Socket Lab2

Jiaying Li
jl10919

Lab environment:

Answer: My PC uses macOS Catalina 10.14.2, shows the following setting with *ifconfig*:

```
 ➜  ~ ifconfig
lo0: flags=8049<UP,LOOPBACK,RUNNING,MULTICAST> mtu 16384
        options=1203<RXCSUM,TXCSUM,TXSTATUS,SW_TIMESTAMP>
        inet 127.0.0.1 netmask 0xff000000
        inet6 ::1 prefixlen 128
        inet6 fe80::1%lo0 prefixlen 64 scopeid 0x1
        nd6 options=201<PERFORMNUD,DAD>
gif0: flags=8010<POINTOPOINT,MULTICAST> mtu 1280
stf0: flags=0<> mtu 1280
XHC0: flags=0<> mtu 0
XHC20: flags=0<> mtu 0
XHC1: flags=0<> mtu 0
VHC128: flags=0<> mtu 0
ap1: flags=8802<BROADCAST,SIMPLEX,MULTICAST> mtu 1500
        ether f2:18:98:97:41:22
        media: autoselect
        status: inactive
en0: flags=8863<UP,BROADCAST,SMART,RUNNING,SIMPLEX,MULTICAST> mtu 1500
        ether f0:18:98:97:41:22
        inet6 fe80::1c68:b9d7:9b34:f950%en0 prefixlen 64 secured scopeid 0xa
        inet 192.168.1.157 netmask 0xffffff00 broadcast 192.168.1.255
        nd6 options=201<PERFORMNUD,DAD>
        media: autoselect
        status: active
p2p0: flags=8843<UP,BROADCAST,RUNNING,SIMPLEX,MULTICAST> mtu 2304
        ether 02:18:98:97:41:22
        media: autoselect
        status: inactive
awdl0: flags=8943<UP,BROADCAST,RUNNING,PROMISC,SIMPLEX,MULTICAST> mtu 1484
        ether 7a:50:05:8f:93:28
        inet6 fe80::7850:5ff:fe8f:9328%awdl0 prefixlen 64 scopeid 0xc
        nd6 options=201<PERFORMNUD,DAD>
        media: autoselect
        status: active
en1: flags=8963<UP,BROADCAST,SMART,RUNNING,PROMISC,SIMPLEX,MULTICAST> mtu 1500
        options=60<TSO4,TSO6>
        ether ca:00:29:00:eb:01
        media: autoselect <full-duplex>
        status: inactive
en2: flags=8963<UP,BROADCAST,SMART,RUNNING,PROMISC,SIMPLEX,MULTICAST> mtu 1500
        options=60<TSO4,TSO6>
        ether ca:00:29:00:eb:00
        media: autoselect <full-duplex>
        status: inactive
en3: flags=8963<UP,BROADCAST,SMART,RUNNING,PROMISC,SIMPLEX,MULTICAST> mtu 1500
        options=60<TSO4,TSO6>
        ether ca:00:29:00:eb:05
        media: autoselect <full-duplex>
        status: inactive
en4: flags=8963<UP,BROADCAST,SMART,RUNNING,PROMISC,SIMPLEX,MULTICAST> mtu 1500
        options=60<TSO4,TSO6>
        ether ca:00:29:00:eb:04
        media: autoselect <full-duplex>
        status: inactive
bridge0: flags=8863<UP,BROADCAST,SMART,RUNNING,SIMPLEX,MULTICAST> mtu 1500
        options=63<RXCSUM,TXCSUM,TSO4,TSO6>
        ether ca:00:29:00:eb:01
        Configuration:
                id 0:0:0:0:0:0 priority 0 hellotime 0 fwddelay 0
                maxage 0 holdcnt 0 proto stp maxaddr 100 timeout 1200
                root id 0:0:0:0:0:0 priority 0 ifcost 0 port 0
                ipfilter disabled flags 0x2
        member: en1 flags=3<LEARNING,DISCOVER>
                ifmaxaddr 0 port 13 priority 0 path cost 0
        member: en2 flags=3<LEARNING,DISCOVER>
                ifmaxaddr 0 port 14 priority 0 path cost 0
        member: en3 flags=3<LEARNING,DISCOVER>
                ifmaxaddr 0 port 15 priority 0 path cost 0
        member: en4 flags=3<LEARNING,DISCOVER>
                ifmaxaddr 0 port 16 priority 0 path cost 0
        nd6 options=201<PERFORMNUD,DAD>
        media: <unknown type>
        status: inactive
utun0: flags=8051<UP,POINTOPOINT,RUNNING,MULTICAST> mtu 2000
        inet6 fe80::db8d:68a6:3b89:94d4%utun0 prefixlen 64 scopeid 0x12
        nd6 options=201<PERFORMNUD,DAD>
utun1: flags=8051<UP,POINTOPOINT,RUNNING,MULTICAST> mtu 1380
        inet6 fe80::accd:7189:a8e5:dc88%utun1 prefixlen 64 scopeid 0x13
        nd6 options=201<PERFORMNUD,DAD>
en5: flags=8863<UP,BROADCAST,SMART,RUNNING,SIMPLEX,MULTICAST> mtu 1500
        ether ac:de:48:00:11:22
        inet6 fe80::aede:48ff:fe00:1122%en5 prefixlen 64 scopeid 0x8
        nd6 options=201<PERFORMNUD,DAD>
        media: autoselect (100baseTX <full-duplex>)
        status: active
```

Here is the screenshot of the result when I ran the script.

```
[→  lab2 python3 UDPPingerClient.py

pinging...
b'PING 1 18:30:38.420190'
RTT: 0.000233 seconds

pinging...
b'PING 2 18:30:38.420460'
RTT: 0.000147 seconds

pinging...
b'PING 3 18:30:38.420637'
RTT: 0.000154 seconds

pinging...
Request timed out

pinging...
b'PING 5 18:30:39.425991'
RTT: 0.000268 seconds

pinging...
b'PING 6 18:30:39.426295'
RTT: 0.000174 seconds

pinging...
Request timed out

pinging...
b'PING 8 18:30:40.430647'
RTT: 0.000313 seconds

pinging...
b'PING 9 18:30:40.431012'
RTT: 0.000287 seconds

pinging...
b'PING 10 18:30:40.431348'
RTT: 0.000291 seconds
→  lab2
```

We can see there were two packets lost and they are No.4 and No.7 packet. (Circled in Red)
And we can see the normal response message from server is the message that we sent but in capitalization. (Circled in BLUE)
The RTT of each packet was also printed. (Circled in YELLOW)