Permissions

Permissions

- [ ] What is a group
- [ ] what is a user
- [ ] how it works inside? where is all this information saved
- [ ] what is a root user?
  - [ ] what is root power?
- [ ] how can i give special acess to some things to a specific user?
- [ ] how to create a new user?
- [ ] how to create a new group
- [ ] how to define the "powers" of a user and a group.
- [ ] how to list the users and groups
- [ ] what is wheel groupe???
- [ ] what if i want a file to have multiple grop ownership?
- [ ] what does execute means for a .txt file??
- [ ] what are sockets??? (hors sujet normalment.)

1. What is this a why do we need it?

- linux is multi-user OS. which means multiple users in a firm acess the same system!
  - giving the fact that some things should remain secret, we need to have special permissons for files and directories.
  - so we need to have a way to do all of that.
- in linux (and any unix like os) 2 factors are used to decide which file would be accessed and by which user.
  1. File Ownership
  2. File Permission
     Let's talk about them shall !

1. File ownership

- when we talk about files we also talk about directories, same story!

> ya kho hada ta3i!!

- EVERY FILE/Directory has 3 kind of owners

- User
- Group
- Other
  Let's talk about each of them

1. User:
   - hay let's learn a command :
     `touch my_file.txt`
   - now check the user
     `ls -l my_file.txt`
     (show how to spot the user name)
   - we can change the file ownership.
     - how?
       - using `chown`
       - [ ] please give us more details
2. Group
   - Every user is a part of a group or groups
     - why?
       - to manage multiple same user's rights
   - [ ] can we have a user without a group?
   - wait, what is my group?
     - `groups`
     - [ ] what's the wheel thing?
3. Other

ALL OF THE WORLD!

let me show

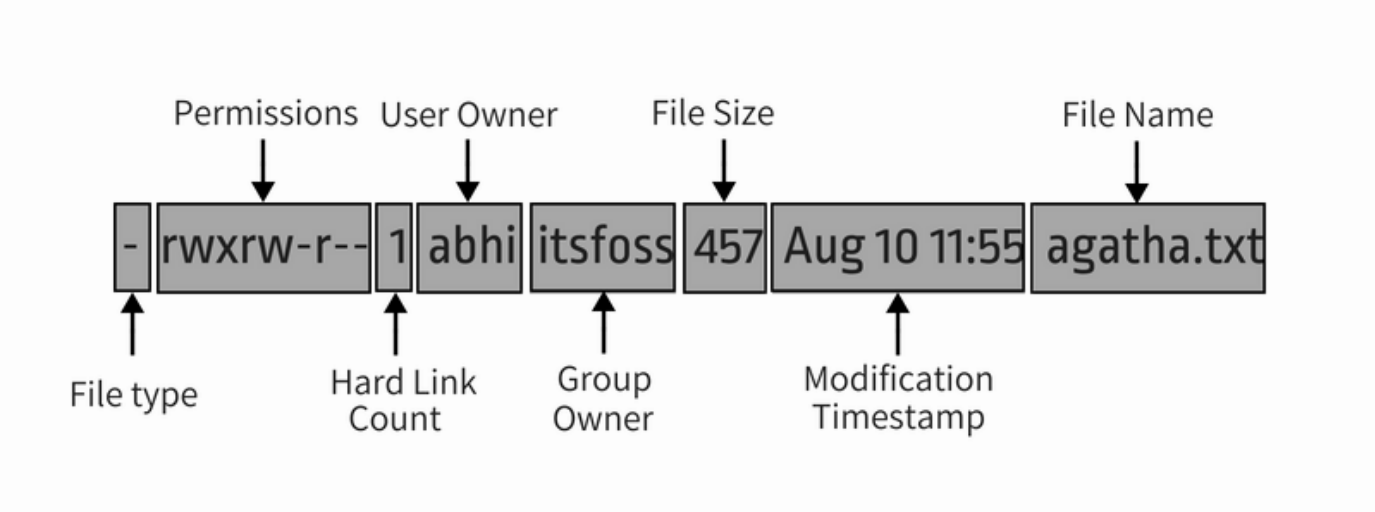
2. File permissions

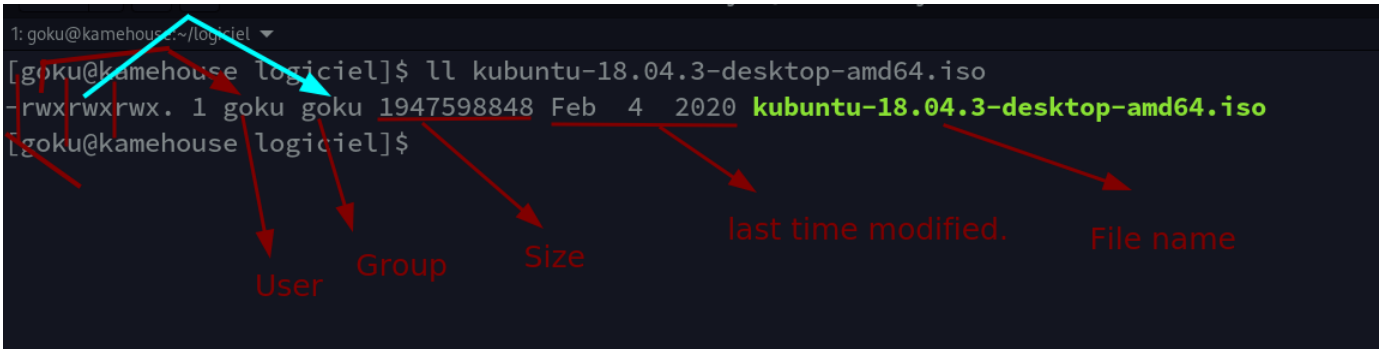
- what are the types of permissions
  - Read: View or copy file contents
    - Directory: List all files and copy file from dir
    - [ ] hay wait imagine if i copy a file that was not executable can my copy be executable?
  - write : Can modifiy file content
    - Directory :can add or delete files into directory(needs exec)

- Execute: run the file if it's executable.
  - Directory : Can enter the directory

3. practise more

- Let's get deeper into the `ls -l` command





- got what everything means?
- let's play a little bit
  - test ls -l in your linux!

4. let's modify things!!!

1. `chmod`
   it's a command that allows you to change permissions on a file/directory

- 2 ways to use it
  1. Absolute mode
  2. symbolic mode

1. Absolute mode:
   permissions are represented in numerical form
   rwx: whats this?
   - read : 4
   - write: 2

- execute: 1
- no permissions : 0

- let's guess
  `chmod 666 my_file.txt`
  first number for user second for group third for others.

2. Symbolic mode:
   permissions are denoted this way
   - u = user
   - g = group
   - o = other
   - a = all
     use math to add or delete permissions!
   - `-` delete permission
   - `+` add permision
   - ``
     `chmod g+x my_file.txt`
     look at the permission now
     `ls -l my_file.txt`

   `chmod +x my_script.sh`

- some chmod things
  - `chmod +x file`
  - `chmod +w file`
  - `chmod +r file`
  - `chmod u-x file`
  - `chmod u+x file`
  - `chmod g-w file`
  - `chmod g-rw file`
  -

2. `chown`
   - change ownership of a file/directory
   - `chown zrodiyaman file`
     - haha you'll need sudo
     - `sudo chown zrodiyaman file`
       -what if i want to change the group too

    - `chown zrodiyaman:zrodiyagroup file`
    - `chown zrodiyaman: file`
      (group will be your default group)

- `chown <new_user_name>:<new_user_group> <filename>`
- `chown :<new_user_group> <filename>`
- `chgrp`
    - `chgrp <new_user_group> <filename>`
    - `sudo chown root:root agatha.txt`

- [x] what if i want to change only the group?

Links

- https://linuxhandbook.com/linux-file-permissions/
- https://linuxhandbook.com/suid-sgid-sticky-bit/
- https://www.youtube.com/watch?v=4e669hSjaX8
- https://www.youtube.com/watch?v=AvdVbh3j-50