

File permissions in Linux

Project description

In this project, I used Linux commands to modify the file permissions of documents in the `/home/researcher2/projects` directory. There are five files and one subdirectory, each with different permission settings for the user, group, and others. The permissions were modified using the `chmod` command, ensuring only authorized users could access or modify the files. I also explored hidden file permissions and directory permission management.

Check file and directory details

We will use `ls -a`, `ls -l` and `ls -la` (this shows hidden files too.) to check file and directory details. Let me just more elaborate these commands:

ls -a : Displays hidden files. Hidden files start with a period (.) at the beginning.

ls -l : Displays permissions to files and directories. Also displays other additional information including owner name, group, file size and the time of last modification.

ls -la : Displays permissions to files and directories, including hidden files. This is a combination of other two options.

Describe the permissions string

That is “drwxrwxrwx” in this string:

- d stands for directory
- r for read permission
- w for write permission
- x for execute permission

Change file permissions

The `chmod` command changes permissions on files and directories. Using `chmod`:

The chmod command requires two arguments. The first argument indicates how to change permissions, and the second argument specifies the files or directories that you want to change permission for.

For example,

```
chmod g-w example.txt
```

Above command will remove the write permission of the group for the example.txt file.

(we will use u for user and o for other)

Change file permissions on a hidden file

We can also change the permissions of hidden files in the same way with adding dot (.) before the file name.

For example:

```
chmod u+w .example_x.txt
```

Above command will give the write permission to the user for the hidden file .example_x.txt file.

Change directory permissions

Using chmod we can change directories permissions too.

Summary

"These permissions illustrate the principle of least privilege, a key security practice in system administration. By limiting access based on user roles (User, Group, Other), the system ensures that only authorized users can modify or execute files. For instance, the file `.project_x.txt` allows the user to read and write but restricts others, reducing the risk of unauthorized modifications."