LINUX SHELL COMMANDS CHEAT SHEET

Basic Navigation:

```
pwd             - show current directory
ls              - list files
ls -l           - detailed list
ls -la          - include hidden files
cd directory    - change directory
cd ~            - go home
cd ..           - go up one level
cd -            - go to previous directory
```

File Operations:

```
touch filename       - create empty file
mkdir dirname        - create directory
mkdir -p path/to/dir - create nested directories
cp source dest       - copy file
cp -r source dest    - copy directory
mv source dest       - move or rename
rm filename          - delete file
rm -r dirname        - delete directory
rmdir dirname        - remove empty directory
```

View Files:

```
cat filename        - show entire file
less filename       - view page by page
head filename       - show first 10 lines
head -20 filename   - show first 20 lines
tail filename       - show last 10 lines
tail -f filename    - follow file changes
```

Redirection:

```
command > file       - save output to file
command >> file      - append output to file
command1 | command2  - pipe output
command 2>&1         - redirect errors too
```

Wildcards:

```
 *          - match any characters
 ?          - match single character
```

[abc]   - match a, b, or c
[a-z]   - match lowercase letters

Help

man command   - manual for the command
command - - help   - help to use the command
whatis command   - description of the command
which command   - location of the command

Search and Process Text:
grep pattern file   - search for text
grep -i pattern file - case insensitive search
grep -r pattern dir   - search in directory
wc filename   - count words/lines
sort filename   - sort lines
uniq filename   - remove duplicates

Change Permissions:
chmod 755 filename   - set permissions (rwxr-xr-x)
chmod +x filename   - add execute permission
chmod -w filename   - remove write permission
chmod u+rwx filename   - user read/write/execute
chmod g+rw filename   - group read/write
chmod o-r filename   - remove others read

Permission Numbers:
r (read) = 4
w (write) = 2
x (execute) = 1

Common combinations:
755 = rwxr-xr-x (owner full, others read/execute)
644 = rw-r--r-- (owner read/write, others read only)
777 = rwxrwxrwx (full permissions for all)

User Info:
whoami   - current username
id   - user and group IDs
who   - who is logged in
w   - detailed user activity

Process Management:

```
ps              - show processes
ps aux            - detailed process list
top             - real-time process monitor
htop             - better process monitor
jobs             - show background jobs
bg             - put job in background
fg             - bring job to foreground
kill PID          - kill process by ID
kill -9 PID          - force kill process
killall processname   - kill all processes by name
nohup command &      - run command in background
```

Debian/Ubuntu (apt):

```
sudo apt update      - update package list
sudo apt upgrade      - upgrade packages
sudo apt install pkg   - install package
sudo apt remove pkg    - remove package
sudo apt search pkg    - search for package
```

Red Hat/CentOS (yum):

```
sudo yum update      - update packages
sudo yum install pkg   - install package
sudo yum remove pkg    - remove package
sudo yum search pkg    - search packages
```

Network Tools:

```
ping hostname        - test connectivity
ping -c 4 hostname     - ping 4 times
wget url            - download file
curl url            - get data from server
ifconfig            - network interface info
ip addr show         - show IP addresses
netstat -tuln         - show listening ports
```

File Transfer: scp file user@host:path - copy to remote server scp user@host:file . - copy from remote server rsync -av source dest - sync directories

System Details:

```
uname -a            - system information
uname -r            - kernel version
```

```
uptime            - system uptime
date              - current date/time
cal               - calendar
history           - command history
```

Disk and Memory:
```
df -h             - disk space usage
du -h directory   - directory size
free -h           - memory usage
lsblk             - list storage devices
```

Hardware:
```
lscpu             - CPU information
lsusb             - USB devices
lspci             - PCI devices
```

Find Files:
```
find /path -name "*.txt"    - find files by name
find /path -type f          - find files only
find /path -size +100M      - find large files
locate filename             - fast file search
which command               - find command location
```

Service Management:
```
sudo systemctl start service     - start service
sudo systemctl stop service      - stop service
sudo systemctl status service    - check service status
sudo systemctl enable service    - enable at boot
```

View Logs:
```
sudo tail -f /var/log/syslog     - follow system log
sudo journalctl -f               - follow journal
```