Computer Security Lab 02

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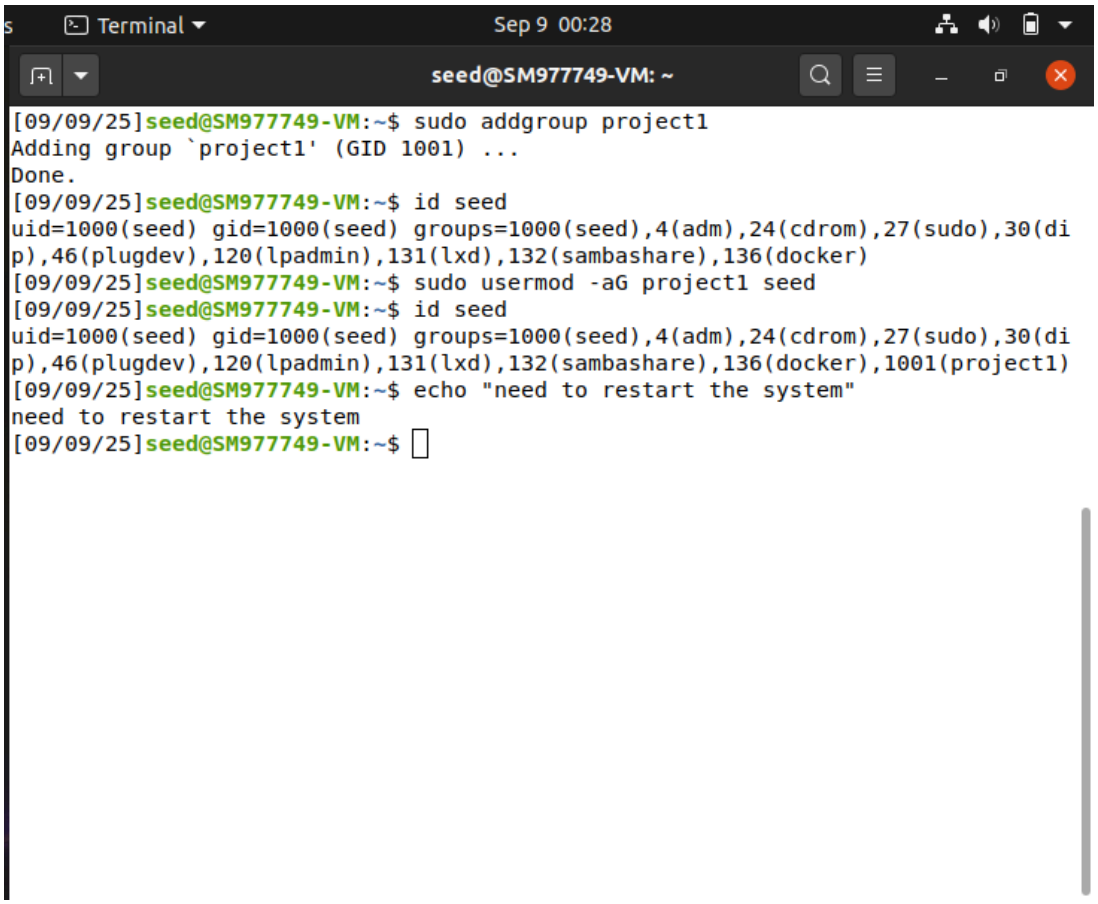
1) **Creating Group**

I've created a group using the "addgroup" command. I had to use "sudo" to run the command because groups are handled by the root user and being logged in as the user "seed" does not give me permissions to work with the groups other than my own group.

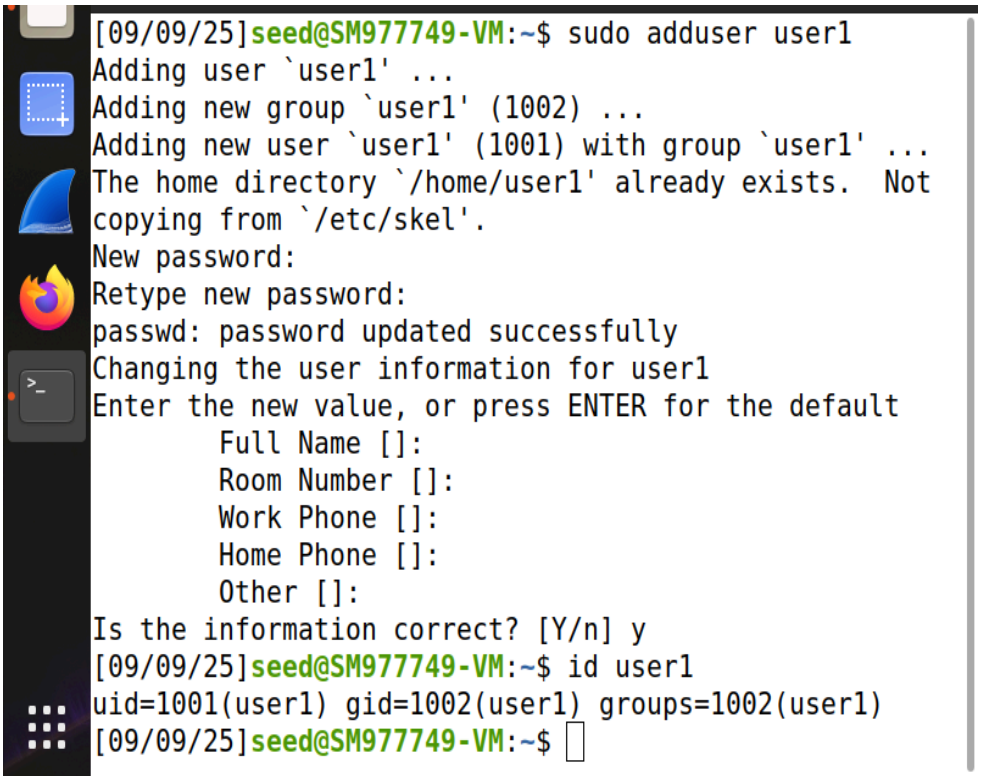
- Then I added myself (i.e seed) to the group using usermod command which again needs the sudo permissions for the same reason mentioned above.

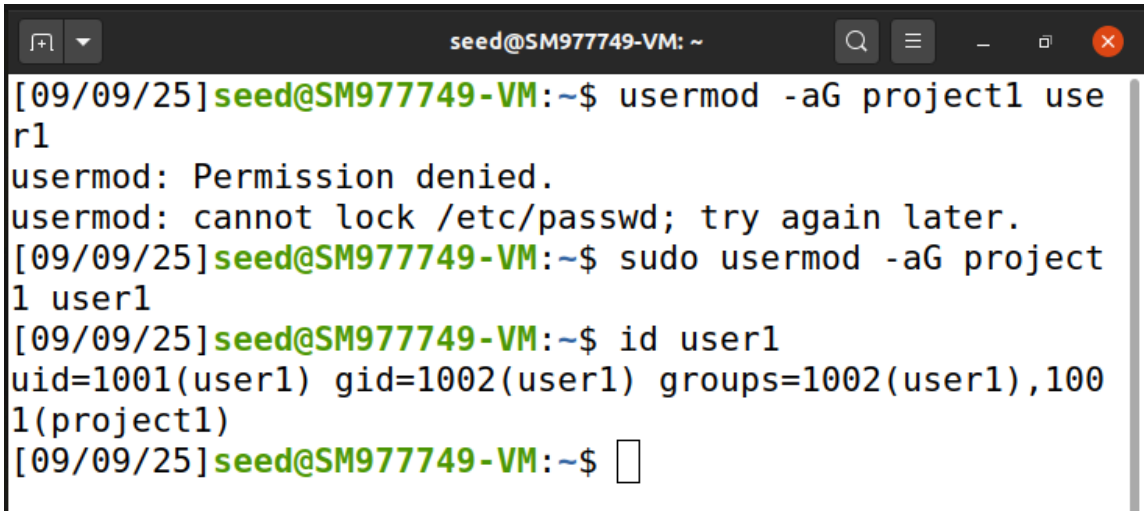


2) **Creating user1**

In this step, I've created a new user named "user1" using the "adduser" command which requires superuser permissions because similar to the groups, the users of the system are also managed only by the superuser.

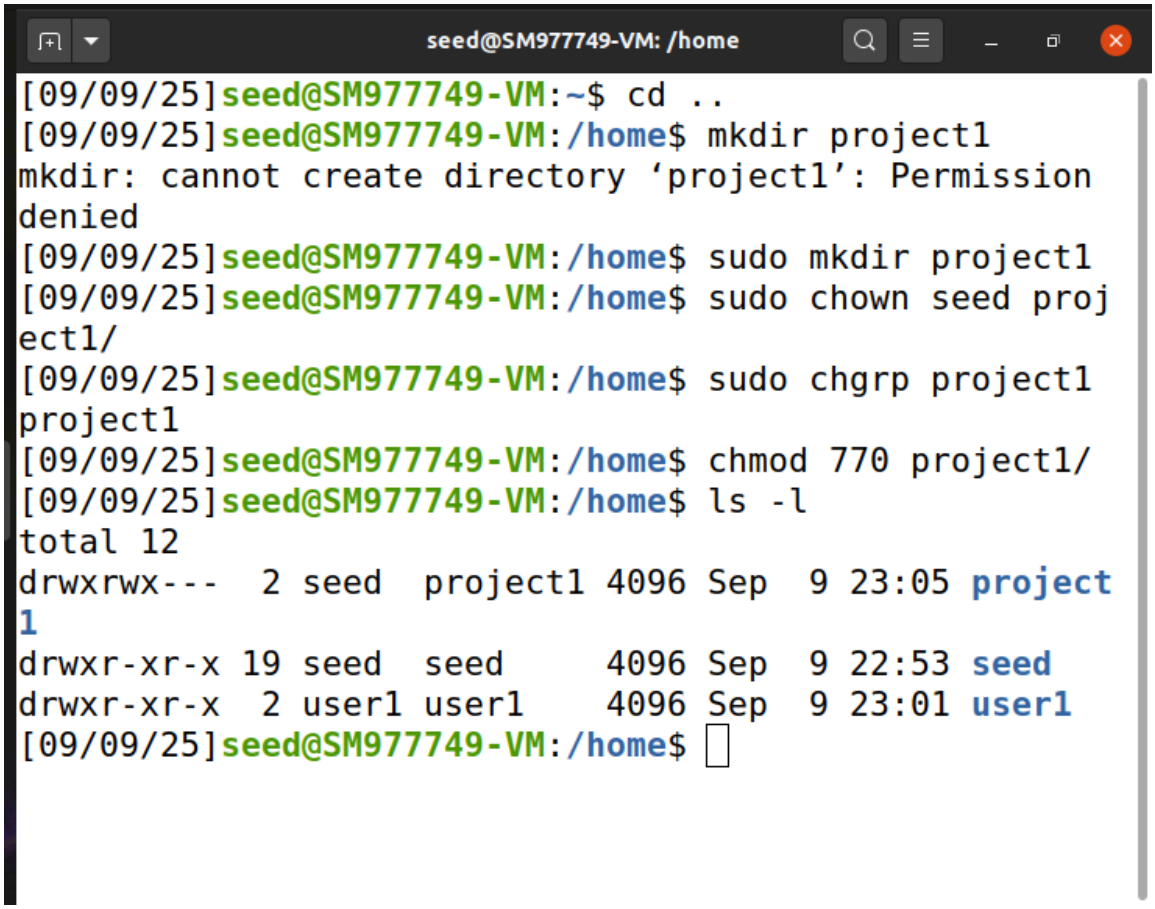
- Then I added user1 to the project1 group same as I added myself (user seed) to the group using "sudo" (superuser permissions)
- I checked by "id" command to see if the user was added to project1 group.





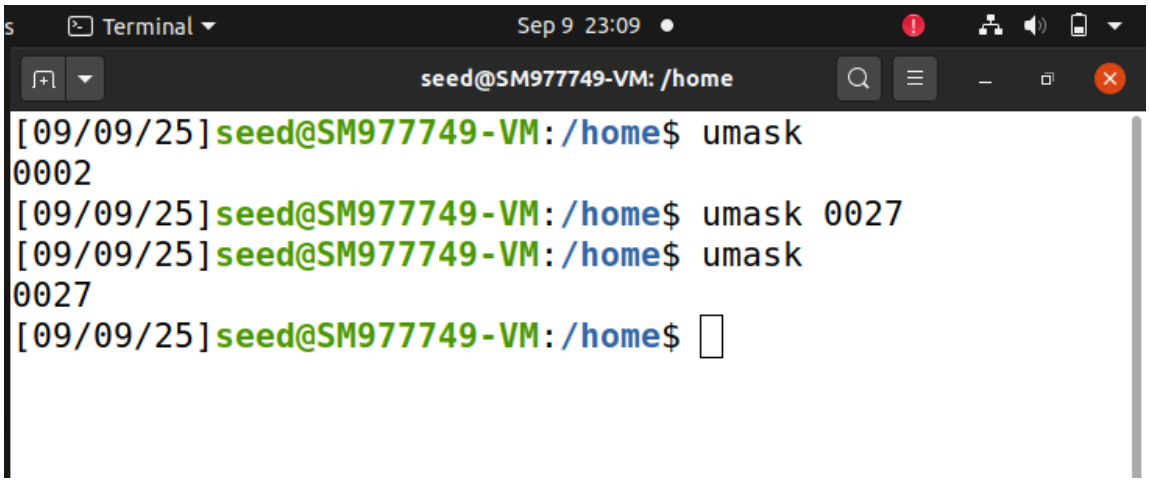
3) **Create /home/project1 directory**

- I changed my directory to /home and tried creating a directory named “project1”
- But as a user, I only have access to my userspace which is /home/seed to create or change anything, so I got a permission denied error.
- As the superuser has access to /home directory, I used “sudo” to get the temporary superuser permission to create the directory. Yes, now /home/project1 has been created
- Now, as discussed in the above tasks, I had to use “sudo” to make changes to the directory which is not under my control. So, I used “chown” and “chgrp” with “sudo” permissions to add user seed as the owner and project1 as the group respectively to the project1/ directory
- Now, as I (seed) have become the owner of the directory, I do not need “sudo” permissions to change anything about the directory.
- So, without “sudo” I ran `chmod 770 project1` to change the permission set of the directory to let owner and group have all permissions and others have no access to it.



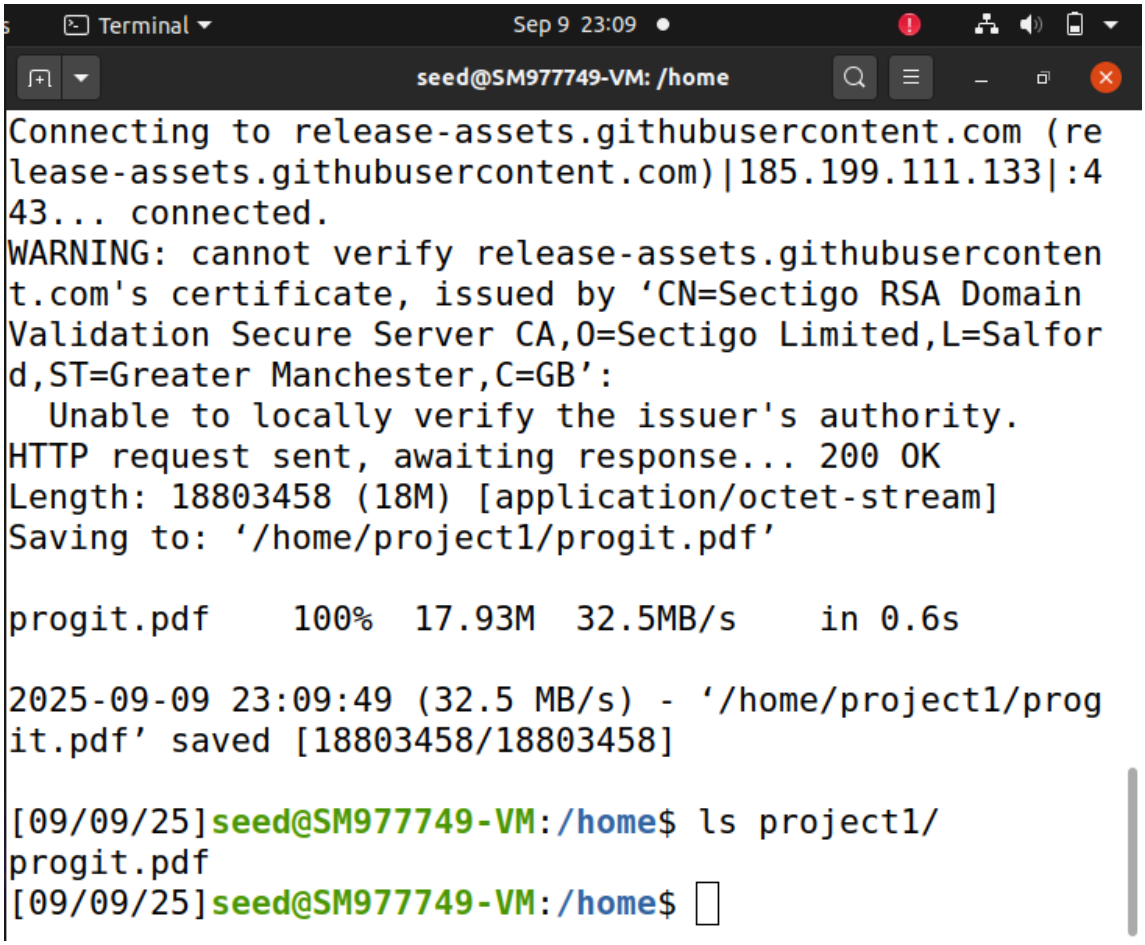
4) UMask

- Setting umask to 0027 will mask the write permissions of the group and all permissions of other users. Thus the permissions of any file created will have -rw-r----- by default.



5) Download progit.pdf

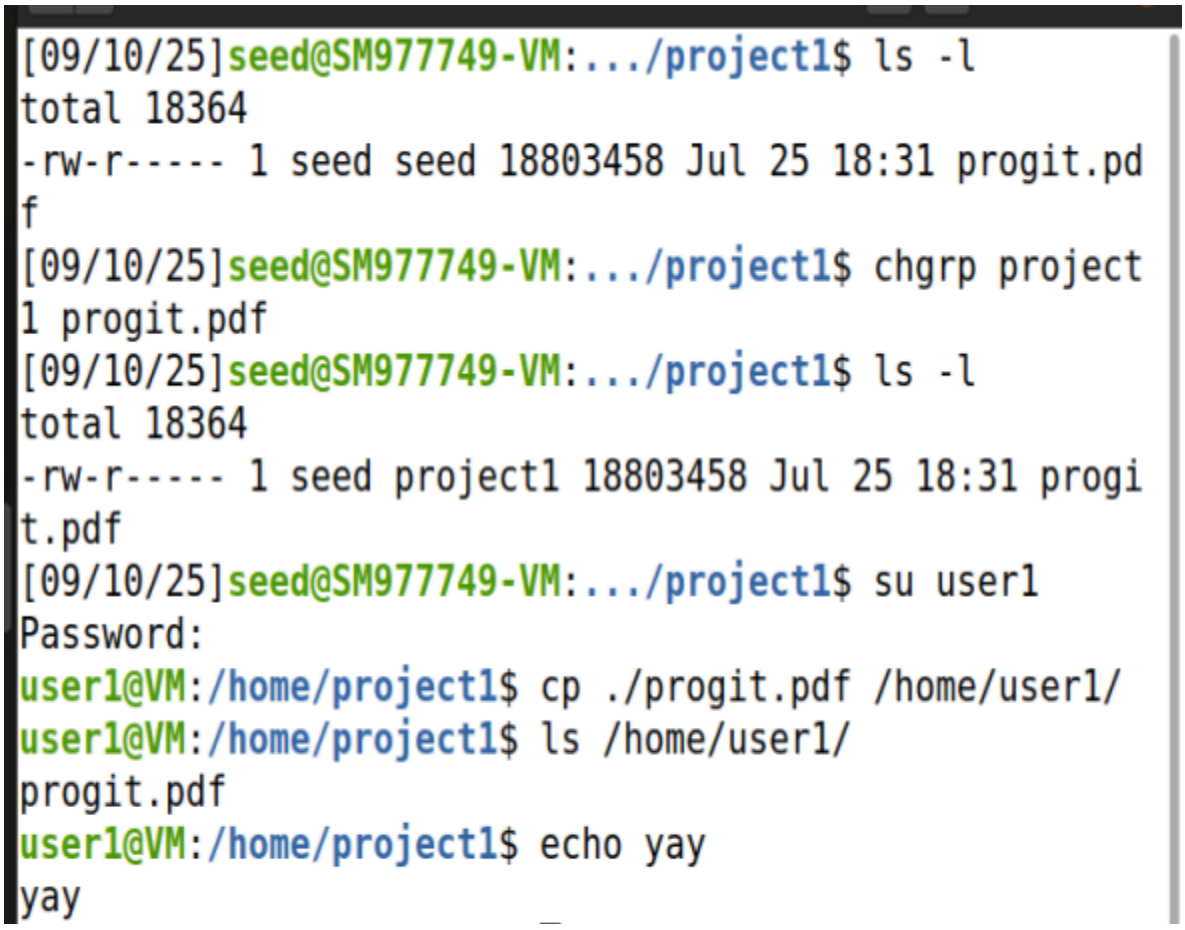
- I ran the given wget command to download the progit.pdf file to the project1/ directory.



6) **Switch to user1**

- I switched to user1 using “su” command.
- I tried running the cp command to copy the /home/project1/progit.pdf file to /home/user1 but it denied my action, saying I don’t have permission to do so.
- I think this is because the owner and group of the progit.pdf file are somehow set to seed and user1 cannot do anything with other user files.
- Even the directory project1/ has the group project1, as the file is created by the user seed, I think the full permissions are given to seed. That is why user1 cannot copy that file.

7) **Making progit.pdf accessible to user1**
   - I switched back to seed and changed the group of the progit.pdf to project1.
   - Why? Because, user1 is also a part of project1 group. So, it'll make it accessible to user1.
   - Now, I again switched back to user1 and tried copying progit.pdf to /home/user1
   - The action succeeded now and the file is copied to /home/user1



8) **Ensuring future files in /home/project1 to be accessible to members in project1**

- I got to know that my assumptions about the ownership of the files I did in step 6 are correct. User only will have the permissions to the files they created and other users don't.
- But in a collaborative space like project1, this is not convenient.
- After going through documentation and blogs on the internet, I got to know about something called a "**sgid bit**" which is Set Group ID bit.
- It is a special permission which can be applied to both files and directories.
- If it is set on a directory, any file created in the directory will have their group ownership set to that of the directory owner.


[09/10/25]seed@SM977749-VM:/home$ su user1
Password:
user1@VM:/home$ cp /home/project1/progit.pdf /home/use
r1/
user1@VM:/home$ ls /home/user1/
progit.pdf