

# File permissions in Linux

## Project description

Use linux commands to change file permissions , directory permissions and hidden file permissions.

## Check file and directory details

Check files and directory details with the commands `ls -l` , `ls -la`

In the `/home/researcher2/projects` directory, there are five files with the following names and permissions: `project_k.txt`, `project_m.txt`, `project_r.txt`, `project_t.txt`, `project_x.txt`

There is also one subdirectory inside the `projects` directory named `drafts`.

```
researcher2@11efc2158357:~$ cd projects
researcher2@11efc2158357:~/projects$ ls /l
ls: cannot access '/l': No such file or directory
researcher2@11efc2158357:~/projects$ ls -l
total 20
drwx--x--- 2 researcher2 research_team 4096 Mar 12 01:41 drafts
-rw-rw-rw- 1 researcher2 research_team  46 Mar 12 01:41 project
_k.txt
-rw-r----- 1 researcher2 research_team  46 Mar 12 01:41 project
_m.txt
-rw-rw-r-- 1 researcher2 research_team  46 Mar 12 01:41 project
_r.txt
-rw-rw-r-- 1 researcher2 research_team  46 Mar 12 01:41 project
_t.txt
researcher2@11efc2158357:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Mar 12 01:41 .
drwxr-xr-x 3 researcher2 research_team 4096 Mar 12 02:11 ..
-rw--w---- 1 researcher2 research_team  46 Mar 12 01:41 .projec
t_x.txt
drwx--x--- 2 researcher2 research_team 4096 Mar 12 01:41 drafts
-rw-rw-rw- 1 researcher2 research_team  46 Mar 12 01:41 project
_k.txt
-rw-r----- 1 researcher2 research_team  46 Mar 12 01:41 project
_m.txt
-rw-rw-r-- 1 researcher2 research_team  46 Mar 12 01:41 project
_r.txt
```

## Describe the permissions string

- `project_k.txt`
  - User = read, write,
  - Group = read, write
  - Other = read, write
- `project_m.txt`

- User = read, write
- Group = read
- Other = none
- `project_r.txt`
  - User = read, write
  - Group = read, write
  - Other = read
- `project_t.txt`
  - User = read, write
  - Group = read, write
  - Other = read
- `.project_x.txt`
  - User = read, write
  - Group = write
  - Other = none

There is also one subdirectory inside the `projects` directory named `drafts`. The permissions on `drafts` are:

- User = read, write, execute
- Group = execute

## Change file permissions

The permission of read for the group of the file `project_m.txt` was removed with the command `chmod g -r project_m.txt`

```

-rw-rw-r-- 1 researcher2 research_team 46 Mar 12 01:41 project
_t.txt
researcher2@11efc2158357:~/projects$ ls -l
total 20
drwx--x--- 2 researcher2 research_team 4096 Mar 12 01:41 drafts
-rw-rw-rw- 1 researcher2 research_team 46 Mar 12 01:41 project
_k.txt
-rw-r----- 1 researcher2 research_team 46 Mar 12 01:41 project
_m.txt
-rw-rw-r-- 1 researcher2 research_team 46 Mar 12 01:41 project
_r.txt
-rw-rw-r-- 1 researcher2 research_team 46 Mar 12 01:41 project
_t.txt
researcher2@11efc2158357:~/projects$ chmod o-w project_k.txt
researcher2@11efc2158357:~/projects$ ls -l
total 20
drwx--x--- 2 researcher2 research_team 4096 Mar 12 01:41 drafts
-rw-rw-r-- 1 researcher2 research_team 46 Mar 12 01:41 project
_k.txt
-rw-r----- 1 researcher2 research_team 46 Mar 12 01:41 project
_m.txt
-rw-rw-r-- 1 researcher2 research_team 46 Mar 12 01:41 project
_r.txt
-rw-rw-r-- 1 researcher2 research_team 46 Mar 12 01:41 project
_t.txt
researcher2@11efc2158357:~/projects$ chmod g-r project_m.txt
researcher2@11efc2158357:~/projects$
```

```
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Mar 12 01:41 .
drwxr-xr-x 3 researcher2 research_team 4096 Mar 12 02:11 ..
-rw--w---- 1 researcher2 research_team  46 Mar 12 01:41 .project_x.txt
drwx-x--- 2 researcher2 research_team 4096 Mar 12 01:41 drafts
-rw-rw-rw- 1 researcher2 research_team  46 Mar 12 01:41 project_k.txt
-rw-r----- 1 researcher2 research_team  46 Mar 12 01:41 project_m.txt
-rw-rw-r-- 1 researcher2 research_team  46 Mar 12 01:41 project_r.txt
-rw-rw-r-- 1 researcher2 research_team  46 Mar 12 01:41 project_t.txt
researcher2@11efc2158357:~/projects$ ls -l
total 20
drwx-x--- 2 researcher2 research_team 4096 Mar 12 01:41 drafts
-rw-rw-rw- 1 researcher2 research_team  46 Mar 12 01:41 project_k.txt
-rw-r----- 1 researcher2 research_team  46 Mar 12 01:41 project_m.txt
-rw-rw-r-- 1 researcher2 research_team  46 Mar 12 01:41 project_r.txt
-rw-rw-r-- 1 researcher2 research_team  46 Mar 12 01:41 project_t.txt
researcher2@11efc2158357:~/projects$ chmod o-w project_k.txt
researcher2@11efc2158357:~/projects$
```

The permission of write of others for file **project\_k.txt** was removed with the command `chmod o -w project_m.text`

## Change file permissions on a hidden file

The permission for user and the group of the file **.project\_x.txt** was changed with command `chmod u -w, g -w, g+r .project_x.text`. The user and the group can read but they should not be able to write the file.

```
-rw-rw-r-- 1 researcher2 research_team  46 Mar 12 01:41 project_k.txt
-rw-r----- 1 researcher2 research_team  46 Mar 12 01:41 project_m.txt
-rw-rw-r-- 1 researcher2 research_team  46 Mar 12 01:41 project_r.txt
-rw-rw-r-- 1 researcher2 research_team  46 Mar 12 01:41 project_t.txt
researcher2@11efc2158357:~/projects$ chmod g-r project_m.txt
researcher2@11efc2158357:~/projects$ ls -la
total 32
drwxr-xr-x 3 researcher2 research_team 4096 Mar 12 01:41 .
drwxr-xr-x 3 researcher2 research_team 4096 Mar 12 02:11 ..
-rw--w---- 1 researcher2 research_team  46 Mar 12 01:41 .project_x.txt
drwx-x--- 2 researcher2 research_team 4096 Mar 12 01:41 drafts
-rw-rw-r-- 1 researcher2 research_team  46 Mar 12 01:41 project_k.txt
-rw----- 1 researcher2 research_team  46 Mar 12 01:41 project_m.txt
-rw-rw-r-- 1 researcher2 research_team  46 Mar 12 01:41 project_r.txt
-rw-rw-r-- 1 researcher2 research_team  46 Mar 12 01:41 project_t.txt
researcher2@11efc2158357:~/projects$ chmod u-w,g-w,g+r .project_x.txt
researcher2@11efc2158357:~/projects$
```

## Change directory permissions

The permission for the draft directory were change with the command `chmod g -x drafts`

```

drwxr-xr-x 3 researcher2 research_team 4096 Mar 12 02:11 ..
-rw--w---- 1 researcher2 research_team 46 Mar 12 01:41 .project
t x.txt
drwx--x--- 2 researcher2 research_team 4096 Mar 12 01:41 drafts
-rw-rw-r-- 1 researcher2 research_team 46 Mar 12 01:41 project
_k.txt
-rw----- 1 researcher2 research_team 46 Mar 12 01:41 project
_m.txt
-rw-rw-r-- 1 researcher2 research_team 46 Mar 12 01:41 project
_r.txt
-rw-rw-r-- 1 researcher2 research_team 46 Mar 12 01:41 project
_t.txt
researcher2@11efc2158357:~/projects$ chmod u-w,g-w,g+r .project_
x.txt
researcher2@11efc2158357:~/projects$ ls -l
total 20
drwx--x--- 2 researcher2 research_team 4096 Mar 12 01:41 drafts
-rw-rw-r-- 1 researcher2 research_team 46 Mar 12 01:41 project
_k.txt
-rw----- 1 researcher2 research_team 46 Mar 12 01:41 project
_m.txt
-rw-rw-r-- 1 researcher2 research_team 46 Mar 12 01:41 project
_r.txt
-rw-rw-r-- 1 researcher2 research_team 46 Mar 12 01:41 project
_t.txt
researcher2@11efc2158357:~/projects$ chmod g-x drafts
researcher2@11efc2158357:~/projects$ 

```

## Summary

### 1. Permission change:

- The company does not allow others to have access to write to any files. The permission was removed. The read permission for the group format file `project_m.text` was changed according to the politics of confidentiality.
- The hidden file permission for change for everyone as anyone should be able to write in this file.
- The person for the user researcher was allowed to access the drafts directory and its contents.