Computing Basics

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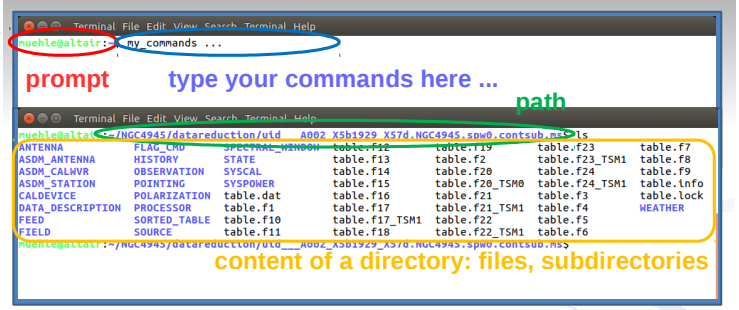
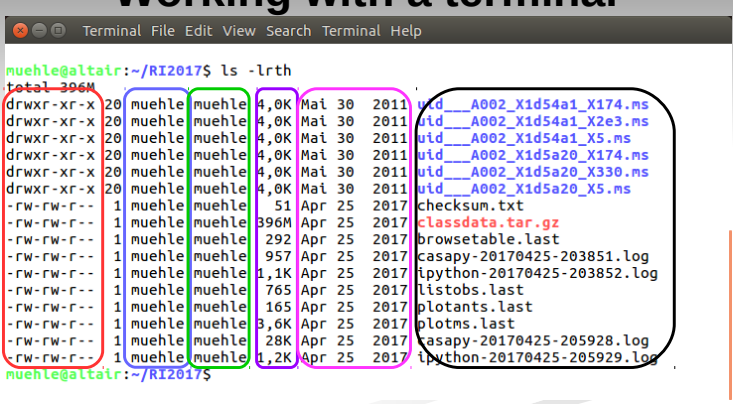
Working with a terminal



Path:
~/
NGC4945
Datareduction
uid___A002_X5b1929_X57d.NGC4945.spw0.contsub.ms

Working with a terminal



Command-line linux

- **Changing the current working directory**
  - **cd <path>** – change to directory <path>
  - **cd ..** – change to parent directory
  - **cd** – change to home directory
  - **pwd** – print current working directory
- **Handling directories**
  - **mkdir <name>** – create (make) a directory called <name>
  - **rmdir <name>** - remove directory <name>
  - **mv <name1> <name2>** - rename dir. <name1> to <name2>
  - **mv <name> <path>** - move directory <name> to location <path>
  - **cp -r <name> <path>** - copy dir. <name> to location <path>

Command-line linux

- **Handling files**
  - **mv <name1> <name2>** - rename file <name1> to <name2>
  - **mv <name> <path>** - move file <name> to location <path>
  - **cp <name> <path>** - copy file <name> to location <path>
  - **rm -i <name>** - remove file <name> ***GONE!***
- **Text editing**
  - **emacs, gvim, gedit, …**
- **Miscellaneous**
  - **ls -lrth** – show (list) content of current directory
  - **ls -lrth <path>** – show content of directory <path>
  - **more** – show content of a text file
  - **man <command> -** help on <command>, available options
  - **ssh -X** – log into a different machine/computer (secure shell)
  - **exit** – log out of machine, close a terminal/tab/...

Command-line linux

- **An example of command-line linux:**
  - **mkdir mytestdir** – create a new directory
  - **cd mytestdir** – change into this directory
  - **gedit test.txt &** - create a new text file
  - *write some text into this file, save it and exit*
  - **more test.txt** – inspect the content of the file
  - **ls** – inspect the content of the directory
  - **ls -lrth** – same as above, but with several options [**l,r,t,h**]
  - **man ls** – explore the options available for **ls**
  - **mv test.txt ../** - move the file into the parent dir, i.e. one level up
  - **ls** - inspect the content of the directory again
  - **cd ../** - change to the directory one level up (parent directory)
  - **ls** - inspect the content of this directory
  - **cp test.txt mytestdir** – copy the file to directory **mytestdir**
  - **ls mytestdir** - inspect the content of directory **mytestdir**

Computing Basics I

Hands-on exercise in class:

- Please log into the computer in front of you (University-ID + password)
- Window manager starts automatically
- "Show applications" icon → search for "terminal" → right click: "add to favorites" *terminal = input for commands*

- Open the browser (Firefox)
- Navigate to the course homepage **`https://www.astro.uni-bonn.de/ARC/events/RI2019/`**
- [Bookmark this page]
- Go to materials' page and download the material for this week's hands-on exercise "exercise1" and "FTP upload instructions" (note the target location!)

Computing Basics II

Hands-on exercise in class:

- Open a text editor, e.g. **`emacs, gedit, gvim, ...`**
- Inspect your terminal: *What is your prompt?* - copy and paste it into your text file
- **`pwd`** (= print working directory): *What is your working directory?* - copy and paste it into your text file
- **`ls`** (= list): *Which files and directories reside in your current working directory?* - copy and paste it into your text file
- **`Ls -lrth`**: *What has changed?* Copy and paste the output into your text file
- man ls (= manual of "ls"): *What do the options* **`l, r, t,and h`** *mean?* Write a short explanation into your text file
- Save your text file as "basics.txt"

Computing Basics III

Command-line linux:

- Locate the files ex1.tar.gz and ftp.pdf (**`ls, ls <path>`**)
- Go to the directory where the files reside (**`cd <path>`**)
- Move the files into your home directory (**`mv <filename> ~/`**)
- Move to your home directory (**`cd ~/`**)
- Unzip the file ex1.tar.gz (**`gunzip ex1.tar.gz`**)
- Untar the file ex1.tar (**`tar -xvf ex1.tar`**) – *What does tar do? What do the options x, v, f mean?* - Write a brief explanation into your text file
- Save your text file!
- *What is the content of ex1.tar? - Write a brief explanation into your text file*

Computing Basics IV

Command-line linux:

- Go to the subdirectory exercise1
- Make a new subdirectory my_dir
- Copy your text file to my_dir
- Copy figure1.png to my_dir
- Move ALMAantennas.jpg to my_dir
- *How many antennas do you see in ALMAantennas.jpg?* - [Hint: use one of your "favorites" on the left-hand side] open your text file in my_dir and write down the answer
- List the content of my_dir in long format and copy the output to your text file – *What is your user name and your group affiliation?* Write it into your text file
- Save your text file!

Computing Basics V

Command-line linux:

- Go to your home directory
- Package the entire directory exercise1 into the file <myname>.tar (**`tar -cvf <myname>.tar exercise1`**)
- Compress <myname>.tar (**`gzip <myname>.tar`**)
- Upload the compressed file to the ftp area following the instructions in ftp.pdf

- Log out of the computer: System User → log out
- Switch off the screen (NOT the computer!)

Congratulations, that's it!