



VERBUM VITÆ ET LVMEN
SCIENTIÆ

Linux: The filesystem.

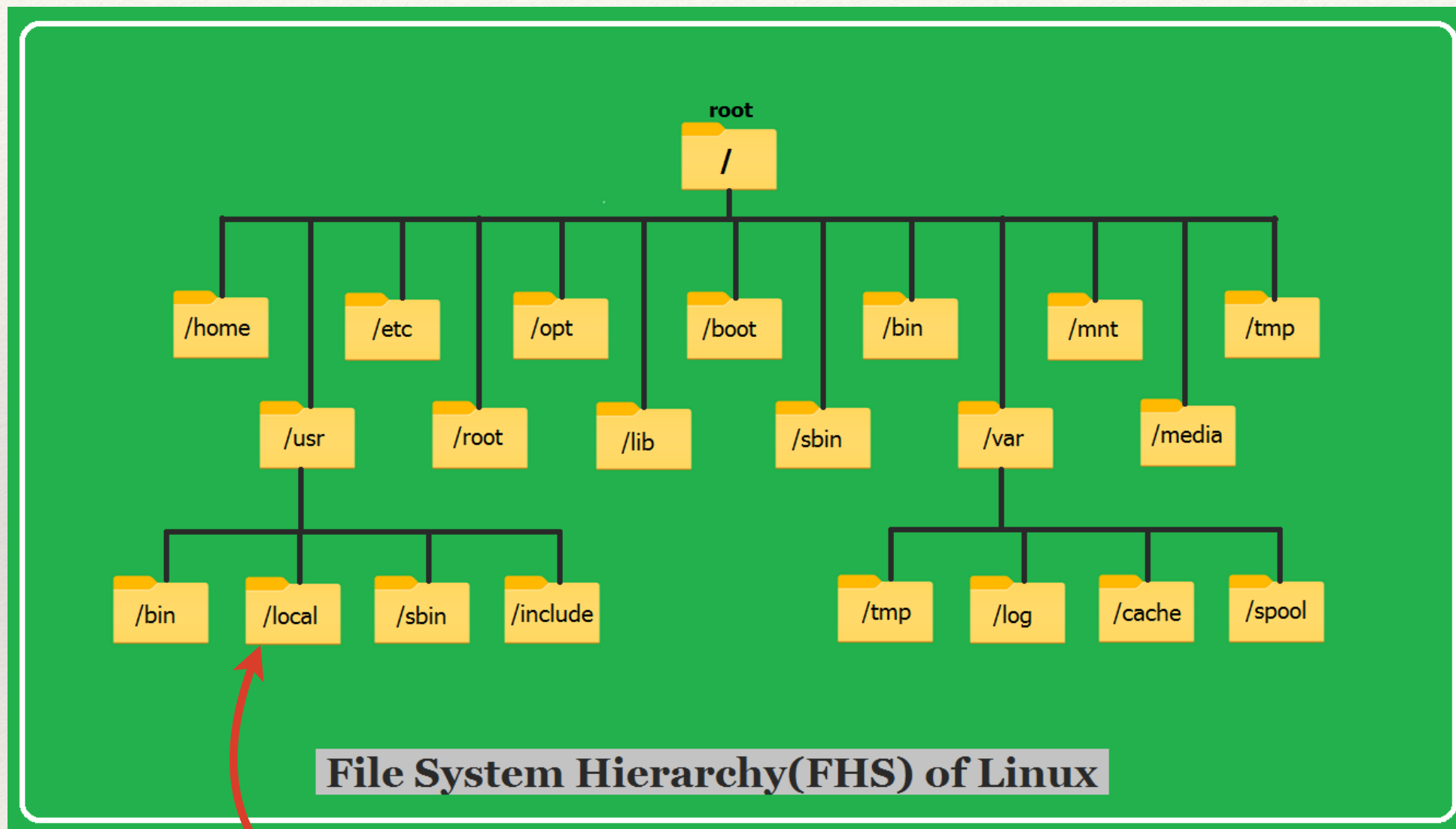
George Flanagin
Office of the Provost
Data Analytics and Data Science



File system: a tree with leaves

- ❖ Forget disk names (Macintosh HD) and drive letters (C:). They don't exist in Linux.
- ❖ The tree is usually drawn upside down.
- ❖ You have a good bit of freedom about how to organize your own files.
- ❖ *Warning: Learning the Linux file system is a lot like learning to drive in freeway traffic: there is nothing less complex that will allow you to learn to do it. You just have to get in there and try it out.*

What is the Filesystem Hierarchy Standard?

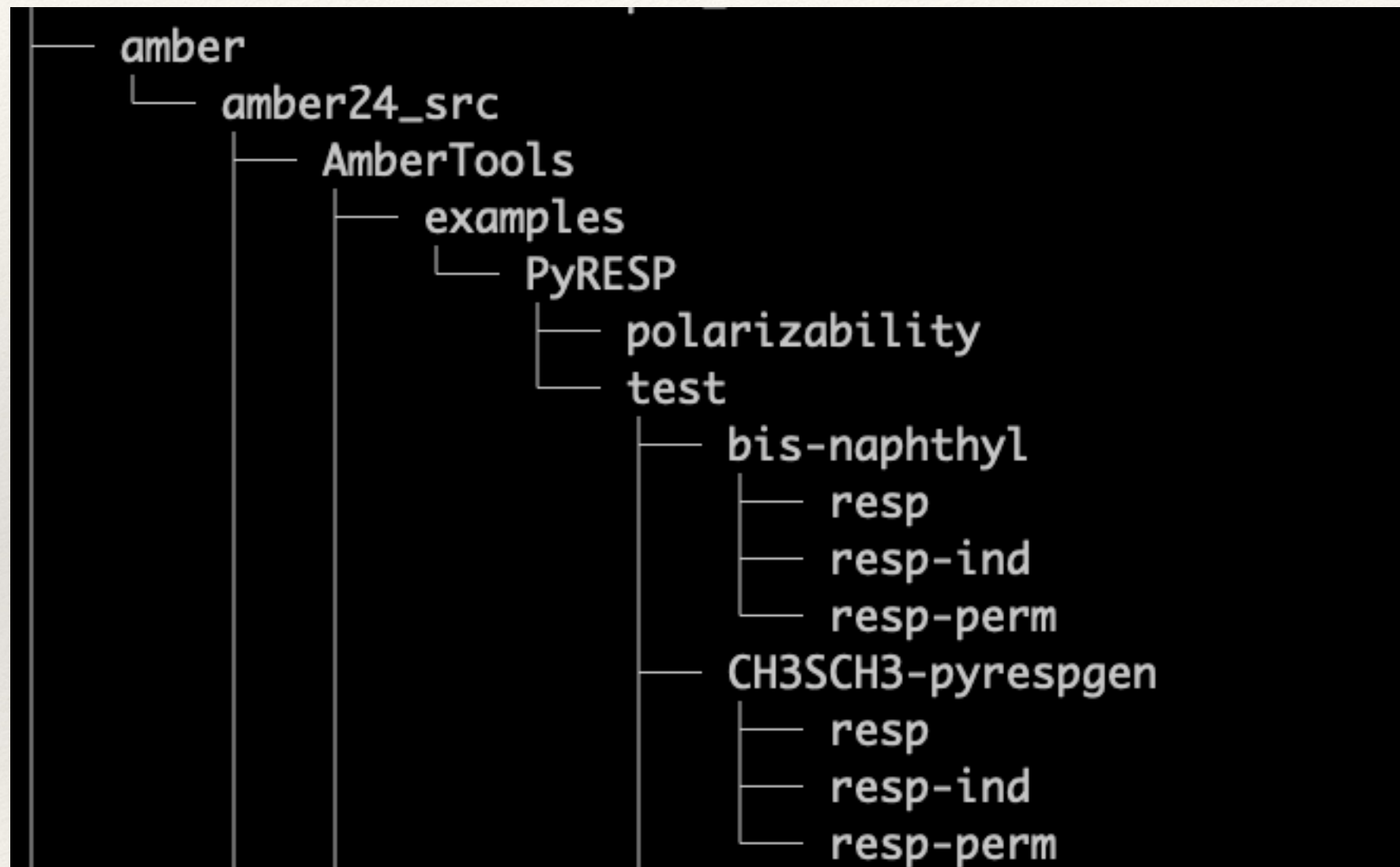


The name of this directory is "/usr/local"

What about your own files?

- ❖ You are always "in" some directory (*also called a "folder"*).
- ❖ All files have owners; the files you create are owned by you.
- ❖ You have a home directory. You can always refer to it as "\$HOME" (pronounced: "dollar home.")
- ❖ You can pile thousands of files in it, but you should not. You should group them.
 - ❖ `mkdir` --- makes a directory within the current one.
 - ❖ `cd` --- changes the current directory

What does this "tree" look like?

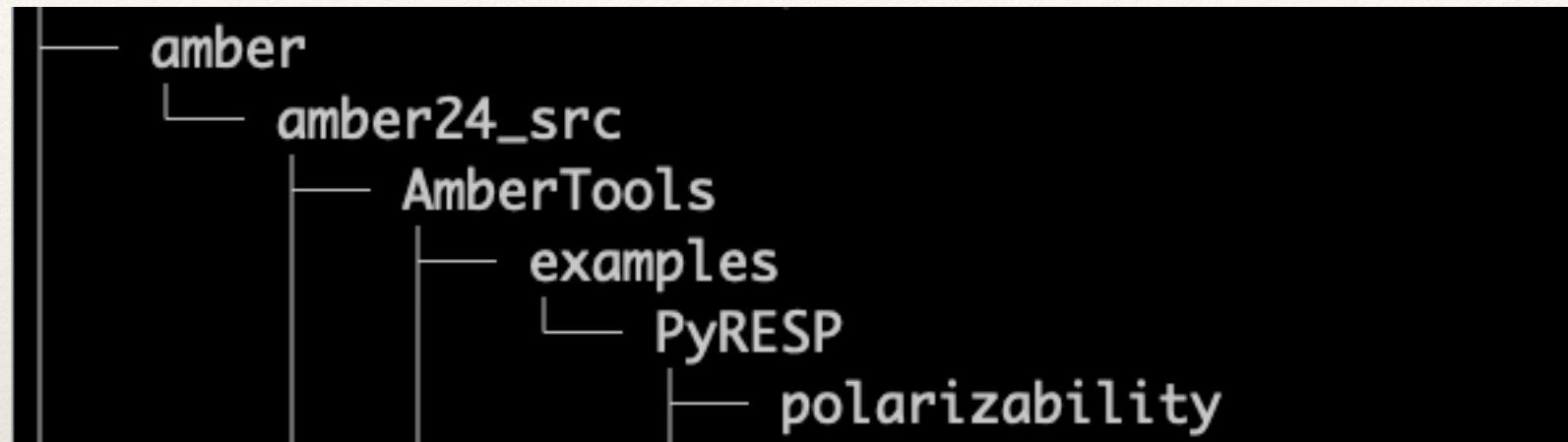


Quick peek at the program 'ls'

```
[arachne(zeus):~]: ls -l HPL.dat  
-rw-r--r-- 1 zeus localuser 1456 Oct 28 13:45 HPL.dat
```

- ❖ `ls -l` --- gives the details
- ❖ `HPL.dat` --- name of the file (yes, it's case sensitive).
- ❖ `-rw-r--r--` --- permissions on the file. The first dash means HPL.dat is a file.
- ❖ `zeus` --- the owner of HPL.dat
- ❖ `localuser` --- zeus's "group."
- ❖ `1456` --- number of bytes in the file.
- ❖ `Oct 28 13:45` --- Last modification time for HPL.dat.

What is the complete name of a file?



```
[arachne(zeus):~]: cd amber/amber24_src/AmberTools/examples/PyRESP
```

```
[arachne(zeus):~/amber/amber24_src/AmberTools/examples/PyRESP]: realpath polarizability  
/home/zeus/amber/amber24_src/AmberTools/examples/PyRESP/polarizability
```

Some suggestions

- ❖ Give files and directories meaningful (to you) names. Do not use "script1.sh"
- ❖ Do not use spaces in file names! Use letters, digits, dashes, dots, and underscores.
- ❖ Create a directory for each project.
- ❖ Put all your project files (scripts, data, results) together in one directory.