# UNIX\_101

## Install miniconda

source: <https://docs.conda.io/projects/miniconda/en/latest/>

# Download miniconda (for Linux)

wget https://repo.anaconda.com/miniconda/Miniconda3-latest-Linux-x86\_64.sh

## Install miniconda

bash Miniconda3-latest-Linux-x86\_64.sh

# install miniconda for Windows

Download: <https://repo.anaconda.com/miniconda/Miniconda3-latest-Windows-x86_64.exe>

## Install miniconda

Miniconda3-latest-Windows-x86\_64.exe

# install miniconda for Mac

Download: <https://repo.anaconda.com/miniconda/Miniconda3-latest-MacOSX-x86_64.pkg>

or

wget https://repo.anaconda.com/miniconda/Miniconda3-latest-MacOSX-x86\_64.pkg

## Install miniconda

bash Miniconda3-latest-MacOSX-x86\_64.pkg

# Enveronment management

## Create environment (Python environment)

conda create -n unix101 python=3.11

## Activate environment

conda activate unix101

## Deactivate enveroment

conda deactivate unix101

## 1. Basic commands

### 1.1. pwd

Print working directory

pwd

### 1.2. ls

List directory contents

ls

### 1.3. cd

Change directory

cd ./directory

### 1.4. mkdir

Make directory

mkdir ./new\_directory

### 1.5. touch

Create file

touch ./new\_file

### 1.6. cp

Copy file or directory

cp /path/to/file /path/to/new/file

### 1.7. mv

Move file or directory

mv /path/to/file /path/to/new/file

### 1.8. rm

Remove file or directory

rm /path/to/file

### 1.9. cat

Concatenate files and print on the standard output

cat /path/to/file

### 1.10. less

Opposite of more

less /path/to/file

### 1.11. head

Output the first part of files

head /path/to/file

### 1.12. tail

Output the last part of files

tail /path/to/file

### 1.13. grep

Print lines matching a pattern

grep /path/to/file pattern

### 1.14. wc

Print newline, word, and byte counts for each file

wc /path/to/file

### 1.15. sort

Sort lines of text files

sort /path/to/file

### 1.16. uniq

Report or omit repeated lines

uniq /path/to/file

### 1.17. cut

Remove sections from each line of files

cut /path/to/file

### 1.18. paste

Merge lines of files

paste /path/to/file

### 1.19. join

Join lines of two files on a common field

join /path/to/file /path/to/file

### 1.20. diff

Compare files line by line

diff /path/to/file /path/to/file

### 1.21. tr

Translate or delete characters

tr /path/to/file /path/to/file

### 1.22. sed

Stream editor for filtering and transforming text

sed /path/to/file /path/to/file

### 1.23. awk

Pattern-directed scanning and processing language

awk /path/to/file /path/to/file

### 1.24. chmod

Change the mode of a file

chmod options permissions /path/to/file

### 1.25. chown

Change file owner and group

chown options owner:group /path/to/file

### 1.26. chgrp

Change group ownership

chgrp options group /path/to/file

### 1.27. alias

Create an alias

alias

### 1.28. source

Execute commands from a file

source

### 1.29. history

Command History

history

### 1.30. echo

Display a line of text

echo 'Hello World'

### 1.31. export

Set an environment variable

export 'Hello World'

### 1.32. env

Display, set, or remove environment variables

env

### 1.33. date

Display or change the date & time

date

### 1.34. cal

Display a calendar

cal

### 1.35. bc

An arbitrary precision calculator language

bc

## 2. Advanced commands

### 2.1. find

Search for files in a directory hierarchy

find

### 2.2. locate

Find files by name

locate

### 2.3. which

Locate a program file in the user’s path

which

### 2.4. tar

Manipulate tape archives

tar

### 2.5. gzip

Compress or expand files

gzip

### 2.6. gunzip

Compress or expand files

gunzip

### 2.7. zcat

Compress or expand files

zcat

### 2.8. zless

File perusal filter for crt viewing of compressed text

zless

### 2.9. zgrep

File perusal filter for crt viewing of compressed text

zgrep

### 2.10. zdiff

File perusal filter for crt viewing of compressed text

zdiff

## 3. File system

### 3.1. File system

/

### 3.2. Home directory

~

### 3.3. Current directory

.

### 3.4. Parent directory

..

### 3.5. Absolute path

/

## 4. File permissions

### 4.1. Read

r

### 4.2. Write

w

### 4.3. Execute

x

### 4.4. User

u

### 4.5. Group

g

### 4.6. Others

o

### 4.7. All

a

### 4.8. Set user ID

s

### 4.9. Set group ID

s

### 4.10. Sticky bit

t

## 5. File types

### 5.1. Regular file

-

### 5.2. Directory

d

### 5.3. Symbolic link

l

### 5.4. Character device

c

### 5.5. Block device

b

### 5.6. Named pipe

p

### 5.7. Socket

s

## 6. File system hierarchy

### 6.1. /bin

Essential command binaries

/bin

### 6.2. /boot

Static files of the boot loader

/boot

### 6.3. /dev

Device files

/dev

### 6.4. /etc

Host-specific system configuration

/etc

### 6.5. /home

User home directories

/home

### 6.6. /lib

Essential shared libraries and kernel modules

/lib

### 6.7. /media

Mount point for removable media

/media

### 6.8. /mnt

Mount point for mounting a filesystem temporarily

/mnt

### 6.9. /opt

Add-on application software packages

/opt

### 6.10. /proc

Virtual filesystem providing process and kernel information as files

/proc

### 6.11. /root

Home directory for the root user

/root

### 6.12. /run

Run-time variable data

/run

### 6.13. /sbin

Essential system binaries

/sbin

### 6.14. /srv

Site-specific data served by this system

/srv

### 6.15. /sys

Contains information about devices, drivers, and some kernel features

/sys

### 6.16. /tmp

Temporary files

/tmp

### 6.17. /usr

Secondary hierarchy for read-only user data

/usr

### 6.18. /var

Variable data

/var

## 8. github

### 8.1. git clone

Clone a repository into a new directory

git clone

### 8.2. git add

Add file contents to the index

git add

### 8.3. git commit

Record changes to the repository

git commit

### 8.4. git push

Update remote refs along with associated objects

git push

### 8.5. git pull

Fetch from and integrate with another repository or a local branch

git pull

### 8.6. git status

Show the working tree status

git status

### 8.7. git log

Show commit logs

git log

### 8.8. git branch

List, create, or delete branches

git branch

### 8.9. git checkout

Switch branches or restore working tree files

git checkout

### 8.10. git merge

Join two or more development histories together

git merge

### 8.11. git reset

Reset current HEAD to the specified state

git reset

### 8.12. git revert

Revert some existing commits

git revert

### 8.13. git stash

Stash the changes in a dirty working directory away

git stash

### 8.14. git tag

Create, list, delete or verify a tag object signed with GPG

git tag

### 8.15. git show

Show various types of objects

git show

### 8.16. git fetch

Download objects and refs from another repository

git fetch

### 8.17. git remote

Manage set of tracked repositories

git remote

### 8.18. git diff

Show changes between commits, commit and working tree, etc

git diff

### 8.19. git config

Get and set repository or global options

git config

### 8.20. git init

Create an empty Git repository or reinitialize an existing one

git init

### 8.21. git rm

Remove files from the working tree and from the index

git rm

### 8.22. git mv

Move or rename a file, a directory, or a symlink

git mv

### 8.23. git grep

Print lines matching a pattern

git grep

### 8.24. gitk

The Git repository browser

gitk

### 8.25. git gui

A portable graphical interface to Git

git gui

### 8.26. git config

Get and set repository or global options

git config

### 8.27. git blame

Show what revision and author last modified each line of a file

git blame

## 9. nano

### 9.1. nano

Nano’s ANOther editor, an enhanced free Pico clone

nano

### 9.2. Ctrl + O

Write out the current file contents

Ctrl + O

### 9.3. Ctrl + X

Exit nano

Ctrl + X

### 9.4. Ctrl + G

Display the help text

Ctrl + G

### 9.5. Ctrl + K

Cut the current line and store it in the cutbuffer

Ctrl + K

### 9.6. Ctrl + U

Uncut from the cutbuffer into the current line

Ctrl + U

### 9.7. Ctrl + W

Search for a string or a regular expression

Ctrl + W

### 9.8. Ctrl + C

Display current cursor position

Ctrl + C

### 9.9. Ctrl +

Search and replace

Ctrl + \

### 9.10. Ctrl + T

Check spelling of the current file

Ctrl + T

### 9.11. Ctrl + J

Justify the current paragraph

Ctrl + J

### 9.12. Ctrl + R

Insert another file into the current one

Ctrl + R

### 9.13. Ctrl + Y

Move to the previous screen

Ctrl + Y

### 9.14. Ctrl + V

Move to the next screen

Ctrl + V

### 9.15. Ctrl + \_

Go to line and column number

Ctrl + \_

### 9.16. Ctrl + A

Go to the beginning of the current line

Ctrl + A

### 9.17. Ctrl + E

Go to the end of the current line

Ctrl + E

### 9.18. Ctrl + P

Move to the previous line

Ctrl + P

### 9.19. Ctrl + N

Move to the next line

Ctrl + N

### 9.20. Ctrl + F

Move forward one character

Ctrl + F

### 9.21. Ctrl + B

Move backward one character

Ctrl + B

### 9.22. Ctrl + Space

Set the mark

Ctrl + Space

### 9.23. Alt + Space

Move to the previous word

Alt + Space

### 9.24. Alt + 6

Copy the current line and store it in the cutbuffer

Alt + 6

### 9.25. Alt + 7

Cut the current line and store it in the cutbuffer

Alt + 7

### 9.26. Alt + 8

Paste the cutbuffer into the current line

Alt + 8

### 9.27. Alt + U

Undo the last operation

Alt + U