

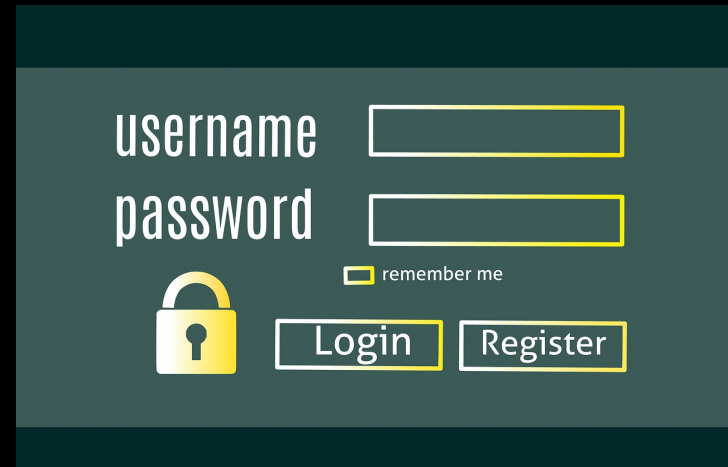
# Users, Groups, and Permissions in Linux

# Agenda

- Creating and modifying users
- Creating and modifying groups
- File permissions

# useradd Vs adduser

- adduser – will create a new user and request some information about the user
- useradd – will create a new user with defaults and NO PASSWORD




A user interface form for login and registration. It features a dark teal background with a lighter teal central area. The form includes two input fields for 'username' and 'password', both with yellow borders. Below the password field is a 'remember me' checkbox with a yellow border. At the bottom, there is a yellow padlock icon, and two buttons labeled 'Login' and 'Register', both with yellow borders.

username

password

☐ remember me



# passwd

- The file /etc/passwd contains information about our users, but interestingly NOT their password
- passwd is a command that we can use to set or change the password of a user

# usermod

- This is the PROPER way to modify a user.
- Technically you *\*can\** (... and I sometimes do) edit /etc/passwd, /etc/shadow, /etc/group... with a text editor, but you really shouldn't.

# userdel

- If usermod modifies a user what do you think userdel does?



<https://www.marvel.com/characters/thanos/on-screen/profile>

# groups

- The groups command will list all the groups a user is a member of.
- If no user is specified it will assume the current user



# groupadd Vs addgroup

- Just like useradd and adduser addgroup will create a new group after requesting information and groupadd will simply create a new group.
- Fun fact: both adduser and addgroup really call useradd and groupadd in the end.



# groupmod and groupdel

- Modify and delete groups just like their counterparts usermod and userdel modify and delete users.
- Again, you *\*can\** edit the configuration files directly, but you really shouldn't

# chmod

- Change Mode – this is used to set file permissions
- r – read
- w – write
- x - execute

```
whiterabbit@Wonderland: ~$ ls -l
total 2104
drwxr-xr-x 2 whiterabbit whiterabbit 4096 Mar 28 10:30 Desktop
drwxr-xr-x 4 whiterabbit whiterabbit 4096 Apr 26 13:40 Python
-rw-r--r-- 1 whiterabbit whiterabbit 1133 Apr 26 09:30 apache.log
-rw----- 1 whiterabbit whiterabbit 1191 Apr 26 14:01 apache.log.save
-rw-r--r-- 1 whiterabbit whiterabbit 1829 Mar 31 11:22 err.log
-rwxr-xr-x 1 whiterabbit whiterabbit 12936 Apr  3 2022 expanding-powers-3
-rw-r--r-- 1 whiterabbit whiterabbit 0 Jun 28 13:35 find_this_file
drwxr-xr-x 3 whiterabbit whiterabbit 4096 Jun 27 14:25 home
drwxr-xr-x 2 whiterabbit whiterabbit 4096 Jun 28 14:09 national_treasure
drwxr-xr-x 3 whiterabbit whiterabbit 4096 Jun 27 14:25 ops
drwxr-xr-x 5 whiterabbit whiterabbit 4096 Jun 27 11:26 sera
drwxr-xr-x 2 whiterabbit whiterabbit 4096 Jun 26 13:58 sum
drwxr-xr-x 4 whiterabbit whiterabbit 4096 Jun 29 10:55 text_editing
-rw-r--r-- 1 whiterabbit whiterabbit 2092015 Aug  2 2019 tumblr_nvid321j8Q1r7
rea2o1_1280.gif
whiterabbit@Wonderland:~$
```

# File Permissions Math

- -rwxrwxrwx
- Each permission is controlled by a single bit (1,0)
- Permissions are separated as Owner, Group, World
- 111 101 001 – what permissions are represented?
- 7    5    1

# Using chmod

- We can specify the value for the permissions we want
  - `chmod 777`
    - Please try to avoid granting 777 permissions -\_-
- We can add or remove permissions symbolically
  - `chmod +rwx`
    - Seriously avoid granting this much permission
- We should always keep in mind the Principle of least privilege

# Using chmod

- User who owns it (u)
- File's group (g)
- Other users not in the file's group (o)
- all users (a)
- EXAMPLE `chmod o-rw`

# setuid, setgid, and eww stickybits

- setuid – This will set the file to execute as the owner of the file
- setgid – This will set the file to execute as the group on the file
- sticky bit – If this permission is set it protects the file from deletion

# But wait where are uid,gid, and the sticky bit stored?!?!

- Good catch! There is a secret 3<sup>rd</sup> set of bits before the standard permission where uid is 4 guid is 2 and the sticky bit is 1



# I need information stat

- stat is a useful utility that shows us the current status of a given file.

