File permissions in Linux

Project description

Though Linux commands the team authorized with the appropriate permissions. This helps keep the system safe. Existing permissions are examined and some modifications applied.

Check file and directory details

ls -al show all files and directories permissions including hidden ones:
drwxr-xr-x 3 researcher2 research_team 4096 Oct 6 03:52 .
drwxr-xr-x 3 researcher2 research_team 4096 Oct 6 04:27 ..
-rw--w---- 1 researcher2 research_team   46 Oct 6 03:52 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Oct 6 03:52 drafts
-rw-rw-rw- 1 researcher2 research_team   46 Oct 6 03:52 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Oct 6 03:52 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Oct 6 03:52 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Oct 6 03:52 project_t.txt

```
researcher2@0826e98e2706:~$ ls -al
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Oct  6 04:27 .
drwxr-xr-x 1 root        root          4096 Oct  6 03:52 ..
-rw------- 1 researcher2 research_team    6 Oct  6 04:27 .bash_history
-rw-r--r-- 1 researcher2 research_team  220 Apr 18  2019 .bash_logout
-rw-r--r-- 1 researcher2 research_team 3574 Oct  6 03:52 .bashrc
-rw-r--r-- 1 researcher2 research_team 3574 Oct  6 03:52 .profile
drwxr-xr-x 3 researcher2 research_team 4096 Oct  6 03:52 projects
researcher2@0826e98e2706:~$
```

Describe the permissions string

-rw-r-----
The 1st character “-” means it is a file type.
The 2nd character “r” means the user has read permission.
The 3rd character “w” means the user has write permission.
The 4th character “x” means the user has execute permission.

The 5th character “r” means the group has read permission.
The 6th character “w” means the group has write permission.
The 7th character “x” means the group has execute permission.
The 8th character “r” means the other has read permission.
The 9th character “w” means the other has write permission.
The 10th character “x” means the other has execute permission.

User has read and write permission, the group has read access and the other does not have any access to the file.

Change file permissions

chmod o-w project_k.txt

The command (chmod) changed the permissions of the “project_k.txt” file so that others are not allowed to have write access. “O” means others and “-” means write permission removed.

Before command:
-rw-rw-rw- 1 researcher2 research_team 46 Oct 6 03:52 project_k.txt
After command:
-rw-rw-r-- 1 researcher2 research_team 46 Oct 6 03:52 project_k.txt

```
researcher2@0826e98e2706:~/projects$ chmod o-w project_k.txt
researcher2@0826e98e2706:~/projects$ ls -al
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Oct  6 03:52 .
drwxr-xr-x 3 researcher2 research_team 4096 Oct  6 04:27 ..
-rw--w---- 1 researcher2 research_team   46 Oct  6 03:52 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Oct  6 03:52 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Oct  6 03:52 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Oct  6 03:52 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Oct  6 03:52 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Oct  6 03:52 project_t.txt
```

Change file permissions on a hidden file

Command: chmod u=r,g=r .project_x.txt
Result: -r--r----- 1 researcher2 research_team 46 Oct 6 03:52 .project_x.txt
The command modifies the file permissions so that only the user and group have read access, while all other permissions (write and execute) are denied for everyone, including the user,

group, and others. Names of hidden files start with “.”.

```
researcher2@0826e98e2706:~/projects$ chmod u=r,g=r .project_x.txt
researcher2@0826e98e2706:~/projects$
researcher2@0826e98e2706:~/projects$ ls -al
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Oct  6 03:52 .
drwxr-xr-x 3 researcher2 research_team 4096 Oct  6 04:27 ..
-r--r----- 1 researcher2 research_team   46 Oct  6 03:52 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Oct  6 03:52 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Oct  6 03:52 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Oct  6 03:52 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Oct  6 03:52 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Oct  6 03:52 project_t.txt
```

Change directory permissions

Command: chmod g-x drafts
Result: drwx------ 2 researcher2 research_team 4096 Oct 6 03:52 drafts
The command modifies the directory permission that only the user has access to, while all other permissions are denied for the group and the other.

```
researcher2@0826e98e2706:~/projects$ chmod g-x drafts
researcher2@0826e98e2706:~/projects$ ls -l
total 20
drwx------ 2 researcher2 research_team 4096 Oct  6 03:52 drafts
-rw-rw-r-- 1 researcher2 research_team   46 Oct  6 03:52 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Oct  6 03:52 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Oct  6 03:52 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Oct  6 03:52 project_t.txt
```

Summary

The permissions for files and subdirectories, including hidden ones, in the projects directory were examined. Write access was removed from all files. The permissions for hidden files were overwritten, allowing only the user and group to read them. After modification, only "researcher2" will be allowed to access the drafts directory and its contents.