Introduction to bash

SageDays FPSAC2019

The file structure

Everything lives in /, the root of the file system.

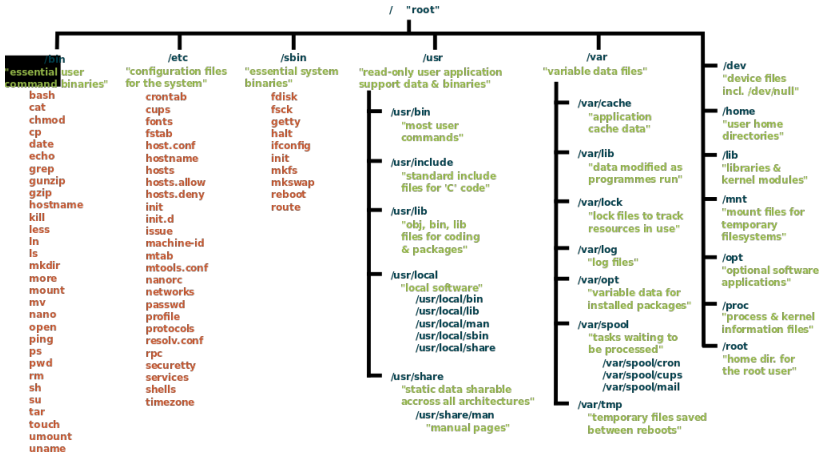Each file is reached by following a path in the tree.

Figure 1: Unix File Structure

Navigating the file structure

- ▶ Most of the file you need are in your home directory /home/enadeau.
- ▶ Navigate with the `cd` (*change directory*) command. Paths are relative to your position in the tree.
  - ▶ `../` goes up one level
  - ▶ Going to in your papers folder `cd Documents/papers`
  - ▶ Going to the root `cd /`
  - ▶ Going to your home directory `cd` or `cd ~`
  - ▶ Going one level up in the tree `cd ..` or two levels `cd ../..`
- ▶ You're lost? `pwd` (*print working directory*) to see where you are.

Navigating the file structure

- List all files in the current directory with `ls`

Filename that starts with a dot are hidden

- You can see them with `ll` or `ls -a`
- See the content of a file with `cat <file>`

Modifying file

- remove file `rm <file>`
- copy file `cp myfile destination_folder`
- move and rename file `mv <current_name> <new_name>`
- make a directory `mkdir <name>`

The star acts as a joker `rm *.py` remove all python files in your current directory.

Search and find

- to search into a file use a grep command

```
grep tableua paper.tex
```

- to search for a file

```
find ~/ -name 'lost_code.py'
```

Random useful thing you can do

- ▶ Starting a program ex: `sage` or `sage --notebook=jupyter`
- ▶ Stop the running program by hitting `ctrl-c`
- ▶ Complete the command you are writing by pressing `tab`
- ▶ creating shortcuts for things that you do a lot with *aliases* (*e.g.* sagen)
- ▶ pass results of a command to an other with the *pipe* mechanism

```
ls | grep .py
```

The results of `ls` is passed to `grep`

Getting help on the command

- man page with `man mv`
- help (`--help`, `-h`) `mv --help`
- tldr (needs to be installed) `tldr mv`
  - On Debian-based system `sudo apt install tldr`

Going further

- Software Carpentry
- Game Shell (French only)

Your turn

- ▶ Retrieve the tutorial_files folder with the link on the tutorial page (unzip the archive, you can do it from the terminal with the unzip command).

- ▶ Go inside the tutorial_files folder.

- ▶ remove the file to_delete.txt.

- ▶ Find the file where_am_i.txt.

- ▶ Create a folder named pictures inside the tutorial_files folder and move all the picture (the file with a .jpg extension) from the video folder in it.

- ▶ Inside the participants folder each file contains a participant name and an English word. Find the word that goes with your name.