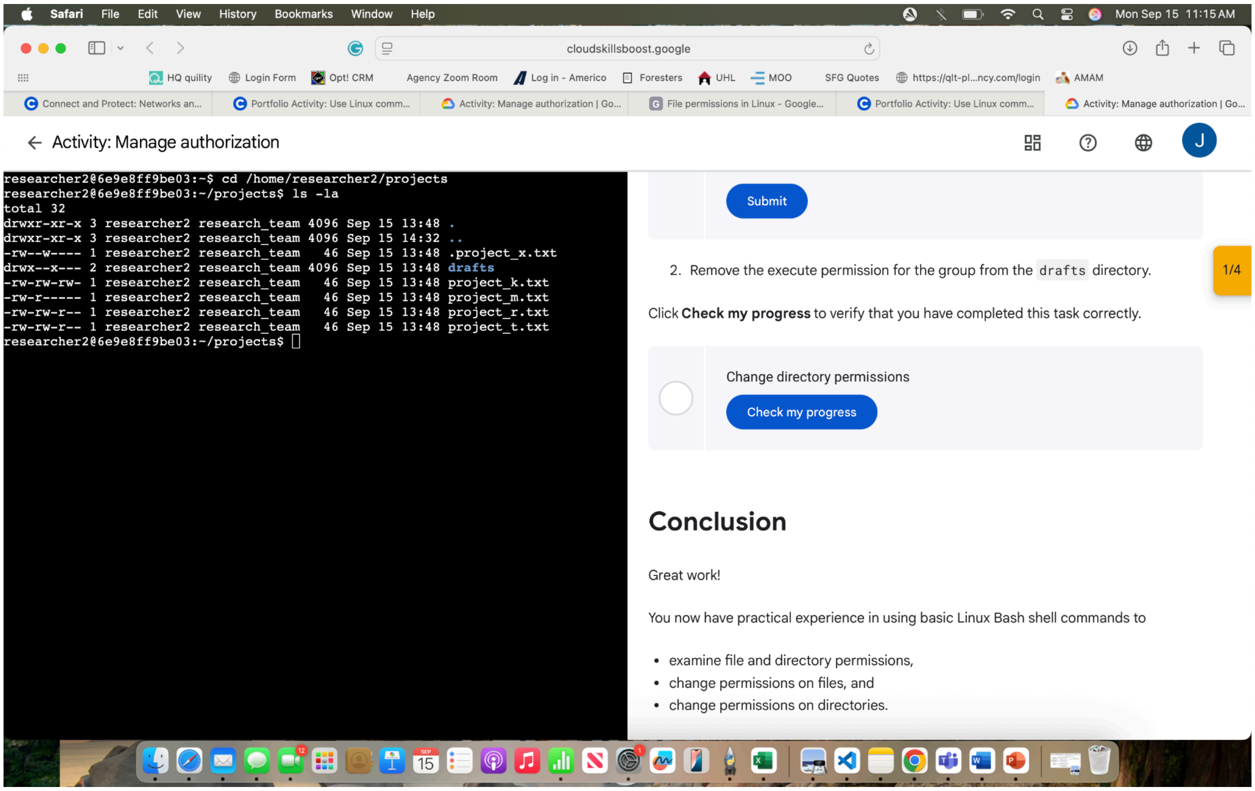
File permissions in Linux

Project description

In this project, I examined and managed file and directory permissions in Linux for the `/home/researcher2/projects`directory. The goal was to ensure that only authorized users and groups had the correct level of access, while removing any unauthorized permissions. I used commands such as `ls -la` to review permissions and `chmod` to modify them, aligning the system with the principle of least privilege.

Check file and directory details


Safari File Edit View History Bookmarks Window Help
Mon Sep 15 11:15 AM
cloudskillsboost.google
HQ quility
Login Form
Opt! CRM
Agency Zoom Room
Log in - Americo
Foresters
UHL
MOO
SFG Quotes
https://qlt-pl...ncy.com/login
AMAM
Connect and Protect: Networks an...
Portfolio Activity: Use Linux comm...
Activity: Manage authorization | Go...
File permissions in Linux - Google...
Portfolio Activity: Use Linux comm...
Activity: Manage authorization | Go...
Activity: Manage authorization
J
Submit
1/4

```
researcher2@6e9e8ff9be03:~$ cd /home/researcher2/projects
researcher2@6e9e8ff9be03:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Sep 15 13:48 .
drwxr-xr-x 3 researcher2 research_team 4096 Sep 15 14:32 ..
-rw--w---- 1 researcher2 research_team   46 Sep 15 13:48 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Sep 15 13:48 drafts
-rw-rw-rw- 1 researcher2 research_team   46 Sep 15 13:48 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Sep 15 13:48 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Sep 15 13:48 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Sep 15 13:48 project_t.txt
researcher2@6e9e8ff9be03:~/projects$ 
```

2. Remove the execute permission for the group from the `drafts` directory.

Click **Check my progress** to verify that you have completed this task correctly.

○ Change directory permissions

Check my progress

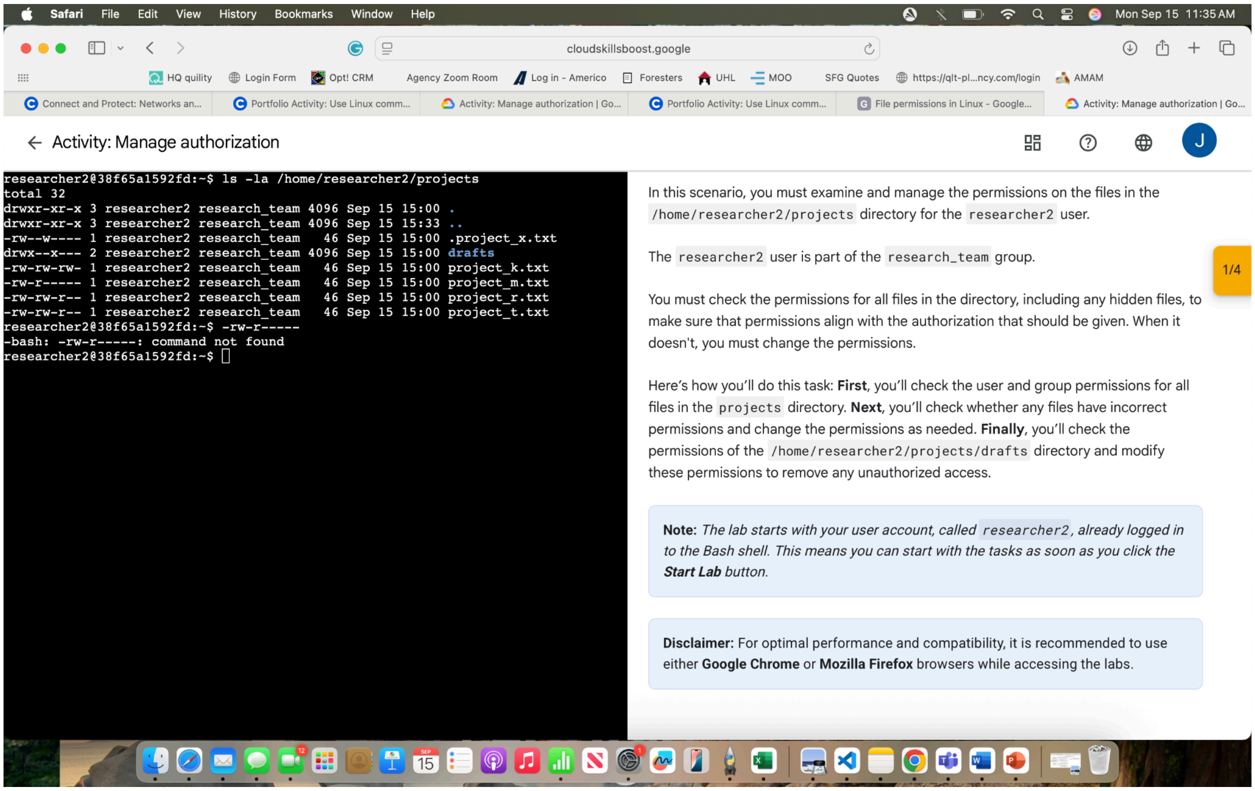
Conclusion

Great work!

You now have practical experience in using basic Linux Bash shell commands to

- examine file and directory permissions,
- change permissions on files, and
- change permissions on directories.

Describe the permissions string



Safari File Edit View History Bookmarks Window Help
Mon Sep 15 11:35 AM
cloudskillsboost.google
HQ quility
Login Form
Opt! CRM
Agency Zoom Room
Log in - Americo
Foresters
UHL
MOO
SFG Quotes
https://qlt-pl...ncy.com/login
AMAM
Connect and Protect: Networks an...
Portfolio Activity: Use Linux comm...
Activity: Manage authorization | Go...
Portfolio Activity: Use Linux comm...
File permissions in Linux - Google...
Activity: Manage authorization | Go...
Activity: Manage authorization
J
1/4

```
researcher2@38f65a1592fd:~$ ls -la /home/researcher2/projects
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Sep 15 15:00 .
drwxr-xr-x 3 researcher2 research_team 4096 Sep 15 15:33 ..
-rw--w---- 1 researcher2 research_team   46 Sep 15 15:00 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Sep 15 15:00 drafts
-rw-rw-rw- 1 researcher2 research_team   46 Sep 15 15:00 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Sep 15 15:00 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Sep 15 15:00 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Sep 15 15:00 project_t.txt
researcher2@38f65a1592fd:~$ -rw-r-----
-bash: -rw-r-----: command not found
researcher2@38f65a1592fd:~$ 
```

In this scenario, you must examine and manage the permissions on the files in the `/home/researcher2/projects` directory for the `researcher2` user.

The `researcher2` user is part of the `research_team` group.

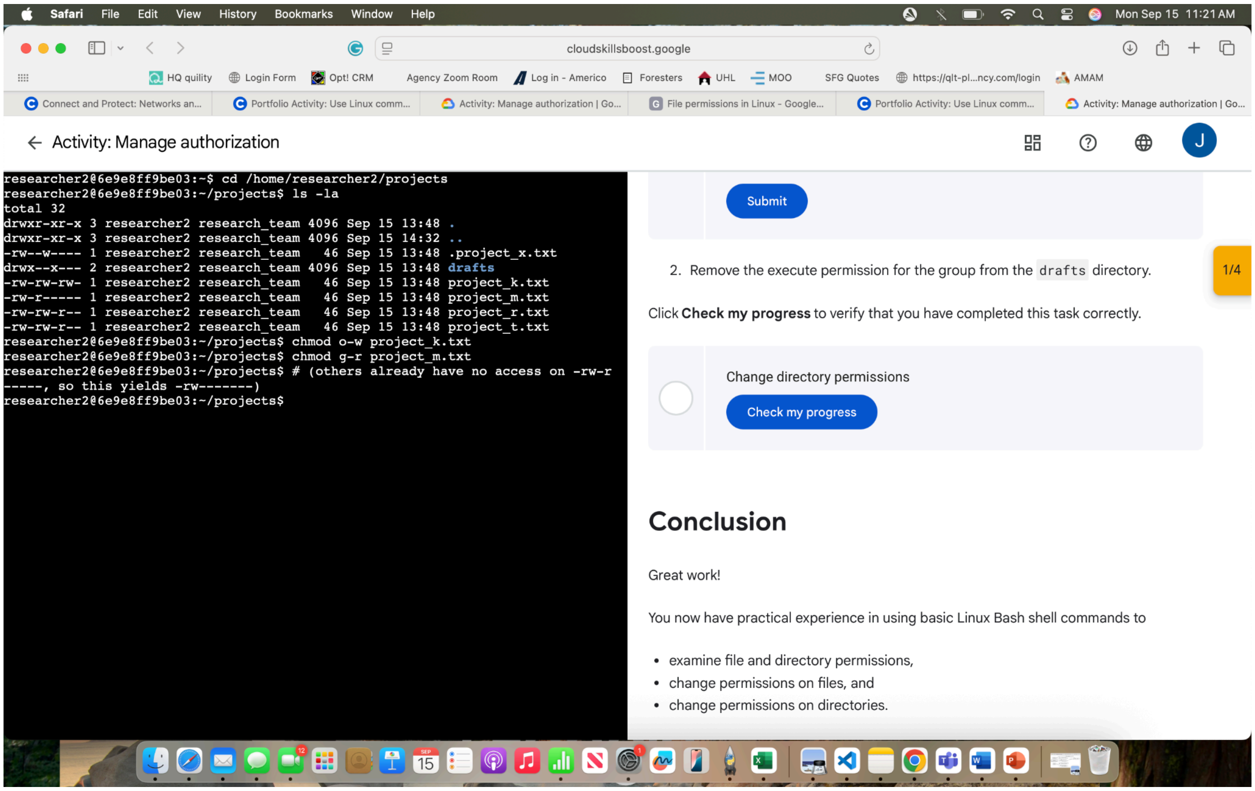
You must check the permissions for all files in the directory, including any hidden files, to make sure that permissions align with the authorization that should be given. When it doesn't, you must change the permissions.

Here's how you'll do this task: **First**, you'll check the user and group permissions for all files in the `projects` directory. **Next**, you'll check whether any files have incorrect permissions and change the permissions as needed. **Finally**, you'll check the permissions of the `/home/researcher2/projects/drafts` directory and modify these permissions to remove any unauthorized access.

> **Note:** *The lab starts with your user account, called `researcher2`, already logged in to the Bash shell. This means you can start with the tasks as soon as you click the **Start Lab** button.*

> **Disclaimer:** For optimal performance and compatibility, it is recommended to use either **Google Chrome** or **Mozilla Firefox** browsers while accessing the labs.

Change file permissions



Safari File Edit View History Bookmarks Window Help
Mon Sep 15 11:21 AM
cloudskillsboost.google
HQ quility
Login Form
Opt! CRM
Agency Zoom Room
Log in - Americo
Foresters
UHL
MOO
SFG Quotes
https://qlt-pl...ncy.com/login
AMAM
Connect and Protect: Networks an...
Portfolio Activity: Use Linux comm...
Activity: Manage authorization | Go...
File permissions in Linux - Google...
Portfolio Activity: Use Linux comm...
Activity: Manage authorization | Go...
Activity: Manage authorization
J

```
researcher2@6e9e8ff9be03:~$ cd /home/researcher2/projects
researcher2@6e9e8ff9be03:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Sep 15 13:48 .
drwxr-xr-x 3 researcher2 research_team 4096 Sep 15 14:32 ..
-rw--w---- 1 researcher2 research_team   46 Sep 15 13:48 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Sep 15 13:48 drafts
-rw-rw-rw- 1 researcher2 research_team   46 Sep 15 13:48 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Sep 15 13:48 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Sep 15 13:48 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Sep 15 13:48 project_t.txt
researcher2@6e9e8ff9be03:~/projects$ chmod o-w project_k.txt
researcher2@6e9e8ff9be03:~/projects$ chmod g-r project_m.txt
researcher2@6e9e8ff9be03:~/projects$ # (others already have no access on -rw-r
-----, so this yields -rw-------)
researcher2@6e9e8ff9be03:~/projects$
```

2. Remove the execute permission for the group from the `drafts` directory.

Click **Check my progress** to verify that you have completed this task correctly.

○ Change directory permissions

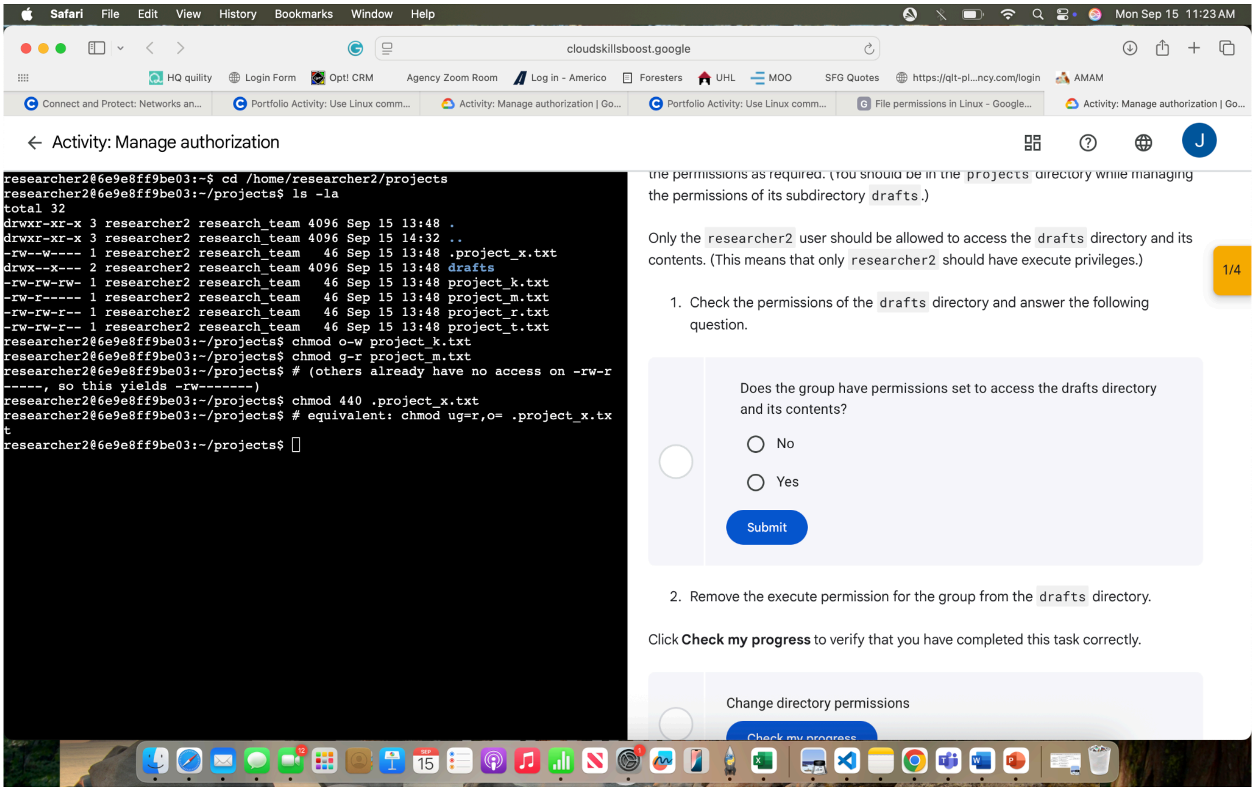
Conclusion

Great work!

You now have practical experience in using basic Linux Bash shell commands to

- examine file and directory permissions,
- change permissions on files, and
- change permissions on directories.

Change file permissions on a hidden file



Safari File Edit View History Bookmarks Window Help
Mon Sep 15 11:23 AM
cloudskillsboost.google
HQ quility
Login Form
Opt! CRM
Agency Zoom Room
Log in - Americo
Foresters
UHL
MOO
SFG Quotes
https://qlt-pl...ncy.com/login
AMAM
Connect and Protect: Networks an...
Portfolio Activity: Use Linux comm...
Activity: Manage authorization | Go...
Portfolio Activity: Use Linux comm...
File permissions in Linux - Google...
Activity: Manage authorization | Go...
Activity: Manage authorization
J
1/4

```
researcher2@6e9e8ff9be03:~$ cd /home/researcher2/projects
researcher2@6e9e8ff9be03:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Sep 15 13:48 .
drwxr-xr-x 3 researcher2 research_team 4096 Sep 15 14:32 ..
-rw--w---- 1 researcher2 research_team   46 Sep 15 13:48 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Sep 15 13:48 drafts
-rw-rw-rw- 1 researcher2 research_team   46 Sep 15 13:48 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Sep 15 13:48 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Sep 15 13:48 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Sep 15 13:48 project_t.txt
researcher2@6e9e8ff9be03:~/projects$ chmod o-w project_k.txt
researcher2@6e9e8ff9be03:~/projects$ chmod g-r project_m.txt
researcher2@6e9e8ff9be03:~/projects$ # (others already have no access on -rw-r
-----, so this yields -rw-------)
researcher2@6e9e8ff9be03:~/projects$ chmod 440 .project_x.txt
researcher2@6e9e8ff9be03:~/projects$ # equivalent: chmod ug=r,o= .project_x.tx
t
researcher2@6e9e8ff9be03:~/projects$ 
```

the permissions as required. (You should be in the `projects` directory while managing the permissions of its subdirectory `drafts`.)

Only the `researcher2` user should be allowed to access the `drafts` directory and its contents. (This means that only `researcher2` should have execute privileges.)

1. Check the permissions of the `drafts` directory and answer the following question.

Does the group have permissions set to access the drafts directory and its contents?

○ No

○ Yes

Submit

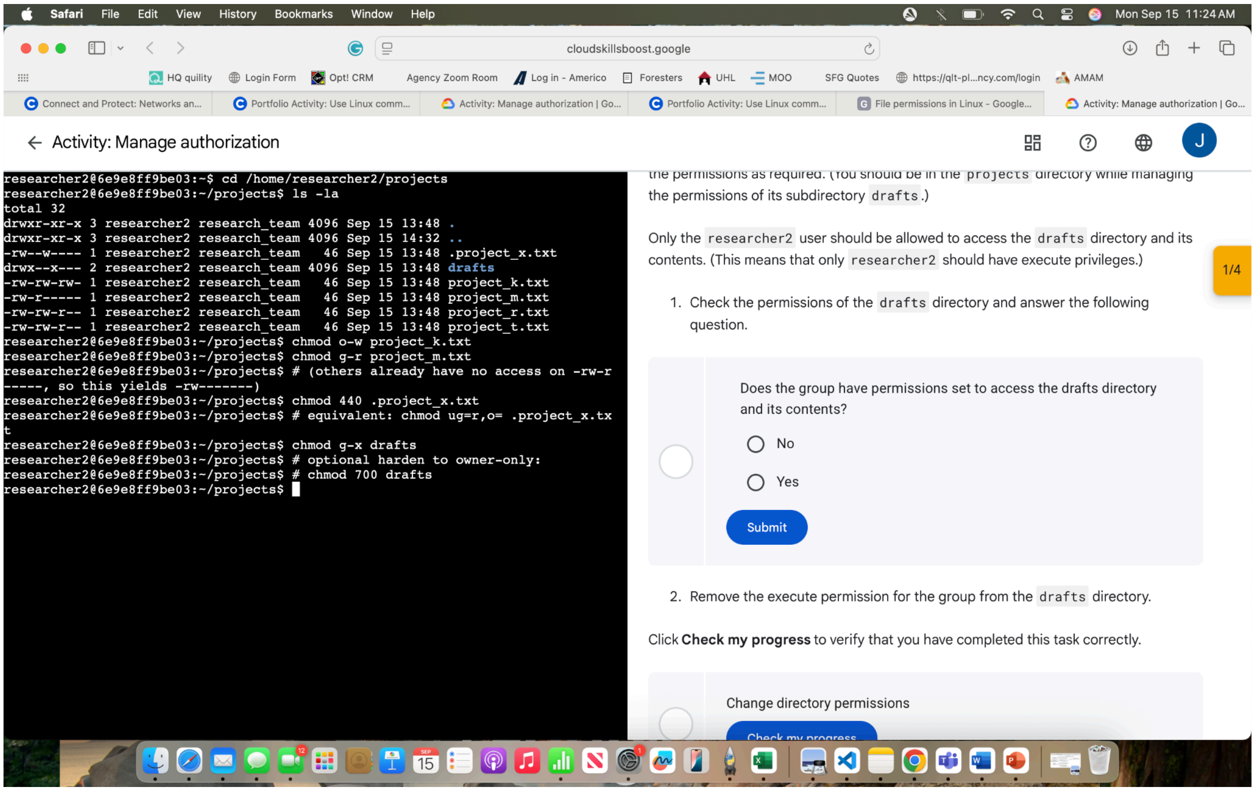
2. Remove the execute permission for the group from the `drafts` directory.

Click **Check my progress** to verify that you have completed this task correctly.

Change directory permissions

Check my progress

Change directory permissions



Activity: Manage authorization

```
researcher2@6e9e8ff9be03:~$ cd /home/researcher2/projects
researcher2@6e9e8ff9be03:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Sep 15 13:48 .
drwxr-xr-x 3 researcher2 research_team 4096 Sep 15 14:32 ..
-rw--w---- 1 researcher2 research_team   46 Sep 15 13:48 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Sep 15 13:48 drafts
-rw-rw-rw- 1 researcher2 research_team   46 Sep 15 13:48 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Sep 15 13:48 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Sep 15 13:48 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Sep 15 13:48 project_t.txt
researcher2@6e9e8ff9be03:~/projects$ chmod o-w project_k.txt
researcher2@6e9e8ff9be03:~/projects$ chmod g-r project_m.txt
researcher2@6e9e8ff9be03:~/projects$ # (others already have no access on -rw-r
-----, so this yields -rw-------)
researcher2@6e9e8ff9be03:~/projects$ chmod 440 .project_x.txt
researcher2@6e9e8ff9be03:~/projects$ # equivalent: chmod ug=r,o= .project_x.tx
t
researcher2@6e9e8ff9be03:~/projects$ chmod g-x drafts
researcher2@6e9e8ff9be03:~/projects$ # optional harden to owner-only:
researcher2@6e9e8ff9be03:~/projects$ # chmod 700 drafts
researcher2@6e9e8ff9be03:~/projects$ 
```

the permissions as required. (You should be in the `projects` directory while managing the permissions of its subdirectory `drafts`.)

Only the `researcher2` user should be allowed to access the `drafts` directory and its contents. (This means that only `researcher2` should have execute privileges.)

1. Check the permissions of the `drafts` directory and answer the following question.

Does the group have permissions set to access the drafts directory and its contents?

○ No

○ Yes

Submit

2. Remove the execute permission for the group from the `drafts` directory.

Click **Check my progress** to verify that you have completed this task correctly.

Change directory permissions

Summary

Through this project, I verified existing file and directory permissions, corrected unsafe settings, and secured hidden and restricted files. I removed write access for unauthorized users, locked down sensitive files so only the owner could access them, and limited directory access to the appropriate user. These actions demonstrated the ability to apply Linux permission management techniques to improve system security and protect against unauthorized access.