

### Lab 3

1. Display your MAC address by 2 different ways.

# ipaddr

# ifconfig

```
Activities Terminal Dec 11 9:00 PM
sorour@sorour:~$ 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: wlo1: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default qlen 1000
    link/ether ec:63:d7:32:11:5d brd ff:ff:ff:ff:ff:ff
    altname wlp0s20f3
    inet 192.168.1.103/24 brd 192.168.1.255 scope global dynamic noprefixroute wlo1
        valid_lft 258559sec preferred_lft 258559sec
    inet6 fe80::4fb1:c4b5:d248:83d4/64 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 52:54:00:09:6f:c8 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
Eng. SOROUR ->>> 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 30 bytes 2132 (2.0 KiB)
    TX packets 30 bytes 2132 (2.0 KiB)
    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 52:54:00:09:6f:c8 txqueuelen 1000 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

wlo1: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.1.103 netmask 255.255.255.0 broadcast 192.168.1.255
    inet6 fe80::4fb1:c4b5:d248:83d4 prefixlen 64 scopeid 0x20<link>
    ether ec:63:d7:32:11:5d txqueuelen 1000 (Ethernet)
    RX packets 90761 bytes 129289935 (123.3 MiB)
    TX packets 46547 bytes 4740460 (4.5 MiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

Eng. SOROUR ->>> 
```

2. Display the network settings of all active interfaces.

# ifconfig

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

# ifconfig-a

4. Bring your interface down.

# ifdown wlo1

5. Configure your network card to have static IP.

# vi /etc/sysconfig/network-scripts/ifcfg-Ethernet connection 1

```
Activities Terminal Dec 11 9:36 PM
sorour@sorour:~$ vi /etc/sysconfig/network-scripts/ifcfg-Ethernet connection 1
TYPE=Ethernet
PROXY_METHOD=none
BROWSER_ONLY=no
BOOTPROTO=dhcp
DEFROUTE=yes
IPV4_FAILURE_FATAL=no
IPV6INIT=yes
IPV6_AUTOCONF=yes
IPV6_DEFROUTE=yes
IPV6_FAILURE_FATAL=no
IPV6_ADDR_GEN_MODE=stable-privacy
NAME="Ethernet connection 1"
UUID=32e9b339-cd40-43a1-aca3-a12aa9980b5b
ONBOOT=yes
BOOTPROTO=static
IPADDR=192.168.0.1
NETMASK=255.255.255.0
GATEWAY=192.168.0.1
DNS1=8.8.8.8
DNS2=8.8.4.4

```

# systemctl restart network.service

6. Bring your interface up.

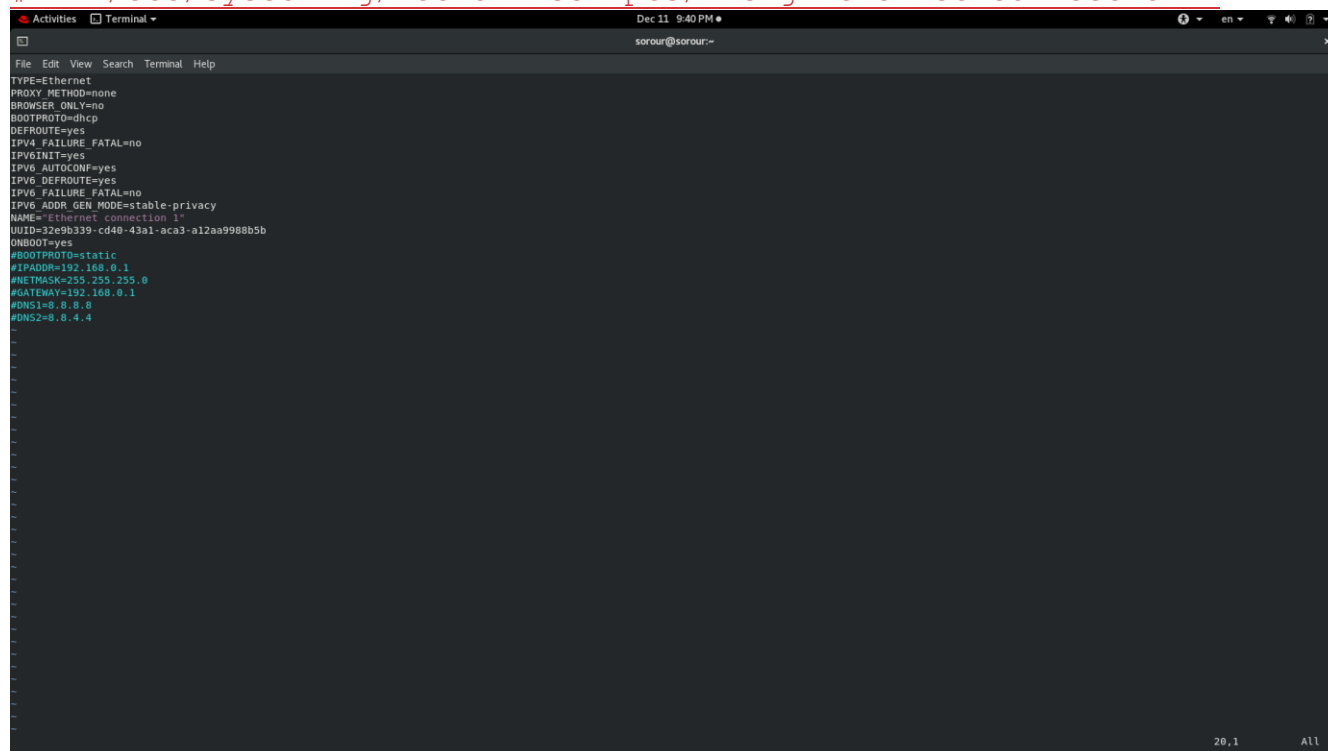
# Ifup wlo1

7. Verify your network setting using ifconfig command

# ifconfig

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

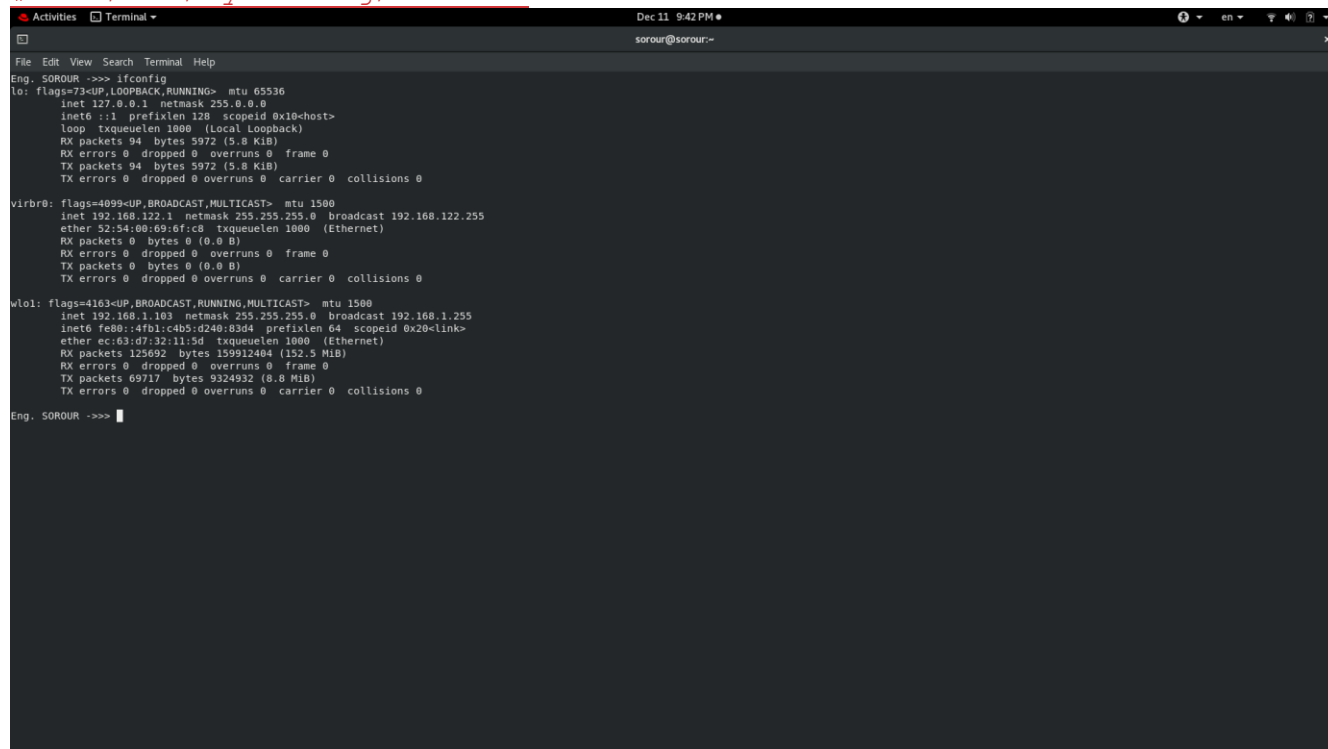
# vi /etc/sysconfig/network-scripts/ifcfg-Ethernet connection 1



```
Dec 11 9:40 PM
sorour@sorour:~$ vi /etc/sysconfig/network-scripts/ifcfg-Ethernet connection 1
TYPE=Ethernet
PROXY_METHOD=none
BROWSER_ONLY=no
BOOTPROTO=dhcp
DEFROUTE=yes
IPV4_FAILURE_FATAL=no
IPV6INIT=yes
IPV6_AUTOCONF=yes
IPV6_DEFROUTE=yes
IPV6_FAILURE_FATAL=no
IPV6_ADDR_GEN_MODE=stable-privacy
NAME="Ethernet connection 1"
UUID=32e9b339-cd40-43a1-ac33-a12aa9988b5b
ONBOOT=yes
#BOOTPROTO=static
#IPADDR=192.168.0.1
#NETMASK=255.255.255.0
#GATEWAY=192.168.0.1
#DNS1=8.8.8.8
#DNS2=8.8.4.4
```

9. Check using ifconfig then check its configuration file.

# vi /etc/sysconfig/network



```
Dec 11 9:42 PM
sorour@sorour:~$ 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 94 bytes 5972 (5.8 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 94 bytes 5972 (5.8 KiB)
    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 52:54:00:69:6f:c8 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

wlol: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.1.103 netmask 255.255.255.0 broadcast 192.168.1.255
    inet6 fe80::4fb1:c4b5:d240:83d4 prefixlen 64 scopeid 0x20<link>
    ether ec:63:d7:32:11:5d txqueuelen 1000 (Ethernet)
    RX packets 125692 bytes 159912484 (152.5 MiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 69717 bytes 9324932 (8.8 MiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

Eng. SOROUR ->>>
```

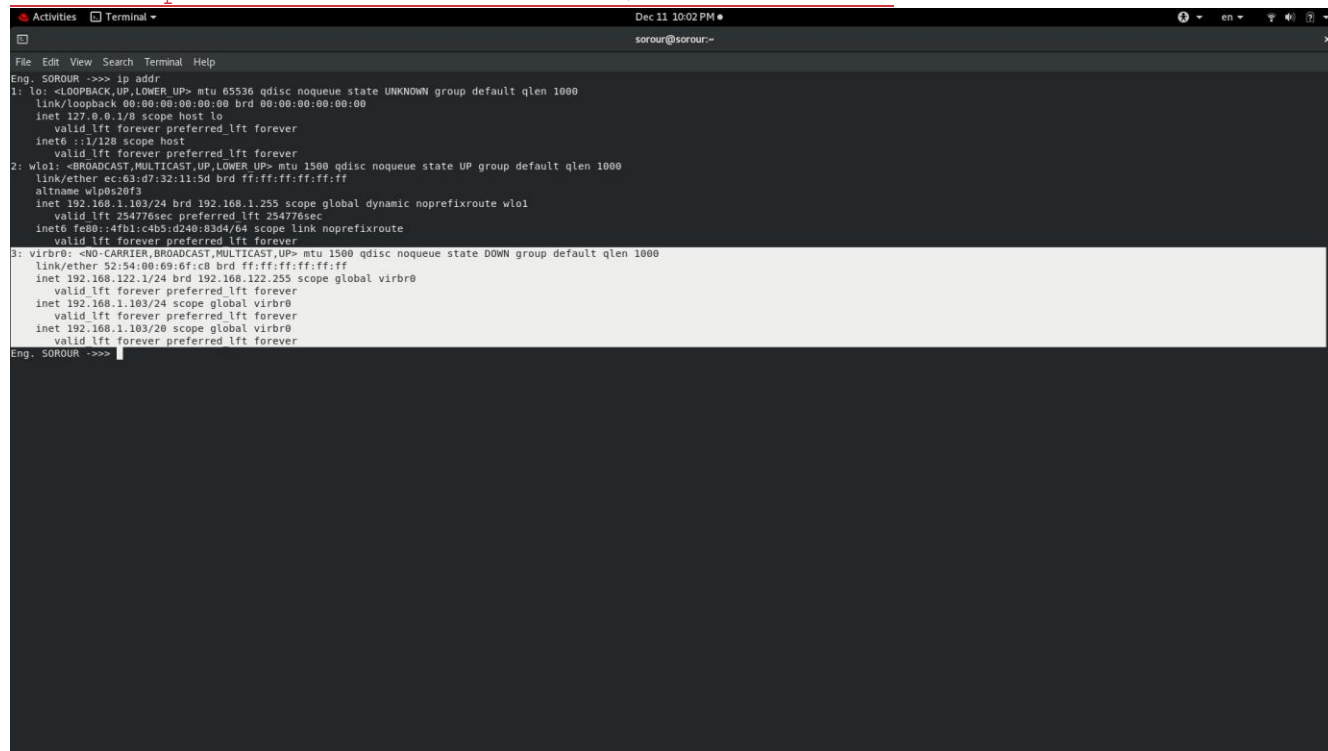
10. Reconfigure your network card using system-config-network utility to have static IP.

# vi /etc/sysconfig/network-scripts/ifcfg-Ethernet connection 1

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

# sudo ip addr add 192.168.1.103/24 dev virbr0

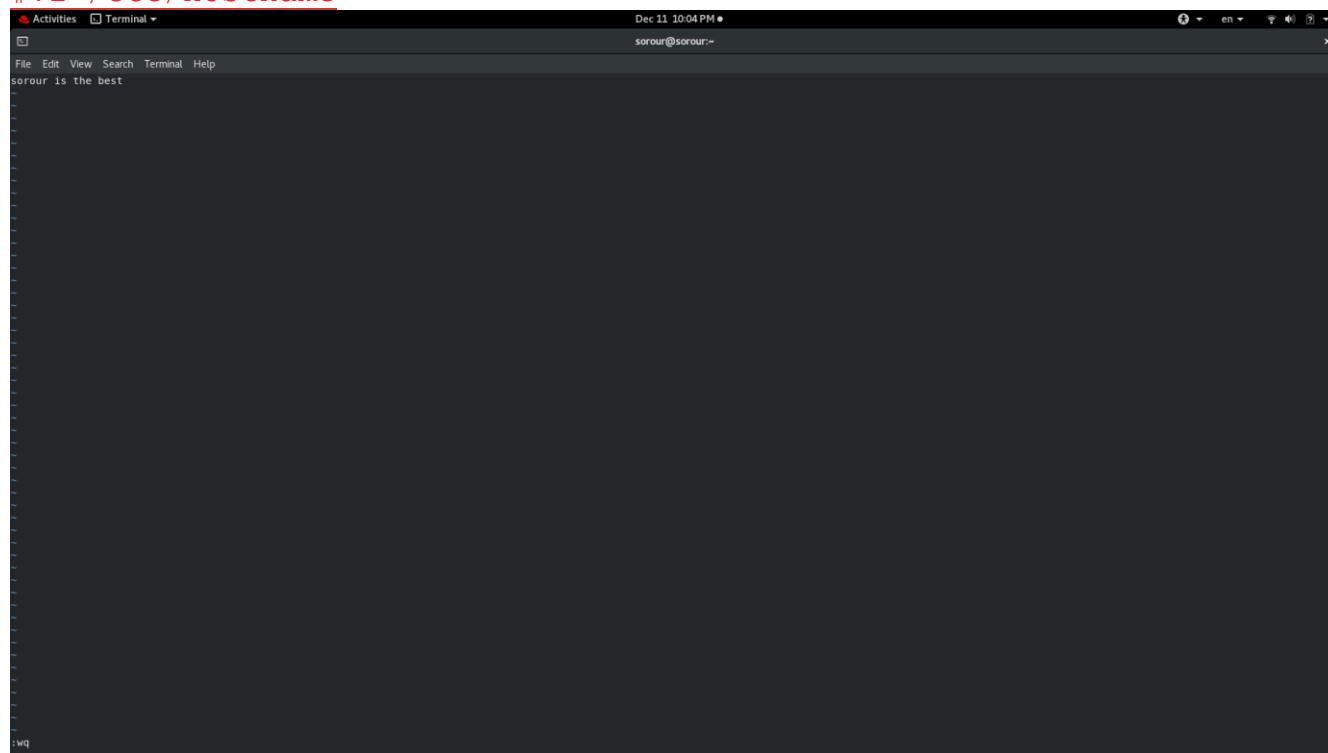
# sudo ip addr add 192.168.1.103/20 dev virbr0



```
Eng. SOROUR ->>> 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: wlo1: <BROADCAST,MULTICAST,UP,LOWER UP> mtu 1500 qdisc noqueue state UP group default qlen 1000
    link/ether ec:63:d7:32:11:5d brd ff:ff:ff:ff:ff:ff
    altname wlp0s20f3
    inet 192.168.1.103/24 brd 192.168.1.255 scope global dynamic noprefixroute wlo1
        valid lft 254776sec preferred_lft 254776sec
    inet6 fe80::4fb1:c4b5:d240:83d4/64 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 52:54:00:09:6f:c8 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
    inet 192.168.1.103/24 scope global virbr0
        valid lft forever preferred_lft forever
    inet 192.168.1.103/20 scope global virbr0
        valid lft forever preferred_lft forever
Eng. SOROUR ->>>
```

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

#vi /etc/hostname



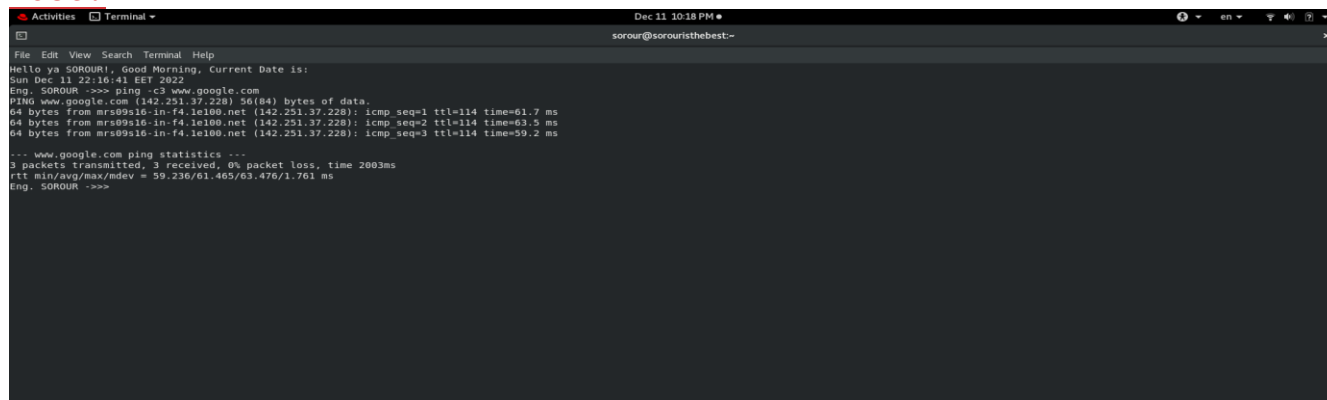
```
Eng. SOROUR ->>> vi /etc/hostname
sorour is the best
```

13. Check the present value of `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.

```
# echo 1 > /proc/sys/net/ipv4/icmp_echo_ignore_all
```

15. Try to ping your colleague, let your colleague try to ping your host.



```
Dec 11 10:18 PM
sorour@sorouristhebest:~$
File Edit View Search Terminal Help
Hello ya SOROUR!, Good Morning, Current Date is:
Sun Dec 11 22:16:41 EET 2022
Eng. SOROUR ->> ping -c3 www.google.com
PING www.google.com (142.251.37.228) 56(84) bytes of data:
64 bytes from mrs09s16-in-f4.1e100.net (142.251.37.228): icmp_seq=1 ttl=114 time=61.7 ms
64 bytes from mrs09s16-in-f4.1e100.net (142.251.37.228): icmp_seq=2 ttl=114 time=63.5 ms
64 bytes from mrs09s16-in-f4.1e100.net (142.251.37.228): icmp_seq=3 ttl=114 time=59.2 ms

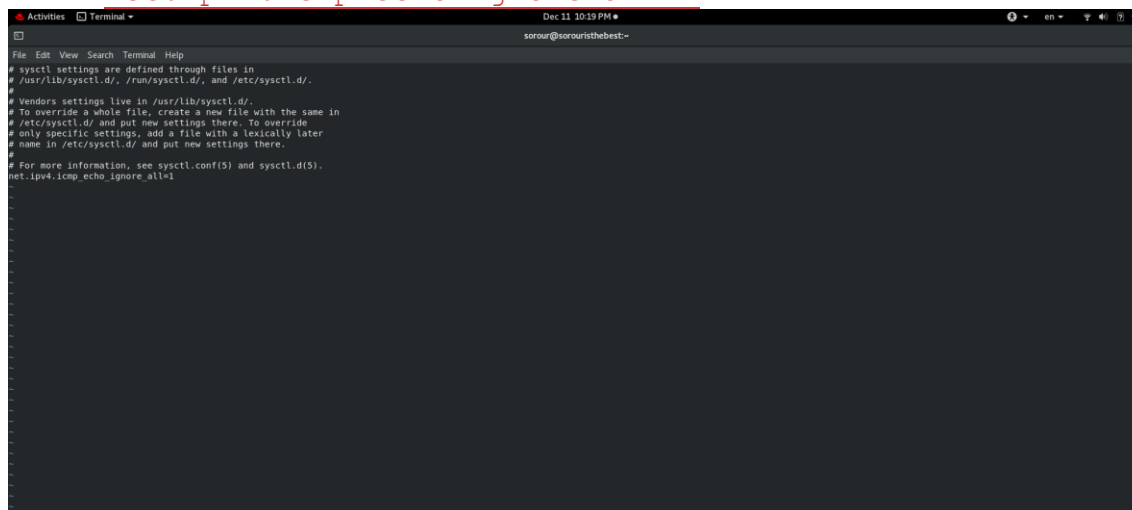
--- www.google.com ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2003ms
rtt min/avg/max/mdev = 59.236/61.465/63.476/1.761 ms
Eng. SOROUR ->>>
```

Colleague failed to ping me

16. Reboot and try the last step. What happened? Why?

the value of `/proc/sys/net/ipv4/icmp_echo_ignore_all` returns to 0; as the change in proc is temporally not permanent because it is in RAM.

17. Edit `/etc/sysctl.conf` and put the following line at the bottom:  
`net.ipv4.icmp echo ignore all=1`



```
Dec 11 10:19 PM
sorour@sorouristhebest:~$
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. Exec  
ute  
sysc  
tl -  
p  
comm  
and.  
done  
19. Chec  
k  
the

value of `/proc/sys/net/ipv4/icmp echo ignore all`.  
1

## Using yum

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

installed.

Eng. SOROUR ->>> gnuplot

bash: gnuplot: command not found...

21. Search for the plotting packages.

Eng. SOROUR ->>> yum search gnuplot

22. Find out more information about the gnuplot package.

Eng. SOROUR ->>> yum info gnuplot

23. install gnuplot package

Eng. SOROUR ->>> sudo yum install gnuplot

24. Attempt to remove the gnuplot package, but say no

How many packages would be removed

Eng. SOROUR ->>> sudo yum remove gnuplot

3 package

25. Attempt to remove the gnuplot-common package but say no

How many packages would be removed

Eng. SOROUR ->>> yum remove gnuplot-common

3 packages

### Using rpm

26. List all installed packages in your system.

Eng. SOROUR ->>> rpm -aq

27. View the files in the initscripts package

Eng. SOROUR ->>> rpm -ql initscripts

28. Get general information about bash rpm.

Eng. SOROUR ->>> rpm -q bash

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

Eng. SOROUR ->>> rpm -v pam

30. Which installed packages have gnome in their names?

Eng. SOROUR ->>> rpm -aq | grep "gnome"

31. Install any uninstalled package from RH Enterprise Linux cds **Done**

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

```
[root@localhost ~]# yum install inkscape.x86_64
Updating Subscription Management repositories.
Last metadata expiration check: 1:24:23 ago on Thu 08 Dec 2022 09:18:13 PM EET.
Dependencies resolved.
=====
Package            Arch    Version                               Repository
=====
Installing:
```

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

```
[root@localhost ~]# mount -o loop rhel-server-8.0-x86_64
# cat /etc/yum.repos.d/my.repo
[dvd-BaseOS]
name=DVD
baseurl=file:///media/rheldvd/BaseOS
enabled=1
ggpgcheck=1
ggpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY-redhat-release
[dvd-AppStream]
name=DVD
baseurl=file:///media/rheldvd/AppStream
enabled=1
ggpgcheck=1
ggpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY-redhat-release
```

34. Try to install any package from the new repository

N/A