LINUX COMMANDS CHEAT SHEET

A. Linux Basics

A.1. Command Help

time command	how long takes a command
man ascii	get help manual of program
man -t ascii	ps2pdf - > ascii.pdf	make a pdf of a manual page
help for	shows help for for
help return	shows help for return

A.2. Command Lists

cmd1 ; cmd2	Run cmd1 then cmd2, regardless of success of A
cmd1 && cmd2	Run cmd2 if cmd1 is successful
cmd1 ||cmd2	Run cmd2 if cmd1 is not successful
cmd &	Run cmd in a subshell/background
/	at end of line: command continue next line
		connect input&output of 2 commands (pipe)
$	marks variable name

A.3. IO Redirection

cmd < file	Input of cmd from file
cmd1 <(cmd2)	Output of cmd2 as file input to cmd1
cmd > file	Standard output (stdout) of cmd to file
cmd > /dev/null	Discard stdout of cmd
cmd >> file	Append stdout of cmd to file
cmd 2> file	Error output (stderr) of cmd to file
cmd 1>&2	stdout to same place as stderr
cmd 2>&1	stderr to same place as stdout
cmd &> file	Every output of cmd to file
program 2>&1 /dev/null	silent your program

redirect output to same file with sponge

```
grep -v 'word' file | sponge file
```

A.4. Navigate Directorys

cd /xx/yy	change directory
cd ~	go to home directory
cd -	go to the previous directory
cd..	go one directory up
cd ./next	go into next folder
cd ../Documents	one dir up into Documents

A.5. File&Dir Operations Basic

pwd	print working dir
touch file	Create file
file file	Get type of file
cp file file1	Copy file to file1
rm file	Delete file
cp -r /path/src/* /path/dst/	Copy folder
mv file file1	Move file to file1
mkdir	make a directory
mkdir -p /path/make	make a folder structure
rmdir	remove a directory
rm -rf /path/file/	remove folder
rm -r ./*	clear folder from inside
cat path/to/file	prints file to terminal
cat file file1	merge output of files
less file	View and paginate file
head file	Show first 10 lines of file
head -n 3 file	Show first 3 lines of file
tail file	Show last 10 lines of file
tail -F file	Output last lines of file as it changes
ls -la	list all files directory,also hidden
cat -n file	show linenumber infront of a file
chmod +x script.sh	make a file executeable

A.5.1. File&Dir Operations Advanced

touch a$(date +"%Y_%m_%d_%I_%M_%S")b	timestamp in name
echo 'new line' >> /path/file	add line at end of file
diff file1.txt file2.txt	difference between files
sed 's/str1/str2/g'	Replace str1 with str2
sed '14,17 s/A/B/'	replace A with B line 14-17
sed -i 's/str/str\nl1\nl2/g' file	insert lines after str
sed -i '/str/i\l1\nl2\n' file	insert lines before str
sed '/^#/ d' file	sed '/^\s*$/d'	del lines begin # or empty
sed '1d'	Delete first line
sed '/^#/d'	Delete lines start with #
sed '/^ *#/d; /^ *$/d'	rm comment&blank line
sed -i '/^str/d' file	remove lines start with str
sort file.txt	sort lines of files.txt
sort -u -o file file	sort&remove duplicates
sort -k2 test.txt	sort csv lines
ln -s /path/src.z /dst/src.z	create a symbolic link
ls -l	grep "\.txt"	lists only txt files
ls -lt -time=atime *.txt	list txt files by time
ls -lh filename	properties human readable
md5sum	compute and check md5
sha1sum filename	proof a sha1sum of file
sha256sum filename	proof a sha256sum of file
du -sh ./*	size of folder
wc test.txt	count words and letters
sudo rm -r /path/to/dir/*	remove all files and folders
file --mime-type -b filename	get the mime type of a file
rename 's/ //' *.JPG	strip spaces from filenames
rename 's/\.xml$/.txt/' *xml	rename all .xml files to .txt
rename 'y/A-Z/a-z/'./*	rename all to small letters
mount -o loop file.iso ~/mnt2/	mount iso images
losetup -f --show raspbian.img	mount image to loop
losetup -d /dev/loop0 /dev/loop1	unmount image from loop
grep "^foo.*bar$" file	print lines begin foo end bar
sudo chown -R pi:pi /path/file	owner&group to you
sudo chmod -R 777 ./*	give cur folder all rights
sudo chmod 777 file	all rights to file
chown pi /path/file	change owner to pi
chown pi:pi /path/file	add group pi
echo b-date.e.png |cut -d\. -f1	Cut to b-date
shred -n 3 -z -u -v /path/file	delete files safe

write image to sdcard

```
sudo dd if=raspbian-jessie-lite.img of=/dev/sdb status=progress
```

Empty Trash

```
cd ~/.local/share/Trash/info/ && rm -rf *
cd ~/.local/share/Trash/files/ && rm -rf *
```

spaces to underscores in filename: rename 'y/ /_/' *

```
find -name "* *" -type d \rename 's/ /_/g' recursive for dirs
find -name "* *" -type f \rename 's/ /_/g' recursive for files
```

replace all fo with ba in all c documents

```
find . -type f -name "*.c" -print0 | \
xargs -0 sed -i '' -e 's/fo/ba/g'
```

write a long text in terminal to file

```
cat << EOF | tee /path/file
hello
world.
EOF
```


pngs-from-subdir.sh

pngs-from-url.sh

A.5.2. Files /Archives & Compression

gpg -c file	Encrypt file
gpg file.gpg	Decrypt file
unzip -l files.zip	list files from a zip
unzip -j "zip-archive.zip" "one_file.txt"	unzip specific file

A.5.3. Files /Archives & Compression2

unzip a tar.gz file without saving it first

```
wget -qO - example.com/path/to/blah.tar.gz | tar xzf -
```

pack a password protected zip file

```
zip --password MY_SECRET secure.zip doc.pdf doc2.pdf doc3.pdf
zip --password MY_SECRET secure.zip *
```

protected zip file in gui:

```
rightclick file/folder >create archive >zip >other options >passwrd
```

A.5.4. Files /Transfer Files

get file over ssh

```
scp pi@192.168.x.x:/home/pi/file /home/$USER/Desktop/file
```

download a file from rpi to linux

```
sudo apt install openssh-server
sudo apt install fail2ban
sudo apt install ufw gufw #then enable port 22 in gufw
sftp://user@192.168.1.xx/home/user
sftp -P 22 pi@192.168.1.xx
get remote-path [local-path]
```

upload a file from rpi to linux

```
sftp -P 22 pi@192.168.1.xx
put local-path [remote-path]
```

connect over sftp in thunar by pasting this address

```
sftp://pi@192.168.1.100/home/Username
```

connect over ftp in firefox by pasting this address

```
ftp://192.168.1.100:12345
```

download a website

```
wget --random-wait -r -p -e robots=off -U mozilla http://www.xy.ru
wget -r -A png http://www.xy.ru #get pngs from site
```

create an iso image from cd

```
readom dev=/dev/scd0 f=/path/to/image.iso
```

A.6. Terminal

ctrl+c	stop running process in console
Ctrl + Shift + V	clipboard to terminal
Ctrl + Shift + C	copy text from terminal
Ctrl + Alt + select it	select rectangle in terminal
Ctrl + D or exit	exit terminal / ssh session
Ctrl + Click link	open link in lxterminal
tab-key	autocomplete folder&filename
arrow-up/down	see last terminal command
clear	clear the terminal
reset	clear&reset screen
ssh pi@IP -p 22 "uptime"	login and run command
sshpass -p 'rasp'ssh pi@IP	ssh login with password
ssh pi@192.168.1.xx -p 22	connect to pi over terminal
sudo !!	execute previous command with sudo
!!	run same command again
!abc:p	print last command starting with abc
!foo	run last command beginning with foo
pkexec cmd	run cmd as superuser
nano ~/.bash_history	edit your history
history	terminal history with linenumbers
history -c	clear history
history -d linenumber	to delete that line
cat ~/.selected_editor	show active editor
select-editor	change users editor

hide pc & user in terminal

```
echo 'export PS1="\W_\$"' >> ~/.bashrc
```

A.7. For Loop

```
for ((a=1; a <= 3; a++));do echo $a; done  for loop
for a in {1..3}; do echo "$a"; done        for loop
```

A.8. Usage Nano

ESC + A	start mark text at cursor
ctrl + F	forward one character
ctrl + Space	forward one word
Page Up or Page Down	next/prev page
Ctrl + K	cut marked/infront of line: cut line
Ctrl + O	save without exit
Alt + W	search again
Ctrl + G	nano help

A.9. Bash Variables

env	Show environment variables
echo $NAME	Output value of $NAME variable
export NAME=value	Set $NAME to value
$PATH	Executable search path
$HOME	Home directory
$SHELL	Current shell
$USER	current user

A.10. Usage Firewall

sudo ufw deny from IP.0/24	block traffic from IP
sudo ufw deny out from any to IP.0/24	block traffic to IP
sudo ufw reload	reload ufw
sudo ufw status	check ufw status
sudo ufw enable	enable ufw
sudo ufw show added	show added rules

A.11. Process Management

xfce4-taskmanager	gui kill & stop tasks
ps	Show snapshot of processes
top	Show real time processes
pstree	show process tree
xkill	then click on window to kill
alt+f2 write "xkill"	same as above
ps aux	grep sample	get process ide from sample
kill pid	Kill process with id pid
pkill sample	kill with name sample
killall sample	Kill all processes with names begin sample

kill a process if pc is stuck

```
Ctrl + Alt + F2
youruser yourpassword #login
su
top #lists all process (mostly highest cpu useage cause probs)
k
enter
enter
q #to quit top
pkill pname #kills all process that start with pname
Ctrl + Alt + F7  #back to normal screen
```

kill program from htop

```
choose program you want to stop with with arrow up & down
press f9 to kill it
confirm killing with enter
```

run bash file

```
sudo bash -x /etc/init.d/c start
sudo bash -x /etc/init.d/c status
```

A.12. System

sudo shutdown -P +30	shutdown in 30 min
sudo shutdown -c	quit shutdown process
sudo shutdown -h 0	shutdown
sudo halt	halt
sudo shutdown -r now	reboot
sudo reboot	reboot
crontab -l	list crontab
crontab -e	edit crontab

A.13. About System

Command	Description
saidar -c	leightweight system stats in c
screenfetch	get info about system
uptime	how long is the pc up
last reboot	show last reboot
last shutdown	show last shutdown
df -h	show useable free space
free	show free ram
dmesg	new devices & more
dmesg --follow --human	show live dmesg output
cat /proc/cpuinfo	lot info about cpu
lscpu	Detailed CPU info
lsblk	show partition table
uname -r	kernel version number
uname -m	shows your bit version
uname -a	linux kernel all
cat /etc/os-release	lot info about linux version
more /etc/issue	what system do you use
cat /etc/*issue	what build image do you use
lsb_release -a	get linux version
acpi -i	battery
sudo powertop	battery
acpi -t	cpu temperature
acpi -V	high temp, critical temp
nvidia-smi -l	list about nvidia card
ls /usr/share/applications/*	list global programs
ls /home/$USER/.local/share/appli*/*	list local programs
ls /etc/xdg/autostart/*	list autostarted programs
cat /etc/passwd	id over 1000 manually done
sudo blkid	get partition uuids
python -V	get python version
xmodmap -pke	read keymap

A.14. Install

Command	Description
sudo apt update && sudo apt upgrade	update,upgrade
sudo apt clean	clean that files
sudo dpkg -i file.deb	install a deb file
sudo apt install -f	fix a broken deb install
sudo apt purge pname	purge paket include conf files
sudo apt-get remove pname	remove programs
sudo unattended-upgrades --dry-run	dryrun unattended upgrades
sudo apt install --reinstall name	reinstall a program
dpkg -info file.deb	info about a package
ls /etc/apt/sources.list.d/	check manually added repos
apt-cache showpkg packagename	show dependencies
dpkg -l packagename	is package installed
dpkg -l	grep ^i	list installed packages
nano /etc/apt/sources.list	check source list
ls /var/cache/apt/archives	all downloaded .deb files
sudo apt-get dist-upgrade	mostly trouble, do not use
dpkg --list |grep linux-image	to list all images
sudo apt-cache search pname	shows also the version

A.14.1. Install /update & upgrade & autoremove & clean old packages

```
sudo apt-get -qq update && \
sudo apt-get -qq -y upgrade && \
sudo apt-get -qq -y clean && \
sudo apt-get -qq -y autoclean && \
sudo apt-get -qq autoremove
```

A.14.2. Install /Program Autostart

```
sudo cp /usr/share/applications/firefox.desktop /etc/xdg/autostart/
sudo crontab -u $USER -e  #or edit crontab to do it
```

A.14.3. Install Advanced

upgrade only a special package

```
sudo apt-get install --only-upgrade pname
```

delete an old image

```
sudo apt-get purge linux-image-3.19.0-15-generic
```

search for files inside not-installed packages

```
sudo apt-get install apt-file  #install apt-file
apt-file update # update apt-file
apt-file search packagename #search it
apt-file list packagename
sudo apt-cache search packagename #shows also version
```

install :i386 package in 64 bit

```
sudo dpkg --add-architecture i386 && sudo apt update
sudo apt install package
```

remove i386 architecture

```
sudo apt-get purge ".*:i386"
sudo dpkg --remove-architecture i386
sudo apt-get update
```

add a keyserver

```
sudo apt-key adv --keyserver PGP_KEY_SERVER --recv-keys ID
```

remove a keyserver

```
sudo apt-key list
sudo apt-key del D3D831EF
sudo rm /etc/apt/sources.list.d/mono-xamarin.list
```

convert a rpm package into deb

```
sudo apt install alien
sudo alien -ci packagename.rpm
alien --to-deb /path/to/file.rpm
```

fix dependencies problems

```
apt-cache rdepends pkgecausedprobs
sudo apt purge -y ...
sudo apt-get autoclean &&\
sudo apt-get clean &&\
sudo apt-get autoremove
```

A.15. Monitoring & Debugging Network

Command	Description
hostname -I	show the ip
vnstat	network traffic
bmon	network monitor
sudo linssid	gui to scan nearby networks
ifconfig -a	network information
iwconfig	wlan info
sudo rfkill block wifi	block wifi
sudo rfkill unblock wifi	reactivate the module again
iwlist scanning	scan networks
ip link show	interfaces info
sudo lastb	check failed logins
lsof -p $$	List paths that process id has open
lsof ~	List processes with specified path open
lsof -i	show network activity
watch -n 1 'lsof -i'	run lsof every sec.
sudo netstat -anp --inet	List TCP/UDP ports&IP use by process
sudo netstat -ap --inet	as above but with Address
nethogs	groups bandwidth by process
tcpdump not port 22	Show network traffic except ssh.
etherape	connections/traffic
sudo iptraf	iptraffic
sudo iftop -i wlan0	iptraffic
ip.addr == 192.168.1.100	wireshark traffic for ip
noping example.com eg.com	ping more websites
ping -i 60 -a IP\address	ping ip every 60 sec and beep if there
whois example.com	info for domain
dig example.com	dns info for domain
host example.com	Lookup DNS ip

A.16. Monitoring & Debugging Files

Command	Description
w	who is logged in and how long
grep CRON /var/log/syslog	cron logs
tail -f /var/log/msg	Monitor messages in a log file
~/.local	check local files
~/.cache	check cache files
cat /var/log/syslog	more	view syslog
sudo less /var/log/syslog	read syslog
sudo zless /var/log/syslog.2.gz	read archived logs
sudo tail -f -n 0 /var/log/syslog	read while changing
sudo rm -r /var/log/*	clean all logs
zeitgeist-explorer	inspect public logs
exiftool -a -G1 file.pdf	get info about pdf

open in sqlite browser go to data and check text and url

```
~/.local/share/zeitgeist/activity.sqlite
```

recently used files

```
~/.local/share/recently-used.xbel
```

get all string values from your ram

```
sudo dd if=/dev/mem | cat | strings
```

A.17. File Searching

Command	Description
which nano	find location of binary
find / -name "Keyword*"	search all beginning with Keyword
find / -iname "*keyword*"	ignore case&word can be in middle
find . -type d -name '*str*'	search for directory with str
ls *.txt	find txt files in dir
grep str /path/file	search for str in file
grep -rni $PWD -e pattern	search pattern in files in cur dir

search for https addresses in file
but missing '%[]' so url with it will be cut there

```
grep -o 'https://[a-zA-Z0-9.,\/._~:?#@!$&()*%+,;=-]*' file
```

search in a pdf file

```
pdftotext file-name.pdf && cat file-name.txt | grep 'Search-string'
```

A.18. Users & Groups

Command	Description
passwd -S	info last time password was set
passwd	change password
users	list all users
groups	list all groups
sudo -s	run following code as admin
sudo su -l	login as superuser
sudo -i	change to root user
cut -d: -f1 /etc/passwd	list all users
sudo userdel username	rm user
sudo adduser username	create/add a new user
sudo su username	switch to user
adduser username sudo	add username to sudoers group
grep pi /etc/group	shows all groups of pi

add a user to groups

```
sudo usermod -a -G group1,group2 testuser
```

remove a user from all groups

```
sudo usermod -G "" testuser
```

remove a user

```
sudo passwd -l username #lock useraccount
sudo userdel -r -f username #home, mail, other users files
sudo crontab -r -u username #remove crontab
```

A.19. Hacks

Command	Description
uuidgen	generate random uuid
rm -rf /	remove all the programs,every
lynx -dump -listonly https://goo.gl/	get all links from site

ascii clock

```
        watch -n 1 'echo "obase=2;`date_+%s`" | bc'
```

A.20. Simple Math

Command	Description
echo $((10 + 5))	calculate in bash
calc 1+1	says the ans

A.21. Usage Rsync

dryrun rsync for testing.

```
rsync -rtuv links --dry-run /path/to/src/* /path/to/dest/
```

run rsync

```
rsync -rtuv --links /path/to/src/* /path/to/dest/
```

A.22. Install with pip

Command	Description
sudo pip install pname	install a pip package
sudo pip install --upgrade pname	upgrade a package
sudo pip uninstall pname	remove a package

A.23. Usage Tmux

Command	Description
tmux new -s myname	start new with session myname
tmux a #or at, or attach	attach a session
tmux a -t myname	attach to myname
tmux ls	list sessions
Ctrl + B then d	detach session
Ctrl + D or write: exit	exit window
Ctrl + B then write :kill-session	kill session
tmux kill-session -t Sessionx	kill sessionx
Ctrl + B + %	tmux split screen horizontally
CTRL + B + "	split screen vertically
Ctrl + B + Z	panel full screen; shrink back

A.24. Usage Calendar

Command	Description
cal	displays current month
cal -3	prev/act/next month
cal -m 4	shows 4 month of the year
cal -y 2018	shows the whole year
cal 9 1752	Display a calendar for a month year
date -d fri	What date is it this friday. See also day
date --date='25 Dec' +%A	What day does xmas fall on, this year
calendar	what happend today in history

A.25. Usage Systemd

Command	Description
systemd --version	systemd version
systemd-analyze	how long to boot kernel and system
systemd-analyze blame	to check each process
systemctl list-unit-files	list all services ,static = dependency
systemctl list-units	list only running services

A.26. Usage Mysql

delete database and user

```
mysql -u root -p
DROP DATABASE databasename_to_delete;
DROP USER 'databaseuser_to_delete'@'localhost';
```

exit

quit

check mysql table

```
mysqlcheck -c  -u root -p --all-databases
```

autorepair tables

```
mysqlcheck -u root -p --auto-repair --all-databases
```

optimize tables

```
mysqlcheck -o -u root -p --all-databases
```