```
# ./name.sh
----------------------------------------------------------------------------
# date
2016. 04. 22. (금) 14:23:38 KST
----------------------------------------------------------------------------
# hostname
stack-VirtualBox
----------------------------------------------------------------------------
# ps -eaf |grep netns
root          22      2   0 14:11 ?          00:00:00 [netns]
root        2217   2213   0 14:23 pts/6      00:00:00 grep netns
----------------------------------------------------------------------------
# ls -l /proc/22/ns
total 0
lrwxrwxrwx 1 root root 0   4월 22 14:18 ipc -> ipc:[4026531839]
lrwxrwxrwx 1 root root 0   4월 22 14:18 mnt -> mnt:[4026531840]
lrwxrwxrwx 1 root root 0   4월 22 14:18 net -> net:[4026531957]
lrwxrwxrwx 1 root root 0   4월 22 14:18 pid -> pid:[4026531836]
lrwxrwxrwx 1 root root 0   4월 22 14:18 user -> user:[4026531837]
lrwxrwxrwx 1 root root 0   4월 22 14:18 uts -> uts:[4026531838]
----------------------------------------------------------------------------
# ls -l /proc/self/ns
total 0
lrwxrwxrwx 1 root root 0   4월 22 14:23 ipc -> ipc:[4026531839]
lrwxrwxrwx 1 root root 0   4월 22 14:23 mnt -> mnt:[4026531840]
lrwxrwxrwx 1 root root 0   4월 22 14:23 net -> net:[4026531957]
lrwxrwxrwx 1 root root 0   4월 22 14:23 pid -> pid:[4026531836]
lrwxrwxrwx 1 root root 0   4월 22 14:23 user -> user:[4026531837]
lrwxrwxrwx 1 root root 0   4월 22 14:23 uts -> uts:[4026531838]
----------------------------------------------------------------------------
# ip link
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN mode DEFAULT
group default
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP mode
DEFAULT group default qlen 1000
    link/ether 08:00:27:ba:51:1a brd ff:ff:ff:ff:ff:ff
3: eth1: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP mode
DEFAULT group default qlen 1000
```

```
        link/ether 08:00:27:79:6f:f7 brd ff:ff:ff:ff:ff:ff
4: virbr0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc noqueue state DOWN mode
DEFAULT group default
        link/ether 92:20:aa:27:f7:bf brd ff:ff:ff:ff:ff:ff
--------------------------------------------------------------------------
# ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default
        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: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group
default qlen 1000
        link/ether 08:00:27:ba:51:1a brd ff:ff:ff:ff:ff:ff
        inet 10.0.2.15/24 brd 10.0.2.255 scope global eth0
            valid_lft forever preferred_lft forever
        inet6 fe80::a00:27ff:feba:511a/64 scope link
            valid_lft forever preferred_lft forever
3: eth1: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group
default qlen 1000
        link/ether 08:00:27:79:6f:f7 brd ff:ff:ff:ff:ff:ff
        inet 192.168.56.101/24 brd 192.168.56.255 scope global eth1
            valid_lft forever preferred_lft forever
        inet6 fe80::a00:27ff:fe79:6ff7/64 scope link
            valid_lft forever preferred_lft forever
4: virbr0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc noqueue state DOWN
group default
        link/ether 92:20:aa:27:f7:bf 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
--------------------------------------------------------------------------
# ip route
default via 10.0.2.2 dev eth0    proto static
10.0.2.0/24 dev eth0    proto kernel    scope link    src 10.0.2.15    metric 1
192.168.56.0/24 dev eth1    proto kernel    scope link    src 192.168.56.101    metric 1
192.168.122.0/24 dev virbr0    proto kernel    scope link    src 192.168.122.1
--------------------------------------------------------------------------
# ip netns add red
```

```
--------------------------------------------------------------------------
# ip netns add green
--------------------------------------------------------------------------
# ip netns
green
red
--------------------------------------------------------------------------
# ls -l /var/run/netns
total 0
-r--r--r-- 1 root root 0   4월 22 14:23 green
-r--r--r-- 1 root root 0   4월 22 14:23 red
--------------------------------------------------------------------------
# ip netns exec red ip link
1: lo: <LOOPBACK> mtu 65536 qdisc noop state DOWN mode DEFAULT group default
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
--------------------------------------------------------------------------
# ip netns exec green ip link
1: lo: <LOOPBACK> mtu 65536 qdisc noop state DOWN mode DEFAULT group default
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
--------------------------------------------------------------------------
# ovs-vsctl add-br OVS1
--------------------------------------------------------------------------
# ovs-vsctl show
d8c90f70-491e-4416-800d-5e9048718723
    Bridge "OVS1"
        Port "OVS1"
            Interface "OVS1"
                type: internal
    ovs_version: "2.0.2"
--------------------------------------------------------------------------
# ip link
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN mode DEFAULT
group default
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP mode
DEFAULT group default qlen 1000
    link/ether 08:00:27:ba:51:1a brd ff:ff:ff:ff:ff:ff
3: eth1: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP mode
DEFAULT group default qlen 1000
```

link/ether 08:00:27:79:6f:f7 brd ff:ff:ff:ff:ff:ff

4: virbr0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc noqueue state DOWN mode DEFAULT group default

link/ether 92:20:aa:27:f7:bf brd ff:ff:ff:ff:ff:ff

5: ovs-system: <BROADCAST,MULTICAST> mtu 1500 qdisc noop state DOWN mode DEFAULT group default

link/ether 46:5d:8f:22:9b:fa brd ff:ff:ff:ff:ff:ff

6: OVS1: <BROADCAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UNKNOWN mode DEFAULT group default

link/ether 0a:94:88:55:17:42 brd ff:ff:ff:ff:ff:ff

----

ip link add eth0-r type veth peer name veth-r

----

ip link

1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN mode DEFAULT group default

link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00

2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP mode DEFAULT group default qlen 1000

link/ether 08:00:27:ba:51:1a brd ff:ff:ff:ff:ff:ff

3: eth1: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP mode DEFAULT group default qlen 1000

link/ether 08:00:27:79:6f:f7 brd ff:ff:ff:ff:ff:ff

4: virbr0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc noqueue state DOWN mode DEFAULT group default

link/ether 92:20:aa:27:f7:bf brd ff:ff:ff:ff:ff:ff

5: ovs-system: <BROADCAST,MULTICAST> mtu 1500 qdisc noop state DOWN mode DEFAULT group default

link/ether 46:5d:8f:22:9b:fa brd ff:ff:ff:ff:ff:ff

6: OVS1: <BROADCAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UNKNOWN mode DEFAULT group default

link/ether 0a:94:88:55:17:42 brd ff:ff:ff:ff:ff:ff

7: veth-r: <BROADCAST,MULTICAST> mtu 1500 qdisc noop state DOWN mode DEFAULT group default qlen 1000

link/ether 72:a2:45:c7:79:4e brd ff:ff:ff:ff:ff:ff

8: eth0-r: <BROADCAST,MULTICAST> mtu 1500 qdisc noop state DOWN mode DEFAULT group default qlen 1000

link/ether 3e:62:af:92:73:1b brd ff:ff:ff:ff:ff:ff

```
# ip link set eth0-r netns red
---------------------------------------------------------------------------
# ip link
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN mode DEFAULT
group default
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP mode
DEFAULT group default qlen 1000
    link/ether 08:00:27:ba:51:1a brd ff:ff:ff:ff:ff:ff
3: eth1: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP mode
DEFAULT group default qlen 1000
    link/ether 08:00:27:79:6f:f7 brd ff:ff:ff:ff:ff:ff
4: virbr0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc noqueue state DOWN mode
DEFAULT group default
    link/ether 92:20:aa:27:f7:bf brd ff:ff:ff:ff:ff:ff
5: ovs-system: <BROADCAST,MULTICAST> mtu 1500 qdisc noop state DOWN mode DEFAULT
group default
    link/ether 46:5d:8f:22:9b:fa brd ff:ff:ff:ff:ff:ff
6: OVS1: <BROADCAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UNKNOWN mode DEFAULT
group default
    link/ether 0a:94:88:55:17:42 brd ff:ff:ff:ff:ff:ff
7: veth-r: <BROADCAST,MULTICAST> mtu 1500 qdisc noop state DOWN mode DEFAULT group
default qlen 1000
    link/ether 72:a2:45:c7:79:4e brd ff:ff:ff:ff:ff:ff
---------------------------------------------------------------------------
# ip netns exec red ip link
1: lo: <LOOPBACK> mtu 65536 qdisc noop state DOWN mode DEFAULT group default
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
8: eth0-r: <BROADCAST,MULTICAST> mtu 1500 qdisc noop state DOWN mode DEFAULT group
default qlen 1000
    link/ether 3e:62:af:92:73:1b brd ff:ff:ff:ff:ff:ff
---------------------------------------------------------------------------
# ovs-vsctl add-port OVS1 veth-r
---------------------------------------------------------------------------
# ovs-vsctl show
d8c90f70-491e-4416-800d-5e9048718723
    Bridge "OVS1"
        Port veth-r
            Interface veth-r
```

```
        Port "OVS1"
            Interface "OVS1"
                type: internal
    ovs_version: "2.0.2"
```
----

ip link add eth0-g type veth peer name veth-g

----

ip link

1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN mode DEFAULT group default
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00

2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP mode DEFAULT group default qlen 1000
    link/ether 08:00:27:ba:51:1a brd ff:ff:ff:ff:ff:ff

3: eth1: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP mode DEFAULT group default qlen 1000
    link/ether 08:00:27:79:6f:f7 brd ff:ff:ff:ff:ff:ff

4: virbr0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc noqueue state DOWN mode DEFAULT group default
    link/ether 92:20:aa:27:f7:bf brd ff:ff:ff:ff:ff:ff

5: ovs-system: <BROADCAST,MULTICAST> mtu 1500 qdisc noop state DOWN mode DEFAULT group default
    link/ether 46:5d:8f:22:9b:fa brd ff:ff:ff:ff:ff:ff

6: OVS1: <BROADCAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UNKNOWN mode DEFAULT group default
    link/ether 0a:94:88:55:17:42 brd ff:ff:ff:ff:ff:ff

7: veth-r: <BROADCAST,MULTICAST> mtu 1500 qdisc noop master ovs-system state DOWN mode DEFAULT group default qlen 1000
    link/ether 72:a2:45:c7:79:4e brd ff:ff:ff:ff:ff:ff

9: veth-g: <BROADCAST,MULTICAST> mtu 1500 qdisc noop state DOWN mode DEFAULT group default qlen 1000
    link/ether 82:fd:01:a6:22:dd brd ff:ff:ff:ff:ff:ff

10: eth0-g: <BROADCAST,MULTICAST> mtu 1500 qdisc noop state DOWN mode DEFAULT group default qlen 1000
    link/ether f2:90:b4:48:a1:04 brd ff:ff:ff:ff:ff:ff

----

ip link set eth0-g netns green

----

ip netns exec green ip link

```
1: lo: <LOOPBACK> mtu 65536 qdisc noop state DOWN mode DEFAULT group default
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
10: eth0-g: <BROADCAST,MULTICAST> mtu 1500 qdisc noop state DOWN mode DEFAULT group
default qlen 1000
    link/ether f2:90:b4:48:a1:04 brd ff:ff:ff:ff:ff:ff
--------------------------------------------------------------------------
# ovs-vsctl add-port OVS1 veth-g
--------------------------------------------------------------------------
# ovs-vsctl show
d8c90f70-491e-4416-800d-5e9048718723
    Bridge "OVS1"
        Port veth-r
            Interface veth-r
        Port "OVS1"
            Interface "OVS1"
                type: internal
        Port veth-g
            Interface veth-g
    ovs_version: "2.0.2"
--------------------------------------------------------------------------
# ip link
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN mode DEFAULT
group default
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP mode
DEFAULT group default qlen 1000
    link/ether 08:00:27:ba:51:1a brd ff:ff:ff:ff:ff:ff
3: eth1: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP mode
DEFAULT group default qlen 1000
    link/ether 08:00:27:79:6f:f7 brd ff:ff:ff:ff:ff:ff
4: virbr0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc noqueue state DOWN mode
DEFAULT group default
    link/ether 92:20:aa:27:f7:bf brd ff:ff:ff:ff:ff:ff
5: ovs-system: <BROADCAST,MULTICAST> mtu 1500 qdisc noop state DOWN mode DEFAULT
group default
    link/ether 46:5d:8f:22:9b:fa brd ff:ff:ff:ff:ff:ff
6: OVS1: <BROADCAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UNKNOWN mode DEFAULT
group default
    link/ether 0a:94:88:55:17:42 brd ff:ff:ff:ff:ff:ff
```

7: veth-r: <BROADCAST,MULTICAST> mtu 1500 qdisc noop master ovs-system state DOWN mode DEFAULT group default qlen 1000
    link/ether 72:a2:45:c7:79:4e brd ff:ff:ff:ff:ff:ff
9: veth-g: <BROADCAST,MULTICAST> mtu 1500 qdisc noop master ovs-system state DOWN mode DEFAULT group default qlen 1000
    link/ether 82:fd:01:a6:22:dd brd ff:ff:ff:ff:ff:ff
----
ip link set veth-r up
----
ip link set veth-g up
----
ip link
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN mode DEFAULT group default
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
2: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP mode DEFAULT group default qlen 1000
    link/ether 08:00:27:ba:51:1a brd ff:ff:ff:ff:ff:ff
3: eth1: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP mode DEFAULT group default qlen 1000
    link/ether 08:00:27:79:6f:f7 brd ff:ff:ff:ff:ff:ff
4: virbr0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc noqueue state DOWN mode DEFAULT group default
    link/ether 92:20:aa:27:f7:bf brd ff:ff:ff:ff:ff:ff
5: ovs-system: <BROADCAST,MULTICAST> mtu 1500 qdisc noop state DOWN mode DEFAULT group default
    link/ether 46:5d:8f:22:9b:fa brd ff:ff:ff:ff:ff:ff
6: OVS1: <BROADCAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UNKNOWN mode DEFAULT group default
    link/ether 0a:94:88:55:17:42 brd ff:ff:ff:ff:ff:ff
7: veth-r: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc pfifo_fast master ovs-system state DOWN mode DEFAULT group default qlen 1000
    link/ether 72:a2:45:c7:79:4e brd ff:ff:ff:ff:ff:ff
9: veth-g: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc pfifo_fast master ovs-system state DOWN mode DEFAULT group default qlen 1000
    link/ether 82:fd:01:a6:22:dd brd ff:ff:ff:ff:ff:ff
----
ip netns exec red ip a
1: lo: <LOOPBACK> mtu 65536 qdisc noop state DOWN group default

```
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
8: eth0-r: <BROADCAST,MULTICAST> mtu 1500 qdisc noop state DOWN group default qlen 1000
    link/ether 3e:62:af:92:73:1b brd ff:ff:ff:ff:ff:ff
---------------------------------------------------------------------------
# ip netns exec red ip link set dev lo up
---------------------------------------------------------------------------
# ip netns exec red ip link set eth0-r up
---------------------------------------------------------------------------
# ip netns exec red ip address add 10.0.0.1/24 dev eth0-r
---------------------------------------------------------------------------
# ip netns exec red ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default
    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
8: eth0-r: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group
default qlen 1000
    link/ether 3e:62:af:92:73:1b brd ff:ff:ff:ff:ff:ff
    inet 10.0.0.1/24 scope global eth0-r
        valid_lft forever preferred_lft forever
    inet6 fe80::3c62:afff:fe92:731b/64 scope link tentative
        valid_lft forever preferred_lft forever
---------------------------------------------------------------------------
# ip netns exec red ip route
10.0.0.0/24 dev eth0-r   proto kernel   scope link   src 10.0.0.1
---------------------------------------------------------------------------
# ip netns exec green ip a
1: lo: <LOOPBACK> mtu 65536 qdisc noop state DOWN group default
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
10: eth0-g: <BROADCAST,MULTICAST> mtu 1500 qdisc noop state DOWN group default qlen
1000
    link/ether f2:90:b4:48:a1:04 brd ff:ff:ff:ff:ff:ff
---------------------------------------------------------------------------
# ip netns exec green ip link set dev lo up
---------------------------------------------------------------------------
# ip netns exec green ip link set eth0-g up
---------------------------------------------------------------------------
```

```
# ip netns exec green ip address add 10.0.0.2/24 dev eth0-g
---------------------------------------------------------------------------
# ip netns exec green ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default
    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
10: eth0-g: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group
default qlen 1000
    link/ether f2:90:b4:48:a1:04 brd ff:ff:ff:ff:ff:ff
    inet 10.0.0.2/24 scope global eth0-g
        valid_lft forever preferred_lft forever
    inet6 fe80::f090:b4ff:fe48:a104/64 scope link tentative
        valid_lft forever preferred_lft forever
---------------------------------------------------------------------------
# ip netns exec green ip route
10.0.0.0/24 dev eth0-g   proto kernel   scope link   src 10.0.0.2
---------------------------------------------------------------------------
# ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default
    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: eth0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group
default qlen 1000
    link/ether 08:00:27:ba:51:1a brd ff:ff:ff:ff:ff:ff
    inet 10.0.2.15/24 brd 10.0.2.255 scope global eth0
        valid_lft forever preferred_lft forever
    inet6 fe80::a00:27ff:feba:511a/64 scope link
        valid_lft forever preferred_lft forever
3: eth1: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group
default qlen 1000
    link/ether 08:00:27:79:6f:f7 brd ff:ff:ff:ff:ff:ff
    inet 192.168.56.101/24 brd 192.168.56.255 scope global eth1
        valid_lft forever preferred_lft forever
```

inet6 fe80::a00:27ff:fe79:6ff7/64 scope link
            valid_lft forever preferred_lft forever
4: virbr0: <NO-CARRIER,BROADCAST,MULTICAST,UP> mtu 1500 qdisc noqueue state DOWN
group default
        link/ether 92:20:aa:27:f7:bf 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
5: ovs-system: <BROADCAST,MULTICAST> mtu 1500 qdisc noop state DOWN group default
        link/ether 46:5d:8f:22:9b:fa brd ff:ff:ff:ff:ff:ff
6: OVS1: <BROADCAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UNKNOWN group default
        link/ether 0a:94:88:55:17:42 brd ff:ff:ff:ff:ff:ff
        inet6 fe80::6cd4:55ff:fe50:55ba/64 scope link
            valid_lft forever preferred_lft forever
7: veth-r: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast master ovs-system
state UP group default qlen 1000
        link/ether 72:a2:45:c7:79:4e brd ff:ff:ff:ff:ff:ff
        inet6 fe80::70a2:45ff:fec7:794e/64 scope link
            valid_lft forever preferred_lft forever
9: veth-g: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast master ovs-system
state UP group default qlen 1000
        link/ether 82:fd:01:a6:22:dd brd ff:ff:ff:ff:ff:ff
        inet6 fe80::80fd:1ff:fea6:22dd/64 scope link tentative
            valid_lft forever preferred_lft forever
----
route -n
Kernel IP routing table

Destination	Gateway	Genmask	Flags	Metric	Ref	Use	Iface
0.0.0.0	10.0.2.2	0.0.0.0	UG	0	0	0	eth0
10.0.2.0	0.0.0.0	255.255.255.0	U	1	0	0	eth0
192.168.56.0	0.0.0.0	255.255.255.0	U	1	0	0	eth1
192.168.122.0	0.0.0.0	255.255.255.0	U	0	0	0	virbr0

----
ip netns exec green route -n
Kernel IP routing table

Destination	Gateway	Genmask	Flags	Metric	Ref	Use	Iface
10.0.0.0	0.0.0.0	255.255.255.0	U	0	0	0	eth0-g

----
ip netns exec red route -n
Kernel IP routing table

Destination	Gateway	Genmask	Flags	Metric	Ref	Use	Iface
10.0.0.0	0.0.0.0	255.255.255.0	U	0	0	0	eth0-r

----

ovs-appctl fdb/show OVS1

port	VLAN	MAC	Age
LOCAL	0	0a:94:88:55:17:42	5
1	0	3e:62:af:92:73:1b	0
2	0	f2:90:b4:48:a1:04	0

----

ovs-ofctl show OVS1

OFPT_FEATURES_REPLY (xid=0x2): dpid:00000a9488551742

n_tables:254, n_buffers:256

capabilities: FLOW_STATS TABLE_STATS PORT_STATS QUEUE_STATS ARP_MATCH_IP

actions: OUTPUT SET_VLAN_VID SET_VLAN_PCP STRIP_VLAN SET_DL_SRC SET_DL_DST SET_NW_SRC SET_NW_DST SET_NW_TOS SET_TP_SRC SET_TP_DST ENQUEUE

 1(veth-r): addr:72:a2:45:c7:79:4e

     config: 0

     state: 0

     current: 10GB-FD COPPER

     speed: 10000 Mbps now, 0 Mbps max

 2(veth-g): addr:82:fd:01:a6:22:dd

     config: 0

     state: 0

     current: 10GB-FD COPPER

     speed: 10000 Mbps now, 0 Mbps max

 LOCAL(OVS1): addr:6e:d4:55:50:55:ba

     config: PORT_DOWN

     state: LINK_DOWN

     speed: 0 Mbps now, 0 Mbps max

OFPT_GET_CONFIG_REPLY (xid=0x4): frags=normal miss_send_len=0

----

ovs-ofctl dump-flows OVS1

NXST_FLOW reply (xid=0x4):

 cookie=0x0, duration=15.779s, table=0, n_packets=14, n_bytes=1156, idle_age=0, priority=0 actions=NORMAL

----

ovs-vsctl list Bridge

_uuid   : 5588940b-ae7b-4217-b757-97d160a78af0

controller   : []

```
datapath_id           : "00000a9488551742"
datapath_type         : ""
external_ids          : {}
fail_mode             : []
flood_vlans           : []
flow_tables           : {}
ipfix                 : []
mirrors               : []
name                  : "OVS1"
netflow               : []
other_config          : {}
ports                 : [05b6abaa-046c-42bc-b1a7-a805ced43c02, 400c9f2f-879a-4763-a7ed-
b5e50e2822cd, 5a50d2c8-5340-4ad9-b07c-fc1a547af425]
protocols             : []
sflow                 : []
status                : {}
stp_enable            : false
------------------------------------------------------------------------
# ovs-vsctl list Port
_uuid                 : 5a50d2c8-5340-4ad9-b07c-fc1a547af425
bond_downdelay        : 0
bond_fake_iface       : false
bond_mode             : []
bond_updelay          : 0
external_ids          : {}
fake_bridge           : false
interfaces            : [dc9a159f-c4ae-4a57-9b93-cf5093a84474]
lacp                  : []
mac                   : []
name                  : veth-g
other_config          : {}
qos                   : []
statistics            : {}
status                : {}
tag                   : []
trunks                : []
vlan_mode             : []

_uuid                 : 05b6abaa-046c-42bc-b1a7-a805ced43c02
```

```
bond_downdelay        : 0
bond_fake_iface       : false
bond_mode             : []
bond_updelay          : 0
external_ids          : {}
fake_bridge           : false
interfaces            : [236240d2-7ae4-42da-8194-638e499b96aa]
lacp                  : []
mac                   : []
name                  : veth-r
other_config          : {}
qos                   : []
statistics            : {}
status                : {}
tag                   : []
trunks                : []
vlan_mode             : []

_uuid                 : 400c9f2f-879a-4763-a7ed-b5e50e2822cd
bond_downdelay        : 0
bond_fake_iface       : false
bond_mode             : []
bond_updelay          : 0
external_ids          : {}
fake_bridge           : false
interfaces            : [79cb5a00-864e-4645-8e5e-13545b248841]
lacp                  : []
mac                   : []
name                  : "OVS1"
other_config          : {}
qos                   : []
statistics            : {}
status                : {}
tag                   : []
trunks                : []
vlan_mode             : []
-------------------------------------------------------------------------
# ovs-vsctl list Interface
_uuid                 : 79cb5a00-864e-4645-8e5e-13545b248841
```

```
admin_state          : up
bfd                  : {}
bfd_status           : {}
cfm_fault            : []
cfm_fault_status     : []
cfm_health           : []
cfm_mpid             : []
cfm_remote_mpids     : []
cfm_remote_opstate   : []
duplex               : []
external_ids         : {}
ifindex              : 6
ingress_policing_burst: 0
ingress_policing_rate: 0
lacp_current         : []
link_resets          : 0
link_speed           : []
link_state           : up
mac                  : []
mac_in_use           : "0a:94:88:55:17:42"
mtu                  : 1500
name                 : "OVS1"
ofport               : 65534
ofport_request       : []
options              : {}
other_config         : {}
statistics           : {collisions=0, rx_bytes=648, rx_crc_err=0, rx_dropped=0, rx_errors=0,
rx_frame_err=0,  rx_over_err=0,  rx_packets=8,  tx_bytes=508,  tx_dropped=0,  tx_errors=0,
tx_packets=6}
status               : {driver_name=openvswitch}
type                 : internal

_uuid                : 236240d2-7ae4-42da-8194-638e499b96aa
admin_state          : up
bfd                  : {}
bfd_status           : {}
cfm_fault            : []
cfm_fault_status     : []
cfm_health           : []
```

cfm_mpid   : []
cfm_remote_mpids   : []
cfm_remote_opstate   : []
duplex   : full
external_ids   : {}
ifindex   : 7
ingress_policing_burst: 0
ingress_policing_rate: 0
lacp_current   : []
link_resets   : 1
link_speed   : 10000000000
link_state   : up
mac   : []
mac_in_use   : "72:a2:45:c7:79:4e"
mtu   : 1500
name   : veth-r
ofport   : 1
ofport_request   : []
options   : {}
other_config   : {}
statistics   : {collisions=0, rx_bytes=508, rx_crc_err=0, rx_dropped=0, rx_errors=0,
rx_frame_err=0, rx_over_err=0, rx_packets=6, tx_bytes=70, tx_dropped=0, tx_errors=0, tx_packets=1}
status   : {driver_name=veth, driver_version="1.0", firmware_version=""}
type   : ""

_uuid   : dc9a159f-c4ae-4a57-9b93-cf5093a84474
admin_state   : up
bfd   : {}
bfd_status   : {}
cfm_fault   : []
cfm_fault_status   : []
cfm_health   : []
cfm_mpid   : []
cfm_remote_mpids   : []
cfm_remote_opstate   : []
duplex   : full
external_ids   : {}
ifindex   : 9
ingress_policing_burst: 0

```
ingress_policing_rate: 0
lacp_current          : []
link_resets           : 1
link_speed            : 10000000000
link_state            : up
mac                   : []
mac_in_use            : "82:fd:01:a6:22:dd"
mtu                   : 1500
name                  : veth-g
ofport                : 2
ofport_request        : []
options               : {}
other_config          : {}
statistics            : {collisions=0, rx_bytes=0, rx_crc_err=0, rx_dropped=0, rx_errors=0,
rx_frame_err=0,  rx_over_err=0,  rx_packets=0,  tx_bytes=508,  tx_dropped=0,  tx_errors=0,
tx_packets=6}
status                : {driver_name=veth, driver_version="1.0", firmware_version=""}
type                  : ""
--------------------------------------------------------------------------
# ip netns exec green ping 10.0.0.1
PING 10.0.0.1 (10.0.0.1) 56(84) bytes of data.
64 bytes from 10.0.0.1: icmp_seq=1 ttl=64 time=0.747 ms
64 bytes from 10.0.0.1: icmp_seq=2 ttl=64 time=0.060 ms
64 bytes from 10.0.0.1: icmp_seq=3 ttl=64 time=0.045 ms
64 bytes from 10.0.0.1: icmp_seq=4 ttl=64 time=0.050 ms
64 bytes from 10.0.0.1: icmp_seq=5 ttl=64 time=0.063 ms
^C
--- 10.0.0.1 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 3999ms
rtt min/avg/max/mdev = 0.045/0.193/0.747/0.277 ms
--------------------------------------------------------------------------
# ip netns exec red ping 10.0.0.2
PING 10.0.0.2 (10.0.0.2) 56(84) bytes of data.
64 bytes from 10.0.0.2: icmp_seq=1 ttl=64 time=0.436 ms
64 bytes from 10.0.0.2: icmp_seq=2 ttl=64 time=0.197 ms
64 bytes from 10.0.0.2: icmp_seq=3 ttl=64 time=0.054 ms
64 bytes from 10.0.0.2: icmp_seq=4 ttl=64 time=0.060 ms
64 bytes from 10.0.0.2: icmp_seq=5 ttl=64 time=0.060 ms
^C
```

--- 10.0.0.2 ping statistics ---

5 packets transmitted, 5 received, 0% packet loss, time 4000ms

rtt min/avg/max/mdev = 0.054/0.161/0.436/0.147 ms