File permissions in Linux

Project description

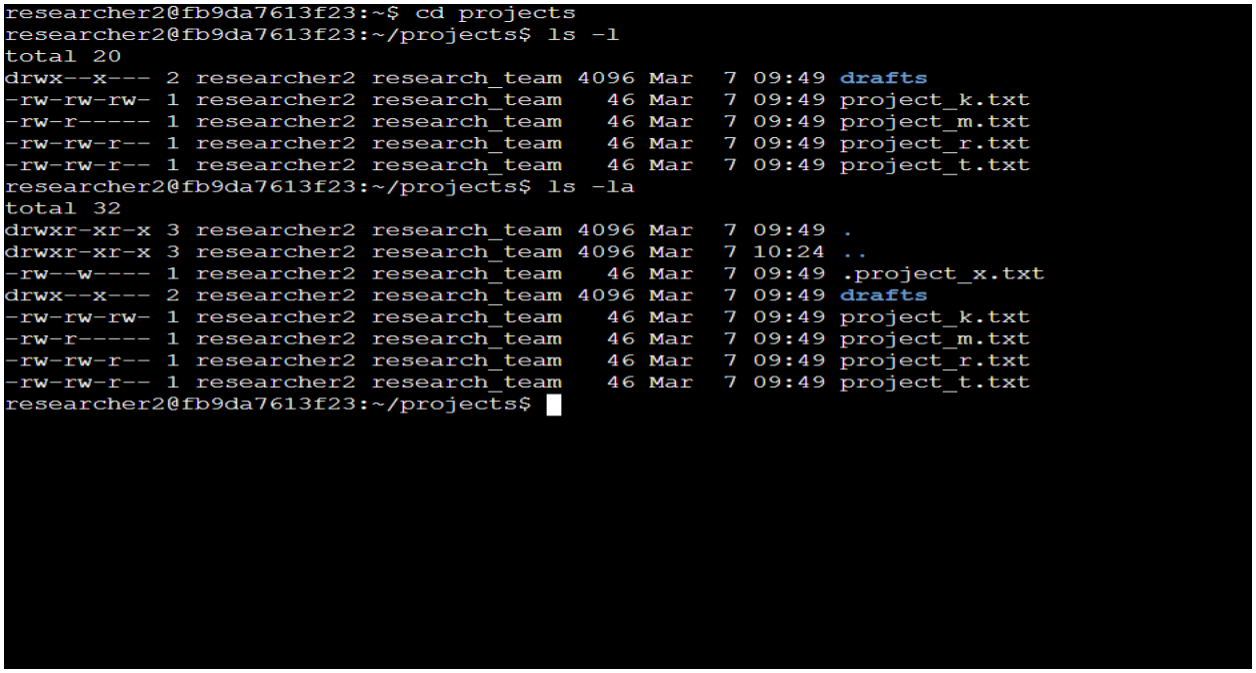
In this project, I used Linux commands to check and change file and directory permissions. This helps to make sure only the right users can access or modify files, keeping the system secure.

Check file and directory details

To check file and directory permissions, I used this command:

ls -la

This command lists all files, including hidden ones, and shows their permissions.



Describe the permissions string

-rw-rw-r--

Here isBreaking it down:

- `-` : Regular file (not a directory)
- `rw-` : Owner (read and write)
- `rw-` : Group (read and write)
- `r--` : Others (read-only)

This means the file owner and group can read and write, while others can only read the file.

Change file permissions

The company does not allow others to have write access to any files. To fix this, I used

chmod o-w project_k.txt

This removes write permission for others.

```
total 20
drwx--x--- 2 researcher2 research_team 4096 Mar  7 09:49 drafts
-rw-rw-rw- 1 researcher2 research_team   46 Mar  7 09:49 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Mar  7 09:49 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Mar  7 09:49 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Mar  7 09:49 project_t.txt
researcher2@fb9da7613f23:~/projects$ chmod o-w project_k.txt
researcher2@fb9da7613f23:~/projects$ ls -l
total 20
drwx--x--- 2 researcher2 research_team 4096 Mar  7 09:49 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Mar  7 09:49 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Mar  7 09:49 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Mar  7 09:49 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Mar  7 09:49 project_t.txt
researcher2@fb9da7613f23:~/projects$ chmod g-r project_m.txt
researcher2@fb9da7613f23:~/projects$
```

Change file permissions on a hidden file

The `.project_x.txt` file should only be readable by the user and group. I used:

chmod u=r,g=r,o= .project_x.txt

This means:

- The owner can read the file.
- The group can read the file.
- Others have no access to the file.

```
researcher2@fb9da7613f23:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Mar  7 09:49 .
drwxr-xr-x 3 researcher2 research_team 4096 Mar  7 10:24 ..
-rw--w---- 1 researcher2 research_team   46 Mar  7 09:49 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Mar  7 09:49 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Mar  7 09:49 project_k.txt
-rw------- 1 researcher2 research_team   46 Mar  7 09:49 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Mar  7 09:49 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Mar  7 09:49 project_t.txt
researcher2@fb9da7613f23:~/projects$ chmod u-w,g-w,g+r .project_x.txt
researcher2@fb9da7613f23:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Mar  7 09:49 .
drwxr-xr-x 3 researcher2 research_team 4096 Mar  7 10:24 ..
-r--r----- 1 researcher2 research_team   46 Mar  7 09:49 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Mar  7 09:49 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Mar  7 09:49 project_k.txt
-rw------- 1 researcher2 research_team   46 Mar  7 09:49 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Mar  7 09:49 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Mar  7 09:49 project_t.txt
researcher2@fb9da7613f23:~/projects$
```

Change directory permissions

Only `researcher2` should access the `drafts` directory. To remove access for others, I used:

chmod u=rwx,g=,o= drafts

This gives:

- The owner has full access (read, write, and execute).
- The group has no access.
- Others have no access.

```
researcher2@fb9da7613f23:~/projects$ ls -l
total 20
drwx--x--- 2 researcher2 research_team 4096 Mar  7 09:49 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Mar  7 09:49 project_k.txt
-rw------- 1 researcher2 research_team   46 Mar  7 09:49 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Mar  7 09:49 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Mar  7 09:49 project_t.txt
researcher2@fb9da7613f23:~/projects$ chmod g-x drafts
researcher2@fb9da7613f23:~/projects$ ls -l
total 20
drwx------ 2 researcher2 research_team 4096 Mar  7 09:49 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Mar  7 09:49 project_k.txt
-rw------- 1 researcher2 research_team   46 Mar  7 09:49 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Mar  7 09:49 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Mar  7 09:49 project_t.txt
researcher2@fb9da7613f23:~/projects$
```

Summary

In this project, I checked and changed file permissions using `ls -la` and `chmod`. I removed write access for others, restricted hidden file access, and secured a directory. These changes ensure only authorized users can access important files, improving security.