File permissions in Linux

Project description

Examine existing permissions on the file system; determine if the permissions match the authorization that should be given. Modify the permissions to authorize the appropriate users and remove any unauthorized access.

Check file and directory details

```
researcher2@4da4ac79ce20:~/projects$ ls -l
total 20
drwx--x--- 2 researcher2 research_team 4096 Jul  8 20:34 drafts
-rw-rw-rw- 1 researcher2 research_team   46 Jul  8 20:34 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Jul  8 20:34 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jul  8 20:34 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jul  8 20:34 project_t.txt
```

The `ls -l` command is used to check permissions for files and directory

Describe the permissions string

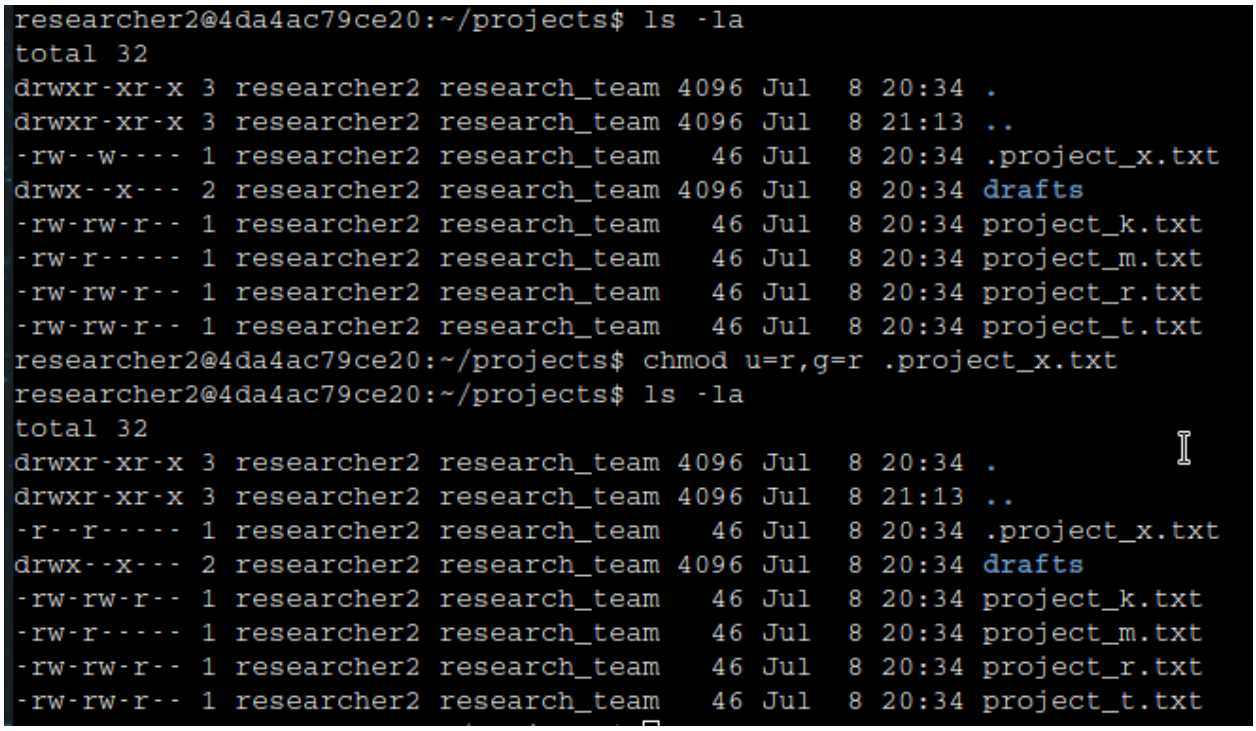
Using the drafts directory as an example; it has the following permissions `drwx--x---` The first alphabet, which is `d` means that it is a directory; If the first character is `-`, it is a file. The next three characters `rwx` are permissions for the user, which are “read, write, execute” permissions. The following three characters `--x` are permissions for the group, which means the group doesn’t have read and write permissions, but has the execute permission. The last three characters, which are `---` are permissions for other, which means no permissions for read, write and execute.

Change file permissions

```
researcher2@4da4ac79ce20:~/projects$ chmod o-w project_k.txt
researcher2@4da4ac79ce20:~/projects$ ls -l
total 20
drwx--x--- 2 researcher2 research_team 4096 Jul  8 20:34 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Jul  8 20:34 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Jul  8 20:34 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jul  8 20:34 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jul  8 20:34 project_t.txt
```

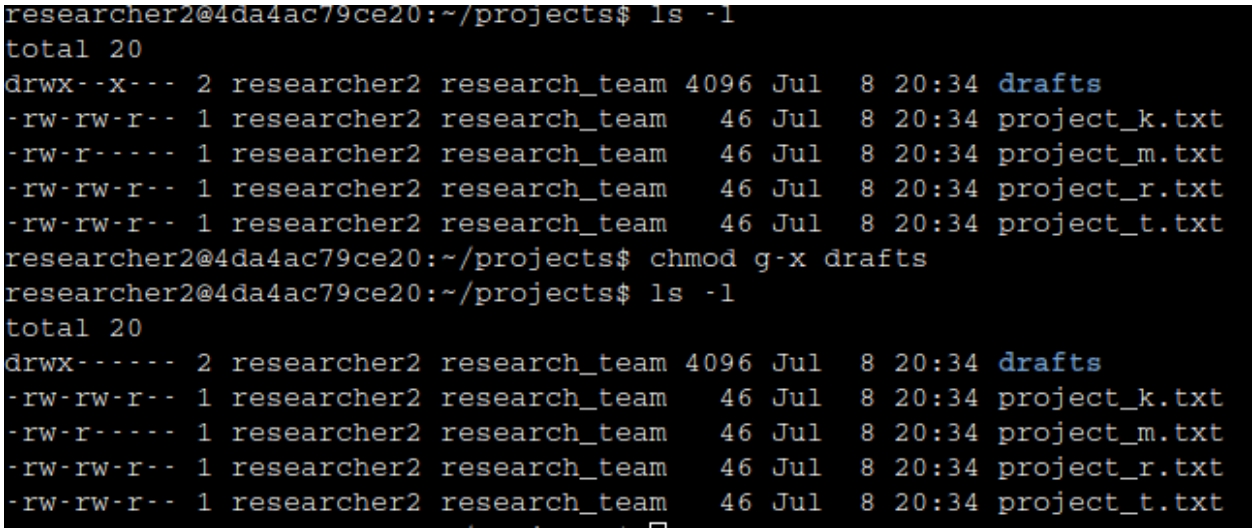
`chmod` is the command used to modify permissions; `o-w` means that the write permission for other has been removed. The specified file or directory must be typed for the changes to occur: `chmod o-w project_k.txt`

Change file permissions on a hidden file



The `ls -la` command is used to show permissions for hidden files. The hidden files are known by the preceding "." before the file name: ".project_x.txt". Using the command `chmod u=r,g=r .project_x.txt` is used to override previous permissions and assign read only permissions for user and group.

Change directory permissions



The command `chmod g-x drafts` is used to remove execution permissions for the group “drafts” is a directory, and this can be identified by the first character on the 10 character string: `drwx--x—`, and after execution permission are removed, it becomes `drwx------`

Summary

The goal was to examine permissions on the file system, making sure that unauthorized users don’t have access to files and directories or make unauthorized modifications. To achieve this, I was able to remove write permissions for other for file “project_k.txt”. This is to avoid unauthorized users from modifying this file. Also, I changed permissions to make sure that the hidden file “.project_x.txt” can only be read by user and group, with no permissions to write or execute. Finally, I removed the execution permissions for the group for drafts directory. Only the user is allowed to read, write and execute.