

MANAGING AUTHORIZATIONS IN LINUX

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.

The command to complete this step:

```
researcher2@9bef3dab4a89:~$ cd projects
researcher2@9bef3dab4a89:~/projects$
```

2. List the contents and permissions of the `projects` directory.

The command to complete this step:

```
researcher2@9bef3dab4a89:~/projects$ ls -l
total 20
drwx--x--- 2 researcher2 research_team 4096 May  2 15:56 drafts
-rw-rw-rw- 1 researcher2 research_team  46 May  2 15:56 project_k.txt
-rw-r----- 1 researcher2 research_team  46 May  2 15:56 project_m.txt
-rw-rw-r-- 1 researcher2 research_team  46 May  2 15:56 project_r.txt
-rw-rw-r-- 1 researcher2 research_team  46 May  2 15:56 project_t.txt
researcher2@9bef3dab4a89:~/projects$
```

3. Check whether any hidden files exist in the `projects` directory.

The command to complete this step:

```
researcher2@9bef3dab4a89:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 May  2 15:56 .
drwxr-xr-x 3 researcher2 research_team 4096 May  2 15:59 ..
-rw--w---- 1 researcher2 research_team  46 May  2 15:56 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 May  2 15:56 drafts
-rw-rw-rw- 1 researcher2 research_team  46 May  2 15:56 project_k.txt
-rw-r----- 1 researcher2 research_team  46 May  2 15:56 project_m.txt
-rw-rw-r-- 1 researcher2 research_team  46 May  2 15:56 project_r.txt
-rw-rw-r-- 1 researcher2 research_team  46 May  2 15:56 project_t.txt
researcher2@9bef3dab4a89:~/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.

The command to complete this step:

```
researcher2@9bef3dab4a89:~/projects$ ls -l
total 20
drwx--x--- 2 researcher2 research_team 4096 May  2 15:56 drafts
-rw-rw-rw- 1 researcher2 research_team  46 May  2 15:56 project_k.txt
-rw-r----- 1 researcher2 research_team  46 May  2 15:56 project_m.txt
-rw-rw-r-- 1 researcher2 research_team  46 May  2 15:56 project_r.txt
-rw-rw-r-- 1 researcher2 research_team  46 May  2 15:56 project_t.txt
researcher2@9bef3dab4a89:~/projects$
```

Answer: The `project_k.txt` file has write permissions for other users.

2. Change the permissions of the file identified in the previous step so that the owner type of other doesn't have write permissions.

```
researcher2@9bef3dab4a89:~/projects$ chmod o-w project_k.txt
researcher2@9bef3dab4a89:~/projects$
```

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.

The command to complete this step:

```
researcher2@9bef3dab4a89:~/projects$ ls -l
total 20
drwx--x--- 2 researcher2 research_team 4096 May  2 15:56 drafts
-rw-rw-r-- 1 researcher2 research_team  46 May  2 15:56 project_k.txt
-rw-r----- 1 researcher2 research_team  46 May  2 15:56 project_m.txt
-rw-rw-r-- 1 researcher2 research_team  46 May  2 15:56 project_r.txt
-rw-rw-r-- 1 researcher2 research_team  46 May  2 15:56 project_t.txt
researcher2@9bef3dab4a89:~/projects$
```

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.

The command to complete this step:

```
researcher2@9bef3dab4a89:~/projects$ chmod g-r project_m.txt
researcher2@9bef3dab4a89:~/projects$ ls -l
total 20
drwx--x--- 2 researcher2 research_team 4096 May  2 15:56 drafts
-rw-rw-r-- 1 researcher2 research_team  46 May  2 15:56 project_k.txt
-rw----- 1 researcher2 research_team  46 May  2 15:56 project_m.txt
-rw-rw-r-- 1 researcher2 research_team  46 May  2 15:56 project_r.txt
-rw-rw-r-- 1 researcher2 research_team  46 May  2 15:56 project_t.txt
researcher2@9bef3dab4a89:~/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.

The command to complete this step:

```
researcher2@9bef3dab4a89:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 May  2 15:56 .
drwxr-xr-x 3 researcher2 research_team 4096 May  2 15:59 ..
-rw--w---- 1 researcher2 research_team   46 May  2 15:56 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 May  2 15:56 drafts
-rw-rw-r-- 1 researcher2 research_team   46 May  2 15:56 project_k.txt
-rw----- 1 researcher2 research_team   46 May  2 15:56 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 May  2 15:56 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 May  2 15:56 project_t.txt
researcher2@9bef3dab4a89:~/projects$
```

Which owner type has the incorrect write permissions?

Answer: The user and group owner types have incorrect write permissions.

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@9bef3dab4a89:~/projects$ chmod u-w,g-w,g+r .project_x.txt
researcher2@9bef3dab4a89:~/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.

The command to complete this step:

```
researcher2@9bef3dab4a89:~/projects$ ls -l
total 20
drwx--x--- 2 researcher2 research_team 4096 May  2 15:56 drafts
-rw-rw-r-- 1 researcher2 research_team  46 May  2 15:56 project_k.txt
-rw----- 1 researcher2 research_team  46 May  2 15:56 project_m.txt
-rw-rw-r-- 1 researcher2 research_team  46 May  2 15:56 project_r.txt
-rw-rw-r-- 1 researcher2 research_team  46 May  2 15:56 project_t.txt
researcher2@9bef3dab4a89:~/projects$
```

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

Answer: Yes, the group has execute permissions and therefore has access to the `drafts` directory.

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

The command to complete this step:

```
researcher2@9bef3dab4a89:~/projects$ chmod g-x drafts
researcher2@9bef3dab4a89:~/projects$ █
```