1. $ sudo apt update
2. $ sudo apt install net-tools
3. $ sudo apt install iproute2 -y
4. $ sudo apt install tcpdump
5. $ sudo apt install iputils-ping -y
6. $ sudo ip netns add red
7. $ sudo ip netns list
8. $ sudo ip link add veth-red type veth peer name veth-host
9. $ ip link list ( to see the extraa veth )
10. $ sudo ip link set veth-red netns red
11. $ route ( to verify)
12. $ ip link list

If I open another terminal and enter into red

1. $ sudo ip netns exec red bash
2. ip link list

# we can get to see another endpoint is created

// $ sudo ip addr add 192.168.1.2 dev veth-host

// $ ip addr

1. $ sudo ip netns exec red ip 192.168.1.1/24 dev veth-red

If we want to check another terminal tab

1. $ sudo ip netns exec red bash
2. ip addr
3. ip link
4. $ route
5. $ ip link
6. $ sudo ip netns exec red ip link set veth-red ip
7. $ ip link
8. ip link set veth-red up
9. ip link
10. $ ip link
11. $ route
12. $ sudo ip addr add 192.168.1.1/24 dev veth-host
13. $ sudo ip link set veth-host up
14. $ route
15. route
16. sudo tcpdump -i veth-red
17. $ ping 192.168.1.1

We will see in the 2nd terminal that we are receiving data

Now we will do the reverse .

1. $ sudo tcpdump -i veth-host

1. clear
2. ping 192.168.1.2
3. We wil see the packets are coming

In summary

# **linux-ns-networking-2**

## **Connecting a container to host using virtual Ethernet cable**

To create a custom namespace using ip netns add utiliy.

$ sudo ip netns add red

$ sudo ip netns list

From the root network namespace, to create a veth cable, and to verify run ip link list.

$ sudo ip link add veth-red type veth peer name veth-host

$ ip link list

To connect the root namespace with the red namespace, we need to keep one end of the cable in the root namespace and move another one end into the red ns.

Connect the veth-red with red-ns

$ sudo ip link set veth-red netns red

$ ip link list

This moves one end of the veth pair (veth-red) into the "red" namespace. The other end (veth-host) remains in the default network namespace.

Now, to configure IP Addresses to both end of this veth cable and once we turn up the interfaces, the peer device will instantly display any packet that appears on one of the devices.

In the "red" namespace:

sudo ip netns exec red ip addr add 192.168.1.1/24 dev veth-red

sudo ip netns exec red ip link set veth-red up

On the host side:

sudo ip addr add 192.168.1.2/24 dev veth-host

sudo ip link set veth-host up

route

The virtual ethernet pair is now ready.

Open new terminal

sudo ip netns exec red bash

route

sudo tcpdump -i veth-red

Now ping from 1st terminal

ping 192.168.1.1

To do the reverse in the 1st terminal

sudo tcpdump -i veth-host

In the 2nd terminal

Ping 192.168.1.2

#end

A route is needed to add on the host to direct traffic destined for 192.168.1.1 through the veth-host interface.

sudo ip route add 192.168.1.1 dev veth-host

## **Test connectivity**

To ping the red ns from the veth-host interface:

ping 192.168.1.1 -c 3

Again, to ping the veth-host interface from the red namespace:

sudo ip netns exec red bashping 192.168.1.2 -c 3