Linux Cheat Sheet V1.3 (debian based)

File and Directory Operations

Command	Description	Options	Examples
ls	List files and directories.	• **-l**: Long format listing. • **-a**: Include hidden files hidden ones • **-h**: Human-readable file sizes.	• **ls -l** displays files and directories with detailed information. • **ls -a** shows all files and directories, including • **ls -lha** displays file sizes in a human-readable format, including hidden items.
cd	Change directory.		• cd /path/to/directory changes the current directory to the specified path.
pwd	Print current working directory.		• **pwd** displays the current working directory.
mkdir	Create a new directory.		• **mkdir my_directory** creates a new directory named "my_directory".
rm	Remove files and directories.	• **-r**: Remove directories recursively. • **-f**: Force removal without confirmation.	• **rm file.txt** deletes the file named "file.txt". • **rm -r my_directory** deletes the directory "my_directory" and its contents. • **rm -f file.txt** forcefully deletes the file "file.txt" without confirmation.
cp	Copy files and directories.	• **-r**: Copy directories recursively.	• **cp -r directory destination** copies the directory "directory" and its contents to the specified destination. • **cp file.txt destination** copies the file "file.txt" to the specified destination.

Command	Description	Options	Examples
mv	Move/rename files and directories.		• **mv file.txt new_name.txt** renames the file "file.txt" to "new_name.txt". • **mv file.txt directory** moves the file "file.txt" to the specified directory.
touch	Create an empty file or update file timestamps.		• **touch file.txt** creates an empty file named "file.txt".
cat	View the contents of a file.		• **cat file.txt** displays the contents of the file "file.txt".
head	Display the first few lines of a file.	• **-n**: Specify the number of lines to display.	• **head file.txt** shows the first 10 lines of the file "file.txt". • **head -n 5 file.txt** displays the first 5 lines of the file "file.txt".
tail	Display the last few lines of a file.	• **-n**: Specify the number of lines to display.	• **tail file.txt** shows the last 10 lines of the file "file.txt". • **tail -n 5 file.txt** displays the last 5 lines of the file "file.txt".
ln	Create links between files.	• **-s**: Create symbolic (soft) links.	• **ln -s source_file <destination path/>link_name** creates a symbolic link named "link_name" pointing to "source_file".
find	Search for files and directories.	• **-name**: Search by filename. • **-type**: Search by file type.	• **find /path/to/search -name "*.txt"** searches for all files with the extension ".txt" in the specified directory.

File Permission Commands

Command	Description	Options	Examples
chmod	Change file permissions.	• **u**: User/owner permissions. • **g**: Group permissions. • **o**: Other permissions. • R: recursively • +: Add permissions. • -: Remove permissions. • =: Set permissions explicitly.	• **chmod u+rwx file.txt** grants read, write, and execute permissions to the owner of the file. • **chmod** -R 777 folder sets full permissions to everyone for a folder and all sub directories.
chown	Change file ownership.	user:group R: recursively	• **chown user file.txt** changes the owner of "file.txt" to the specified user. • **chown -R 1000:1000 folder** sets ownership of folder and sub folders to be user 1000 and group 1000
chgrp	Change group ownership.		• **chgrp group file.txt** changes the group ownership of "file.txt" to the specified group.
umask	Set default file permissions.		• **umask 022** sets the default file permissions to read and write for the owner, and read-only for group and others.

File Compression and Archiving Commands

Commands	Description	Options	Examples
tar	Create or extract archive files.	• **-c**: Create a new archive. • **-x**: Extract files from an archive. • **-f**: Specify the archive file name. • **-v**: Verbose mode. • **-z**: Compress the archive with gzip. • **-j**: Compress the archive with bzip2.	• **tar -czvf archive.tar.gz files/** creates a compressed tar archive named "archive.tar.gz" containing the files in the "files/" directory. • **tar -xvf archive.tar.gz <destination path>** Extract with verbose output
gzip	Compress files.	• **-d**: Decompress files.	• **gzip file.txt** compresses the file "file.txt" and renames it as "file.txt.gz".
zip	Create compressed zip archives.	• **-r**: Recursively include directories.	• **zip archive.zip file1.txt file2.txt** creates a zip archive named "archive.zip" containing "file1.txt" and "file2.txt".

Networking Commands

Command	Description	Examples
ifconfig	Display network interface information.	• **ifconfig** shows the details of all network interfaces.
ping	Send ICMP echo requests to a host.	• **ping google.com** sends ICMP echo requests to "google.com" to check connectivity.
netstat	Display network connections and statistics.	• **netstat -tuln** shows all listening TCP and UDP connections.
ss	Display network socket information.	• **ss -tuln** shows all listening TCP and UDP connections.
ssh	Securely connect to a remote server.	• **ssh user@hostname** initiates an SSH connection to the specified hostname.
scp	Securely copy files between hosts.	• **scp file.txt user@hostname:/path/to/destination** securely copies "file.txt" to the specified remote host.
wget	Download files from the web.	• **wget http://example.com/file.txt** downloads "file.txt" from the specified URL.
curl	Transfer data to or from a server.	• **curl http://example.com** retrieves the content of a webpage from the specified URL.
ip a	Identify ip addresses	• ip a list all network interfaces and ip numbers

Process Management Commands

Commands	Description	Options	Examples
ps	Display running processes.	• **-aux**: Show all processes.	• **ps aux** shows all running processes with detailed information.
<h>top	Monitor system processes in real-time. htop is the coloured version of top.		• **<h>top** displays a dynamic view of system processes and their resource usage.
kill	Terminate a process.	• **-9**: Forcefully kill a process.	• **kill PID** terminates the process with the specified process ID.
pkill	Terminate processes based on their name.		• **pkill process_name** terminates all processes with the specified name.
pgrep	List processes based on their name.		• **pgrep process_name** lists all processes with the specified name.
grep	used to search for specific patterns or regular expressions in text files or streams and display matching lines.	• **-i**: Ignore case distinctions while searching. • **-v**: Invert the match, displaying non-matching lines. • **-r or -R**: Recursively search directories for matching patterns. • **-l**: Print only the names of files containing matches. • **-n**: Display line numbers alongside matching lines. • **-w**: Match whole words only, rather than partial	• **grep -i "hello" file.txt** • **grep -v "error" file.txt** • **grep -r "pattern" directory/** • **grep -l "keyword" file.txt** • **grep -n "pattern" file.txt** In these examples we are extracting our desirec output from filename (file.txt)

Commands	Description	Options	Examples
		matches. • **-c**: Count the number of matching lines instead of displaying them. • **-e**: Specify multiple patterns to search for. • **-A**: Display lines after the matching line. • **-B**: Display lines before the matching line. • **-C**: Display lines both before and after the matching line.	

IO Redirection Commands

Command	Description
cmd < file	Input of cmd is taken from file.
cmd > file	Standard output (stdout) of cmd is redirected to file.
cmd 2> file	Error output (stderr) of cmd is redirected to file.
cmd 2>&1	stderr is redirected to the same place as stdout.
cmd1 <(cmd2)	Output of cmd2 is used as the input file for cmd1.
cmd > /dev/null	Discards the stdout of cmd by sending it to the null device.
cmd &> file	Every output of cmd is redirected to file.
cmd 1>&2	stdout is redirected to the same place as stderr.
cmd >> file	Appends the stdout of cmd to file.

User Management Commands

Command	Description
who	Show who is currently logged in.
sudo adduser username	Create a new user account on the system with the specified username.
finger	Display information about all the users currently logged into the system, including their usernames, login time, and terminal.
sudo deluser USER GROUPNAME	Remove the specified user from the specified group.
last	Show the recent login history of users.
finger username	Provide information about the specified user, including their username, real name, terminal, idle time, and login time.
sudo userdel -r username	Delete the specified user account from the system, including their home directory and associated files. The -r option ensures the removal of the user's files.
sudo passwd -l username	Lock the password of the specified user account, preventing the user from logging in.
su - username	Switch to another user account with the user's environment.
sudo usermod -a -G GROUPNAME USERNAME	Add an existing user to the specified group. The user is added to the group without removing them from their current groups.

System Information Commands

Command	Description	Options	Examples
uname	Print system information.	• **-a**: All system information.	• **uname -a** displays all system information.
whoami	Display current username.		• **whoami** shows the current username.
df	Show disk space usage.	• **-h**: Human-readable sizes.	• **df -h** displays disk space usage in a human-readable format.
du	Estimate file and directory sizes.	• **-h**: Human-readable sizes. • **-s**: Display total size only.	• **du -sh directory/** provides the total size of the specified directory.
free	Display memory usage information.	• **-h**: Human-readable sizes.	• **free -h** displays memory usage in a human-readable format.
uptime	Show system uptime.		• **uptime** shows the current system uptime.
lscpu	Display CPU information.		• **lscpu** provides detailed CPU information.
lspci	List PCI devices.		• **lspci** List PCI devices.
lsusb	List USB devices.		• **lsusb** lists all connected USB devices.
id	Print user and group information		• id owner and group info for current process

Bash Shell Shortcuts Commands

Navigation	Description	Editing	Description	History	Description
Ctrl + A	Move to the beginning of the line.	**Ctrl + U**	Cut/delete from the cursor position to the beginning of the line.	**Ctrl + R**	Search command history (reverse search).
Ctrl + E	Move to the end of the line.	**Ctrl + K**	Cut/delete from the cursor position to the end of the line.	**Ctrl + G**	Escape from history search mode.
Ctrl + B	Move back one character.	**Ctrl + W**	Cut/delete the word before the cursor.	**Ctrl + P**	Go to the previous command in history.
Ctrl + F	Move forward one character.	**Ctrl + Y**	Paste the last cut text.	**Ctrl + N**	Go to the next command in history.
Alt + B	Move back one word	**Ctrl + L**	Clear the screen.	**Ctrl + C**	Terminate the current command.
Alt + F	Move forward one word.				

Nano Shortcuts Commands:

File Operations	Description	Navigation	Description	Editing	Description	Search and Replace	Description
Ctrl + O	Save the file.	**Ctrl + Y**	Scroll up one page.	**Ctrl + K**	Cut/delete from the cursor position to the end of the line.	**Ctrl + W**	Search for a string in the text.
Ctrl + X	Exit Nano (prompt to save if modified).	**Ctrl + V**	Scroll down one page.	**Ctrl + U**	Uncut/restore the last cut text.	**Alt + W**	Search and replace a string in the text.
Ctrl + R	Read a file into the current buffer.	**Alt + **	Go to a specific line number.	**Ctrl + 6**	Mark a block of text for copying or cutting.	**Alt + R**	Repeat the last search.
Ctrl + J	Justify the current paragraph.	**Alt + ,**	Go to the beginning of the current line.	**Ctrl + K**	Cut/delete the marked block of text.		
		Alt + .	Go to the end of the current line.	**Alt + 6**	Copy the marked block of text.		

Tips and tricks:

- Combine commands with &&
  (example is a upgrade all, clean old packages, and remove unneeded dependencies.)
  sudo apt-get update && sudo apt-get upgrade -y && sudo apt-get autoremove -y && sudo apt-get autoclean -y
- Time a command's execution
  date && command-to-run && date
- Any file or directory that starts with a period is invisible.
  use the **la -a** command to see them
- Update the apt installer packages repository
  sudo apt update
- Upgrade all app packages
  sudo apt upgrade
- Install a package
  sudo apt install package-name -y
- Uninstall a package
  sudo apt remove package-name
- Show all aliases set on your system
  alias
- Add aliases to ~/.bashrc
  alias name='commands…..'
- Reload aliases from .bashrc
  Close and open the terminal or type:
  source ~/.bashrc
- Upgrade OS version
  sudo do-release-upgrade
- Show top 10 biggest folders at your location.
  sudo du -Sha | sort -rh | head -n 10
- Get the version of linux.
  cat /etc/os-release && echo -n 'Kernel: ' && uname -mrs
- Clear the terminal
  clear
- Clear arrow history
  history -c
- Show process using network port.
  ('port's is number. EG 8080)
  sudo netstat -plan | grep ":8080"
- Neofetch is a great little display app for OS (called by typing 'neofetch')
  sudo apt install neofetch
- If you have issues with emptying the wastebasket, try:
  rm -rf ~/.local/share/Trash{*,.*}
- "Manually" mount an external share to a folder.
  (This will only last until the next reboot.
  Use fstab to make shares permanent)
  <One-of operations>
  sudo apt update && sudo apt install cifs-utils -y
  <for each share>
  sudo mkdir /mnt/sharename (eg media, share, etc)
  sudo chmod -R /mnt/sharename
  <Mount command>

  ```
  sudo mount -t cifs -o username=<win_share_user> \
          //WIN_SHARE_IP/share_name /mnt/share
  ```

  <un-mount>
  sudo umount //mnt/share
- Get the currently used username
  echo $USER

Tips and tricks:

- Create minimal image backups
  (Requires a /mnt/share|usb|sd)

  (rPi only)

  <one-of operations>

  cd ~/

  git clone https://github.com/seamusdemora/RonR-RPi-image-utils

  sudo install –mode=755 \ ./RonR-Rpi-image-utils/image-* /usr/local/sbin

  <Run backup>

  sudo image-backup

  (Specify image as something like /mnt/share/myimage.img, then accept default values and press y)

- Run a shell script.
  (script must have execut +X permission)

  ./path/script.sh