

Linux Shell Essentials

This paper tries to provide a short and practical introduction to the essential commands and keystrokes required to survive in the text adventure called Linux.

Shell also known as **Console**, **Commandline** or **Terminal**, is a textual representation of a file manager. A Shell provides all features of a good file-manager like browsing directories, starting programs, editing/ copying/ renaming/ deleting/ finding/ searching files.

A shell can be started in various ways:

- right-click on empty desktop → choose start terminal
- right-click on empty desktop → choose execute command → <COMMAND>

Where <COMMAND> may be (among others):

xterm/ konsole/ teminal/ yakuake

Like a graphical filemanager, a Shell is always located somewhere in the filesystem. The current path is often printed at each input prompt.

E.g.: gregor@neutron:~/Source/tricopter1> _

Here „~/Source/tricopter1“ is the current working directory. („~“ means your homefolder).

Important keystrokes in Shells:

Tabulator (→|) tries to complete current input line by checking filesystem

E.g.: fir(→|) completes to firefox

Ctrl + c cancels current foreground process

Ctrl + z sends current foreground process to sleep

- **bg + Return** wake up process and send to background
- **fg + Return** wake up process and bring into foreground

Shell commands come in two flavors

- Shell builtin commands (if-then-else/ foreach/ exit)
- Executables: Every file in the filesystem that is
 - marked with the x-Bit as being executable
 - allowed to be read by the current user
- Executables are found by searching the **PATH**-Variable. This variable stores a double colon separated list of directories where to search for executables. (E.g.: /usr/local/bin:/usr/bin:/bin:/usr/bin/X11)
- Note: Executables in the current directory must be prefixed by ./ to be found! (E.g. ./install.sh)

Essential Shell Commands

- | | <i>Example</i> |
|---|----------------------------|
| • ll alias ls -l (list long)
lists content of current directory or any other given directory | <i>ll Source/</i> |
| • pwd (print working directory)
displays the current location of the shell in the filesystem | <i>pwd</i> |
| • cd (change directory)
moves to another location in the filesystem | <i>cd Source/</i> |
| • rm [-R] -[f] <ENTRY>
removes file or directory <ENTRY>. -R = recursive (for directories); -f = force remove even protected entries | <i>rm -Rf Source/</i> |
| • sudo <COMMAND>
Executes <COMMAND> as superuser. Use with caution! | <i>sudo rm -Rf Source/</i> |
| • chmod [u][g][o]+ [r][w][x] <FILE>
Changes modification bits of file <FILE>
u = user (owner of file); g = group; o = others; r = readable; w = writable; x = executable | <i>chmod +x install.sh</i> |
| • echo \$<VARIABLE>
Prints content of variable <VARIABLE>. | <i>echo \$PATH</i> |