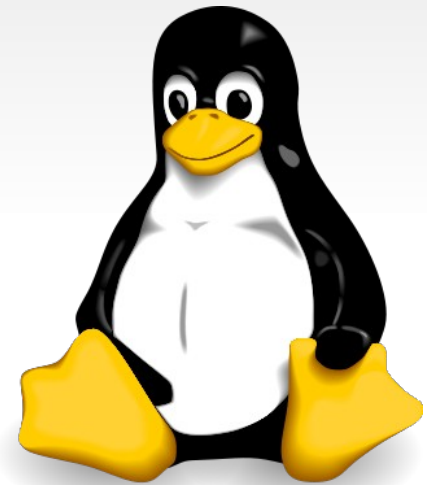


What is GNU/Linux?

GNU/Linux is a “free” operating system

- Other operating systems:
 - Microsoft windows
 - Apple Mac OS X
 - Sun Solaris
 - Unix
 - And many more.....



GNU/Linux history

- GNU project started by Richard Stallman in 1984 to create a “free” operating system clon of unix (Gnu is not unix).
- Linux kernel (base of the system) created by Linus Torvalds in 1991.

**FREE AS IN
FREEDOM**
RICHARD STALLMAN'S
CRUSADE FOR FREE SOFTWARE



Linux Distributions

- GNU utils + Linux kernel + many free software applications + installer system
- Bundled on cdrom for easy install.
- Anyone can create his own distribution
- Many different distributions: <http://distrowatch.com/>



Why do we use linux?

- Easy access to many useful tools in bioinformatics
 - Programming: perl, python, R,C, java, bash
 - Libraries: bioperl, biopython, bioconductor (R)
 - Webservers (apache)
 - Database servers (mysql)
- Flexibility
- Stability
- Security
- Price

Why do we use linux?

We have a small cluster (180 cores) running GNU/Linux (debian) to run experiments.

It is easier to work with the same operating system in both cluster and desktop computers.

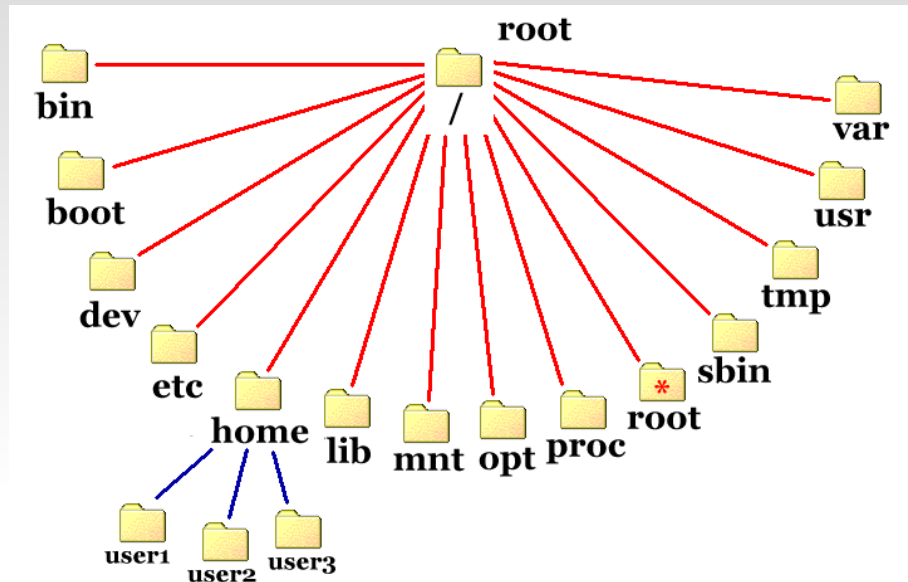
• GNU/Linux is widely used in High Performance Computing (HPC) environments, it is used in most supercomputers.

TOP500 OPERATING SYSTEM FAMILY STATS 11-2009

Operating system Family	Count	Share	%Processor Sum
Linux	446	89.20 %	3253501
Windows	5	1.00 %	59072
Unix	25	5.00 %	124274
BSD Based	1	0.20 %	1280
Mixed	23	4.60 %	1226500
Totals	500	100%	4664627

SOURCE: <http://www.top500.org/stats/list/36/osfam>

Linux Filesystem



- Every path starts in /
- No C: or D: for disks like windows
 - C:\Documents and Settings\username\Desktop in windows
 - /home/username/Desktop in linux

Software in classroom computers

- Gedit text editor
- Firefox web browser
- Chrome web browser
- OpenOffice (Equivalent to Microsoft Office)
 - OpenOffice Word Processor (word)
 - OpenOffice Spreadsheet (excel)
 - OpenOffice Presentation (powerpoint)
- Pdf reader

Basic commandline usage

- **Listing directory contents**

ls list a directory

ls -l list a directory in long (detailed) format

- **Moving around the filesystem**

pwd print working directory, or current directory.

cd my_docs Change current directory to the subdirectory my_docs.

cd Change current directory to your HOME directory.

cd .. Change current directory to the parent directory of the current directory.

Basic commandline usage

- **Moving, renaming, and copying files**

<code>cp file1 file2</code>	copy the file1 to file2
<code>mv file1 newname</code>	move or rename a file
<code>mv file1 AAA/</code>	move file1 into sub-directory AAA
<code>rm file1</code>	remove (delete) a file
<code>rm -r dir1</code>	recursively remove a directory and its contents
<code>mkdir dir1</code>	create a directory

- **Viewing and editing files**

<code>cat filename</code>	Dump a file to the screen.
<code>less filename</code>	Browse through a file: q=quit, / search.
<code>head filename</code>	Show the first lines of a file.
<code>head -n filename</code>	Show the first n lines of a file.
<code>tail filename</code>	Show the last few lines of a file.
<code>tail -n filename</code>	Show the last n lines of a file.
<code>grep string filename</code>	prints all the lines in a file that contain the string