

### Help

```
help commandName
commandName /?
help --> show all system commands
```

### All System Commands

```
help
```

### Clear Screen

```
Clear Screen          cls
```

### Shortcuts

Tab	Autocomplete
arrow keys	back/forward history
up/down	commands
Control + C	stops current command
ALT + F7	clears the history
F7	shows the history

### Directory Make & Remove

mkdir	creates new subdirectory
subdir- ectory	
mkdir	creates subdir & subdir/su- subdir/su- bsubdir
bsubdir	<b>Hint:</b> creates it, if they aren't existing
rmdir	removes an <b>empty</b> dir
rmdir /s	removes directory <b>with</b> directory content
rmdir /s /q	removes directory <b>with</b> directory content & <b>skips y/n</b> question

### Directory copy

copy src	copy files
dst	
copy /Y src	copy files overwrites <b>without</b> quesiton
dest	
xcopy /s	copies dirs <b>and</b> subdirs
src dest	<b>except</b> empty ones

### Directory copy (cont)

xcopy /YS src	as above <b>without</b> ask to dest overwrite
xcopy /YS src	copy to network share \\server\share
robocopy /S src	copies dirs and subdirs dest except empty ones
robocopy /YS	as above without ask to src dest overwrite

### Parameters

%0	Name of Script
%1 ... %9	Parameter 1 ... Parameter 9
%*	prints all parameters as a string
(one line)	access it through a for loop
for %%x in	works with > 10
(%*) do echo	parameters
%%x	

### Pass Parameters to sub script

parameters_scri- pt.bat	@echo off call parameters_subs- cript.bat %* EXIT /B %errorlevel%
parameters_s- ubscript.bat	@ECHO off echo subscript called with %* EXIT /B 0

EXIT /B specifies to exit the current batch script instead of cmd.exe. If executed from outside a batch script, it will quit cmd.exe

### Arrays Way2

```
set          set value to a specific array
array[0]=0  element
set
array[1]=1
...
echo        access to array elements
%array[0]%
echo
%array[1]%
```

### Arrays Way2 (cont)

```
missing loop over elements: indexed
```

### Functions: label and goto

```
echo "Hi:"
goto :good
:bad
echo "I don't like scripting"
goto :eof
:good
echo "I like scripting"
goto :eof
```

### DoubleClickExecution

```
@ECHO off
setlocal
REM check for interactive sesseion
SET interactive=0
ECHO %CMDCMDLINE% | FINDSTR /L
%COMSPEC% >NUL 2>&1
IF %ERRORLEVEL% EQ SET intera-
ctive=1
ECHO do work
REM pause if interactive (double-clicked
execution)
IF "%interactive%" == "0" PAUSE
EXIT /B 0
```

FINDSTR /L is use search string literally

### Navigation

realative	parent	cd .., cd..
	directory	
	subdirectory	cd subdir- ectory
absolute	cd	
	C:\Windows	
	cd \Windows	
change	Z:	
drive		

### Wildcards

?	one arbitrary character (file?.txt)
*	arbitrary characters (0,1 or more) (* *.bat)

### File Show

type file	show file content
more	show file content <b>pagewise</b>
sort file	show file content sorted

### Directory show Content

current folder	dir
absolute path	dir C:\Windows
dir Y:	different drive
dir /B	only show file names and directory names

### Batch Files User Input

@ echo off	Syntax: set /P
set /P name="Input or name: "	var=prompt:
echo Hi %name%	variable call

### Batch Files File Input

@echo off	
echo Bill > file	
echo Gate >> file	
set /P filecontent =< file	set /P var=< file
echo First Line: %filecontent%	
FOR /f %%f in (file)	REM print each
Do (	line in file
echo %%f	
)	

### Variables

setlocal	Only active in the current batch file (local)
set	
MY_ENV=abc	
endlocal	
set	creates or changes an environment variable that is active in the cmd. (global)
MY_ENV=abc	
set	shows the active environment variables
echo	print variable out
%USERNAME%	
defined	returns
MY_VAR	0 => Execution was successful >0 => Execution failed

### IF Control Structures

IF test (command) ELSE (command)	Syntax
----------------------------------	--------

### Control structures For

for {%% }%<Variable> in (<Set>) do <Command> [<CommandLineOptions>]
cmd.exe use ->%
batch script use ->%%

### Functions

call :print_name Florian
echo print_name existst with %errorlevel%
goto :eof
:printname
echo Hit %1
exit /B 0 <- REM sets exit status of :print_name

### File Rename & Move

rename file1 file2	rename file1 to file2
move file1 dir	move file 1 to dir (path dir/file1)

### File Rename & Move (cont)

move file1 dir/file2	moves and renames file1 to file2 (path: dir/file2) file2 is overwritten from file1
move /Y file1 file2	moves and overwrites file1 to file2 <b>without</b> asking

### File Names

#### Case-Insensitive

Max. 260 characters incl. invisible terminating null character

spaces and character set 128 - 255 allowed

**Never** <, >, :, ", /, \, |, ?, \*

*Hint:* A-Z, a-z, 0-9, \_, spaces, ( underscore as space )

\*.bat & \*.cmd

dir /B --> only show file names and directory Names

### Directory Rename & Move

rename dir1 dir2	renames dir1 in dir2
move dir1 dir2	if <b>dir2 exist:</b> dir1 into dir2 (path: dir2/dir1), <b>else</b> rename dir1 to dir2
move file1 dir/file2	file 2 is deleted. file1 get the name of file2 ans is set at the position of file2 <b>with</b> asking (Yes/No/All)
move /Y file1 file2	file 2 is deleted. file1 get the name of file2 ans is set at the position of file2 <b>without</b> asking.

### File Redirects

type file.txt   sort	give <b>output of</b> type to sort
sort < file.txt	give content ( stdin) of file.txt
echo "hi" > file.txt	<b>write</b> "hi" (stout) <b>to</b> file.txt
type NUL > file.txt	<b>create empty file</b> ▲
rm file 2> errors.txt	<b>redirects</b> errors(stderr) ro errors.txt
rm file 2> NUL	<b>discard</b> errors
rm file 2>&1	<b>redirect</b> stderr to stdout
echo "you" >> file.txt	<b>append</b> "you" to file.txt

### Comment

REM Präfix after them the text

### Calculation

```
set /a i=0
echo i=%i%

set /a i=1+1 Operatoren +, -, *, /
set /a i+=1 Operatoren +, -, *, /
```

### Arrays Way1

```
set array=1 2 3 4

%array% (echo) all Array elements

for %%a in (%array%) do (
echo%%a
)

set array=(and unset variable or nothing else) array
```

### Control Structures: Comparison Operators

Operator	Info	Equal
EQU	==	Equal
NEQ	!=	Not equal
LSS	<	Less
LEQ	<=	Less than or equal to
GTR	>	Greater than
GEQ	>=	Greater than or equal
NOT	!	Not

### Editors

Notepad  
Notepad++  
VisualStudioCode

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Notepad  
Notepad++  
VisualStudioCode  
Atom

### Terminals

cmd.exe  
Windows Terminal  
ConEmu  
cmder

### Batch Filex Exit / Return

```
Specify exit code: echo "abc"
exit 0

Query error level: echo %ERRORLEVEL%

Exit/Return codes: 0 => Execution was successful
>0 => Execution fiales with code X
```



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Published 22nd October, 2020.  
Last updated 22nd October, 2020.  
Page 3 of 3.

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