UNIX Reference

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UNIX Shortcuts and symbols

Shortcut/symbol	Description
`Ctrl+C`	Kills current process/command.
`tab` (tab key)	Autocomplete.
`↑` (up arrow)	Scroll back through previous commands in an interactive shell.
`~` (tidle)	Represents your home directory.
`.`	Represents the current directory you are in
`..`	Represents one directory backwards. For example, the relative path `..` refers to "one directory back," the relative path `../..` refers to "two directories back," and so on.
`*`	Wildcard symbol.
`|`	Pipe symbol (located on the backslash key). Join a string of UNIX commands together into a "pipeline."
`>` and `>>`	Redirect ("send") output from the command line, for example to a file. `>` will *overwrite* the destination file, and `>>` will *append to* the destination file.

UNIX commands

- **pwd**: **P**rint the **w**orking **d**irectory. Display the full path of the current/working directory

```
# print the current directory
pwd
```

- `ls` : **Lis**t files and directories

```
# List contents of working directory
ls

# List contents of a different directory
ls path/to/directory/I/want/to/list

# List files in long format with the -l flag`
ls -l

# Include hidden files/directories with the -a flag
ls -a

# Show "human-readable" file sizes with the -h flag
ls -h
```

- `cd` : **C**hange **d**irectory

```
# Change directory to the given path
cd path/where/I/want/to/go

# Go one directory back in the hierarchy
cd ..

# Two ways to go to your home directory:
cd
cd ~
```

- `cp` : **Cop**y a file or directory.

  - The `cp` command does not change the original file. It is similar to "copy and paste."

```
# Make a copy of oldfile.txt called newfile.txt
cp oldfile.txt newfile.txt

# Make a copy of the directory directory_original to be called directory
# Copying directories requires the -r flag
cp -r directory_original directory_copy
```

- `mv` : **Move** or rename a file or directory.

  - The `mv` command *does* change the original file. It is similar to "cut and paste."

```
# Rename a file from oldname.txt to newname.txt
mv oldfile.txt newfile.txt

# Move file.txt into a new directory
mv file.txt path/to/new/directory/file.txt
```

- `touch` : Create an new (empty) file

  - When run on existing files, the `touch` command updates its "last modified by" date (it "touches" the file!)

```
# Create a new file
touch name_of_the_new_file_you_want_to_create.txt

# Update modification date of existing file
touch existing_file_to_update_modification.txt
```

- `mkdir` : **Mak**e a new **dir**ectory

```
# Create a new directory called new_directory
mkdir new_directory

# Use the -p flag to avoid errors if the directory already exists
mkdir -p new_directory_that_might_already_have_been_created
```

- `rm` :**Rem**ove a file or directory

  - **This is *permanent.*** You cannot recover files deleted with `rm`

```
# Permanently delete a file
rm file_I_dont_need.txt

# Permanently delete a directory
# Removing directories requires the -r flag
rm -r directory_I_dont_need/
```

- `echo` : Print

```
# Print a message from a script
echo "Running Step 2"
```

- `man` : See a command's documentation in the **man**ual

  - *Caution*: The so-called "man pages" are not always very clear, but they are still often helpful, in particular for seeing different flags you can use with a command
  - You can scroll through the documentation with up and down arrows, or with your mouse scroller
  - You can exit the documentation by typing `q`

```
# See the documentation for the echo command
man echo
```

- `wc` : **W**ord **c**ount. Count the number of words, lines, characters, and/or bytes in a file

```
# Count all values (words, lines, characters, and bytes)
wc file_I_want_to_count.txt

# Only count the number of lines with the -l flag
wc -l file_whose_lines_I_want_to_count.txt

# Only count the number of words with the -w flag
wc -w
```

- `less` : View the contents of a file in the terminal

  - Note that this command was thusly named because it is an improved version of the related command `more` , which also shows file contents, and..."less is more."
  - You can scroll through the view with up and down arrows, or with your mouse scroller
  - You can exit the view by typing `q`

```
# View a file's contents
less file_I_want_to_look_at.txt
```

- `head` : Display the first ten lines of a file

  - Note that the corresponding `tail` command looks at the *last* ten lines
  - The `tail` command is used exactly as `head`

```
# See first 10 lines of a file
head file_I_want_to_peek_at.txt

# Use the -n flag to specify a different number of lines,
#  for example 20:
head -n 20 file_I_want_to_peek_at.txt
```

- `gzip` : Compress a file to `.gz` format

  - The `gzip` command removes the original file and a creates a new file of the same name but with the added `.gz` extension

```
# Compress very_big_file.txt and create very_big_file.txt.gz
gzip very_big_file.txt

# Use the -c flag and redirection to retain the original file
gzip -c very_big_file.txt > very_big_file.txt.gz
```

- `gunzip` : Decompress a `.gz`-compressed file

  - The `gunzip` command removes the original file and creates a new file of the same name but *without* the added extension `.gz`

```
# Decompress very_big_file.txt.gz and create very_big_file.txt
gunzip very_big_file.txt.gz

# Use the -c flag and redirection to retain the original file
gunzip -c very_big_file.txt.gz > very_big_file.txt
```

- `curl` :**C**lient **URL**. Download the contents of a website

  - By default, the downloaded website text gets sent to the command line directly

```
# Download and save an internet file, using redirection
curl https://database.com/interesting_data.csv > interesting_data.csv

# Use the -o flag to specify the output file, similar to redirection
# Note that the destination filename is provided first!
curl -o interesting_data.csv https://database.com/interesting_data.csv

# Use the -O flag to automatically save a file as the same name as it
#  appears on the internet (here, interesting_data.csv)
curl -O https://database.com/interesting_data.csv
```