

## Ownership

- every file has an associated owner or account

## Permissions

- what the owner, and members of the files group and other users can do with the file

- user

- group

- other

Ownership also applies to running programs  
everything in Linux is treated as a file

Association occurs because of user ID number and group ID number

Directories have ownership as well

Chown - change ownership

- pass username and filename

Chgrp - change group

- group name and file or directory

can only give ownership if have correct permissions, do as root user

ls -l

- permissions

- number of links

- username

- Group name

- File size

- time stamp

- file name

Permissions order

file type code

- type character represent the file's type and is often omitted from descriptions when the file type is not relevant

- normal data file (-)

- Directory (d)

- Symbolic link (l)

- Named pipe (pn)

- Socket (s)

- Block device (b)

- Character device (c)

owner permission

- determine what the file's owner can do with the file

group permission

- determine what members of the file's group who are not its owner can do with the file

world or other permissions

- determine what users who are not the file's owner or members of its group can do with the file

last three sets of permission strings identify as the presence or absence of 3 types of access

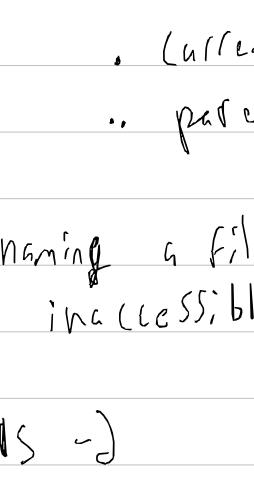
- read

- write

- execute

if execute is set, file can run as program

absence of permission is denoted by a dash -



Directories use execution bit to grant permissions to search the directory

Permissions on symbolic links are always 777

many permission bits don't apply to root

User mask (umask)

- determines the default permissions for new files

- new directories default to 777

- new files default to 666

- umask cmd to change default

Sticky bit

- user may only delete own files or files stored in own directory

- set using chmod command

- code for sticky bit is 1 -rwxrwx

- setting to 0 will remove

- use symbolic code - chmod +t

Set user ID (SUID)

- tell linux to run the program with the permissions of whoever owns the file rather than the user who runs the program

Set group ID (SGID)

- sets the group of the running program to the group of the file

Octal

4 to set the SUID bit

2 to set the SGID bit

6 to set both bits

Symlinks

- file naming convention

- dot files .myfile

ls -a

- See hidden files

. current directory

.. parent directory

Renaming a file will also make the file inaccessible to programs that uses it

ls -d

- get info from the subdirectories

rather than the content

chmod

- change file mode bits

(read 4 - write -2 execute -)