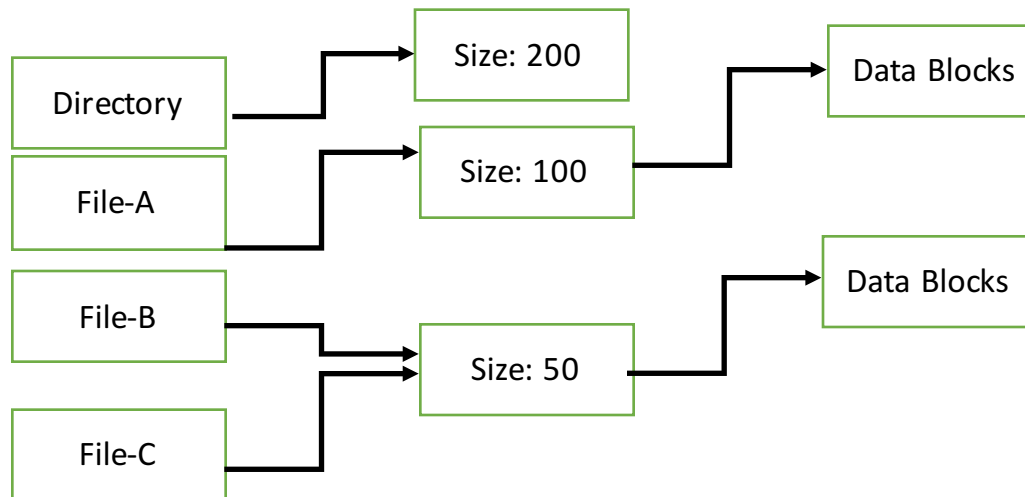


Hard and Soft Links

- A link points to the content of a file.

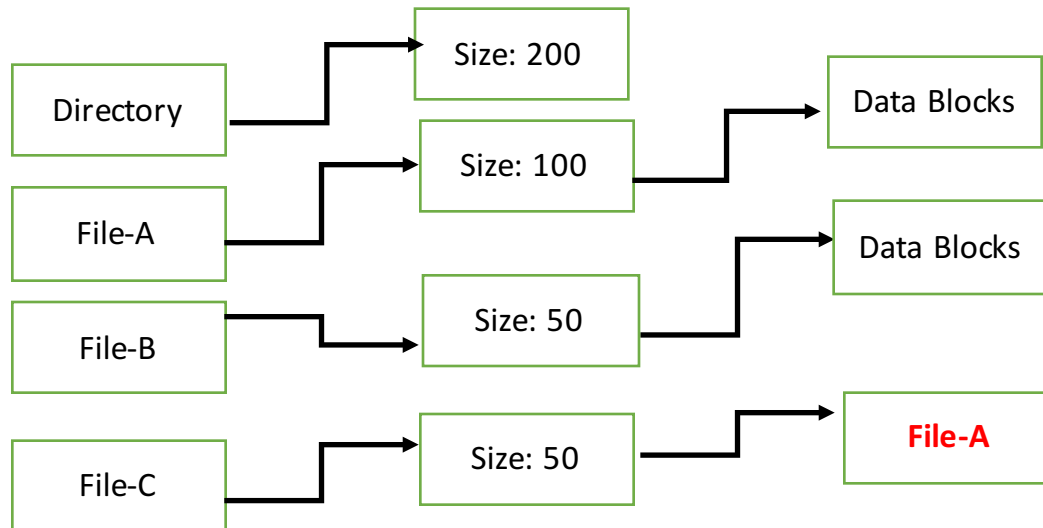
1. **Hard Link:** A pointer to the Inode of a file.

- Syntax: *In File-A File-B*
- It creates a file File-B that points to Inode of File-A.
- Both files point to same Inode.



2. Soft Link:

- A pointer to the file name. (Hard links point directly to the Inode of a file).
- It is a file that contains the name of another file.
 - Syntax: `ln -s File-A File-B`
 - File-B is the symbolic link for File-A. Its content is File-A.

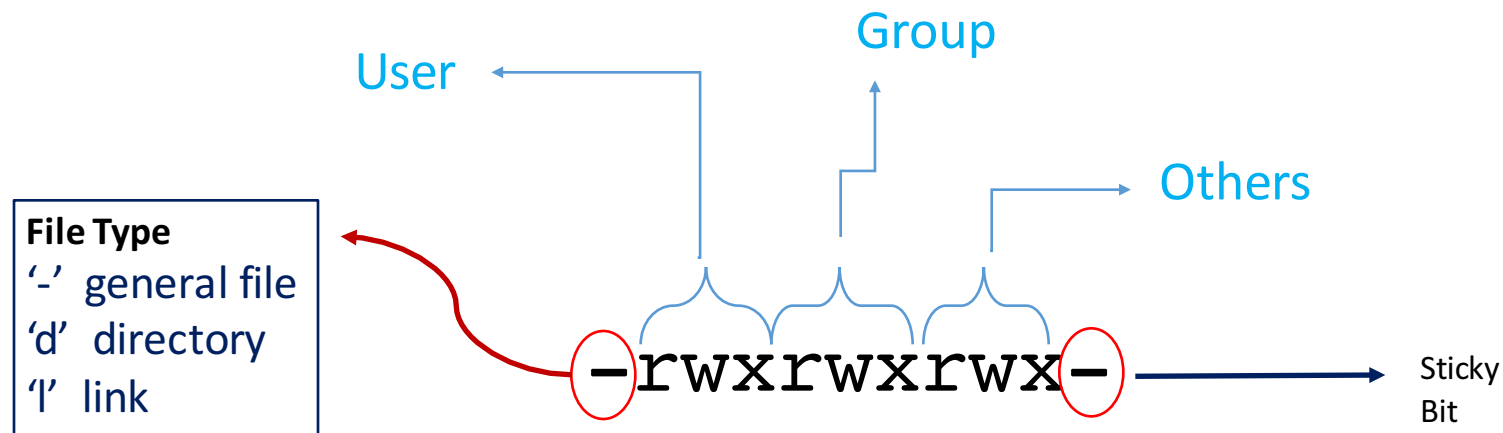


File Ownership and Permissions:

- To provide security, all files in a Linux style file system have certain access permissions.
- The files are accessed by:
 - User who owns the file
 - Group(of users) to which the file belongs.
 - Others
- There are three basic actions that are performed on files:
 - Read: Just viewing the file content
 - Write: Changing(add/delete) the file content
 - Execute: Run the file if it is an executable program.
- The access to perform these actions by the user, group and others could be controlled by defining permissions.

Defining Permissions

- The permissions are represented as symbols.
 - Read – ‘r’
 - Write – ‘w’
 - Execute – ‘x’
- The access permissions (r,w,x) are defined for the three categories in the order – [user][group][others]
- Example:
 - If the permissions are: rwxrwxrw-
 - This means ‘rwx’ for user, ‘rwx’ for group and only ‘rw’ for others.
 - ‘r’ – read, ‘w’ – write, ‘x’ – execute.



Example:

Command to display information of File-A

`$ ls -li File-A`

Number of Links pointing to this Inode

Size

`1069911 -rw-r--r-- 1 root root 48 Nov 19 18:52 File-A`

File name

Inode number

Permissions

User

Group

Time of Modification