

Manage Authorization

Skills Acquired:

- Examine file and directory permissions
- Change permissions on files
- Change permissions on directories

Scenario:

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.

Task 1. Check file and directory details

In this task, you must explore the permissions of the projects directory and the files it contains. The lab starts with /home/researcher2 as the current working directory. This is because you're changing permissions for files and directories belonging to the researcher2 user.

1. Navigate to the projects directory.
2. List the contents and permissions of the projects directory.
3. Check whether any hidden files exist in the projects directory.

```
researcher2@ef4417eba7bb:~$ pwd
/home/researcher2
researcher2@ef4417eba7bb:~$ ls
projects
researcher2@ef4417eba7bb:~$ cd projects
researcher2@ef4417eba7bb:~/projects$ ls -l
total 20
drwx--x--- 2 researcher2 research_team 4096 Sep 20 13:59 drafts
-rw-rw-rw- 1 researcher2 research_team  46 Sep 20 13:59 project_k.txt
-rw-r----- 1 researcher2 research_team  46 Sep 20 13:59 project_m.txt
-rw-rw-r-- 1 researcher2 research_team  46 Sep 20 13:59 project_r.txt
-rw-rw-r-- 1 researcher2 research_team  46 Sep 20 13:59 project_t.txt
researcher2@ef4417eba7bb:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Sep 20 13:59 .
drwxr-xr-x 3 researcher2 research_team 4096 Sep 20 14:35 ..
-rw--w---- 1 researcher2 research_team  46 Sep 20 13:59 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Sep 20 13:59 drafts
-rw-rw-rw- 1 researcher2 research_team  46 Sep 20 13:59 project_k.txt
-rw-r----- 1 researcher2 research_team  46 Sep 20 13:59 project_m.txt
-rw-rw-r-- 1 researcher2 research_team  46 Sep 20 13:59 project_r.txt
-rw-rw-r-- 1 researcher2 research_team  46 Sep 20 13:59 project_t.txt
researcher2@ef4417eba7bb:~/projects$ █
```

Task 2. Change file permissions

In this task, you must determine whether any files have incorrect permissions and then change the permissions as needed. This action will remove unauthorized access and strengthen security on the system.

None of the files should allow the other users to write to files.

1. Check whether any files in the projects directory have write permissions for the owner type of other.
2. Change the permissions of the file identified in the previous step so that the owner type of other doesn't have write permissions.
3. The file project_m.txt is a restricted file and should not be readable or writable by the group or other; only the user should have these permissions on this file. List the contents and permissions of the current directory and check if the group has read or write permissions.
4. Use the chmod command to change permissions of the project_m.txt file so that the group doesn't have read or write permissions.

```
researcher2@ef4417eba7bb:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Sep 20 13:59 .
drwxr-xr-x 3 researcher2 research_team 4096 Sep 20 14:35 ..
-rw--w---- 1 researcher2 research_team  46 Sep 20 13:59 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Sep 20 13:59 drafts
-rw-rw-rw- 1 researcher2 research_team  46 Sep 20 13:59 project_k.txt
-rw-r----- 1 researcher2 research_team  46 Sep 20 13:59 project_m.txt
-rw-rw-r-- 1 researcher2 research_team  46 Sep 20 13:59 project_r.txt
-rw-rw-r-- 1 researcher2 research_team  46 Sep 20 13:59 project_t.txt
researcher2@ef4417eba7bb:~/projects$ chmod o-w project_k.txt
researcher2@ef4417eba7bb:~/projects$ chmod g-r project_m.txt
researcher2@ef4417eba7bb:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Sep 20 13:59 .
drwxr-xr-x 3 researcher2 research_team 4096 Sep 20 14:35 ..
-rw--w---- 1 researcher2 research_team  46 Sep 20 13:59 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Sep 20 13:59 drafts
-rw-rw-r-- 1 researcher2 research_team  46 Sep 20 13:59 project_k.txt
-rw----- 1 researcher2 research_team  46 Sep 20 13:59 project_m.txt
-rw-rw-r-- 1 researcher2 research_team  46 Sep 20 13:59 project_r.txt
-rw-rw-r-- 1 researcher2 research_team  46 Sep 20 13:59 project_t.txt
researcher2@ef4417eba7bb:~/projects$
```

Task 3. Change file permissions on a hidden file

In this task, you must determine if a hidden file has incorrect permissions and then change the permissions as needed. This action will further remove unauthorized access and strengthen security on the system.

The file `.project_x.txt` is a hidden file that has been archived and should not be written to by anyone. (The user and group should still be able to read this file.)

1. Check the permissions of the hidden file `.project_x.txt` and answer the question that follows.
2. Change the permissions of the file `.project_x.txt` so that both the user and the group can read, but not write to, the file.

```
researcher2@ef4417eba7bb:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Sep 20 13:59 .
drwxr-xr-x 3 researcher2 research_team 4096 Sep 20 14:35 ..
-rw--w---- 1 researcher2 research_team  46 Sep 20 13:59 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Sep 20 13:59 drafts
-rw-rw-r-- 1 researcher2 research_team  46 Sep 20 13:59 project_k.txt
-rw----- 1 researcher2 research_team  46 Sep 20 13:59 project_m.txt
-rw-rw-r-- 1 researcher2 research_team  46 Sep 20 13:59 project_r.txt
-rw-rw-r-- 1 researcher2 research_team  46 Sep 20 13:59 project_t.txt
researcher2@ef4417eba7bb:~/projects$ chmod u-w .project_x.txt
researcher2@ef4417eba7bb:~/projects$ chmod g-w .project_x.txt
researcher2@ef4417eba7bb:~/projects$ chmod g+r .project_x.txt
researcher2@ef4417eba7bb:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Sep 20 13:59 .
drwxr-xr-x 3 researcher2 research_team 4096 Sep 20 14:35 ..
-r--r----- 1 researcher2 research_team  46 Sep 20 13:59 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Sep 20 13:59 drafts
-rw-rw-r-- 1 researcher2 research_team  46 Sep 20 13:59 project_k.txt
-rw----- 1 researcher2 research_team  46 Sep 20 13:59 project_m.txt
-rw-rw-r-- 1 researcher2 research_team  46 Sep 20 13:59 project_r.txt
-rw-rw-r-- 1 researcher2 research_team  46 Sep 20 13:59 project_t.txt
researcher2@ef4417eba7bb:~/projects$
```

Task 4. Change directory permissions

In this task, you must change the permissions of a directory. First, you'll check the group permissions of the `/home/researcher2/projects/drafts` directory and then modify 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.
2. Remove the execute permission for the group from the `drafts` directory.

```
researcher2@ef4417eba7bb:~/projects$ pwd
/home/researcher2/projects
researcher2@ef4417eba7bb:~/projects$ ls
drafts project_k.txt project_m.txt project_r.txt project_t.txt
researcher2@ef4417eba7bb:~/projects$ ls -la drafts
total 8
drwx--x--- 2 researcher2 research_team 4096 Sep 20 13:59 .
drwxr-xr-x 3 researcher2 research_team 4096 Sep 20 13:59 ..
researcher2@ef4417eba7bb:~/projects$ chmod g-x drafts
researcher2@ef4417eba7bb:~/projects$ ls -la drafts
total 8
drwx----- 2 researcher2 research_team 4096 Sep 20 13:59 .
drwxr-xr-x 3 researcher2 research_team 4096 Sep 20 13:59 ..
researcher2@ef4417eba7bb:~/projects$
```