

# Cheatsheet Shell Commands

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## 1 Basic Shell Commands

Shell Command	Explanation
<code>cd <i>filepath</i></code>	change <b>d</b> irectory aka move into a different folder
<code>ls -lh <i>folder</i></code>	list the files and folders in your current <b>d</b> irectory
<code>pwd</code>	show <b>p</b> ath of <b>w</b> orking <b>d</b> irectory aka the folder that you're in right now
<code>touch <i>fname</i></code>	make a new file
<code>mkdir <i>dirname</i></code>	<b>m</b> ake a new <b>d</b> irectory aka a folder
<code>rm <i>fname</i></code>	<b>r</b> emove aka delete a file or directory
<code>cp <i>original-fname copied-fname</i></code>	<b>c</b> opy a file or directory
<code>mv <i>original-fname new-fname</i></code>	<b>m</b> ove or rename a file or directory
<code>cat <i>fname</i></code>	show all the contents of a file
<code>more <i>fname</i></code>	show snippet of a file that allows you to scroll through the entire thing
<code>head <i>fname</i></code>	show the first 10 lines of a file (change number of lines by adding a flag, e.g. <code>head -100</code> )
<code>tail <i>fname</i></code>	show the last 10 lines of a file (change number of lines by adding a flag, e.g. <code>tail -100</code> )
<code>wc -w -l <i>fname</i></code>	show how many <b>w</b> ords or lines in a file
<code>man <i>command</i></code>	show the <b>m</b> anual aka the documentation that tells you what a particular command does
<code>echo</code>	print text to the command line
<code>egrep "<i>search pattern</i>" <i>fname</i> or <i>dirname</i></code>	search for lines that include search term in file. See below for the arguments of egrep.
<code>wget <i>url</i></code>	<b>g</b> et a file from the <b>w</b> eb

This cheatsheet is based on [this resource](#). Please also refer to this resource for a more in-dept explanation in prose. You should follow the guide for macOS and Unix even as a Windows user as we have installed a Unix environment.

## 1.1 Searching with egrep

**egrep** allows pattern-based search (i.e., searching with regular expressions). The most common arguments of **egrep** are:

- **-i** search case insensitive
- **-r** search recursively in folder
- **-o** show exact matches only instead of entire lines with matches
- **-h** suppress the file path where the match occurred

## 1.2 Operators

- **|**: A pipe takes the output of one command and passes it as the input to another.  
`echo "pass this text to next command" | cat`
- **>**: This operator redirects the output to a file (overwrites if it already exists). Example:  
`echo "first line of file1" > file1`
- **>>**: This operator redirects and appends the output to an *existing* file: Example:  
`echo "line following existing content of file1" >> file1`

# 2 Regular Expressions

## 2.1 Counting words across Files

It is common to quantify words across files. The example command

- searches for a word starting with **eco** and continuing with any letters
- count the number of occurrences
- sorts the words according to their frequency.

```
egrep -roh "\beco[a-z]*" **/*.txt | sort | uniq -c | sort -h
```

**\b** matches the boundary of a word.

## 2.2 Example Patterns

```
# alle Kleinbuchstaben
echo "Das ist ein Satz mit der Zahl 1000" | egrep --colour "[a-z]"

# alle Grossbuchstaben
echo "Das ist ein Satz mit der Zahl 1000" | egrep --colour "[A-Z]"

# das Wort "ist" und das nächste Wort
echo "Das ist ein Satz mit der Zahl 1000" | egrep --colour "ist [a-z]*"

# das Wort "Zahl" gefolgt von einer Ziffer
echo "Das ist ein Satz mit der Zahl 1000" | egrep --colour "Zahl [0-9]"

# das Wort "Zahl" gefolgt von beliebig vielen Ziffern
echo "Das ist ein Satz mit der Zahl 1000" | egrep --colour "Zahl [0-9]*"
```

## 2.3 Pattern Equivalence

```
a+ == aa*           # "a" once or more than once
a? == (a|_)         # "a" once or nothing
```

```
a{3} == aaa           # three "a"  
a{2,3} == (aa|aaa)    # two or three "a"  
[ab] == (a|b)         # "a" or "b"  
[0-9] == (0|1|2|3|4|5|6|7|8|9) #any digit
```