Linux Commands Cheat Sheet

by ralema56 via cheatography.com/78049/cs/19072/

Quick basic commands

cd (Example: cd Desktop)	change directory, case sensitive
cd	home directory
.	this directory
cd ..	go up one directory
cd -	change dir to previous working dir
pwd	print working directory
ls	list contents, -a all, -h human readable
ll	LL list directories with RW permissions
la	LA list all including hidden
sudo	super user privileges
mkdir <dirname> <dirname2>	create directories
cp <path and locations> .	copy contents to current directory, cp by itself will overwrite files silently
mv <item1> <item2> directory	move file(s) to location
rm -i <item>	delete file, -i interactive confirmation
alias	lists alias commands
alert <"message">	sends a message to notifications
> emptyDOC.txt	make an empty text file
>	standard out to .txt (will overwrite)
>>	append standard out .txt will (not overwrite)
ls -la /usr/bin > ls-output.txt	will print the directory contents to a text file

Quick basic commands (cont)

&>	will include output and errors

apt

apt list	| grep Type a word to highlight in red
apt search	| grep searchword
apt install	app name
apt remove	app name
apt update	
apt upgrade	

Permissions

id	Display user idenity
chmod	Change a files mode
umask	Set the default file permissions
su	Run a shell as another user
sudo	Execute a command as another user
chown	Change a file's owner
chgrp	Change a file's group ownership
passwd	Change a user's password

Reading, Writing, Executing -rw-r--r--

Example	-rw-r--r--
-	col1. Regular file
d	col1. Directory
l	col1. A symbolic link. Dummy values.
c	col1. A charcater special file. Modem
b	col1. A block special file. Ex. CD, HDD.
r	Read only
w	Write
x	Executable

iptables (firewall)

iptables -h	list commands
--list	list the rule in a chain or all chains
--verbose or -v	details
--line-numbers	print line numbers when listing
--version or -V	version number
--list-rules or -S	list rules
--numeric or -n	numeric output of addresses and ports

Permission Attribute Examples

-rwx------	read, write, execute by file's owner only
-rw-------	read and write by owner only
-rw-r--r--	read and write owner, read group, read world
-rwxr-xr-x	read, write, execute owner. read and execute everyone else.
lrwxrwxrwx	A symbolic link with dummy permissions
drwxr-x---	Directory. read, write, execute owner. Read and execute group.

Changing passwords

passwd [user]	with sudo you can change a user password
passwd	change your password

chown

chown [owner][:[group]] file..	syntax use
bob	change ownership from current to bob
bob:users	change file ownership to bob and group to users

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chown (cont)

:admins	change group owner to admins, the owner is unchanged
bob:	change the current owner to bob and change the group to the login group for bob

text editors

gedit	GUI (installed in Ubuntu)
kedit	KDE default
kate	sudo apt install kate
nano	command line based (installed in Ubuntu)
vi or vim	vi IMproved (installed in Ubuntu)
emacs	sudo apt install emacs-gtk

text editing basics

make a backup before editing	cp <filename> <filename.bak>
nano <filename>	load a text in nano

nano text editor

^X	to quit nano, ^ mean CTRL
^O CTRL-O	save the file

vi or vim text editor

vi	start vim
vi newdoc.txt	create a blank text doc in vi from command line
:q	quit
:q!	quit without saving
vi starts in command mode	press i to go to insert text mode
press ESC to exit insert mode	exit insert mode with ESC
:w	save the file, or write to file

vi or vim text editor (cont)

double tap ESC if you don't know where you are in vi

Navigating Command Mode

H or left arrow	left one character
J or down arrow	down one line
K or up arrow	up one line
L or right arrow	right one character
0 (zero)	go to the beginning of the current line
SHIFT-6 (^)	to the first non whitespace character on the current line
SHIFT-4 ($)	to the end on the current line
W	to the beginning of the next word, or punctuation characters
SHIFT-W (W)	to the beginning of the next word, ignore punctuation characters
B	to the beginning of the previous word or character
SHIFT B (B)	to the beginning of the previous word or character, ignoring punctuation
CTRL-F or page down	down on page
CTRL-B or page up	up one page
number-SHIFT-G	to the line number, example 1G moves to the first line of the file
SHIFT-G	to the last line of the file

Cutting, Copying, Pasting Text

DELETE TEXT aka CUT TEXT

vi or vim text editor (cont)

x	delete the current character
3x	delete the current character and the 2 after it
dd	delete the current line
5dd	delete the current line and the next 4 lines
dW	delete from the current cursor position to the beginning of the next word
d$	delete from the current cursor position to the end of the line
d0	delete from the current cursor position to the beginning of the line
d^	delete from the current cursor location to the first non whitespace character line
dG	from the current line to the end of the file
d20g	from the current line to the 20th line of the file

COPYING

yy	y stands for yank which is copy, yy copies the current line

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vi or vim text editor (cont)

5yy	copies the current line and the next 4 lines
yW	from the cursor location to the beginning of the next word
y$	from the cursor location to the end of the current line
y0	from the current cursor location to the beginning of the line
y^	from the current cursor location to the first non whitespace character in line
yG	from the current line to the end of the file
y20G	from the current line to the 20th line of the file

PASTING

p	pastes the current copied text below the current line
P	pastes the copied text above the current line
Join lines	J
vi has the ability to do search and replace	maybe I will add a cheat sheet for this later
/searchtext	searches vi
:%s/Line/-line/g	will search and replace Line with line globally

EDIT MULTIPLE FILES

vi or vim text editor (cont)

vi file1 file2 file3

:n	switch to the next file
:N	switch to the previous file
:buffers	lists open files
:buffers 2	switch to buffer file 2
:e	open another file from vi. example :e filename.txt
:r	copy an entire file to the vi session. example :r myfile.txt

Networking commands

ping	send en ICMP echo request to network hosts
traceroute	print the route packets trace to a network host
netstat	print the network connections, routing tables, interface stats, masquerade connections, and multi cast memberships
ftp	file transfer program
lftp	an improved ftp
wget	non interactive network downloader
ssh	openSSH SSH client (remote login)
scp	secure copy (remote copy program)
sftp	secure ftp

Technical commands

cat (brings files together, uses input)	CTRL-D to quit, tell cat EOF
cat > sometext.txt; this is some text to be saved	a simple way to add text to a text file

Technical commands (cont)

cat somete-xt.txt	to read the file with cat
|	pipe connects input to output
ls /bin /usr/bin |sort | less	example sort 2 dirs binaries
sort	alphabetize a list
uniq	used with sort, removes duplicates
grep	pattern finding
head	checks the first 10 lines of a file. -n # (to adjust #)
tail	checks the last 10 lines of a file. -n#
tail -f /var/l-og/mes-sages	-f is a real time log file viewer switch(CTRL-C to quit)
tee	for use with pipe
echo *D	display everything with a capital D
echo $((2+2))	command line calculator
echo "$(c-al)"	calendar
history	a list of all commands used
history: !88	!88 will use number 88 in history

USB checking

lsusb	list connected USB devices

dpkg

dpkg --list	list all installed packages
-r or --remove	remove a package
-P or --purge	
--log=<filename>	log changes made
-i or --install <.deb file name>	install a deb file

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chmod octal chart

octal	binary - filemode
0	000 ---
1	001 --x
2	010 -w-
3	011 -wx
4	100 r--
5	101 r-x
6	110 rw-
7	111 rwx
example setting octal 600	owner, group, world
	binary seems somewhat irrelevant
chmod symbolic notation	
u	user
g	group
o	others, world
a	all
example notation	
u+x	add execute permission for the owner
u-x	remove execute permission from the owner
+x	add execute for everyone, same as a+x
o-rw	remove read and write for everyone but owner and group
u+x,go=rx	add excute for owner, group and world changed to read and execute

umask new file default permissions

umask	0022 ubuntu default
# position 0---	4000 sets program ownership to app
	2000 sets group ownership for shared directories

umask new file default permissions (cont)

1000 set to a directory prevents files from being deleted in shared directory	
the last three are octal permissions	

system stuff

printenv | less	system information
printenv USER	views the contents of a variable, example USER contains your user name
set | less	display shell and enviro-nment variables
echo $HOME	echo can be used to view single variables
alias	lists all alias commands
[command]; alert [message]	to get a notification when a command is done(an alias in ubuntu)
below are some variables of interest	**
DISPLAY	the name of your display enviroment
EDITOR	the default text editor
SHELL	name of the shell running
HOME	path to home directory
LANG	keyboard language
OLD_PWD	the previous working directory
PAGER	the name of the program used for paging output. Usually is app less

system stuff (cont)

PATH	a colon separated list of directories that are searched when you enter the name of an executable program
PS1	prompt string 1, defines the contents of shell prompt
PWD	current working directory
TERM	the name of your terminal type
TZ	time zone
USER	your username

Storage Media command overview

mount	mount a file system
umount	un-mount a file system (pay attention to the spelling of the command Umount)
fdisk	partition table manipulator
fsck	check and repair a filesystem
fdformat	format a floppy disk
mkfs	make a filesystem
dd	write block-oriented data directly to a device
geniso-image (mkisos)	create an ISO 9660 image file
wodim (cdrecord)	write data to an optical storage
md5sum	calculate MD5 checksum
LISTING DEVICES AND FILESYSTEMS	
/etc/fstab	is a list of devices
mount	will view a list of mounted filesystems
ls /dev	list devices

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Storage Media command overview (cont)

/dev/fd*	floppy disks
/dev/hd*	hard drives
/dev/lp*	printers
/dev/sd*	SCSI disks
/dev/sr*	Optical drives CD/DVD readers and burners
sudo tail -f /var/log/-syslog	to see real time device changes in the system

MOVING DEV MOUNT LOCATIONS

sudo mkdir /mnt/flash	make a dir to mount flash drive
sudo mount /dev/sdb1 /mnt/flash	moves the location to the new one (use the proper device name before moving)
df	display disk space df -h for human readable

system startup stuff

/etc/p-rofile	a global configuration script that applies to all users
~/.bas-h_profile	a users personal startup file. can override the global config script
~/.bas-h_login	if ~/.bash_profile is not found, bash attempts to read this one
~/.profile	if neither bash profile or login are found this is run. this is the default in Ubuntu
/etc/b-ash/bas hrc	a global config script that applies to all users

system startup stuff (cont)

~/.bashrc	a users personal startup file
files that start with a period are hidden	is -a option when searching with ls

fdisk commands

sudo umount /dev/sdb1	unmount the partition
sudo fdisk /dev/sdb	mount the entire drive

fdsik commands

p	print partition tables
l	list known partition types
t	change a partitions system id
w	write partition changes
q	quit fdisk

creating a new filesystem with mkfs

sudo mkfs -t ext3 /dev/sdb1	make an ext3 filesystem on device sdb1 partition
sudo mkfs -t vfat /dev/sdb1	make a fat32 silesystem on device sdb1

testing and repairing filesystems with fsck

sudo fsck /dev/sdb1	checks the filesystem on sdb1 partition

Moving data directly to and from devices with dd

dd	raw copy tool (dd has 2 names, data definition and destroy disk)
dd if=input_file of=output_file [bs=block_size [count=blocks]]	syntax to dd raw copy

Moving data directly to and from devices with dd (cont)

dd if=/dev/sdb of=/dev/sdc	copy 2 identical usb drives that are the same size
dd if=/dev/sdb of=flash_dri-ve.img	make a raw image of the drive

creating CD-ROM images

dd if=/de-v/cdrom of=ubu-ntu.iso	copy the contents of a cd to an image file
cdrdao	is used for audio cds

creating an iso from a collection of files

geniso-image -o cd-rom.iso -R -J ~/cd-rom--files	if you had a directory called /cd-rom-files, you could use this command to make an image of the directory
the -R -J options defined	the allow the use of long filenames

mounting an iso image directly

using the -o loop with mount

mkdir /mnt/i-so_image	then the next line down
mount -t iso9660 -o loop image.iso /mnt/iso_-image	mounts the iso as a virtual drive

blanking a RW CD

wodim dev=/d-ev/cdrw blank=fast	there are other types of blanking

writing an image file

wodim dev=/d-ev/cdrw image.iso	writes an image to cd

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MD5 checksum

md5sum image.iso	will give you the md5 checksum value
md5sum /dev/cdrom	a cd-r write in disc at once can be checked like this

lynis (auditing,hardening)

sudo apt install lynis	install it
lynis audit system	perform local security scan
lynis show version	version
--verbose	details
--pentest	non privileged scan

systemctl (services)

systemctl -all or -a	see all loaded processes
list-units	list units currently in memory
list-sockets	list sockets currently in memory
list-unit-files	list installed unit files
poweroff	turn the computer off
reboot	shutdown and restart
is-system-running	checks to see if the system is running
--type service --state running	searching for running services

ps (running processes)

ps -e	all running processes
ps aux | grep telnet	search for telnet running
ps ####	# = number for PID to view
ps -aux	custom running process search
ps --help all	list more commands
ps	report a snapshot of the current running processes

ps (running processes) (cont)

top	display tasks with the top active ones
jobs	list active jobs
bg	place a job in the background
fg	place a job in the foreground
kill	send a signal to a process via PID
killall	kill process by name
shutdown	shut down or reboot the system
xlogo	creates a nonsense xlogo app for debuging and testing ps controls
[CTRL-c]	terminates programs started in terminal
xlogo &	& will make a program start in the background
fg %1	will bring the program to the foreground
[CTRL-z]	stops or pauses a process
bg %1	put program in background
killall [process name]	killall xlogo for example if multiples are running
pstree	outputs a process list in a tree pattern
vmstat	system resource snapshot [vmstat5] for continuous feed
xload	GUI draws a graph, showing sys stats overtime
tload	a terminal version of xload
tload	a terminal version of xload

netstat

netstat	-tulpn
-l (L)	display listening sockets
-n	don't resolve names
-p	display PID
-s	an overview - statistics
-g	group memberships
-r	router table
-i	interface table

Customizing the Prompt

adjust how the prompt is displayed and operates

echo $PS1	display the current prompt setup
ps1_old="$-PS1"	make a backup before making changes called ps1_old. check with echo $ps1_old
PS1="$ps1_old"	restore the original
PS1=	clear all prompt data (no visible prompt)
PROMPT VALUES	ubuntu default value is: [\u@\h \W]\$
PS1="\$ "	a minimal prompt
\a	ASCII bell. Makes the computer beep
\d	current date in day, month, date format
\h	hostname of the local machine minus the domain
\H	full hostname
\j	number of jobs in the current shell
\l	name of the current terminal device
\n	a newline character
\r	a carriage return
\s	name of the shell program
\t	current time in 24hour H:M:S
\T	current time in 12hour format

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Customizing the Prompt (cont)

\@	current time in 12hour am/pm format
\A	current time in 24 hour H:M
\u	username of the current user
\v	version number of the shell
\V	version and release number of the shell
\w	name of the current working directory
\W	last part of the working directory
\!	history number of the current command
\#	number of commands entered in shell
\$	displays the $ character unless you have root, in that case it displays #
\[	the start of a series of one or more non-printing characters
\]	the end of a non-printing character sequence
COLOR TEXT	
\033[0;30m	black
\033[0;31m	red
\033[0;32m	green
\033[0;33m	brown
\033[0;34m	blue
\033[0;35m	purple
\033[0;36m	cyan
\033[0;37m	light grey
\033[1;30m	dark grey
\033[1;31m	light red
\033[1;32m	light green
\033[1;33m	yellow
\033[1;34m	light blue
\033[1;35m	light purple
\033[1;36m	light cyan

Customizing the Prompt (cont)

\033[1;37m	white
BACKGROUND COLOR	
\033[0;40m	black
\033[0;41m	red
\033[0;42m	green
\033[0;43m	brown
\033[0;44m	blue
\033[0;45m	purple
\033[0;46m	cyan
\033[0;47m	light gray

Searching for files commands

locate	find files by name
find	search for files in directory hierarchy
xargs	build and execute command lines from standard input
touch	change file times
stat	display file or filesystem status
locate (find files the easy way)	
locate bin/zip	locate will search for any string with bin and zip
locate zip | grep bin	and fancier search
find (find files the hard way)	
find ~	a list of directories in our home dir
find ~ | wc -l	use word count to find how many files
find ~ -type d | wc -l	find how many directories with word count
find ~ -type f | wc -l	find regular files with word count

Searching for files commands (cont)

find ~ type f -name "*.JPG" -size +1M | wc -l	find files with the name .jpg larger than 1 mb and count them
find test	
-cmin n	match files of dirs whose content was modified exactly n minutes ago
-cnewer file	match files or directories whose content was last modified more recently than the file named
-ctime	match files or dirs that were modified within the last 24hours
-empty	match empty files or dirs
-group name	match files or dirs belonging to a group
-iname pattern	like name but case sensitive
-inum n	match files with inode number n
-mmin n	match files of dir whose contents were modified n mins ago
-mtime n	match files or dirs whose contents where modified n 24 hours ago
-name pattern	match files with wildcard pattern
-newer file	match files or dirs whose content was modifies more recently than specified file

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Searching for files commands (cont)

-nouser	match files or dirs that do not belong to a user
-nogroup	match files that do not belong to a group
-perm mode	match files that have permission set to a specific mode
-samefile name	match files with the same inode number, similar to -inum test
-size n	match file of size n
-type c	match files of c type
-user name	match files or dir belonging to user name
find logical operators	
-and	match if both sides are true, also known as -a
-or	match is one side is true also known as -o
-not	match if the following test is false, also know as -!
( )	group tests together to form larger expressions
examples	
-type f -and -not -perms 0600	testing for bad permissions by testing for good ones

Searching for files commands (cont)

find ~ (-type f -not -perms 0600) -or (-type d -not -perms 0700)	test for bad files and directories
actions for find	
-delete	delete the currently matching file(see warning)
-ls	perform the equivalent of ls -dils on the matching file.
-print	output the full pathname of the file
-print0	used to correctly print file names with spaces
-quit	quit once a match has been made
warning for delete	
always use -print as a substitute for -delete to see what will be deleted	
find ~ -type f -name '*.BAK' -print	-print the files to output before deleting
find ~ -type f -name '*.BAK' -delete	then proceed if you wish to delete still

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