

# INTRODUCTION TO LINUX

(in an HPC context)

Version 20.09 | HPC.NRW Competence Network

# SYSTEM CONFIGURATION

HPC.NRW Competence Network

## INTRODUCTION TO LINUX

- Files in `/proc` are not regular files
  - Text containing system information
  - E.g. `/proc/cpuinfo`, `/proc/meminfo`
  - Display with `cat` or similar
  - Cannot be edited

- Problem: long command, has to be typed often
  - One option: script (but overkill)

- Built into the shell: aliases
  - Define with `alias name='command'`
  - List with `alias` (no arguments)

- Common aliases:

```
alias ll='ls -l'
```

```
alias cd..='cd ..'
```

- Console settings usually temporary
  - Environment variables, aliases etc.
  - Adding a directory to PATH
  - Disappear when you close console/disconnect SSH
  
- Making them permanent: put settings into configuration file
  - Specific files that are read when console is started
  - Examples for Bash:

```
~/ .bashrc
```

```
~/ .bash_profile
```

- Other configuration files
  - Example: `~/.vimrc`
- CAUTION WHEN EDITING THESE FILES
  - Breaking `.bashrc` can make it impossible to log in
- Applying changes:
  - Type `source <filename>`
  - Alternative: log out and back in

- Linux determines language and keyboard settings with a so-called locale
- Dictionary definition:  
*“Locale (noun): a place or locality, especially with reference to events or circumstances connected with it”*
- Grouped into various settings
- See and set with `locale` command
- Sometimes causes weird problems

```
$ locale
LANG=de_DE.UTF-8           # Default for all below variables that are not explicitly set
LC_CTYPE="de_DE.UTF-8"    # Printable characters, used by some C functions
LC_NUMERIC="de_DE.UTF-8"  # Number format (e.g. decimal point or comma)
LC_TIME="de_DE.UTF-8"     # Date and time format
...
LC_ALL=                    # Hard override for all variables above (e.g. for testing)
```

- Output from HorUS cluster
  - Some settings omitted for brevity
  - de\_DE.UTF-8
    - German language
    - German region (as opposed to e.g. Austria)
    - UTF-8 character encoding