File permissions in Linux

Project description

In this project I'm using LINUX commands to view and change permissions in the Projects directory.

SCENARIO: You are a security professional at a large organization. You mainly work with their research team. Part of your job is to ensure users on this team are authorized with the appropriate permissions. This helps keep the system secure.
Your task is to examine existing permissions on the file system. You'll need to determine if the permissions match the authorization that should be given. If they do not match, you'll need to modify the permissions to authorize the appropriate users and remove any unauthorized access.

Check file and directory details

1. Enter a command of pwd to check my working directory.
2. I am in /home/researcher2 Directory. I enter a command of cd /home/researcher2/projects to change directories.
3. Once in the correct directory I enter ls -la to list ALL files and Directories, including those hidden and their permissions. .

```
researcher2@7501d9f5f322:~$ pwd
/home/researcher2
researcher2@7501d9f5f322:~$ cd /home/researcher2/projects
researcher2@7501d9f5f322:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Jan 19 00:30 .
drwxr-xr-x 3 researcher2 research_team 4096 Jan 19 00:54 ..
-rw--w---- 1 researcher2 research_team   46 Jan 19 00:30 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Jan 19 00:30 drafts
-rw-rw-rw- 1 researcher2 research_team   46 Jan 19 00:30 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Jan 19 00:30 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jan 19 00:30 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jan 19 00:30 project_t.txt
researcher2@7501d9f5f322:~/projects$
```

Describe the permissions string

Permissions are written in a 10-character string. The first character being directory. Characters two through four are user permissions. Characters five through seven are group permissions. Characters eight through ten are Other permissions.

Change file permissions

The organization does not allow other to have write access to any files. To change the permissions of these files the commands are as follows.
chmod o-w project_k.txt

```
researcher2@7501d9f5f322:~/projects$ chmod o-w project_k.txt
researcher2@7501d9f5f322:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Jan 19 00:30 .
drwxr-xr-x 3 researcher2 research_team 4096 Jan 19 00:54 ..
-rw--w---- 1 researcher2 research_team   46 Jan 19 00:30 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Jan 19 00:30 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Jan 19 00:30 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Jan 19 00:30 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jan 19 00:30 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jan 19 00:30 project_t.txt
researcher2@7501d9f5f322:~/projects$
```

Change file permissions on a hidden file

The research team has archived `.project_x.txt`, which is why it's a hidden file. This file should not have write permissions for anyone, but the user and group should be able to read the file. The command line is as follows. chmod g-w,u-w,g+r project_x.txt

```
researcher2@7501d9f5f322:~/projects$ ls -l .project_x.txt
-rw--w---- 1 researcher2 research_team 46 Jan 19 00:30 .project_x.txt
researcher2@7501d9f5f322:~/projects$ chmod g-w,u-w,g+r .project_x.txt
researcher2@7501d9f5f322:~/projects$ ls -l .project_x.txt
-r--r----- 1 researcher2 research_team 46 Jan 19 00:30 .project_x.txt
researcher2@7501d9f5f322:~/projects$
```

Change directory permissions

The files and directories in the projects directory belong to the `researcher2` user. Only `researcher2` should be allowed to access the `drafts` directory and its contents.

The command line we will use here is "chmod g-x drafts". This will remove executable permissions from the group. The only permissions remaining for the drafts directory belong to the user.

```
researcher2@7501d9f5f322:~/projects$ pwd
/home/researcher2/projects
researcher2@7501d9f5f322:~/projects$ ls
drafts  project_k.txt  project_m.txt  project_r.txt  project_t.txt
researcher2@7501d9f5f322:~/projects$ ls -l
total 20
drwx--x--- 2 researcher2 research_team 4096 Jan 19 00:30 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Jan 19 00:30 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Jan 19 00:30 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jan 19 00:30 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jan 19 00:30 project_t.txt
researcher2@7501d9f5f322:~/projects$ chmod g-x drafts
researcher2@7501d9f5f322:~/projects$ ls -l
total 20
drwx------ 2 researcher2 research_team 4096 Jan 19 00:30 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Jan 19 00:30 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Jan 19 00:30 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jan 19 00:30 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jan 19 00:30 project_t.txt
researcher2@7501d9f5f322:~/projects$ █
```

Summary

In summary, I changed multiple permissions to meet the guidelines set by the company. This includes documents, hidden files, as well as directories.

My first step was to verify my work area with a command of "pwd".

Next, I took a look at the permissions with a command of "ls -la".

Finally all there was left to do was review the current permissions and make the appropriate adjustments with a "chmod" command.

I've prepared screenshots to be included in this report.