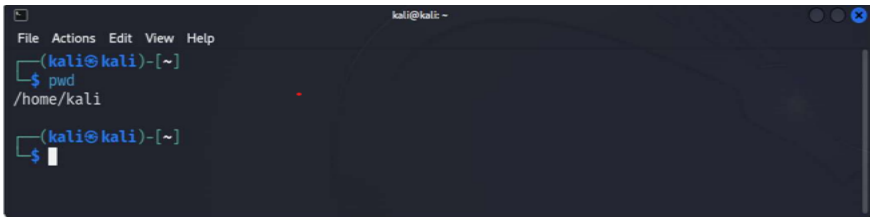
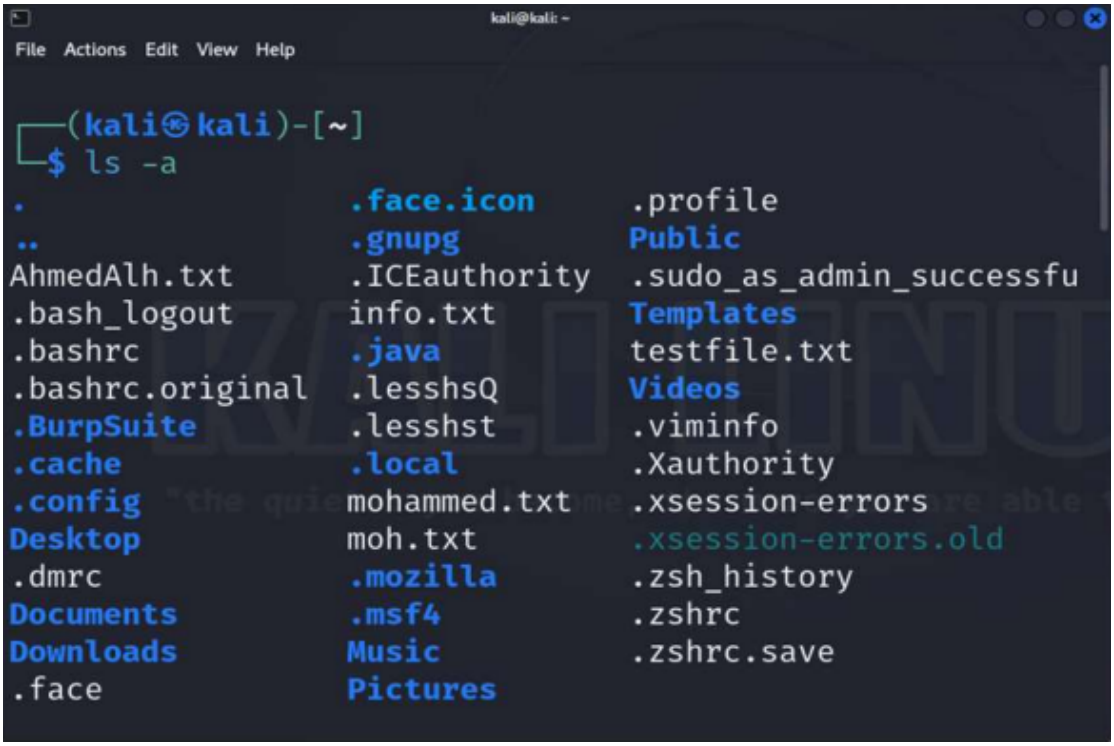
MOHAMMED FAOD ALUOSOFI

Section 1: File and Directory Management

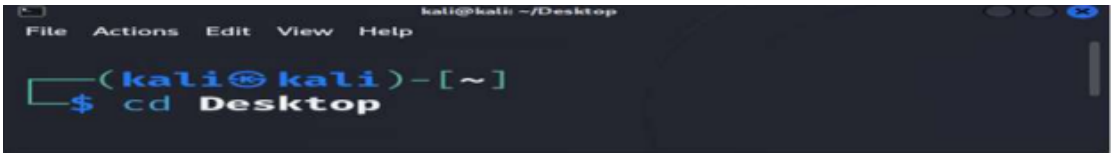
1.Display the current working directory.



2. List all the contents of your current directory, including hidden files.



3. Change your directory to the `Desktop`.

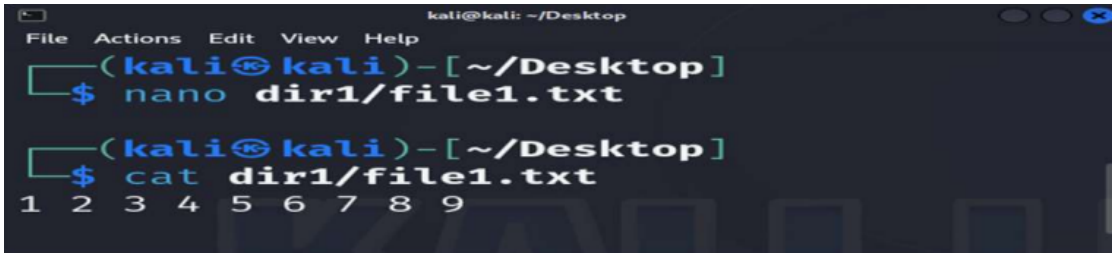


4. Create two directories named `dir1` and `dir2` on the Desktop.

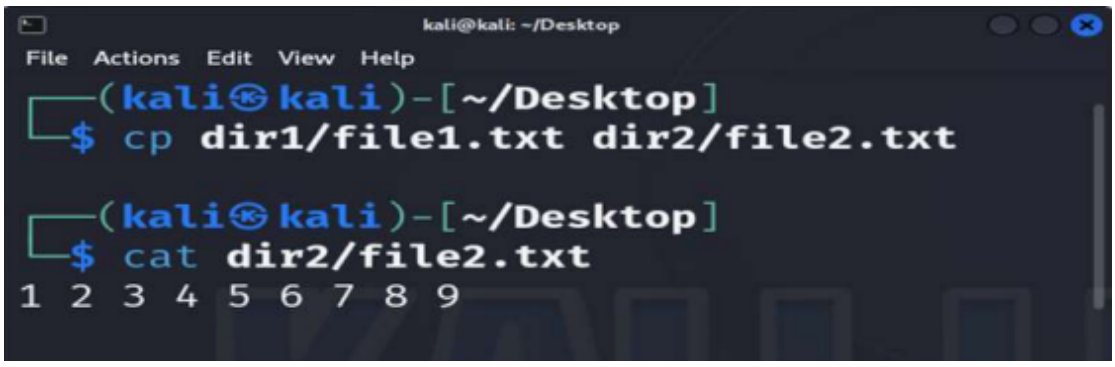
5. Inside `dir1`, create a file named `file1.txt`.

6. Inside `dir2`, create a file named `file2.txt`.

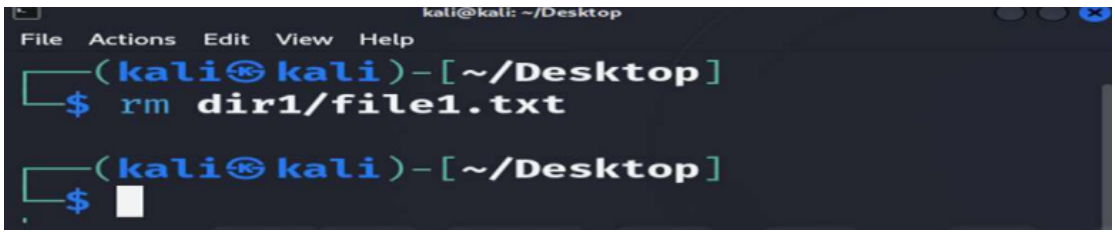
7. Using nano or vim Write the numbers 1 to 9 into `file1.txt`.



8. From the home directory Copy the contents of `file1.txt` into `file2.txt`.

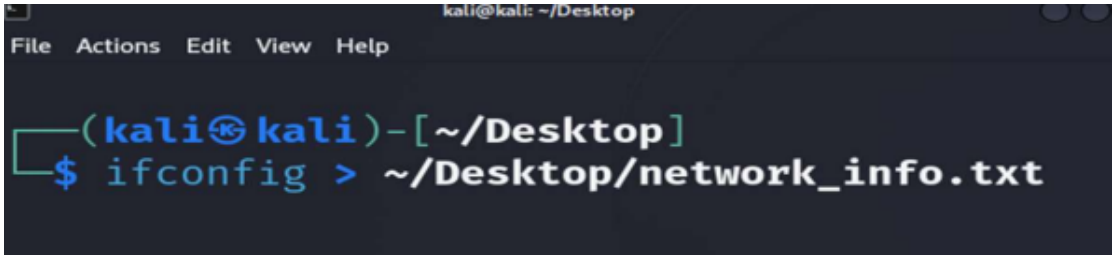


9. From the home directory, delete `file1.txt` inside `dir1`.

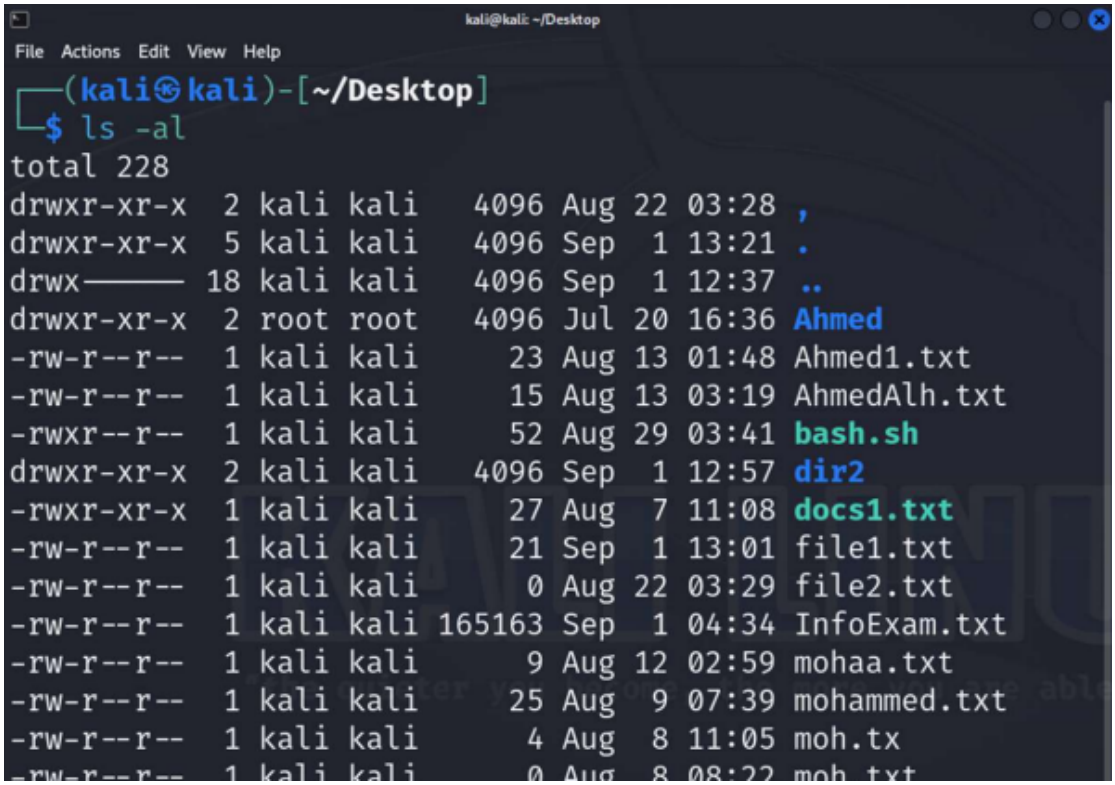


10. Remove the directory `dir1` from the Desktop.

11. Redirect the output of the network configuration command to a file named `network_info.txt` on the Desktop.



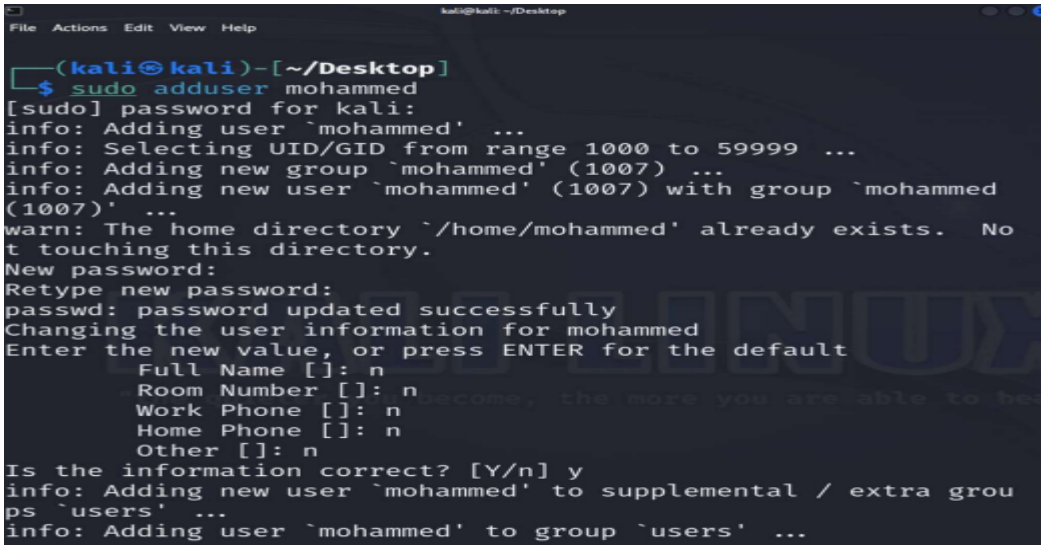
12. Open the Desktop folder and show all files with detailed information.



Section 2: Users and Groups Management

13. Create a new user with your name.

14. Set a password for your user.



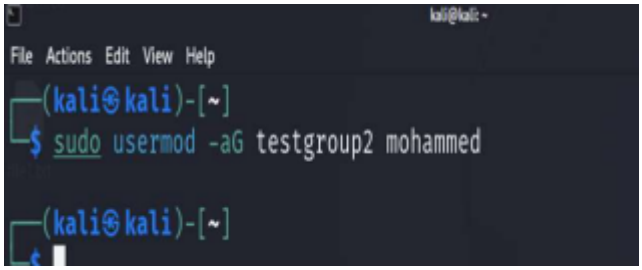
15. Open the file that contains user information and verify that your user has been added.

16. Add your user to the file that gives administrative privileges.

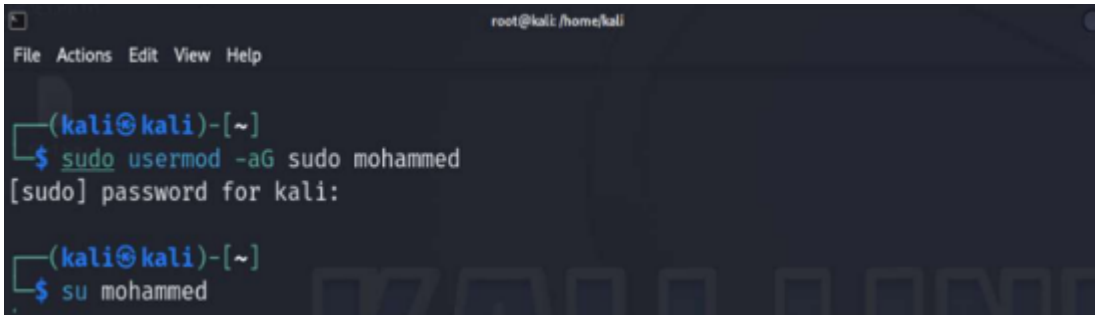
17. Switch to your user and confirm the user identity.

18. Create a new group named `testgroup`.

19. Add your user to `testgroup`.

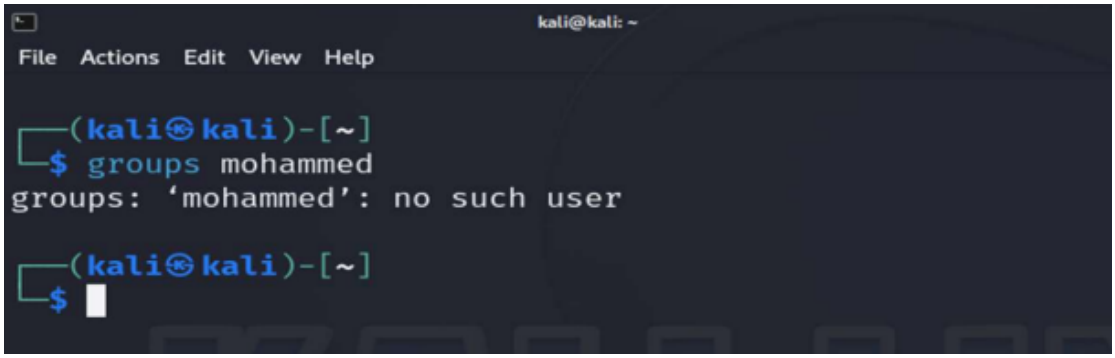


20. Add the group `testgroup` to the file that gives administrative privileges.



21. Remove your user from the file that gives administrative privileges.

22. Check if your user still have administrative privileges.



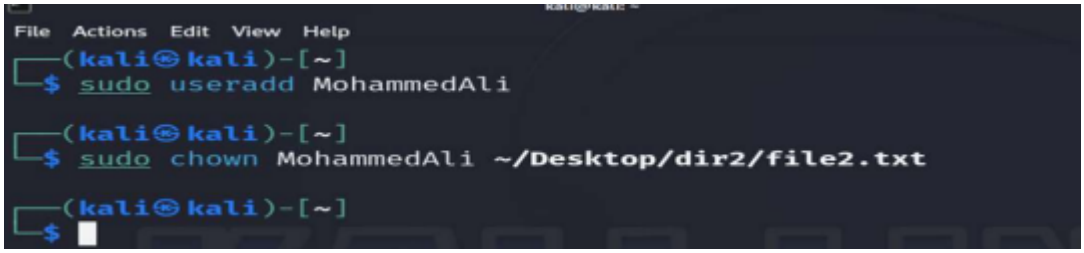
23. Check which groups your user belongs to.

Section 3: Permissions and Ownership

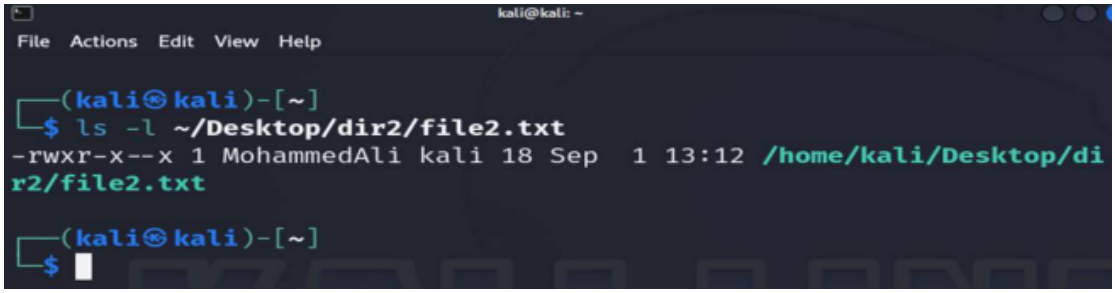
24. Set the permissions of `file2.txt` on the Desktop to allow the owner to read, write, and execute; the group to read and execute; and others to read.

25. Check the permissions of `file2.txt` to verify the change.

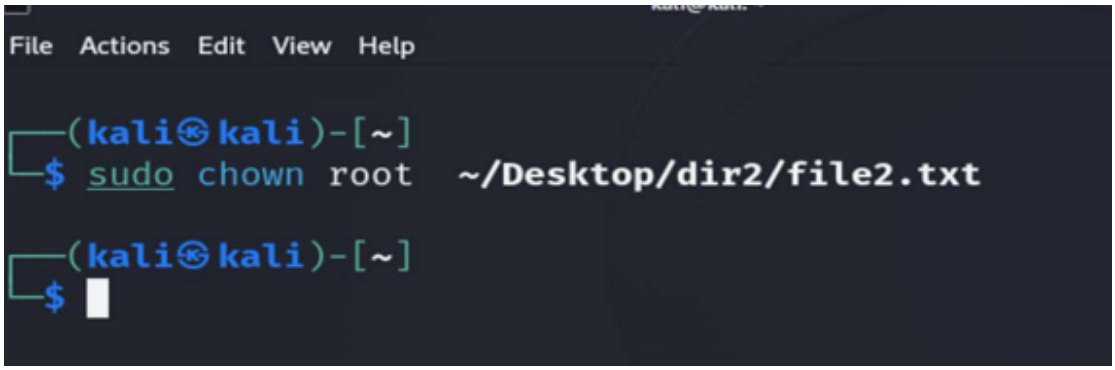
26. Change the ownership of `file2.txt` to your user.



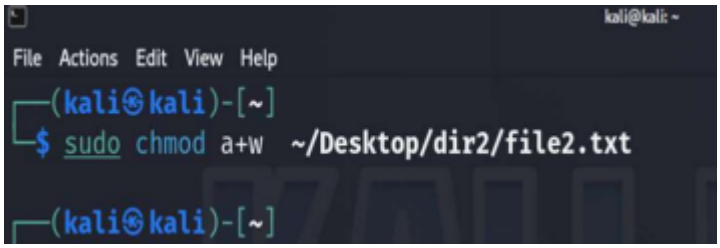
27. verify the ownership of `file2.txt`.



28. Change back the ownership of a file `file2.txt`.



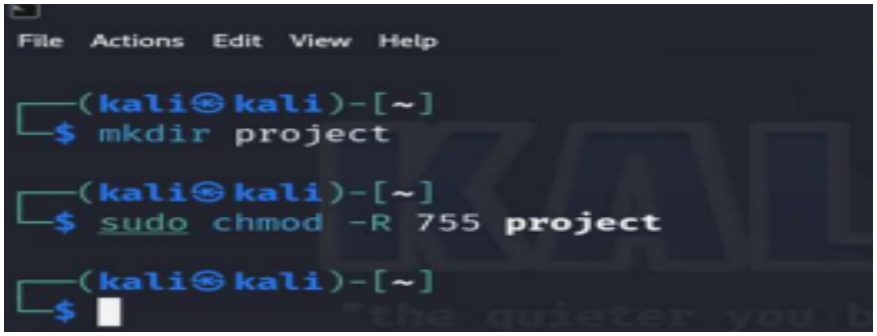
29. Grant write permission to everyone for `file2.txt`.



30. Remove the write permission for the group and others for `file2.txt`.

31. Delete `file2.txt` after making the necessary ownership and permission changes.

32. What command would you use to recursively change the permissions of all files and directories inside a folder named `project` to `755`.



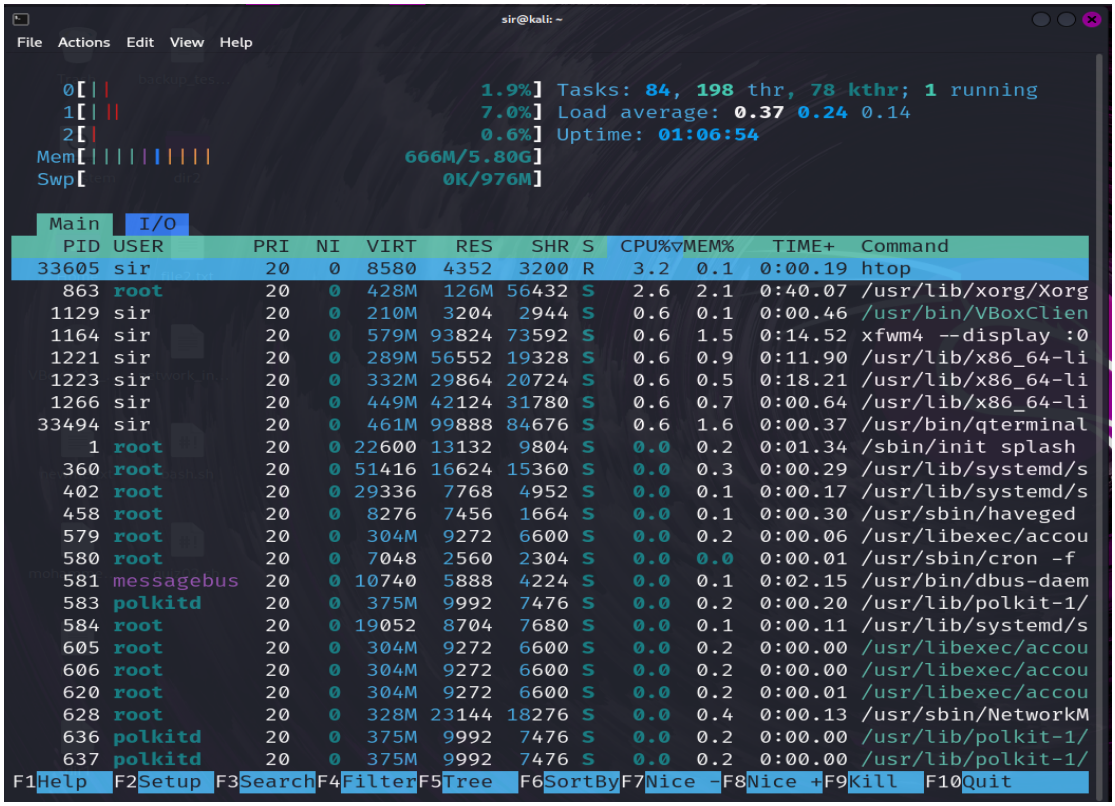
Section 4: Process Management:

33. Install a system monitor tool that provides an interactive process viewer(htop).

34. Display all running processes.

There are many ways to display all running processes:

- ps aux
- top
- htop
- pgrep -a
- pstree

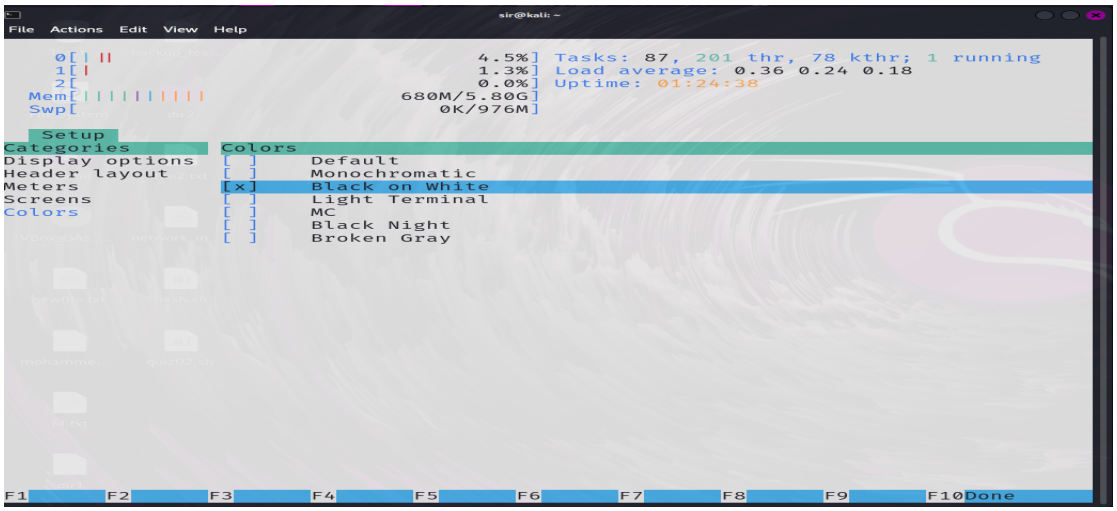


35. Display a tree of all running processes.

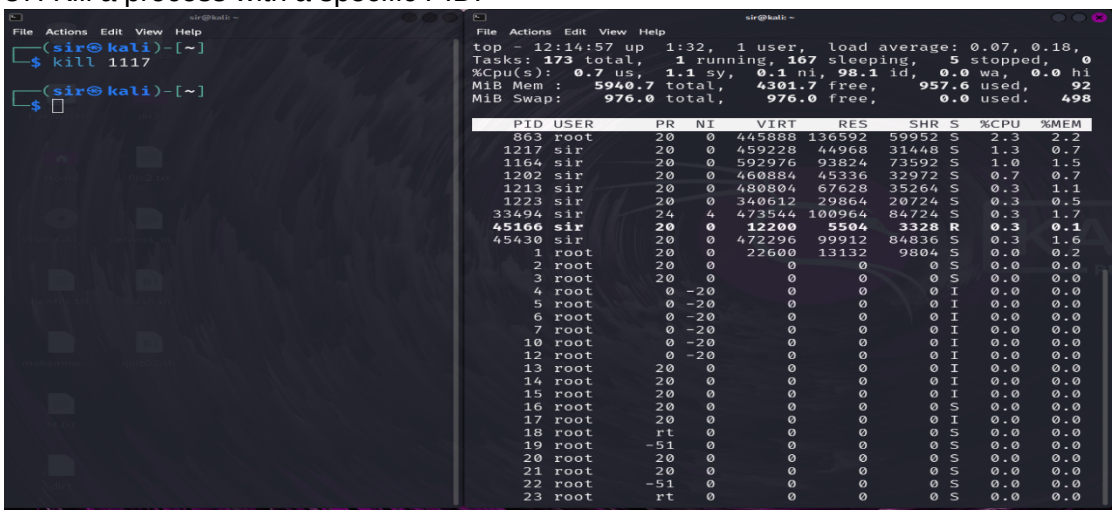
- pstree

36. Open the interactive process viewer and identify a process by its PID.

- The steps to do it:
    1. Do the command (htop).
    2. To identify a process by its PID: press (F3 or /) to open a search function.
    3. Finally type the PID that you want.

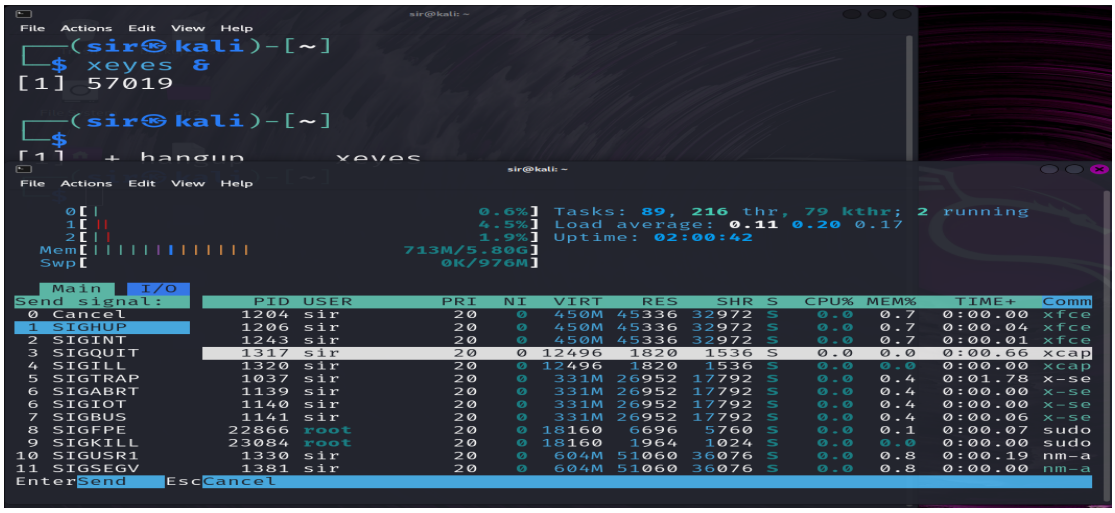


37. Kill a process with a specific PID.

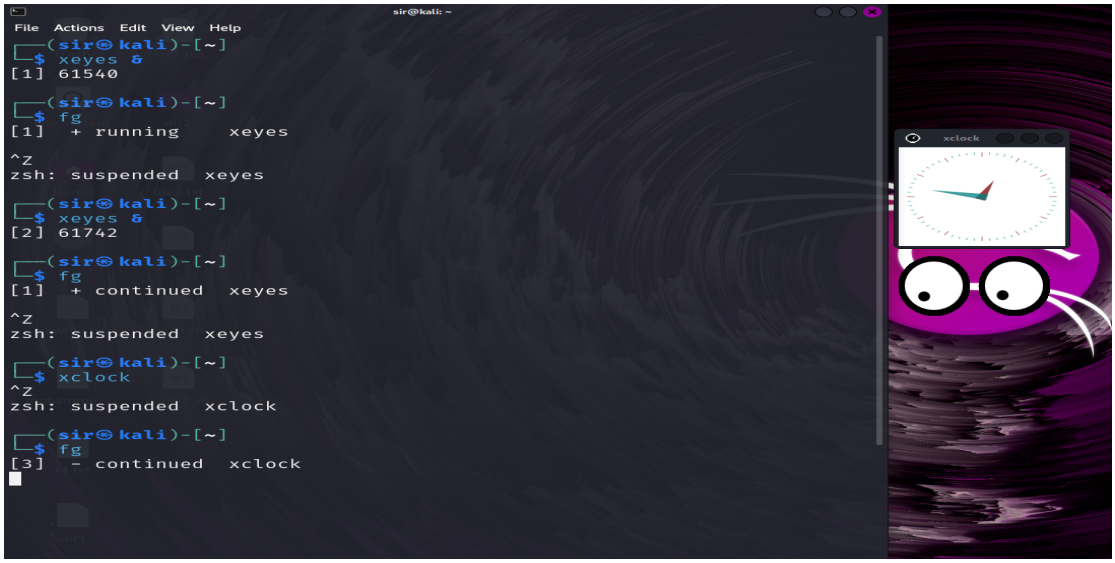


38. Start an application and stop it using a command that kills processes by name(exeyes).

39. Restart the application, then stop it using the interactive process viewer.

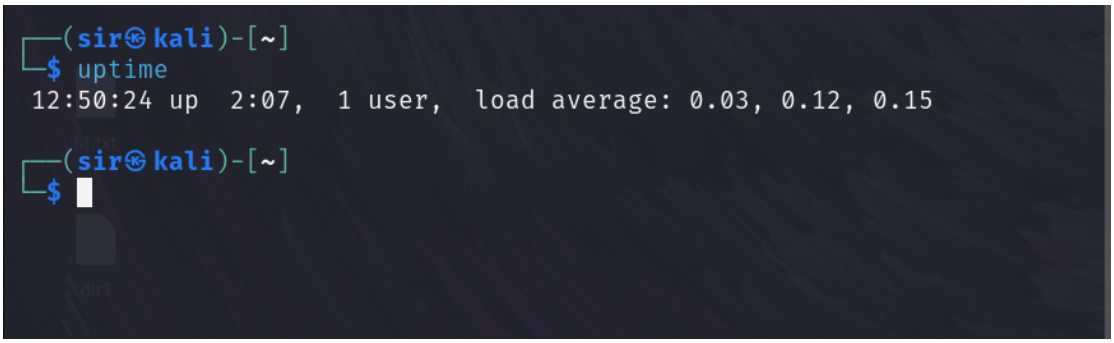


40. Run a command in the background, then bring it to the foreground(exeyes).

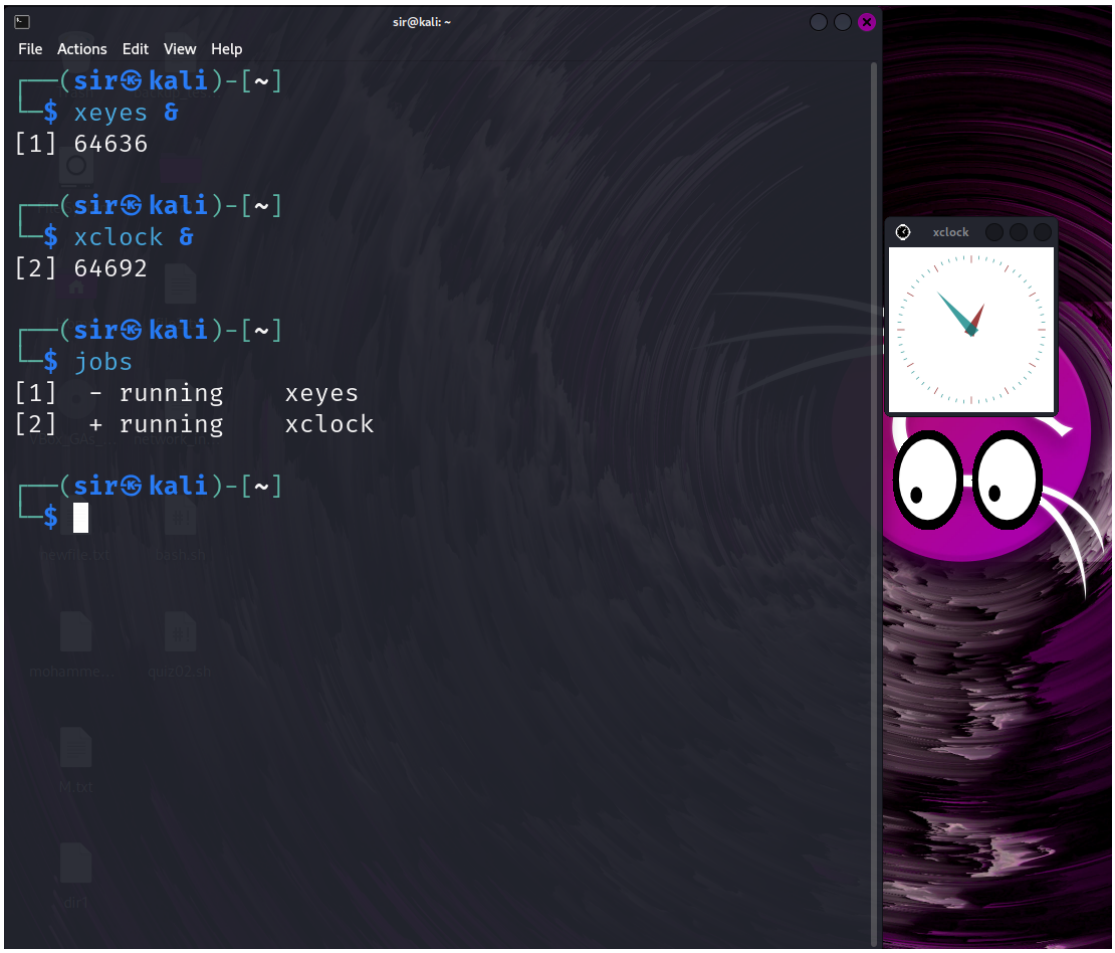


41. Check how long the system has been running.

- Using uptime command



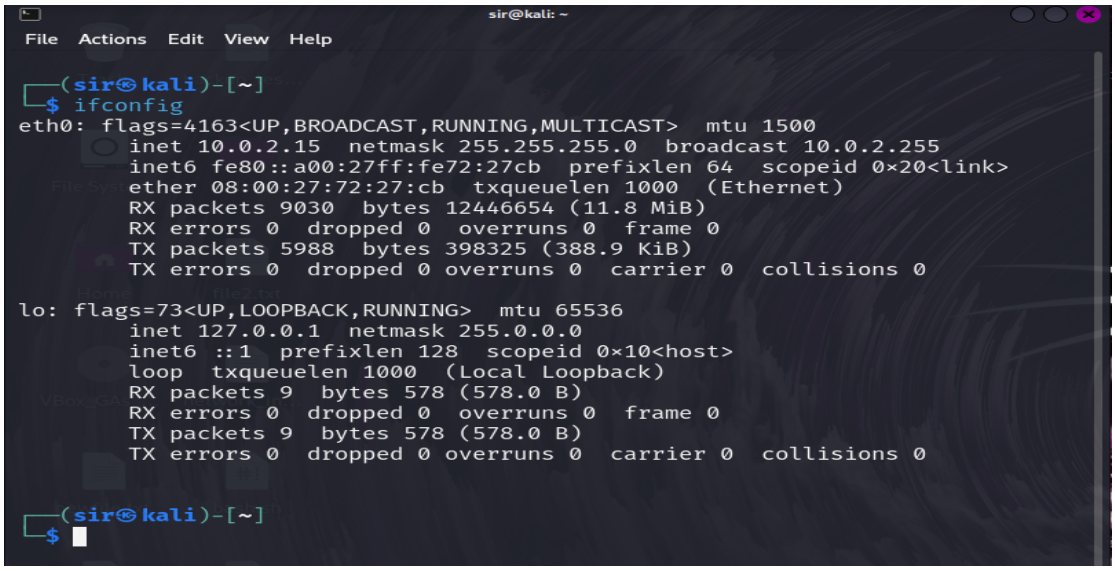
42. List all jobs running in the background.



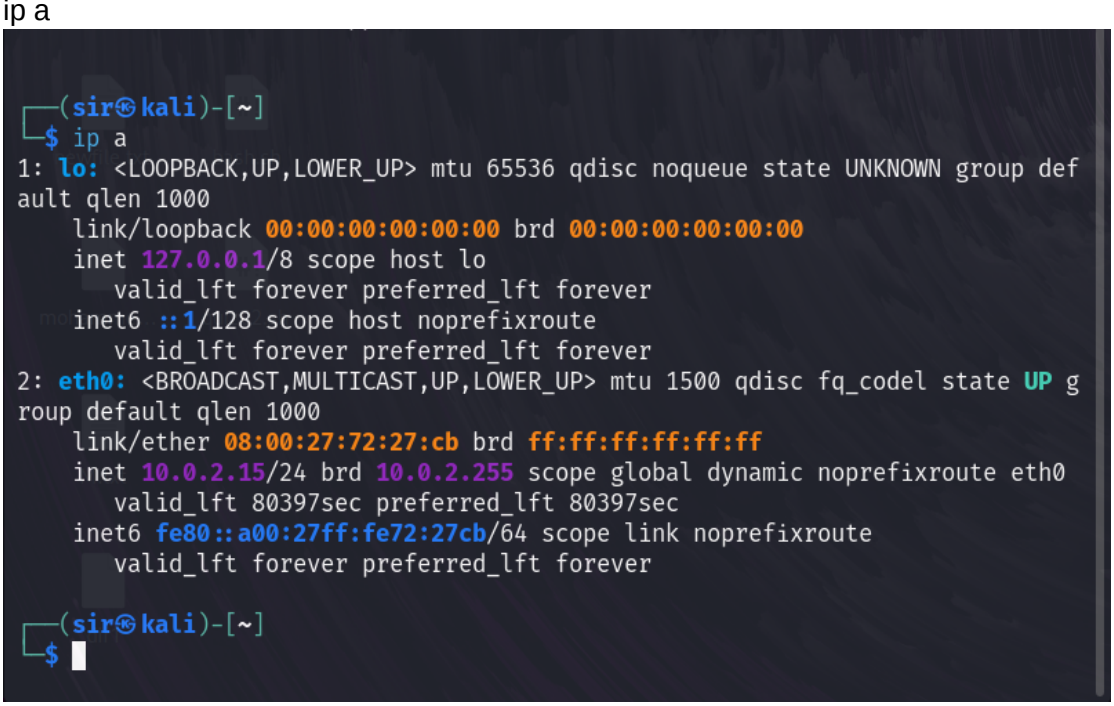
Section 5: Networking Commands:

43. Display the network configuration.

- Ifconfig



- ip a



44. Check the IP address of your machine.

- hostname -I
- ip addr show

```
┌──(sir㉿kali)-[~]
└─$ hostname -I
10.0.2.15

┌──(sir㉿kali)-[~]
└─$ ip addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group def
ault qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host noprefixroute
       valid_lft forever preferred_lft forever
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP g
roup default qlen 1000
    link/ether 08:00:27:72:27:cb brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global dynamic noprefixroute eth0
       valid_lft 80235sec preferred_lft 80235sec
    inet6 fe80::a00:27ff:fe72:27cb/64 scope link noprefixroute
       valid_lft forever preferred_lft forever

┌──(sir㉿kali)-[~]
└─$
```

45. Test connectivity to an external server.

```
sir@kali: ~
File  Actions  Edit  View  Help

┌──(sir㉿kali)-[~]
└─$ ping example.com
PING example.com (93.184.215.14) 56(84) bytes of data.
64 bytes from 93.184.215.14: icmp_seq=1 ttl=53 time=808 ms
64 bytes from 93.184.215.14: icmp_seq=2 ttl=53 time=301 ms
64 bytes from 93.184.215.14: icmp_seq=3 ttl=53 time=210 ms
64 bytes from 93.184.215.14: icmp_seq=4 ttl=53 time=233 ms
64 bytes from 93.184.215.14: icmp_seq=5 ttl=53 time=253 ms
64 bytes from 93.184.215.14: icmp_seq=6 ttl=53 time=302 ms
64 bytes from 93.184.215.14: icmp_seq=7 ttl=53 time=277 ms
64 bytes from 93.184.215.14: icmp_seq=8 ttl=53 time=195 ms
64 bytes from 93.184.215.14: icmp_seq=9 ttl=53 time=233 ms
64 bytes from 93.184.215.14: icmp_seq=10 ttl=53 time=248 ms
64 bytes from 93.184.215.14: icmp_seq=11 ttl=53 time=284 ms
64 bytes from 93.184.215.14: icmp_seq=12 ttl=53 time=295 ms
64 bytes from 93.184.215.14: icmp_seq=13 ttl=53 time=211 ms
64 bytes from 93.184.215.14: icmp_seq=14 ttl=53 time=233 ms
64 bytes from 93.184.215.14: icmp_seq=15 ttl=53 time=383 ms
64 bytes from 93.184.215.14: icmp_seq=16 ttl=53 time=272 ms
64 bytes from 93.184.215.14: icmp_seq=17 ttl=53 time=223 ms
64 bytes from 93.184.215.14: icmp_seq=18 ttl=53 time=245 ms
64 bytes from 93.184.215.14: icmp_seq=19 ttl=53 time=268 ms
64 bytes from 93.184.215.14: icmp_seq=20 ttl=53 time=216 ms
64 bytes from 93.184.215.14: icmp_seq=21 ttl=53 time=240 ms
64 bytes from 93.184.215.14: icmp_seq=22 ttl=53 time=259 ms
64 bytes from 93.184.215.14: icmp_seq=23 ttl=53 time=283 ms
64 bytes from 93.184.215.14: icmp_seq=24 ttl=53 time=203 ms
64 bytes from 93.184.215.14: icmp_seq=25 ttl=53 time=228 ms
64 bytes from 93.184.215.14: icmp_seq=26 ttl=53 time=247 ms
64 bytes from 93.184.215.14: icmp_seq=27 ttl=53 time=265 ms
64 bytes from 93.184.215.14: icmp_seq=28 ttl=53 time=290 ms
64 bytes from 93.184.215.14: icmp_seq=29 ttl=53 time=212 ms
64 bytes from 93.184.215.14: icmp_seq=30 ttl=53 time=296 ms
64 bytes from 93.184.215.14: icmp_seq=31 ttl=53 time=278 ms
64 bytes from 93.184.215.14: icmp_seq=32 ttl=53 time=199 ms
64 bytes from 93.184.215.14: icmp_seq=33 ttl=53 time=221 ms
64 bytes from 93.184.215.14: icmp_seq=34 ttl=53 time=239 ms
64 bytes from 93.184.215.14: icmp_seq=35 ttl=53 time=258 ms
```

46. Display the routing table.

- ip route show
- route -n

```
┌──(sir㉿kali)-[~]
└─$ ip route show
default via 10.0.2.2 dev eth0 proto dhcp src 10.0.2.15 metric 100
10.0.2.0/24 dev eth0 proto kernel scope link src 10.0.2.15 metric 100

┌──(sir㉿kali)-[~]
└─$
```

```
sir@kali: ~
File  Actions  Edit  View  Help

┌──(sir㉿kali)-[~]
└─$ route -n
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
0.0.0.0         10.0.2.2        0.0.0.0         UG    100    0        0 eth0
10.0.2.0        0.0.0.0         255.255.255.0   U     100    0        0 eth0

┌──(sir㉿kali)-[~]
└─$
```

47. Check the open ports and active connections.

- netstat -tuln
- ss -tuln

```
┌──(sir㉿kali)-[~]
└─$ netstat -tuln
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State

┌──(sir㉿kali)-[~]
└─$ ss -tuln
Netid  State   Recv-Q   Send-Q     Local Address:Port     Peer Address:Port

┌──(sir㉿kali)-[~]
└─$
```

48. Show the IP address of the host machine and the VM, and

verify if they are on the same network.

```
C:\Program Files (x86)\VMware\VMware Workstation\bin>ipconfig

Windows IP Configuration


Ethernet adapter ]] Ethernet:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Unknown adapter ]] ▯▯▯▯▯▯▯ ▯▯▯▯▯▯:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Ethernet adapter ]] Ethernet 2:

   Connection-specific DNS Suffix  . :
   Link-local IPv6 Address . . . . . : fe80::b950:326:bcec:6157%6
   IPv4 Address. . . . . . . . . . . : 192.168.9.246
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 192.168.9.10

Wireless LAN adapter ]] ▯▯▯▯▯▯▯ ▯▯▯▯▯▯* 1:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Wireless LAN adapter ]] ▯▯▯▯▯▯▯ ▯▯▯▯▯▯* 10:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Ethernet adapter VMware Network Adapter VMnet1:

   Connection-specific DNS Suffix  . :
   Link-local IPv6 Address . . . . . : fe80::cd3f:1f08:bb4c:ce83%24
   IPv4 Address. . . . . . . . . . . : 192.168.58.1
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . :

Ethernet adapter VMware Network Adapter VMnet8:

   Connection-specific DNS Suffix  . :
   Link-local IPv6 Address . . . . . : fe80::bc6:9623:aa24:de2b%11
   IPv4 Address. . . . . . . . . . . : 192.168.152.1
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . :

Wireless LAN adapter ]] ▯▯▯▯ Wi-Fi:

   Connection-specific DNS Suffix  . :
   Link-local IPv6 Address . . . . . : fe80::caee:b808:e021:489a%23
   IPv4 Address. . . . . . . . . . . : 192.168.1.104
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 192.168.1.1

Ethernet adapter ]] ▯▯▯▯▯ ▯▯▯▯▯▯ Bluetooth:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :
```

```
┌──(sir㉿kali)-[~]
└─$ hostname -I
10.0.2.15

┌──(sir㉿kali)-[~]
└─$
```

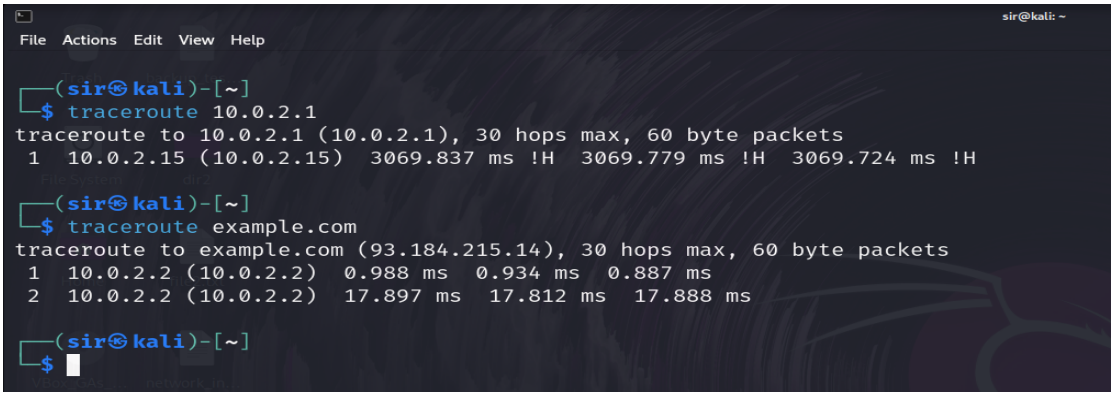
```
C:\Program Files (x86)\VMware\VMware Workstation\bin>ping 10.0.2.15

Pinging 10.0.2.15 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 10.0.2.15:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

49. Trace the route to an external server.

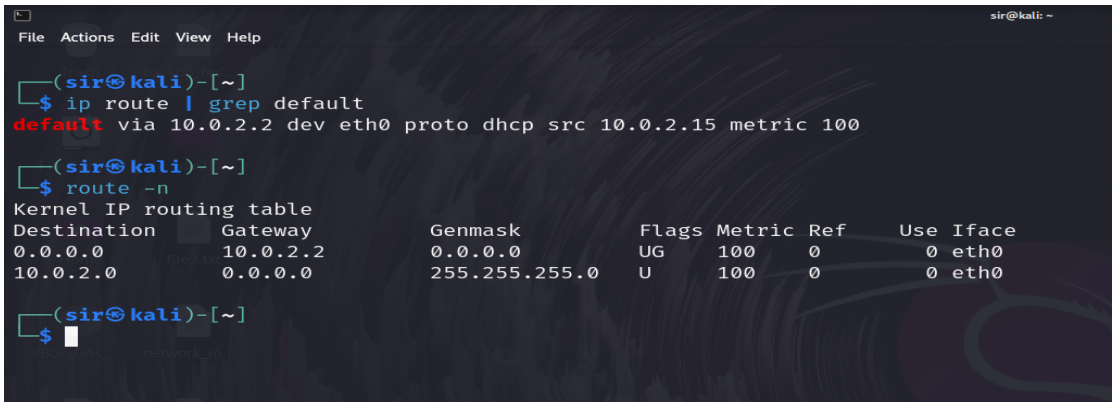
- tracert 10.0.2.1 (used in Window)

```
:\Program Files (x86)\VMware\VMware Workstation\bin>tracert example.com

racing route to example.com [93.184.215.14]
ver a maximum of 30 hops:

 1     7 ms     2 ms     2 ms  192.168.1.1
 2    42 ms   914 ms    46 ms  82.114.163.112
 3  1178 ms   514 ms   305 ms  82.114.160.6
 4   818 ms   220 ms    87 ms  82.114.164.18
 5  1056 ms   433 ms   287 ms  mei-b5-link.ip.twelve99.net [62.115.148.118]
 6   600 ms   206 ms     *     prs-bb1-link.ip.twelve99.net [62.115.124.54]
 7     *        *      686 ms  ash-bb2-link.ip.twelve99.net [62.115.112.242]
 8   396 ms   310 ms   243 ms
```

- traceroute 10.0.2.1

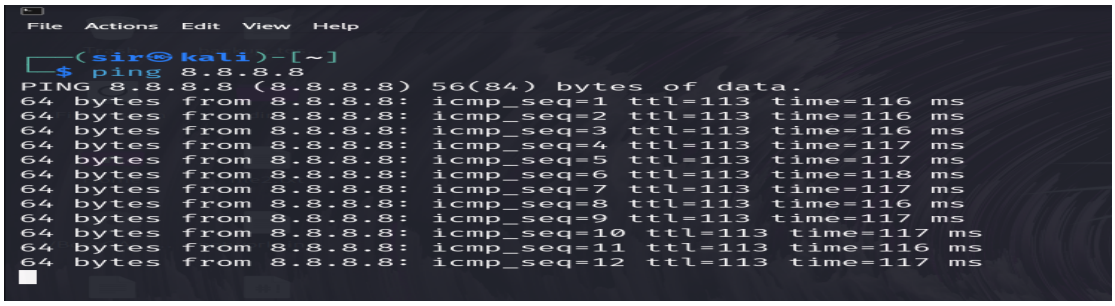


50. Find out the default gateway.



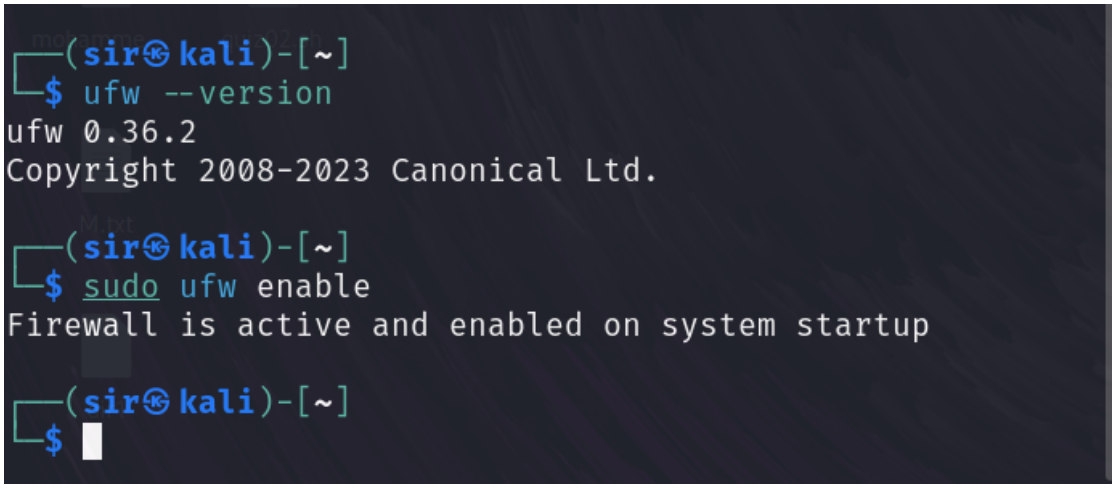
51. Check the MAC address of your network interface.

52. Ensure that the VM can access external networks.

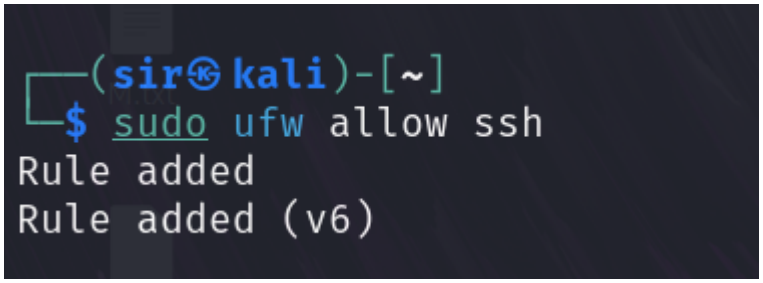


Section 6: UFW Firewall:

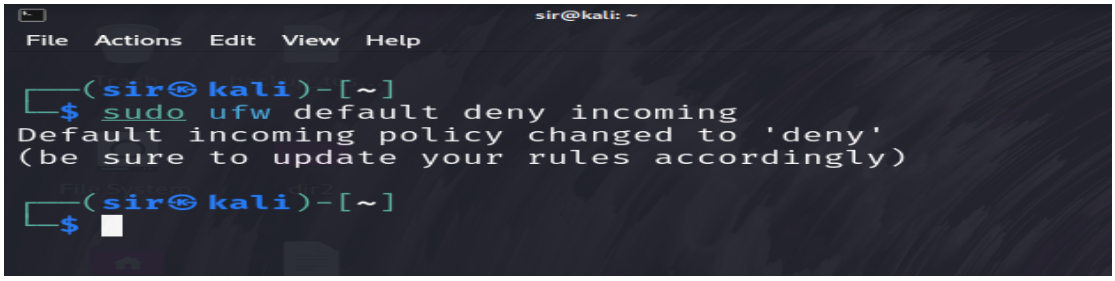
53. Enable the firewall.



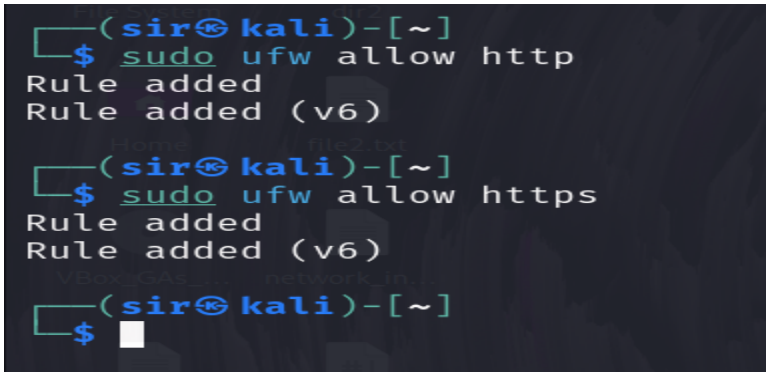
54. Allow SSH connections through the firewall.



55. Deny all incoming traffic by default.



56. Allow HTTP and HTTPS traffic.



57. Allow port 20

```
┌──(sir㉿kali)-[~]
└─$ sudo ufw allow 20
Rule added
Rule added (v6)
```

58. Reset the firewall settings.

```
┌──(sir㉿kali)-[~]
└─$ sudo ufw reset
Resetting all rules to installed defaults. Proceed with
operation (y|n)?
```

59. Delete a rule from the firewall.

```
┌──(sir㉿kali)-[~]
└─$ sudo ufw delete 1
```

60. Disable the firewall.

```
┌──(sir㉿kali)-[~]
└─$ sudo ufw disable
```

61. View the status of the firewall.

```
┌──(sir㉿kali)-[~]
└─$ sudo ufw status
```

62. Log firewall activity and view it.

```
┌──(sir㉿kali)-[~]
└─$ sudo ufw logging on
```

Section 7: Searching and System Information:

63. Delete the command history.

```
┌──(sir㉿kali)-[~/Desktop]
└─$ history  -c
fc: event not found: -c
```

64. Search for a kali in the `/etc/passwd` file.

```
┌──(sir㉿kali)-[~/Desktop]
└─$ grep kali /etc/passwd

┌──(sir㉿kali)-[~/Desktop]
└─$ grep kali /etc/passwd
```

65. Search for a kali in the `/etc/group` file.

```
┌──(sir㉿kali)-[~/Desktop]
└─$ grep kali /etc/group
kali-trusted:x:135:
```

66. Locate the `passwd` file.

```
┌──(sir㉿kali)-[~/Desktop]
└─$ which passwd
/usr/bin/passwd
```

67. Locate the shadow file and open it.

```
┌──(sir㉿kali)-[~/Desktop]
└─$ sudo cat /etc/shadow
root:!:19882:0:99999:7:::
daemon:*:19882:0:99999:7:::
bin:*:19882:0:99999:7:::
sys:*:19882:0:99999:7:::
sync:*:19882:0:99999:7:::
games:*:19882:0:99999:7:::
man:*:19882:0:99999:7:::
lp:*:19882:0:99999:7:::
mail:*:19882:0:99999:7:::
news:*:19882:0:99999:7:::
uucp:*:19882:0:99999:7:::
proxy:*:19882:0:99999:7:::
www-data:*:19882:0:99999:7:::
backup:*:19882:0:99999:7:::
list:*:19882:0:99999:7:::
irc:*:19882:0:99999:7:::
_apt:*:19882:0:99999:7:::
nobody:*:19882:0:99999:7:::
systemd-network:!*:19882::::::
_galera:!:19882::::::
mysql:!:19882::::::
tss:!:19882::::::
strongswan:!:19882::::::
systemd-timesync:!*:19882::::::
rwhod:!:19882::::::
_gophish:!:19882::::::
iodine:!:19882::::::
messagebus:!:19882::::::
tcpdump:!:19882::::::
miredo:!:19882::::::
_rpc:!:19882::::::
Debian-snmp:!:19882::::::
redis:!:19882::::::
```

68. Search for all configuration files in the `/etc` directory.

```
┌──(sir㉿kali)-[~/Desktop]
└─$ find /etc -type f -name "*.conf"
/etc/mke2fs.conf
/etc/smartd.conf
/etc/miredo.conf
/etc/UPower/UPower.conf
/etc/selinux/semanage.conf
/etc/libao.conf
/etc/mosquitto/mosquitto.conf
/etc/pam.conf
find: ‘/etc/vpnc’: Permission denied
/etc/postgresql-common/createcluster.conf
/etc/hdparm.conf
/etc/gtk-2.0/im-multipress.conf
find: ‘/etc/redis’: Permission denied
/etc/cracklib/cracklib.conf
/etc/avahi/avahi-daemon.conf
/etc/john/john-mail.conf
/etc/john/john.conf
/etc/samba/smb.conf
/etc/lightdm/keys.conf
/etc/lightdm/lightdm.conf
/etc/lightdm/lightdm-gtk-greeter.conf
/etc/lightdm/users.conf
/etc/strongswan.conf
/etc/sensors3.conf
/etc/responder/Responder.conf
/etc/usb_modeswitch.conf
/etc/nginx/fastcgi.conf
/etc/nginx/nginx.conf
/etc/nginx/snippets/snakeoil.conf
/etc/nginx/snippets/fastcgi-php.conf
/etc/e2scrub.conf
/etc/strongswan.d/starter.conf
/etc/strongswan.d/charon.conf
```

69. Search recursively for a specific word in the `/var/log` directory.

```
┌──(sir㉿kali)-[~/Desktop]
└─$ grep -r "var" /var/log
/var/log/Xorg.0.log.old:[     7.181] (==) Log file: "/va
r/log/Xorg.0.log", Time: Sat Aug 31 23:42:38 2024
grep: /var/log/boot.log.4: Permission denied
grep: /var/log/lightdm: Permission denied
grep: /var/log/boot.log.1: Permission denied
grep: /var/log/boot.log.2: Permission denied
grep: /var/log/speech-dispatcher: Permission denied
grep: /var/log/boot.log: Permission denied
grep: /var/log/inetsim: Permission denied
grep: /var/log/vboxadd-install.log: Permission denied
/var/log/Xorg.1.log.old:[  2383.961] (==) Log file: "/va
r/log/Xorg.1.log", Time: Wed Aug  7 18:28:01 2024
grep: /var/log/installer/partman: Permission denied
/var/log/installer/hardware-summary:lsmod: efivarfs
          24576  0
grep: /var/log/installer/Xorg.0.log: Permission denied
grep: /var/log/installer/syslog: Permission denied
/var/log/installer/status:Description: debconf preseedin
g via environment variables
/var/log/installer/status: The library provides an inter
face for raw netlink messaging and various
/var/log/installer/status: The library provides an inter
face for raw netlink messaging and various
grep: /var/log/installer/cdebconf/questions.dat: Permiss
ion denied
grep: /var/log/installer/cdebconf/templates.dat: Permiss
ion denied
grep: /var/log/private: Permission denied
/var/log/Xorg.0.log:[     5.478] (==) Log file: "/var/lo
g/Xorg.0.log", Time: Sun Sep  1 10:42:54 2024
grep: /var/log/btmp.1: Permission denied
grep: /var/log/boot.log.5: Permission denied
/var/log/fontconfig.log:/var/cache/fontconfig: cleaning
```

70. View the system’s kernel version.

```
┌──(sir㉿kali)-[~/Desktop]
└─$ uname -r
6.6.15-amd64
```

71. Display the system’s memory usage.

```
┌──(sir㉿kali)-[~/Desktop]
└─$ free -h
               total        used        free      shared  buff/cache   available
Mem:           5.8Gi       1.0Gi       3.9Gi       9.4Mi       1.2Gi       4.8Gi
Swap:          975Mi          0B       975Mi
```

72. Show the system’s disk usage.

```
┌──(sir㉿kali)-[~/Desktop]
└─$ df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            2.9G     0  2.9G   0% /dev
tmpfs           595M  1.1M  594M   1% /run
/dev/sda1        49G   15G   32G  32% /
tmpfs           3.0G     0  3.0G   0% /dev/shm
tmpfs           5.0M     0  5.0M   0% /run/lock
Transfer         43G   23G   20G  54% /media/sf_Transfer
tmpfs           595M  124K  594M   1% /run/user/1000
```

73. Check the system's uptime and load average.

```
┌──(sir㉿kali)-[~/Desktop]
└─$ uptime
 14:54:32 up  4:11,  1 user,  load average: 0.00, 0.03, 0.01
```

74. Display the current logged-in users.

```
┌──(sir㉿kali)-[~/Desktop]
└─$ who
sir      tty7         2024-09-01 10:43 (:0)
sir      pts/1        2024-09-01 11:28
sir      pts/3        2024-09-01 14:18
sir      pts/4        2024-09-01 14:20
sir      pts/5        2024-09-01 14:22
sir      pts/6        2024-09-01 14:29
sir      pts/7        2024-09-01 14:30
sir      pts/8        2024-09-01 14:31
sir      pts/9        2024-09-01 14:33
sir      pts/10       2024-09-01 14:34
```

75. Check the identity of the current user.

```
┌──(sir㉿kali)-[~/Desktop]
└─$ whoami
sir
```

76. View the `/var/log/auth.log` file.

```
┌──(sir㉿kali)-[~/Desktop]
└─$ sudo less /var/log/auth.log
/var/log/auth.log: No such file or directory
```

77. Shred the `auth.log` file securely.

```
┌──(sir㉿kali)-[~/Desktop]
└─$ sudo shred -u /var/log/auth.log
shred: /var/log/auth.log: failed to open for writing: No such file or directory
```

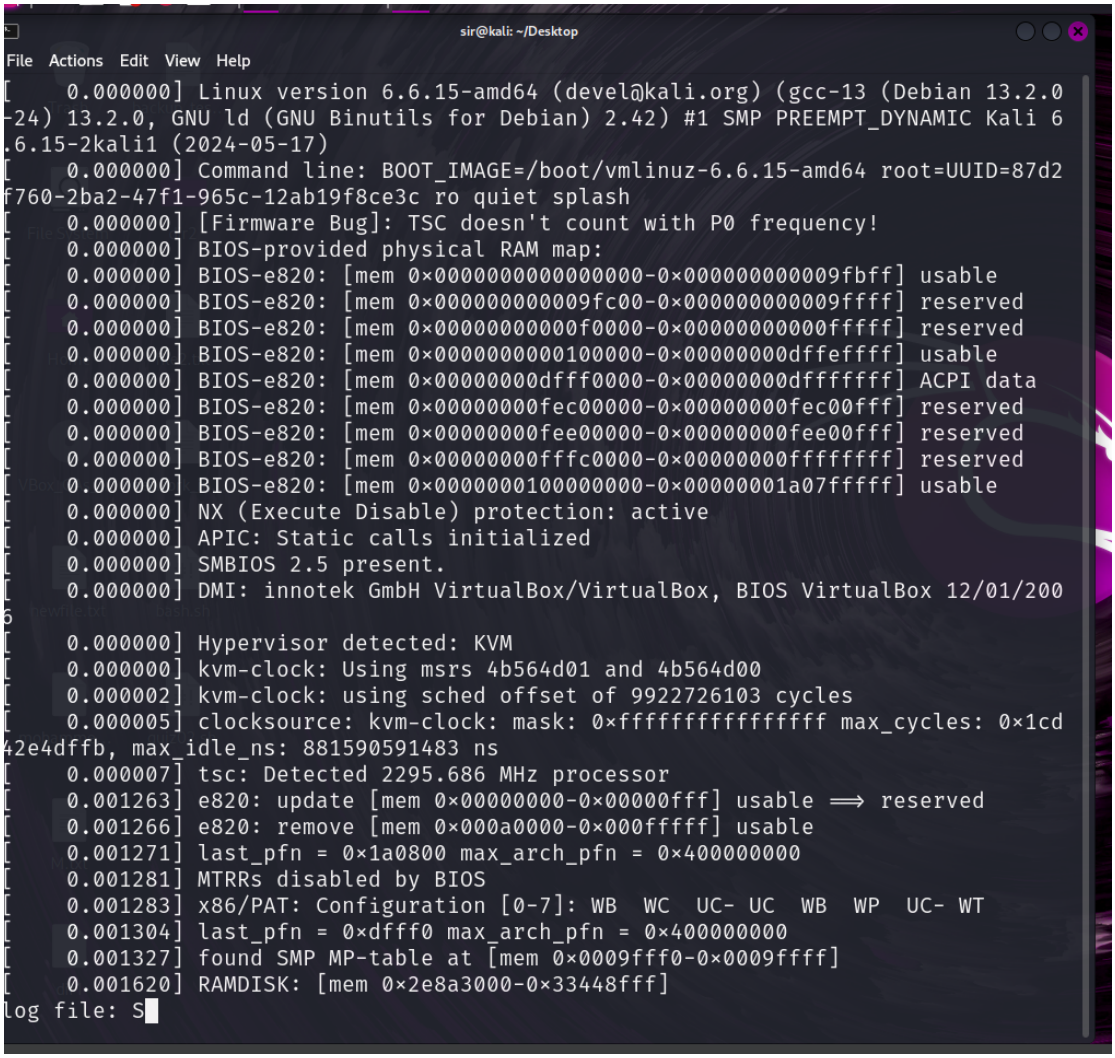
78. How do you lock a user account to prevent them from logging in.

```
┌──(sir㉿kali)-[~/Desktop]
└─$ sudo usermod -L sir
```

79. What command would you use to change a user's default shell.

```
┌──(sir㉿kali)-[~/Desktop]
└─$ sudo chsh -s /bin/bash sir
```

80. Display the system's boot messages.


sir@kali: ~/Desktop
File Actions Edit View Help
[0.000000] Linux version 6.6.15-amd64 (devel@kali.org) (gcc-13 (Debian 13.2.0-24) 13.2.0, GNU ld (GNU Binutils for Debian) 2.42) #1 SMP PREEMPT_DYNAMIC Kali 6.6.15-2kali1 (2024-05-17)
[0.000000] Command line: BOOT_IMAGE=/boot/vmlinuz-6.6.15-amd64 root=UUID=87d2f760-2ba2-47f1-965c-12ab19f8ce3c ro quiet splash
[0.000000] [Firmware Bug]: TSC doesn't count with P0 frequency!
[0.000000] BIOS-provided physical RAM map:
[0.000000] BIOS-e820: [mem 0x0000000000000000-0x000000000009fbff] usable
[0.000000] BIOS-e820: [mem 0x000000000009fc00-0x000000000009ffff] reserved
[0.000000] BIOS-e820: [mem 0x00000000000f0000-0x00000000000fffff] reserved
[0.000000] BIOS-e820: [mem 0x0000000000100000-0x00000000dffeffff] usable
[0.000000] BIOS-e820: [mem 0x00000000dfff0000-0x00000000dfffffff] ACPI data
[0.000000] BIOS-e820: [mem 0x00000000fec00000-0x00000000fec00fff] reserved
[0.000000] BIOS-e820: [mem 0x00000000fee00000-0x00000000fee00fff] reserved
[0.000000] BIOS-e820: [mem 0x00000000fffc0000-0x00000000ffffffff] reserved
[0.000000] BIOS-e820: [mem 0x0000000100000000-0x00000001a07fffff] usable
[0.000000] NX (Execute Disable) protection: active
[0.000000] APIC: Static calls initialized
[0.000000] SMBIOS 2.5 present.
[0.000000] DMI: innotek GmbH VirtualBox/VirtualBox, BIOS VirtualBox 12/01/2006
[0.000000] Hypervisor detected: KVM
[0.000000] kvm-clock: Using msrs 4b564d01 and 4b564d00
[0.000002] kvm-clock: using sched offset of 9922726103 cycles
[0.000005] clocksource: kvm-clock: mask: 0xffffffffffffffff max_cycles: 0x1cd42e4dffb, max_idle_ns: 881590591483 ns
[0.000007] tsc: Detected 2295.686 MHz processor
[0.001263] e820: update [mem 0x00000000-0x00000fff] usable ⟹ reserved
[0.001266] e820: remove [mem 0x000a0000-0x000fffff] usable
[0.001271] last_pfn = 0x1a0800 max_arch_pfn = 0x400000000
[0.001281] MTRRs disabled by BIOS
[0.001283] x86/PAT: Configuration [0-7]: WB WC UC- UC WB WP UC- WT
[0.001304] last_pfn = 0xdfff0 max_arch_pfn = 0x400000000
[0.001327] found SMP MP-table at [mem 0x0009fff0-0x0009ffff]
[0.001620] RAMDISK: [mem 0x2e8a3000-0x33448fff]
log file: S