

RHSA2 - LAB 3

1. Display your MAC address by 2 different ways.

```
smabrouk@localhost:~  
File Edit View Search Terminal Help  
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0  
Salma >> ipaddr  
bash: ipaddr: command not found...  
*[[ASalma >> ^C  
Salma >> clear  
Salma >> ifconfig  
enp3s0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500  
ether 4c:cc:6a:df:4a:e8 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  
device interrupt 19  
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 80 bytes 6656 (6.5 KiB)  
RX errors 0 dropped 0 overruns 0 frame 0  
TX packets 80 bytes 6656 (6.5 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 52:54:00:89:89:3c 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  
wlp2s0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500  
inet 192.168.1.4 netmask 255.255.255.0 broadcast 192.168.1.255  
inet6 fd84:4765:43da:3800:fd04:eb5e:6787:a2ee prefixlen 64 scopeid 0x0<global>  
inet6 fe80::9098:7d71:dbf2:fab5 prefixlen 64 scopeid 0x20<link>  
ether b0:35:9f:40:73:e2 txqueuelen 1000 (Ethernet)  
RX packets 10952 bytes 14870586 (14.1 MiB)  
RX errors 0 dropped 0 overruns 0 frame 0  
TX packets 4094 bytes 456847 (446.1 KiB)  
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0  
Salma >> 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: enp3s0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc mq state DOWN group default qlen 1000  
    link/ether 4c:cc:6a:df:4a:e8 brd ff:ff:ff:ff:ff:ff  
3: wlp2s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default qlen 1000  
    link/ether b0:35:9f:40:73:e2 brd ff:ff:ff:ff:ff:ff  
    inet 192.168.1.4/24 brd 192.168.1.255 scope global dynamic noprefixroute wlp2s0  
        valid_lft 8564sec preferred_lft 8564sec  
    inet6 fd84:4765:43da:3800:fd04:eb5e:6787:a2ee/64 scope global dynamic noprefixroute  
        valid_lft 6772sec preferred_lft 3172sec  
    inet6 fe80::9098:7d71:dbf2:fab5/64 scope link noprefixroute  
        valid_lft forever preferred_lft forever  
4: virbr0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc noqueue state DOWN group default qlen 1000  
    link/ether 52:54:00:89:89:3c 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  
Salma >>
```

2. Display the network settings of all active interfaces.

```
smabrouk@localhost:~  
File Edit View Search Terminal Help  
Salma >> nmcli connection  
NAME                UUID                                TYPE      DEVICE  
Hello_World         3f15a194-466a-46d8-a651-ed967e442359  wifi     wlp2s0  
virbr0              126c9e1a-c181-4b60-80a9-8055aeb1d50d  bridge   virbr0  
enp3s0              b2affaf9-a9c5-4650-a0a7-b613e08abb49  ethernet --  
Fiber               96ffc05c-9e78-42be-8ff0-ea79e2f489ae  wifi     --  
Salma's iPhone     a84bd3e1-4585-45fc-a5db-d73d14a8877f  wifi     --  
Salma >>
```

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

```
smabrouk@localhost:~  
File Edit View Search Terminal Help  
Salma >> 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: enp3s0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc mq state DOWN group default qlen 1000  
    link/ether 4c:cc:6a:df:4a:e8 brd ff:ff:ff:ff:ff:ff  
3: wlp2s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP group default qlen 1000  
    link/ether b0:35:9f:40:73:e2 brd ff:ff:ff:ff:ff:ff  
    inet 192.168.1.4/24 brd 192.168.1.255 scope global dynamic noprefixroute wlp2s0  
        valid_lft 85278sec preferred_lft 85278sec  
    inet6 fd84:4765:43da:3800:fd04:eb5e:6787:a2ee/64 scope global dynamic noprefixroute  
        valid_lft 6838sec preferred_lft 3238sec  
    inet6 fe80::9098:7d71:dbf2:fab5/64 scope link noprefixroute  
        valid_lft forever preferred_lft forever  
4: virbr0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc noqueue state DOWN group default qlen 1000  
    link/ether 52:54:00:89:89:3c 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  
Salma >>
```

4. Bring your interface down.

```
smabrouk@localhost:~  
File Edit View Search Terminal Help  
Salma >> ip link set dev Hello_World down
```

5. Configure your network card to have static IP.

6. Bring your interface up.

```
smabrouk@localhost:~  
File Edit View Search Terminal Help  
Salma >> ip link set dev Salma's iPhone up
```

7. Verify your network setting using ifconfig command

```
smabrouk@localhost:~  
File Edit View Search Terminal Help  
Salma >> ifconfig  
enp3s0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500  
    ether 4c:cc:6a:df:4a:e8 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  
    device interrupt 19  
  
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 80 bytes 6656 (6.5 KiB)  
    RX errors 0 dropped 0 overruns 0 frame 0  
    TX packets 80 bytes 6656 (6.5 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 52:54:00:89:89:3c 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  
  
wlp2s0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500  
    inet 192.168.1.4 netmask 255.255.255.0 broadcast 192.168.1.255  
    inet6 fd84:4765:43da:3800:fd04:eb5e:6787:a2ee prefixlen 64 scopeid 0x0<global>  
    inet6 fe80::9098:7d71:dbf2:fab5 prefixlen 64 scopeid 0x20<link>  
    ether b0:35:9f:40:73:e2 txqueuelen 1000 (Ethernet)  
    RX packets 11507 bytes 15009474 (14.3 MiB)  
    RX errors 0 dropped 0 overruns 0 frame 0  
    TX packets 4402 bytes 505092 (493.2 KiB)  
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0  
  
Salma >>
```

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

```
smabrouk@localhost:~  
File Edit View Search Terminal Help  
Salma >> nmcli con mod wlp2s0 ipv4.method auto
```

9. Check using ifconfig then check its configuration file.

```
smabrouk@localhost:~  
File Edit View Search Terminal Help  
Salma >> ifconfig  
enp3s0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500  
    ether 4c:cc:6a:df:4a:e8 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  
    device interrupt 19  
  
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 80 bytes 6656 (6.5 KiB)  
    RX errors 0 dropped 0 overruns 0 frame 0  
    TX packets 80 bytes 6656 (6.5 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 52:54:00:89:89:3c 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  
  
wlp2s0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500  
    inet 192.168.1.4 netmask 255.255.255.0 broadcast 192.168.1.255  
    inet6 fd84:4765:43da:3800:fd04:eb5e:6787:a2ee prefixlen 64 scopeid 0x0<global>  
    inet6 fe80::9098:7d71:dbf2:fab5 prefixlen 64 scopeid 0x20<link>  
    ether b0:35:9f:40:73:e2 txqueuelen 1000 (Ethernet)  
    RX packets 11736 bytes 15063231 (14.3 MiB)  
    RX errors 0 dropped 0 overruns 0 frame 0  
    TX packets 4548 bytes 528249 (515.8 KiB)  
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0  
  
Salma >>
```

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

```
smabrouk@localhost:~  
File Edit View Search Terminal Help  
Salma >> vi /etc/sysconfig/network
```

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

```
smabrouk@localhost:~  
File Edit View Search Terminal Help  
Salma >> sudo ip addr add 192.168.1.104/24 dev wlp2s0  
Salma >> sudo ip addr add 192.168.1.108/24 dev wlp2s0  
Salma >> sudo ip addr add 192.168.1.109/24 dev wlp2s0  
Salma >>
```

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

```
smabrouk@localhost:~  
File Edit View Search Terminal Help  
Salma >> sudo vi /etc/sysconfig/network  
Salma >>
```

```
smabrouk@localhost:~  
File Edit View Search Terminal Help  
# Created by anaconda  
HOSTNAME=anotherlocalhost
```

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

```
smabrouk@localhost:~  
File Edit View Search Terminal Help  
Salma >> sudo vi /proc/sys/net/ipv4/icmp_echo_ignore_all  
Salma >>
```

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.

```
Activities Terminal ▾ Dec 24 14:44  
smabrouk@localhost:~  
File Edit View Search Terminal Help  
0  
.  
.
```

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

```
smabrouk@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.

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

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

```
smabrouk@localhost:~  
File Edit View Search Terminal Help  
Salma >> cat /proc/sys/net/ipv4/icmp_echo_ignore_all  
0  
Salma >> █
```

Using yum

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

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

21. Search for the plotting packages.

```
smabrouk@localhost:~  
File Edit View Search Terminal Help  
Salma >> sudo yum search plotting  
Updating Subscription Management repositories.  
Last metadata expiration check: 0:54:05 ago on Sat 24 Dec 2022 02:00:58 PM EET.  
===== Name & Summary Matched: plotting =====  
kf5-kplotting.x86_64 : KDE Frameworks 5 Tier 1 addon for plotting  
kf5-kplotting-devel.x86_64 : Development files for kf5-kplotting  
===== Summary Matched: plotting =====  
gnuplot.x86_64 : A program for plotting mathematical expressions and data  
ocaml-plot.x86_64 : Functions for scientific plotting with OCaml  
plplot-java.x86_64 : Functions for scientific plotting with Java  
plplot-lua.x86_64 : Functions for scientific plotting with Lua  
plplot-pyqt.x86_64 : Functions for scientific plotting with PyQt  
plplot-qt.x86_64 : Functions for scientific plotting with Qt  
plplot-tk.x86_64 : Functions for scientific plotting with Tk  
plplot-wxGTK.x86_64 : Functions for scientific plotting with wxGTK  
python3-matplotlib.x86_64 : Python 2D plotting library  
Salma >> █
```

22. Find out more information about the `gnuplot` package.

```
smabrouk@localhost:~  
File Edit View Search Terminal Help  
Salma >> sudo yum info gnuplot  
Updating Subscription Management repositories.  
Red Hat Enterprise Linux 8 for x86_64 - AppStream (RPMs) 151 B/s | 4.5 kB 00:30  
Red Hat Enterprise Linux 8 for x86_64 - BaseOS (RPMs) 1.0 kB/s | 4.1 kB 00:04  
Error: No matching Packages to list  
Salma >> █
```

23. Install the `gnuplot` package.

```
smabrouk@localhost:~  
File Edit View Search Terminal Help  
Salma >> gnuplot  
bash: gnuplot: command not found...  
Install package 'gnuplot' to provide command 'gnuplot'? [N/y] y  
  
* Waiting in queue...  
The following packages have to be installed:  
gnuplot-5.2.4-1.el8.x86_64 A program for plotting mathematical expressions and data  
gnuplot-common-5.2.4-1.el8.x86_64 The common gnuplot parts  
pcr22-utf16-10.32-3.el8_6.x86_64 UTF-16 variant of PCRE2  
qt5-qtbase-5.15.3-1.el8.x86_64 Qt5 - QtBase components  
qt5-qtbase-common-5.15.3-1.el8.noarch Common files for Qt5  
qt5-qtbase-gui-5.15.3-1.el8.x86_64 Qt5 GUI-related libraries  
qt5-qtsvg-5.15.3-1.el8.x86_64 Qt5 - Support for rendering and displaying SVG  
xcb-util-image-0.4.0-9.el8.x86_64 Port of Xlib's XImage and XShmImage functions on top of libxcb  
xcb-util-keysyms-0.4.0-7.el8.x86_64 Standard X key constants and keycodes conversion on top of libxcb  
xcb-util-renderutil-0.3.9-10.el8.x86_64 Convenience functions for the Render extension  
xcb-util-wm-0.4.1-12.el8.x86_64 Client and window-manager helper library on top of libxcb  
Proceed with changes? [N/y] y  
  
* Waiting in queue...  
* Waiting for authentication...  
* Waiting in queue...  
* Downloading packages...  
* Requesting data...  
* Testing changes...  
* Installing packages...  
Salma >> █
```

```
smabrouk@localhost:~  
File Edit View Search Terminal Help  
Salma >> sudo yum install gnuplot  
Updating Subscription Management repositories.  
Red Hat Enterprise Linux 8 for x86_64 - AppStream (RPMs) 1.2 kB/s | 4.5 kB 00:03  
Red Hat Enterprise Linux 8 for x86_64 - BaseOS (RPMs) 90 B/s | 4.1 kB 00:46  
Package gnuplot-5.2.4-1.el8.x86_64 is already installed.  
Dependencies resolved.  
Nothing to do.  
Complete!  
Salma >> █
```

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

How many packages would be removed

```
smabrouk@localhost:~$ sudo yum remove gnuplot
Package Architecture Version Repository Size
Removing:
gnuplot-common x86_64 5.2.4-1.el8 @rhel-8-for-x86_64-appstream-rpms 1.7 M
Removing dependent packages:
gnuplot x86_64 5.2.4-1.el8 @rhel-8-for-x86_64-appstream-rpms 2.1 M
Transaction Summary
Remove 2 Packages
Freed space: 3.8 M
Is this ok [y/N]: ^[[^COperation aborted.
Salma >> sudo yum remove gnuplot
Updating Subscription Management repositories.
Dependencies resolved.
Package Architecture 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]: y
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
Preparing :
Running scriptlet: gnuplot-5.2.4-1.el8.x86_64 1/1
Erasing : gnuplot-5.2.4-1.el8.x86_64 1/1
Verifying : gnuplot-5.2.4-1.el8.x86_64 1/1
Installed products updated.
Removed:
gnuplot-5.2.4-1.el8.x86_64
Complete!
Salma >>
```

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

How many packages would be removed

```
smabrouk@localhost:~$ sudo yum remove gnuplot-common
Package Architecture Version Repository Size
Removing:
gnuplot-common x86_64 5.2.4-1.el8 @rhel-8-for-x86_64-appstream-rpms 1.7 M
Transaction Summary
Remove 1 Package
Freed space: 1.7 M
Is this ok [y/N]: y
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
Preparing :
Running scriptlet: gnuplot-common-5.2.4-1.el8.x86_64 1/1
Erasing : gnuplot-common-5.2.4-1.el8.x86_64 1/1
Running scriptlet: gnuplot-common-5.2.4-1.el8.x86_64 1/1
Verifying : gnuplot-common-5.2.4-1.el8.x86_64 1/1
Installed products updated.
Removed:
gnuplot-common-5.2.4-1.el8.x86_64
Complete!
Salma >>
```

Using rpm

26. List all installed packages in your system.

```
smabrouk@localhost:~  
File Edit View Search Terminal Help  
Salma >> rpm -qa  
reminit-backgrounds-84.3-1.el8.noarch  
elfutils-debuginfo-client-0.187-4.el8.x86_64  
qt5-qbase-5.15.3-1.el8.x86_64  
rpm-4.11.4-1.module@el8.7.0+17064+3b31f55c.x86_64  
yelp-xsl-3.28.0-2.el8.noarch  
ca-certificates-2022.2.54-80.2.el8_6.noarch  
ed-1.14.2-4.el8.x86_64  
snappy-1.1.8-3.el8.x86_64  
librbd-12.2.7-9.el8.x86_64  
qif-4.7.0-31.el8.noarch  
google-droid-sans-fonts-20120715-13.el8.noarch  
speech-dispatcher-0.8.8-4.el8.x86_64  
cairo-1.15.12-6.el8.x86_64  
glusterfs-libs-6.0.56-4.el8.x86_64  
lsscsi-0.32-3.el8.x86_64  
ncurses-6.1-9.20180224.el8.x86_64  
libfprint-1.90.7-1.el8.x86_64  
python3-sssconfig-2.3.4-1.el8_7.1.noarch  
freiDr-plugins-1.6.1-7.el8.x86_64  
selinux-policy-3.14.3-108.el8.noarch  
python3-dbus-1.2.4-15.el8.x86_64  
julietaula-montserrat-fonts-7.200-2.el8_2.noarch  
lua-socket-3.0-0.17.rc1.el8.x86_64  
gnome-bluetooth-libs-3.34.3-1.el8.x86_64  
qemu-kvm-ut-spice-6.2.0-20.module@el8.7.0+16905+efca5d32.2.x86_64  
libraqm2-2.42.7-4.el8.x86_64  
plymouth-0.9.4-11.20200615git1e36e30.el8.x86_64  
systemprint-doc-5.2.14-3.el8.x86_64  
ipset-libs-7.1-1.el8.x86_64  
gnome-session-3.28.1-14.el8.x86_64  
fuse-2.9.7-16.el8.x86_64  
enchant2-2.2.3-3.el8.x86_64  
python3-libreport-2.9.5-15.el8.x86_64  
libas-1.5.19-14.el8_5.x86_64  
yelp-libs-3.28.1-3.el8.x86_64  
liblockdown-fs-2.28-1.el8.x86_64  
python3-pip-wheel-9.0.3-22.el8.noarch  
soundtouch-2.0.8-3.el8.x86_64  
qemu-kvm-docs-6.2.0-20.module@el8.7.0+16905+efca5d32.2.x86_64  
chkconfig-1.19.1-1.el8.x86_64  
libenc3-3.24.1-2.el8.x86_64  
device-mapper-multipath-0.8.4-28.el8_7.1.x86_64  
zlib-1.2.11-20.el8.x86_64  
linguist2-1.33.0-2.el8_2.1.x86_64  
python3-requests-fip-4.3.1-11.el8.noarch  
tuned-2.19.0-1.el8.noarch  
glib-0.20.22-1.el8.x86_64  
gnw-base35-2003-fonts-20170801-10.el8.noarch  
plymouth-plugin-label-0.9.4-11.20200615git1e36e30.el8.x86_64  
cristi-0.11-15.el8.x86_64  
libgcrypt-1.8.5-7.el8_6.x86_64  
lsm-libs-0.9.24-1.el8.x86_64  
gifs-smb-1.36-2-14.el8.x86_64  
libxau-1.0.9-3.el8.x86_64  
libbim-utls-1.26.0-2.el8.x86_64  
gnawk-4.2.1-4.el8.x86_64  
libdatrie-0.2.9-7.el8.x86_64  
kernel-4.18.0-425.1.1.el8.x86_64  
qrc-0.4.28-3.el8.x86_64  
polycoreutils-python-utls-2.9-20.el8.noarch  
libvirt-connfig-3.9.0-1.el8.x86_64  
boost-system-1.66.0-13.el8.x86_64  
libtool-1.111-39.el8.x86_64  
gnome-disk-utility-3.28.3-2.el8.x86_64
```

27. View the files in the initscripts package

```
smabrouk@localhost:~  
File Edit View Search Terminal Help  
Salma >> 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/usleep  
/usr/lib/.build-id  
/usr/lib/.build-id/20  
/usr/lib/.build-id/20/328c244665f9df063277ee0a8d84b5f54214e  
/usr/lib/.build-id/2e  
/usr/lib/.build-id/2e/85f56a3bc3f20bd0919c1ee5dcf2b3a89946bb  
/usr/lib/.build-id/37  
/usr/lib/.build-id/37/77c2c5466986f64991b25fff1147904aa8d09e3  
/usr/lib/.build-id/5b  
/usr/lib/.build-id/5b/56badff8a8d4071476d910a9002519e28ae6fb  
/usr/lib/systemd/system/import-state.service  
/usr/lib/systemd/system/loadmodules.service  
/usr/lib/udev/resize_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/compteltype  
/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/ca/LC_MESSAGES/initscripts.mo  
/usr/share/locale/ast/LC_MESSAGES/initscripts.mo  
/usr/share/locale/ba/LC_MESSAGES/initscripts.mo  
/usr/share/locale/bn/LC_MESSAGES/initscripts.mo  
/usr/share/locale/en/LC_MESSAGES/initscripts.mo  
/usr/share/locale/en_GB/LC_MESSAGES/initscripts.mo  
/usr/share/locale/es/LC_MESSAGES/initscripts.mo  
/usr/share/locale/et/LC_MESSAGES/initscripts.mo  
/usr/share/locale/eu/LC_MESSAGES/initscripts.mo  
/usr/share/locale/fi/LC_MESSAGES/initscripts.mo
```

28. Get general information about bash rpm.

```
msh@msbrouk@localhost:~$ find /etc -name *.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/fg  
/usr/bin/fg  
/usr/bin/getopts  
/usr/bin/hasn  
/usr/bin/jobs  
/usr/bin/read  
/usr/bin/rm  
/usr/bin/type  
/usr/bin/unlimit  
/usr/bin/unmask  
/usr/bin/unalias  
/usr/bin/wall  
/usr/lib/build-id  
/usr/lib/build-id/e4  
/usr/lib/build-id/e4/abb3bb0b951e47f4653bae2ef8a8559d5fb9ef  
/usr/share/doc/bash  
/usr/share/doc/bash/Faq  
/usr/share/doc/bash/FAQ  
/usr/share/doc/bash/RBASH  
/usr/share/doc/bash/RBASH  
/usr/share/doc/bash/README  
/usr/share/doc/bash/bash.html  
/usr/share/doc/bash/bashtref.html  
/usr/share/info/bash.info.gz  
/usr/share/licenses/bash  
/usr/share/licenses/bash/COPYING  
/usr/share/locale/ar/LC_MESSAGES/bash.mo  
/usr/share/locale/bg/LC_MESSAGES/bash.mo  
/usr/share/locale/ca/LC_MESSAGES/bash.mo  
/usr/share/locale/cs/LC_MESSAGES/bash.mo  
/usr/share/locale/da/LC_MESSAGES/bash.mo  
/usr/share/locale/de/LC_MESSAGES/bash.mo  
/usr/share/locale/el/LC_MESSAGES/bash.mo  
/usr/share/locale/en@boldquot/LC_MESSAGES/bash.mo  
/usr/share/locale/en@quot/LC_MESSAGES/bash.mo  
/usr/share/locale/es/LC_MESSAGES/bash.mo  
/usr/share/locale/et/LC_MESSAGES/bash.mo  
/usr/share/locale/fr/LC_MESSAGES/bash.mo  
/usr/share/locale/gv/LC_MESSAGES/bash.mo  
/usr/share/locale/he/LC_MESSAGES/bash.mo  
/usr/share/locale/hr/LC_MESSAGES/bash.mo  
/usr/share/locale/id/LC_MESSAGES/bash.mo  
/usr/share/locale/it/LC_MESSAGES/bash.mo  
/usr/share/locale/ja/LC_MESSAGES/bash.mo  
/usr/share/locale/kk/LC_MESSAGES/bash.mo  
/usr/share/locale/ko/LC_MESSAGES/bash.mo  
/usr/share/locale/nl/LC_MESSAGES/bash.mo  
/usr/share/locale/no/LC_MESSAGES/bash.mo  
/usr/share/locale/pl/LC_MESSAGES/bash.mo  
/usr/share/locale/pt_BR/LC_MESSAGES/bash.mo  
/usr/share/locale/ro/LC_MESSAGES/bash.mo  
/usr/share/locale/ru/LC_MESSAGES/bash.mo  
/usr/share/locale/sk/LC_MESSAGES/bash.mo
```

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

```

File Edit View Search Terminal Help
Salma >> rpm -qa --last pam
pam-1.3.1-22.el8.x86_64
Salma >>
Tue 22 Nov 2022 03:19:27 PM EET

```

30. Which installed packages have gnome in their names?

```

File Edit View Search Terminal Help
Salma >> rpm -qa | grep gnome
gnome-bluetooth-libs-3.34.3-1.el8.x86_64
gnome-session-3.28.1-14.el8.x86_64
gnome-disk-utility-3.28.3-2.el8.x86_64
gnome-session-wayland-session-3.28.1-14.el8.x86_64
gnome-control-center-filesystem-3.28.2-36.el8.noarch
gnome-shell-extension-desktop-icons-3.32.1-29.el8.noarch
gnome-control-center-3.28.2-36.el8.x86_64
gnome-shell-extension-apps-menu-3.32.1-29.el8.noarch
gnome-autoar-0.2.3-2.el8.x86_64
gnome-terminal-nautilus-3.28.3-3.el8.x86_64
gnome-user-docs-3.28.2-1.el8.noarch
gnome-themes-standard-3.22.3-4.el8.x86_64
gnome-shell-3.32.2-48.el8.x86_64
gnome-menus-3.13.3-11.el8.x86_64
gnome-remote-desktop-0.1.8-3.el8.x86_64
gnome-characters-3.28.2-1.el8.x86_64
gnome-getting-started-docs-3.28.2-1.el8.noarch
gnome-keyring-pam-3.28.2-1.el8.x86_64
gnome-software-3.36.1-10.el8.x86_64
gnome-settings-daemon-3.32.0-16.el8_6.1.x86_64
gnome-session-xsession-3.28.1-14.el8.x86_64
gnome-shell-extension-window-list-3.32.1-29.el8.noarch
gnome-classic-session-3.32.1-29.el8.noarch
gnome-video-effects-0.4.3-3.el8.noarch
gnome-color-manager-3.28.0-3.el8.x86_64
gnome-system-monitor-3.28.2-1.el8.x86_64
gnome-shell-extension-launch-new-instance-3.32.1-29.el8.noarch
gnome-shell-extension-places-menu-3.32.1-29.el8.noarch
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
chrome-gnome-shell-10.1-7.el8.x86_64
gnome-boxes-3.36.5-8.el8.x86_64
gnome-font-viewer-3.28.0-1.el8.x86_64
gnome-shell-extension-horizontal-workspaces-3.32.1-29.el8.noarch
gnome-desktop3-3.32.2-1.el8.x86_64
gnome-shell-extension-common-3.32.1-29.el8.noarch
gnome-calculator-3.28.2-2.el8.x86_64
gnome-terminal-3.28.3-3.el8.x86_64
gnome-initial-setup-3.28.0-11.el8.x86_64
gnome-logs-3.28.5-3.el8.x86_64
gnome-bluetooth-3.34.3-1.el8.x86_64
gnome-screenshot-3.26.0-3.el8.x86_64
Salma >>

```

31. Install any uninstalled package from RH Enterprise Linux cds

```
smabrouk@localhost:~  
File Edit View Search Terminal Help  
Salma >> rpm -U  
rpm: no packages given for install  
Salma >> █
```

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

```
smabrouk@localhost:~  
File Edit View Search Terminal Help  
Salma >> sudo dnf install https://dl.fedoraproject.org/pub/epel/epel-release-latest-8.noarch.rpm  
[sudo] password for smabrouk:  
Updating Subscription Management repositories.  
Red Hat Enterprise Linux 8 for x86_64 - AppStream (RPMs) 122 B/s | 4.5 kB 00:37  
Red Hat Enterprise Linux 8 for x86_64 - BaseOS (RPMs) 1.1 kB/s | 4.1 kB 00:03  
Last metadata expiration check: 0:00:01 ago on Sat 24 Dec 2022 03:03:09 PM EET.  
[MIRROR] epel-release-latest-8.noarch.rpm: Curl error (7): Couldn't connect to server for https://dl.fedoraproject.org/pub/epel/epel-release-latest-8.noarch.rpm [Failed to connect to dl.fedoraproject.org port 443: Connection timed out]  
[MIRROR] epel-release-latest-8.noarch.rpm: Status code: 404 for https://dl.fedoraproject.org/pub/epel/epel-release-latest-8.noarch.rpm (IP: 38.145.60.23)  
[MIRROR] epel-release-latest-8.noarch.rpm: Status code: 404 for https://dl.fedoraproject.org/pub/epel/epel-release-latest-8.noarch.rpm (IP: 38.145.60.23)  
[MIRROR] epel-release-latest-8.noarch.rpm: Status code: 404 for https://dl.fedoraproject.org/pub/epel/epel-release-latest-8.noarch.rpm (IP: 38.145.60.23)  
[FAILED] epel-release-latest-8.noarch.rpm: Status code: 404 for https://dl.fedoraproject.org/pub/epel/epel-release-latest-8.noarch.rpm (IP: 38.145.60.23)  
Status code: 404 for https://dl.fedoraproject.org/pub/epel/epel-release-latest-8.noarch.rpm (IP: 38.145.60.23)  
Salma >> sudo dnf upgrade  
[sudo] password for smabrouk:  
Updating Subscription Management repositories.  
Red Hat Enterprise Linux 8 for x86_64 - AppStream (RPMs) 1.1 kB/s | 4.5 kB 00:04  
Red Hat Enterprise Linux 8 for x86_64 - BaseOS (RPMs) 69 B/s | 4.1 kB 01:00  
Last metadata expiration check: 0:00:01 ago on Sat 24 Dec 2022 03:25:47 PM EET.  
Dependencies resolved.  
Nothing to do.  
Complete!  
Salma >> █
```

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

```
smabrouk@localhost:~  
File Edit View Search Terminal Help  
Salma >> sudo touch /etc/yum.repos.d/cdrom.repo  
Salma >> █
```

34. Try to install any package from the new repository