File permissions in Linux

Project description

This project involves managing file permissions in a Linux environment to ensure proper access control. Tasks include checking current permissions, modifying them to meet organizational policies, and restricting access to sensitive directories.

Check file and directory details

To check the current file and directory permissions, use the `ls -la` command in the `/home/researcher2/projects` directory. This command lists all files, including hidden ones, and displays their permissions.

ls -la

-rw-rw-rw- 1 researcher2 researcher2 0 Jul 17 12:00 project_k.txt

-rw-r----- 1 researcher2 researcher2 0 Jul 17 12:00 project_m.txt

-rw-rw-r-- 1 researcher2 researcher2 0 Jul 17 12:00 project_r.txt

-rw-rw-r-- 1 researcher2 researcher2 0 Jul 17 12:00 project_t.txt

-rw-rw---- 1 researcher2 researcher2 0 Jul 17 12:00 .project_x.txt

drwx--x--- 2 researcher2 researcher2 0 Jul 17 12:00 drafts

Describe the permissions string

Example: `-rw-rw-rw-`

This string represents the permissions for `project_k.txt`.

- The first character `-` indicates a regular file.
- The next three characters `rw-` indicate that the user has read and write permissions.
- The following three characters `rw-` indicate that the group has read and write permissions.
- The last three characters `rw-` indicate that others have read and write permissions.

Change file permissions

To ensure no other users have write access, modify the permissions of `project_k.txt` and `project_r.txt`.

chmod o-w project_k.txt
chmod o-w project_r.txt

ls -la

-rw-rw-r-- 1 researcher2 researcher2 0 Jul 17 12:00 project_k.txt
-rw-rw-r-- 1 researcher2 researcher2 0 Jul 17 12:00 project_r.txt

Change file permissions on a hidden file

The `.project_x.txt` file should be read-only for the user and group and have no permissions for others.

chmod o-w,g-w .project_x.txt

ls -la

-r--r----- 1 researcher2 researcher2 0 Jul 17 12:00 .project_x.txt

Change directory permissions

To ensure only `researcher2` can access the `drafts` directory:

chmod g-x. drafts
drwx------ 2 researcher2 researcher2 0 Jul 17 12:00 drafts

Summary

In this activity, we checked and modified file permissions to align with organizational policies, ensuring security and proper access control. We used Linux commands to inspect, describe, and change permissions, demonstrating proficiency in managing file permissions. Specific changes included removing write permissions for others on several files, setting appropriate permissions for a hidden file, and restricting directory access to a single user.