

Assignment 1 --- On Virtual Machine --- 24/01/2025

1. Create a new user named student1 and assign them to a new group named training.

First, we need to create the new group training.

- Open your terminal.
- Run the following command to create the training group:

`(sudo groupadd training)`

Groupadd command is used to create new group

Training is the name of the group

Now, need to create a user called as student1 and it should locate group training.

`(sudo useradd -m -g training student1)`

- useradd: This command creates a new user.
- -m: This option ensures that a home directory is created for the user.
- -g training: This specifies that the user's **primary group** should be training.
- student1: This is the name of the new user.

This command creates the user student1 with the training group as their primary group and sets up their home directory (e.g., /home/student1).

Now, Set a password for the new user:

`(Sudo passwd student1)` after sending this command. It will ask you to put new password and re-enter it.

Enter new password:

Retype new password:

Now, to verify that the user has gone to the given group.

`(groups student1)`

The output you will get is student1 : training.



2. Create a folder /home/training_files and set the following permissions:
 - Only members of the training group can read, write, and execute files in this folder.
 - Others should have no access to this folder.

Create the training_files folder

Run the following command to create the directory /home/training_files:

Sudo mkdir /home/training_files

- mkdir: Creates a new directory.
- /home/training_files: The path and name of the directory you want to create.

we need to set the group ownership of the folder to training.

To change the group ownership we will use the command (**sudo chown :training /home/training_files**)

- chown: Changes the ownership of a file or directory.
- :training: Specifies that the group ownership of the folder should be set to training.

The screenshot shows a terminal window titled 'vboxuser@ubuntuvm: ~' within an 'ubuntuvm [Running] - Oracle VirtualBox' environment. The terminal output is as follows:

```
vboxuser@ubuntuvm:~$ sudo mkdir /home/training_files
[sudo] password for vboxuser:
vboxuser@ubuntuvm:~$ sudo chown :training /home/training_files
vboxuser@ubuntuvm:~$ ls -la
total 80
drwxr-xr-x 16 vboxuser vboxuser 4096 Jan 24 12:35 .
drwxr-xr-x  5 root      root    4096 Jan 24 13:52 ..
-rw-r----- 1 vboxuser vboxuser  91 Jan 24 12:25 .bash_history
-rw-r--r--  1 vboxuser vboxuser 220 Jan 24 11:25 .bash_logout
-rw-r--r--  1 vboxuser vboxuser 3771 Jan 24 11:25 .bashrc
drwx----- 14 vboxuser vboxuser 4096 Jan 24 12:36 .cache
drwx----- 11 vboxuser vboxuser 4096 Jan 24 12:25 .config
drwxr-xr-x  2 vboxuser vboxuser 4096 Jan 24 11:36 Desktop
drwxr-xr-x  2 vboxuser vboxuser 4096 Jan 24 11:36 Documents
drwxr-xr-x  2 vboxuser vboxuser 4096 Jan 24 11:36 Downloads
drwx-----  3 vboxuser vboxuser 4096 Jan 24 12:26 .gnupg
drwxr-xr-x  3 vboxuser vboxuser 4096 Jan 24 11:36 .local
drwx-----  4 vboxuser vboxuser 4096 Jan 24 12:35 .mozilla
```

- /home/training_files: The folder whose ownership is being changed.

Note: You don't need to specify a user because we're only changing the group ownership.

We need to set the folder's permissions so that:

- Only members of the training group can read, write, and execute files.
- Others have no access.

`sudo chmod 770 /home/training_files`

- 7 for the **owner** (read, write, execute).
- 7 for the **group** (read, write, execute).
- 0 for **others** (no permissions).

This command sets the following permissions:

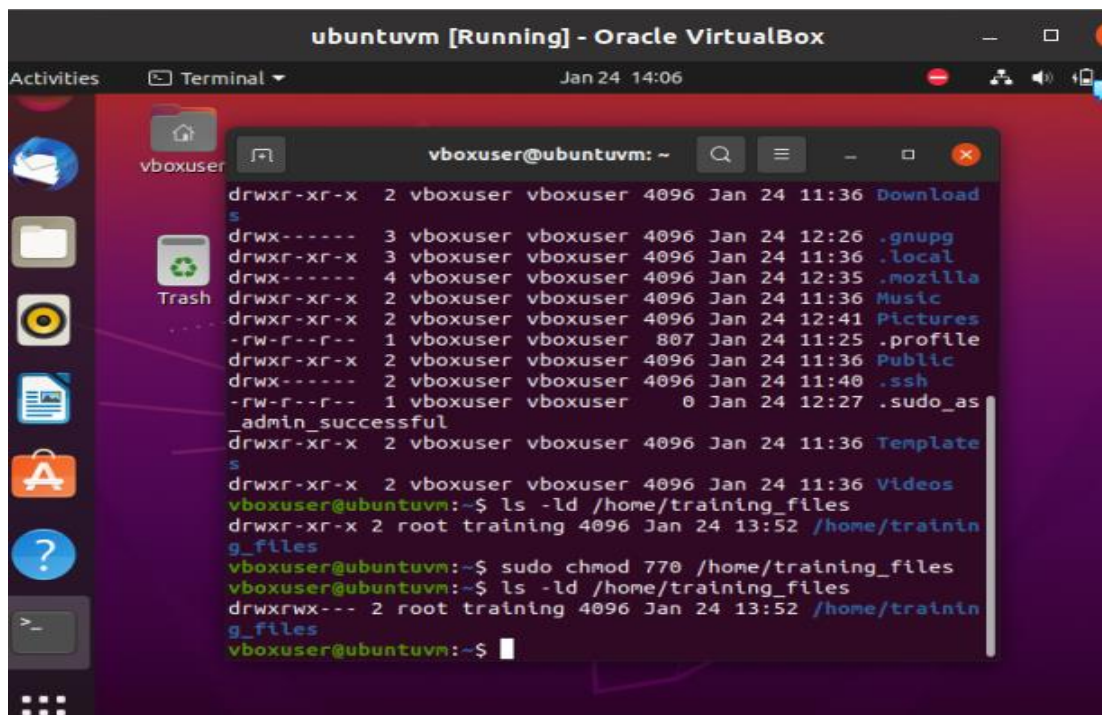
- **Owner:** Full permissions (read, write, and execute).
- **Group (training):** Full permissions (read, write, and execute).
- **Others:** No permissions (no access).

Now, we need to verify the permission:

So, we will use command (`ls -ld /home/training_files`)

so, we will get o/p like this... (`drwxrwx--- 2 root training 4096 Jan 24 12:34 /home/training_files`)

- d: Indicates it's a directory.
- rwxrwx---: Permissions for owner (read, write, execute), group (read, write, execute), and others (no access).
- root: Owner of the directory.
- training: The group assigned to the directory.
- 4096: The size of the directory.
- Jan 24 12:34: The timestamp showing the last modification time.
- /home/training_files: The directory path.



```
ubuntuvvm [Running] - Oracle VirtualBox
Activities Terminal Jan 24 14:06
vboxuser@ubuntuvvm: ~
drwxr-xr-x 2 vboxuser vboxuser 4096 Jan 24 11:36 Download
drwx----- 3 vboxuser vboxuser 4096 Jan 24 12:26 .gnupg
drwxr-xr-x 3 vboxuser vboxuser 4096 Jan 24 11:36 .local
drwx----- 4 vboxuser vboxuser 4096 Jan 24 12:35 .mozilla
drwxr-xr-x 2 vboxuser vboxuser 4096 Jan 24 11:36 Music
drwxr-xr-x 2 vboxuser vboxuser 4096 Jan 24 12:41 Pictures
-rw-r--r-- 1 vboxuser vboxuser 807 Jan 24 11:25 .profile
drwxr-xr-x 2 vboxuser vboxuser 4096 Jan 24 11:36 Public
drwx----- 2 vboxuser vboxuser 4096 Jan 24 11:40 .ssh
-rw-r--r-- 1 vboxuser vboxuser 0 Jan 24 12:27 .sudo_as
_admin_successful
drwxr-xr-x 2 vboxuser vboxuser 4096 Jan 24 11:36 Template
drwxr-xr-x 2 vboxuser vboxuser 4096 Jan 24 11:36 Videos
vboxuser@ubuntuvvm:~$ ls -ld /home/training_files
drwxr-xr-x 2 root training 4096 Jan 24 13:52 /home/trainin
g_files
vboxuser@ubuntuvvm:~$ sudo chmod 770 /home/training_files
vboxuser@ubuntuvvm:~$ ls -ld /home/training_files
drwxrwx--- 2 root training 4096 Jan 24 13:52 /home/trainin
g_files
vboxuser@ubuntuvvm:~$
```

3. Log in as student1 and verify access to the /home/training_files folder.

If you are logged in as different user. You need to login as student1

Switch to student1 user: Use the su (substitute user) command to switch to student1:

Su student1

- **Note:** Once you run this, you should see the \$ symbol in the terminal. This is an indicator that you're logged in as the student1 user (regular user).
- If you're prompted for the password of student1, enter it.

Check the files in the current directory using ls -l: After switching to student1, you can use the ls -l command to list the files and directories in the current location in long format:

```
ls -l
```

- The -l flag shows detailed information about the files and directories (e.g., permissions, owner, group, size, and last modification time).
- This will help you verify the contents of the directory you're currently in.
- **Navigate to /home/training_files** using the cd command: Now, you want to navigate to the /home/training_files folder. Use the cd command:

```
cd /home/training_files
```

The cd command stands for "change directory." It will take you to the /home/training_files directory, assuming you have permission to access it.

Check the contents of /home/training_files: After navigating to the directory, use ls to check the files and subdirectories inside /home/training_files:

```
ls
```

This will list the files or subdirectories inside /home/training_files.

Now , we don't have anything to it so i add abc.txt file and check ls again


```
ubuntuvm [Running] - Oracle VirtualBox
Jan 24 15:10
Home
vboxuser@ubuntuvm: /home
vboxuser@ubuntuvm:~$ ls -ld
drwxr-xr-x 20 root root 4096 Jan 24 11:23 .
vboxuser@ubuntuvm:~$
vboxuser@ubuntuvm:~$ cd home/
vboxuser@ubuntuvm:~/home$ ls
student1 training_files vboxuser
vboxuser@ubuntuvm:~/home$
vboxuser@ubuntuvm:~/home$
vboxuser@ubuntuvm:~/home$ cd training_files/
bash: cd: training_files/: Permission denied
vboxuser@ubuntuvm:~/home$
vboxuser@ubuntuvm:~/home$
vboxuser@ubuntuvm:~/home$
vboxuser@ubuntuvm:~/home$ su student1
Password:
$ ls -ld
total 12
drwxr-xr-x 2 student1 training 4096 Jan 24 12:32 student1
drwxrwx--- 2 root training 4096 Jan 24 13:52 training_files
drwxr-xr-x 16 vboxuser vboxuser 4096 Jan 24 12:35 vboxuser
$ cd training
sh: 2: cd: can't cd to training
```

```
ubuntuvm [Running] - Oracle VirtualBox
Jan 24 15:13
Activities
Terminal
Home
vboxuser@ubuntuvm: /home
_files
drwxr-xr-x 16 vboxuser vboxuser 4096 Jan 24 12:35 vboxuser
$ cd training
sh: 2: cd: can't cd to training
$
$ cd training_files
$
$ ls
$
$ pwd
/home/training_files
$
$ touch abc.txt
$
$ ls
abc.txt
$ exit
vboxuser@ubuntuvm: /home$
```