

Title: Linux Command List Assessment

Assignment 1

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Instructions:-

The following assessment aims to test your understanding and practical knowledge of various Linux commands. Perform the tasks given below using the appropriate commands. Write down the command(s) used to complete each task. You can use any Linux distribution or command-line interface of your choice. Ensure that you provide the correct output or results for each task.

File and Directory Operations:

ls: List files and directories

```
└─$ ls
Desktop  Documents  Downloads  Music  Pictures  Public  Templates  Videos
```

cd: Change directory

```
└─$ cd Documents
```

pwd: Print working directory

```
└─$ pwd
```

mkdir: Make directory

```
└─$ mkdir my_directory
```

touch: Create an empty file

```
$ touch myfile.txt
```

cp: Copy files and directories

```
$ cp myfile.txt /home/nikhil/Downloads
```

```
$ cp -r my_directory /home/nikhil/Downloads
```

mv: Move or rename files and directories

```
$ mv myfile.txt /home/nikhil/Downloads
```

```
$ mv my_directory /home/nikhil/Downloads
```

rm: Remove files and directories

```
$ rm myfile.txt
```

```
$ rm -r my_directory
```

find: Search for files and directories

```
$ find /home -name myfile.txt
```

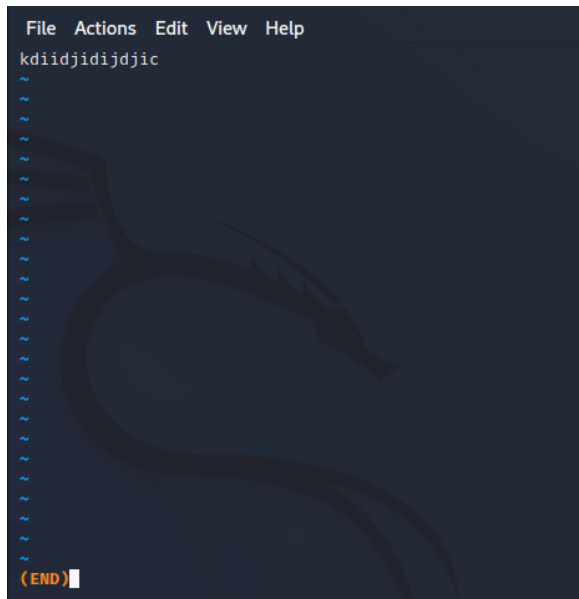
File Viewing and Editing:

cat: Concatenate and display file content

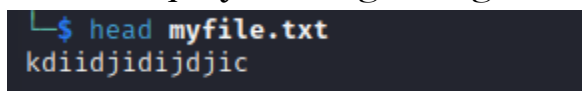
```
$ cat myfile.txt  
kdiidjidiidjic
```

less: View file content with pagination

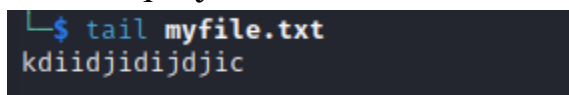
```
$ less myfile.txt
```



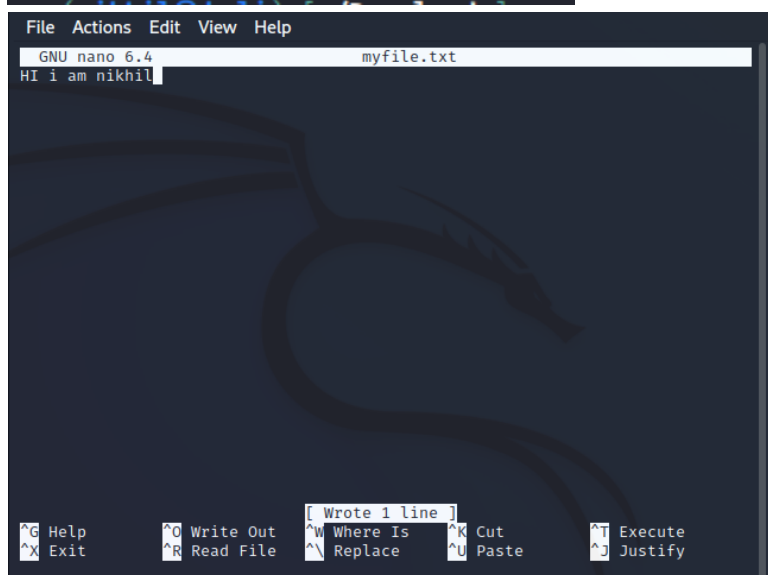
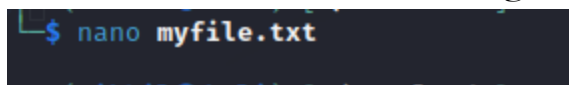
head: Display the beginning of a file



tail: Display the end of a file



nano: Text editor for creating and editing files



vi/vim: Powerful text editor for experienced users

```
└─$ vi myfile.txt
```

File Permissions:

chmod: Change file permissions

```
└─$ chmod 755 myfile.txt
```

chown: Change file owner

```
└─$ chown nikhil myfile.txt
```

chgrp: Change file group

```
└─$ chgrp nikhil myfile.txt
```

File Compression and Archiving:

tar: Archive files

```
└─$ tar -cvf archive.tar myfile.txt  
myfile.txt
```

gzip: Compress files

```
└─$ gzip myfile.txt
```

unzip: Extract files from a ZIP archive

```
└─$ unzip myfilee  
Archive:  myfilee  
End-of-central-directory signature not found.  Either this file is not  
a zipfile, or it constitutes one disk of a multi-part archive.  In the  
latter case the central directory and zipfile comment will be found on  
the last disk(s) of this archive.  
Archive:  myfilee.zip  
replace myfilee? [y]es, [n]o, [A]ll, [N]one, [r]ename: r  
new name: mfyyf  
extracting: mfyyf
```

Process Management:

ps: List running processes

```
root@kali:~# ps aux
```

USER	PID	%CPU	%MEM	VSZ	RSS	TTY	STAT	START	TIME	COMMAND
root	1	0.0	0.3	167624	12164	?	Ss	10:09	0:00	/sbin/init
root	2	0.0	0.0	0	0	?	S	10:09	0:00	[kthreadd]
root	3	0.0	0.0	0	0	?	I<	10:09	0:00	[rcu_gp]
root	4	0.0	0.0	0	0	?	I<	10:09	0:00	[rcu_par_g
root	5	0.0	0.0	0	0	?	I<	10:09	0:00	[slub_flus
root	6	0.0	0.0	0	0	?	I<	10:09	0:00	[netns]
root	8	0.0	0.0	0	0	?	I<	10:09	0:00	[kworker/0
root	10	0.0	0.0	0	0	?	I<	10:09	0:00	[mm_percpu
root	11	0.0	0.0	0	0	?	I	10:09	0:00	[rcu_tasks
root	12	0.0	0.0	0	0	?	I	10:09	0:00	[rcu_tasks
root	13	0.0	0.0	0	0	?	I	10:09	0:00	[rcu_tasks
root	14	0.0	0.0	0	0	?	S	10:09	0:00	[ksoftirqd
root	15	0.0	0.0	0	0	?	I	10:09	0:01	[rcu_preem
root	16	0.0	0.0	0	0	?	S	10:09	0:00	[migration
root	18	0.0	0.0	0	0	?	S	10:09	0:00	[cpuhp/0]
root	19	0.0	0.0	0	0	?	S	10:09	0:00	[cpuhp/1]
root	20	0.0	0.0	0	0	?	S	10:09	0:00	[migration
root	21	0.0	0.0	0	0	?	S	10:09	0:00	[ksoftirqd
root	23	0.0	0.0	0	0	?	I<	10:09	0:00	[kworker/1
root	24	0.0	0.0	0	0	?	S	10:09	0:00	[cpuhp/2]
root	25	0.0	0.0	0	0	?	S	10:09	0:00	[migration
root	26	0.0	0.0	0	0	?	S	10:09	0:00	[ksoftirqd
root	28	0.0	0.0	0	0	?	I<	10:09	0:00	[kworker/2
root	29	0.0	0.0	0	0	?	S	10:09	0:00	[cpuhp/3]

top: Display real-time system information and processes

```
└─$ top
top - 10:36:16 up 26 min, 1 user, load average: 0.15, 0.13, 0.10
Tasks: 165 total, 1 running, 164 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.3 us, 0.6 sy, 0.0 ni, 98.9 id, 0.1 wa, 0.0 hi, 0.1 si, 0.0
MiB Mem : 3929.0 total, 2831.0 free, 662.7 used, 435.3 buff/cache
MiB Swap: 975.0 total, 975.0 free, 0.0 used, 3040.0 avail Mem

  PID USER      PR  NI   VIRT   RES   SHR  S  %CPU  %MEM    TIME+
 592 root        20   0 439728 121932 64532 S   1.0   3.0   0:15.42
 338 root        20   0 49428  16652 15380 S   0.3   0.4   0:00.19
 514 root        20   0 25224   7884  6852 S   0.3   0.2   0:00.09
 910 nikhil     20   0 1226004 105740 76872 S   0.3   2.6   0:06.04
 957 nikhil     20   0 527608 110536 43592 S   0.3   2.7   0:01.84
 963 nikhil     20   0 210100  35456 18148 S   0.3   0.9   0:08.24
 965 nikhil     20   0 358416  30284 20456 S   0.3   0.8   0:04.16
3817 nikhil     20   0 463916 104844 84048 S   0.3   2.6   0:03.80
   1 root        20   0 167624  12164  8992 S   0.0   0.3   0:00.82
   2 root        20   0      0      0      0 S   0.0   0.0   0:00.00
   3 root        0 -20      0      0      0 I   0.0   0.0   0:00.00
   4 root        0 -20      0      0      0 I   0.0   0.0   0:00.00
   5 root        0 -20      0      0      0 I   0.0   0.0   0:00.00
   6 root        0 -20      0      0      0 I   0.0   0.0   0:00.00
   8 root        0 -20      0      0      0 I   0.0   0.0   0:00.00
  10 root        0 -20      0      0      0 I   0.0   0.0   0:00.00
```

kill: Terminate processes

```
└─$ kill 965
```

bg: Run processes in the background

```
└─$ command &
[1] 8792
[1] + done      command
```

fg: Bring background processes to the foreground

```
└─$ fg
fg: no current job
```

System Information:

uname: Print system information

```
└─$ uname -a
Linux kali 6.0.0-kali3-amd64 #1 SMP PREEMPT_DYNAMIC Debian 6.0.7-1kali1 (2022-11-07) x86_64 GNU/Linux
```

df: Display disk space usage

```

└─$ df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            1.9G   0    1.9G   0% /dev
tmpfs           393M  956K  392M   1% /run
/dev/sda1       25G   13G   11G   54% /
tmpfs           2.0G   0    2.0G   0% /dev/shm
tmpfs           5.0M   0    5.0M   0% /run/lock
tmpfs           393M  88K   393M   1% /run/user/1000

```

free: Display memory usage

```

└─$ free -m
              total        used        free      shared  buff/cache   available
Mem:           3928          686         2801           15          440            3
014
Swap:           974           0          974

```

uptime: Show system uptime

```

└─$ uptime
10:37:19 up 27 min,  1 user,  load average: 0.05, 0.10, 0.09

```

who: Display logged-in users

```

└─$ who
nikhil  tty7          2023-05-28 10:09 (:0)

```

w: Display logged-in users and their activities

```

└─$ w
10:37:24 up 27 min,  1 user,  load average: 0.05, 0.10, 0.09
USER      TTY      FROM          LOGIN@   IDLE   JCPU   PCPU WHAT
nikhil    tty7     :0            10:09    27:55  16.76s  0.34s xfce4-sessio

```

Networking:

ifconfig: Configure network interfaces

```

$ ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.0.2.15 netmask 255.255.255.0 broadcast 10.0.2.255
    inet6 fe80::a00:27ff:fe5b:9e2f prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:5b:9e:2f txqueuelen 1000 (Ethernet)
    RX packets 6 bytes 1226 (1.1 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 33 bytes 3804 (3.7 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 4 bytes 240 (240.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 4 bytes 240 (240.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

```

ping: Send ICMP echo requests to a network host

```

$ ping google.com
PING google.com (142.250.195.78) 56(84) bytes of data.
64 bytes from maa03s38-in-f14.1e100.net (142.250.195.78): icmp_seq=1 ttl=116
time=16.6 ms
64 bytes from maa03s38-in-f14.1e100.net (142.250.195.78): icmp_seq=2 ttl=116
time=14.1 ms
64 bytes from maa03s38-in-f14.1e100.net (142.250.195.78): icmp_seq=3 ttl=116
time=13.5 ms
64 bytes from maa03s38-in-f14.1e100.net (142.250.195.78): icmp_seq=4 ttl=116
time=13.1 ms
64 bytes from maa03s38-in-f14.1e100.net (142.250.195.78): icmp_seq=5 ttl=116
time=15.3 ms
64 bytes from maa03s38-in-f14.1e100.net (142.250.195.78): icmp_seq=6 ttl=116
time=13.4 ms
64 bytes from maa03s38-in-f14.1e100.net (142.250.195.78): icmp_seq=7 ttl=116
time=15.6 ms
64 bytes from maa03s38-in-f14.1e100.net (142.250.195.78): icmp_seq=8 ttl=116
time=13.2 ms
64 bytes from maa03s38-in-f14.1e100.net (142.250.195.78): icmp_seq=9 ttl=116

```

ssh: Securely connect to a remote system

```

$ ssh nikhi@192.168.0.7

```

scp: Securely copy files between systems


```
$ scp myfilee.txt nikhi@192.168.0.7:/C:/Windows/System32/
```

wget: Download files from the web

```
$ wget http://www.google.com/
--2023-05-28 11:08:50-- http://www.google.com/
Resolving www.google.com (www.google.com)... 142.250.196.164, 2404:6800:4007:81f::2004
Connecting to www.google.com (www.google.com)|142.250.196.164|:80... connecte
d.
HTTP request sent, awaiting response... 200 OK
Length: unspecified [text/html]
Saving to: 'index.html'

index.html          [ <=>          ] 19.02K  --.-KB/s    in 0.01s
2023-05-28 11:08:50 (1.34 MB/s) - 'index.html' saved [19478]
```

System Administration:

sudo: Execute commands with superuser privileges

```
$ sudo su
#
```

apt-get: Package management for Debian-based distributions

```
└─# apt-get update
Hit:1 http://kali.download/kali kali-rolling InRelease
Reading package lists... Done
```

yum: Package management for Red Hat-based distributions

```
└─# yum info vsftpd
```

systemctl: Manage system services

```
└─# systemctl list-unit-files --type service -all
```

UNIT FILE	STATE	PRESET
apache-htcacheclean.service	disabled	disabled
apache-htcacheclean@.service	disabled	disabled
apache2.service	disabled	disabled
apache2@.service	disabled	disabled
apparmor.service	disabled	disabled
apt-daily-upgrade.service	static	-
apt-daily.service	static	-
atftpd.service	indirect	disabled
auth-rpcgss-module.service	static	-
autovt@.service	alias	-
avahi-daemon.service	disabled	disabled
blueman-mechanism.service	disabled	disabled
bluetooth.service	disabled	disabled
colord.service	static	-
console-getty.service	disabled	disabled
console-setup.service	enabled	enabled
container-getty@.service	static	-
cron.service	enabled	enabled
cryptdisks-early.service	masked	disabled
cryptdisks.service	masked	disabled
dbus-org.freedesktop.hostname1.service	alias	-
dbus-org.freedesktop.locale1.service	alias	-
dbus-org.freedesktop.login1.service	alias	-

crontab: Schedule recurring tasks

```
└─# crontab -e
no crontab for root - using an empty one

Select an editor. To change later, run 'select-editor'.
 1. /bin/nano      ← easiest
 2. /usr/bin/vim.basic
 3. /usr/bin/vim.tiny

Choose 1-3 [1]: 1
No modification made
```

useradd: Add a new user

```
└─# useradd new
```

passwd: Change user password

```
└─# passwd new
New password:
Retype new password:
passwd: password updated successfully
```