Users and Permissions: Takeaways ⤴

Syntax

- Identifying users and their groups
    - `whoami`
    - `id`
    - `groups`
- See `file` 's metadata: `stat file`
- Changing permissions:
    - Symbolic notation: `chmod [ugoa][+ - ][rwx] files` .
        - Adding execution permission to the owner on `file` : `chmod u+x file` .
        - Removing writing permission to the primary group on `file` : `chmod g- w file` .
        - Setting read and execution permissions to others on `file` : `chmod o=rx file`
        - Changing several permissions simultaneously on `file` : `chmod u+w,g - x,o - r file` .
    - Octal notation: `chmod ddd` where `d` represents a digit between `0` and `7` .
        - `---` : `0` (no permissions)
        - `-- x` : `1` (execute only permission)
        - `- w-` : `2` (write only permissions)
        - `- wx` : `3` (write and execute permissions)
        - `r--` : `4` (read only permissions)
        - `r- x` : `5` (read and execute permissions)
        - `rw-` : `6` (read and write permissions)
        - `rwx` : `7` (read, write, and execute permissions)

- Changing ownership on `file` : `chown [new_owner][:new_group] file`

  - Changing both the ownership and the group of `file1` : `sudo chown new_owner:new_group file` .

  - Changing the ownership of `file` while maintaining its group: `sudo chown new_owner file` .

  - Changing the group of `file` while maintaining its ownership: `sudo chown :new_group file` .

- Running command with superuser privileges: `sudo command`

Concepts

- Operating systems implement the concept of users.
- In Unix-like systems, everything is a file.
- Files have owners and group owners.
- Permissions are limits to the actions that users can perform.
- Permissions are a property of both files and users.
- To facilitate managing permissions, there is also the concept of group (of users). Groups also have permissions.
- Some users (like the superuser) have permissions to do everything.
- Users can elevate their priveleges to that of the superuser. Extra care is needed when using this power.
- In *nix systems, users can elevate their privileges with `sudo`.

Resources

- The origin of ["Everything is a file"](#).
- The [setuid and setgid](#) permission bits.
- [Difference between symbolic link and shortcut](#)
- [Identifying file types in Linux](#)
- [POSIX standards on](#) `chmod`
- [The Uppercase X in](#) `chmod`
- [Effective user and real user](#)
- [Changing default permissions on file creation](#)