

networking, user management, process management, package management, and more.

Navigation and File Management:

ls — List directory contents.

```
ls
ls -l
```

cd — Change directory.

```
cd directory_name
cd ..
```

pwd — Print working directory.

```
pwd
```

mkdir — Make directory.

```
mkdir directory_name
```

rmdir — Remove directory.

```
rmdir directory_name
```

touch — Create an empty file or update file timestamp.

```
touch filename
```

cp — Copy files and directories.

```
cp source_file destination_file
```

mv — Move or rename files and directories.

```
mv old_name new_name
```

rm — Remove files or directories.

```
rm filename
```

cat — Concatenate and display file content.

```
cat filename
```

more — Display file content one screen at a time.

```
more filename
```

less — Display file content with backward movement.

```
less filename
```

head — Display the first few lines of a file.

```
head filename
```

tail — Display the last few lines of a file.

```
tail filename
```

ln — Create symbolic or hard links.

```
ln -s source_file link_name
```

File Permissions:

chmod — Change file permissions.

```
chmod permissions filename
```

chown — Change file ownership.

```
chown user:group filename
```

chgrp — Change group ownership.

```
chgrp groupname filename
```

Text Manipulation:

grep — Search for patterns in files.

```
grep pattern filename
```

sed — Stream editor for filtering and transforming text.

```
sed 's/old/new/' filename
```

awk — Pattern scanning and processing language.

```
awk '{print $1}' filename
```

cut — Cut out selected portions of each line of a file.

```
cut -d',' -f1 filename
```

sort — Sort lines of text files.

```
sort filename
```

uniq — Report or filter out repeated lines in a file.

```
uniq filename
```

wc — Word, line, character, and byte count.

```
wc filename
```

tr — Translate or delete characters.

```
tr 'a-z' 'A-Z' < filename
```

Compression and Archiving:

tar — Archive files and directories.

```
tar -cvf archive.tar directory
```

gzip — Compress or decompress files.

```
gzip filename
```

zip — Package and compress files.

```
zip archive.zip file1 file2
```

unzip — Extract files from a zip archive.

```
unzip archive.zip
```

System Information:

uname — Print system information.

```
uname -a
```

hostname — Print or set system hostname.

```
hostname
```

df — Report file system disk space usage.

```
df -h
```

du — Estimate file space usage.

```
du -sh directory
```

free — Display amount of free and used memory in the system.

```
free -m
```

top — Display Linux processes.

```
top
```

ps — Report a snapshot of current processes.

```
ps aux
```

lsof — List open files and associated processes.

```
lsof -i
```

Networking:

ifconfig — Configure network interface parameters.

```
ifconfig eth0
```

ping — Send ICMP ECHO_REQUEST to network hosts.

```
ping google.com
```

traceroute — Print the route packets trace to network host.

```
traceroute google.com
```

netstat — Print network connections, routing tables, interface statistics, masquerade connections, and multicast memberships.

```
netstat -an
```

ssh — Secure Shell remote login client.

```
ssh username@hostname
```

scp — Securely copy files between hosts.

```
scp filename username@hostname:/path/to/destination
```

wget — Retrieve files from the web.

```
wget http://example.com/file
```

curl — Transfer data from or to a server.

```
curl -O http://example.com/file
```

User Management:

useradd — Create a new user account.

```
useradd newuser
```

userdel — Delete a user account.


```
userdel username
```

usermod — Modify a user account.

```
usermod -aG groupname username
```

passwd — Change user password.

```
passwd username
```

su — Substitute user identity.

```
su username
```

sudo — Execute a command as another user.

```
sudo command
```

Process Management:

kill — Terminate processes.

```
kill PID
```

killall — Kill processes by name.

```
killall processname
```

pkill — Signal processes based on name and other attributes.

```
pkill -f processname
```

pgrep — List processes based on name and other attributes.

```
pgrep processname
```

nice — Set the priority of a process.

```
nice -n value command
```

Package Management:

apt — Advanced Package Tool (APT) for package management (Ubuntu/Debian).

```
apt install package_name
```

yum — Yellowdog Updater Modified (YUM) for package management (Red Hat/Fedora).

```
yum install package_name
```

dnf — Dandified YUM, the next-generation package manager (Fedora/CentOS).

```
dnf install package_name
```

Disk Management:

fdisk — Partition table manipulator for Linux.

```
fdisk -l
```

mkfs — Create a file system.

```
mkfs -t ext4 /dev/sdx
```

mount — Mount a file system.

```
mount /dev/sdx /mnt
```

umount — Unmount a file system.

```
umount /mnt
```

System Maintenance:

shutdown — Shutdown or restart the system.

```
shutdown now
```

reboot — Reboot the system.

```
reboot
```

cron — Daemon to execute scheduled commands.

```
crontab -e
```

crontab — Schedule a command to run at a later time.

```
crontab -e
```

at — Schedule a one-time command to run at a later time.

```
at now + 1 hour
```

date — Display or set the system date and time.

```
date
```

System Monitoring:

htop — Interactive process viewer.

```
htop
```

iostat — Monitor I/O usage by processes.

```
iotop
```

nload — Monitor network traffic and bandwidth usage.

```
nload
```

vnstat — Network traffic monitor.

```
vnstat -l
```

dstat — Versatile resource statistics tool.

```
dstat
```

Debugging and Troubleshooting:

dmesg — Print or control the kernel ring buffer.

```
dmesg | grep error
```

strace — Trace system calls and signals.

```
strace command
```

ltrace — Trace library calls.

```
ltrace command
```

tcpdump — Dump traffic on a network.

```
tcpdump -i eth0
```

wireshark — Network protocol analyzer.

```
wireshark
```

Text Editors:

nano — Command-line text editor.

```
nano filename
```

vim — Highly configurable text editor.

```
vim filename
```

emacs — Extensible, customizable, self-documenting real-time display editor.

```
emacs filename
```

Version Control:

git — Distributed version control system.

```
git clone repository_url
```

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```
svn checkout repository_url
```

cvs — Concurrent Versions System.

```
cvs checkout module
```

System Backup and Restore:

rsync — Remote file copy and synchronization.

```
rsync -av source/ destination/
```

dd — Convert and copy a file.

```
dd if=input_file of=output_file
```

tar — Archive files and directories.

```
tar -cvf archive.tar directory
```

Security:

iptables — Administration tool for IPv4 packet filtering and NAT.

```
iptables -A INPUT -s IP_ADDRESS -j DROP
```

ufw — Uncomplicated Firewall.

```
ufw allow port_number
```

fail2ban — Intrusion prevention software.

```
fail2ban-client status
```

Miscellaneous:

hostnamectl — Control system hostname and related settings.

```
hostnamectl set-hostname newhostname
```

lshw — List hardware configuration.

```
lshw
```

lsusb — List USB devices.

```
lsusb
```

lspci — List PCI devices.


```
lspci
```

killall — Kill processes by name.

```
killall processname
```

which — Locate a command.

```
which command
```

echo — Display a line of text.

```
echo "Hello, World!"
```

exit — Exit the shell.

```
exit
```

This comprehensive cheat sheet covers essential Linux commands for various tasks related to system administration and development. Feel free to refer to it as needed and explore further options and functionalities for each command.

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