

Create a Setup so that you can ping google but not able to ping Facebook from same system

Its task 13, of ARTH Training in which We have to make changes in the system so that it can only ping to google and fails to ping to Facebook.
So, here we go

1. Open VM and check ip of the system

`ifconfig enp0s3`

```
[root@localhost ~]# ifconfig enp0s3
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.43.61 netmask 255.255.255.0 broadcast 192.168.43.255
    inet6 fe80::fcf5:4772:682c:ed20 prefixlen 64 scopeid 0x20:::
    inet6 2401:4900:36b7:9a00:f3c3:3365:5334:2462 prefixlen 64 scopeid 0x1::1
```

2. Check Routing table of the system

`route -n`

```
[root@localhost ~]# route -n
Kernel IP routing table
Destination Gateway Genmask Flags Metric Ref Use Iface
0.0.0.0 192.168.43.1 0.0.0.0 UG 100 0 0 enp0s3
172.17.0.0 0.0.0.0 255.255.0.0 U 0 0 0 docker0
192.168.43.0 0.0.0.0 255.255.255.0 U 100 0 0 enp0s3
192.168.122.0 0.0.0.0 255.255.255.0 U 0 0 0 virbr0
```

3. First Ping Facebook to show that it's working properly.

`ping -4 facebook.com`

```
[root@localhost ~]# ping -4 facebook.com
PING facebook.com (69.171.250.35) 56(84) bytes of data:
64 bytes from edge-star-mini-shv-01-any2.facebook.com (69.171.250.35): icmp_seq=1 ttl=55 time=66.9 ms
64 bytes from edge-star-mini-shv-01-any2.facebook.com (69.171.250.35): icmp_seq=2 ttl=55 time=85.4 ms
64 bytes from edge-star-mini-shv-01-any2.facebook.com (69.171.250.35): icmp_seq=3 ttl=55 time=82.8 ms
64 bytes from edge-star-mini-shv-01-any2.facebook.com (69.171.250.35): icmp_seq=4 ttl=55 time=85.8 ms
```

Here, I pointed to the picture that says I want to deal with IPv4 not with IPv6 as in my route table. I am going to modify it with 32 bits of IP which is IPv4. So i can show you one thing that, the ping command with IPv4 and IPv6 to the same website is a different thing.
After my modification in my route table i can show you this that even IPV4 is not reachable but the IPV6 pings good.

4. Then ping google also

Ping www.google.com

```
[root@localhost ~]# ping -4 google.com
PING google.com (142.250.76.174) 56(84) bytes of data:
64 bytes from bom12s09-in-f14.1e100.net (142.250.76.174): icmp_seq=1 ttl=116 time=67.1
ms
64 bytes from bom12s09-in-f14.1e100.net (142.250.76.174): icmp_seq=2 ttl=116 time=86.9
ms
64 bytes from bom12s09-in-f14.1e100.net (142.250.76.174): icmp_seq=3 ttl=116 time=83.8
ms
64 bytes from bom12s09-in-f14.1e100.net (142.250.76.174): icmp_seq=4 ttl=116 time=63.1
ms
```

Here also -4 to deal with IPv4

5. Now will delete the Destination 0.0.0.0

[Route del -net 0.0.0.0](#)

actually 0.0.0.0 tells that it's complete package of global internet from where it can go to any ip in the world.

So, I am removing that and have to add manual destination which will be the IP of google.

6. Now check after deleted

[Route -n](#)

```
[root@localhost ~]# route -n
Kernel IP routing table
Destination      Gateway         Genmask         Flags Metric Ref    Use Iface
172.17.0.0        0.0.0.0         255.255.0.0     U        0      0        0 docker0
192.168.43.0      0.0.0.0         255.255.255.0   U        100    0        0 enp0s3
192.168.122.0     0.0.0.0         255.255.255.0   U        0      0        0 virbr0
```

7. Now let's check that we can ping to google and facebook like we used to do in 2nd and 3rd steps.

```
[root@localhost ~]# ping -4 google.com
connect: Network is unreachable
[root@localhost ~]# ping -4 facebook.com
connect: Network is unreachable
```

Same as expectations.

But now time came to see what if i request to default ping system(IPv6).

8. Using ipv6 to ping even I deleted the IPv4 destination address.

[Ping google.com](#)

```
[root@localhost ~]# ping google.com
PING google.com(bom12s09-in-x0e.1e100.net (2404:6800:4009:81a::200e)) 56 data bytes
64 bytes from bom12s09-in-x0e.1e100.net (2404:6800:4009:81a::200e): icmp_seq=1 ttl=117
time=72.7 ms
64 bytes from bom12s09-in-x0e.1e100.net (2404:6800:4009:81a::200e): icmp_seq=2 ttl=117
time=144 ms
64 bytes from bom12s09-in-x0e.1e100.net (2404:6800:4009:81a::200e): icmp_seq=3 ttl=117
time=88.1 ms
```

Ping -6 facebook.com

```
[root@localhost ~]# ping -6 facebook.com
PING facebook.com(edge-star-mini6-shv-01-any2.facebook.com (2a03:2880:f1ff:83:face:b00c:0:25de)) 56 data bytes
64 bytes from edge-star-mini6-shv-01-any2.facebook.com (2a03:2880:f1ff:83:face:b00c:0:25de): icmp_seq=1 ttl=55 time=73.6 ms
64 bytes from edge-star-mini6-shv-01-any2.facebook.com (2a03:2880:f1ff:83:face:b00c:0:25de): icmp_seq=2 ttl=55 time=63.5 ms
64 bytes from edge-star-mini6-shv-01-any2.facebook.com (2a03:2880:f1ff:83:face:b00c:0:25de): icmp_seq=3 ttl=55 time=68.3 ms
^C
--- facebook.com ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 27ms
```

We can see that, even we changed the IPv4 Route so that no Ip is reachable but here IPv6 is reachable to the same website.so, we can conclude that is pinging to same website with IP version 4 and 6 are not same.

- Now we will add a route to connect to google in the routing table, and ping google simultaneously.

Route add -n 142.250.0.0/16 gw 192.168.43.61 enp0s3

Ping -4 google.com

```
[root@localhost ~]# route add -net 142.250.0.0/16 gw 192.168.43.61 enp0s3
[root@localhost ~]# ping -4 google.com
PING google.com (142.250.76.174) 56(84) bytes of data.
From localhost.localdomain (192.168.43.61) icmp_seq=1 Destination Host Unreachable
From localhost.localdomain (192.168.43.61) icmp_seq=2 Destination Host Unreachable
From localhost.localdomain (192.168.43.61) icmp_seq=3 Destination Host Unreachable
From localhost.localdomain (192.168.43.61) icmp_seq=4 Destination Host Unreachable
From localhost.localdomain (192.168.43.61) icmp_seq=5 Destination Host Unreachable
From localhost.localdomain (192.168.43.61) icmp_seq=6 Destination Host Unreachable
^C
--- google.com ping statistics ---
8 packets transmitted, 0 received, +6 errors, 100% packet loss, time 199ms
pipe 4
```

- But in the meanwhile lets ping to facebook

Ping -4 facebook.com

```
[root@localhost ~]# ping -4 facebook.com
connect: Network is unreachable
```

- And Here is the result in a single screenshot

```
[root@localhost ~]# route add -net 142.250.0.0/16 gw 192.168.43.61 enp0s3
[root@localhost ~]# ping -4 google.com
PING google.com (142.250.76.174) 56(84) bytes of data.
From localhost.localdomain (192.168.43.61) icmp_seq=1 Destination Host Unreachable
From localhost.localdomain (192.168.43.61) icmp_seq=2 Destination Host Unreachable
From localhost.localdomain (192.168.43.61) icmp_seq=3 Destination Host Unreachable
From localhost.localdomain (192.168.43.61) icmp_seq=4 Destination Host Unreachable
From localhost.localdomain (192.168.43.61) icmp_seq=5 Destination Host Unreachable
From localhost.localdomain (192.168.43.61) icmp_seq=6 Destination Host Unreachable
^C
--- google.com ping statistics ---
8 packets transmitted, 0 received, +6 errors, 100% packet loss, time 199ms
pipe 4
[root@localhost ~]# ping -4 facebook.com
connect: Network is unreachable
```