

# Linux and Bash Command Cheat Sheet: The Basics

## Getting information

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# return your user name  
`whoami`

# return your user and group id  
`id`

# return operating system name, username, and other info  
`uname -a`

# display reference manual for a command  
`man top`

# get help on a command  
`curl --help`

# return the current date and time  
`date`

## Monitoring performance and status

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# list selection of or all running processes and their PIDs  
`ps`  
`ps -e`

# display resource usage  
`top`

# list mounted file systems and usage  
`df`

## Working with files

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# copy a file  
`cp file.txt new_path/new_name.txt`

# change file name or path  
`mv this_file.txt that_path/that_file.txt`

# remove a file verbosely  
`rm this_old_file.txt -v`

# create an empty file, or update existing file's timestamp  
`touch a_new_file.txt`

# change/modify file permissions to 'execute' for all users  
`chmod +x my_script.sh`

# get count of lines, words, or characters in file  
`wc -l table_of_data.csv`  
`wc -w my_essay.txt`  
`wc -m some_document.txt`

# return lines matching a pattern from files matching a filename pattern - case insensitive and whole words only  
`grep -iW hello \*.txt`

# return file names with lines matching the pattern 'hello' from files matching a filename pattern  
`grep -l hello \*.txt`

## Navigating and working with directories

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# list files and directories by date, newest last

```
ls -lrt
```

# find files in directory tree with suffix 'sh'

```
find -name '*.sh'
```

# return present working directory

```
pwd
```

# make a new directory

```
mkdir new_folder
```

# change the current directory: up one level, home, or some other path

```
cd ../
```

```
cd ~ or cd
```

```
cd another_directory
```

# remove directory, verbosely

```
rmdir temp_directory -v
```

## Printing file and string contents

---

# print file contents

```
cat my_shell_script.sh
```

# print file contents page-by-page

```
more ReadMe.txt
```

# print first N lines of file

```
head -10 data_table.csv
```

# print last N lines of file

```
tail -10 data_table.csv
```

# print string or variable value

```
echo "I am not a robot"
```

```
echo "I am $USERNAME"
```

## Compression and archiving

---

# archive a set of files

```
tar -cvf my_archive.tar.gz file1 file2 file3
```

# compress a set of files

```
zip my_zipped_files.zip file1 file2
```

```
zip my_zipped_folders.zip directory1 directory2
```

# extract files from a compressed zip archive

```
unzip my_zipped_file.zip
```

```
unzip my_zipped_file.zip -d extract_to_this_directory
```

## Performing network operations

---

# print hostname

```
hostname
```

# send packets to URL and print response

```
ping www.google.com
```

# display or configure system network interfaces

```
ifconfig
```

```
ip
```

# display contents of file at a URL

```
curl <url>
```

# download file from a URL

```
wget <url>
```

## Bash shebang

---

```
#!/bin/bash
```

## Pipes and Filters

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# chain filter commands using the pipe operator

```
ls | sort -r
```

# pipe the output of manual page for ls to head to display the first 20 lines

```
man ls | head -20
```

## Shell and Environment Variables

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# list all shell variables

```
set
```

# define a shell variable called my\_planet and assign value Earth to it

```
my_planet=Earth
```

# display shell variable

```
echo $my_planet
```

# list all environment variables

```
env
```

# environment vars: define/extend variable scope to child processes

```
export my_planet
```

```
export my_galaxy='Milky Way'
```

## Metacharacters

---

# comments

```
# The shell will not respond to this message
```

# command separator

```
echo 'here are some files and folders'; ls
```

# file name expansion wildcard

```
ls *.json
```

# single character wildcard

```
ls file_2021-06-???.json
```

## Quoting

---

# single quotes - interpret literally

```
echo 'My home directory can be accessed by entering: echo $HOME'
```

# double quotes - interpret literally, but evaluate metacharacters

```
echo "My home directory is $HOME"
```

# backslash - escape metacharacter interpretation

```
echo "This dollar sign should render: \$"
```

## I/O Redirection

---

# redirect output to file

```
echo 'Write this text to file x' > x
```

# append output to file

```
echo 'Add this line to file x' >> x
```

# redirect standard error to file

```
bad_command_1 2> error.log
```

# append standard error to file

```
bad_command_2 2>> error.log
```

# redirect file contents to standard input

```
$ tr "[a-z]" "[A-Z]" < a_text_file.txt
```

# the input redirection above is equivalent to

```
$cat a_text_file.txt | tr "[a-z]" "[A-Z]"
```

## Command Substitution

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# capture output of a command and echo its value

```
THE_PRESENT=$(date)
```

```
echo "There is no time like $THE_PRESENT"
```

## Command line arguments

---

```
./My_Bash_Script.sh arg1 arg2 arg3
```

## Batch vs. concurrent modes

---

# run commands sequentially

```
start=$(date); ./MyBigScript.sh ; end=$(date)
```

# run commands in parallel

```
./ETL_chunk_one_on_these_nodes.sh & ./ETL_chunk_two_on_those_nodes.sh
```

## Scheduling jobs with Cron

---

# open crontab editor

```
crontab -e
```

# job scheduling syntax

```
m h dom mon dow command
```

*minute, hour, day of month, month, day of week*

\* means any

# append the date/time to file every Sunday at 6:15 pm

```
15 18 * * 0 date >> sundays.txt
```

# run a shell script on the first minute of the first day of each month

```
1 0 1 * * ./My_Shell_Script.sh
```

```
# back up your home directory every Monday at 3 am  
0 3 * * 1 tar -cvf my_backup_path/my_archive.tar.gz $HOME\
```

```
# deploy your cron job  
Close the crontab editor and save the file
```

```
# list all cron jobs  
crontab -l
```

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