

File permissions in Linux

Project description

In this project as a security analyst, I examined and managed file permissions in order to configure user authorization. I did this in three ways, First, I checked permissions for files in a directory. Second, I checked for incorrect incorrect file permissions and changed them as needed. Third, I removed unauthorized access to a directory

Check file and directory details

```
researcher2@8e05bd4a01f8:~$ pwd
/home/researcher2
researcher2@8e05bd4a01f8:~$ cd projects
researcher2@8e05bd4a01f8:~/projects$ ls -l
total 20
drwx--x--- 2 researcher2 research_team 4096 Dec  2 18:19 drafts
-rw-rw-rw- 1 researcher2 research_team  46 Dec  2 18:19 project_k.txt
-rw-r----- 1 researcher2 research_team  46 Dec  2 18:19 project_m.txt
-rw-rw-r-- 1 researcher2 research_team  46 Dec  2 18:19 project_r.txt
-rw-rw-r-- 1 researcher2 research_team  46 Dec  2 18:19 project_t.txt
researcher2@8e05bd4a01f8:~/projects$
```

Describe the permissions string

```
researcher2@8e05bd4a01f8:~$ pwd
/home/researcher2
researcher2@8e05bd4a01f8:~$ cd projects
researcher2@8e05bd4a01f8:~/projects$ ls -l
total 20
drwx--x--- 2 researcher2 research_team 4096 Dec  2 18:19 drafts
-rw-rw-rw- 1 researcher2 research_team  46 Dec  2 18:19 project_k.txt
-rw-r----- 1 researcher2 research_team  46 Dec  2 18:19 project_m.txt
-rw-rw-r-- 1 researcher2 research_team  46 Dec  2 18:19 project_r.txt
-rw-rw-r-- 1 researcher2 research_team  46 Dec  2 18:19 project_t.txt
researcher2@8e05bd4a01f8:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Dec  2 18:19 .
drwxr-xr-x 3 researcher2 research_team 4096 Dec  2 19:46 ..
-rw--w---- 1 researcher2 research_team  46 Dec  2 18:19 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Dec  2 18:19 drafts
-rw-rw-rw- 1 researcher2 research_team  46 Dec  2 18:19 project_k.txt
-rw-r----- 1 researcher2 research_team  46 Dec  2 18:19 project_m.txt
-rw-rw-r-- 1 researcher2 research_team  46 Dec  2 18:19 project_r.txt
-rw-rw-r-- 1 researcher2 research_team  46 Dec  2 18:19 project_t.txt
researcher2@8e05bd4a01f8:~/projects$
```

Change file permissions

```
researcher2@8e05bd4a01f8:~/projects$ chmod o-w project_k.txt
researcher2@8e05bd4a01f8:~/projects$ chmod g-r project_m.txt
researcher2@8e05bd4a01f8:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Dec  2 18:19 .
drwxr-xr-x 3 researcher2 research_team 4096 Dec  2 19:46 ..
-rw--w---- 1 researcher2 research_team  46 Dec  2 18:19 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Dec  2 18:19 drafts
-rw-rw-r-- 1 researcher2 research_team  46 Dec  2 18:19 project_k.txt
-rw----- 1 researcher2 research_team  46 Dec  2 18:19 project_m.txt
-rw-rw-r-- 1 researcher2 research_team  46 Dec  2 18:19 project_r.txt
-rw-rw-r-- 1 researcher2 research_team  46 Dec  2 18:19 project_t.txt
researcher2@8e05bd4a01f8:~/projects$
```

Change file permissions on a hidden file

```
researcher2@8e05bd4a01f8:~/projects$ chmod ug-w,ug+r .project_x.txt
researcher2@8e05bd4a01f8:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Dec  2 18:19 .
drwxr-xr-x 3 researcher2 research_team 4096 Dec  2 19:46 ..
-r--r----- 1 researcher2 research_team  46 Dec  2 18:19 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Dec  2 18:19 drafts
-rw-rw-r-- 1 researcher2 research_team  46 Dec  2 18:19 project_k.txt
-rw----- 1 researcher2 research_team  46 Dec  2 18:19 project_m.txt
-rw-rw-r-- 1 researcher2 research_team  46 Dec  2 18:19 project_r.txt
-rw-rw-r-- 1 researcher2 research_team  46 Dec  2 18:19 project_t.txt
researcher2@8e05bd4a01f8:~/projects$
```

Change directory permissions

```
researcher2@8e05bd4a01f8:~/projects$ chmod g-x drafts
researcher2@8e05bd4a01f8:~/projects$ ls -l
total 20
drwx----- 2 researcher2 research_team 4096 Dec  2 18:19 drafts
-rw-rw-r-- 1 researcher2 research_team  46 Dec  2 18:19 project_k.txt
-rw----- 1 researcher2 research_team  46 Dec  2 18:19 project_m.txt
-rw-rw-r-- 1 researcher2 research_team  46 Dec  2 18:19 project_r.txt
-rw-rw-r-- 1 researcher2 research_team  46 Dec  2 18:19 project_t.txt
researcher2@8e05bd4a01f8:~/projects$
```

Summary

To make sure that existing read, write, and execute permissions in the projects directory align with the authorization that should be given, I checked the permissions for all files in the directory (including any hidden files) and changed the permissions of those files that did not align with the intended authorization. To do so, I examined and managed file permissions that are given to the three different types of owners using Linux commands. First, I examined every file and directory permissions by checking file permissions with **ls -la** and, then, by interpreting the ten character string that represent such permissions between the different types of owners. Second, I changed the permissions that are given to user, group, and other on the appropriate files and directories by using **chmod** to update such permissions.