File Permissions In Linux

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Project description

This document provides a detailed analysis of the file structure and permission settings within the `/home/researcher2/projects` directory. The primary objective is to clearly illustrate the current file organization and access control measures in place, facilitating a comprehensive understanding of the directory's contents and security posture.

Check file and directory details

`ls`: This is the command used to list directory contents.

`-l`: This option provides a detailed listing, including file permissions, owner, group, size, and modification time.

ls -l

ls -la - is used to see the hidden files

Ls -ld directoryname - is used to see directory permissions themselves

Describe the permissions string

1st Character:

- This indicates the file type:
  - `d`: Directory
  - `-`: Regular file
  - `l`: Symbolic link
  - and others.

2nd-4th Characters:

- These represent the permissions for the file's **owner (user)**.
- `r`: Read permission
- `w`: Write permission
- `x`: Execute permission
- `-`: Permission not granted.

5th-7th Characters:

- These represent the permissions for the file's **group**.
- `r`: Read permission
- `w`: Write permission
- `x`: Execute permission
- `-`: Permission not granted.

8th-10th Characters:

- These represent the permissions for **others** (all other users on the system).
- `r`: Read permission
- `w`: Write permission
- `x`: Execute permission
- `-`: Permission not granted.

Change file permissions

`chmod` changes file/directory permissions (read, write, execute) for user, group, and others. Use letters (u,g,o,a,r,w,x,+,-,=) or numbers (4,2,1) to set permissions

For this scenario I used `chmod` o-w project_k.txt

Change file permissions on a hidden file

Identify the Hidden File:

- Use `ls -la` to list all files, including hidden ones. Hidden files begin with a dot (`.`).

Check Current Permissions (Optional but Recommended):

- Use `ls -l .hiddenfile` (replace `.hiddenfile` with the actual filename) to see the current permissions.

Use the `chmod` Command:

- The syntax is the same as for regular files: `chmod [permissions] .hiddenfile`

`Verify the Changes (Optional but Recommended):`

- `Use ls -l .hiddenfile again to confirm that the permissions have been changed as intended.`

Change directory permissions

I used - chmod g-x drafts

`chmod`: The command to change file/directory permissions.
`g-x`:

- `g`: Specifies that the change applies to the group.
- `-`: Indicates that a permission is being removed.
- `x`: Represents the execute permission.

`drafts`: The directory whose permissions are being modified

Summary

Objective: Secure and control access to files and directories within the `/home/researcher2/projects` directory.
Key Tool: The `chmod` command was used to modify permissions.
Permissions:

- Permissions were managed for the user (owner), group, and others.
- Read (r), write (w), and execute (x) permissions were adjusted.
- Understanding the 10-character permission string was crucial.

Tasks:

- Checking existing permissions using `ls -l` and `ls -la`.
- Removing write permissions for unauthorized users/groups.
- Adjusting directory permissions, particularly the execute bit.
- Working with hidden files.

Security: The goal was to ensure that only authorized users had appropriate access to sensitive files and directories.
Important commands:

- `ls -l` and `ls -la` to check permissions.
- `chmod` to change permissions.

- `cd` to change directories.