# LINUX COMMAND LINE CHEAT SHEET

A QUICK REFERENCE GUIDE from:

LinuxTrainingAcademy.com

# Table of Contents

# 1 - SYSTEM INFORMATION

| | |
|---|---|
| `uname -a` | # Display Linux system information |
| `uname -r` | # Display kernel release information |
| `cat /etc/redhat-release` | # Show which version of Red Hat installed |
| `lsb_release -a` | # Show which version of Ubuntu installed |
| `uptime` | # Show how long the system has been running + load |
| `hostname` | # Show system host name |
| `hostname -I` | # Display all local IP addresses of the host |
| `last reboot` | # Show system reboot history |
| `date` | # Show the current date and time |
| `cal` | # Show this month's calendar |
| `w` | # Display who is online |
| `whoami` | # Who you are logged in as |

# 2 - HARDWARE INFORMATION

| | |
|---|---|
| `dmesg` | # Display messages in kernel ring buffer |
| `cat /proc/cpuinfo` | # Display CPU information |
| `cat /proc/meminfo` | # Display memory information |
| `free -h` | # Display free and used memory ( `-h` for human readable, `-m` for MB, `-g` for GB.) |
| `lspci -tv` | # Display PCI devices |
| `lsusb -tv` | # Display USB devices |
| `dmidecode` | # Display DMI/SMBIOS (hardware info) from the BIOS |
| `hdparm -i /dev/sda` | # Show info about disk sda |
| `hdparm -tT /dev/sda` | # Perform a read speed test on disk sda |
| `badblocks -s /dev/sda` | # Test for unreadable blocks on disk sda |
| `lshw` | # Display information about CPU, memory, storage, and network interfaces |

```
lsblk                                   # Display information about all storage devices
```

## 3 - PERFORMANCE MONITORING AND STATISTICS

```
top                                     # Display and manage the top processes
htop                                    # Interactive process viewer (top alternative)
mpstat 1                                # Display processor related statistics
vmstat 1                                # Display virtual memory statistics
iostat 1                                # Display I/O statistics
tail -100 /var/log/messages             # Display the last 100 syslog messages  (Use
                                        /var/log/syslog for Debian based systems.)
tcpdump -i eth0                         # Capture and display all packets on interface eth0
tcpdump -i eth0 'port 80'               # Monitor all traffic on port 80 ( HTTP )
lsof                                    # List all open files on the system
lsof -u user                            # List files opened by user
free -h                                 # Display free and used memory ( -h for human
                                        readable, -m for MB, -g for GB.)
watch df -h                             # Execute "df -h", showing periodic updates
mpstat                                  # Display statistics about CPU usage
pidstat                                 # Display statistics about processes running
```

## 4 - USER INFORMATION AND MANAGEMENT

```
id                                      # Display the user and group ids of your
                                        current user.
last                                    # Display the last users who have logged onto
                                        the system.
who                                     # Show who is logged into the system.
w                                       # Show who is logged in and what they are
                                        doing.
groupadd test                           # Create a group named "test".
useradd -c "John Smith" -m john         # Create an account named john, with a
```

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|---|---|
| | comment of "John Smith" and create the user's home directory. |
| `userdel john` | # Delete the john account. |
| `usermod -aG sales john` | # Add the john account to the sales group |

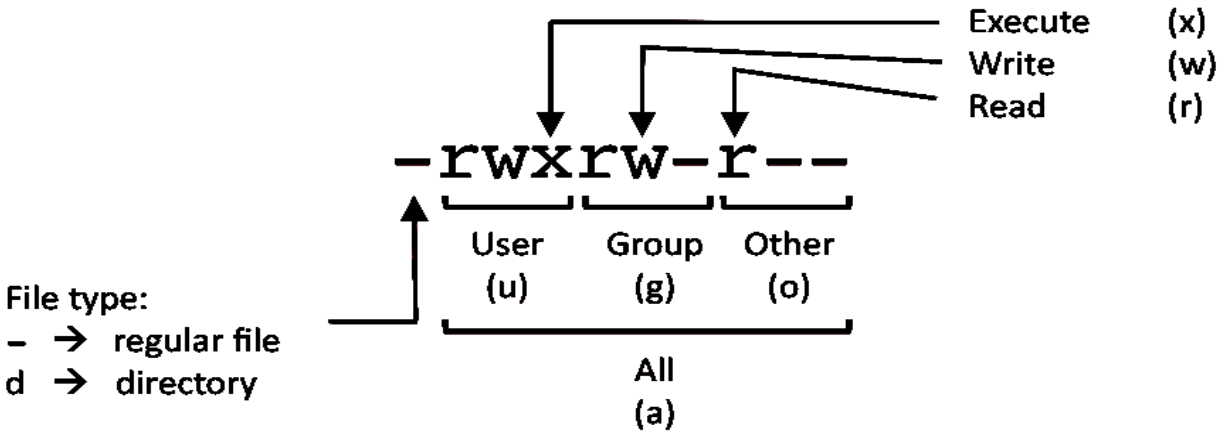
## 5 - FILE AND DIRECTORY COMMANDS

| | |
|---|---|
| `ls -al` | # List all files in a long listing (detailed) format |
| `pwd` | # Display the present working directory |
| `mkdir directory` | # Create a directory |
| `rm file` | # Remove (delete) file |
| `rm -r directory` | # Remove the directory and its contents recursively |
| `rm -f file` | # Force removal of file without prompting for confirmation |
| `rm -rf directory` | # Forcefully remove directory recursively |
| `cp file1 file2` | # Copy file1 to file2 |
| `cp -r source_directory destination` | # Copy `source_directory` recursively to `destination`. If destination exists, copy `source_directory` into `destination`, otherwise create `destination` with the contents of `source_directory`. |
| `mv file1 file2` | # Rename or move `file1` to `file2`. If file2 is an existing directory, move file1 into directory file2 |
| `ln -s /path/to/file linkname` | # Create symbolic link to `linkname` |
| `touch file` | # Create an empty file or update the access and modification times of file. |
| `cat file` | # View the contents of `file` |
| `less file` | # Browse through a text file |
| `head file` | # Display the first 10 lines of `file` |
| `tail file` | # Display the last 10 lines of `file` |
| `tail -f file` | # Display the last 10 lines of `file` and "follow" the file as it grows. |

# 6 - PROCESS MANAGEMENT

| | |
|---|---|
| `ps` | # Display your currently running processes |
| `ps -ef` | # Display all the currently running processes on the system. |
| `ps -ef \| grep processname` | # Display process information for `processname` |
| `top` | # Display and manage the top processes |
| `htop` | # Interactive process viewer (top alternative) |
| `kill pid` | # Kill process with process ID of `pid` |
| `killall processname` | # Kill all processes named `processname` |
| `program &` | # Start `program` in the background |
| `bg` | # Display stopped or background jobs |
| `fg` | # Brings the most recent background job to foreground |
| `fg n` | # Brings job `n` to the foreground |
| `nohup processname` | # Runs a process even after user logs out |

# 7 - FILE PERMISSIONS




```
PERMISSION      EXAMPLE

 U   G   W
rwx rwx rwx     chmod 777 filename  # Use sparingly!
rwx rwx r-x     chmod 775 filename
rwx r-x r-x     chmod 755 filename
rw- rw- r--     chmod 664 filename
```

```
rw- r-- r--      chmod 644 filename

LEGEND

U = User
G = Group
W = World

r = Read
w = write
x = execute
- = no access
```

| | |
|---|---|
| `chown john /path/to/file` | # Change ownership of `/path/to/file` to john |
| `chgrp sales /path/to/file` | # Change group ownership of `/path/to/file` to group sales |

## 8 - NETWORKING

| | |
|---|---|
| `ip a` | # Display all network interfaces and IP address |
| `ip addr show dev eth0` | # Display eth0 address and details |
| `ethtool eth0` | # Query or control network driver and hardware settings |
| `ping host` | # Send ICMP echo request to `host` |
| `whois domain` | # Display whois information for `domain` |
| `dig domain` | # Display DNS information for `domain` |
| `dig -x IP_ADDRESS` | # Reverse lookup of `IP_ADDRESS` |
| `host domain` | # Display DNS IP address for `domain` |
| `hostname -i` | # Display the network address of the host name. |
| `hostname -I` | # Display all local IP addresses of the host. |
| `wget http://domain.com/file` | # Download `http://domain.com/file` |
| `netstat -nutlp` | # Display listening tcp and udp ports and corresponding programs |

```
ifconfig                    # Display information about network interfaces
traceroute host             # Display the path that packets take to host
tcpdump                     # Capture and analyze network traffic
```

## 9 - ARCHIVES (TAR FILES)

```
tar cf archive.tar directory        # Create tar named archive.tar containing directory.
tar xf archive.tar                  # Extract the contents from archive.tar.
tar czf archive.tar.gz directory    # Create a gzip compressed tar file name archive.tar.gz.
tar xzf archive.tar.gz              # Extract a gzip compressed tar file.
tar cjf archive.tar.bz2 directory   # Create a tar file with bzip2 compression
tar xjf archive.tar.bz2             # Extract a bzip2 compressed tar file.
```

## 10 - INSTALLING PACKAGES

```
yum search keyword          # Search for a package by keyword.
yum install package         # Install package.
yum info package            # Display description and summary information about package for RHEL based systems.
rpm -i package.rpm          # Install package from local file named package.rpm
yum remove package          # Remove/uninstall package for RHEL based systems.
yum update package          # Update package with name package for RHEL based systems.
tar zxvf sourcecode.tar.gz  # Install software from source code.
cd sourcecode
./configure
make
make install
```

| | |
|---|---|
| `apt-get update` | # Update package list for Debian based systems. |
| `apt-get upgrade` | # Upgrade all installed packages to their newest version for Debian based systems. |
| `apt-get install package` | # Install package with name `package` for Debian based systems. |
| `apt-remove package` | # Remove package with name package for Debian based systems. |

## 11 - SEARCH

| | |
|---|---|
| `grep pattern file` | # Search for `pattern` in `file` |
| `grep -r pattern directory` | # Search recursively for `pattern` in `directory` |
| `locate name` | # Find files and directories by name |
| `find /home/john -name 'prefix*'` | # Find files in `/home/john` that start with "prefix". |
| `find /home -size +100M` | # Find files larger than 100MB in /home |
| `whereis program` | # Display the location of the binary, source and manual page files of `program`. |
| `which program` | # Display the path of executable that would run if `program` is executed. |

## 12 - SSH LOGINS

| | |
|---|---|
| `ssh host` | # Connect to `host` as your local username. |
| `ssh user@host` | # Connect to `host` as `user` |
| `ssh -p port user@host` | # Connect to `host` using `port` |
| `ssh-keygen` | # Create a new SSH key pair. |
| `ssh-copy-id user@host` | # Copy SSH key to the `remote` host to enable passwordless logins for `user`. |

## 13 - FILE TRANSFERS

| | |
|---|---|
| `scp file.txt server:/tmp` | # Secure copy `file.txt` to the /tmp folder on `server` |
| `scp server:/var/www/*.html /tmp` | # Copy `*.html` files from `server` to the local /tmp folder. |
| `scp -r server:/var/www /tmp` | # Copy all files and directories recursively from `server` to the current system's /tmp folder. |
| `rsync -a /home /backups/` | # Synchronize `/home` to `/backups/home` |
| `rsync -avz /home server:/backups/` | # Synchronize files/directories between the local and remote system with compression enabled |
| `ftp host` | # Connect to FTP server on the remote `host`. |

## 14 - DISK USAGE

| | |
|---|---|
| `df -h` | # Show free and used space on mounted filesystems |
| `df -i` | # Show free and used inodes on mounted filesystems |
| `fdisk -l` | # Display disks partitions sizes and types |
| `du -ah` | # Display disk usage for all files and directories in human readable format |
| `du -sh` | # Display total disk usage off the current directory |
| `du -a directory` | # Display size of all files in `directory`. |
| `findmnt` | # List all mounted file systems with details. |

## 15 - DIRECTORY NAVIGATION

| | |
|---|---|
| `cd ..` | # To go up one level of the directory tree. (Change into the parent directory.) |
| `cd` | # Go to the $HOME directory |
| `cd /etc` | # Change to the /etc directory |
| `alias goto='cd /etc/'` | # Create `goto` alias for command `cd /etc/` . |

# 16 - SECURITY

```
passwd                          # Change the current user's password.
sudo -i                         # Switch to the root account with root's environment. (Login shell.)
sudo -s                         # Execute your current shell as root. (Non-login shell.)
sudo -l                         # List sudo privileges for the current user.
visudo                          # Edit the sudoers configuration file.
getenforce                      # Display the current SELinux mode.
sestatus                        # Display SELinux details such as the current SELinux mode, the configured mode, and the loaded policy.
setenforce 0                    # Change the current SELinux mode to Permissive. (Does not survive a reboot.)
setenforce 1                    # Change the current SELinux mode to Enforcing. (Does not survive a reboot.)
SELINUX=enforcing               # Set the SELinux mode to enforcing on boot by using this setting in the /etc/selinux/config file.
SELINUX=permissive              # Set the SELinux mode to permissive on boot by using this setting in the /etc/selinux/config file.
SELINUX=disabled                # Set the SELinux mode to disabled on boot by using this setting in the /etc/selinux/config file.
```

# 17 - LOGGING AND AUDITING

```
dmesg                           # Display messages in kernel ring buffer.
journalctl                      # Display logs stored in the systemd journal.
journalctl -u servicename       # Display logs for a specific unit (service).
```