

FILE PERMISSIONS IN LINUX

Check file and directory details

The screenshot demonstrates the specific directories and files of the system.

```
callmebarbarabv@cloudshell:~/github (permissions-linux)$ ls -la
total 20
drwxrwxr-x  4 callmebarbarabv callmebarbarabv 4096 Feb 10 18:15 .
drwxr-x--- 15 callmebarbarabv callmebarbarabv 4096 Feb 10 18:02 ..
drwxrwxr-x  2 callmebarbarabv callmebarbarabv 4096 Feb 10 18:24 project-01
drwxrwxr-x  2 callmebarbarabv callmebarbarabv 4096 Feb 10 18:05 project-02
-rwxrwxr--  1 callmebarbarabv callmebarbarabv 1972 Feb 10 18:15 read_me.txt
```

The first line displays the command I entered, and the other lines the output. the code ls -la, list all contents of the project directory, include the details and the hidden files.

The first column represents the permissions set on each file or directory.

Describe the permissions string

The 10 character string determines who is authorized to access the file.

```
drwxrwxr-x
```

- **1st character:** represented by d, it indicates that it's a directory or represented by hyphen (-), it's a regular file.
- **2nd-4th characters:** represented by rwx, respectively read (r), write (w) and execute (x) permissions for the user. when one of these are represented by a hyphen (-) instead, indicate that permission is not granted to the user - the user creates the file.
- **5th-7th characters:** represented by rwx, respectively read (r), write (w) and execute (x) permissions for the user. when one of these are represented by a hyphen (-) instead, indicate that permission is not granted to the group - is a small group with the user include.
- **8th-10th characters:** represented by r-x, respectively read (r) and execute (x) permissions for the user. In this example the others don't have permission to write in this directory. Others are users of the system.

Change directory permission

The new definition is that only user can read, write and execute the directories and files. the group and the other can only read.

For this modifications have two ways, the first is: chmod g=r,o=r project-01.

```
callmebarbarabv@cloudshell:~/github (permissions-linux)$ chmod g=r,o=r project-01
callmebarbarabv@cloudshell:~/github (permissions-linux)$ ls -la
total 20
drwxrwxr-x  4 callmebarbarabv callmebarbarabv 4096 Feb 10 18:15 .
drwxr-x--- 15 callmebarbarabv callmebarbarabv 4096 Feb 10 18:02 ..
drwxr--r--  2 callmebarbarabv callmebarbarabv 4096 Feb 10 18:24 project-01
drwxrwxr-x  2 callmebarbarabv callmebarbarabv 4096 Feb 10 18:05 project-02
-rwxrwxr--  1 callmebarbarabv callmebarbarabv 1972 Feb 10 18:15 read_me.txt
callmebarbarabv@cloudshell:~/github (permissions-linux)$
```

This command replaces existing permissions, leaving only the permission specified in the expression.

The second way is: chmod g-wx,o-x project-02.

```
callmebarbarabv@cloudshell:~/github (permissions-linux)$ chmod g-wx,o-x project-02
callmebarbarabv@cloudshell:~/github (permissions-linux)$ ls -la
total 20
drwxrwxr-x  4 callmebarbarabv callmebarbarabv 4096 Feb 10 18:15 .
drwxr-x--- 15 callmebarbarabv callmebarbarabv 4096 Feb 10 18:02 ..
drwxr--r--  2 callmebarbarabv callmebarbarabv 4096 Feb 10 18:24 project-01
drwxr--r--  2 callmebarbarabv callmebarbarabv 4096 Feb 10 18:05 project-02
-rwxrwxr--  1 callmebarbarabv callmebarbarabv 1972 Feb 10 18:15 read_me.txt
callmebarbarabv@cloudshell:~/github (permissions-linux)$
```

This command removes the specified permissions.

The last modification is in the file read_me.txt. Always ensuring that the changes were made using the command ls -la.

```
callmebarbarabv@cloudshell:~/github (permissions-linux)$ chmod g-wx read_me.txt
callmebarbarabv@cloudshell:~/github (permissions-linux)$ ls -la
total 20
drwxrwxr-x  4 callmebarbarabv callmebarbarabv 4096 Feb 10 18:15 .
drwxr-x--- 15 callmebarbarabv callmebarbarabv 4096 Feb 10 18:02 ..
drwxr--r--  2 callmebarbarabv callmebarbarabv 4096 Feb 10 18:24 project-01
drwxr--r--  2 callmebarbarabv callmebarbarabv 4096 Feb 10 18:05 project-02
-rwxr--r--  1 callmebarbarabv callmebarbarabv 1972 Feb 10 18:15 read_me.txt
callmebarbarabv@cloudshell:~/github (permissions-linux)$
```