

File permissions in Linux

Project description

For this project I am trying to manage the permissions for various text files and directories in Linux.

Check file and directory details

```
researcher2@345ecf27eb68:~$ ls
projects
researcher2@345ecf27eb68:~$ cd projects
researcher2@345ecf27eb68:~/projects$ ls
drafts project_k.txt project_m.txt project_r.txt project_t.txt
researcher2@345ecf27eb68:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Aug 27 05:00 .
drwxr-xr-x 3 researcher2 research_team 4096 Aug 27 05:40 ..
-rw--w---- 1 researcher2 research_team  46 Aug 27 05:00 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Aug 27 05:00 drafts
-rw-rw-rw- 1 researcher2 research_team  46 Aug 27 05:00 project_k.txt
-rw-r----- 1 researcher2 research_team  46 Aug 27 05:00 project_m.txt
-rw-rw-r-- 1 researcher2 research_team  46 Aug 27 05:00 project_r.txt
-rw-rw-r-- 1 researcher2 research_team  46 Aug 27 05:00 project_t.txt
researcher2@345ecf27eb68:~/projects$
```

This is a standard listing of all the files and directories in the the projects directory.

Describe the permissions string

We see here that there's hidden files, directories and regular files with different permissions. If we look at the .project_x.txt row and compare it to the drafts row we can see the first character for .project_x.txt is "-" while for drafts it is a 'd'. This means that drafts is a directory while .project_x.txt is a file. From the second to the fourth characters of Draft we see "rwx" these are permissions in order they mean read, write, and execute. Because these are the first three permission characters they are the permissions for the user. Since the characters are letters not '-' this means that the user has all three permissions for the directory. Continuing to the next set of characters looking at the drafts row we see "- - x". This set of characters represent the

Change file permissions

```
researcher2@345ecf27eb68:~/projects$ ls -l
total 20
drwx----- 2 researcher2 research_team 4096 Aug 27 05:00 drafts
-rw----rw- 1 researcher2 research_team  46 Aug 27 05:00 project_k.txt
-rw-r----- 1 researcher2 research_team  46 Aug 27 05:00 project_m.txt
-rw-rw-r-- 1 researcher2 research_team  46 Aug 27 05:00 project_r.txt
-rw-rw-r-- 1 researcher2 research_team  46 Aug 27 05:00 project_t.txt
researcher2@345ecf27eb68:~/projects$ chmod o-rw project_k.txt
researcher2@345ecf27eb68:~/projects$ ls -l
-bash: ls-l: command not found
researcher2@345ecf27eb68:~/projects$ ls -l
total 20
drwx----- 2 researcher2 research_team 4096 Aug 27 05:00 drafts
-rw----- 1 researcher2 research_team  46 Aug 27 05:00 project_k.txt
-rw-r----- 1 researcher2 research_team  46 Aug 27 05:00 project_m.txt
-rw-rw-r-- 1 researcher2 research_team  46 Aug 27 05:00 project_r.txt
-rw-rw-r-- 1 researcher2 research_team  46 Aug 27 05:00 project_t.txt
researcher2@345ecf27eb68:~/projects$
```

Change file permissions on a hidden file

In the following image we see the .project_x.txt file changes permissions

```
researcher2@345ecf27eb68:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Aug 27 05:00 .
drwxr-xr-x 3 researcher2 research_team 4096 Aug 27 05:40 ..
-rw--w---- 1 researcher2 research_team  46 Aug 27 05:00 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Aug 27 05:00 drafts
-rw----rw- 1 researcher2 research_team  46 Aug 27 05:00 project_k.txt
-rw-r----- 1 researcher2 research_team  46 Aug 27 05:00 project_m.txt
-rw-rw-r-- 1 researcher2 research_team  46 Aug 27 05:00 project_r.txt
-rw-rw-r-- 1 researcher2 research_team  46 Aug 27 05:00 project_t.txt
researcher2@345ecf27eb68:~/projects$ chmod g-w .project_x.txt
researcher2@345ecf27eb68:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Aug 27 05:00 .
drwxr-xr-x 3 researcher2 research_team 4096 Aug 27 05:40 ..
-rw----- 1 researcher2 research_team  46 Aug 27 05:00 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Aug 27 05:00 drafts
-rw----rw- 1 researcher2 research_team  46 Aug 27 05:00 project_k.txt
-rw-r----- 1 researcher2 research_team  46 Aug 27 05:00 project_m.txt
-rw-rw-r-- 1 researcher2 research_team  46 Aug 27 05:00 project_r.txt
-rw-rw-r-- 1 researcher2 research_team  46 Aug 27 05:00 project_t.txt
researcher2@345ecf27eb68:~/projects$
```

Change directory permissions

This image changes the permissions of the drafts where it takes away the execution for the groups.

```
drwxr-xr-x 3 researcher2 research_team 4096 Aug 27 05:00 .
drwxr-xr-x 3 researcher2 research_team 4096 Aug 27 05:40 ..
-rw----- 1 researcher2 research_team  46 Aug 27 05:00 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Aug 27 05:00 drafts
-rw----rw- 1 researcher2 research_team  46 Aug 27 05:00 project_k.txt
-rw-r----- 1 researcher2 research_team  46 Aug 27 05:00 project_m.txt
-rw-rw-r-- 1 researcher2 research_team  46 Aug 27 05:00 project_r.txt
-rw-rw-r-- 1 researcher2 research_team  46 Aug 27 05:00 project_t.txt
researcher2@345ecf27eb68:~/projects$ chmod g-x drafts
researcher2@345ecf27eb68:~/projects$ ls -la
ls: cannot access '-': No such file or directory
ls: cannot access 'la': No such file or directory
researcher2@345ecf27eb68:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Aug 27 05:00 .
drwxr-xr-x 3 researcher2 research_team 4096 Aug 27 05:40 ..
-rw----- 1 researcher2 research_team  46 Aug 27 05:00 .project_x.txt
drwx----- 2 researcher2 research_team 4096 Aug 27 05:00 drafts
-rw----rw- 1 researcher2 research_team  46 Aug 27 05:00 project_k.txt
-rw-r----- 1 researcher2 research_team  46 Aug 27 05:00 project_m.txt
-rw-rw-r-- 1 researcher2 research_team  46 Aug 27 05:00 project_r.txt
-rw-rw-r-- 1 researcher2 research_team  46 Aug 27 05:00 project_t.txt
researcher2@345ecf27eb68:~/projects$
```

Summary

I changed the permissions of various objects. To do so required me to learn various commands like ls-la or chmod. The first step of changing permissions for any file or directory is to use the ls-la command to observe the commands. To change the permissions of the objects is to use the chmod command.