

File permissions in Linux

Project description

The research team at my organization needs to update the file permissions for certain files and directories within the projects directory. The permissions do not currently reflect the level of authorization that should be given. Checking and updating these permissions will help keep their system secure. To complete this, I performed the following tasks:

Check file and directory details

```
researcher2@3f37b9735906:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Sep 16 20:42 .
drwxr-xr-x 3 researcher2 research_team 4096 Sep 16 21:04 ..
-rw--w---- 1 researcher2 research_team  46 Sep 16 20:42 .project_x.txt
drwx--x--- 2 researcher2 research_team 4096 Sep 16 20:42 drafts
-rw-rw-rw- 1 researcher2 research_team  46 Sep 16 20:42 project_k.txt
-rw-r----- 1 researcher2 research_team  46 Sep 16 20:42 project_m.txt
-rw-rw-r-- 1 researcher2 research_team  46 Sep 16 20:42 project_r.txt
-rw-rw-r-- 1 researcher2 research_team  46 Sep 16 20:42 project_t.txt
```

Describe the permissions string

Specifically looking at the “.project_x.txt” file; in the first column, you can see the permissions string. The first character of the permissions string being a dash indicates that it is a file and not a directory. The next three characters “rw-” indicate that the user can read and write the file, but may not execute. The next three characters after that are “-w-” which indicate that members of the group may write, but may not read or execute. The final three characters are “---” which means that any user who isn't the owner or in the group (aka “other”) may not read, write, or execute.

Change file permissions

This organization has a policy in place that does not allow other to have write access to any files. Looking at the [above screenshot](#) the “project_k.txt” file has other permissions set to read and write. I ran the following command to remove write access from other to meet the organization's policy.

```
researcher2@3f37b9735906:~/projects$ chmod o-w project_k.txt
```

Change file permissions on a hidden file

The file “.project_x.txt” is hidden. You can tell this by the period at the beginning of the file name. The research team archived this file which is why it’s hidden, but nobody should have write permissions on the file. I ran the following command to remove write permissions from the user and group and set them both to only have read permissions.

```
researcher2@3f37b9735906:~/projects$ chmod u=r,g=r .project_x.txt
```

Change directory permissions

In the [above screenshot](#), only the “researcher2” user should be allowed to access the “drafts” directory and its contents. This is not the case and the group needs to have their execute permissions removed. To do this, I ran the following command:

```
researcher2@3f37b9735906:~/projects$ chmod g-x drafts
```

Summary

I changed multiple permissions to match the level of authorization my organization wanted for files and directories in the projects directory. The first step in this was using `ls -la` to check the permissions for the directory. This informed my decisions in the following steps. I then used the `chmod` command multiple times to change the permissions on files and directories.