

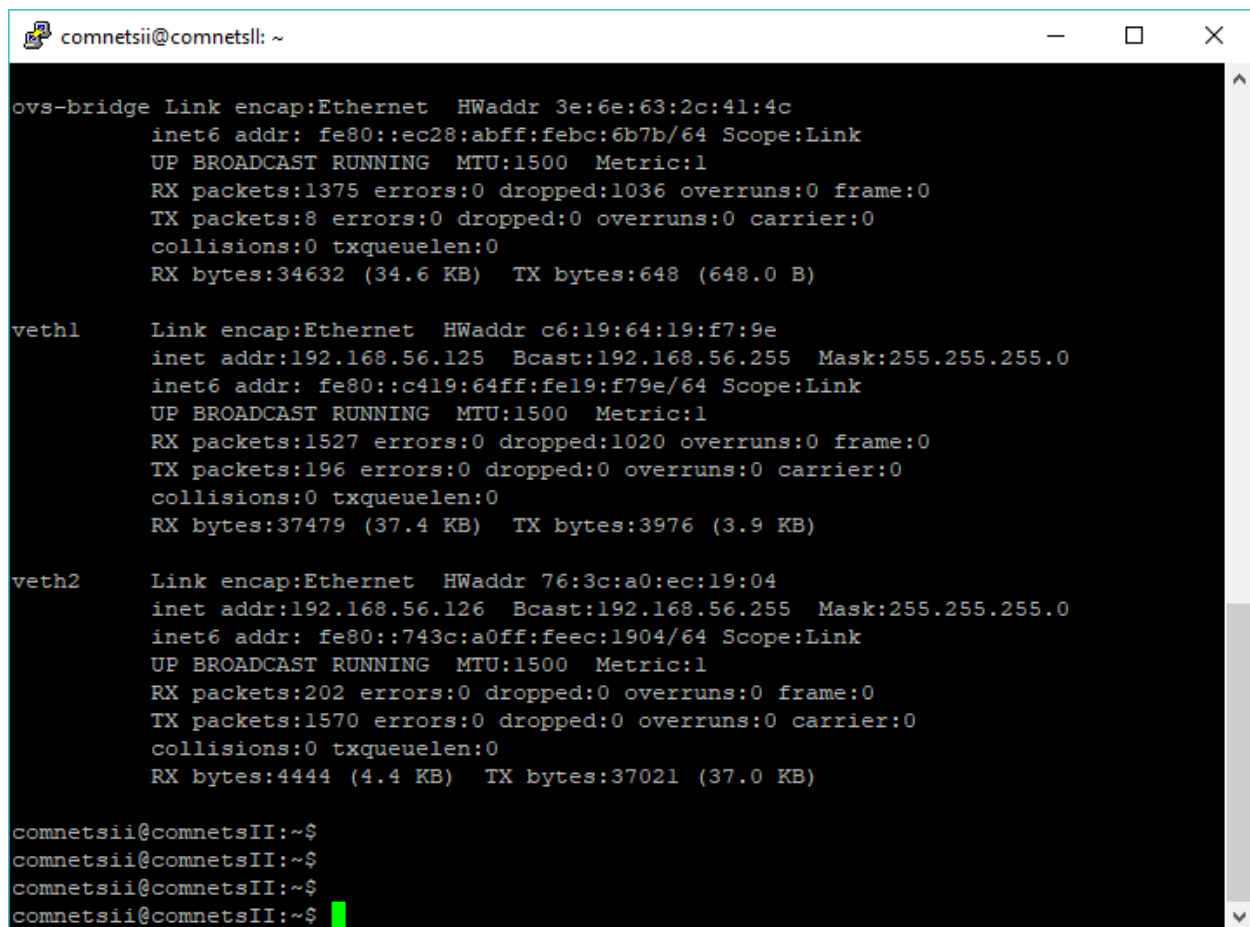
Project2

Internet Technology

\$ifconfig

veth1 Link encap:Ethernet HWaddr c6:19:64:19:f7:9e
inet addr:192.168.56.125 Bcast:192.168.56.255 Mask:255.255.255.0

veth2 Link encap:Ethernet HWaddr 76:3c:a0:ec:19:04
inet addr:192.168.56.126 Bcast:192.168.56.255 Mask:255.255.255.0



```
comnetsii@comnetsII: ~  
ovs-bridge Link encap:Ethernet HWaddr 3e:6e:63:2c:41:4c  
inet6 addr: fe80::ec28:abff:febc:6b7b/64 Scope:Link  
UP BROADCAST RUNNING MTU:1500 Metric:1  
RX packets:1375 errors:0 dropped:1036 overruns:0 frame:0  
TX packets:8 errors:0 dropped:0 overruns:0 carrier:0  
collisions:0 txqueuelen:0  
RX bytes:34632 (34.6 KB) TX bytes:648 (648.0 B)  
  
veth1 Link encap:Ethernet HWaddr c6:19:64:19:f7:9e  
inet addr:192.168.56.125 Bcast:192.168.56.255 Mask:255.255.255.0  
inet6 addr: fe80::c419:64ff:fe19:f79e/64 Scope:Link  
UP BROADCAST RUNNING MTU:1500 Metric:1  
RX packets:1527 errors:0 dropped:1020 overruns:0 frame:0  
TX packets:196 errors:0 dropped:0 overruns:0 carrier:0  
collisions:0 txqueuelen:0  
RX bytes:37479 (37.4 KB) TX bytes:3976 (3.9 KB)  
  
veth2 Link encap:Ethernet HWaddr 76:3c:a0:ec:19:04  
inet addr:192.168.56.126 Bcast:192.168.56.255 Mask:255.255.255.0  
inet6 addr: fe80::743c:a0ff:feec:1904/64 Scope:Link  
UP BROADCAST RUNNING MTU:1500 Metric:1  
RX packets:202 errors:0 dropped:0 overruns:0 frame:0  
TX packets:1570 errors:0 dropped:0 overruns:0 carrier:0  
collisions:0 txqueuelen:0  
RX bytes:4444 (4.4 KB) TX bytes:37021 (37.0 KB)  
  
comnetsii@comnetsII:~$  
comnetsii@comnetsII:~$  
comnetsii@comnetsII:~$  
comnetsii@comnetsII:~$
```

Part1

```
$ cat Project2-Recv-Part1.click
```

```
//Project2 Part1 Receive token
```

```
FromDevice(veth1)
```

```
-> Strip(14)
```

```
-> Print('Received from veth1', MAXLENGTH -1, CONTENTS ASCII)
```

```
-> Discard();
```

```
$ cat Project2-Send-Part1.click
```

```
//Project2 Part1 Send token to vth2
```

```
rp :: RatedSource(DATA \<48 45 4C 4C 4F>, RATE 1, LIMIT 5, ACTIVE  
true, STOP true);
```

```
rp
```

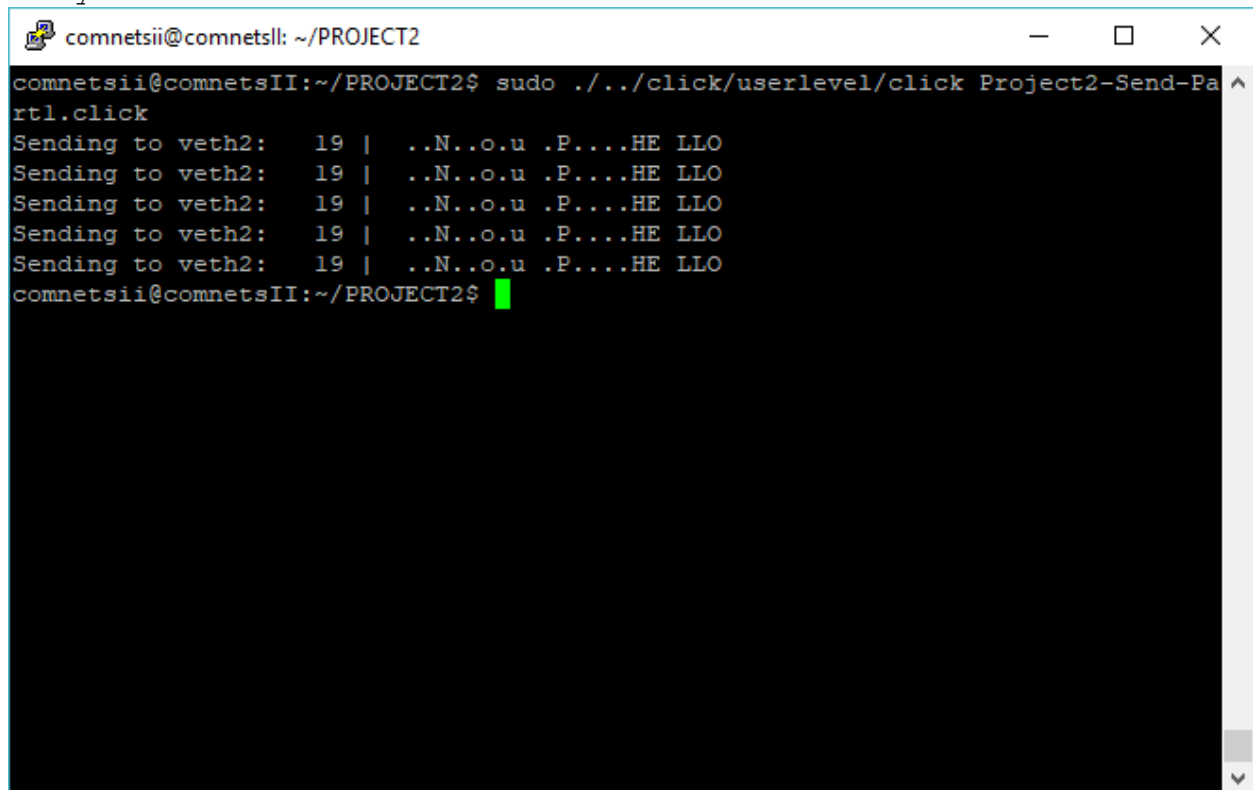
```
->EtherEncap(0x0800, veth1, veth2)
```

```
->Queue
```

```
->Print('Sending to veth2', CONTENTS ASCII)
```

```
->ToDevice(veth2);
```

Putty1

A screenshot of a Putty terminal window. The title bar shows 'comnetsii@comnetsII: ~/PROJECT2'. The terminal content shows the command 'sudo ../../click/userlevel/click Project2-Send-Part1.click' being executed. The output consists of five lines, each showing 'Sending to veth2: 19 | ..N..o.u .P....HE LLO'. The prompt 'comnetsii@comnetsII:~/PROJECT2\$' is visible at the bottom with a green cursor.

```
comnetsii@comnetsII:~/PROJECT2$ sudo ../../click/userlevel/click Project2-Send-Part1.click
Sending to veth2: 19 | ..N..o.u .P....HE LLO
Sending to veth2: 19 | ..N..o.u .P....HE LLO
Sending to veth2: 19 | ..N..o.u .P....HE LLO
Sending to veth2: 19 | ..N..o.u .P....HE LLO
Sending to veth2: 19 | ..N..o.u .P....HE LLO
comnetsii@comnetsII:~/PROJECT2$
```

Putty2



comnetsii@comnetsII: ~/PROJECT2



```
comnetsii@comnetsII:~/PROJECT2$ sudo ../../click/userlevel/click Project2-Recv-Pa ^  
rtl.click
```

```
Received from veth1:    5 | HELLO
```

```
Received from veth1:    5 | HELLO
```

```
Received from veth1:    5 | HELLO
```

```
Received from veth1:    5 | HELLO
```

```
Received from veth1:    5 | HELLO
```



PART2

\$ cat Project2-Send-Part2.click

//Project2 Part2 Send token and receive the token back from veth2

```
rp :: RatedSource(DATA \<48 45 4C 4C 4F>, RATE 1, LIMIT 5, ACTIVE
true, STOP true);
```

```
rp
```

```
->EtherEncap(0x0800, veth1, veth2)
```

```
->Queue
```

```
->Print('Sending to veth2',CONTENTS ASCII)
```

```
->ToDevice(veth2);
```

```
rp2 :: FromDevice(veth2)
```

```
-> Strip(14)
```

```
-> Print('Received from veth2',CONTENTS ASCII)
```

```
-> Discard();
```

\$ cat Project2-Recv-Part2.click

//Project2 Part2 Receive token and send back received token

```
rp :: FromDevice(veth1);
```

```
rp2 :: Strip(14)
```

```
->Print('Sending to veth1',CONTENTS ASCII)
```

```
->EtherEncap(0x0800, veth2, veth1)
```

```
->Queue
```

```
->ToDevice(veth1);
```

```
rp -> Print('Received from veth1', MAXLENGTH -1,CONTENTS ASCII) ->
```

```
rp2;
```

Putty1

```
comnetsii@comnetsII: ~/PROJECT2
comnetsii@comnetsII:~/PROJECT2$ sudo ../../click/userlevel/click Project2-Send-Part2.click
Sending to veth2: 19 | ..N..o.u .P....HE LLO
Sending to veth2: 19 | ..N..o.u .P....HE LLO
Received from veth2: 5 | HELLO
Received from veth2: 5 | HELLO
Sending to veth2: 19 | ..N..o.u .P....HE LLO
Received from veth2: 5 | HELLO
Sending to veth2: 19 | ..N..o.u .P....HE LLO
Received from veth2: 5 | HELLO
Sending to veth2: 19 | ..N..o.u .P....HE LLO
comnetsii@comnetsII:~/PROJECT2$
```

Putty2

```
comnetsii@comnetsII: ~/PROJECT2
comnetsii@comnetsII:~/PROJECT2$ sudo ../../click/userlevel/click Project2-Recv-Part2.click
Received from veth1: 19 | ..N..o.u .P....HE LLO
Sending to veth1: 5 | HELLO
Received from veth1: 19 | ..N..o.u .P....HE LLO
Sending to veth1: 5 | HELLO
Received from veth1: 19 | ..N..o.u .P....HE LLO
Sending to veth1: 5 | HELLO
Received from veth1: 19 | ..N..o.u .P....HE LLO
Sending to veth1: 5 | HELLO
Received from veth1: 19 | ..N..o.u .P....HE LLO
Sending to veth1: 5 | HELLO
```