Linux Cheat Sheet for Cloud & DevOps Engineer

1. Linux Directory Structure

Directory	Description
/	Root directory
/bin	Essential user binaries
/sbin	System binaries
/etc	All system Configuration files
/dev	Device files
/proc	Virtual filesystem for kernel and process information
/var	Variable data files (logs, databases)
/tmp	Temporary files
/home	User home directories
/boot	Boot loader files
/mnt	Mount point for temporary mounts
/opt	Optional application software packages for 3rd party
/media	Mount point for removable media

2. User and Group Management

Command	Description	Example
useradd <username>	Add a new user	useradd test
adduser <username>	Add a new user with home directory	adduser test1
passwd <username>	Set user password	passwd test
userdel <username>	Delete a user	userdel test
passwd -l <username>	Lock a user account	passwd -l test
passwd -u <username>	Unlock a user account	passwd -u test
usermod -l <new> <old>	Rename a user	usermod -l test2 test
groupadd <groupname>	Add a new group	groupadd IT
groupdel <groupname>	Delete a group	groupdel IT
usermod -aG <group> <user>	Add user to group	usermod -aG IT test

3. File and Directory Operations

Command	Description	Example
ls	List directory contents	ls
ls -l	List with detailed information	ls -l
pwd	Print working directory	pwd
cd <dir name>	Change directory	cd /home
mkdir <dir name>	Create a new directory	mkdir newfolder
rm <file name>	Remove a file	rm file.txt
rmdir <dir name>	Remove an empty directory	rmdir newfolder
touch <file name>	Create an empty file	touch newfile.txt

cp <src> <dest>	Copy a file or directory	cp file.txt /backup/
mv <dir src> <dir dest>	Move or rename a file or directory	mv oldname.txt newname.txt
cat <file name>	Concatenate and display file content	cat file.txt
head <file name>	Display the first 10 lines of a file	Head -10 file.txt
tail <file name>	Display the last 10 lines of a file	tail -10 file.txt
vi <file name>	Open file in vi editor	vi file.txt
vim <file name>	Open file in vim editor	vim file.txt

4. File Permissions

In Linux, file permissions can be represented using octal (base-8) numbers, where each digit corresponds to a specific set of permissions for:

- User (Owner), Group and Others

Each permission type has a corresponding numeric value:

Permission	Symbol	Value
Read	r	4
Write	w	2
Execute	x	1

We add the values to get the total permission:

- rwx = 4 + 2 + 1 = **7**
- rw- = 4 + 2 = **6**
- r-- = 4 = **4**
- --- = 0

Command	Description	Example
chmod <mode> <file>	Change file permissions	chmod 444 file.txt
chown <user>:<group> <file>	Change file owner and group	chown test:IT file.txt

5. Process Management

Command	Description	Example
ps	Display current processes	ps
ps aux	Detailed process information	ps aux
ps -ef	Full-format listing of all processes	ps -ef
kill <pid>	Terminate a process	kill 1234
kill -9 <pid>	Forcefully terminate a process	kill -9 1234
kill -STOP <pid>	Pause a process	kill -STOP 1234
kill -CONT <pid>	Resume a paused process	kill -CONT 1234

6. System Information and Monitoring

Command	Description	Example
uname	Shows system information	uname -a
hostnamectl	Displays or sets system hostname info	hostnamectl
uptime	Shows how long the system has been running	uptime
whoami	Shows the current logged-in user	whoami
lscpu	Displays CPU architecture details	lscpu
top	Display task manager	top
htop	Interactive process viewer	htop
free -h	Display memory usage	free -h
df -h	Display disk space usage	df -h
du -sh <dir>	Display directory size	du -sh /home/user
vmstat	Report virtual memory statistics	vmstat
nproc	Show number of processing units	nproc
top	Display task manager	top

7. Networking

Command	Description	Example
ip a	Display IP addresses	ip a
ifconfig	Configure network interfaces	ifconfig
ping <host>	Send ICMP echo requests	ping google.com
traceroute <host>	Trace route to a network host	traceroute google.com
nslookup <domain>	Query DNS records	nslookup google.com
curl <url>	Transfer data from or to a server	curl http://example.com
wget <url>	Download files from the web	wget http://example.com/file.zip
dig	Queries DNS name servers	dig google.com
ssh	Secure remote login	ssh user@192.168.1.10
scp	Securely copy files between systems	scp file.txt user@192.168.1.10:/home/user/
ftp	Connects to FTP server	ftp ftp.example.com

8. Disk Management

Command	Description	Example
lsblk	List information about block devices	Lsblk
fdisk -l	List disk partitions	fdisk -l
mkfs.ext4 <device>	Create ext4 filesystem	mkfs.ext4 /dev/sdb1
mount <device> <dir>	Mount a filesystem	mount /dev/sdb1 /mnt/data
umount <dir>	Unmount a filesystem	umount /mnt/data
sudo nano /etc/fstab	Edit filesystem table for persistent mounts	sudo nano /etc/fstab

9. Search and Text Processing

Command	Description	Example
grep <pattern> <file>	Search for a pattern in a file	grep 'error' log.txt
find <dir> -name <name>	Search for files in a directory hierarchy	find /home -name '*.txt'

10. Archiving & Compression

Command	Description	Example
tar	Archive files into .tar format	tar -cvf archive.tar file1 file2
gzip	Compress a file into .gz format	gzip file.txt
gunzip	Decompress a .gz file	gunzip file.txt.gz
xz	Compress a file into .xz format	xz file.txt
unxz	Decompress a .xz file	unxz file.txt.xz
zip	Compress into .zip archive	zip archive.zip file1 file2
unzip	Extract files from a .zip archive	unzip archive.zip

11. Package Management

Command	Description	Example
apt-get	Installs/removes packages (Debian/Ubuntu)	sudo apt-get install nginx
yum	Installs/removes packages (RHEL/CentOS)	sudo yum install httpd