Using Linux commands to manage file permissions

Project description

As part of my Cybersecurity course, I did a project that helped me learn more about the Linux operating system. I used important commands and functions and understood why Linux is so important in daily cybersecurity work.

Locating and reading the contents of a file

Some of the essential commands I will use in day-to-day cybersecurity work to help me understand the files I'm dealing with include:

- cd – Navigate directory structures
- pwd – Display the current working directory
- ls – List the contents of a directory
- cat and head – View the contents of files

```
analyst@90949695a54b:~$ pwd
/home/analyst
analyst@90949695a54b:~$ ls
logs  projects  reports  temp
analyst@90949695a54b:~$ cd /home/analyst/reports
analyst@90949695a54b:~/reports$ pwd
/home/analyst/reports
analyst@90949695a54b:~/reports$ cd
analyst@90949695a54b:~$ /cd
-bash: /cd: No such file or directory
analyst@90949695a54b:~$ ls
logs  projects  reports  temp
analyst@90949695a54b:~$ cd /home/analyst/reports
analyst@90949695a54b:~/reports$ cd reports
-bash: cd: reports: No such file or directory
analyst@90949695a54b:~/reports$ ls
users
analyst@90949695a54b:~/reports$ cd /home/analyst/reports/users
analyst@90949695a54b:~/reports/users$ ls
Q1_added_users.txt  Q1_deleted_users.txt
analyst@90949695a54b:~/reports/users$ cat Q1_added_users.txt
employee_id  username  department
1001         bmoreno   Marketing
1026         apatel    Human Resources
1041         cgriffin  Sales
1104         mreed     Information Technology
1177         aezra     Human Resources
1188         noshiro   Finance
analyst@90949695a54b:~/reports/users$
```

Managing authorization

Talking about altering permissions involves not just a single command, but a combination of several others working together to ensure the command is executed correctly, for example:

I would say that the chmod command is the most important, because it is the first to be used and requires two arguments. The first argument indicates how to change permissions, and the second argument indicates the file or directory that you want to change permissions for.

In the project I have an example, in which I used the chmod command to change the permissions of the project_m.txt file so that the group did not have permission to read and the owner type did not have write permissions.

```
total 32
drwxr-xr-x 3 researcher2 research_team 4096 May  2 12:23 .
drwxr-xr-x 3 researcher2 research_team 4096 May  2 12:34 ..
-rw--w---- 1 researcher2 research_team   46 May  2 12:23 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 May  2 12:23 drafts
-rw-rw-rw- 1 researcher2 research_team   46 May  2 12:23 project_k.txt
-rw-r----- 1 researcher2 research_team   46 May  2 12:23 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 May  2 12:23 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 May  2 12:23 project_t.txt
researcher2@fbcfc709dd71:~/projects$ chmod o-w project_k.txt
researcher2@fbcfc709dd71:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 May  2 12:23 .
drwxr-xr-x 3 researcher2 research_team 4096 May  2 12:34 ..
-rw--w---- 1 researcher2 research_team   46 May  2 12:23 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 May  2 12:23 drafts
-rw-rw-r-- 1 researcher2 research_team   46 May  2 12:23 project_k.txt
-rw-r----- 1 researcher2 research_team   46 May  2 12:23 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 May  2 12:23 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 May  2 12:23 project_t.txt
researcher2@fbcfc709dd71:~/projects$ chmod g-r project_m.txt
researcher2@fbcfc709dd71:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 May  2 12:23 .
drwxr-xr-x 3 researcher2 research_team 4096 May  2 12:34 ..
-rw--w---- 1 researcher2 research_team   46 May  2 12:23 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 May  2 12:23 drafts
-rw-rw-r-- 1 researcher2 research_team   46 May  2 12:23 project_k.txt
-rw------- 1 researcher2 research_team   46 May  2 12:23 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 May  2 12:23 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 May  2 12:23 project_t.txt
researcher2@fbcfc709dd71:~/projects$
```

Summary

These were some of the things I learned during this project. I also had the opportunity to explore many other topics, but here I showcased just one of them. In summary, I improved my skills using Linux, learned new commands, functions, and concepts that I will apply in my daily work in cybersecurity.