

**Marlene Leon**

## **Linux User & Group Management Lab**

**Date:** 6/02/2025

**Project Type:** System Administration

**Platform:** Ubuntu (in Oracle VirtualBox)

**Tools Used:** Terminal, Bash

**Skills Practiced:** User management, group permissions, file security

### **Objective**

Simulate a real-world scenario where a system administrator sets up users, assigns them to a group, and controls access to shared directories.

### **Tasks Performed:**

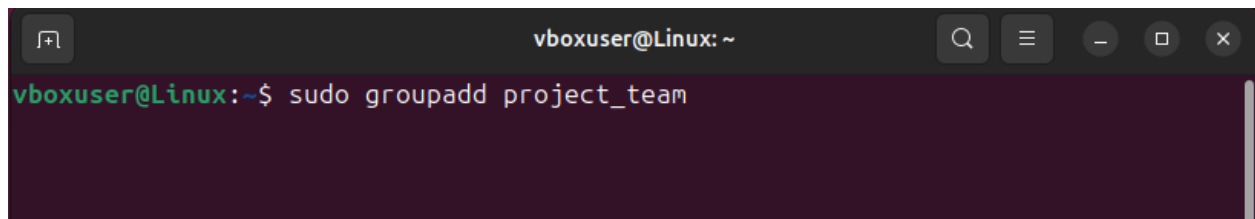
<b>Step</b>	<b>Command/Action</b>
<b>Create a Group</b>	<code>sudo groupadd project_team</code>
<b>Create Users</b>	<code>sudo useradd -m alice</code> <code>sudo useradd -m bob</code> <code>sudo useradd -m charlie</code>
<b>Set Passwords</b>	<code>sudo passwd alice</code> <code>sudo passwd bob</code> <code>sudo passwd charlie</code>
<b>Add Users to the Group</b>	<code>sudo usermod -aG project_team alice</code> <code>sudo usermod -aG project_team bob</code>
<b>Create a Shared Directory</b>	<code>sudo mkdir /project</code> <code>sudo chown :project_team /project</code> <code>sudo chmod 770 /project</code>
<b>Test Group Access</b>	As alice: <code>su - alice</code> <code>cd /project</code> <code>touch alice_file.txt</code>  As charlie: <code>su - charlie</code> <code>cd /project</code> # Expect: Permission denied
<b>Bonus – Read-Only Directory</b>	<code>sudo mkdir /project/public_docs</code> <code>sudo chown :project_team</code> <code>/project/public_docs</code> <code>sudo chmod 750 /project/public_docs</code>

## Reflection:

This project gave me hands-on experience with real world Linux administration tasks, such as creating users, assigning groups, and managing folder permissions. I learned how Linux handles file system security using ownership and permission bits, and how group based access can control who has access to shared resources. It was especially helpful to simulate a scenario where some users were granted access while others were intentionally restricted.

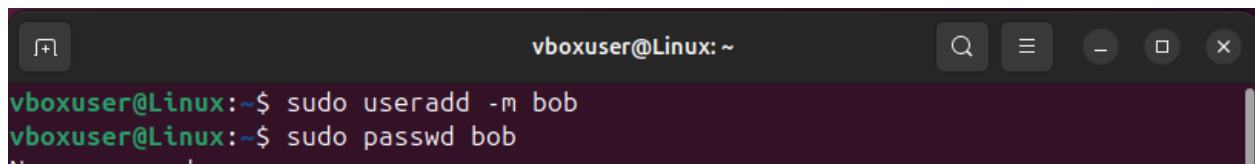
## Screenshots:

Figure 1: Group creation

A terminal window titled 'vboxuser@Linux: ~' with search, menu, and window control icons in the title bar. The prompt is 'vboxuser@Linux:~\$' and the command 'sudo groupadd project\_team' has been entered.

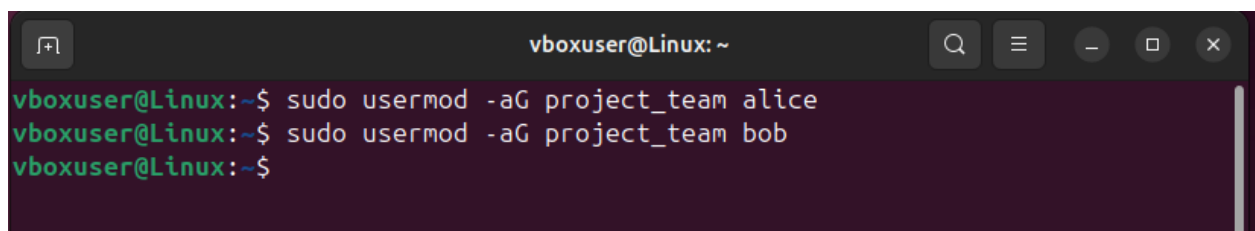
```
vboxuser@Linux:~$ sudo groupadd project_team
```

Figure 2: User creation and password setup

A terminal window titled 'vboxuser@Linux: ~' with search, menu, and window control icons in the title bar. The prompt is 'vboxuser@Linux:~\$' and two commands have been entered: 'sudo useradd -m bob' and 'sudo passwd bob'.

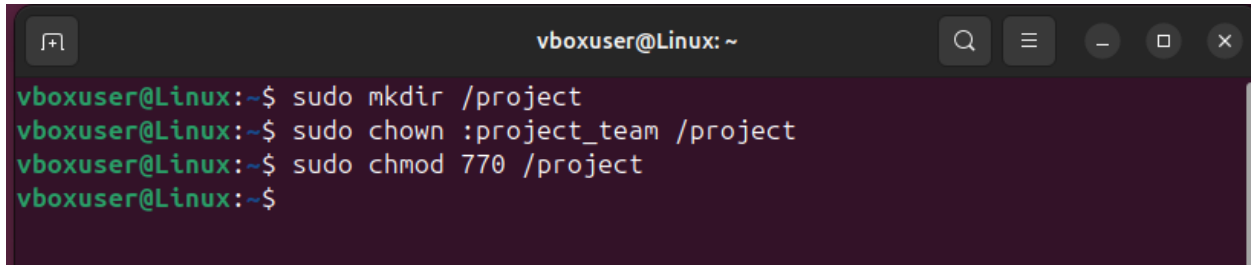
```
vboxuser@Linux:~$ sudo useradd -m bob
vboxuser@Linux:~$ sudo passwd bob
```

Figure 3: Adding user to a group

A terminal window titled 'vboxuser@Linux: ~' with search, menu, and window control icons in the title bar. The prompt is 'vboxuser@Linux:~\$' and two commands have been entered: 'sudo usermod -aG project\_team alice' and 'sudo usermod -aG project\_team bob'.

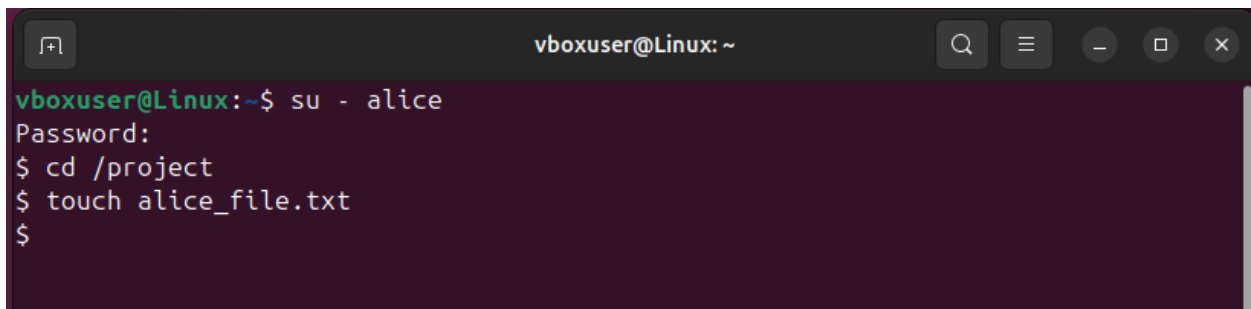
```
vboxuser@Linux:~$ sudo usermod -aG project_team alice
vboxuser@Linux:~$ sudo usermod -aG project_team bob
vboxuser@Linux:~$
```

**Figure 4: Shared directory setup and permission configuration**

A terminal window titled 'vboxuser@Linux: ~' with search, menu, and window control buttons. The terminal shows the following commands and output:

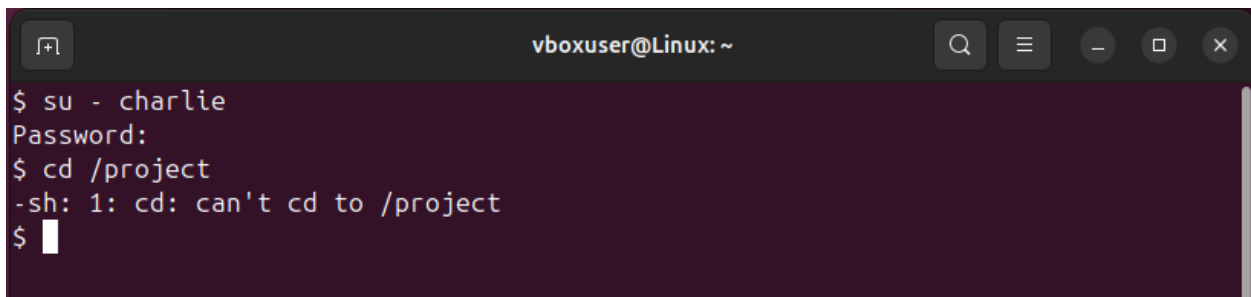
```
vboxuser@Linux:~$ sudo mkdir /project
vboxuser@Linux:~$ sudo chown :project_team /project
vboxuser@Linux:~$ sudo chmod 770 /project
vboxuser@Linux:~$
```

**Figure 5: Authorized user accessing shared directory successfully**

A terminal window titled 'vboxuser@Linux: ~' with search, menu, and window control buttons. The terminal shows the following commands and output:

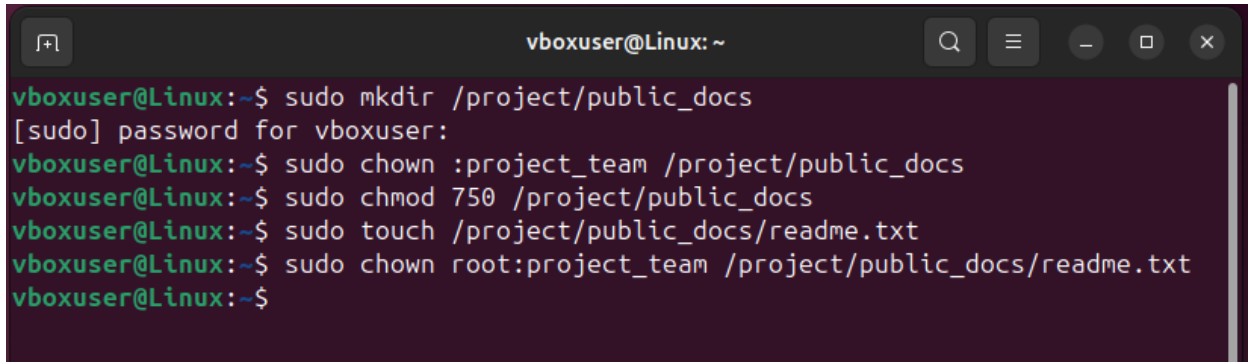
```
vboxuser@Linux:~$ su - alice
Password:
$ cd /project
$ touch alice_file.txt
$
```

**Figure 6: Unauthorized user denied access to shared directory**

A terminal window titled 'vboxuser@Linux: ~' with search, menu, and window control buttons. The terminal shows the following commands and output:

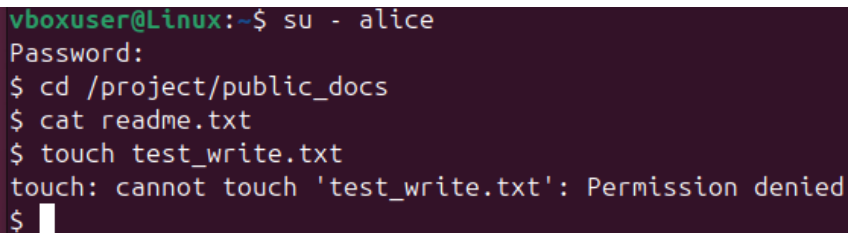
```
$ su - charlie
Password:
$ cd /project
-sh: 1: cd: can't cd to /project
$
```

**Figure 7: Bonus: Read-only directory created and configured for group access**



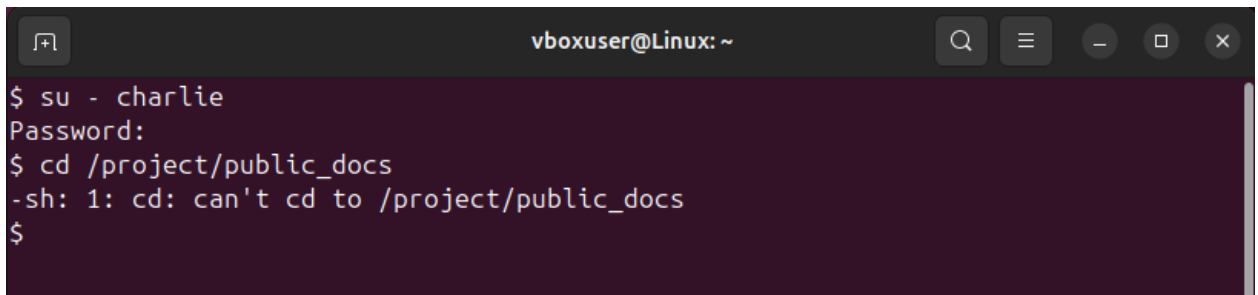
```
vboxuser@Linux: ~  
vboxuser@Linux:~$ sudo mkdir /project/public_docs  
[sudo] password for vboxuser:  
vboxuser@Linux:~$ sudo chown :project_team /project/public_docs  
vboxuser@Linux:~$ sudo chmod 750 /project/public_docs  
vboxuser@Linux:~$ sudo touch /project/public_docs/readme.txt  
vboxuser@Linux:~$ sudo chown root:project_team /project/public_docs/readme.txt  
vboxuser@Linux:~$
```

- **Bonus Directory Access Test – Group Member**



```
vboxuser@Linux:~$ su - alice  
Password:  
$ cd /project/public_docs  
$ cat readme.txt  
$ touch test_write.txt  
touch: cannot touch 'test_write.txt': Permission denied  
$
```

- **Bonus Directory Access Test – Non-Group User**



```
vboxuser@Linux: ~  
$ su - charlie  
Password:  
$ cd /project/public_docs  
-sh: 1: cd: can't cd to /project/public_docs  
$
```