# File Permissions in Linux

## Project description

Utilizing the Linux commands to view and modify permission settings on files and directories the goal is to ensure a secure environment that upholds the standards of least privilege to ensure only authorized users have access to the files and directories necessary to complete their work.

## Check file and directory details

To check the file and directory details I would utilize the following Linux command:

“ ls -al “

This is the Linux “list” command which lists all files and directories within the current working directory. The “-al” options allow me to view the list in long format (containing the permission settings) and view hidden files and directories.

## Describe the permissions string

The permissions string is the 10 character long string at the beginning of a file listed in long format (starts with a “-”, not considered a part of the 10 character string).

The first character (either “d” or “-”) is used to indicate if it is a file or directory

The second-fourth characters list the user permissions (either “r” read, “w” write, or “x” execute).

The fifth-seventh characters list the group permissions.

The eighth-tenth character list the “other” permissions (other refers to any user on the system not associated with the group).

## Change file permissions

To change file permissions I will utilize the chmod Linux command (chmod stands for change mode). The chmod command takes two arguments, the permissions being changed (separated by a “,” if multiple, example: u=rw,g=r).

chmod [permissions changes] [file/directory being changed]

## Change file permissions on a hidden file

Again using the chmod command in the same specifications only the file/directory is prefixed with “.”

chmod [permissions changes] **.**[file/directory being changed]

## Change directory permissions

Again using the chmod command in the same specifications as a file only with the directory name.

chmod [permissions changes] [directory to be changed]

## Summary

To summarize, in order to ensure optimal system security by enforcing least privilege I would utilize the Linux commands enabling me to list the files and directories in the working directory I am in. The “ls” command with the “-al” options to list the files and directories (including the hidden ones) in long format so I can view the current permissions set for the user, group and other on all files and directories. I would then utilize the chmod command to make the permissions adjustments according to what is required for the files/directories.