File permissions in Linux

Project description

[During these scenarios I will accomplish assigning the proper personnel permissions to specific directories and files. Authorized users, groups, and other users will be allowed full access, specific access or no access at all depending on the company's security goals.]

Check file and directory details

```
researcher2@98c23523bc7a:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Jun  8 22:27 .
drwxr-xr-x 3 researcher2 research_team 4096 Jun  8 23:15 ..
-rw--w---- 1 researcher2 research_team   46 Jun  8 22:27 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Jun  8 22:27 drafts
-rw-rw-rw- 1 researcher2 research_team   46 Jun  8 22:27 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Jun  8 22:27 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jun  8 22:27 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jun  8 22:27 project_t.txt
```

[Input: `Ls -L`. This command displays the list of directories and files with their assigned user, group, and other permissions. The `Ls -La` command is used to check files, directories and hidden files and directories as well.]

Describe the permissions string

[The 10 character string represents the permissions given to a user, group, and other users for a directory (d) or files (-). Example: drwx,rwx,rwx, (d) stands for directory, (r) stands for read. (w) stands for write and (x) stands for execute permissions. The first four strings represent directory/folder permissions set for users/owners, the middle three strings are permissions set for groups, and the last three strings are permissions set for other users. Also the beginning (-) represents a file and all other (-) afterwards represent no permissions.]

Change file permissions

```
researcher2@98c23523bc7a:~/projects$ chmod g-r project_m.txt
researcher2@98c23523bc7a:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Jun  8 22:27 .
drwxr-xr-x 3 researcher2 research_team 4096 Jun  8 23:15 ..
-rw--w---- 1 researcher2 research_team   46 Jun  8 22:27 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Jun  8 22:27 drafts
-rw-rw-rw- 1 researcher2 research_team   46 Jun  8 22:27 project_k.txt
-rw------- 1 researcher2 research_team   46 Jun  8 22:27 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jun  8 22:27 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jun  8 22:27 project_t.txt
```

[Input: `chmod g-r project_m.txt`. Out-put: `-rw-, - - -, - - - researcher2 | research_team | project_m.txt`. Only the users have read and write permissions while groups, and other users have no permissions.]

Change file permissions on a hidden file

```
researcher2@98c23523bc7a:~/projects$ chmod u=r,g=r .project_x.txt
researcher2@98c23523bc7a:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Jun  8 22:27 .
drwxr-xr-x 3 researcher2 research_team 4096 Jun  8 23:15 ..
-r--r----- 1 researcher2 research_team   46 Jun  8 22:27 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Jun  8 22:27 drafts
-rw-rw-rw- 1 researcher2 research_team   46 Jun  8 22:27 project_k.txt
-rw------- 1 researcher2 research_team   46 Jun  8 22:27 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jun  8 22:27 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jun  8 22:27 project_t.txt
```

[Input: `chmod u=r,g=r .hidden_file name.txt`. Out-put: `-r - -,r - -, - - - researcher2 | research_team | .hidden_filename.txt`. Only the user and group has read permissions to the hidden file and the other users have no permissions to the hidden file. Additionally the (.) before the file name represents the hidden file.]

Change directory permissions

```
researcher2@98c23523bc7a:~/projects$ chmod g-x drafts
researcher2@98c23523bc7a:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Jun  8 22:27 .
drwxr-xr-x 3 researcher2 research_team 4096 Jun  8 23:15 ..
-r--r----- 1 researcher2 research_team   46 Jun  8 22:27 .project_x.txt
drwx------ 2 researcher2 research_team 4096 Jun  8 22:27 drafts
-rw-rw-rw- 1 researcher2 research_team   46 Jun  8 22:27 project_k.txt
-rw------- 1 researcher2 research_team   46 Jun  8 22:27 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jun  8 22:27 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Jun  8 22:27 project_t.txt
```

[Input: `chmod g-x drafts`. Out-put: `drwx,- - -, - - -  researcher2 | research_team | drafts`. Only the user is allowed read, write, execute permissions to the drafts directory. Groups and other users are denied permissions to the drafts directory and once again the (d) in the beginning of the 10 character string represents that the drafts title is a directory/folder.]

Summary

[In this scenario files, hidden files and directories received the proper permissions according to the company's security goals to protect their assets. Sensitive information was given access to specific personnel while others were not granted access, by reviewing the commands used in this scenario we see that read, write, and execute permissions were given out by following the least privilege policy which means that personnel were only given set permissions for what was needed to complete their job.]