# File permissions in Linux

## Project description

## This document explains how to manage file permissions in Linux using command-line utilities. It covers checking file and directory details, interpreting permission strings, and modifying permissions for files and directories, including hidden files

## Check file and directory details

To check the details of a file or directory, use the following command:

***ls -l filename***

For checking a directory:

***ls -ld directoryname***

This command displays information such as file type, permissions, owner, group, file size, and modification date.

To check all files, including hidden ones, use:

***ls -la***

## Describe the permissions string

Linux file permissions are represented as a 10-character string:

***drwxr-xr--***

The first character indicates the type (d for directory, - for file, l for symbolic link).

The next nine characters represent permissions for the owner, group, and others:

***r (read), w (write), x (execute)***

- means the permission is not granted

For example:

* -rw-r--r-- 1 user group 1234 Jan 31 10:00 file.txt
* rw- (Owner: Read & Write)
* r-- (Group: Read-only)
* r-- (Others: Read-only).

## Change file permissions

To change file permissions, use the ***chmod*** command:

Using Numeric Mode

***chmod 755 filename***

7 (Owner: Read, Write, Execute)

5 (Group: Read, Execute)

5 (Others: Read, Execute)

Using Symbolic Mode

***chmod u+rwx,g+rx,o+rx filename***

u (User/Owner)

g (Group)

o (Others)

+ (Add permission), - (Remove permission).

## Change file permissions on a hidden file

Hidden files in Linux start with a dot (.). To modify permissions:

***chmod 600 .hiddenfile***

This ensures that only the owner can read and write the file.

## Change directory permissions

To modify permissions for a directory:

***chmod 755 directoryname***

To apply changes recursively to all files and subdirectories:

***chmod -R 755 directoryname***

## Summary

Managing file permissions in Linux is essential for system security and access control. Using ***ls -l***, users can check file permissions and understand how access is granted to owners, groups, and others. The ***chmod*** command allows modifying permissions using both numeric and symbolic modes, ensuring that files and directories have appropriate access levels. Hidden files require explicit permission changes, and directory permissions can be applied recursively. Understanding these concepts helps maintain a secure and well-structured file system in a Linux environment.