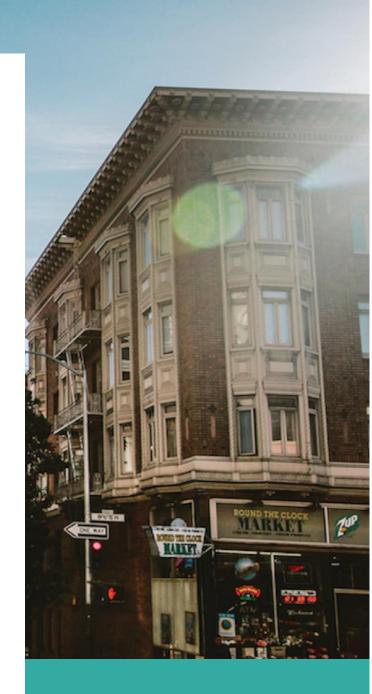# S_LINUX_07 Practicing

LINUX - LAB_2

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LINUX – DEVOPS

Linux – LAB_2:

1. Create a user account with the following attribute

- username: ahmed
- Fullname/comment: ahmed ali
- Password: ahmed

```
[kdawoud@localhost ~]$ tail -n5 /etc/passwd
secretary:x:1003:1003::/home/secretary:/bin/bash
officeboy:x:1004:1004::/home/officeboy:/bin/bash
dataentry:x:1005:1005::/home/dataentry:/bin/bash
accountant:x:1007:1007::/home/accountant:/bin/bash
recruiter:x:1008:1011::/home/recruiter:/bin/bash
[kdawoud@localhost ~]$ sudo useradd -p ahmed -c 'ahmed ali' ahmed
[sudo] password for kdawoud:
[kdawoud@localhost ~]$ tail -n3 /etc/passwd
accountant:x:1007:1007::/home/accountant:/bin/bash
recruiter:x:1008:1011::/home/recruiter:/bin/bash
ahmed:x:1009:1012:ahmed ali:/home/ahmed:/bin/bash
[kdawoud@localhost ~]$ sudo cat /etc/shadow | grep ahmed
ahmed:ahmed:19459:0:99999:7:::
```

2. Create a user account with the following attribute

- Username: baduser
- Full name/comment: Bad User
- Password: baduser

```
[kdawoud@localhost ~]$ sudo adduser -c 'Bad User' -p baduser baduser
[kdawoud@localhost ~]$ tail -n3 /etc/passwd
recruiter:x:1008:1011::/home/recruiter:/bin/bash
ahmed:x:1009:1012:ahmed ali:/home/ahmed:/bin/bash
baduser:x:1010:1013:Bad User:/home/baduser:/bin/bash
[kdawoud@localhost ~]$
[kdawoud@localhost ~]$
[kdawoud@localhost ~]$ cat /etc/shadow | grep baduser
cat: /etc/shadow: Permission denied
[kdawoud@localhost ~]$ sudo cat /etc/shadow | grep baduser
baduser:baduser:19459:0:99999:7:::
```

3. Create a supplementary (Secondary) group called pgroup with group ID of 30000

```
[kdawoud@localhost ~]$ addgroup --help
bash: addgroup: command not found...
[kdawoud@localhost ~]$ groupadd -g 30000 pgroup
groupadd: Permission denied.
groupadd: cannot lock /etc/group; try again later.
[kdawoud@localhost ~]$ sudo groupadd -g 30000 pgroup
[kdawoud@localhost ~]$ tail -n2 /etc/group
baduser:x:1013:
pgroup:x:30000:
[kdawoud@localhost ~]$
```

4. Create a supplementary group called badgroup

```
[kdawoud@localhost ~]$ sudo groupadd badgroup
[kdawoud@localhost ~]$ tail -n2 /etc/group
pgroup:x:30000:
badgroup:x:30001:
[kdawoud@localhost ~]$
```

5. Add ahmed user to the pgroup group as a supplementary group

```
[kdawoud@localhost ~]$ sudo usermod -aG pgroup ahmed
[kdawoud@localhost ~]$ tail -n2 /etc/passwd
ahmed:x:1009:1012:ahmed ali:/home/ahmed:/bin/bash
baduser:x:1010:1013:Bad User:/home/baduser:/bin/bash
[kdawoud@localhost ~]$ tail -n2 /etc/group
pgroup:x:30000:ahmed
badgroup:x:30001:
```

6. Modify the password of ahmed's account to password

```
[kdawoud@localhost ~]$ sudo usermod -p password ahmed
[sudo] password for kdawoud:
[kdawoud@localhost ~]$ sudo cat /etc/shadow | grep ahmed
ahmed:password:19459:0:99999:7:::
[kdawoud@localhost ~]$
```

7. Modify ahmed's account so the password expires after 30 days

```
[kdawoud@localhost ~]$ chage --help
Usage: chage [options] LOGIN

Options:
  -d, --lastday LAST_DAY        set date of last password change to LAST_DAY
  -E, --expiredate EXPIRE_DATE  set account expiration date to EXPIRE_DATE
  -h, --help                    display this help message and exit
  -I, --inactive INACTIVE       set password inactive after expiration
                                to INACTIVE
  -l, --list                    show account aging information
  -m, --mindays MIN_DAYS        set minimum number of days before password
                                change to MIN_DAYS
  -M, --maxdays MAX_DAYS        set maximum number of days before password
                                change to MAX_DAYS
  -R, --root CHROOT_DIR         directory to chroot into
  -W, --warndays WARN_DAYS      set expiration warning days to WARN_DAYS

[kdawoud@localhost ~]$ sudo chage -M 30 ahmed
[sudo] password for kdawoud:
[kdawoud@localhost ~]$ sudo chage -l ahmed
Last password change                                    : Apr 12, 2023
Password expires                                        : May 12, 2023
Password inactive                                       : Jun 11, 2023
Account expires                                         : never
Minimum number of days between password change          : 0
Maximum number of days between password change          : 30
Number of days of warning before password expires       : 7
[kdawoud@localhost ~]$
```

8. Lock bad user account so he can't log in

```
[kdawoud@localhost ~]$ sudo usermod -L baduser
[sudo] password for kdawoud:
[kdawoud@localhost ~]$ sudo passwd -S baduser
baduser LK 2023-04-12 0 99999 7 -1 (Password locked.)
[kdawoud@localhost ~]$
```

9. Delete bad user account

```
[kdawoud@localhost ~]$ sudo userdel baduser
[kdawoud@localhost ~]$ tail -n3 /etc/passwd
accountant:x:1007:1007::/home/accountant:/bin/bash
recruiter:x:1008:1011::/home/recruiter:/bin/bash
ahmed:x:1009:1012:ahmed ali:/home/ahmed:/bin/bash
[kdawoud@localhost ~]$
```

10. Delete the supplementary group called badgroup.

```
[kdawoud@localhost ~]$ tail -n3 /etc/group
ahmed:x:1012:
pgroup:x:30000:ahmed
badgroup:x:30001:
[kdawoud@localhost ~]$ sudo groupdel badgroup
[kdawoud@localhost ~]$ tail -n3 /etc/group
recruiter:x:1011:
ahmed:x:1012:
pgroup:x:30000:ahmed
[kdawoud@localhost ~]$ 
```

13. Create a folder called myteam in your home directory and change its permissions to read only for the owner.

```
[kdawoud@localhost ~]$ ls
Desktop   docs        Downloads    ls_output.txt   newPasswd   Pictures   Study       test1   Videos
dir1      Documents   lodaa        Music           oldpasswd   Public     Templates   test2
[kdawoud@localhost ~]$ pwd
/home/kdawoud
[kdawoud@localhost ~]$ mkdir myteam
[kdawoud@localhost ~]$ ls -dl myteam/
drwxrwxr-x. 2 kdawoud kdawoud 6 Apr 13 01:28 myteam/
[kdawoud@localhost ~]$ sudo chmod u-wx myteam/
[kdawoud@localhost ~]$ ls -dl myteam/
dr--rwxr-x. 2 kdawoud kdawoud 6 Apr 13 01:28 myteam/
[kdawoud@localhost ~]$ 
```

14. Log out and log in by another user

```
[kdawoud@localhost ~]$ su - ahmed
Password:
[ahmed@localhost ~]$ cd ../kdawoud/home/myteam
-bash: cd: ../kdawoud/home/myteam: Permission denied
[ahmed@localhost ~]$ sudo cd ../kdawoud/home/myteam

We trust you have received the usual lecture from the local System
Administrator. It usually boils down to these three things:

    #1) Respect the privacy of others.
    #2) Think before you type.
    #3) With great power comes great responsibility.

[sudo] password for ahmed:
ahmed is not in the sudoers file.  This incident will be reported.
[ahmed@localhost ~]$
```

15. Try to access (by cd command) the folder (myteam)

```
[kdawoud@localhost ~]$ su - ahmed
Password:
[ahmed@localhost ~]$ cd ../kdawoud/home/myteam
-bash: cd: ../kdawoud/home/myteam: Permission denied
[ahmed@localhost ~]$ sudo cd ../kdawoud/home/myteam

We trust you have received the usual lecture from the local System
Administrator. It usually boils down to these three things:

    #1) Respect the privacy of others.
    #2) Think before you type.
    #3) With great power comes great responsibility.

[sudo] password for ahmed:
ahmed is not in the sudoers file.  This incident will be reported.
[ahmed@localhost ~]$
```

16. Using the command Line
- Change the permissions of oldpasswd file to give owner read and write permissions and for group   write and execute and execute only for the others (using chmod in 2 different ways)

```
[kdawoud@localhost ~]$ chmod u=rw, g=wx, o=x oldpasswd
chmod: invalid mode: 'u=rw,'
Try 'chmod --help' for more information.
[kdawoud@localhost ~]$ chmod u=rw,g=wx,o=x oldpasswd
[kdawoud@localhost ~]$ ls -al oldpasswd
-rw--wx--x. 1 kdawoud kdawoud 2880 Apr  7 20:55 oldpasswd
[kdawoud@localhost ~]$ chmod 000 oldpasswd
[kdawoud@localhost ~]$ ls -al oldpasswd
----------. 1 kdawoud kdawoud 2880 Apr  7 20:55 oldpasswd
[kdawoud@localhost ~]$ chmod 631 oldpasswd
[kdawoud@localhost ~]$ ls -al oldpasswd
-rw--wx--x. 1 kdawoud kdawoud 2880 Apr  7 20:55 oldpasswd
```

- Change your default permissions to be as above.

```
[kdawoud@localhost ~]$ umask 146
[kdawoud@localhost ~]$ mkdir test13
[kdawoud@localhost ~]$ ls -dl test13
drw--wx--x. 2 kdawoud kdawoud 6 Apr 13 02:26 test13
```

- What is the maximum permission a file can have, by default when it is just created? And what is that for directory.

  The maximum permissions for the **file** will be **read** and **write** for user, group, and other.

  The maximum permissions for the **directory** will be **read**, **write**, and **execute** for user, group, and other

- Change your default permissions to be no permission to everyone then create a directory and a file

```
[kdawoud@localhost ~]$ umask 000
[kdawoud@localhost ~]$ touch test13.txt
[kdawoud@localhost ~]$ ls -al test
test1/       test13/       test13.txt   test2/
[kdawoud@localhost ~]$ ls -al test
test1/       test13/       test13.txt   test2/
[kdawoud@localhost ~]$ ls -al test13
test13/      test13.txt
[kdawoud@localhost ~]$ ls -al test13.txt
-rw-rw-rw-. 1 kdawoud kdawoud 0 Apr 13 02:28 test13.txt
[kdawoud@localhost ~]$ mkdir test14
[kdawoud@localhost ~]$ ls -dl test14
drwxrwxrwx. 2 kdawoud kdawoud 6 Apr 13 02:31 test14
```

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17. What are the minimum permission needed for:
- Copy a directory (permission for source directory and permissions for target parent directory)

  Source directory: read permission (*we may need additional permissions if the directory has subdirectories or files with restricted permissions*)

  Parent directory: write permission
- Copy a file (permission for source file and permission for target parent directory)

  Source file: read permission

  Parent directory: write permission

- Delete a file   Write permission is needed for the directory to be accessed and delete a file in the directory.
The file itself does not need any specific permission to be deleted. However, if the file has restricted permissions or is owned by another user, additional permissions may be needed to delete it.

- Change to a directory   Execute permission

- List a directory content (ls command)   Read permission

- View a file content (more/cat command)   Read permission

- Modify a file content   Write permission

Directory Permissions:

- Execute >> Accessing the directory but not to read its contents, see what files are located there.
- Read >> Read directory's contents.
- Write >> Edit directory delete or create new files/folders inside it and etc.

File Permissions:

- Execute >> run the file if it is an executable file.
- Read >> read the content of a file without editing.
- Write >> edit file's content.

18. Create a file with permission 444. Try to edit in it and to remove it? Note what happened.

Fille cannot be edited but when it will be removed a confirmation message will be popped up.

```
[kdawoud@localhost ~]$ touch file444
[kdawoud@localhost ~]$ chmod 444 file444
[kdawoud@localhost ~]$ cp /etc/passwd file444
cp: cannot create regular file 'file444': Permission denied
[kdawoud@localhost ~]$ rm file444
rm: remove write-protected regular empty file 'file444'? y
[kdawoud@localhost ~]$ ls
Desktop  docs        Downloads  ls_output.txt  myteam     oldpasswd  Public    Templates  test13      test14  Videos
dir1     Documents   lodaa      Music          newPasswd  Pictures   Study     test1      test13.txt  test2
[kdawoud@localhost ~]$
```

19. What is the difference between the "x" permission for a file and for a directory?
> **Files:** if the file is a program where it can be executed, the execute permission will be granted for this file.
> If it is not an executable file, execute permission won't be granted for the file.
>
> **Directory:** execute permission will give the permission to access the directory and all its subsidiaries' directories and files.