# File permissions in Linux

## Project description

Linux commands enable users to perform various tasks such as file management, system configuration, and troubleshooting. They provide the means to navigate the file system, modify file permissions, automate processes through scripting, and interact with remote servers securely. Proficiency in Linux commands is crucial for system administrators, developers, and cybersecurity professionals, allowing them to efficiently manage and maintain Linux-based computer systems.

## Check file and directory details

The command "ls -la" is used to list all files and directories in a long format, including hidden files, showing detailed information like permissions, ownership, and file sizes.

A screen shot of a computer

Description automatically generated

## Describe the permissions string

The 10-character string in Linux represents permissions for users, groups, and others. It starts with a character indicating whether it's a file (-) or a directory (d). Following that, there are three sets of characters: r, w, and x, where 'r' stands for read, 'w' for write, and 'x' for execute permissions. The second to fourth characters (rwx) denote the permissions for the user, with a hyphen (-) indicating restrictions. The fifth to seventh characters represent permissions for groups, while the eighth to tenth characters indicate permissions for others.

## Change file permissions

The command "chmod o-w project\_t.txt project\_r.txt project\_k.txt" is used to remove write permissions for others (users who are not the owner or part of the group) from three files: "project\_t.txt," "project\_r.txt," and "project\_k.txt." This command ensures that people who don't own the files or belong to the group can't modify them.

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## Change file permissions on a hidden file

The command "chmod u-w,g+r-w .project\_x.txt" removes the write permission for the user (owner) of the file, grants read permission to the group, and removes write permission from the group for the file "project\_x.txt" in the current directory.

A screen shot of a computer

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## Change directory permissions

The command "chmod g-x drafts/" removes execute permission for the group from the "drafts" directory.

A screen shot of a computer

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## Summary

Linux commands are essential tools for tasks like file management, system configuration, and troubleshooting. Proficiency in these commands is crucial for system administrators, developers, and cybersecurity professionals to effectively manage Linux-based systems.

One fundamental command, "ls -la," lists files and directories, including hidden ones, displaying detailed information such as permissions, ownership, and file sizes. Linux uses a 10-character string to represent permissions for users, groups, and others, where 'r' signifies read, 'w' is for write, and 'x' stands for execute permissions.

Commands like "chmod" allow users to modify permissions, ensuring file security. For instance, "chmod o-w" removes write permissions for others from specified files. Similarly, "chmod u-w,g+r-w" removes the owner's write permission, grants read permission to the group, and revokes group write permission for a hidden file. Finally, "chmod g-x" removes execute permission for the group from a directory, enhancing access control.