

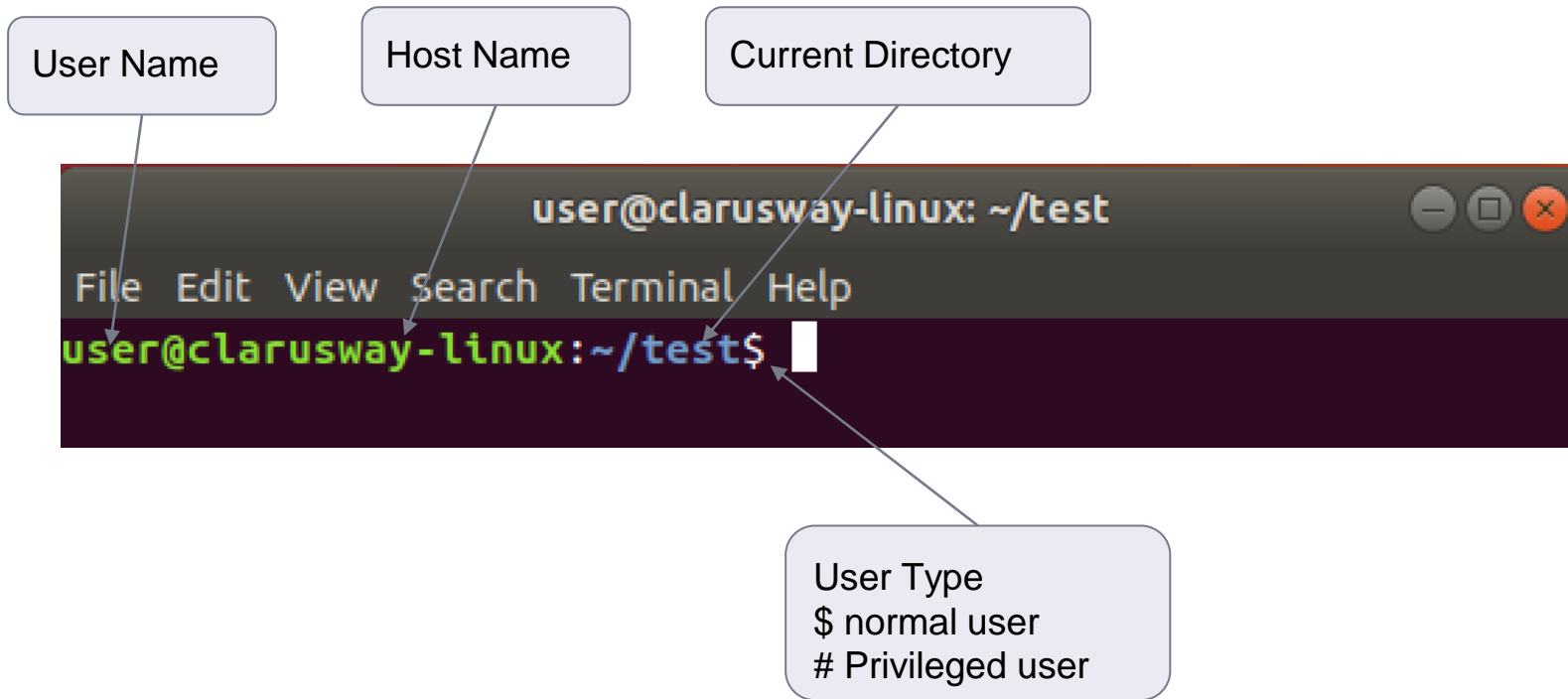
Command Line Basics

2/2

Linux Essentials
Session-3



Command Prompt

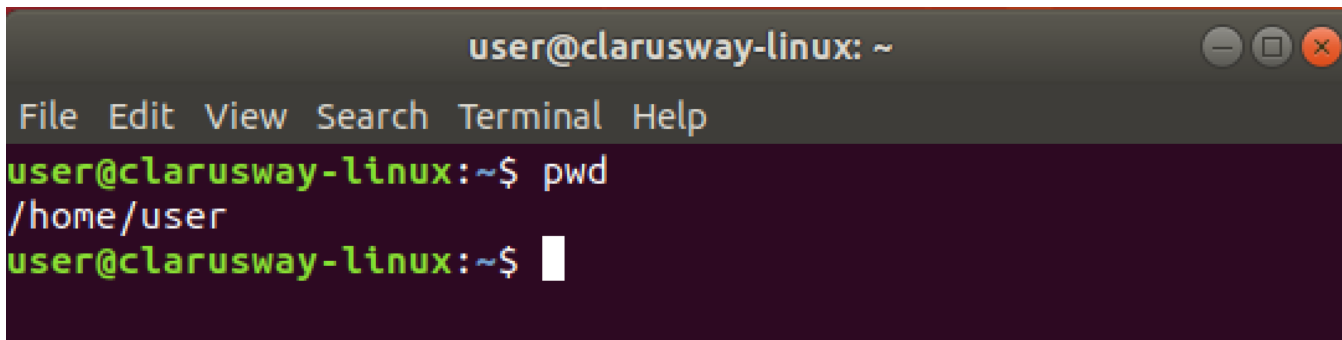




Basic Shell Commands

pwd

show current path



```
user@clarusway-linux: ~  
File Edit View Search Terminal Help  
user@clarusway-linux:~$ pwd  
/home/user  
user@clarusway-linux:~$
```

Basic Shell Commands



whoami

current user

hostname

shows the system hostname

hostname -i

Show the IP address of the system

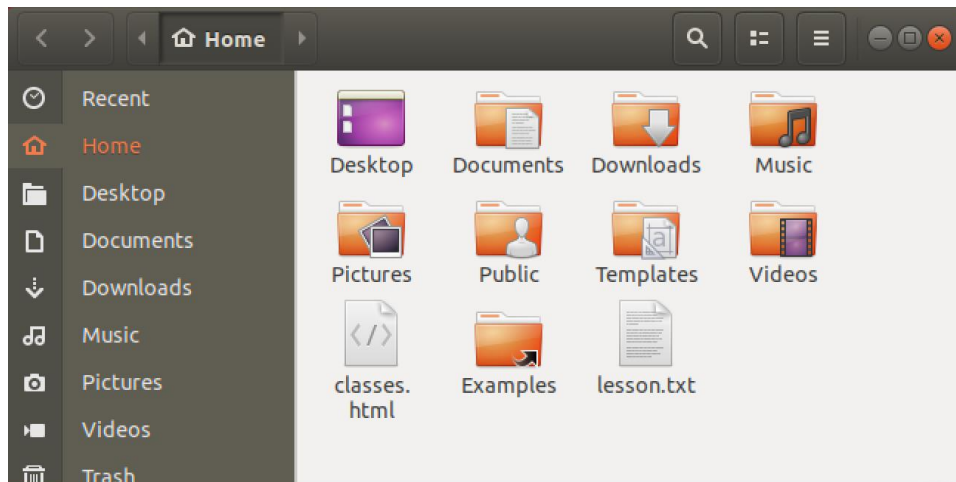


```
robert@robert-virtual-machine: ~$ users
robert
robert@robert-virtual-machine: ~$ hostname
robert-virtual-machine
robert@robert-virtual-machine: ~$ hostname -i
127.0.1.1
robert@robert-virtual-machine: ~$
```

Basic Shell Commands



- ls** lists directory contents
- ls -l** lists directory contents with details
- ls -al** lists all the contents with **hidden** ones



```
user@clarusway-linux: ~  
File Edit View Search Terminal Help  
user@clarusway-linux:~$ ls  
classes.html Downloads Music Templates  
Desktop examples.desktop Pictures Videos  
Documents lesson.txt Public  
user@clarusway-linux:~$
```

```
user@clarusway-linux: ~  
File Edit View Search Terminal Help  
user@clarusway-linux:~$ ls -l  
total 48  
-rw-r--r-- 1 user user 16 Mar 2 21:56 classes.html  
drwxr-xr-x 2 user user 4096 Mar 2 21:54 Desktop  
drwxr-xr-x 2 user user 4096 Mar 2 21:54 Documents  
drwxr-xr-x 2 user user 4096 Mar 2 21:54 Downloads  
-rw-r--r-- 1 user user 8980 Mar 2 21:53 examples.desktop  
-rw-r--r-- 1 user user 0 Mar 2 21:55 lesson.txt  
drwxr-xr-x 2 user user 4096 Mar 2 21:54 Music  
drwxr-xr-x 2 user user 4096 Mar 2 21:54 Pictures  
drwxr-xr-x 2 user user 4096 Mar 2 21:54 Public  
drwxr-xr-x 2 user user 4096 Mar 2 21:54 Templates  
drwxr-xr-x 2 user user 4096 Mar 2 21:54 Videos  
user@clarusway-linux:~$
```



Basic Shell Commands

- cd [dir]** change (current) directory
- cd ..** change current directory to one level up
- cd /** change current directory to the root directory
- cd ~** change current directory to the home directory

```
user@clarusway-linux: ~  
File Edit View Search Terminal Help  
user@clarusway-linux:~$ cd test  
user@clarusway-linux:~/test$ cd ..  
user@clarusway-linux:~$ cd /  
user@clarusway-linux:/$ cd ~  
user@clarusway-linux:~$
```



Basic Shell Commands

mkdir [dir]

create a new directory

```
user@clarusway-linux: ~  
File Edit View Search Terminal Help  
user@clarusway-linux:~$ ls  
classes.html Downloads Music Templates  
Desktop examples.desktop Pictures test  
Documents lesson.txt Public Videos  
user@clarusway-linux:~$ mkdir clarusway  
user@clarusway-linux:~$ ls  
clarusway Downloads Pictures Videos  
classes.html examples.desktop Public  
Desktop lesson.txt Templates  
Documents Music test  
user@clarusway-linux:~$
```

Basic Shell Commands



rmdir [dir] delete an empty directory

```
user@clarusway-linux: ~  
File Edit View Search Terminal Help  
user@clarusway-linux:~$ ls  
clarusway  Downloads      Pictures  Videos  
classes.html  examples.desktop  Public  
Desktop      lesson.txt      Templates  
Documents    Music           test  
user@clarusway-linux:~$ rmdir test  
user@clarusway-linux:~$ ls  
clarusway  Documents      lesson.txt  Public  
classes.html  Downloads      Music       Templates  
Desktop      examples.desktop  Pictures    Videos  
user@clarusway-linux:~$
```

```
user@clarusway-linux: ~  
File Edit View Search Terminal Help  
user@clarusway-linux:~$ cd test  
user@clarusway-linux:~/test$ ls  
t.txt  
user@clarusway-linux:~/test$ cd ..  
user@clarusway-linux:~$ rmdir test  
rmdir: failed to remove 'test': Directory not empty  
user@clarusway-linux:~$ ls  
clarusway  Downloads      Pictures  Videos  
classes.html  examples.desktop  Public  
Desktop      lesson.txt      Templates  
Documents    Music           test  
user@clarusway-linux:~$
```


Basic Shell Commands



touch

create a file

echo

create a file and write string inside

cat >

```
user@clarusway-linux: ~  
File Edit View Search Terminal Help  
user@clarusway-linux:~$ ls  
clarusway      Downloads      Pictures      Videos  
classes.html  examples.desktop Public  
Desktop        lesson.txt     Templates  
Documents      Music          test  
user@clarusway-linux:~$ touch test-file.txt  
user@clarusway-linux:~$ ls  
clarusway      Downloads      Pictures      test-file.txt  
classes.html  examples.desktop Public      Videos  
Desktop        lesson.txt     Templates  
Documents      Music          test  
user@clarusway-linux:~$
```

Basic Shell Commands



rm delete a file

```
user@clarusway-linux: ~  
File Edit View Search Terminal Help  
user@clarusway-linux:~$ ls  
clarusway      Downloads      Pictures      test-file.txt  
classes.html  examples.desktop Public        Videos  
Desktop        lesson.txt     Templates  
Documents      Music          test  
user@clarusway-linux:~$ rm test-file.txt  
user@clarusway-linux:~$ ls  
clarusway      Downloads      Pictures      Videos  
classes.html  examples.desktop Public  
Desktop        lesson.txt     Templates  
Documents      Music          test  
user@clarusway-linux:~$
```

Basic Shell Commands



cp copy a file to another location

```
user@clarusway-linux: ~/test
File Edit View Search Terminal Help
user@clarusway-linux:~$ cd test
user@clarusway-linux:~/test$ ls
user@clarusway-linux:~/test$ cd ..
user@clarusway-linux:~$ cp test-file.txt test/
user@clarusway-linux:~$ ls
clarusway      Downloads      Pictures      test-file.txt
classes.html   examples.desktop Public        Videos
Desktop        lesson.txt     Templates
Documents      Music          test
user@clarusway-linux:~$ cd test
user@clarusway-linux:~/test$ ls
test-file.txt
user@clarusway-linux:~/test$
```



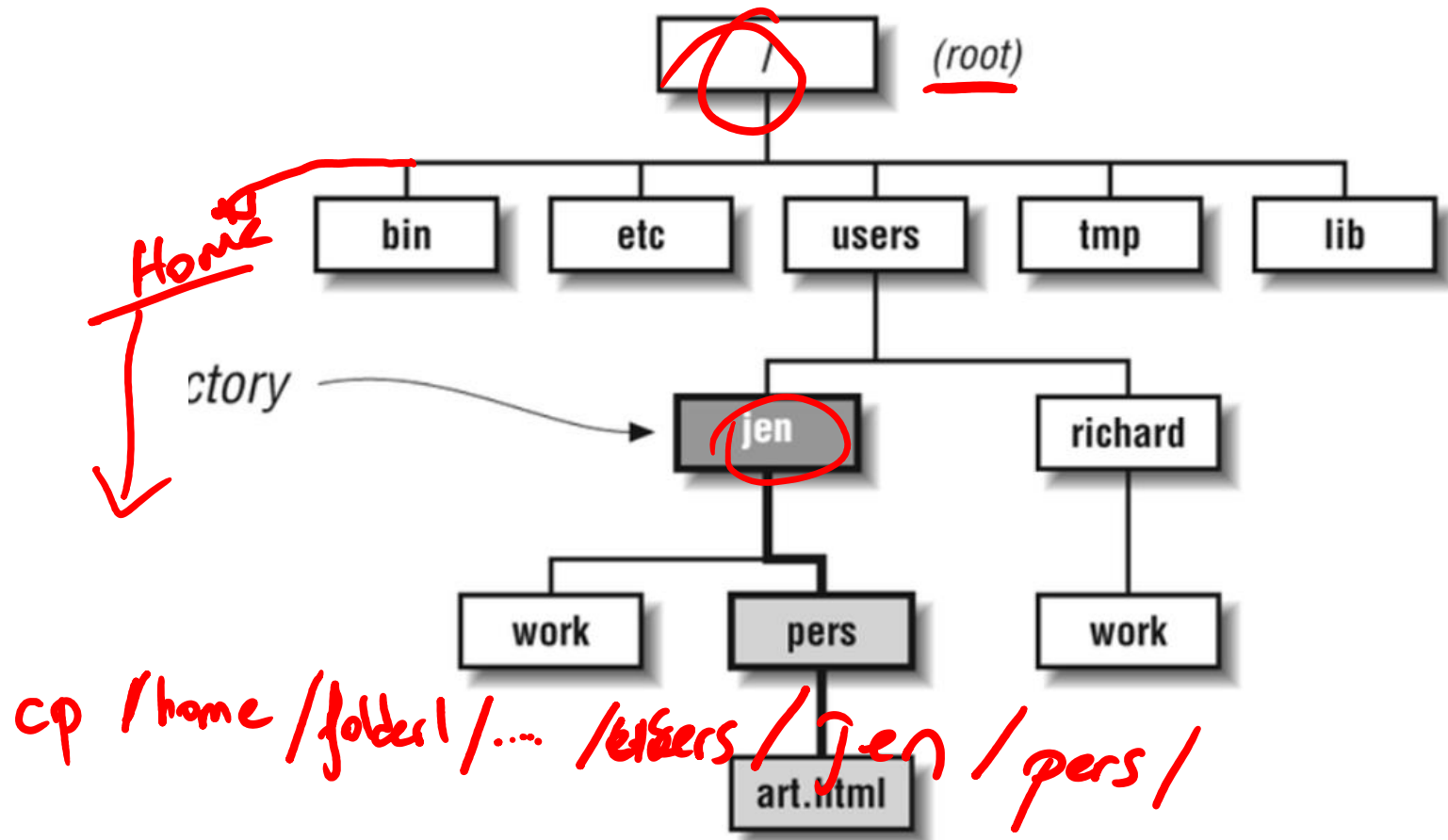
Dosya Yolu (Path)

Relative Path: Bulunduğumuz klasörden yapılan adresleme (cd ../)

```
$ pwd
/usr/sr
$ cd ../john/us ← Relative Path
$ pwd
/usr/john/us
```

Absolute Path: Home klasörden başlanılarak yapılan adresleme (cd /home/.../...)

```
$ pwd
/usr/sr
$ cd /usr/john/us ← Absolute Path
$ pwd
/usr/john/us
```



Basic Shell Commands



mv move a file to another location
renaming the file

```
user@clarusway-linux: ~/test
File Edit View Search Terminal Help
user@clarusway-linux:~/test$ ls
user@clarusway-linux:~/test$ cd ..
user@clarusway-linux:~$ ls
clarusway      Downloads      Pictures      test-file.txt
classes.html   examples.desktop Public        Videos
Desktop        lesson.txt     Templates
Documents      Music          test
user@clarusway-linux:~$ mv test-file.txt test/
user@clarusway-linux:~$ ls
clarusway      Downloads      Pictures      Videos
classes.html   examples.desktop Public
Desktop        lesson.txt     Templates
Documents      Music          test
user@clarusway-linux:~$ cd test
user@clarusway-linux:~/test$ ls
test-file.txt
user@clarusway-linux:~/test$
```



Basic Shell Commands

echo print message to screen

echo > [file] print message into a file

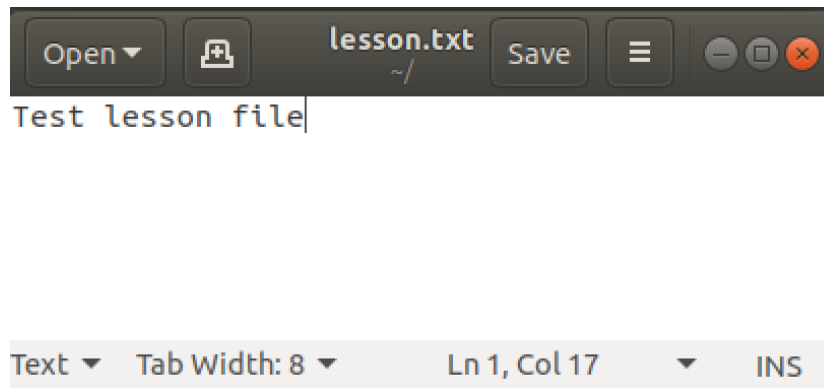
```
user@clarusway-linux: ~  
File Edit View Search Terminal Help  
user@clarusway-linux:~$ echo "test"  
test  
user@clarusway-linux:~$ cat test-file.txt  
user@clarusway-linux:~$ echo "test" > test-file.txt  
user@clarusway-linux:~$ cat test-file.txt  
test  
user@clarusway-linux:~$
```

Basic Shell Commands

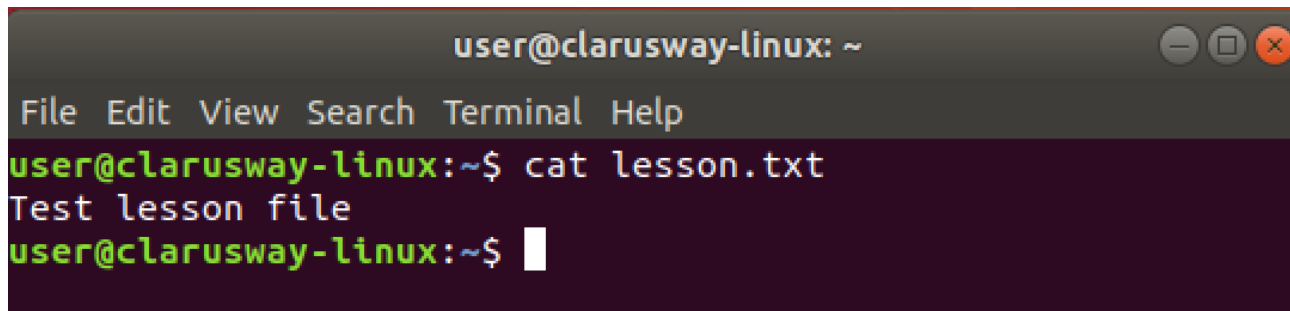


cat

show file contents



A screenshot of a text editor window. The title bar shows 'lesson.txt' and the file path '~/'. The window contains the text 'Test lesson file' on a single line. The status bar at the bottom indicates 'Text', 'Tab Width: 8', 'Ln 1, Col 17', and 'INS'.



A screenshot of a terminal window with the title 'user@clarusway-linux: ~'. The terminal shows the command 'cat lesson.txt' being executed, which outputs 'Test lesson file'. The prompt 'user@clarusway-linux:~\$' is visible before and after the command.

Basic Shell Commands



head

show first 10 lines from file contents

tail

show last 10 lines from file contents

```
robert@robert-virtual-machine:~$ head a.txt
```

```
You do not do, you do not do  
Any more, black shoe  
In which I have lived like a foot  
For thirty years, poor and white,  
Barely daring to breathe or Achoo.
```

```
Daddy, I have had to kill you.  
You died before I had time—  
Marble-heavy, a bag full of God,  
Ghastly statue with one gray toe
```

```
robert@robert-virtual-machine:~$ tail a.txt
```

```
Where it pours bean green over blue  
In the waters off beautiful Nauset.  
I used to pray to recover you.  
Ach, du.
```

```
In the German tongue, in the Polish town  
Scraped flat by the roller  
Of wars, wars, wars.  
But the name of the town is common.  
My Polack friend
```



Hidden Files and Directories



Any file or directory starts with period (.)

.abc

```
root@DESKTOP-4QQ1S5L:~# ls
root@DESKTOP-4QQ1S5L:~# ls -a
.  ..  .bash_history  .bashrc  .profile  .viminfo
root@DESKTOP-4QQ1S5L:~# touch .file5
root@DESKTOP-4QQ1S5L:~# ls -a
.  ..  .bash_history  .bashrc  .file5  .profile  .viminfo
root@DESKTOP-4QQ1S5L:~#
```

How to Hide
Files And
Directories
in Linux



Hidden files may be listed via `ls` using the `-a` option, to show all files.

Kahoot!

The Kahoot! logo consists of the word "Kahoot!" in a white, bold, sans-serif font, centered within a solid green rectangular background.

Kahoot!

The background image shows a terminal window with the following text:

```

drwxr-xr-x 2 pi pi
pi@raspberrypi:~$ passwd
Changing password for pi.
(current) UNIX password:
passwd: Authentication token manipulation error
pi@raspberrypi:~$ passwd
Changing password for pi.
(current) UNIX password:
passwd: password successfully changed
pi@raspberrypi:~$

```

Other visible text includes file names like `slidepuzzle.py`, `squirrel.png`, `squirrel.py`, `Star.png`, `starPusherLevels`, `carpusher.py`, `car_solved.png`, `car_title.png`, `crisb.mid`, `crisc.m`, `rominof`, `romino`, and a list of system statistics including CPU usage (0.4%), memory usage (500), and disk usage (4452 pts/0).

Linux Commands Cheat Sheet

Basic SHELL Commands



File Commands

ls - directory listing
ls -al - formatted listing with hidden files
cd *dir* - change directory to *dir*
cd - change to home
pwd - show current directory
mkdir *dir* - create a directory *dir*
rm *file* - delete *file*
rm -r *dir* - delete directory *dir*
rm -f *file* - force remove *file*
rm -rf *dir* - force remove directory *dir* *
cp *file1 file2* - copy *file1* to *file2*
cp -r *dir1 dir2* - copy *dir1* to *dir2*; create *dir2* if it doesn't exist
mv *file1 file2* - rename or move *file1* to *file2*
if *file2* is an existing directory, moves *file1* into directory *file2*
ln -s *file link* - create symbolic link *link* to *file*
touch *file* - create or update *file*
cat > *file* - places standard input into *file*
more *file* - output the contents of *file*
head *file* - output the first 10 lines of *file*
tail *file* - output the last 10 lines of *file*
tail -f *file* - output the contents of *file* as it grows, starting with the last 10 lines

Process Management

ps - display your currently active processes
top - display all running processes

System Info

date - show the current date and time
cal - show this month's calendar
uptime - show current uptime
w - display who is online
whoami - who you are logged in as
finger *user* - display information about *user*
uname -a - show kernel information
cat /proc/cpuinfo - cpu information
cat /proc/meminfo - memory information
man *command* - show the manual for *command*
df - show disk usage
du - show directory space usage
free - show memory and swap usage
whereis *app* - show possible locations of *app*
which *app* - show which *app* will be run by default

Compression

tar cf *file.tar files* - create a tar named *file.tar* containing *files*
tar xf *file.tar* - extract the files from *file.tar*
tar czf *file.tar.gz files* - create a tar with Gzip compression
tar xzf *file.tar.gz* - extract a tar using Gzip
tar cjf *file.tar.bz2* - create a tar with Bzip2 compression
tar xjf *file.tar.bz2* - extract a tar using Bzip2
gzip *file* - compresses *file* and renames it to *file.gz*

Basic SHELL Commands



File system Commands	
ls	lists directories and files
ls -a	lists all files including hidden files
ls -lh	formatted list including more data
ls -t	lists sorted by date
pwd	returns path to working directory
cd dir	changes directory
cd ..	goes to parent directory
cd /	goes to root directory
cd	goes to home directory
touch file_name	creates an empty file
cp file file_copy	copy a file
cp -r	copy files contained in directories
rm file	deletes a file
rm -r dir	deletes a directory and its files
mv file1 file2	moves or renames a file
mkdir dir_name	creates a directory
rmdir dir_name	deletes a directory

Text handling commands	
command > file	saves STDOUT in a file
command >> file	appends STDOUT in a file
cat file	concatenate and print files
cat file1 file2 > file3	merges files 1 and 2 into file3
cat *fasta > all.fasta	concatenates all fasta files in the current directory
head file	prints first lines from a file
head -n 5 file	prints first five lines from a file
tail file	prints last lines from a file
tail -n 5 file	prints last five lines from a file
less file	view a file
less -N file	includes line numbers
less -S file	wraps long lines
grep 'pattern' file	Prints lines matching a pattern
grep -c 'pattern' file	counts lines matching a pattern
cut -f 1,3 file	retrieves data from selected columns in a tab-delimited file
sort file	sorts lines from a file



Using the Command Line to Get Help

Table of Contents



- ▶ Man Pages
- ▶ Info Pages



1

Man Pages





Man Pages

man [command]

A man page (short for manual page) is a form of software documentation usually found on a Unix or Unix-like operating system.

if we install a package to do some task, the man Page for that package will typically be installed at the same time. This gives us the ability to take a look at that documentation and make sure that we're using it in a manner consistent with its design.

The man page for a particular command is invoked by preceding the command with **man**.





Man Pages

man ls

```
LS(1)                                User Commands                                LS(1)

NAME
    ls - list directory contents

SYNOPSIS
    ls [OPTION]... [FILE]...

DESCRIPTION
    List information about the FILES (the current directory by default). Sort entries alphabetically if none of
    -cftuvSUX nor --sort is specified.

    Mandatory arguments to long options are mandatory for short options too.

    -a, --all
        do not ignore entries starting with .

    -A, --almost-all
        do not list implied . and ..

    --author
        with -l, print the author of each file

    -b, --escape
        print C-style escapes for nongraphic characters

    --block-size=SIZE
        scale sizes by SIZE before printing them; e.g., '--block-size=M' prints sizes in units of 1,048,576
        bytes; see SIZE format below

    -B, --ignore-backups
        do not list implied entries ending with ~

    -c
        with -lt: sort by, and show, ctime (time of last modification of file status information); with -l:
        show ctime and sort by name; otherwise: sort by ctime, newest first

    -C
        list entries by columns

    --color[=WHEN]
        colorize the output; WHEN can be 'always' (default if omitted), 'auto', or 'never'; more info below

    -d, --directory
        list directories themselves, not their contents

Manual page ls(1) line 1 (press h for help or q to quit)
```

NAME

Program or Function name(s) followed by descriptions of functionality.

SYNOPSIS

A short overview of available options

DESCRIPTION

Detailed information about arguments and options.



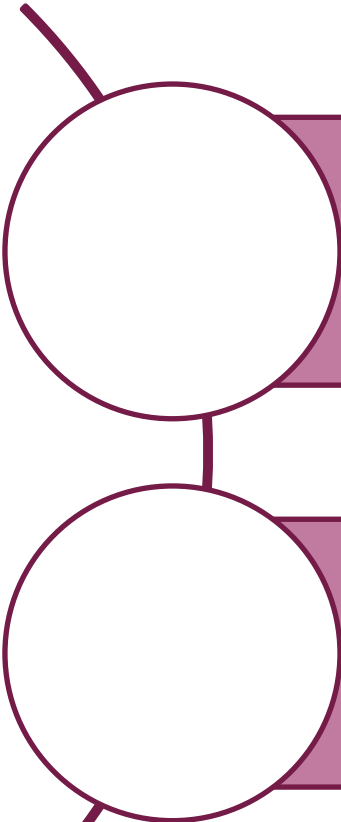
2

Info Pages



Info Pages

info [command]



Info pages are additional documentation with more robust capability in detail. Info Page normally provides more detailed information about a command than its respective man page. Additionally, Info uses a structure for linking these pages together, and they may be assembled into a larger collection.

The info page for a particular command is invoked by preceding the command with **info**



Info Pages

info echo

```
Next: printf invocation, Up: Printing text
15.1 'echo': Print a line of text
=====

'echo' writes each given STRING to standard output, with a space between
each and a newline after the last one. Synopsis:

    echo [OPTION]... [STRING]...

Due to shell aliases and built-in 'echo' functions, using an
unadorned 'echo' interactively or in a script may get you different
functionality than that described here. Invoke it via 'env' (i.e., 'env
echo ...') to avoid interference from the shell.

The program accepts the following options. Also see *note Common
options::. Options must precede operands, and the normally-special
argument '--' has no special meaning and is treated like any other
STRING.

'-n'
    Do not output the trailing newline.

'-e'
    Enable interpretation of the following backslash-escaped characters
    in each STRING:

        '\a'
            alert (bell)
        '\b'
            backspace
        '\c'
            produce no further output
        '\e'
            escape
        '\f'
            form feed
        '\n'
            newline
        '\r'
            carriage return
        '\t'
            tab

-----Info: (coreutils)echo invocation, 78 lines --Top-----
Welcome to Info version 6.5. Type H for help, h for tutorial.
```



Simple Globbing



Globbing is primarily used to match patterns in filenames or text by using a wildcard character to create a pattern.

Character	Name	Function
?	Question mark	Match any single character
*	Asterisk	Match any number of character(s)
[]	Brackets	Match character from a range
^	Caret	Used to match starting character
\$	Dollar sign	Used to match ending character
{ }	Curly brace	Used to match more than one pattern
 	Pipe	Used for applying more than one condition



THANKS!

Any questions?