

Zusammenfassung Unix System

Chapter 1

```
uname -a
```

Operating System information

Output: `SunOS communix 5.11 11.3 i386 i86pc`

```
date
```

Shows the current date

Output: `Wednesday, March 24, 2021 02:30:47 PM KST`

```
id
```

Shows User ID and Group ID Output: `uid=1563(21170004) gid=500(studs)`

```
who
```

Shows who is connected on which terminal Output:

```
21170004@comunix:~$ who
20101202 pts/3      Mar 24 10:54  (121.163.249.250)
19101186 pts/4      Mar 24 13:11  (211.170.153.111)
19101227 pts/5      Mar 24 13:41  (84.54.122.17)
18101237 pts/6      Mar 24 13:47  (124.51.193.126)
19101227 pts/7      Mar 24 14:00  (84.54.122.17)
21170004 pts/8      Mar 24 14:27  (210.108.124.207)
17101223 pts/9      Mar 24 14:49  (14.38.13.95)
```

```
uname -a
```

Output: `SunOS communix 5.11 11.3 i386 i86pc`

```
uname -a
```

Output: SunOS communix 5.11 11.3 i386 i86pc

Chapter 4

```
ls -l
ls -ld
```

Output:

1. data blocks - Wenn auf Directory angewendet das leer ist, kein output
2. i-node

```
-bash: syntax error near unexpected token `in'
21170004@comunix:~$ ls -i
    75513 aa                74983 error.txt          74777 local.login
    75515 aa.txt           75527 errorlink.txt     74774 local.profile
    75511 dead.letter      74990 g.txt             74986 mbox
    74982 dira             74981 hi.txt            74991 out.txt
    75516 dirb             74981 hlink.txt
    74992 err.txt          74773 local.cshrc
21170004@comunix:~$ ls -ld
drwxr-xr-x  4 21170004 studs      22 Mar 23 00:53 .
```

```
od -x hi.txt
```

Output:

```
21170004@comunix:~$ od -x hi.txt
00000000 6568 6c6c 0a6f 6968 000a
00000011
```

File Contents in hexadecimal

-c: in asci

```
find /export/home -name 'hi.txt'
2> /dev/null
```

1. Finds all hi.txt files in directory
2. 2> /dev/null omits error output o for access denied

```
find / -name core -exec rm {} \;
```

Removes files (-exec ls lists all found, etc)

-ok statt -exec: Fragt, ob das file genommen werden soll

```
chmod 644 hi.txt  
chmod u+x,g=rw-,o-r hi.txt
```

644: u=rw, g=r--,o=r-- 755: u=rwx,g=r-x,o=r-x

+fügt berechtigung hinzu -nimmt Berechtigung weg

```
umask 022
```

Defines masking for permissions

```
df -k
```

Shows disk free size (partition)

```
du -sk *
```

Shows disk usage size (directory)

```
mount  
  
-t device_name mount_point
```

Shows mounted partitions + status with options: mounts new partition

```
mountall
```

Mounts all file systems defined in /etc/vfstab

```
umount <device>  
  
umountall
```

Unmounts device

Chapter 5 Customizing Working Environment

System Variables

```
$PS1 - Shell appearance
$PS1 = '$ '
```

Output:

```
-bash: \u@\h:\w\$: command not found
21170004@comunix:~$ PS1='$ '
$
```

```
$PATH - executables
```

Local/environment Variable

Local variable: affects current shell only

Environment variable: affects sub-shell as well

```
$ a = 3 //local variable
$ export a // exposes variable
```

Example:

```
$ a=3; b=5
$ echo $a $b // 3, 5
$ export b
$ sh // start sub-shell
$ echo $a //no result
$ echo $b //5
$ exit //return to parent shell
```

Variable Commands

```
$ set //see all variables and its values
$ set | grep PATH
$ env //lists exported variables
$ echo $variable
```

```
$ export //makes variable an env variable
$ unset // delete variable
```

Alias

```
$ Substituting one term to another
$ alias ls='ls -l'
$ unalias ls
```

Chapter 6

Anatomy of a Command

```
$ Command [options] [arguments] //Unix command structure
- $ ls -sCF /usr/bin
- $ ls -s -C -F /etc

$ man ls //manual

$ apropos ls //finds all related files

$ whereis echo //shows where all echo related files are

$ which echo //only shows executable
```

Meta Characters

```
$ Wildcard
- ? : matches one character
- * : matches one or more characters
- [] : matches one of the characters in [...]
$ ls *.txt
$ ls hi?.txt
$ ls hi[12357].txt
```

Redirection

```
$ ls > ls.txt

$ sort < /etc/group //sorts a textfile alphabetically
$ sort < /etc/group > sort.txt

$ find / -name 'hi.txt' 2> /dev/null // find a file by name. Permssion denied
```

messages will be omitted.

```
$ find /export/home -name 'hi.txt' > out.txt 2>&1
$ find /export/home -name 'hi.txt' 2> out.txt 1>&2
```

Pipes

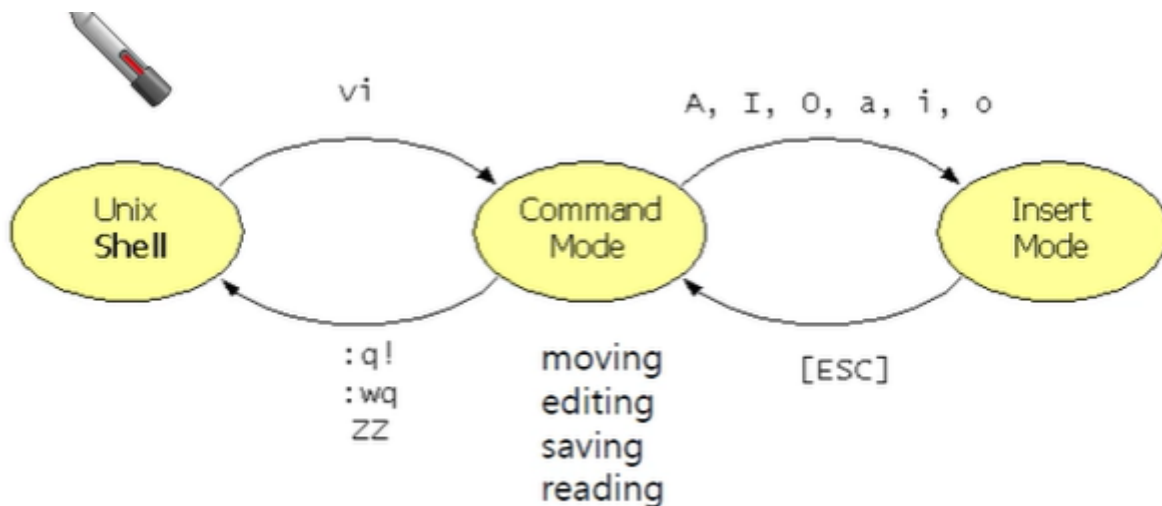
The Output of the first process is the input of the second process.

```
$ cho | wc // word count who command
$ cat /etc/passwd | grep unix30 // shows only lines that contain unix30
$ echo $PATH // shell variable path
$ ${PATH}${TERM} //shell variable value
$ echo today is `date`
$ \$PATH Escape the dollar sign
```

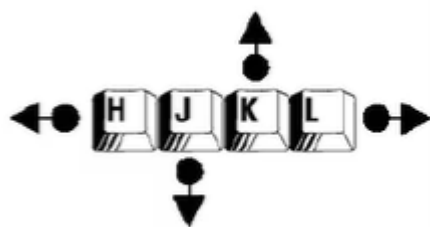
Vi Editor

Vi Modes

```
$ vi
$ vi filename
```



Moving within a file



- h,j,k,l (left, down, up, right)

- 0,^(left most), \$(right most)
- [Enter] Next line
- Ctrl + F : One Page Forward
- Ctrl + B : One Page Backwards
- Ctrl + U : Half Page Up
- Ctrl + D : Half Page Down
- :0, :1 - First Line
- 🙄 - Last Line
- :100 - 100th Line
- Ctrl + % ({<--->}) Move in between brackets
- :set nu - displays line numbers

Searching

- /string
search string(forwards)
- n
Go to next string
- N
Go to previous string
- ?string
Search backwards

Exit / save

- :q - quit
- :w - write to the file
- :wq - write and quit
- q! - exit without saving
- :wq! - overwrite and exit
- ZZ - save and exit
- :x - exit
- :w filename - write to file filename
- :r filename - read and insert file filename

Insert Mode

- i - insert
- a - append
- o - insert from next line
- [esc] - go to command mode

Delete

- x - Delete 1 Character
- 5x - Delete 5 Characters
- dd - Delete 1 line
- 3dd - Delete 3 lines
- D - delete remaining line of this line from the cursor
- J - join current line and next line
- i[enter][esc] - separate line

Change

- r - replace 1 character
 - ra - 1 character is changed to 'a'
- 3r - replace 3 characters
 - 3ra[esc] - 3 Characters are changed to 'aaa'
- cw - change 1 word
 - cwabc[esc] - word is changed to 'abc'
 - cwab cd 12[esc] - word is changed to 'ab cd 12'
- 3cw: change 3 words
 - 3cwabc[esc] - 3 words are changed to 'abc'
 - 3cwab cd 12[esc] - 3 words are changed to 'ab cd 12'

Undo / Redo

- u - Undo (Cancel Change)
 - uu - Cancel undo
- . - redo
 - /abc //search 'abc'
 - cwABCD[esc] //change to 'ABCD'
 - n. //search next and change to 'ABCD'

Copy and move

```
$ Copy a line
- yy -> [move] -> p

$ Copy several lines
- 3yy -> [move] -> p

$ Move a line
- dd -> [move] -> p

$ Move several lines
- 3dd -> [move] -> p
```


Running commands

- `:%s/abc/ABCD/g`
 - change all 'abc' to 'ABCD' in file
- `:10,$ s/abc/ABCD/g`
 - change all 'abc' to 'ABCD' from line 10 to end of file
- `:0,$ s/[Ctrl + V][CTRL+M]//g`
 - delete all ^M character in file
- `:100,200 w! filename`
 - save line 100 to 200 to file filename

Miscellaneous

- `:set nu` - show line number
- `:set nonu` - hide line number
- `:sh` - go to sh temporary
 - return to vi by `$exit`
- `:!pwd` run a command in vi
 - press enter to edit continuously
- `Ctrl + I` - reset screen