

Introduction to Linux and Bash Scripting

Lab 2

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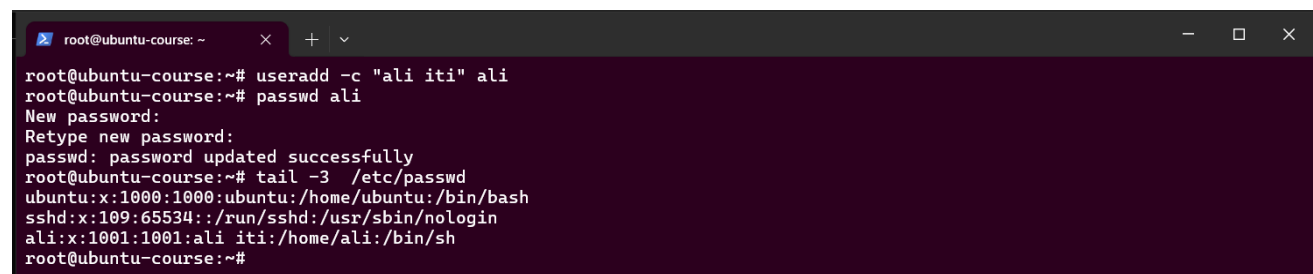
Track: Data Engineer – Zagazig

1. Create a user account with the following attribute

Username: ali

Fullname/comment: ali iti

Password: ali?

A terminal window titled 'root@ubuntu-course: ~' with standard window controls. It shows the execution of 'useradd -c "ali iti" ali' and 'passwd ali'. The password is set and confirmed. A 'tail -3 /etc/passwd' command shows the new user entry and the existing 'ssh' and 'ali' entries.

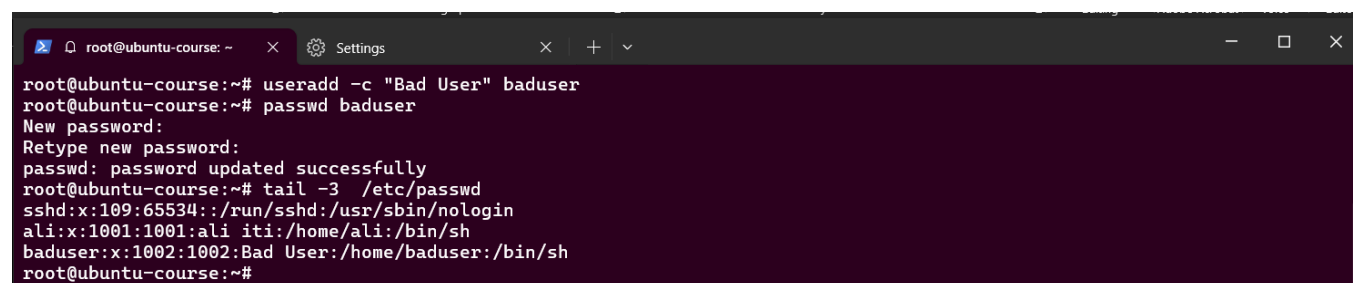
```
root@ubuntu-course:~# useradd -c "ali iti" ali
root@ubuntu-course:~# passwd ali
New password:
Retype new password:
passwd: password updated successfully
root@ubuntu-course:~# tail -3 /etc/passwd
ubuntu:x:1000:1000:ubuntu:/home/ubuntu:/bin/bash
sshd:x:109:65534::/run/sshd:/usr/sbin/nologin
ali:x:1001:1001:ali iti:/home/ali:/bin/sh
root@ubuntu-course:~#
```

2. Create a user account with the following attribute

Username: baduser

Fullname/comment: Bad User

Password: baduser?

A terminal window titled 'root@ubuntu-course: ~' with standard window controls. It shows the execution of 'useradd -c "Bad User" baduser' and 'passwd baduser'. The password is set and confirmed. A 'tail -3 /etc/passwd' command shows the new user entry and the existing 'ssh' and 'ali' entries.

```
root@ubuntu-course:~# useradd -c "Bad User" baduser
root@ubuntu-course:~# passwd baduser
New password:
Retype new password:
passwd: password updated successfully
root@ubuntu-course:~# tail -3 /etc/passwd
sshd:x:109:65534::/run/sshd:/usr/sbin/nologin
ali:x:1001:1001:ali iti:/home/ali:/bin/sh
baduser:x:1002:1002:Bad User:/home/baduser:/bin/sh
root@ubuntu-course:~#
```

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

A terminal window titled 'root@ubuntu-course: ~' with standard window controls. It shows the execution of 'groupadd -g 30000 pgroup' and 'tail -3 /etc/group'. The new group entry is visible in the output.

```
root@ubuntu-course:~# groupadd -g 30000 pgroup
root@ubuntu-course:~# tail -3 /etc/group
ali:x:1001:
baduser:x:1002:
pgroup:x:30000:
root@ubuntu-course:~#
```

4. Create a supplementary group called badgroup

```
root@ubuntu-course: ~  
root@ubuntu-course:~# groupadd badgroup  
root@ubuntu-course:~# tail -3 /etc/group  
baduser:x:1002:  
pgroup:x:30000:  
badgroup:x:30001:  
root@ubuntu-course:~#
```

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

```
root@ubuntu-course:~# usermod -aG pgroup ali  
root@ubuntu-course:~# id ali  
uid=1001(ali) gid=1001(ali) groups=1001(ali),30000(pgroup)  
root@ubuntu-course:~#
```

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

```
root@ubuntu-course:~# passwd ali  
New password:  
Retype new password:  
passwd: password updated successfully  
root@ubuntu-course:~#
```

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

```
root@ubuntu-course:~# chage -l ali  
Last password change           : Apr 07, 2025  
Password expires               : never  
Password inactive              : never  
Account expires                : never  
Minimum number of days between password change : 0  
Maximum number of days between password change : 99999  
Number of days of warning before password expires : 7  
root@ubuntu-course:~# chage -M 30 ali  
root@ubuntu-course:~# chage -l ali  
Last password change           : Apr 07, 2025  
Password expires               : May 07, 2025  
Password inactive              : never  
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  
root@ubuntu-course:~#
```

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

```
root@ubuntu-course:~# usermod -L baduser  
root@ubuntu-course:~# exit  
exit  
ubuntu@ubuntu-course:~$ su - baduser  
Password:  
su: Authentication failure  
ubuntu@ubuntu-course:~$
```

9. Delete bad user account

```
root@ubuntu-course: ~  
root@ubuntu-course:~# userdel -r baduser  
userdel: baduser mail spool (/var/mail/baduser) not found  
userdel: baduser home directory (/home/baduser) not found  
root@ubuntu-course:~# tail -3 /etc/passwd  
ubuntu:x:1000:1000:ubuntu:/home/ubuntu:/bin/bash  
sshd:x:109:65534::/run/sshd:/usr/sbin/nologin  
ali:x:1001:1001:ali:/home/ali:/bin/sh  
root@ubuntu-course:~#
```

10. Delete the supplementary group called badgroup.

```
root@ubuntu-course: ~  
root@ubuntu-course:~# groupdel badgroup  
root@ubuntu-course:~# tail -3 /etc/group  
ubuntu:x:1000:  
ali:x:1001:  
pgroup:x:30000:ali  
root@ubuntu-course:~#
```

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

```
root@ubuntu-course: ~  
root@ubuntu-course:~# mkdir /home/myteam  
root@ubuntu-course:~# ls -l /home/  
total 8  
drwxr-xr-x 2 root root 4096 Apr 7 11:55 myteam  
drwxr-x--- 4 ubuntu ubuntu 4096 Apr 7 11:46 ubuntu  
root@ubuntu-course:~# chmod -R 400 /home/myteam/  
root@ubuntu-course:~# ls -l /home/myteam/  
total 0  
root@ubuntu-course:~# ls -l /home/  
total 8  
dr----- 2 root root 4096 Apr 7 11:55 myteam  
drwxr-x--- 4 ubuntu ubuntu 4096 Apr 7 11:46 ubuntu  
root@ubuntu-course:~#
```

Can use symbolic but here we just want the owner to read and no others I go with numerical way.

12. Log out and log in by another user

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

```
ubuntu@ubuntu-course: ~  
root@ubuntu-course:~# mkdir /home/myteam  
root@ubuntu-course:~# ls -l /home/  
total 8  
drwxr-xr-x 2 root root 4096 Apr 7 11:55 myteam  
drwxr-x--- 4 ubuntu ubuntu 4096 Apr 7 11:46 ubuntu  
root@ubuntu-course:~# chmod -R 400 /home/myteam/  
root@ubuntu-course:~# ls -l /home/myteam/  
total 0  
root@ubuntu-course:~# ls -l /home/  
total 8  
dr----- 2 root root 4096 Apr 7 11:55 myteam  
drwxr-x--- 4 ubuntu ubuntu 4096 Apr 7 11:46 ubuntu  
root@ubuntu-course:~# su - ubuntu  
ubuntu@ubuntu-course:~$ ls -l /home/  
total 8  
dr----- 2 root root 4096 Apr 7 11:55 myteam  
drwxr-x--- 4 ubuntu ubuntu 4096 Apr 7 11:46 ubuntu  
ubuntu@ubuntu-course:~$ ls -d /home/  
/home/  
ubuntu@ubuntu-course:~$ ls -d /home/myteam  
/home/myteam  
ubuntu@ubuntu-course:~$ cd /home/myteam  
-bash: cd: /home/myteam: Permission denied  
ubuntu@ubuntu-course:~$
```

14. 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)

I created a copy of oldpasswd as oldpasswd_numerical for chmod using numerical method

```
root@ubuntu-course: ~  
root@ubuntu-course:~# chmod u=rw,g=wx,o=x oldpasswd  
root@ubuntu-course:~# ls -l  
total 16  
-rw--wx--x 1 root root 1825 Apr 7 12:29 oldpasswd  
-rw-r--r-- 1 root root 1825 Apr 7 12:29 oldpasswd_numerical  
-r-xr-xr-x 1 root root 7049 Mar 22 18:46 vboxpostinstall.sh  
root@ubuntu-course:~# chmod 631 oldpasswd_numerical  
root@ubuntu-course:~# ls -l  
total 16  
-rw--wx--x 1 root root 1825 Apr 7 12:29 oldpasswd  
-rw--wx--x 1 root root 1825 Apr 7 12:29 oldpasswd_numerical  
-r-xr-xr-x 1 root root 7049 Mar 22 18:46 vboxpostinstall.sh  
root@ubuntu-course:~#
```

15. Not required

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

when I was a root, I could delete the file without any message but when I switched to another user I got a warning for deleting write protected

```
ubuntu@ubuntu-course: ~  
root@ubuntu-course:~# touch /home/ubuntu/file  
root@ubuntu-course:~# chmod 444 /home/ubuntu/file  
root@ubuntu-course:~# ls -l /home/ubuntu/file  
-r--r--r-- 1 root root 0 Apr  7 12:38 /home/ubuntu/file  
root@ubuntu-course:~# su - ubuntu  
ubuntu@ubuntu-course:~$ ls -l file  
-r--r--r-- 1 root root 0 Apr  7 12:38 file  
ubuntu@ubuntu-course:~$ rm file  
rm: remove write-protected regular empty file 'file'?
```

```
ubuntu@ubuntu-course: ~  
root@ubuntu-course:~# touch /home/ubuntu/file  
root@ubuntu-course:~# chmod 444 /home/ubuntu/file  
root@ubuntu-course:~# ls -l /home/ubuntu/file  
-r--r--r-- 1 root root 0 Apr  7 12:38 /home/ubuntu/file  
root@ubuntu-course:~# su - ubuntu  
ubuntu@ubuntu-course:~$ ls -l file  
-r--r--r-- 1 root root 0 Apr  7 12:38 file  
ubuntu@ubuntu-course:~$ rm file  
rm: remove write-protected regular empty file 'file'? yes  
ubuntu@ubuntu-course:~$ ls -l  
total 24  
-rw-rw-r-- 1 ubuntu ubuntu  37 Apr  6 19:17 colors.txt  
-rw-rw-r-- 1 ubuntu ubuntu  35 Apr  6 19:18 morecolors.txt  
-rw-r--r-- 1 root  root 1825 Apr  7 11:46 oldpasswd  
-rw-r--r-- 1 ubuntu ubuntu 9804 Apr  6 08:01 sudo_logsrvd.conf  
ubuntu@ubuntu-course:~$
```

17. What is the difference between the “x” permission for a file and for a directory?

Effect on files: a file can be executed (commands/scripts)

Effect on dir: contents of the dir can be accessed → cd

18. What are the minimum permission needed for:

- Copy a directory (permission for source directory and permissions for target parent directory)**
read and execute for *source directory*, *write and execute* for *target parent directory*
- Copy a file (permission for source file and permission for target parent directory)**
read for *source file*, *write and execute* for *target parent directory*
- Delete a file**
Write and execute (not sure if we need an execute for the parent directory because we need to access it to modify or not!)
- Change to a directory**
execute

e. List a directory content (ls command)

read and excute.

f. View a file content (more/cat command))

read

g. Modify a file content

write