File permissions in Linux

Project description

Successfully audited file permissions and directories of the “projects” directory to ensure proper permissions were assigned to the user, group and others that have access to the system.0

Check file and directory details

Used linux commands “ls -l” to check for file permissions of project text files such as “project_k.txt” and “ls -la ” to check permissions of the hidden file “.project_x.txt”, denoted by the period before the name of the file. Noted that names of users and group with these permissions “researcher2” as the user and “research_team” as the group.

```
researcher2@fc54ca5c147f:~/projects$ ls -l
total 20
drwx--x--- 2 researcher2 research_team 4096 Jul 25 18:19 drafts
-rw-rw-rw- 1 researcher2 research_team   46 Jul 25 18:19 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Jul 25 18:19 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jul 25 18:19 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jul 25 18:19 project_t.txt
researcher2@fc54ca5c147f:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Jul 25 18:19 .
drwxr-xr-x 3 researcher2 research_team 4096 Jul 25 18:54 ..
-rw--w---- 1 researcher2 research_team   46 Jul 25 18:19 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Jul 25 18:19 drafts
-rw-rw-rw- 1 researcher2 research_team   46 Jul 25 18:19 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Jul 25 18:19 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jul 25 18:19 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jul 25 18:19 project_t.txt
researcher2@fc54ca5c147f:~/projects$
```

Describe the permissions string

The permissions string consists of 10 characters used to describe the permissions granted to three types of users that have access to the files: user, group and others. The first character informs us whether the file is a directory or a file, hence the first two directories labeled “.” and “. . “ have the character “d” in the first character space.

The next 3 characters inform us of the user's permissions, the next 3 after that inform us of the groups permissions and final 3 inform us of "others" permissions.

Change file permissions

```
researcher2@fc54ca5c147f:~/projects$ chmod o-w project_k.txt
researcher2@fc54ca5c147f:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Jul 25 18:19 .
drwxr-xr-x 3 researcher2 research_team 4096 Jul 25 18:54 ..
-rw--w---- 1 researcher2 research_team   46 Jul 25 18:19 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Jul 25 18:19 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Jul 25 18:19 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Jul 25 18:19 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jul 25 18:19 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jul 25 18:19 project_t.txt
researcher2@fc54ca5c147f:~/projects$
```

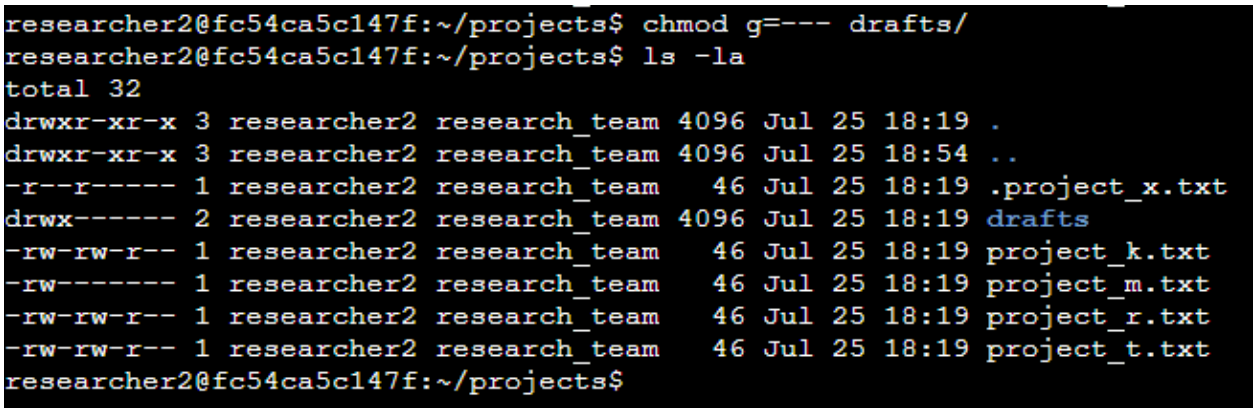
The organization does not allow "other" to have write access to any file. The above image shows me using the chmod command to change the permissions for the "research_team" group on the "project_k.txt" file, removing the write permission with the command "chmod o-w project_k.txt".

Change file permissions on a hidden file

```
researcher2@fc54ca5c147f:~/projects$ chmod u=r,g=r ".project_x.txt"
researcher2@fc54ca5c147f:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Jul 25 18:19 .
drwxr-xr-x 3 researcher2 research_team 4096 Jul 25 18:54 ..
-r--r----- 1 researcher2 research_team   46 Jul 25 18:19 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Jul 25 18:19 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Jul 25 18:19 project_k.txt
-rw------- 1 researcher2 research_team   46 Jul 25 18:19 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jul 25 18:19 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jul 25 18:19 project_t.txt
researcher2@fc54ca5c147f:~/projects$
```

The research team has made archived ".project_x.txt" hidden, and policy says that no one should have write access to archived files. The above image shows me using the chmod command "chmod u=r,g=r .project_x.txt"to reassign the permissions of the hidden file ".project_x.txt" to be read only for the user and group.

Change directory permissions



Files and directories in the “projects/” directory belong to the user and thus only they should have access to draft. The image above shows me changing permissions of the “drafts" directory, reassigning the group to have no permissions to access the “drafts“ directory, using the command “chmod g=--- drafts/”.

Summary

I first learned the file permissions for all fields in the projects class. I then changed the permission for field, directories and hidden files to align with appropriate access permissions that are in line with the security principle of least privilege