

Users, Groups and Permission in Linux

A small company is using Linux as the main operating and has hired you as a consultant. You completed a site walk through and also met with various individuals for their input as to what is needed. You concluded that the following need to be created and tested prior to implementation.

- Five users need to be created, two are in Marketing and three are in Engineering
- Two groups the Engineer and Marketing
- Two department folders that only member of that department can access.
- There are two other folders need to be created; Customers which Marketing has full access but Engineering only has read; and Drafts which Engineering has full access but Marketing only has read.

You are tasked with filling in the command used to accomplish all the objectives above using Ubuntu Linux. All users has the default password "P@\$\$W0rd1"

Department	Users	Login Name	Groups
Marketing	Fitzgerald, Charles	Charles	Marketing
	Mustafa, Ahmad	Ahmad	Marketing
	Narp, Sylvie	Sylvie	Marketing
Engineering	West, Paul	Paul	Engineering
	Clark, Molly	Molly	Engineering

Folders Name	Permissions
Leads	Marketing: Read, Write and Execute Engineering no access
Projects	Engineering: Read, Write and Execute Marketing no access
Customer	Marketing: Read, Write and Execute Engineering: Read
Drafts	Engineering: Read, Write and Execute Marketing: Read

Note: Folders are created on the root of the file system

Creating Users

List the commands below that will create the five users

Example: adding the user Charles Fitzgerald

```
root@ubuntu:/home/student# adduser charles
```

1.
2.
3.
4.
5.

Creating the Groups

List the commands below that would create the groups

Example: Adding a group called sales

```
root@ubuntu:/home/student# groupadd Sales
```

6.
7.

Adding User to the Groups

List the commands below that would add the users to the group

Example

```
root@ubuntu:/home/student# usermod -aG Sales charles
```

8.
9.
10.
11.
12.

Viewing User

In Linux the `/etc/passwd` file contains all user created in the system. Use the commands below to verify users are created.

```
root@ubuntu:/home/student# cat /etc/passwd
```

```
root@ubuntu:/home/student# awk -F':' '{ print $1}' /etc/passwd
```

```
root@ubuntu:/home/student# tail 10 /etc/passwd
```

Are the users created? _____. If no repeat the creating users section

Viewing Groups

In Linux the `/etc/groups` file shows all groups created in the system

```
root@ubuntu:/home/student# cat /etc/groups
```

```
root@ubuntu:/home/student# groups charles
charles : charles Sales
```

The command above shows Charles belongs to the Sales group

Are all the groups created _____. If no repeat creating groups

Creating Directories

List the commands below that would create the directories

Example: Show `cd /` → take you to the root and `mkdir Sales` → Creating the sales directory

```
root@ubuntu:/home/student# cd /
root@ubuntu:/# mkdir Sales
```

13.
14.
15.
16.
17.

Assignment permissions

There are three types of access restrictions:

Permission	Action	chmod option
read	(view)	r or 4
write	(edit)	w or 2
execute	(execute)	x or 1

There are also three types of user restrictions:

User	ls output	Value
owner	-rwx-----	700
Group	----rwx---	070
Other	-----rwx	007

The command below gives Sales group full access and everyone else read access to the sales folder. Here the owner is root. Note the first Sales is the group and the second Sales is the folder

```
root@ubuntu:/# chmod 074 Sales Sales
root@ubuntu:/# ls -l
d--rwxr--  2 root hr   4096 Oct  9 21:01 Sales
```

Only giving the sales group access to the sales folder

```
root@ubuntu:/# chmod 070 Sales Sales
root@ubuntu:/# ls -l
d--rwx---  2 root Sales 4096 Oct  9 21:01 Sales
```

Other commands are

- chgrp : change the ownership of a group

```
root@ubuntu:/# chgrp Sales Sales
root@ubuntu:/# ls -l
drwxr-xr-x  2 root Sales 4096 Oct  9 21:01 Sales
```

- chown: Change ownership of files and directories

List the commands below to show you have assigned the permission to the folders
18.
19.
20.
21.
22.
23.
24.

Explaining Commands

Do some research and fill in what each command does

<code>root@ubuntu:/# touch filea</code>	25.
<code>root@ubuntu:/# grep charles /etc/passwd</code>	26.
<code>root@ubuntu:/# head 10 /etc/passwd</code>	27.
<code>root@ubuntu:/# tail 10 /etc/passwd</code>	28.
<code>root@ubuntu:/# cat /etc/passwd</code>	29.
<code>root@ubuntu:/# mkdir Sales</code>	30.
<code>root@ubuntu:/# cp /etc/passwd Sales</code>	31.
<code>root@ubuntu:/# ls Sales</code>	32.
<code>root@ubuntu:/# cd Sales</code>	33.
<code>root@ubuntu:/Sales# cp passwd passwordfile</code>	34.
<code>root@ubuntu:/Sales# mkdir Texas</code>	35.
<code>root@ubuntu:/Sales# mv passwd Texas</code>	36.
<code>root@ubuntu:/Sales# cp passwordfile test</code>	37.
<code>root@ubuntu:/Sales# diff passwordfile test</code>	38.
<code>root@ubuntu:/Sales# rm passwordfile</code>	39.