File Commands

List Files and Directories:

```
ls
```

1. Use: Current directory mein files aur directories ko list karta hai.

List Files with Detailed Information:

```
ls -l
```

2. Use: Files aur directories ko detailed information ke sath list karta hai.

List All Files (Including Hidden Files):

```
ls -a
```

3. Use: Sabhi files ko list karta hai, including hidden files (jo dot (.) se shuru hote hain).

Copy a File:

```
cp source-file destination-file
```

4. Use: Files ko ek location se doosri location par copy karne ke liye.

Move or Rename a File:

```
mv source-file destination-file
```

5. Use: Files ko move ya rename karne ke liye.

Remove a File:

```
rm filename
```

6. Use: Files ko delete karne ke liye.

Create a New File:

```
touch filename
```

7. Use: Nayi empty file create karne ke liye.

View File Contents:

```
cat filename
```

8. Use: File contents ko dekhne ke liye.

View File Contents Page by Page:

```
less filename
```

9. Use: Large files ko page by page dekhne ke liye.

Edit a File:

```
nano filename
```

10. Use: File ko edit karne ke liye, nano text editor ka use karte hain.

Create a Symbolic Link (Symlink):

```
ln -s target-file link-name
```

11. Use: Symbolic link create karne ke liye.

Find Files:

```
find /path/to/search -name filename
```

12. Use: Specific files ko search karne ke liye.

Change File Permissions:

```
chmod 755 filename
```

13. Use: File permissions change karne ke liye.

Change File Owner:

```
sudo chown user:group filename
```

14. Use: File owner change karne ke liye.

Examples

List all files in detailed format:

1. `ls -la`

Copy file1 to /tmp directory:

2. `cp file1 /tmp/`

Move (or rename) file1 to file2:

3. `mv file1 file2`

Delete file1:

4. `rm file1`

View contents of file1:

5. `cat file1`

SSH Commands

Establish an SSH Connection:

```
ssh user@hostname
```

1. Use: Remote system par SSH connection establish karne ke liye. Example: `ssh user@example.com`

Specify a Port for SSH Connection:

```
ssh -p port_number user@hostname
```

2. Use: Specific port ke through SSH connection establish karne ke liye. Example: `ssh -p 2222 user@example.com`

Run a Command on a Remote Host:

```
ssh user@hostname command
```

3. Use: Remote host par specific command run karne ke liye. Example: `ssh user@example.com ls -la`

Copy Files to a Remote Host:

```
scp localfile user@hostname:/path/to/destination
```

4. Use: Local file ko remote host par copy karne ke liye. Example: `scp file.txt user@example.com:/home/user/`

Copy Files from a Remote Host:

```
scp user@hostname:/path/to/remote/file localfile
```

5. Use: Remote file ko local system par copy karne ke liye. Example: `scp user@example.com:/home/user/file.txt .`

Copy Directories Recursively:

```
scp -r localdir user@hostname:/path/to/destination
```

6. Use: Local directory ko remote host par recursively copy karne ke liye. Example: `scp -r dir user@example.com:/home/user/`

Use SSH Key Authentication:

```
ssh -i /path/to/private_key user@hostname
```

7. Use: SSH key authentication ke sath SSH connection establish karne ke liye. Example: `ssh -i ~/.ssh/id_rsa user@example.com`

Add SSH Key to SSH Agent:

```
ssh-add /path/to/private_key
```

8. Use: SSH key ko SSH agent mein add karne ke liye. Example: `ssh-add ~/.ssh/id_rsa`

Check SSH Connection in Debug Mode:

```
ssh -v user@hostname
```

9. Use: SSH connection ko debug mode mein check karne ke liye. Example: `ssh -v user@example.com`

Create SSH Key Pair:

```
ssh-keygen -t rsa -b 4096 -C
"your_email@example.com"
```

10. Use: Naya SSH key pair generate karne ke liye.

Examples

Connect to a Remote Host:

1. `ssh john@192.168.1.10`

Copy a File to a Remote Host:

2. `scp /path/to/localfile john@192.168.1.10:/remote/path`

Run a Command on a Remote Host:

3. `ssh john@192.168.1.10 'df -h'`

Generate a SSH Key Pair:

4. `ssh-keygen -t rsa -b 2048 -C "john@example.com"`

Installation Commands

For Debian-based Systems (e.g., Ubuntu)

Update Package List:

```
sudo apt update
```

1. Use: System ke package list ko update karne ke liye.

Upgrade Installed Packages:

```
sudo apt upgrade
```

2. Use: Installed packages ko upgrade karne ke liye.

Install a Package:

```
sudo apt install package_name
```

3. Use: Specific package ko install karne ke liye. Example: `sudo apt install git`

Remove a Package:

```
sudo apt remove package_name
```

4. Use: Specific package ko remove karne ke liye. Example: `sudo apt remove git`

Remove Unnecessary Packages:

```
sudo apt autoremove
```

5. Use: Unnecessary packages ko remove karne ke liye.

For Red Hat-based Systems (e.g., CentOS, Fedora)

Update Package List:

```
sudo yum update
```

1. Use: System ke package list ko update karne ke liye.

Install a Package:

```
sudo yum install package_name
```

2. Use: Specific package ko install karne ke liye. Example: `sudo yum install git`

Remove a Package:

```
sudo yum remove package_name
```

3. Use: Specific package ko remove karne ke liye. Example: `sudo yum remove git`

List Installed Packages:

```
sudo yum list installed
```

4. Use: Installed packages ko list karne ke liye.

For Arch-based Systems (e.g., Arch Linux, Manjaro)

Update Package List and System:

```
sudo pacman -Syu
```

1. Use: System ke package list aur installed packages ko update karne ke liye.

Install a Package:

```
sudo pacman -S package_name
```

2. Use: Specific package ko install karne ke liye. Example:
   `sudo pacman -S git`

Remove a Package:

```
sudo pacman -R package_name
```

3. Use: Specific package ko remove karne ke liye. Example:
   `sudo pacman -R git`

Remove Unused Packages:

```
sudo pacman -Rns package_name
```

4. Use: Unused packages ko remove karne ke liye.

Examples

Install Git on Ubuntu:

```
sudo apt update
```

1. `sudo apt install git`

Install Git on CentOS:

```
sudo yum update
```

2. `sudo yum install git`

Install Git on Arch Linux:

```
sudo pacman -Syu
```

3. `sudo pacman -S git`

Network Commands

For Checking Network Configuration

Check Network Interfaces:

```
ifconfig
```

1. Use: System ke network interfaces aur unki configuration ko check karne ke liye.

Display Network Interfaces (Newer Systems):

```
ip addr
```

2. Use: Network interfaces aur unki configuration ko display karne ke liye. Example: `ip addr show`

Check Routing Table:

```
route -n
```

3. Use: System ke routing table ko check karne ke liye.

Display Network Connections:

```
netstat -tuln
```

4. Use: Active network connections ko display karne ke liye.

Display Network Statistics:

```
netstat -i
```

5. Use: Network interfaces ke statistics ko display karne ke liye.

For Managing Network Configuration

Assign IP Address:

```
sudo ifconfig eth0 192.168.1.100 netmask
255.255.255.0 up
```

1. Use: Specific network interface ko IP address assign karne ke liye.

Bring Up/Down Network Interface:

```
sudo ifconfig eth0 up
sudo ifconfig eth0 down
```

2. Use: Network interface ko up ya down karne ke liye.

Add Default Gateway:

```
sudo route add default gw 192.168.1.1
```

3. Use: Default gateway ko add karne ke liye.

Remove Default Gateway:

```
sudo route del default gw 192.168.1.1
```

4. Use: Default gateway ko remove karne ke liye.

For Network Diagnostics

Check Connectivity (Ping):

```
ping hostname_or_ip
```

1. Use: Host ki connectivity check karne ke liye. Example: `ping google.com`

Traceroute to a Host:

```
traceroute hostname_or_ip
```

2. Use: Host tak ke route ko trace karne ke liye. Example: `traceroute google.com`

DNS Lookup:

```
nslookup hostname_or_ip
```

3. Use: DNS information ko lookup karne ke liye. Example: `nslookup google.com`

Check Open Ports:

```
nmap hostname_or_ip
```

4. Use: Host par open ports ko check karne ke liye. Example: `nmap google.com`

Examples

Check Network Interfaces:

1. `ifconfig`

Ping a Host:

2. `ping google.com`

Traceroute to a Host:

3. `traceroute google.com`

Check Open Ports:

4. `nmap google.com`

System Information Commands

For General System Information

Check System Uptime:

`uptime`

1. Use: System ke uptime aur load average ko check karne ke liye.

System Information:

`uname -a`

2. Use: System ke kernel version aur other relevant information ko display karne ke liye.

Display Hostname:

`hostname`

3. Use: System ke hostname ko display karne ke liye.

Hardware Information:

```
lshw
```

4. Use: Detailed hardware information ko display karne ke liye.

CPU Information:

```
lscpu
```

5. Use: CPU ke specifications ko display karne ke liye.

For Memory Information

Check Free and Used Memory:

```
free -h
```

1. Use: System ke free aur used memory ko human-readable format mein display karne ke liye.

Virtual Memory Statistics:

```
vmstat
```

2. Use: Virtual memory ke statistics ko display karne ke liye.

For Disk Information

Check Disk Usage:

```
df -h
```

1. Use: System ke disk usage ko human-readable format mein display karne ke liye.

Check Disk Partitions:

```
lsblk
```

2. Use: System ke disk partitions aur unke sizes ko display karne ke liye.

Detailed Disk Usage:

```
du -sh /path/to/directory
```

3. Use: Specific directory ka disk usage ko display karne ke liye. Example: `du -sh /home`

For Process and System Performance

Display Running Processes:

```
top
```

1. Use: System ke currently running processes aur unke resource usage ko monitor karne ke liye.

Check CPU Usage:

```
mpstat
```

2. Use: CPU usage ko display karne ke liye.

Check I/O Statistics:

```
iostat
```

3. Use: System ke I/O statistics ko display karne ke liye.

Examples

Check System Uptime:

1. `uptime`

Display System Information:

2. `uname -a`

Check Free and Used Memory:

3. `free -h`

Check Disk Usage:

4. `df -h`

Display Running Processes:

5. `top`

Process Management Commands

For Viewing Processes

Display Running Processes:

`ps aux`

1. Use: System par currently running processes ko display karne ke liye.

Interactive Process Viewer:

```
top
```

2. Use: System ke currently running processes ko real-time mein monitor karne ke liye.

Advanced Interactive Process Viewer:

```
htop
```

3. Use: `top` ka advanced version jo interactive aur user-friendly hai.

Tree View of Processes:

```
pstree
```

4. Use: Running processes ko tree format mein display karne ke liye.

For Managing Processes

Kill a Process by PID:

```
kill <PID>
```

1. Use: Specific process ko terminate karne ke liye uske Process ID (PID) se. Example: `kill 1234`

Kill a Process by Name:

```
pkill <process_name>
```

2. Use: Specific process ko terminate karne ke liye uske naam se. Example: `pkill firefox`

Force Kill a Process:

```
kill -9 <PID>
```

3. Use: Specific process ko forcefully terminate karne ke liye.

Start a Process in Background:

```
<command> &
```

4. Use: Kisi command ya process ko background mein run karne ke liye. Example: `firefox &`

Bring Background Process to Foreground:

```
fg
```

5. Use: Background mein chalne wale process ko foreground mein lane ke liye.

List Background Jobs:

```
jobs
```

6. Use: Background mein chalne wale jobs ko list karne ke liye.

For Monitoring Specific Processes

Monitor a Specific Process:

```
top -p <PID>
```

1. Use: Specific process ko monitor karne ke liye. Example: `top -p 1234`

Display Process Tree for a Specific User:

```
pstree -u <username>
```

2. Use: Specific user ke processes ko tree format mein display karne ke liye. Example: `pstree -u john`

Examples

Display Running Processes:

1. `ps aux`

Interactive Process Viewer:

2. `top`

Kill a Process by PID:

3. `kill 1234`

Start a Process in Background:

4. `firefox &`

Bring Background Process to Foreground:

5. `fg`

Searching Commands

For Searching Files and Directories

Find Files by Name:

```
find /path/to/search -name "filename"
```

1. Use: Specific directory mein files ko naam ke basis par search karne ke liye. Example: `find /home -name "example.txt"`

Find Files by Type:

```
find /path/to/search -type f
```

2. Use: Specific directory mein sirf files ko search karne ke liye. Example: `find /home -type f`

Find Directories by Name:

```
find /path/to/search -type d -name "directoryname"
```

3. Use: Specific directory mein directories ko naam ke basis par search karne ke liye. Example: `find /home -type d -name "Documents"`

Find Files by Size:

```
find /path/to/search -size +100M
```

4. Use: Specific directory mein specific size se badi files ko search karne ke liye. Example: `find /home -size +100M`

For Searching Inside Files

Search for a String in Files:

```
grep "search_string" /path/to/file
```

1. Use: Specific file mein ek string ko search karne ke liye. Example: `grep "Hello" example.txt`

Recursive Search for a String in Directories:

```
grep -r "search_string" /path/to/directory
```

2. Use: Specific directory aur uske subdirectories mein ek string ko search karne ke liye. Example: `grep -r "Hello" /home`

Case-Insensitive Search:

```
grep -i "search_string" /path/to/file
```

3. Use: Case-insensitive search ke liye. Example: `grep -i "hello" example.txt`

Display Line Numbers with Matches:

```
grep -n "search_string" /path/to/file
```

4. Use: Matches ke saath line numbers display karne ke liye. Example: `grep -n "Hello" example.txt`

For Advanced Searching

Search with Regular Expressions:

```
grep -E "regex_pattern" /path/to/file
```

1. Use: Regular expressions ke saath search karne ke liye. Example: `grep -E "H[aeiou]llo" example.txt`

Search Files Modified in the Last N Days:

```
find /path/to/search -mtime -N
```

2. Use: Specific directory mein files ko search karne ke liye jo last N days mein modify hui hain. Example: `find /home -mtime -7`

Search Files by Permissions:

```
find /path/to/search -perm permissions
```

3. Use: Specific directory mein specific permissions wali files ko search karne ke liye. Example: `find /home -perm 644`

Examples

Find Files by Name:

1. `find /home -name "example.txt"`

Search for a String in Files:

2. `grep "Hello" example.txt`

Recursive Search for a String in Directories:

3. `grep -r "Hello" /home`

Case-Insensitive Search:

4. `grep -i "hello" example.txt`

Compression Commands

For Creating Archives

Create a tar Archive:

```
tar -cvf archive_name.tar
/path/to/directory_or_files
```

1. Use: Tar format mein ek archive banane ke liye. Example: `tar -cvf backup.tar /home/user/Documents`

Create a gzip Compressed tar Archive:

```
tar -czvf archive_name.tar.gz
/path/to/directory_or_files
```

2. Use: Gzip compression ke saath tar archive banane ke liye. Example: `tar -czvf backup.tar.gz /home/user/Documents`

Create a bzip2 Compressed tar Archive:

```
tar -cjvf archive_name.tar.bz2
/path/to/directory_or_files
```

3. Use: Bzip2 compression ke saath tar archive banane ke liye. Example: `tar -cjvf backup.tar.bz2 /home/user/Documents`

Create a zip Archive:

```
zip -r archive_name.zip /path/to/directory_or_files
```

4. Use: Zip format mein ek archive banane ke liye. Example: `zip -r backup.zip /home/user/Documents`

For Extracting Archives

Extract a tar Archive:

```
tar -xvf archive_name.tar
```

1. Use: Tar archive ko extract karne ke liye. Example: `tar -xvf backup.tar`

Extract a gzip Compressed tar Archive:

```
tar -xzvf archive_name.tar.gz
```

2. Use: Gzip compressed tar archive ko extract karne ke liye. Example: `tar -xzvf backup.tar.gz`

Extract a bzip2 Compressed tar Archive:

```
tar -xjvf archive_name.tar.bz2
```

3. Use: Bzip2 compressed tar archive ko extract karne ke liye. Example: `tar -xjvf backup.tar.bz2`

Extract a zip Archive:

```
unzip archive_name.zip
```

4. Use: Zip archive ko extract karne ke liye. Example: `unzip backup.zip`

For Working with gzip

Compress a File using gzip:

```
gzip filename
```

1. Use: Ek file ko gzip compression ke saath compress karne ke liye. Example: `gzip example.txt`

Decompress a gzip File:

```
gunzip filename.gz
```

2. Use: Gzip compressed file ko decompress karne ke liye. Example: `gunzip example.txt.gz`

For Working with bzip2

Compress a File using bzip2:

```
bzip2 filename
```

1. Use: Ek file ko bzip2 compression ke saath compress karne ke liye. Example: `bzip2 example.txt`

Decompress a bzip2 File:

```
bunzip2 filename.bz2
```

2. Use: Bzip2 compressed file ko decompress karne ke liye. Example: `bunzip2 example.txt.bz2`

Examples

Create a gzip Compressed tar Archive:

1. `tar -czvf backup.tar.gz /home/user/Documents`

Extract a gzip Compressed tar Archive:

2. `tar -xzvf backup.tar.gz`

Compress a File using gzip:

3. `gzip example.txt`

Decompress a gzip File:

4. `gunzip example.txt.gz`

File Permission Commands

For Viewing Permissions

View Permissions of a File or Directory:

```
ls -l filename_or_directory
```

1. Use: File ya directory ke permissions dekhne ke liye. Example: `ls -l example.txt`

For Changing Permissions

Change Permissions Using Numeric Mode:

```
chmod 755 filename_or_directory
```

1. Use: Numeric mode ka use karke permissions change karne ke liye. Example: `chmod 755 example.txt`

Change Permissions Using Symbolic Mode:

```
chmod u+rwx,g+rx,o+rx filename_or_directory
```

2. Use: Symbolic mode ka use karke permissions change karne ke liye. Example: `chmod u+rwx,g+rx,o+rx example.txt`

For Changing Ownership

Change File Owner:

```
chown new_owner filename_or_directory
```

1. Use: File ya directory ka owner change karne ke liye. Example: `chown user example.txt`

Change File Owner and Group:

```
chown new_owner:new_group filename_or_directory
```

2. Use: File ya directory ka owner aur group dono change karne ke liye. Example: `chown user:group example.txt`

Change Group Ownership:

```
chgrp new_group filename_or_directory
```

3. Use: File ya directory ka group change karne ke liye. Example: `chgrp group example.txt`

Examples

View Permissions:

1. `ls -l example.txt`

Change Permissions to Read, Write, Execute for Owner and Read-Only for Others:

2. `chmod 744 example.txt`

Add Execute Permission for Owner:

3. `chmod u+x example.txt`

Remove Write Permission for Group:

4. `chmod g-w example.txt`

Change File Owner to 'user':

5. `chown user example.txt`

Change File Owner to 'user' and Group to 'group':

6. `chown user:group example.txt`

Change Group Ownership to 'group':

7. `chgrp group example.txt`

Common Linux Shortcuts

Terminal Shortcuts

1. Tab Completion:

- Use: Commands ya filenames ko auto-complete karne ke liye.
- Example: `cd Doc`
  - `Tab` will auto-complete to `cd Documents`.

2. Ctrl + C:
   - Use: Running command ko stop karne ke liye.
3. Ctrl + Z:
   - Use: Running process ko background mein send karne ke liye.
4. Ctrl + D:
   - Use: Terminal session ko close karne ke liye.
5. Ctrl + A:
   - Use: Cursor ko line ke beginning par le jaane ke liye.
6. Ctrl + E:
   - Use: Cursor ko line ke end par le jaane ke liye.
7. Ctrl + U:
   - Use: Current line ko clear karne ke liye.
8. Ctrl + K:
   - Use: Cursor se line ke end tak text ko cut karne ke liye.
9. Ctrl + R:
   - Use: Reverse search history ko use karne ke liye.
10. Ctrl + L:
    - Use: Terminal screen ko clear karne ke liye.

File Navigation Shortcuts

1. Alt + F:
   - Use: Cursor ko word ke aage move karne ke liye.

2. Alt + B:
    - Use: Cursor ko word ke peeche move karne ke liye.
3. Ctrl + W:
    - Use: Cursor ke peeche ke word ko delete karne ke liye.

General Shortcuts

1. Ctrl + Alt + T:
    - Use: New terminal window open karne ke liye.
2. Alt + Tab:
    - Use: Open applications ke beech switch karne ke liye.
3. Ctrl + Shift + T:
    - Use: New tab open karne ke liye existing terminal mein.
4. Ctrl + Shift + N:
    - Use: New terminal window open karne ke liye.
5. Ctrl + Shift + C:
    - Use: Terminal se text copy karne ke liye.
6. Ctrl + Shift + V:
    - Use: Terminal mein text paste karne ke liye.

Examples

Reverse Search Command:

```
Ctrl + R
```

1. Type previous command part and search through history.

Clear Current Line:

2. `Ctrl + U`

Switch Between Open Applications:

3. `Alt + Tab`

Common Linux Commands with Flags

ls (List Directory Contents)

1. ls -l:
- Use: Directory contents ko long format mein display karne ke liye.
- Example: `ls -l /home/user`

2. ls -a:
- Use: Hidden files ko bhi display karne ke liye.
- Example: `ls -a /home/user`

3. ls -lh:
- Use: Human-readable format mein display karne ke liye.
- Example: `ls -lh /home/user`

cd (Change Directory)

1. cd ~:
- Use: Home directory mein switch karne ke liye.
- Example: `cd ~`

2. cd ..:

- Use: Parent directory mein switch karne ke liye.
- Example: `cd ..`

cp (Copy Files and Directories)

1. cp -r:

- Use: Directories ko recursively copy karne ke liye.
- Example: `cp -r /source/directory /destination/directory`

2. cp -i:

- Use: Overwrite se pehle confirmation ke liye.
- Example: `cp -i file1.txt /destination`

mv (Move/Rename Files and Directories)

1. mv -i:

- Use: Overwrite se pehle confirmation ke liye.
- Example: `mv -i oldname.txt newname.txt`

2. mv -u:

- Use: Sirf tab move kare jab source file newer ho ya destination par file nahi ho.
- Example: `mv -u file.txt /destination`

rm (Remove Files and Directories)

1. rm -r:

- Use: Directories ko recursively remove karne ke liye.
- Example: `rm -r /directory`

2. rm -i:

- Use: Remove karne se pehle confirmation ke liye.
- Example: `rm -i file.txt`

3. rm -f:

- Use: Forcefully remove karne ke liye bina confirmation ke.
- Example: `rm -f file.txt`

chmod (Change File Permissions)

1. chmod +x:

- Use: File ko executable banane ke liye.
- Example: `chmod +x script.sh`

2. chmod 755:

- Use: Owner ko read, write and execute permissions dene ke liye, aur group aur others ko read and execute permissions.
- Example: `chmod 755 file.sh`

grep (Search Text)

1. grep -i:

- Use: Case-insensitive search ke liye.
- Example: `grep -i "pattern" file.txt`

2. grep -r:

- Use: Directories ko recursively search karne ke liye.
- Example: `grep -r "pattern" /directory`

3. grep -v:

- Use: Unmatched lines ko display karne ke liye.
- Example: `grep -v "pattern" file.txt`

Examples

List Files in Long Format:

1. `ls -l /home/user`

Copy Directory Recursively:

2. `cp -r /source/directory /destination/directory`

Search for a Pattern Case-Insensitive:

3. `grep -i "pattern" file.txt`

Setting Up Your Development Environment on Ubuntu

1. Update and Upgrade Your System

Pehle step mein apne system ko update aur upgrade karna zaroori hai:

```
sudo apt-get update

sudo apt-get upgrade
```

2. Install Essential Development Tools

Kuch essential packages aur tools install karna zaroori hai:

```
sudo apt-get install build-essential
```

3. Install Version Control System (Git)

Version control system jaise Git install karna development ke liye bahut useful hota hai:

```
sudo apt-get install git
```

4. Install a Code Editor or IDE

Aap apni preference ke according code editor ya IDE choose kar sakte hain. Do popular options hain:

Visual Studio Code:
bash

- `sudo snap install --classic code`

PyCharm (for Python development):
bash

- `sudo snap install pycharm-community --classic`

5. Install Programming Languages and Frameworks

Aapko jo programming language aur framework use karna hai, uske according packages install kar sakte hain:

Python:

- `sudo apt-get install python3 python3-pip`

Node.js and npm:

- `sudo apt-get install nodejs npm`

Java:

- `sudo apt-get install openjdk-11-jdk`

Ruby:

- `sudo apt-get install ruby-full`

6. Install Database Systems

Aapko jo database system use karna hai, uske according packages install kar sakte hain:

MySQL:

- `sudo apt-get install mysql-server`

PostgreSQL:

- `sudo apt-get install postgresql postgresql-contrib`

MongoDB:

- `sudo apt-get install -y mongodb`

7. Configure Your Environment

Kuch tools ko use karne ke liye environment variables configure karna zaroori hota hai:

Adding Paths to `.bashrc`:

- `export PATH=$PATH:/path/to/your/program`

Reload `.bashrc`:

- `source ~/.bashrc`

Example: Setting Up a Simple Python Development Environment

Create a Virtual Environment:

1. `python3 -m venv myenv`

Activate the Virtual Environment:

2. `source myenv/bin/activate`

Install Required Packages:

3. `pip install flask django`

Run Your Application:

4. `python app.py`

Useful Tools and Resources

Docker: Containerize your applications.

bash

- `sudo apt-get install docker.io`

Postman: API development and testing.

- `sudo snap install postman`
- Slack or Microsoft Teams: For team collaboration.

Security Commands in Linux

sudo (Superuser Do)

1. sudo command:
    - Use: Elevated (root) privileges ke saath koi command run karne ke liye.
    - Example: `sudo apt-get update`
2. sudo -i:
    - Use: Root shell mein enter karne ke liye.
    - Example: `sudo -i`
3. sudo visudo:
    - Use: Sudoers file ko edit karne ke liye safely.
    - Example: `sudo visudo`

ufw (Uncomplicated Firewall)

1. ufw enable:
    - Use: UFW firewall ko enable karne ke liye.
    - Example: `sudo ufw enable`
2. ufw disable:
    - Use: UFW firewall ko disable karne ke liye.
    - Example: `sudo ufw disable`

3. ufw status:
    - Use: UFW firewall ka status check karne ke liye.
    - Example: `sudo ufw status`
4. ufw allow [service/port]:
    - Use: Specific service ya port ko allow karne ke liye.
    - Example: `sudo ufw allow 22` (SSH port)
5. ufw deny [service/port]:
    - Use: Specific service ya port ko deny karne ke liye.
    - Example: `sudo ufw deny 80` (HTTP port)

iptables (Administration Tool for IPv4 Packet Filtering and NAT)

1. iptables -L:
    - Use: All rules ko list karne ke liye.
    - Example: `sudo iptables -L`
2. iptables -A INPUT -p tcp --dport 22 -j ACCEPT:
    - Use: TCP port 22 par incoming connections ko allow karne ke liye.
    - Example: `sudo iptables -A INPUT -p tcp --dport 22 -j ACCEPT`
3. iptables -A INPUT -p tcp --dport 80 -j DROP:
    - Use: TCP port 80 par incoming connections ko drop karne ke liye.
    - Example: `sudo iptables -A INPUT -p tcp --dport 80 -j DROP`

chown (Change File Owner and Group)

1. chown user:group file:

- Use: File ka owner aur group change karne ke liye.
- Example: `sudo chown root:root /etc/importantfile`

2. chown -R user:group directory:
    - Use: Directory aur uske contents ka owner aur group recursively change karne ke liye.
    - Example: `sudo chown -R user:group /home/user/directory`

chmod (Change File Permissions)

1. chmod 700 file:
    - Use: File ko owner ke liye read, write aur execute permissions dene ke liye, aur baaki sab ke liye no permissions.
    - Example: `chmod 700 /home/user/securefile`
2. chmod -R 755 directory:
    - Use: Directory aur uske contents ko recursively read, write aur execute permissions dene ke liye owner ko, aur read aur execute permissions dene ke liye group aur others ko.
    - Example: `chmod -R 755 /home/user/securedirectory`

fail2ban (Ban IPs with Too Many Failed Login Attempts)

1. fail2ban-client status:
    - Use: Fail2ban service ka status check karne ke liye.
    - Example: `sudo fail2ban-client status`
2. fail2ban-client status [jail]:

- Use: Specific jail ka status check karne ke liye.
- Example: `sudo fail2ban-client status sshd`

3. fail2ban-client set [jail] banip [IP]:
    - Use: Specific IP ko ban karne ke liye specific jail mein.
    - Example: `sudo fail2ban-client set sshd banip 192.168.1.100`

Examples

Enable UFW Firewall:
bash

```
sudo ufw enable
```

Allow SSH through UFW:
bash

```
sudo ufw allow 22
```

Ban IP Using Fail2ban:
bash

```
sudo fail2ban-client set sshd banip 192.168.1.100
```