File permissions in Linux

Project description

In this project I will be playing as a security employee of an organization with the task of ensuring files are configured with the correct permissions. I will be using commands such as `ls -la` and chmod in a Linux bash shell to change file and directory permissions.

Check file and directory details

To check the permissions for both visible and hidden files and subdirectories I use the command `ls -la`.

```
researcher2@573d5568993d:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Aug  5 02:36 .
drwxr-xr-x 3 researcher2 research_team 4096 Aug  5 03:00 ..
-rw--w---- 1 researcher2 research_team   46 Aug  5 02:36 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Aug  5 02:36 drafts
-rw-rw-rw- 1 researcher2 research_team   46 Aug  5 02:36 project_k.txt
-rw-r----- 1 researcher2 research_team   46 Aug  5 02:36 project_m.txt
-rw-rw-r-- 1 researcher2 research_team   46 Aug  5 02:36 project_r.txt
-rw-rw-r-- 1 researcher2 research_team   46 Aug  5 02:36 project_t.txt
researcher2@573d5568993d:~/projects$
```

Describe the permissions string

Lets use the 5th line of our output as example to describe what the 10 character string is telling us, this is the line describing the “drafts” subdirectory in blue. Here the string begins with a d, simply telling us it is a subdirector. We can then put the next 3 characters in a group describing the permissions the user has. In this case we can see “rwx”. “r” in this case tells us the user has read permissions, or the ability to read the inventory of our directory. “w” represents write and gives the user the ability to add and remove files from the directory. “e” represents execute and gives the user the ability to change the working directory to this subdirectory to manage files within. The next three characters “—x” are the permissions for the group or in this case the “research_team” as seen later in the line of output. In this case the group does not have read or write permissions as described by the “-“ character, but has execute permissions. The last three characters of this string “---” are the permissions for “other” and in this case are all set to nothing.

Change file permissions

I needed to change the permissions for “project_k.txt” and “project_m.txt” files. I first disabled write permissions for the other group for file “project_k.txt” with the command `chmod o-w project_k.txt`. I then disabled reading privileges for the group for the file “project_m.txt” using the command `chmod g-r project_m.txt`.

Change file permissions on a hidden file

I edited the permissions for the hidden file “project_x.txt” to disabled writing for everyone and enable reading for the group. I did this with the command `chmod u-w,g-w,g+r .project_x.txt`.

Change directory permissions

The subdirectory “drafts” needed to be only accessable by the user “researcher2” or the current user. I fixed this by disabling the execute permissions for the group using the command `chmod g-x drafts`.

Summary

I used `ls -la` and chmod to successfully configure some important files and manage permissions on files and subdirectories. With this I successfully completed my task for my roll as a security employee.