

## 1. Display your MAC address by 2 different ways.

```
maiyasser@localhost:~$ ifconfig
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 15087 bytes 1268423 (1.2 MiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 15087 bytes 1268423 (1.2 MiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

virbr0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    inet 192.168.122.1 netmask 255.255.255.0 broadcast 192.168.122.255
    ether 52:54:00:82:c6:00 txqueuelen 1000 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

wlp6s0: flags=163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.161.190 netmask 255.255.255.0 broadcast 192.168.161.255
    inet6 fe80::2254:2716:9fbc:ee65 prefixlen 64 scopeid 0x20<link>
    ether 4c:eb:42:de:62:05 txqueuelen 1000 (Ethernet)
    RX packets 77030 bytes 52513869 (50.0 MiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 56950 bytes 28677944 (19.7 MiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

[maiyasser@localhost ~]$ ip addr
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default 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
        valid lft forever preferred lft forever
2: wlp6s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default qlen 1000
    link/ether 4c:eb:42:de:62:05 brd ff:ff:ff:ff:ff:ff
    inet 192.168.161.190/24 brd 192.168.161.255 scope global dynamic noprefixroute wlp6s0
        valid lft 3158sec preferred lft 3158sec
    inet6 fe80::2254:2716:9fbc:ee65/64 scope link noprefixroute
        valid lft forever preferred lft forever
3: virbr0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc noqueue state DOWN group default qlen 1000
    link/ether 52:54:00:82:c6:00 brd ff:ff:ff:ff:ff:ff
    inet 192.168.122.1/24 brd 192.168.122.255 scope global virbr0
        valid lft forever preferred lft forever
4: virbr0-nic: <BROADCAST,MULTICAST> mtu 1500 qdisc fq_codel master virbr0 state DOWN group default qlen 1000
    link/ether 52:54:00:82:c6:00 brd ff:ff:ff:ff:ff:ff
[maiyasser@localhost ~]$
```

## 2. Display the network settings of all active interfaces.

```
maiyasser@localhost:~$ nmcli connection
NAME                                UUID                                TYPE    DEVICE
AndroidAP6489                      9ab5dc34-a241-4d50-a571-ea0a5cccf296 wifi    wlp6s0
virbr0                              99eb689b-6d95-4cd1-8403-979cc8ca115e bridge  virbr0
ANDES COFFE                        8608d7cd-ea9b-4ba0-955a-459d6d6c90b9 wifi    --
AndroidAPBCDE                      45ff4cb7-e97c-4945-8022-dfa80930f721 wifi    --
Beecell                            fb446198-89fc-455c-b615-6a34257d5190 wifi    --
DIRECT-H1cJqEB8664F4G0kM          49bd80f5-5ee0-482b-b087-e47850fe589e wifi    --
Fiber                              9db57d7e-c707-4ca8-9657-17b79803d0c0 wifi    --
Mai's iPhone                      b63c4f6c-cdf9-4919-ba66-2bc9e646d8b0 wifi    --
Vodafone_VDSL_439B                b04a871a-0675-475b-b78c-13d618dc0fb2 wifi    --
we010                             11becdbf-52dc-49b6-8d80-ee6d77e4c54a wifi    --
[maiyasser@localhost ~]$
```

3. Display the network setting of all interfaces both active inactive.

```
maiyasser@localhost:~  
File Edit View Search Terminal Help  
[maiyasser@localhost ~]$ ip a  
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default 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  
        valid_lft forever preferred_lft forever  
2: wlp6s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default qlen 1000  
    link/ether 4c:eb:42:de:62:05 brd ff:ff:ff:ff:ff:ff  
    inet 192.168.161.190/24 brd 192.168.161.255 scope global dynamic noprefixroute wlp6s0  
        valid_lft 2958sec preferred_lft 2958sec  
    inet6 fe80::2254:2716:9fbc:ee65/64 scope link noprefixroute  
        valid_lft forever preferred_lft forever  
3: virbr0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc noqueue state DOWN group default qlen 1000  
    link/ether 52:54:00:82:c6:60 brd ff:ff:ff:ff:ff:ff  
    inet 192.168.122.1/24 brd 192.168.122.255 scope global virbr0  
        valid_lft forever preferred_lft forever  
4: virbr0-nic: <BROADCAST,MULTICAST> mtu 1500 qdisc fq_codel master virbr0 state DOWN
```

4. Bring your interface down.

```
maiyasser@localhost:~  
File Edit View Search Terminal Help  
[maiyasser@localhost ~]$ ip link set dev AndroidAP6489 down
```

5. Configure your network card to have static IP.

1- vi /etc/sysconfig/network

2- NETWORKING=yes

HOSTNAME=node01.tecmint.com

GATEWAY=192.168.0.1

NETWORKING\_IPV6=no

IPV6INIT=no

3- vi /etc/sysconfig/network-scripts/ifcfg-eth0

4- DEVICE="eth0"

BOOTPROTO="static"

DNS1="8.8.8.8"

DNS2="4.4.4.4"

GATEWAY="192.168.0.1"

HOSTNAME="node01.tecmint.com"

HWADDR="00:19:99:A4:46:AB"

IPADDR="192.68.0.100"

NETMASK="255.255.255.0"

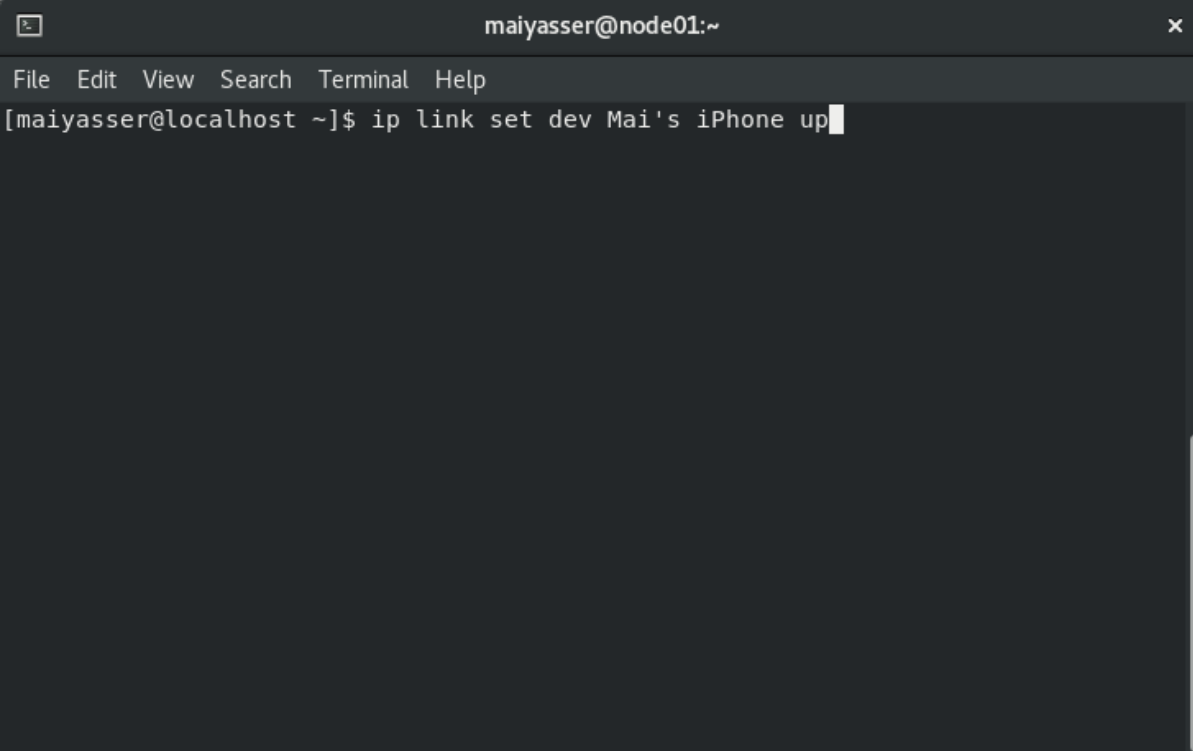
NM\_CONTROLLED="yes"

ONBOOT="yes"

TYPE="Ethernet"

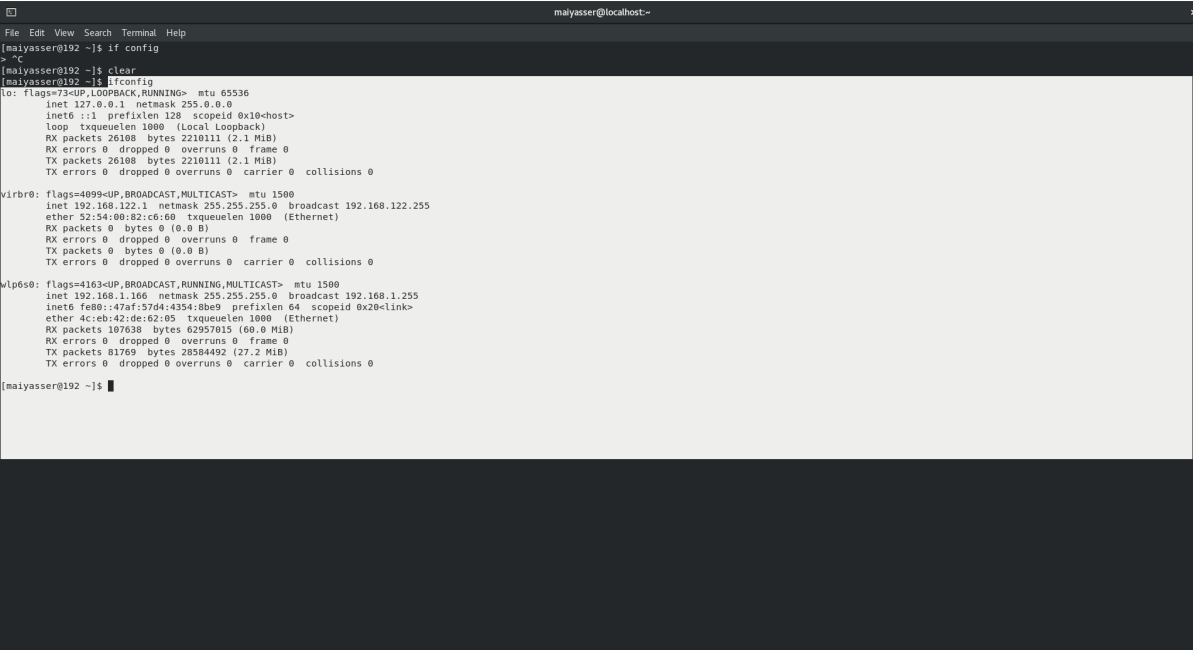
UUID="8105c095-799b-4f5a-a445-c6d7c3681f07"

## 6. Bring your interface up.



```
maiyasser@node01:~  
File Edit View Search Terminal Help  
[maiyasser@localhost ~]$ ip link set dev Mai's iPhone up
```

## 7. Verify your network setting using ifconfig command



```
maiyasser@localhost:~  
File Edit View Search Terminal Help  
[maiyasser@192 ~]$ if config  
^C  
[maiyasser@192 ~]$ clear  
[maiyasser@192 ~]$ ifconfig  
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 26108 bytes 2210111 (2.1 MiB)  
    RX errors 0 dropped 0 overruns 0 frame 0  
    TX packets 26108 bytes 2210111 (2.1 MiB)  
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0  
  
virbr0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500  
    inet 192.168.122.1 netmask 255.255.255.0 broadcast 192.168.122.255  
    ether 52:54:00:82:c6:60 txqueuelen 1000 (Ethernet)  
    RX packets 0 bytes 0 (0.0 B)  
    RX errors 0 dropped 0 overruns 0 frame 0  
    TX packets 0 bytes 0 (0.0 B)  
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0  
  
wlp6s0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500  
    inet 192.168.1.166 netmask 255.255.255.0 broadcast 192.168.1.255  
    inet6 fe80::47af:57d4:4354:8be9 prefixlen 64 scopeid 0x20<link>  
    ether 4c:eb:42:de:62:85 txqueuelen 1000 (Ethernet)  
    RX packets 107638 bytes 62957015 (60.0 MiB)  
    RX errors 0 dropped 0 overruns 0 frame 0  
    TX packets 81769 bytes 28584402 (27.2 MiB)  
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0  
  
[maiyasser@192 ~]$
```

8. Configure your network card to have dynamic IP using network manager command.

`nmcli con mod wlp6s0 ipv4.method auto`

9. Check using `ifconfig` then check its configuration file.

```
[malyasser@192 ~]$ ifconfig
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 30665 bytes 2598538 (2.4 MiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 30665 bytes 2598538 (2.4 MiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

virbr0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    inet 192.168.122.1 netmask 255.255.255.0 broadcast 192.168.122.255
    ether 52:54:00:82:c6:60 txqueuelen 1000 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

wlp6s0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.1.14 netmask 255.255.255.0 broadcast 192.168.1.255
    inet6 fe80::da2e:5f56:54f4:381f prefixlen 64 scopeid 0x20<link>
    inet6 fdec:753e:c43:9b00:53c:461d:87c8:e4e8 prefixlen 64 scopeid 0x0<global>
    ether 4c:eb:42:de:62:85 txqueuelen 1000 (Ethernet)
    RX packets 152816 bytes 80736441 (82.7 MiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 113069 bytes 37368932 (35.6 MiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

10. Reconfigure your network card using `system-config-network` utility to have static IP.

1- `vi /etc/sysconfig/network`

2- `NETWORKING=yes`

`HOSTNAME=node01.tecmint.com`

`GATEWAY=192.168.0.1`

`NETWORKING_IPV6=no`

`IPV6INIT=no`

3- `vi /etc/sysconfig/network-scripts/ifcfg-wlp6s0`

4- `DEVICE="wlp6s0"`

`BOOTPROTO="static"`

`DNS1="8.8.8.8"`

`DNS2="4.4.4.4"`

`GATEWAY="192.168.0.1"`

`HOSTNAME="node01.tecmint.com"`

`HWADDR="00:19:99:A4:46:AB"`

`IPADDR="192.68.1.14"`

`NETMASK="255.255.255.0"`

`NM_CONTROLLED="yes"`

`ONBOOT="yes"`

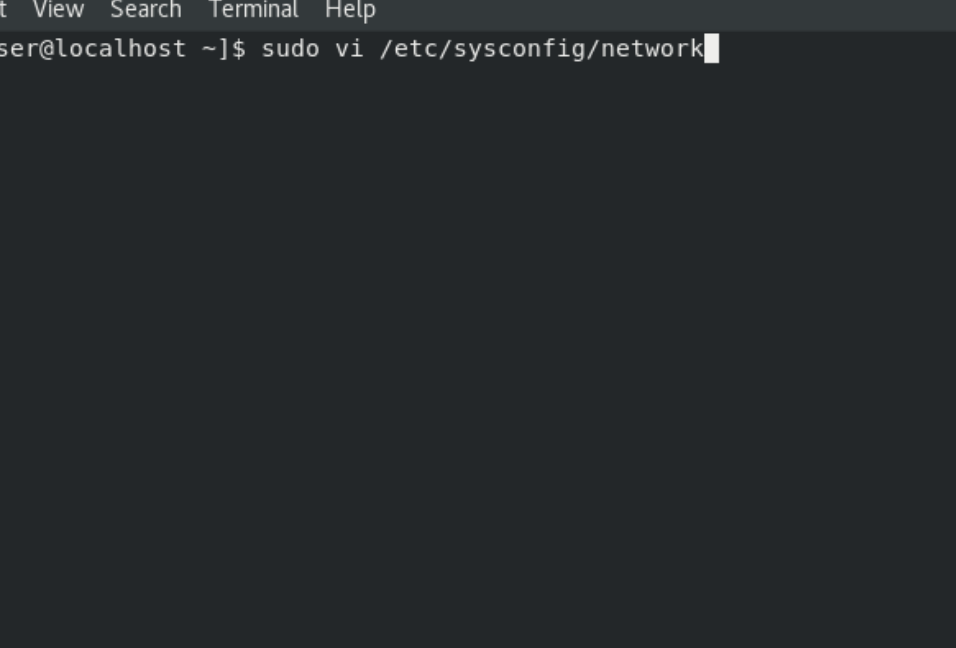
`TYPE="Ethernet"`

`UUID="8105c095-799b-4f5a-a445-c6d7c3681f07"`

11. Configure your network card to have 3 IPs and check that they are all working using ifconfig command.

```
maiyasser@localhost:~  
File Edit View Search Terminal Help  
[maiyasser@localhost ~]$ sudo ip addr add 192.168.2.106/24 dev wlp6s0  
[maiyasser@localhost ~]$ sudo ip addr add 192.168.2.107/24 dev wlp6s0  
[maiyasser@localhost ~]$  
  
[maiyasser@localhost ~]$ ifconfig  
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UP group default qlen 1000  
    link/ether ff:ff:ff:ff:ff:ff brd ff:ff:ff:ff:ff:ff  
2: wlp6s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default qlen 1000  
    link/ether 4c:eb:42:de:62:05 brd ff:ff:ff:ff:ff:ff  
    inet 192.168.1.14/24 brd 192.168.1.255 scope global dynamic noprefixroute wlp6s0  
        valid lft 78473sec preferred lft 78473sec  
    inet 192.168.2.105/24 scope global wlp6s0  
        valid lft forever preferred lft forever  
    inet 192.168.2.106/24 scope global secondary wlp6s0  
        valid lft forever preferred lft forever  
    inet 192.168.2.107/24 scope global secondary wlp6s0  
        valid lft forever preferred lft forever  
3: virbr0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc noqueue state DOWN group default qlen 1000  
    link/ether 52:54:00:82:c6:60 brd ff:ff:ff:ff:ff:ff  
    inet 192.168.122.1/24 brd 192.168.122.255 scope global virbr0  
        valid lft forever preferred lft forever  
4: virbr0-nic: <BROADCAST,MULTICAST> mtu 1500 qdisc fq_codel master virbr0 state DOWN group default qlen 1000  
    link/ether 52:54:00:82:c6:60 brd ff:ff:ff:ff:ff:ff  
[maiyasser@localhost ~]$
```

12. Change your host name in your global network file.



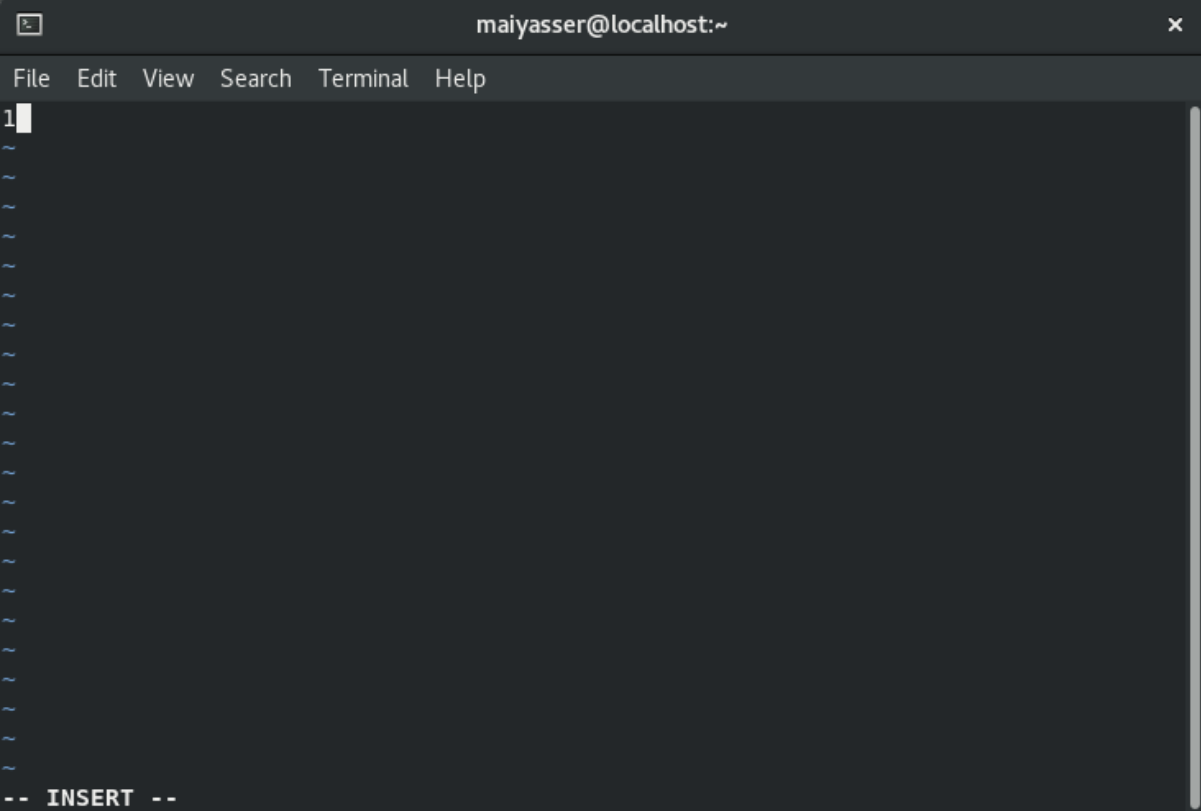
A terminal window titled "maiyasser@localhost:~" with a menu bar (File, Edit, View, Search, Terminal, Help). The command prompt shows the user has entered "sudo vi /etc/sysconfig/network" to edit the network configuration file.

```
maiyasser@localhost:~  
File Edit View Search Terminal Help  
[maiyasser@localhost ~]$ sudo vi /etc/sysconfig/network
```

[illegible]

13. Check the present value of `/proc/sys/net/ipv4/icmp_echo_ignore_all`  
`sudo vi /proc/sys/net/ipv4/icmp_echo_ignore_all`

14. It should be 0, change it to 1 which will prevent other hosts from successfully pinging your host while not affecting your ability to ping them.

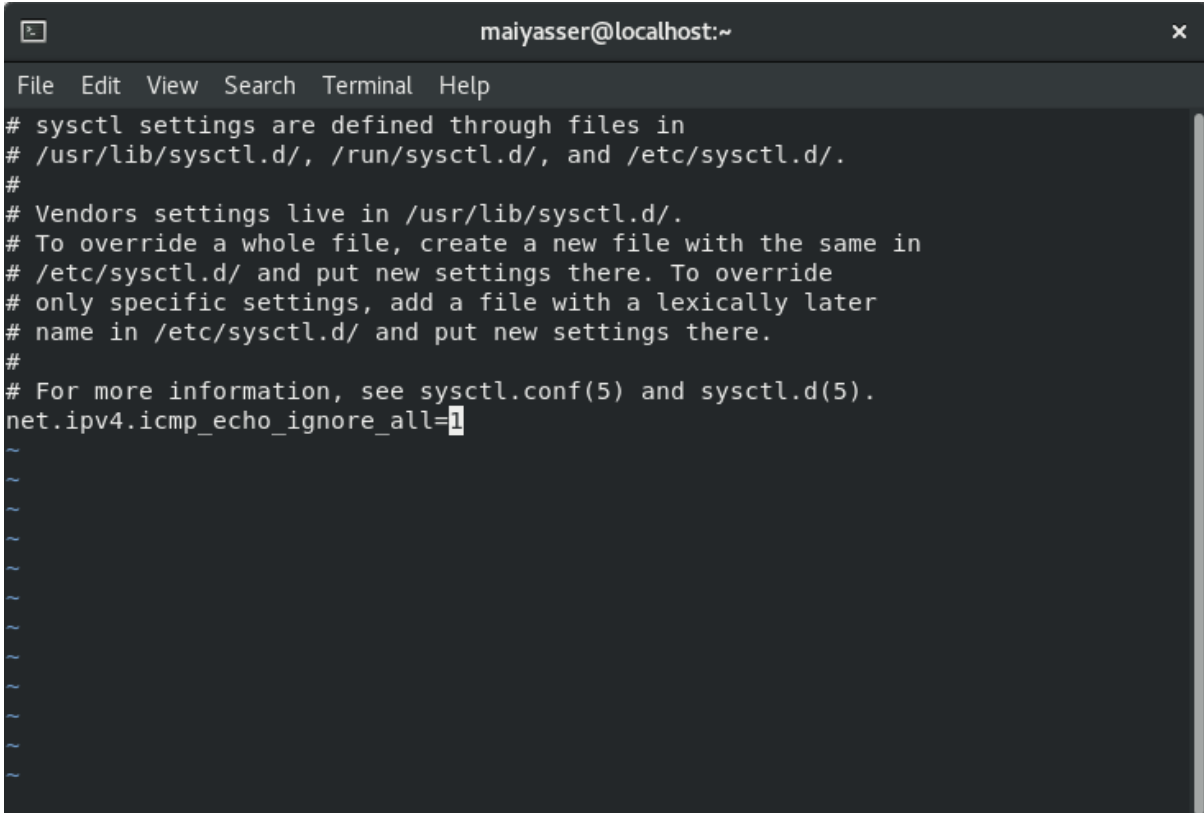


```
maiyasser@localhost:~
File Edit View Search Terminal Help
1
-- INSERT --
```

15. Try to ping your colleague, let your colleague try to ping your host.  
16. Reboot and try the last step. What happened? Why?

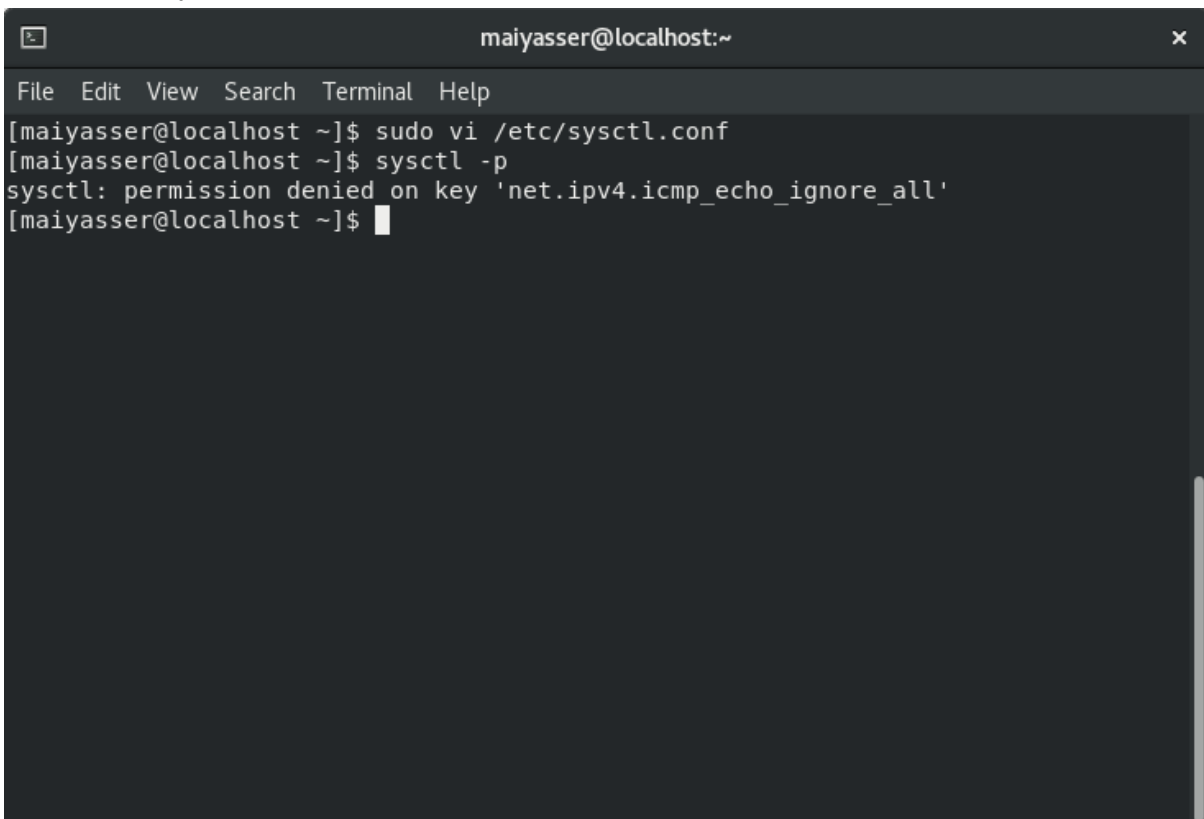


17. Edit /etc/sysctl.conf and put the following line at the bottom:  
net.ipv4.icmp\_echo\_ignore\_all=1

A terminal window titled 'maiyasser@localhost:~' with a menu bar (File, Edit, View, Search, Terminal, Help). The terminal displays the contents of the /etc/sysctl.conf file. The text includes comments about sysctl settings and their locations, followed by the configuration line 'net.ipv4.icmp\_echo\_ignore\_all=1' which is currently being edited with a cursor at the end of the line.

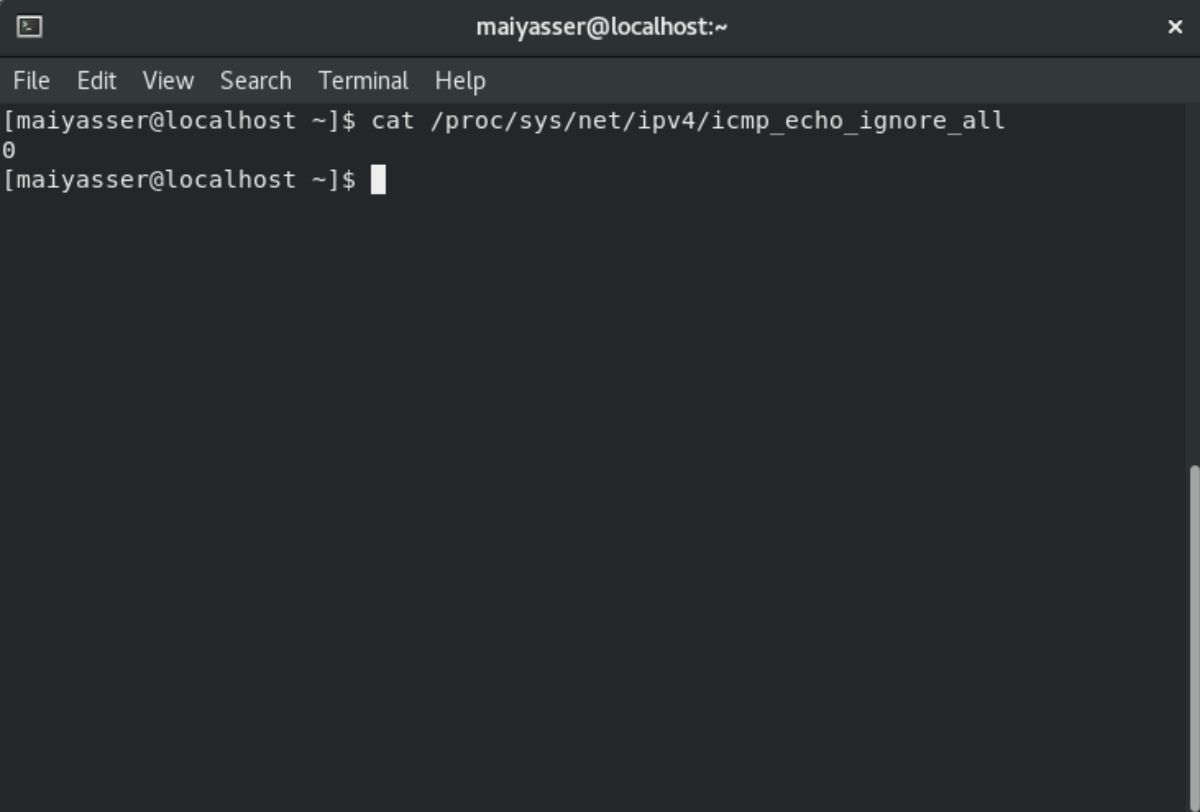
```
maiyasser@localhost:~  
File Edit View Search Terminal Help  
# sysctl settings are defined through files in  
# /usr/lib/sysctl.d/, /run/sysctl.d/, and /etc/sysctl.d/.  
#  
# Vendors settings live in /usr/lib/sysctl.d/.  
# To override a whole file, create a new file with the same in  
# /etc/sysctl.d/ and put new settings there. To override  
# only specific settings, add a file with a lexically later  
# name in /etc/sysctl.d/ and put new settings there.  
#  
# For more information, see sysctl.conf(5) and sysctl.d(5).  
net.ipv4.icmp_echo_ignore_all=1  
~  
~  
~  
~  
~  
~  
~  
~  
~  
~
```

18. Execute sysctl -p command.

A terminal window titled 'maiyasser@localhost:~' with a menu bar (File, Edit, View, Search, Terminal, Help). The terminal shows the user running 'sudo vi /etc/sysctl.conf' and then 'sysctl -p'. The command 'sysctl -p' results in an error message: 'sysctl: permission denied on key 'net.ipv4.icmp\_echo\_ignore\_all''.

```
maiyasser@localhost:~  
File Edit View Search Terminal Help  
[maiyasser@localhost ~]$ sudo vi /etc/sysctl.conf  
[maiyasser@localhost ~]$ sysctl -p  
sysctl: permission denied on key 'net.ipv4.icmp_echo_ignore_all'  
[maiyasser@localhost ~]$
```

19. Check the value of `/proc/sys/net/ipv4/icmp_echo_ignore_all`.

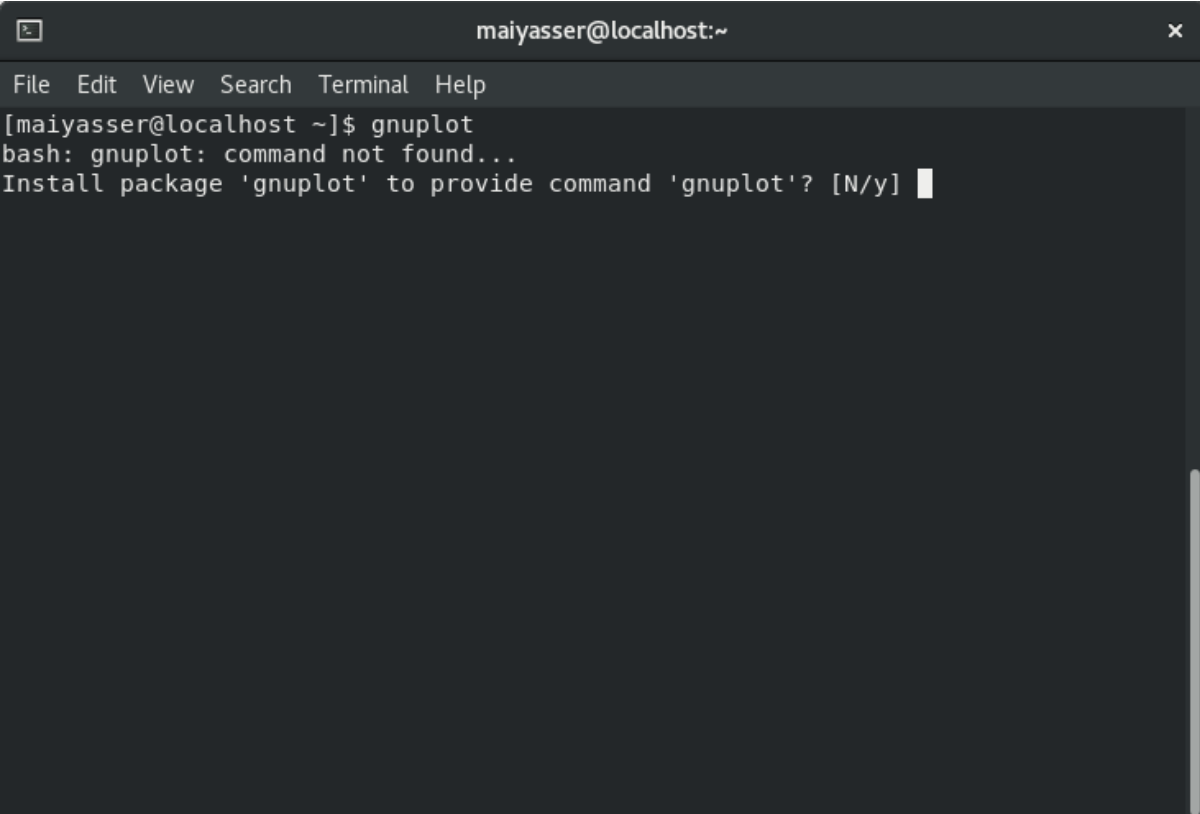


```
maiyasser@localhost:~  
File Edit View Search Terminal Help  
[maiyasser@localhost ~]$ cat /proc/sys/net/ipv4/icmp_echo_ignore_all  
0  
[maiyasser@localhost ~]$
```

---

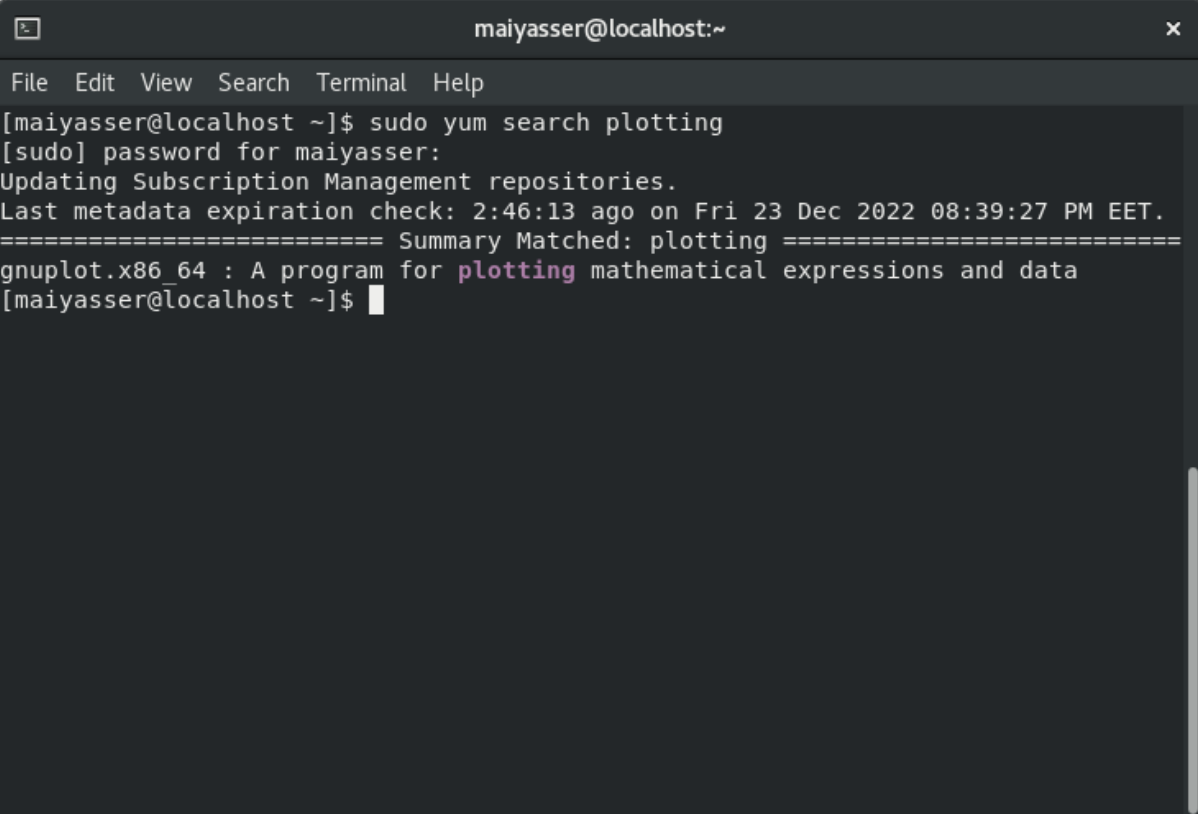
Using yum

20. Attempt to run the command `gnuplot`. You should find that it is not Installed.



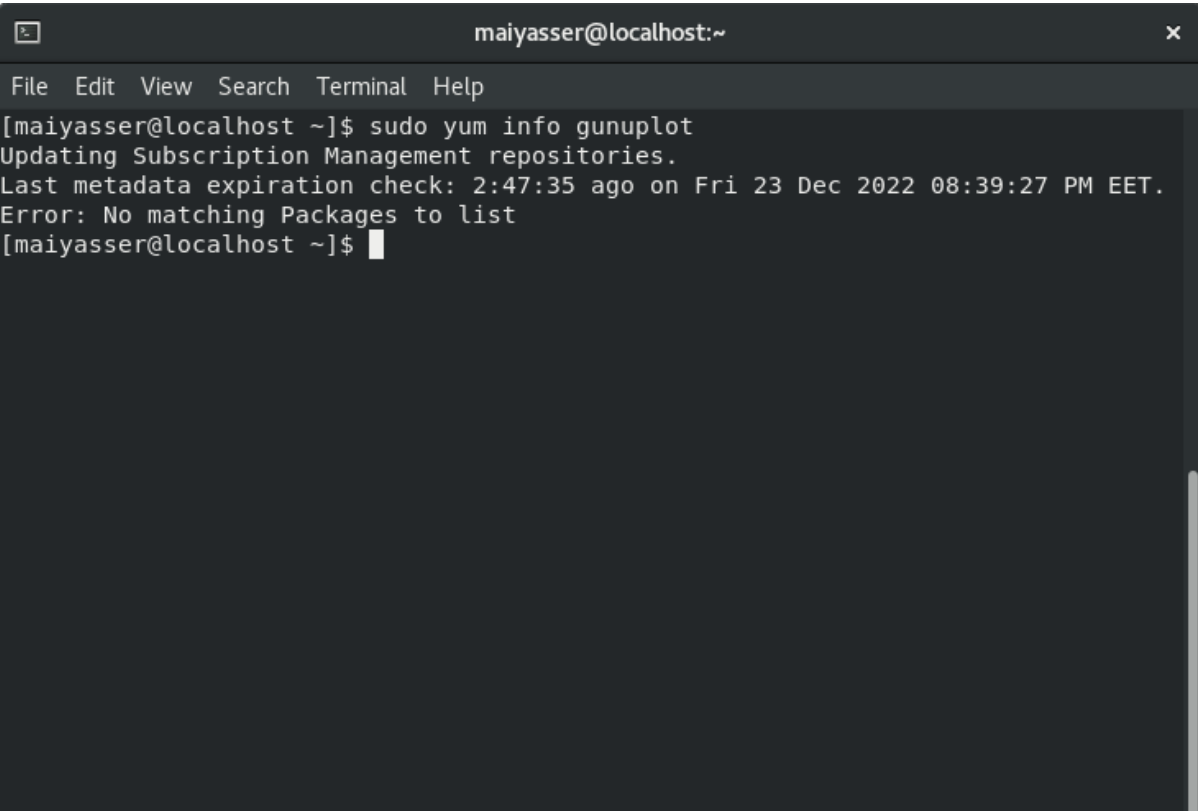
```
maiyasser@localhost:~  
File Edit View Search Terminal Help  
[maiyasser@localhost ~]$ gnuplot  
bash: gnuplot: command not found...  
Install package 'gnuplot' to provide command 'gnuplot'? [N/y]
```

21. Search for the plotting packages.



```
maiyasser@localhost:~  
File Edit View Search Terminal Help  
[maiyasser@localhost ~]$ sudo yum search plotting  
[sudo] password for maiyasser:  
Updating Subscription Management repositories.  
Last metadata expiration check: 2:46:13 ago on Fri 23 Dec 2022 08:39:27 PM EET.  
===== Summary Matched: plotting =====  
gnuplot.x86_64 : A program for plotting mathematical expressions and data  
[maiyasser@localhost ~]$
```

22. Find out more information about the gunuplot package.



```
maiyasser@localhost:~  
File Edit View Search Terminal Help  
[maiyasser@localhost ~]$ sudo yum info gunuplot  
Updating Subscription Management repositories.  
Last metadata expiration check: 2:47:35 ago on Fri 23 Dec 2022 08:39:27 PM EET.  
Error: No matching Packages to list  
[maiyasser@localhost ~]$
```

23. Install the gnuplot package.

```
[maiyaasser@localhost ~]$ gnuplot

G N U P L O T
Version 5.2 patchlevel 4    last modified 2018-06-01

Copyright (C) 1986-1993, 1998, 2004, 2007-2018
Thomas Williams, Colin Kelley and many others

gnuplot home:      http://www.gnuplot.info
faq, bugs, etc:    type "help FAQ"
immediate help:    type "help" (plot window: hit 'h')

Terminal type is now 'qt'
gnuplot>
```

24. Attempt to remove the gnuplot package, but say no, How many packages would be removed

1 package removed

```
maiyaasser@localhost:~
File Edit View Search Terminal Help
[maiyaasser@localhost ~]$ sudo yum remove gnuplot
Updating Subscription Management repositories.
Dependencies resolved.
=====
Package      Arch      Version      Repository      Size
=====
Removing:
gnuplot      x86_64    5.2.4-1.el8  @rhel-8-for-x86_64-appstream-rpms  2.1 M

Transaction Summary
=====
Remove 1 Package

Freed space: 2.1 M
Is this ok [y/N]: n
Operation aborted.
[maiyaasser@localhost ~]$
```

25. Attempt to remove the gunplot-common package but say no, How many packages would be removed

```
maiyasser@localhost:~  
File Edit View Search Terminal Help  
[maiyasser@localhost ~]$ sudo yum remove gunplot-common  
Updating Subscription Management repositories.  
No match for argument: gunplot-common  
No packages marked for removal.  
Dependencies resolved.  
Nothing to do.  
Complete!  
[maiyasser@localhost ~]$
```

Using rpm

26. List all installed packages in your system.

```
maiyasser@localhost:~  
File Edit View Search Terminal Help  
[maiyasser@localhost ~]$ rpm -qa  
harfbuzz-icu-1.7.5-3.el8.x86_64  
xcl-2.2.53-1.el8.x86_64  
perl-Math-BigInt-1.9998.11-7.el8.noarch  
cairo-gobject-1.15.12-3.el8.x86_64  
dracut-config-rescue-049-191.git20210920.el8.x86_64  
liberation-fonts-common-2.60.3-7.el8.noarch  
rpcbind-1.2.5-8.el8.x86_64  
boost-regex-1.66.0-10.el8.x86_64  
xorg-x11-server-Xwayland-21.1.1-0.el8.x86_64  
python3-six-1.11.0-9.el8.noarch  
bash-completion-2.7.5-1.el8.noarch  
yelp-xsl-3.28.0-2.el8.noarch  
python3-slip-dbus-0.6.4-11.el8.noarch  
diffutils-3.6-6.el8.x86_64  
xorg-x11-drv-wacom-serial-support-0.38.0-1.el8.x86_64  
python3-gobject-base-3.28.3-2.el8.x86_64  
rsync-3.1.3-12.el8.x86_64  
emacs-filesystem-26.1-7.el8.noarch  
cups-filters-libs-2.20.0-27.el8.x86_64  
mozjs60-60.9.0-4.el8.x86_64  
poppler-glib-20.11.0-3.el8.x86_64  
satyr-0.26-2.el8.x86_64  
google-noto-sans-libs-fonts-20161022-7.el8.1.noarch  
google-droid-sans-fonts-20120715-13.el8.noarch  
espeak-ng-1.49.2-4.el8.x86_64  
libxfont2-2.0.3-2.el8.x86_64  
qemu-kvm-core-4.2.0-59.module+el8.5.0+12817+cb650d43.x86_64  
webkit2gtk3-jsc-2.32.3-2.el8.x86_64  
xorg-x11-xinit-session-1.3.4-10.el8.x86_64  
unicode-ucd-11.0-0-2.el8.noarch  
python3-productmd-1.11.3-1.el8.noarch  
libyaml-0.1.7-5.el8.x86_64  
cups-filters-1.20.0-27.el8.x86_64  
dbus-x11-1.12.8-14.el8.x86_64  
man-pages-4.15-6.el8.x86_64  
mesa-filesystem-21.1.5-1.el8.x86_64  
usb-modeswitch-data-20191128-1.el8.noarch  
libpnm-1.0.1-1.el8.x86_64  
nautilus-3.28.1-15.el8.x86_64  
bluez-5.56-2.el8.x86_64  
gnu-free-serif-fonts-20120503-18.el8.noarch  
nftl-common-3.18.4-9.el8.x86_64  
setroubleshoot-server-3.3.24-4.el8.x86_64  
zip-3.0-23.el8.x86_64  
libcanberra-gtk3-0.30-18.el8.x86_64  
device-mapper-event-libs-1.02.177-10.el8.x86_64  
lohit-gurmukhi-fonts-2.91.2-3.el8.noarch  
adwaita-cursor-theme-3.28.0-2.el8.noarch  
cogl-1.22.2-10.el8.x86_64  
libodmav-2.0-3-6.el8.x86_64
```

## 27. View the files in the initscripts package

```
maiyasser@localhost:~$ rpm -ql initscripts
/etc/rc.d
/etc/rc.d/init.d
/etc/rc.d/init.d/functions
/etc/rc.d/rc0.d
/etc/rc.d/rc1.d
/etc/rc.d/rc2.d
/etc/rc.d/rc3.d
/etc/rc.d/rc4.d
/etc/rc.d/rc5.d
/etc/rc.d/rc6.d
/etc/rc0.d
/etc/rc1.d
/etc/rc2.d
/etc/rc3.d
/etc/rc4.d
/etc/rc5.d
/etc/rc6.d
/etc/sysconfig/console
/etc/sysconfig/modules
/usr/bin/uelp
/usr/lib/.build-id
/usr/lib/.build-id/08
/usr/lib/.build-id/08/bd1a16237d9c9a054a5df04574966c1615de67
/usr/lib/.build-id/16
/usr/lib/.build-id/16/afcd2b49176225a44c21534425ae24a0489f9e
/usr/lib/.build-id/4e
/usr/lib/.build-id/4e/8ade07dc790d1657c51ae16a5de8d09091613
/usr/lib/.build-id/f8
/usr/lib/.build-id/f8/8f57584cde987899ae801331283f70592551e
/usr/lib/systemd/system/import-state.service
/usr/lib/systemd/system/loadmodules.service
/usr/lib/udev/renam_device
/usr/lib/udev/rules.d/60-net.rules
/usr/libexec/import-state
/usr/libexec/initscripts
/usr/libexec/initscripts/legacy-actions
/usr/libexec/loadmodules
/usr/sbin/consoletype
/usr/sbin/genhostid
/usr/sbin/service
/usr/share/doc/initscripts
/usr/share/doc/initscripts/sysconfig.txt
/usr/share/licenses/initscripts
/usr/share/licenses/initscripts/COPYING
/usr/share/locale/ar/LC_MESSAGES/initscripts.mo
/usr/share/locale/as/LC_MESSAGES/initscripts.mo
/usr/share/locale/ast/LC_MESSAGES/initscripts.mo
/usr/share/locale/bal/LC_MESSAGES/initscripts.mo
/usr/share/locale/bg/LC_MESSAGES/initscripts.mo
/usr/share/locale/bn/LC_MESSAGES/initscripts.mo
/usr/share/locale/bn_IN/LC_MESSAGES/initscripts.mo
/usr/share/locale/bo/LC_MESSAGES/initscripts.mo
/usr/share/locale/br/LC_MESSAGES/initscripts.mo
```

## 28. Get general information about bash rpm.

```
maiyasser@localhost:~$ rpm -ql bash
/etc/skel/.bash_logout
/etc/skel/.bash_profile
/etc/skel/.bashrc
/usr/bin/alias
/usr/bin/bash
/usr/bin/bashbug
/usr/bin/bashbug-64
/usr/bin/bg
/usr/bin/cd
/usr/bin/command
/usr/bin/fc
/usr/bin/fg
/usr/bin/getopts
/usr/bin/hash
/usr/bin/jobs
/usr/bin/read
/usr/bin/sh
/usr/bin/type
/usr/bin/ulimit
/usr/bin/umask
/usr/bin/unalias
/usr/bin/wait
```

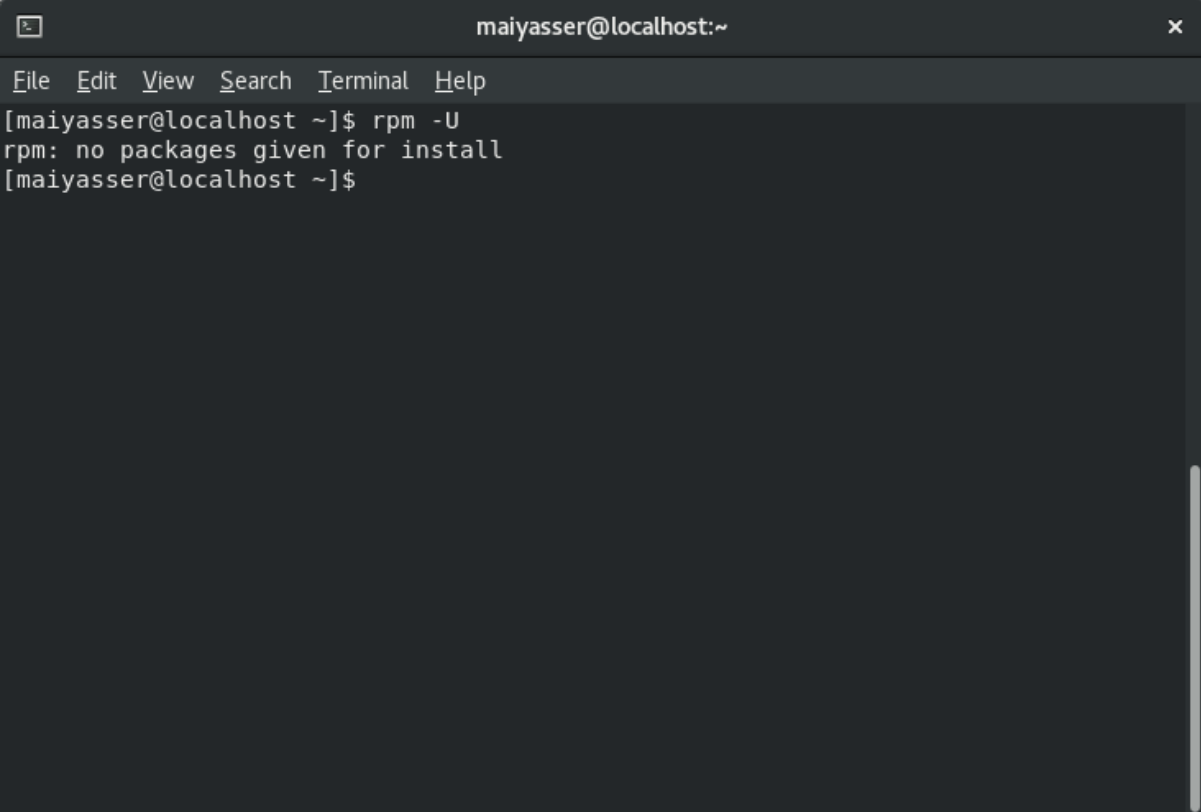
29. Have the files from the pam package changed since it was installed.

```
maiyasser@localhost:~  
File Edit View Search Terminal Help  
[maiyasser@localhost ~]$ rpm -qa --last pam  
pam-1.3.1-15.el8.x86_64 Mon 21 Nov 2022 05:09:01 PM EET  
[maiyasser@localhost ~]$
```

30. Which installed packages have gnome in their names?

```
maiyasser@localhost:~  
File Edit View Search Terminal Help  
[maiyasser@localhost ~]$ rpm -qa | grep gnome  
gnome-settings-daemon-3.22.0-10.el8.x86_64  
gnome-shell-extension-launch-new-instance-3.32.1-20.el8.noarch  
gnome-initial-setup-3.28.0-9.el8.x86_64  
gnome-terminal-nautilus-3.28.3-3.el8.x86_64  
gnome-logs-3.28.5-3.el8.x86_64  
gnome-bluetooth-3.34.3-1.el8.x86_64  
gnome-online-accounts-3.28.2-3.el8.x86_64  
libgnomekbd-3.26.0-4.el8.x86_64  
gnome-keyring-3.28.2-1.el8.x86_64  
gnome-shell-3.32.2-40.el8.x86_64  
gnome-screenshot-3.26.0-3.el8.x86_64  
gnome-remote-desktop-0.1.8-3.el8.x86_64  
gnome-characters-3.28.2-1.el8.x86_64  
gnome-bluetooth-libs-3.34.3-1.el8.x86_64  
gnome-desktop3-3.32.2-1.el8.x86_64  
gnome-keyring-pam-3.28.2-1.el8.x86_64  
gnome-shell-extension-desktop-icons-3.32.1-20.el8.noarch  
gnome-shell-extension-window-list-3.32.1-20.el8.noarch  
gnome-classic-session-3.32.1-20.el8.noarch  
gnome-disk-utility-3.28.3-2.el8.x86_64  
gnome-software-3.36.1-10.el8.x86_64  
gnome-calculator-3.28.2-2.el8.x86_64  
gnome-user-docs-3.28.2-1.el8.noarch  
gnome-session-wayland-session-3.28.1-19.el8.x86_64  
gnome-getting-started-docs-3.28.2-1.el8.noarch  
gnome-video-effects-0.4.3-3.el8.noarch  
gnome-terminal-3.28.3-3.el8.x86_64  
gnome-session-3.28.1-13.el8.x86_64  
gnome-control-center-3.28.2-28.el8.x86_64  
gnome-shell-extension-apps-menu-3.32.1-20.el8.noarch  
gnome-shell-extension-places-menu-3.32.1-20.el8.noarch  
gnome-color-manager-3.28.0-3.el8.x86_64  
gnome-system-monitor-3.28.2-1.el8.x86_64  
gnome-control-center-filesystem-3.28.2-28.el8.noarch  
gnome-session-xsession-3.28.1-13.el8.x86_64  
gnome-autor-0.2.3-2.el8.x86_64  
gnome-shell-extension-common-3.32.1-20.el8.noarch  
gnome-themes-standard-3.22.3-4.el8.x86_64  
chrome-gnome-shell-10.1-7.el8.x86_64  
gnome-menus-3.13.3-11.el8.x86_64  
gnome-boxes-3.36.5-8.el8.x86_64  
gnome-font-viewer-3.28.0-1.el8.x86_64  
[maiyasser@localhost ~]$
```

31. Install any uninstalled package from RH Enterprise Linux cds

A terminal window titled 'maiyasser@localhost:~' with a menu bar containing 'File', 'Edit', 'View', 'Search', 'Terminal', and 'Help'. The terminal shows the command '[maiyasser@localhost ~]\$ rpm -U' and the output 'rpm: no packages given for install'. The prompt '[maiyasser@localhost ~]\$' is shown again on the next line.

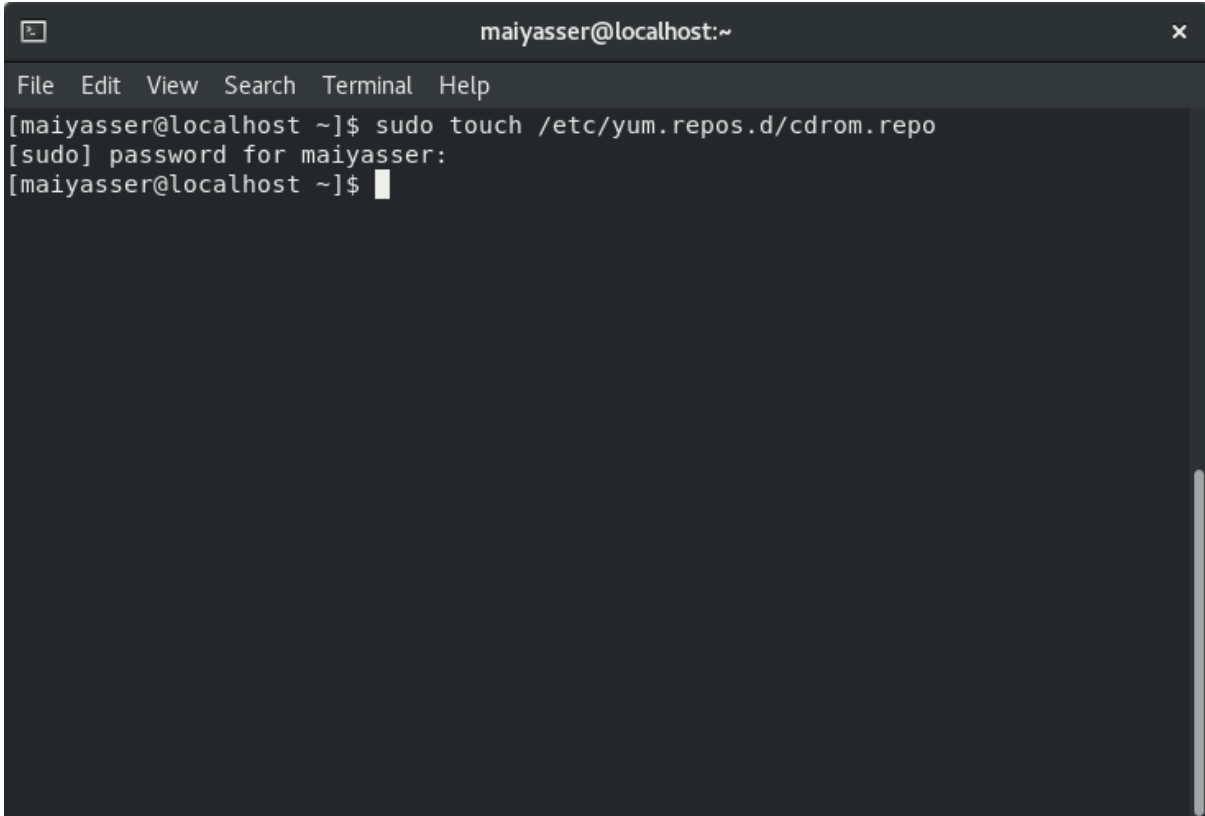
```
maiyasser@localhost:~
File Edit View Search Terminal Help
[maiyasser@localhost ~]$ rpm -U
rpm: no packages given for install
[maiyasser@localhost ~]$
```

32. Search for software resemble the Photoshop software other than Gimp and install it.  
pinta:

```
sudo dnf install https://dl.fedoraproject.org/pub/epel/epel-release-latest-8.noarch.rpm
sudo dnf upgrade
```



33. Create the file `/etc/yum.repos.d/cdrom.repo` to enable install from the iso from the iso of Red Hat.

A terminal window titled 'maiyasser@localhost:~' with a menu bar (File, Edit, View, Search, Terminal, Help). The terminal shows the command 'sudo touch /etc/yum.repos.d/cdrom.repo' being executed. A password prompt '[sudo] password for maiyasser:' is shown, followed by the command prompt '[maiyasser@localhost ~]\$' with a cursor.

```
maiyasser@localhost:~  
File Edit View Search Terminal Help  
[maiyasser@localhost ~]$ sudo touch /etc/yum.repos.d/cdrom.repo  
[sudo] password for maiyasser:  
[maiyasser@localhost ~]$
```

34. Try to install any package from the new repository