Jathushan Karthigesar

File permissions in Linux

Project description

In this project, I must examine and manage the permissions on the files in the /home/researcher2/projects directory for the researcher2 user.

The researcher2 user is part of the research_team group.

I must check the permissions for all files in the directory, including any hidden files, to make sure that permissions align with the authorization that should be given. When it doesn't, I must change the permissions.

Check file and directory details

command I can use to check permissions:
Ls -l : permission for files and subdirectories without the hidden files/directories
Ls -la : permission for files and subdirectories including the hidden files/directories

```
researcher2@936387a35758:~$ pwd
/home/researcher2
researcher2@936387a35758:~$ cd projects
researcher2@936387a35758:~/projects$ ls -l
total 20
drwx--x--- 2 researcher2 research_team 4096 Jun 29 22:22 drafts
-rw-rw-rw- 1 researcher2 research_team   46 Jun 29 22:22 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Jun 29 22:22 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jun 29 22:22 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jun 29 22:22 project_t.txt
researcher2@936387a35758:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Jun 29 22:22 .
drwxr-xr-x 3 researcher2 research_team 4096 Jun 29 23:19 ..
-rw--w---- 1 researcher2 research_team   46 Jun 29 22:22 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Jun 29 22:22 drafts
-rw-rw-rw- 1 researcher2 research_team   46 Jun 29 22:22 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Jun 29 22:22 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jun 29 22:22 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jun 29 22:22 project_t.txt
researcher2@936387a35758:~/projects$
```

Describe the permissions string

Example:

```
drwx--x--- 2 researcher2 research_team 4096 Jun 29 22:22 drafts
```

Short description that explains the 10-character string:
This string is to indicate the permission for a directory or file, for the following owner types: user, group and other.

1st Character = file type
- `d` for directory
- `-` for a regular file

2nd Character = read permissions for the user
- `r` if the user has read permissions
- `-` if the user lacks read permissions

3rd Character = write permissions for the user
- `w` if the user has write permissions
- `-` if the user lacks write permissions

4th Character = execute permissions for the user
- `x` if the user has execute permissions
- `-` if the user lacks execute permissions

5th Character = read permissions for the group
- `r` if the group has read permissions
- `-` if the group lacks read permissions

6th Character = write permissions for the group
- `w` if the group has write permissions
- `-` if the group lacks write permissions

7th Character = execute permissions for the group
- `x` if the group has execute permissions
- `-` if the group lacks execute permissions

8th Character = read permissions for the other
- `r` if the other has read permissions
- `-` if the other lacks read permissions

9th Character = write permissions for the other
- `w` if the other has write permissions
- `-` if the other lacks write permissions

10th Character = execute permissions for the other

- `x` if the other has execute permissions
- `-` if the other lacks execute permissions

Change file permissions

```
-rw-rw-rw- 1 researcher2 research_team   46 Jun 29 22:22 project_k.txt
```

To remove the write permission for other, I will use this command:

```
chmod o-w project_k.txt
```

Here is the result:

```
researcher2@936387a35758:~/projects$ chmod o-w project_k.txt
researcher2@936387a35758:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Jun 29 22:22 .
drwxr-xr-x 3 researcher2 research_team 4096 Jun 29 23:19 ..
-rw--w---- 1 researcher2 research_team   46 Jun 29 22:22 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Jun 29 22:22 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Jun 29 22:22 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Jun 29 22:22 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jun 29 22:22 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jun 29 22:22 project_t.txt
researcher2@936387a35758:~/projects$
```

Change file permissions on a hidden file

The command I will use only allow the read permission for the user and group:

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

The output:

```
researcher2@936387a35758:~/projects$ chmod u=r--,g=r--,o=--- .project_x.txt
researcher2@936387a35758:~/projects$ ls la
ls: cannot access 'la': No such file or directory
researcher2@936387a35758:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Jun 29 22:22 .
drwxr-xr-x 3 researcher2 research_team 4096 Jun 29 23:19 ..
-r--r----- 1 researcher2 research_team   46 Jun 29 22:22 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Jun 29 22:22 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Jun 29 22:22 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Jun 29 22:22 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jun 29 22:22 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jun 29 22:22 project_t.txt
researcher2@936387a35758:~/projects$
```

Change directory permissions

The command I will use to only allow the execute permission for the user:

```
researcher2@936387a35758:~/projects$ chmod g-x drafts
```

The output:

```
researcher2@936387a35758:~/projects$ chmod g-x drafts
researcher2@936387a35758:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Jun 29 22:22 .
drwxr-xr-x 3 researcher2 research_team 4096 Jun 29 23:19 ..
-r--r----- 1 researcher2 research_team   46 Jun 29 22:22 .project_x.txt
drwx------ 2 researcher2 research_team 4096 Jun 29 22:22 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Jun 29 22:22 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Jun 29 22:22 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jun 29 22:22 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jun 29 22:22 project_t.txt
researcher2@936387a35758:~/projects$
```

Summary

First, I checked the user and group permissions for all files in the projects directory. Next, I checked whether any files have incorrect permissions and change the permissions as needed. Finally, I checked the permissions of the /home/researcher2/projects/drafts directory and modified these permissions to remove any unauthorized access.