Chapter 1: Linux top commands

CYBR 493A: Cyber Operations

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In this file, we will explore the 50 most famous Linux commands

ls

- Description: List files and directories in the current directory.

- Example (without parameters):
    - `ls`

- Example (with parameters):
    - `ls -l`
- Optional Parameters: -l: Long format
    - -a: Include hidden files
    - -t: Sort by modification time

cd

- Description: Change the current directory.

- Example (without parameters):
  - `cd`

- Example (with parameters):
  - `cd /path/to/directory`

- Optional Parameters: directory_path: Path to the directory you want to navigate to

pwd

- Description: Print the current working directory.

- Example (without parameters):
  - `pwd`

- Optional Parameters: None

mkdir

- Description: Create a new directory.

- Example (without parameters):
  - `mkdir new_folder`

- Example (with parameters):
  - `mkdir -p parent/child/grandchild`

- Optional Parameters: -p: Create parent directories as needed

rmdir

- Description: Remove an empty directory.

- Example (without parameters):
  - `rmdir empty_folder`

- Optional Parameters: None

cp

- Description: Copy files or directories.

- Example (without parameters):
  - `cp file.txt newfile.txt`

- Example (with parameters):
  - `cp -r folder1 folder2`

- Optional Parameters: -r: Recursively copy directories
  - -f: Force overwrite

mv

- Description: Move or rename files or directories.

- Example (without parameters):
  - `mv oldname.txt newname.txt`

- Example (with parameters):
  - `mv file.txt /path/to/directory`

- Optional Parameters: None

rm

- Description: Remove files or directories.

- Example (without parameters):
  - `rm file.txt`

- Example (with parameters):
  - `rm -r folder`

- Optional Parameters: -r: Recursively delete directories
- -f: Force deletion

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chmod

- Description: Change file permissions, do this after creating scripts

- Example (without parameters):
  - `chmod +x script.sh => grants execution rights to user`

- Example (with parameters):
  - `chmod 644 file.txt`

- Optional Parameters: permissions: New permission settings
- file_path: Path to the file

chown

- Description: Change file ownership.

- Example (without parameters):
  - `chown newuser file.txt`

- Example (with parameters):
- N/A

- Optional Parameters: user: New owner
- file_path: Path to the file

chgrp

- Description: Change group ownership of files.

- Example (without parameters):
    - `chgrp newgroup file.txt`

- Example (with parameters):
- N/A

- Optional Parameters: group: New group
- file_path: Path to the file

touch

- Description: Create an empty file or update timestamps.

- Example (without parameters):
  - `touch newfile.txt`

- Example (with parameters):
- N/A

- Optional Parameters: file_path: Path to the file

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cat

- Description: Concatenate and display the content of files.

- Example (without parameters):
  - `cat file.txt`

- Example (with parameters):
  - `cat file1.txt file2.txt`

- Optional Parameters: file1 file2 …: Files to display

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nano

- Description: Text editor for command-line interface.

- Example (without parameters):
  - `nano newfile.txt`

- Example (with parameters):
- N/A

- Optional Parameters: file_path: Path to the file

echo

- Description: Display a message or value.

- Example (without parameters):
  - `echo Hello, world!`

- Example (with parameters):
- N/A

- Optional Parameters: message: Text to display

grep

- Description: Search for text patterns in files.

- Example (without parameters): look for the word cats in the file.txt
  - `grep pattern file.txt => grep "cats" file.txt`

- Example (with parameters):
  - `grep -iR pattern /path/to/directory`

- Optional Parameters: -i: Ignore case
- -r: Recursively search in directories

find

- Description: Search for files and directories.

- Example (without parameters):
  - `find /path/to/search -name file.txt`

- Example (with parameters): find all directries
  - `find /path/to/search -type d`

- Optional Parameters: -name: Search by filename
- -type: Search by file type

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ps

- Description: List currently running processes.

- Example (without parameters):
  - `ps`

- Example (with parameters):
  - `ps aux`

- Optional Parameters: aux: Show all processes for all users

top

- Description: Display dynamic real-time information about running processes.

- Example (without parameters):
  - `top`

- Example (with parameters):
- N/A

- Optional Parameters: None

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df

- Description: Display disk space usage of file systems.

- Example (without parameters):
    - `df`

- Example (with parameters):
    - `df -hT`

- Optional Parameters: -h: Human-readable format
- -T: Display file system type

du

- Description: Display the estimated space used by files and directories.

- Example (without parameters):
  - `du`

- Example (with parameters):
  - `du -hs /path/to/directory`

- Optional Parameters: -h: Human-readable format

- -s: Display only the total

tar

- Description: Manipulate archives in the tar format, compress data into a zipped folder.

- Example (without parameters): put file1 and file2 in an archive named archive.tar-cvf
  - `tar -cvf archive.tar file1 file2`

- Example (with parameters): extracts contents of archive.tar
  - `tar -xvf archive.tar`

- Optional Parameters: -c: Create a new archive

- -x: Extract files from an archive

gzip

- Description: Compress files using the gzip compression algorithm.

- Example (without parameters): compress file.txt
  - `gzip file.txt`

- Example (with parameters): extract data from compressed.gz
  - `gzip -d compressed.gz`

- Optional Parameters: -d: Decompress
- -r: Compress directories recursively

unzip

- Description: Extract files from a ZIP archive.

- Example (without parameters):
  - `unzip archive.zip`

- Example (with parameters):
  - `unzip -d extract_folder archive.zip`

- Optional Parameters: -d: Specify extraction directory

wget

- Description: Download files from the web.

- Example (without parameters):
  - `wget https://example.com/file.txt`

- Example (with parameters):
  - `wget -O output.txt https://example.com/file.txt`

- Optional Parameters: -O: Save downloaded file with a different name
- -c: Continue broken downloads

curl

- Description: Transfer data from or to a server using various protocols.

- Example (without parameters):
  - `curl https://example.com/file.txt`

- Example (with parameters):
  - `curl -X POST -d 'data' https://example.com/api`

- Optional Parameters: -O: Save downloaded file with its remote name
- -X: Specify request method

ssh

- Description: Securely access remote systems over a network.

- Example (without parameters):
- ssh user@hostname

- Example (with parameters):
- N/A

- Optional Parameters: username@hostname: Remote user and hostname to connect to

scp

- Description: Securely copy files between local and remote systems.

- Example (without parameters):
- scp file.txt user@hostname:/path/to/destination

- Example (with parameters):
- N/A

- Optional Parameters: file_path: Path to the file on the local system
- user@hostname:path: Remote user, hostname, and destination path

ping

- Description: Send network requests to test connectivity.

- Example (without parameters):
- ping google.com

- Example (with parameters):
- ping -c 5 -i 1 google.com

- Optional Parameters: -c: Number of packets to send
- -i: Interval between packets

traceroute

- Description: Trace the route taken by packets across a network.

- Example (without parameters):
- traceroute google.com

- Example (with parameters):
- traceroute -n -m 15 google.com

- Optional Parameters: -n: Do not resolve hostnames
- -m: Maximum number of hops

ifconfig

- Description: Configure and display network interfaces.

- Example (without parameters):
- ifconfig

- Example (with parameters):
- ifconfig eth0 up

- Optional Parameters: interface_name: Name of the network interface
- up: Activate the interface
- down: Deactivate the interface

netstat

- Description: Display network connections, routing tables, interface statistics, masquerade connections, and multicast memberships.

- Example (without parameters):
- netstat

- Example (with parameters):
- netstat -t

- Optional Parameters: -t: Show TCP connections
- -u: Show UDP connections
- -i: Show network interfaces

iptables

- Description: Configure and manage firewall rules.

- Example (without parameters):
- iptables -L

- Example (with parameters):
- iptables -A INPUT -p tcp --dport 80 -j ACCEPT

- Optional Parameters: -A: Append a rule
- -I: Insert a rule
- -D: Delete a rule

crontab

- Description: Schedule tasks to run automatically at specified intervals.

- Example (without parameters):
- crontab -l

- Example (with parameters):
- crontab -e

- Optional Parameters: -e: Edit the cron table
- -l: List the cron table
- -r: Remove a cron job

useradd

- Description: Create a new user account.

- Example (without parameters):
- useradd newuser

- Example (with parameters):
- useradd -m -g users newuser

- Optional Parameters: -m: Create a home directory
- -g: Set initial group

usermod

- Description: Modify user account settings.

- Example (without parameters):
- usermod -aG admin existinguser

- Example (with parameters):
- usermod -d /new/home/dir existinguser

- Optional Parameters: -aG: Add user to supplementary group
- -d: Change home directory

userdel

- Description: Delete a user account.

- Example (without parameters):
- userdel unwanteduser

- Example (with parameters):
- userdel -r unwanteduser

- Optional Parameters: -r: Remove home directory

passwd

- Description: Change user password.

- Example (without parameters):
- passwd

- Example (with parameters):
- passwd username

- Optional Parameters: username: Username to change password for

su

- Description: Switch to another user account.

- Example (without parameters):
- su otheruser

- Example (with parameters):
- su -c 'ls -l' otheruser

- Optional Parameters: username: User to switch to
- -c: Execute a command

sudo

- Description: Execute commands with superuser privileges.

- Example (without parameters):
- sudo apt update

- Example (with parameters):
- sudo -u otheruser ls -l

- Optional Parameters: -u: Run as another user
- -l: List allowed commands

systemctl

- Description: Control system services (systemd).

- Example (without parameters):
- systemctl start apache2

- Example (with parameters):
- systemctl status sshd

- Optional Parameters: start: Start a service
- stop: Stop a service
- status: Check service status

service

- Description: Control system services (init).

- Example (without parameters):
- service nginx start

- Example (with parameters):
- service apache2 restart

- Optional Parameters: start: Start a service
- stop: Stop a service
- restart: Restart a service

apt

- Description: Advanced Package Tool - Manage software packages.

- Example (without parameters):
- apt update

- Example (with parameters):
- apt install package-name

- Optional Parameters: update: Update package list
- install: Install a package
- remove: Remove a package

which

- Description: Locate a command's executable file.

- Example (without parameters):
- which ls

- Example (with parameters):
- N/A

- Optional Parameters: command_name: Name of the command

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- Description: Execute commands with superuser privileges.

- Example (without parameters):
- sudo apt update

- Example (with parameters):
- sudo -u otheruser ls -l

- Optional Parameters: -u: Run as another user
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which

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- Example (without parameters):
- which ls

- Example (with parameters):
- N/A

- Optional Parameters: command_name: Name of the command

locate

- Description: Find files by name quickly using a database.

- Example (without parameters):
- locate myfile.txt

- Example (with parameters):
- N/A

- Optional Parameters: file_name: Name of the file or pattern to search

history

- Description: Display command history.

- Example (without parameters):
- history

- Example (with parameters):
- history -n 10

- Optional Parameters: -c: Clear history
- -n: Limit number of displayed lines

alias

- Description: Create a custom command alias.

- Example (without parameters):
- alias ll='ls -l'

- Example (with parameters):
- N/A

- Optional Parameters: alias_name: Name for the alias
- command: Command to be aliased

mount

- Description: Mount a file system.

- Example (without parameters):
- mount /dev/sdb1 /mnt/usb

- Example (with parameters):
- N/A

- Optional Parameters: device: Device to be mounted
- mount_point: Directory where the device is to be mounted

umount

- Description: Unmount a file system.

- Example (without parameters):
- umount /mnt/usb

- Example (with parameters):
- N/A

- Optional Parameters: mount_point: Directory where the device is mounted

ln

- Description: Create links between files.

- Example (without parameters):
- ln file.txt link.txt

- Example (with parameters):
- ln -s target.txt symbolic_link.txt

- Optional Parameters: -s: Create symbolic (soft) link
- -f: Overwrite existing link