File permissions in Linux

Project description

I examined and managed file permissions.

Check file and directory details

```
researcher2@4d1041595d1d:~$ cd projects
researcher2@4d1041595d1d:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Sep 28 18:49 .
drwxr-xr-x 3 researcher2 research_team 4096 Sep 28 19:27 ..
-rw--w---- 1 researcher2 research_team   46 Sep 28 18:49 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Sep 28 18:49 drafts
-rw-rw-rw- 1 researcher2 research_team   46 Sep 28 18:49 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Sep 28 18:49 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Sep 28 18:49 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Sep 28 18:49 project_t.txt
researcher2@4d1041595d1d:~/projects$
```

This code demonstrates how I used file commands to examine file permissions, including of any hidden files.

Describe the permissions string

In a permissions string, the characters represent who is authorized to access a file and their permissions. The first character is either a “d” for directory, or “-” for regular file type. The following 9 characters can be broken up into 3 segments of 3 in the order of user, group, and other. The characters in each segment represent who has what permissions for a file in the order of read(r), write(w), and execute(x). A “-” indicates that the permission is not available.

Change file permissions

```
researcher2@4d1041595d1d:~/projects$ chmod o-w project_k.txt
researcher2@4d1041595d1d:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Sep 28 18:49 .
drwxr-xr-x 3 researcher2 research_team 4096 Sep 28 19:27 ..
-rw--w---- 1 researcher2 research_team   46 Sep 28 18:49 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Sep 28 18:49 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Sep 28 18:49 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Sep 28 18:49 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Sep 28 18:49 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Sep 28 18:49 project_t.txt
researcher2@4d1041595d1d:~/projects$
```

I changed the write(w) permission via the command “chmod” for the “other” category on project_k.txt.

Change file permissions on a hidden file

```
researcher2@4d1041595d1d:~/projects$ chmod u-w,g-w,g+r .project_x.txt
researcher2@4d1041595d1d:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Sep 28 18:49 .
drwxr-xr-x 3 researcher2 research_team 4096 Sep 28 19:27 ..
-r--r----- 1 researcher2 research_team   46 Sep 28 18:49 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Sep 28 18:49 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Sep 28 18:49 project_k.txt
-rw------- 1 researcher2 research_team   46 Sep 28 18:49 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Sep 28 18:49 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Sep 28 18:49 project_t.txt
researcher2@4d1041595d1d:~/projects$
```

The hidden file was archived and a decision was made to restrict anyone from making any changes to it. I updated the permissions to only allow read(r) for both the user and group.

Change directory permissions

```
researcher2@84c0fefb88b7:~/projects$ chmod g-x drafts
researcher2@84c0fefb88b7:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Sep 28 19:59 .
drwxr-xr-x 3 researcher2 research_team 4096 Sep 28 20:32 ..
-r--r----- 1 researcher2 research_team   46 Sep 28 19:59 .project_x.txt
drwx------ 2 researcher2 research_team 4096 Sep 28 19:59 drafts
-rw-rw-rw- 1 researcher2 research_team   46 Sep 28 19:59 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Sep 28 19:59 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Sep 28 19:59 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Sep 28 19:59 project_t.txt
researcher2@84c0fefb88b7:~/projects$
```

Only researcher2 is allowed to access “drafts”, so I changed the permissions to remove execute(x) from the group.

Summary

I examined file permissions using the ls -la command and changed permissions as necessary according to the organization's decisions.