LINUX
COMMANDS

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Linux Commands for Beginners

Command	Description
Navigation Commands	
`pwd`	Print the current working directory.
`ls`	List files and directories in the current directory.
`ls -l`	List files and directories in long format.
`ls -a`	List all files, including hidden files.
`cd [directory]`	Change directory.
`cd ..`	Move to the parent directory.
`cd ~`	Move to the home directory.
`cd -`	Move to the previous directory.
File Management	
`touch [filename]`	Create an empty file.
`mkdir [directory]`	Create a new directory.
`rm [file]`	Remove a file.
`rm -r [directory]`	Remove a directory and its contents recursively.
`cp [source] [destination]`	Copy files and directories.
`mv [source] [destination]`	Move or rename files and directories.
Viewing Files	
`cat [file]`	Display the contents of a file.
`less [file]`	View the contents of a file one page at a time.
`head [file]`	Display the first few lines of a file.
`tail [file]`	Display the last few lines of a file.
Process Management	
`ps`	Display information about active processes.

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Command	Description
`ps aux`	Display detailed information about all processes.
`kill [process_id]`	Terminate a process.
`killall [process_name]`	Terminate all processes with a specific name.

System Information

Command	Description
`uname`	Display system information.
`uname -a`	Display all system information.
`df`	Display disk space usage.
`free`	Display system memory usage.
`lscpu`	Display information about CPU architecture.
`lsblk`	List information about block devices.
`lshw`	List hardware information.
`uptime`	Display how long the system has been running.

Network

Command	Description
`ping [host]`	Send ICMP echo requests to a host.
`ifconfig`	Display network interface configuration.
`netstat`	Display network connections, routing tables, interface statistics, masquerade connections, and multicast memberships.

Package Management (Debian-based)

Command	Description
`apt update`	Update package lists.
`apt upgrade`	Upgrade installed packages.
`apt install [package]`	Install a package.
`apt remove [package]`	Remove a package.

System Logs

Command	Description
`dmesg`	Display kernel messages.
`journalctl`	Query and display messages from the journal.

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Command	Description
`tail -f /var/log/[logfile]`	Monitor a log file in real-time.
`grep [pattern] /var/log/[logfile]`	Search for a pattern in a log file.

User and Group Management

Command	Description
`groupadd [groupname]`	Create a new group.
`groupdel [groupname]`	Delete a group.
`gpasswd -a [username] [groupname]`	Add a user to a group.
`gpasswd -d [username] [groupname]`	Remove a user from a group.
`id [username]`	Display user and group information for a user.
`passwd`	Change the password for the current user.

System Configuration

Command	Description
`hostname`	Display or set the system's hostname.
`ifconfig [interface] [IP_address] netmask [subnet_mask]`	Configure a network interface.
`sysctl [parameter]`	View or modify kernel parameters at runtime.
`systemctl [command] [service]`	Manage system services (start, stop, restart, enable, disable).

File Sharing and Permissions

Command	Description
`chmod [permissions] [file/directory]`	Change the permissions of a file or directory.
`chown [owner]:[group] [file/directory]`	Change the owner and group of a file or directory.
`setfacl -m u:[username]: [permissions] [file/directory]`	Set Access Control Lists (ACLs) for a file or directory.
`getfacl [file/directory]`	Display the ACLs for a file or directory.

System Backup and Restore

Command	Description
`tar -cvpzf [backup_name.tar.gz] [source_directory]`	Create a compressed tarball of a directory.

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Command	Description
`tar -xvpzf [backup_name.tar.gz] C /destination_directory`	Extract a compressed tarball to a specific directory.
`rsync -av [source_directory] [destination_directory]`	Synchronize the contents of two directories.
`dd if=[input_file] of= [output_file]`	Copy and convert files.

System Updates and Upgrades

Command	Description
`apt-get update`	Update package lists.
`apt-get upgrade`	Upgrade installed packages.
`apt-get dist-upgrade`	Upgrade the distribution to the latest version.
`yum check-update`	Check for available package updates.
`yum update`	Update installed packages to their latest versions.

System Recovery

Command	Description
`fsck -y [device]`	Check and repair a filesystem automatically.
`grub-install /dev/[device]`	Install GRUB bootloader to a device.
`grub-mkconfig -o /boot/grub/grub.cfg`	Generate a GRUB configuration file.
`mkswap [device]`	Set up a Linux swap area.
`swapon [device]`	Enable devices and files for paging and swapping.
`swapoff [device]`	Disable devices and files for paging and swapping.

Kernel Management

Command	Description
`uname -r`	Display the kernel release information.
`insmod [module_name]`	Insert a kernel module into the kernel.
`rmmod [module_name]`	Remove a kernel module from the kernel.
`modprobe [module_name]`	Load or unload kernel modules.
`lsmod`	Show the status of loaded kernel modules.

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Command	Description
System Services	
`service [service_name] start`	Start a system service.
`service [service_name] stop`	Stop a system service.
`service [service_name] restart`	Restart a system service.
`chkconfig --list`	List all system services and their runlevel settings.
`chkconfig --level [runlevel] [service_name] on`	Enable a service to start at a specified runlevel.
`chkconfig --level [runlevel] [service_name] off`	Disable a service from starting at a specified runlevel.
Disk Management	
`fdisk -l`	List all disk partitions.
`parted /dev/[device]`	Interactive partition editor.
`mkfs.[filesystem_type] [device_partition]`	Format a partition with a specific filesystem.
`mount [device_partition] [mount_point]`	Mount a filesystem.
`umount [mount_point]`	Unmount a filesystem.
File System Navigation	
`cd /`	Change to the root directory.
`cd ../..`	Move up two directories.
`cd -`	Switch to the previous directory.
`pwd`	Print the current working directory.
Text Manipulation	
`grep [pattern] [file]`	Search for a pattern in a file.
`sed 's/[old_pattern]/[new_pattern]/g' [file]`	Replace text in a file.

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Command	Description
`awk '{print $[column_number]}' [file]`	Extract specific columns from a file.

File Compression and Archiving

Command	Description
`tar -czvf [archive_name.tar.gz] [directory]`	Create a compressed tarball.
`tar -xzvf [archive_name.tar.gz]`	Extract files from a compressed tarball.
`zip [archive_name.zip] [file1] [file2] ...`	Create a zip archive.
`unzip [archive_name.zip]`	Extract files from a zip archive.

File Transfer

Command	Description
`scp [source] [destination]`	Securely copy files between hosts.
`rsync [source] [destination]`	Synchronize files and directories between hosts or directories.

System Monitoring

Command	Description
`top`	Display dynamic real-time information about running processes.
`htop`	Interactive process viewer.
`vmstat`	Report virtual memory statistics.
`iostat`	Report CPU statistics and I/O statistics for devices and partitions.

User Management

Command	Description
`useradd [username]`	Create a new user.
`passwd [username]`	Change a user's password.
`usermod -aG [group] [username]`	Add a user to a group.
`userdel [username]`	Delete a user.
`groups [username]`	Display groups a user belongs to.

System Control

Command	Description
`shutdown`	Shut down the system.

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Command	Description
`reboot`	Reboot the system.
`halt`	Halt the system.
`init [runlevel]`	Change the system's runlevel.

Miscellaneous

Command	Description
`date`	Display or set the system date and time.
`cal`	Display a calendar.
`history`	Display command history.
`man [command]`	Display the manual page for a command.

Searching

Command	Description
`find [directory] -name [filename]`	Search for files by name.
`locate [filename]`	Search for files in a database.
`which [command]`	Display the full path of a command.

Networking

Command	Description
`ssh [username]@[hostname]`	Connect to a remote machine via SSH.
`scp [file] [username]@[hostname]:[destination]`	Copy files to/from a remote machine via SSH.
`wget [URL]`	Download files from the internet.
`curl [URL]`	Transfer data to or from a server.

Text Processing

Command	Description
`sort [file]`	Sort lines of text.
`uniq [file]`	Report or omit repeated lines.
`wc [file]`	Print newline, word, and byte counts for a file.
`grep -r [pattern] [directory]`	Recursively search for a pattern in files.

Package Management (Red Hatbased)

Command	Description
`yum update`	Update installed packages.

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Command	Description
`yum install [package]`	Install a package.
`yum remove [package]`	Remove a package.

File System

Command	Description
`mkfs [filesystem_type] [device]`	Create a filesystem on a device.
`fsck [device]`	Check and repair a filesystem.
`sync`	Flush file system buffers.

Compression and Decompression

Command	Description
`gzip [file]`	Compress a file.
`gunzip [file.gz]`	Decompress a file.
`bzip2 [file]`	Compress a file using bzip2 algorithm.
`bunzip2 [file.bz2]`	Decompress a file compressed with bzip2.

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