# File permissions in Linux

## Project description

The research team asked me to verify and update file/directory permissions under /home/researcher2/projects so that access aligns with policy (no write access for **other** on files; the hidden archive file should be read-only for user and group; and only researcher2 should be able to traverse the drafts directory). I captured the current permissions, applied targeted chmod changes, and re-verified.

## Check file and directory details

cd /home/researcher2/projects

ls -la

From the inventory:

* Files: project\_k.txt, project\_m.txt, project\_r.txt, project\_t.txt, .project\_x.txt
* Subdirectory: drafts
* Notable current permissions:  
  + project\_k.txt: **other = read, write** (should not have write)
  + .project\_x.txt: **user = rw, group = w, other = none** (should be read-only for user+group)
  + drafts: **group = execute** (only researcher2 should be able to enter)

## Describe the permissions string

Each ls -la line begins with a 10-character mode, where:

* 1st char = type (d = directory, - = regular file)
* 2–4 = user permissions (rwx)
* 5–7 = group permissions (rwx)
* 8–10 = other permissions (rwx)  
   Hyphens (-) indicate a permission is absent. For example, -rw-rw-r-- means: file; user rw, group rw, other r.

## Change file permissions

**Policy:** “other shouldn’t have write access to any files.” Only project\_k.txt violated this, so I removed write for **other**:

chmod o-w project\_k.txt

ls -la project\_k.txt

This preserves user/group access while bringing **other** to read-only (or none, depending on previous read bit).

## Change file permissions on a hidden file

The archived hidden file .project\_x.txt must be **read-only** for user and group, with no access for other. I set an explicit numeric mode:

# user = r, group = r, other = none -> 440

chmod 440 .project\_x.txt

ls -la .project\_x.txt

Result: user r--, group r--, other --- (no one has write).

## Change directory permissions

Only researcher2 should be able to access the drafts directory. Directory traversal requires the **execute (x)** bit. I removed all group/other permissions and ensured full access for the owner:

# user rwx, group ---, other --- -> 700

chmod 700 drafts

ls -la drafts

This prevents any non-owner from entering or listing the directory.

## Summary

* Enumerated permissions with ls -la and decoded the mode strings.
* Fixed **other write** on project\_k.txt with chmod o-w.
* Set .project\_x.txt to **read-only for user and group** (chmod 440).
* Restricted drafts so only researcher2 can access it (chmod 700).
* Re-listed targets to confirm changes.

Formatting note: when you capture command evidence for submission, include screenshots or clearly formatted commands as recommended by the instructions (use a monospaced font and avoid including the lab’s right-side instructions in screenshots).