File permissions in Linux

Project description

In this project, I used Linux commands to manage file permissions for the research team. By examining and updating permissions, I ensured that users had appropriate access, thereby maintaining the security of the system.

Check file and directory details

```
researcher2@71ec60230afb:~$ cd projects
researcher2@71ec60230afb:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Jul 29 04:09 .
drwxr-xr-x 3 researcher2 research_team 4096 Jul 29 04:37 ..
-rw--w---- 1 researcher2 research_team   46 Jul 29 04:09 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Jul 29 04:09 drafts
-rw-rw-rw- 1 researcher2 research_team   46 Jul 29 04:09 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Jul 29 04:09 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jul 29 04:09 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jul 29 04:09 project_t.txt
researcher2@71ec60230afb:~/projects$
```

Describe the permissions string

The 10-character string in the example represents the file or directory permissions. The first character indicates the type (e.g., d for directory, - for file). The next three characters represent the owner's permissions (read, write, execute), the following three represent the group's permissions, and the last three represent others' permissions.

Change file permissions

```
researcher2@71ec60230afb:~/projects$ chmod o-w project_k.txt
researcher2@71ec60230afb:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Jul 29 04:09 .
drwxr-xr-x 3 researcher2 research_team 4096 Jul 29 04:37 ..
-rw--w---- 1 researcher2 research_team   46 Jul 29 04:09 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Jul 29 04:09 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Jul 29 04:09 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Jul 29 04:09 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jul 29 04:09 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jul 29 04:09 project_t.txt
researcher2@71ec60230afb:~/projects$
```

Change file permissions on a hidden file

```
researcher2@71ec60230afb:~/projects$ chmod u=r,g=r .project_x.txt
researcher2@71ec60230afb:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Jul 29 04:09 .
drwxr-xr-x 3 researcher2 research_team 4096 Jul 29 04:37 ..
-r--r----- 1 researcher2 research_team   46 Jul 29 04:09 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Jul 29 04:09 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Jul 29 04:09 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Jul 29 04:09 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jul 29 04:09 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jul 29 04:09 project_t.txt
researcher2@71ec60230afb:~/projects$
```

Change directory permissions

```
researcher2@71ec60230afb:~/projects$ chmod g-r drafts
researcher2@71ec60230afb:~/projects$ ls -l
total 20
drwx--x--- 2 researcher2 research_team 4096 Jul 29 04:09 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Jul 29 04:09 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Jul 29 04:09 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jul 29 04:09 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jul 29 04:09 project_t.txt
researcher2@71ec60230afb:~/projects$
```

Summary

In this project, I used Linux commands to manage file and directory permissions for the research team. By examining existing permissions and modifying them where necessary, I ensured that users had the appropriate access, thereby enhancing the security of the system. This process is crucial for maintaining data integrity and preventing unauthorized access.