] 'python' not found, did you mean:
and 'python3' from deb python3
and 'python' from deb python-is-python3
sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions/stds$ python pyscript
[...] without x Can run
sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions/stds$ chmod u+x pyscript
[...] -ipt: line 1: syntax error near unexpected token `hello world'
[...] -ipt: line 1: `print("hello world")'
sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions/stds$ python3 pyscript
[...] Can run after x but text not defined
world
```

```
sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions/stds$ chmod u-r pyscript
sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions/stds$ python3 pyscript
[...] can't open file '/home/noha/day03/permissions/stds/pyscript': [Errno 13] Permission denied
sha-HP-EliteDesk-800-G4-WKS-TWR:~/day03/permissions/stds$
```

\Rightarrow python needs read permission



- default permissions given to new

Dir \rightarrow rwx rwx r-x 775

file \rightarrow rw- rw- r-- 664

$\left.\begin{array}{l} \text{difference is} \\ \text{x (security reasons)} \end{array}\right\}$

- default value for umask is 0002 \Rightarrow ignore first 0 for now
002 is the inverse of 775 (dir default permission)
- if umask = 000 \rightarrow rwx rwx rwx

Set default permissions for directories will be created from the same terminal Tab but files will not have x

```
israaq@israa-Thin-GF63-12VE:~$ umask 000
israaq@israa-Thin-GF63-12VE:~$ mkdir israa_1
israaq@israa-Thin-GF63-12VE:~$ touch israa_2
israaq@israa-Thin-GF63-12VE:~$ ls -ld israa_2
-rw-rw-rw- 1 israa israa 0 Nov 13 06:40 israa_2
israaq@israa-Thin-GF63-12VE:~$ ls -ld israa_1
drwxrwxrwx 2 israa israa 4096 Nov 13 06:40 israa_1
```

System Shutdown

- It only requires reboot or shutdown when you need to
 - Add or remove hardware
 - Upgrade to a new version of Ubuntu
 - Or upgrade your kernel
 - shutdown -k now
 - # doesn't really shutdown only send the warning messages and disable logins.
 - shutdown -h time # Halt after shutdown
 - poweroff
 - init 0

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Red Hat