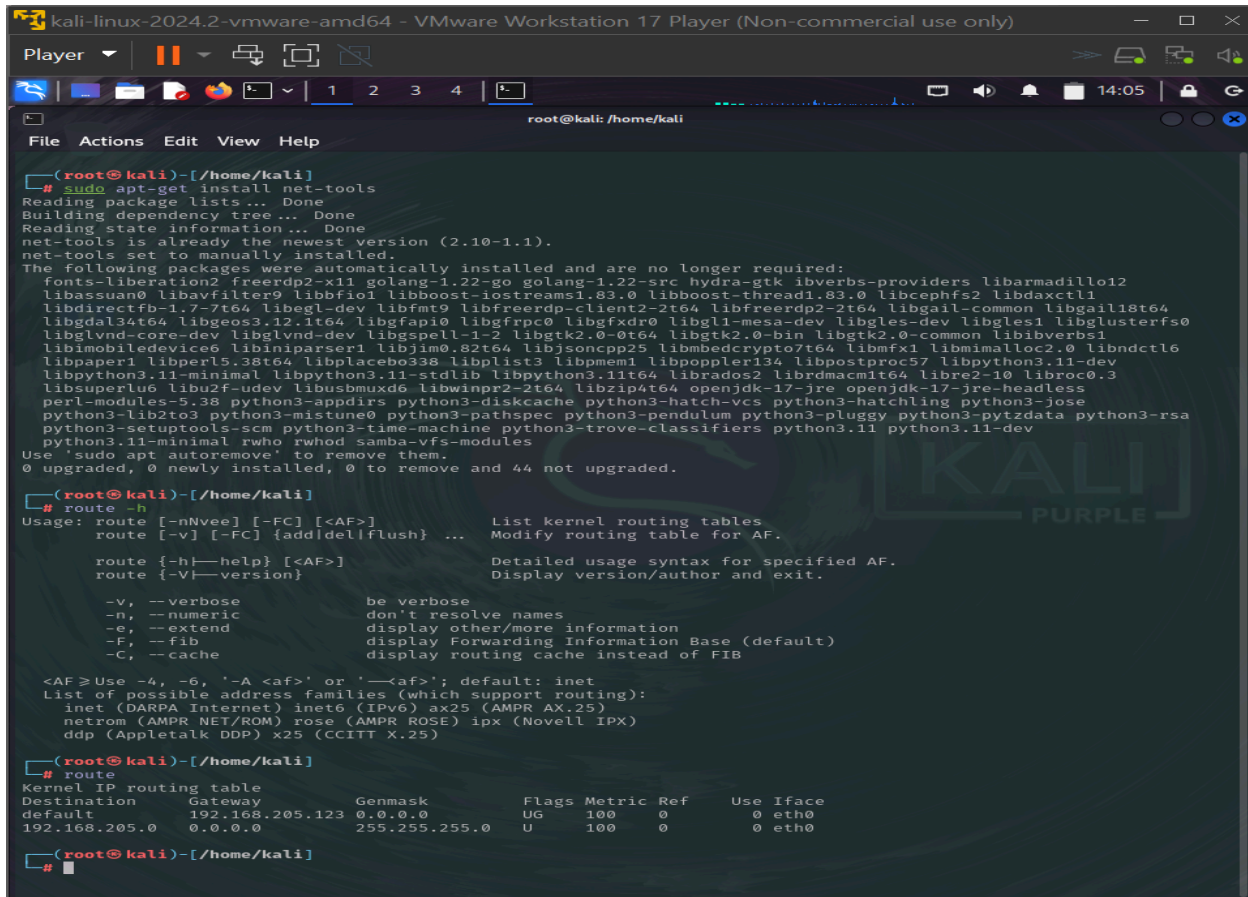


# USING ROUTE COMMAND TO DISPLAY NETWORK INFORMATION

Tools : KALI LINUX

Route is used when you want to work with the IP/kernel routing table. It is typically used to setup static routes to specific networks of hosts via an interface. It is used for updating or showing the IP/kernel routing table. The route command is used to view or manipulate the IP routing table.

Input from the task :



```
(root@kali)-[/home/kali]
# sudo apt-get install net-tools
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
net-tools is already the newest version (2.10-1.1).
net-tools set to manually installed.
The following packages were automatically installed and are no longer required:
 fonts-liberation2 freerdp2-x11 golang-1.22-go golang-1.22-src hydra-gtk ibverbs-providers libarmadillo12
 libassuan0 libavfilter9 libbfiol libboost-iostreams1.83.0 libboost-thread1.83.0 libcephfs2 libdaxctl1
 libdirectfb-1.7-7t64 libegl-dev libfmt9 libfreerdp-client2-2t64 libfreerdp2-2t64 libgail-common libgail18t64
 libgdal34t64 libgeos3.12.1t64 libgfpapi0 libgfrpc0 libgfxdr0 libgl1-mesa-dev libgles-dev libgles1 libglusterfs0
 libglvnd-core-dev libglvnd-dev libgsPELL-1-2 libgtk2.0-0t64 libgtk2.0-bin libgtk2.0-common libibverbs1
 libimobiledevice6 libinputparser1 libjim0.82t64 libjsoncpp25 libmbedcrypto7t64 libmfx1 libmimalloc2.0 libndctl6
 libpaper1 libperl5.38t64 libplacebo338 libplist3 libppmem1 libpoppler134 libpostproc57 libpython3.11-dev
 libpython3.11-minimal libpython3.11-stdlib libpython3.11t64 librados2 librdmacm1t64 libre2-10 libroc0.3
 libsuperlu6 libu2f-udev libusbmuxd6 libwinpr2-2t64 libzip4t64 openjdk-17-jre openjdk-17-jre-headless
 perl-modules-5.38 python3-appdirs python3-diskcache python3-hatch-vcs python3-hatchling python3-jose
 python3-lib2to3 python3-mistune0 python3-pathspec python3-pendulum python3-pluggy python3-pytzdata python3-rsa
 python3-setuptools-scm python3-time-machine python3-trove-classifiers python3.11 python3.11-dev
 python3.11-minimal rwho rwhod samba-vfs-modules
Use 'sudo apt autoremove' to remove them.
0 upgraded, 0 newly installed, 0 to remove and 44 not upgraded.

(root@kali)-[/home/kali]
# route -h
Usage: route [-nNvee] [-FC] [<AF>]          List kernel routing tables.
       route [-v] [-FC] {add|del|flush} ...  Modify routing table for AF.

       route {-h|--help} [<AF>]             Detailed usage syntax for specified AF.
       route {-V|--version}                 Display version/author and exit.

       -v, --verbose                        be verbose
       -n, --numeric                        don't resolve names
       -e, --extend                         display other/more information
       -F, --fib                           display Forwarding Information Base (default)
       -C, --cache                         display routing cache instead of FIB

<AF>=Use -4, -6, '-A <af>' or '--<af>'; default: inet
List of possible address families (which support routing):
inet (DARPA Internet) inet6 (IPv6) ax25 (AMPR AX.25)
netrom (AMPR NET/ROM) rose (AMPR ROSE) ipx (Novell IPX)
ddp (AppleTalk DDP) x25 (CCITT X.25)

(root@kali)-[/home/kali]
# route
Kernel IP routing table
Destination      Gateway         Genmask         Flags Metric Ref    Use Iface
default          192.168.205.123 0.0.0.0         UG        100    0      0 eth0
192.168.205.0    0.0.0.0         255.255.255.0   U         100    0      0 eth0
```

```
kali-linux-2024.2-vmware-amd64 - VMware Workstation 17 Player (Non-commercial use only)
Player
1 2 3 4
root@kali: /home/kali
File Actions Edit View Help
netrom (AMPR NET/ROM) rose (AMPR ROSE) ipx (Novell IPX)
ddp (Appletalk DDP) x25 (CCITT X.25)

(root@kali)-[/home/kali]
# route
Kernel IP routing table
Destination      Gateway         Genmask         Flags Metric Ref    Use Iface
default          192.168.205.123 0.0.0.0         UG    100    0      0 eth0
192.168.205.0    0.0.0.0         255.255.255.0   U      100    0      0 eth0

(root@kali)-[/home/kali]
# route -n
Kernel IP routing table
Destination      Gateway         Genmask         Flags Metric Ref    Use Iface
0.0.0.0          192.168.205.123 0.0.0.0         UG    100    0      0 eth0
192.168.205.0    0.0.0.0         255.255.255.0   U      100    0      0 eth0

(root@kali)-[/home/kali]
# route add default gw 192.168.205.123

(root@kali)-[/home/kali]
# route -Cn
Kernel IP routing cache
Source            Destination      Gateway         Flags Metric Ref    Use Iface
192.168.1.51      192.168.1.51    192.168.1.51    UH    0      0      0 eth0

(root@kali)-[/home/kali]
# route add -host 192.168.1.51 reject

(root@kali)-[/home/kali]
# ping 192.168.1.51
ping: connect: No route to host

(root@kali)-[/home/kali]
# ping 192.168.1.52
PING 192.168.1.52 (192.168.1.52) 56(84) bytes of data.
^C
  192.168.1.52 ping statistics:
  22 packets transmitted, 0 received, 100% packet loss, time 21508ms

(root@kali)-[/home/kali]
# ip route
default via 192.168.205.123 dev eth0
default via 192.168.205.123 dev eth0 proto dhcp src 192.168.205.28 metric 100
unreachable 192.168.1.51 scope host
192.168.205.0/24 dev eth0 proto kernel scope link src 192.168.205.28 metric 100

(root@kali)-[/home/kali]
# route del default

(root@kali)-[/home/kali]
# route add default gw 192.168.205.123

(root@kali)-[/home/kali]
#
```

```
kali-linux-2024.2-vmware-amd64 - VMware Workstation 17 Player (Non-commercial use only)
Player
1 2 3 4
root@kali: /home/kali
File Actions Edit View Help
192.168.205.0    0.0.0.0         255.255.255.0   U      100    0      0 eth0

(root@kali)-[/home/kali]
# route add default gw 192.168.205.123

(root@kali)-[/home/kali]
# route -Cn
Kernel IP routing cache
Source            Destination      Gateway         Flags Metric Ref    Use Iface
192.168.1.51      192.168.1.51    192.168.1.51    UH    0      0      0 eth0

(root@kali)-[/home/kali]
# route add -host 192.168.1.51 reject

(root@kali)-[/home/kali]
# ping 192.168.1.51
ping: connect: No route to host

(root@kali)-[/home/kali]
# ping 192.168.1.52
PING 192.168.1.52 (192.168.1.52) 56(84) bytes of data.
^C
  192.168.1.52 ping statistics:
  22 packets transmitted, 0 received, 100% packet loss, time 21508ms

(root@kali)-[/home/kali]
# ip route
default via 192.168.205.123 dev eth0
default via 192.168.205.123 dev eth0 proto dhcp src 192.168.205.28 metric 100
unreachable 192.168.1.51 scope host
192.168.205.0/24 dev eth0 proto kernel scope link src 192.168.205.28 metric 100

(root@kali)-[/home/kali]
# route del default

(root@kali)-[/home/kali]
# route add default gw 192.168.205.123

(root@kali)-[/home/kali]
# ip -4 route
Command "ip" is unknown, try "ip route help".

(root@kali)-[/home/kali]
# ip -4 route
default via 192.168.205.123 dev eth0 proto dhcp src 192.168.205.28 metric 100
default via 192.168.205.123 dev eth0 proto dhcp src 192.168.205.28 metric 100
unreachable 192.168.1.51 scope host
192.168.205.0/24 dev eth0 proto kernel scope link src 192.168.205.28 metric 100

(root@kali)-[/home/kali]
# ip -6 route
fe80::/64 dev eth0 proto kernel metric 1024 pref medium

(root@kali)-[/home/kali]
#
```

Here we would be using the route command to display network information. We would first have to be a root user to use the command.

The route command is a network utility used to view and manipulate the IP routing table on Unix-like and Microsoft Windows operating systems.

It allows administrators to define routes for network traffic, ensuring data packets take the correct path to their destination.

## **Common Uses of the route Command:**

### **1. Displaying the Routing Table:**

To view the current routing table, use:

```
route -n
```

- The -n flag displays addresses numerically, avoiding the need for name resolution.

### **2. Adding a Route:**

To add a new route, the syntax is:

```
route add -net [destination_network] netmask  
[subnet_mask] gw [gateway]
```

For example, to route traffic destined for the 192.168.1.0/24 network through the gateway 192.168.0.1:

```
route add -net 192.168.1.0 netmask 255.255.255.0 gw  
192.168.0.1
```

○

### **3. Deleting a Route:**

To remove an existing route:

```
route del -net [destination_network] netmask  
[subnet_mask]
```

For instance, to delete the route to 192.168.1.0/24:

```
route del -net 192.168.1.0 netmask 255.255.255.0
```

**Note:** On modern Linux distributions, the `route` command has been deprecated in favor of the `ip` command from the `iproute2` package. The equivalent commands using `ip` are:

### **Displaying the Routing Table:**

```
ip route show
```

- 

### **Adding a Route:**

```
ip route add [destination_network]/[prefix_length] via  
[gateway]
```

For example:

```
ip route add 192.168.1.0/24 via 192.168.0.1
```

- 

### **Deleting a Route:**

```
ip route del [destination_network]/[prefix_length]
```

For example:

```
ip route del 192.168.1.0/24
```

- 

It's advisable to use the `ip` command for managing routes on systems where it's available, as it offers more features and is actively maintained.

For comprehensive details on the `route` command and its options, you can refer to its manual page by executing `man route` in the terminal.