井 HPC.NRW

# INTRODUCTION TO LINUX

(in an HPC context)

Version 20.09 | HPC.NRW Competence Network



# THE COMMAND LINE

**HPC.NRW Competence Network** 

# INTRODUCTION TO LINUX



# **COMMAND LINE**



- A line where you type commands
- Other terms:
  - CLI (command line interface)
  - Console / Terminal
  - Shell
- Advantages
  - Simple (nearly always works)
  - Easy to program (in comparison to GUI)
  - Fast and efficient to use (if you know the commands)
- Disadvantage: lots of memorizing (vs. GUI buttons)



# WHY THE NAME "SHELL"



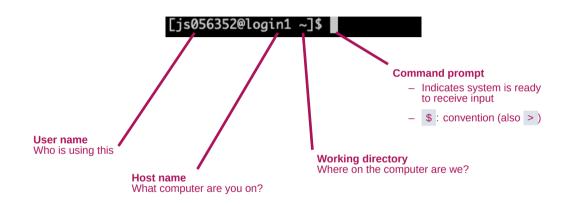
- Linux: console below everything

Programs within shells within shells

- Important for user: be aware where you are
  - Things not available in parent shell by default
  - What gets stopped if you close shell

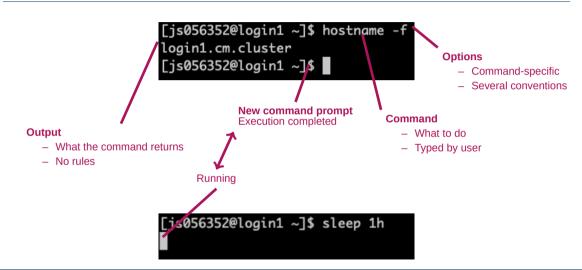
#### COMMON ELEMENTS OF THE CONSOLE PROMPT STATEMENT





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# NAVIGATING THE COMMAND LINE



- <Enter> run command
- <Up-Arrow> navigate command history back in time
- <Down-Arrow> navigate command history forward in time
- <Tab> auto-completion (a.k.a. "tab completion")
  - If enough letters to identify command: completes command
  - More than one possibility: nothing shown
  - Second Tab to list possible completions
- <Ctrl-C> abort current command.



# COMMAND LINE CONVENTIONS



- Always case-sensitive
  - Popular source for errors

- Command line options:
  - Usually start with dash
  - Common convension: single dash for "short options", double dash for "long options"
  - Note: specific commands may deviate from convention

# **HOW TO FIND CORRECT COMMAND/OPTIONS**



- Internet (seriously)
  - Very extensive community
  - Stack Overflow/Stack Exchange
- Man page:
  - man <command name>
- Built-in help:
  - Often -h or --help option
  - Often identical to man page

# FIRST, A WARNING



- Console has no "Undo" button
- Usually no "Are you sure you want to delete" dialog
- If root: can theoretically destroy entire system

- Never run a command which you don't understand
  - "Lol, try sudo rm -rf /" many idiots on the internet
- Make sure you are in the right directory
- Make sure you are not root unless necessary
- Check for spelling errors

