File permissions in Linux

Project description

The primary goal of this project is to ensure users on the team are authorized with the appropriate permissions. My task as a security analyst is to determine if the permissions match the authorization that should be given and modify them accordingly to authorize the appropriate users and remove the unauthorized users.

Check file and directory details

`Ls -la`
: Used this command to check permissions including Hidden Files and directories, in the Projects directory.

```
drwxr-xr-x 3 researcher2 research_team 4096 Jul 11 15:43 .
drwxr-xr-x 3 researcher2 research_team 4096 Jul 11 16:16 ..
-rw--w---- 1 researcher2 research_team   46 Jul 11 15:43 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Jul 11 15:43 drafts
-rw-rw-rw- 1 researcher2 research_team   46 Jul 11 15:43 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Jul 11 15:43 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jul 11 15:43 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jul 11 15:43 project_t.txt
```

Describe the permissions string

For the file Project_k.txt , the user is researcher2 belonging to group research_team, the permission string indicates that it is a file as first character of 10 char string is hyphen(d as first string represents the file type as directory), 2nd,3rd and 4th character represents read write and execute permission for user respectively, In this case the user has read and write permission but not the execute permission, 5th,6th and 7th character represents read,write and execute permission for group,In this case the group also has read and write permission but not the execute permission.Last 3 characters of string represent the same permissions for Other type of owners.

Change file permissions

The organization does not allow Other to have write access to any file , In order to modify project_k.txt, used command:
`chmod o-w project_k.txt`

chmod stand for change mode. This command is used to change permissions on files and directories. Next attribute represents what permissions are needed to be changed to which type of owner, and 3rd attribute represents the file or directory that needs the read,write and execute permissions to be modified.
drwxr-xr-x 3 researcher2 research_team 4096 Jul 11 15:43 .
drwxr-xr-x 3 researcher2 research_team 4096 Jul 11 16:16 ..
-rw--w---- 1 researcher2 research_team   46 Jul 11 15:43 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Jul 11 15:43 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Jul 11 15:43 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Jul 11 15:43 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jul 11 15:43 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jul 11 15:43 project_t.txt

Change file permissions on a hidden file

As conveyed by the organization, the hidden file .project_x.txt should not have write permission for anyone, but the user and group should be able to read.
-rw--w---- 1 researcher2 research_team   46 Jul 11 15:43 .project_x.txt

chmod u-w,g-w,g+r .project_x.txt

-r--r----- 1 researcher2 research_team   46 Jul 11 15:43 .project_x.txt

Change directory permissions

drwx--x--- 2 researcher2 research_team 4096 Jul 11 15:43 drafts
Only the user researcher2 should be allowed to access drafts directory and its content.
chmod g-x drafts

drwx------ 2 researcher2 research_team 4096 Jul 11 15:43 drafts

Summary

In summary, the task to overview the permissions and authorization details was accomplished successfully and concept of granting minimal access to users to complete the required task was used.