

## Linux

### Common Linux features

- ❑ Multi-user (user accounts, multiple users logged in)
- ❑ Multitasking (Servers, daemons)
- ❑ Graphical user interface (X Window system)
- ❑ Hardware support (drivers)
- ❑ Network connectivity
- ❑ Network servers
- ❑ Application support



1

## Linux

### Short History

- ☺ 1991 - Linus Torwald (Finland/Helsinki)  
That was a graduate project!
- ☺ Open source project
- ☺ Many distributions



2

## Linux distributions



3

## Linux and Computational Physics

- **Clusters !!!**
- Desktops
- Servers
- Compilers
- Applications

4

## About Linux

- ❑ Good books  
*Running LINUX, M. Welsh et. al., O'Reilly (2003)*
- ❑ Useful websites  
[www.linux.org](http://www.linux.org)

5

## Linux for users

- Graphical user interface (X Window system)
- Shell (command line)

**Alt-F7** - switching between text based (command line) and X window

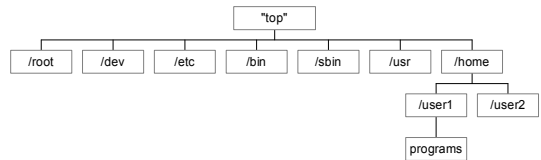
6

## Shell - Commands

- Commands are case sensitive !  
i.e. **help** ≠ **Help**
- getting help on a command "**rmdir**"  
**man rmdir**
- Important commands  
**passwd** - change password  
**yppasswd** - change password on network  
**exit** - exit from shell (or account)

7

## Linux File System



(good to compare to Windows file system)

8

## File system

- /root root user's home directory
- /dev devices (drivers)
- /etc administration configuration files
- /bin common Linux commands
- /sbin adm. commands + daemons
- /usr user applications, ...
- /home users files
  - user 1
  - user 2

9

## Moving around

- pwd where am I?
- id who am I
- echo name for the home directory
- cd *somename* go to directory *somename*
- cd (go to home (log in) directory)
- cd .. (change to parent directory of the current one)
- mkdir *name* create a directory *name*
- ls (ls -al) what is in the current directory

10

## Working with files

- cp *filename1 filename2* copies
- mv *filename1 filename2* renames/moves
- rm (rm -i) *filename* delete file(s)
- chmod changing permissions

11

## Edit / create files

- vi - line editor (very old but everywhere)
- emacs (line and X-window: very strong)
- nedit (X-window editor)
- more X-window editors ...
- me - **midnight commander!!!**

12

## View files

- `more filename`
- `less filename`
- `cat filename`
  
- "pipe" option, i.e.  
`cat filename | more`

13

## Programming Languages

- `gcc` C
- `g++` C++
- `g77` Fortran

getting help ...  
`man gcc`

14

## Just useful

- "Tab" key - word completion  
example:  
`cd some_name = cd som+Tab`
- `$ chown who file` - changer the owner of the file "file"
- `$ chmod u+x file` changing permission

15

## Some exercises:

- make a subdirectory Test and create two files (test1.txt and test2.c)
- list the content (full and short info) explain what is what
- Type any text in test1.txt using any editor
- View files
- Delete what was done

16