

7th COSSAN TRAINING COURSE - 08-10 April 2019



7th COSSAN TRAINING COURSE UNCERTAINTY QUANTIFICATION



UNIVERSITY OF
LIVERPOOL

Institute for Risk
and Uncertainty

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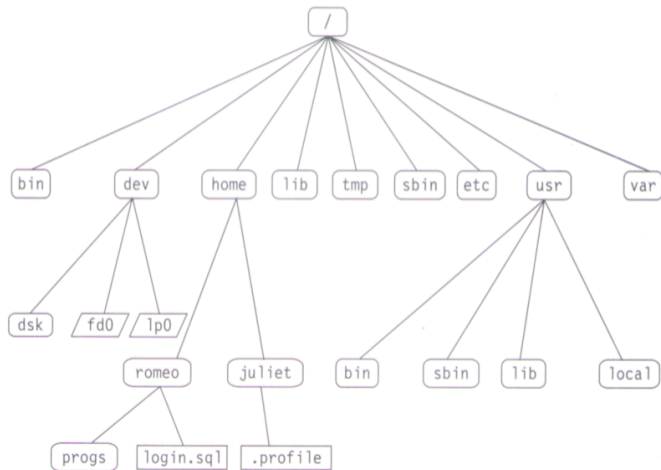


Outline

- 1 Basic Concepts
- 2 Graphical interface
- 3 Command Line Interface

Everything is a file

- Everything start from the root /
 - No “C:” or “D:” drive
- Standard files (program, text, directory)
- Special files (devices, processes)
- Symbolic links (reference to other files)



Linux Structure

Usual Linux Directories - 1

- Bin: essential system programs
- Boot: files needed for booting including the kernel
- Dev: “virtual” files that correspond to the devices in the computer
- Etc: configuration files
- Home: Users’ home directories
- Lib: essential libraries and kernel modules
- Opt: third-party software sometimes installed here

Linux Structure

Usual Linux Directories - 2

- Proc: “virtual” files that contain the state of the system
- Root: Home directory for the superuser
- Sbin: essential system binaries, usually for the use of the superuser
- Usr: A similar structure to /, without /home, /proc, /dev, /boot, etc... Most of the system programs and libraries are installed under here.

Linux Structure

Home Directories

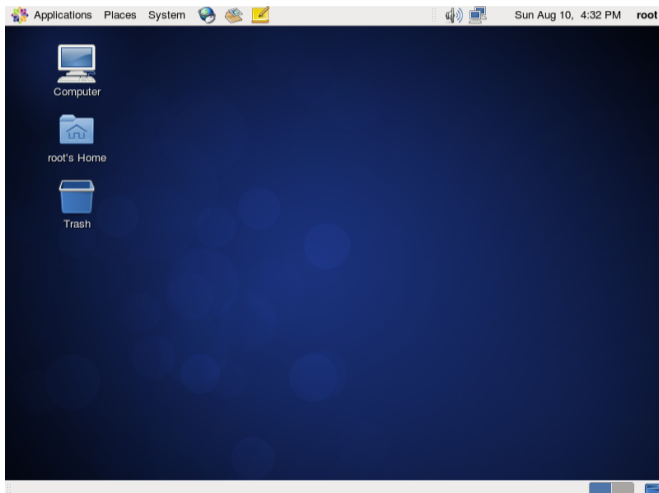
- Each user has their own, usually in /home
- e.g. /home/epatelli, /home/mbroggi
 - This is the case in standard linux distribution
 - This is not the case for the linux installation in the PCs of this room!
- All user files and settings generally kept in here.
- You have total ownership and permissions in your home
- For security reasons, normal users can't write to places or modify files outside their home folder

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- 2 Graphical interface**
- 3 Command Line Interface

Graphical Interface

CentOS 6



- Application: OS packaged programs
- Places: local files and network
- System: OS preferences & settings

This is only one of many types of graphical interfaces!

Graphical Interface

CentOS 6

Useful programs

- Accessories
 - gedit Text Editor
- Internet
 - Firefox
 - Filezilla FTP client
- Office
 - LibreOffice Suite
- System Tools
 - File Browser
 - Terminal

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Command Line Interface

The terminal

- Any task that can be done with the graphical interface can be also done from command line
- In Centos 6, start from Application → System Tools → Terminal
- The commands in the terminal are usually given in the form `<command> -<options> <file>`

Command Line Interface

Basic Commands - 1

ls list the content of the current folder

-l show long list

-a show hidden files

cd change directory. Return to home when called with no input.

Special directories:

~ home folder

. the current directory

.. the parent directory

mkdir create new directory

Command Line Interface

Basic Commands - 2

rm delete a file

- f force delete without asking for confirmation
- r delete recursively into directories
- fr be very careful when using these options together!

mv move file to a new location

- mv <file> <destinationFolder> → move to a new location
- mv <oldFile> <newFile> → rename the file

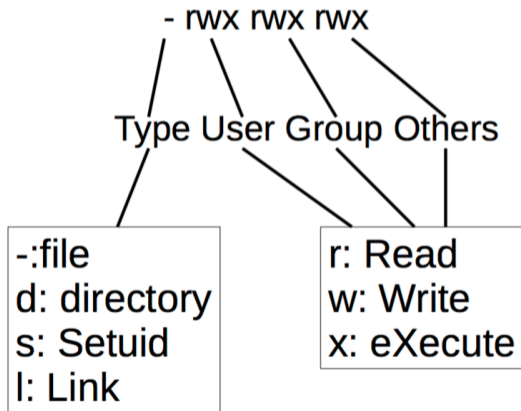
cp copy file to a new location

- cp <file> <destinationFolder> → copy to a new location
- cp <oldFile> <newFile> → create a copy of the file

Command Line Interface

File permissions

- Permission format:



- View permissions: `ls -l`
- Change file permissions: `chmod`
 - `ugo` change permission of user, group, and/or other
 - `+-` add or remove permission
 - `rwx` change permission to read, write and/or execute
 - Example: `chmod g+x file` – add execute permission for group to file
- Change file owner: `chown`

Command Line Interface

Other commands

- export** set an environment variable – `export VARIABLENAME=value`
- echo** show the value of a variable – `echo $VARIABLENAME`
- cat** show the content of a file
- env** list all the environment variables
- ps** list the current processes in the terminal
 - a** list the processes of all the users
 - x** list also the processes not running from a terminal
- man** show the manual page for the selected command
 - | redirect the output of one command to the input of the next command (on the same line)
- grep** search for a string in a file. E.g., try `ps ax|grep $USER`

Command Line Interface

Other commands

Final remarks:

- Any command located in a directory specified in the PATH environment variable can be executed in the terminal from any location
- Any executable file can be executed by calling it with its full path or relative path