TTM4180 - Applied Networking
Lab 5: Learning switch

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Q1: Briefly, in your own words, describe the difference between a switch, hub, and router?

- Switch: A package enters to a port and then the switch knows to which port it has to rebroadcast it. It differentiates each port with the MAC addresses of the devices and saves them in the switch table. It is used in a local area network and interconnects the computers of the said local network.
- Hub: A package enters to a port and then it is rebroadcast to the all other ports in the hub. It is also used in a local area network. It is less used than the switch, as it incenses the traffic network.
- Router: Used for exchanging data outside a LAN, to connect it with internet. It is possible because it can read IP addresses, if it finds a package that is meant to be to the IP address of its network, it sends it to the LAN. The router can also be connecting more routers not just LANs.

Q2: On which layer in the OSI stack does the learning switch in of_tutorial operate? What type of addresses does it need to learn, and why does it have to learn them?

It works at layer 2 as it uses the MAC addresses. It needs the MAC addresses for knowing which host is attached to each switch port.
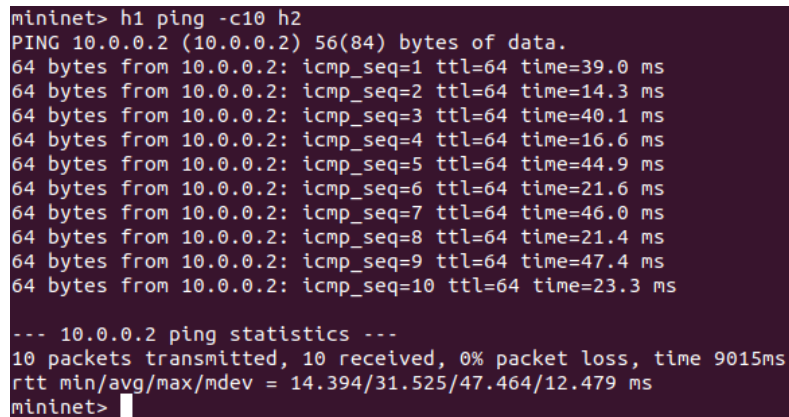
T1: Follow *of_tutorial* as mentioned in the walkthrough and implement the required functionality to let the controller make all forwarding decisions. This is done by following the instructions **until line 99** in *act_like_switch()*.
Hint: If you experience difficulties, try to look at the POX documentation before asking a student assistant, it contains all the information you need.

```
sudo mn --topo single,3 --arp --controller remote --switch ovsk
```

T2:

1. Restart the controller (remember to save after editing the code);

2. Restart and clean up Mininet;

3. Start Wireshark and listen on the loopback interface;

4. Xterm into h1, h2 and h3, and use tshark to save all traffic on their respective h¡x¿-eth0 interface to a pcapng file with the name T2-h¡x¿-eth0.pcapng. Remember to explicitly set the file format to pcapng, and take note of where it is saved (pwd);

5. Test the functionality of the network with a ping session (-c 10) between h1 and h2;

6. Screenshot the ping statistics, and save the captured Wireshark session on the loopback interface as T2.pcapng;

```
mininet> h1 ping -c10 h2
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=39.0 ms
64 bytes from 10.0.0.2: icmp_seq=2 ttl=64 time=14.3 ms
64 bytes from 10.0.0.2: icmp_seq=3 ttl=64 time=40.1 ms
64 bytes from 10.0.0.2: icmp_seq=4 ttl=64 time=16.6 ms
64 bytes from 10.0.0.2: icmp_seq=5 ttl=64 time=44.9 ms
64 bytes from 10.0.0.2: icmp_seq=6 ttl=64 time=21.6 ms
64 bytes from 10.0.0.2: icmp_seq=7 ttl=64 time=46.0 ms
64 bytes from 10.0.0.2: icmp_seq=8 ttl=64 time=21.4 ms
64 bytes from 10.0.0.2: icmp_seq=9 ttl=64 time=47.4 ms
64 bytes from 10.0.0.2: icmp_seq=10 ttl=64 time=23.3 ms

--- 10.0.0.2 ping statistics ---
10 packets transmitted, 10 received, 0% packet loss, time 9015ms
rtt min/avg/max/mdev = 14.394/31.525/47.464/12.479 ms
mininet>
```
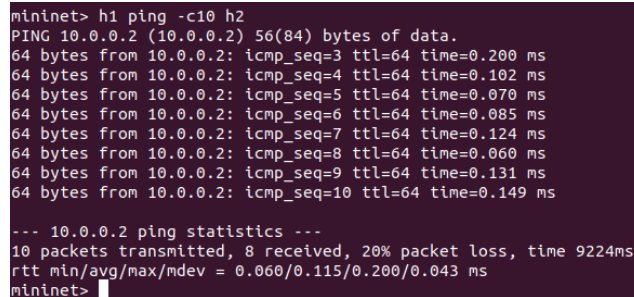
Figure 1: Ping statistics

7. In the console of each host, where you are currently capturing traffic with tshark, press
"Ctrl+C".
Traces given in Section C and Section D

Q3: Do you see IP traffic on h3-eth0, when you ping from h1 to h2? Why/why not?

No, as it is a switch and it just sends packages to the host the package is meant to be. It knows it because it keeps track of the ports and MAC addresses in the table, called switch table and represented as a dictionary in the python code mac_to_port, where the MAC is the key and the address is the value.

T3: Continue following the instructions in *of_tutorial.py* to install flow table entries for each new flow. **Remember to create a copy of the code so far, so you can submit both versions.**

T4: Repeat T2 with the new code, remember to save the pcap as T4.pcapng.

```
mininet> h1 ping -c10 h2
PING 10.0.0.2 (10.0.0.2) 56(84) bytes of data.
64 bytes from 10.0.0.2: icmp_seq=3 ttl=64 time=0.200 ms
64 bytes from 10.0.0.2: icmp_seq=4 ttl=64 time=0.102 ms
64 bytes from 10.0.0.2: icmp_seq=5 ttl=64 time=0.070 ms
64 bytes from 10.0.0.2: icmp_seq=6 ttl=64 time=0.085 ms
64 bytes from 10.0.0.2: icmp_seq=7 ttl=64 time=0.124 ms
64 bytes from 10.0.0.2: icmp_seq=8 ttl=64 time=0.060 ms
64 bytes from 10.0.0.2: icmp_seq=9 ttl=64 time=0.131 ms
64 bytes from 10.0.0.2: icmp_seq=10 ttl=64 time=0.149 ms

--- 10.0.0.2 ping statistics ---
10 packets transmitted, 8 received, 20% packet loss, time 9224ms
rtt min/avg/max/mdev = 0.060/0.115/0.200/0.043 ms
mininet>
```

Figure 2: Ping statistics

There are missing 2 packages. Traces given in Section C and Section D

Q4: Discuss the difference in traffic observed in T2.pcapng and T4.pcapng.

T2 has more packages than T4 and there are three types of packets in T4 (OFPT_PACKET_IN, OFPT_PACKET_OUT and OFPT_FLOW_MOD) and two types of packets in T2 (OFPT_PACKET_IN and OFPT_PACKET_OUT). T2.pcapng and T4.pcapng shown in Section E and Section F.

Q5: Is there a difference in Round-trip time (RTT) in T2 and T4? If so, why/why not? Support your answer with a sequence diagram.

T2: 31.525
T4: 0.115
This difference is due to the fact that T2 is re-sending each package h1 receives and T4 is pushing them, so it takes less time. T4 just takes the first package and then, if another one matches the first one, h1 pushes it through the same port.
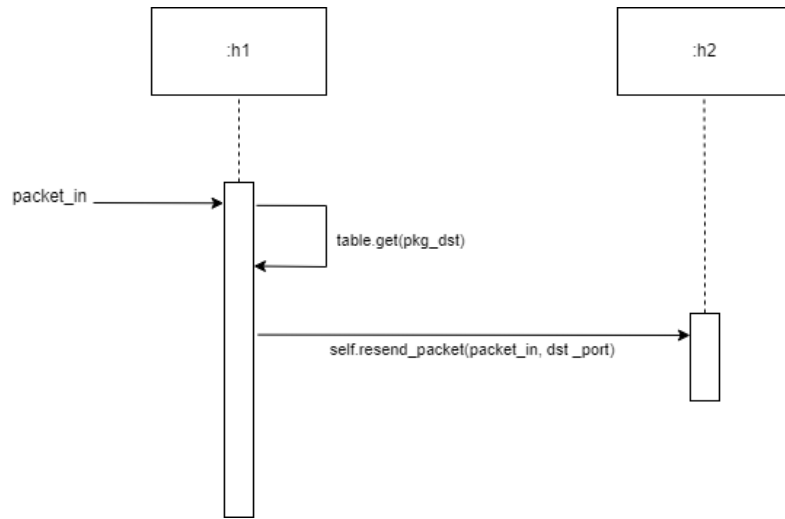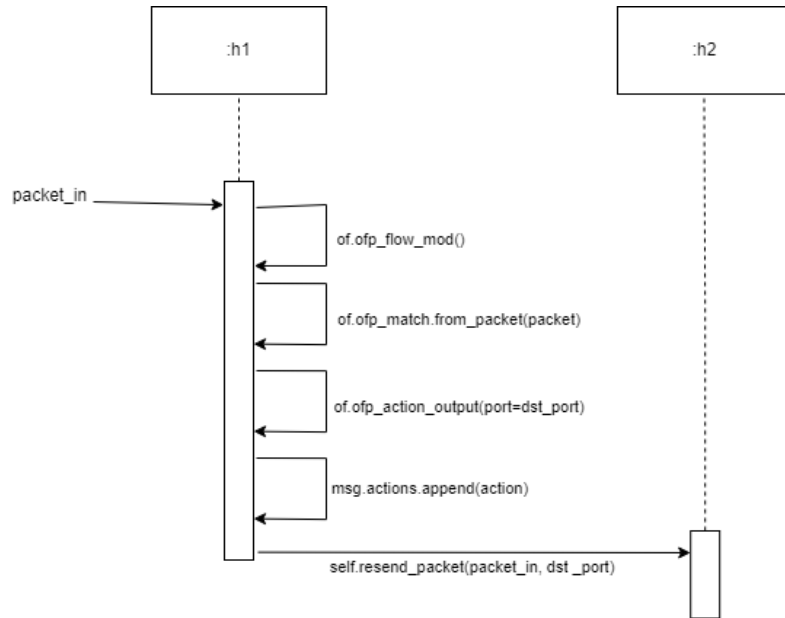
Figure 3: T2 Diagram

Figure 4: T4 Diagram

Appendix

A T2 h1-eth0

```
No.    Time           Source              Destination         Protocol
↪  Length Info
    1 0.000000000    10.0.0.1            10.0.0.2            ICMP     98
    ↪  Echo (ping) request  id=0x79cc, seq=1/256, ttl=64 (reply in 2)

Frame 1: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: ae:87:7b:17:1c:83 (ae:87:7b:17:1c:83), Dst: 52:cc:7c:5b:db:ea
↪  (52:cc:7c:5b:db:ea)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol


No.    Time           Source              Destination         Protocol
↪  Length Info
    2 0.039015448    10.0.0.2            10.0.0.1            ICMP     98
    ↪  Echo (ping) reply    id=0x79cc, seq=1/256, ttl=64 (request in 1)

Frame 2: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: 52:cc:7c:5b:db:ea (52:cc:7c:5b:db:ea), Dst: ae:87:7b:17:1c:83
↪  (ae:87:7b:17:1c:83)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol


No.    Time           Source              Destination         Protocol
↪  Length Info
    3 1.001655363    10.0.0.1            10.0.0.2            ICMP     98
    ↪  Echo (ping) request  id=0x79cc, seq=2/512, ttl=64 (reply in 4)

Frame 3: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: ae:87:7b:17:1c:83 (ae:87:7b:17:1c:83), Dst: 52:cc:7c:5b:db:ea
↪  (52:cc:7c:5b:db:ea)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol


No.    Time           Source              Destination         Protocol
↪  Length Info
    4 1.016019643    10.0.0.2            10.0.0.1            ICMP     98
    ↪  Echo (ping) reply    id=0x79cc, seq=2/512, ttl=64 (request in 3)

Frame 4: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: 52:cc:7c:5b:db:ea (52:cc:7c:5b:db:ea), Dst: ae:87:7b:17:1c:83
↪  (ae:87:7b:17:1c:83)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol


No.    Time           Source              Destination         Protocol
↪  Length Info
    5 2.003869892    10.0.0.1            10.0.0.2            ICMP     98
    ↪  Echo (ping) request  id=0x79cc, seq=3/768, ttl=64 (reply in 6)

Frame 5: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: ae:87:7b:17:1c:83 (ae:87:7b:17:1c:83), Dst: 52:cc:7c:5b:db:ea
↪  (52:cc:7c:5b:db:ea)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
```

Internet Control Message Protocol

```
No.    Time           Source                Destination           Protocol
↪  Length Info
     6 2.044023368    10.0.0.2              10.0.0.1              ICMP     98
     ↪  Echo (ping) reply    id=0x79cc, seq=3/768, ttl=64 (request in 5)
```

Frame 6: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: 52:cc:7c:5b:db:ea (52:cc:7c:5b:db:ea), Dst: ae:87:7b:17:1c:83
↪ (ae:87:7b:17:1c:83)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol

```
No.    Time           Source                Destination           Protocol
↪  Length Info
     7 3.005496772    10.0.0.1              10.0.0.2              ICMP     98
     ↪  Echo (ping) request  id=0x79cc, seq=4/1024, ttl=64 (reply in 8)
```

Frame 7: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: ae:87:7b:17:1c:83 (ae:87:7b:17:1c:83), Dst: 52:cc:7c:5b:db:ea
↪ (52:cc:7c:5b:db:ea)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol

```
No.    Time           Source                Destination           Protocol
↪  Length Info
     8 3.022169178    10.0.0.2              10.0.0.1              ICMP     98
     ↪  Echo (ping) reply    id=0x79cc, seq=4/1024, ttl=64 (request in 7)
```

Frame 8: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: 52:cc:7c:5b:db:ea (52:cc:7c:5b:db:ea), Dst: ae:87:7b:17:1c:83
↪ (ae:87:7b:17:1c:83)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol

```
No.    Time           Source                Destination           Protocol
↪  Length Info
     9 4.006829563    10.0.0.1              10.0.0.2              ICMP     98
     ↪  Echo (ping) request  id=0x79cc, seq=5/1280, ttl=64 (reply in 10)
```

Frame 9: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: ae:87:7b:17:1c:83 (ae:87:7b:17:1c:83), Dst: 52:cc:7c:5b:db:ea
↪ (52:cc:7c:5b:db:ea)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol

```
No.    Time           Source                Destination           Protocol
↪  Length Info
    10 4.051751174    10.0.0.2              10.0.0.1              ICMP     98
     ↪  Echo (ping) reply    id=0x79cc, seq=5/1280, ttl=64 (request in 9)
```

Frame 10: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪ 0
Ethernet II, Src: 52:cc:7c:5b:db:ea (52:cc:7c:5b:db:ea), Dst: ae:87:7b:17:1c:83
↪ (ae:87:7b:17:1c:83)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol

```
No.     Time            Source                  Destination             Protocol
↪  Length Info
    11 5.008197178    10.0.0.1                10.0.0.2                ICMP     98
    ↪  Echo (ping) request  id=0x79cc, seq=6/1536, ttl=64 (reply in 12)

Frame 11: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪  0
Ethernet II, Src: ae:87:7b:17:1c:83 (ae:87:7b:17:1c:83), Dst: 52:cc:7c:5b:db:ea
↪  (52:cc:7c:5b:db:ea)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol

No.     Time            Source                  Destination             Protocol
↪  Length Info
    12 5.029822055    10.0.0.2                10.0.0.1                ICMP     98
    ↪  Echo (ping) reply    id=0x79cc, seq=6/1536, ttl=64 (request in 11)

Frame 12: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪  0
Ethernet II, Src: 52:cc:7c:5b:db:ea (52:cc:7c:5b:db:ea), Dst: ae:87:7b:17:1c:83
↪  (ae:87:7b:17:1c:83)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol

No.     Time            Source                  Destination             Protocol
↪  Length Info
    13 6.010590440    10.0.0.1                10.0.0.2                ICMP     98
    ↪  Echo (ping) request  id=0x79cc, seq=7/1792, ttl=64 (reply in 14)

Frame 13: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪  0
Ethernet II, Src: ae:87:7b:17:1c:83 (ae:87:7b:17:1c:83), Dst: 52:cc:7c:5b:db:ea
↪  (52:cc:7c:5b:db:ea)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol

No.     Time            Source                  Destination             Protocol
↪  Length Info
    14 6.056609575    10.0.0.2                10.0.0.1                ICMP     98
    ↪  Echo (ping) reply    id=0x79cc, seq=7/1792, ttl=64 (request in 13)

Frame 14: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪  0
Ethernet II, Src: 52:cc:7c:5b:db:ea (52:cc:7c:5b:db:ea), Dst: ae:87:7b:17:1c:83
↪  (ae:87:7b:17:1c:83)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol

No.     Time            Source                  Destination             Protocol
↪  Length Info
    15 7.012097728    10.0.0.1                10.0.0.2                ICMP     98
    ↪  Echo (ping) request  id=0x79cc, seq=8/2048, ttl=64 (reply in 16)

Frame 15: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪  0
Ethernet II, Src: ae:87:7b:17:1c:83 (ae:87:7b:17:1c:83), Dst: 52:cc:7c:5b:db:ea
↪  (52:cc:7c:5b:db:ea)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
```

Internet Control Message Protocol

```
No.     Time            Source              Destination         Protocol
↪   Length Info
     16 7.033470173    10.0.0.2             10.0.0.1            ICMP       98
     ↪   Echo (ping) reply    id=0x79cc, seq=8/2048, ttl=64 (request in 15)
```

Frame 16: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪   0
Ethernet II, Src: 52:cc:7c:5b:db:ea (52:cc:7c:5b:db:ea), Dst: ae:87:7b:17:1c:83
↪   (ae:87:7b:17:1c:83)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol

```
No.     Time            Source              Destination         Protocol
↪   Length Info
     17 8.013762628    10.0.0.1             10.0.0.2            ICMP       98
     ↪   Echo (ping) request  id=0x79cc, seq=9/2304, ttl=64 (reply in 18)
```

Frame 17: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪   0
Ethernet II, Src: ae:87:7b:17:1c:83 (ae:87:7b:17:1c:83), Dst: 52:cc:7c:5b:db:ea
↪   (52:cc:7c:5b:db:ea)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol

```
No.     Time            Source              Destination         Protocol
↪   Length Info
     18 8.061189685    10.0.0.2             10.0.0.1            ICMP       98
     ↪   Echo (ping) reply    id=0x79cc, seq=9/2304, ttl=64 (request in 17)
```

Frame 18: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪   0
Ethernet II, Src: 52:cc:7c:5b:db:ea (52:cc:7c:5b:db:ea), Dst: ae:87:7b:17:1c:83
↪   (ae:87:7b:17:1c:83)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol

```
No.     Time            Source              Destination         Protocol
↪   Length Info
     19 9.015152215    10.0.0.1             10.0.0.2            ICMP       98
     ↪   Echo (ping) request  id=0x79cc, seq=10/2560, ttl=64 (reply in 20)
```

Frame 19: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪   0
Ethernet II, Src: ae:87:7b:17:1c:83 (ae:87:7b:17:1c:83), Dst: 52:cc:7c:5b:db:ea
↪   (52:cc:7c:5b:db:ea)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol

```
No.     Time            Source              Destination         Protocol
↪   Length Info
     20 9.038478454    10.0.0.2             10.0.0.1            ICMP       98
     ↪   Echo (ping) reply    id=0x79cc, seq=10/2560, ttl=64 (request in 19)
```

Frame 20: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪   0

```
Ethernet II, Src: 52:cc:7c:5b:db:ea (52:cc:7c:5b:db:ea), Dst: ae:87:7b:17:1c:83
↪  (ae:87:7b:17:1c:83)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol
```

B T2 h2-eth0

```
No.    Time            Source                Destination          Protocol
↪  Length Info
     1 0.000000000    10.0.0.1              10.0.0.2             ICMP     98
     ↪  Echo (ping) request  id=0x79cc, seq=1/256, ttl=64 (reply in 2)

Frame 1: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: ae:87:7b:17:1c:83 (ae:87:7b:17:1c:83), Dst: 52:cc:7c:5b:db:ea
↪  (52:cc:7c:5b:db:ea)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol


No.    Time            Source                Destination          Protocol
↪  Length Info
     2 0.039015448    10.0.0.2              10.0.0.1             ICMP     98
     ↪  Echo (ping) reply    id=0x79cc, seq=1/256, ttl=64 (request in 1)

Frame 2: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: 52:cc:7c:5b:db:ea (52:cc:7c:5b:db:ea), Dst: ae:87:7b:17:1c:83
↪  (ae:87:7b:17:1c:83)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol


No.    Time            Source                Destination          Protocol
↪  Length Info
     3 1.001655363    10.0.0.1              10.0.0.2             ICMP     98
     ↪  Echo (ping) request  id=0x79cc, seq=2/512, ttl=64 (reply in 4)

Frame 3: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: ae:87:7b:17:1c:83 (ae:87:7b:17:1c:83), Dst: 52:cc:7c:5b:db:ea
↪  (52:cc:7c:5b:db:ea)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol


No.    Time            Source                Destination          Protocol
↪  Length Info
     4 1.016019643    10.0.0.2              10.0.0.1             ICMP     98
     ↪  Echo (ping) reply    id=0x79cc, seq=2/512, ttl=64 (request in 3)

Frame 4: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: 52:cc:7c:5b:db:ea (52:cc:7c:5b:db:ea), Dst: ae:87:7b:17:1c:83
↪  (ae:87:7b:17:1c:83)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol


No.    Time            Source                Destination          Protocol
↪  Length Info
     5 2.003869892    10.0.0.1              10.0.0.2             ICMP     98
     ↪  Echo (ping) request  id=0x79cc, seq=3/768, ttl=64 (reply in 6)

Frame 5: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
```

```
Ethernet II, Src: ae:87:7b:17:1c:83 (ae:87:7b:17:1c:83), Dst: 52:cc:7c:5b:db:ea
↪  (52:cc:7c:5b:db:ea)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol


No.     Time            Source                Destination           Protocol
↪  Length Info
      6 2.044023368    10.0.0.2              10.0.0.1              ICMP     98
       ↪  Echo (ping) reply    id=0x79cc, seq=3/768, ttl=64 (request in 5)


Frame 6: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: 52:cc:7c:5b:db:ea (52:cc:7c:5b:db:ea), Dst: ae:87:7b:17:1c:83
↪  (ae:87:7b:17:1c:83)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol


No.     Time            Source                Destination           Protocol
↪  Length Info
      7 3.005496772    10.0.0.1              10.0.0.2              ICMP     98
       ↪  Echo (ping) request  id=0x79cc, seq=4/1024, ttl=64 (reply in 8)


Frame 7: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: ae:87:7b:17:1c:83 (ae:87:7b:17:1c:83), Dst: 52:cc:7c:5b:db:ea
↪  (52:cc:7c:5b:db:ea)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol


No.     Time            Source                Destination           Protocol
↪  Length Info
      8 3.022169178    10.0.0.2              10.0.0.1              ICMP     98
       ↪  Echo (ping) reply    id=0x79cc, seq=4/1024, ttl=64 (request in 7)


Frame 8: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: 52:cc:7c:5b:db:ea (52:cc:7c:5b:db:ea), Dst: ae:87:7b:17:1c:83
↪  (ae:87:7b:17:1c:83)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol


No.     Time            Source                Destination           Protocol
↪  Length Info
      9 4.006829563    10.0.0.1              10.0.0.2              ICMP     98
       ↪  Echo (ping) request  id=0x79cc, seq=5/1280, ttl=64 (reply in 10)


Frame 9: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: ae:87:7b:17:1c:83 (ae:87:7b:17:1c:83), Dst: 52:cc:7c:5b:db:ea
↪  (52:cc:7c:5b:db:ea)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol

No.     Time            Source                Destination           Protocol
↪  Length Info
     10 4.051751174    10.0.0.2              10.0.0.1              ICMP     98
       ↪  Echo (ping) reply    id=0x79cc, seq=5/1280, ttl=64 (request in 9)


Frame 10: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪  0
Ethernet II, Src: 52:cc:7c:5b:db:ea (52:cc:7c:5b:db:ea), Dst: ae:87:7b:17:1c:83
↪  (ae:87:7b:17:1c:83)
```

```
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol

No.    Time          Source              Destination         Protocol
↪  Length Info
    11 5.008197178   10.0.0.1            10.0.0.2            ICMP    98
    ↪  Echo (ping) request  id=0x79cc, seq=6/1536, ttl=64 (reply in 12)

Frame 11: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪  0
Ethernet II, Src: ae:87:7b:17:1c:83 (ae:87:7b:17:1c:83), Dst: 52:cc:7c:5b:db:ea
↪  (52:cc:7c:5b:db:ea)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol

No.    Time          Source              Destination         Protocol
↪  Length Info
    12 5.029822055   10.0.0.2            10.0.0.1            ICMP    98
    ↪  Echo (ping) reply    id=0x79cc, seq=6/1536, ttl=64 (request in 11)

Frame 12: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪  0
Ethernet II, Src: 52:cc:7c:5b:db:ea (52:cc:7c:5b:db:ea), Dst: ae:87:7b:17:1c:83
↪  (ae:87:7b:17:1c:83)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol

No.    Time          Source              Destination         Protocol
↪  Length Info
    13 6.010590440   10.0.0.1            10.0.0.2            ICMP    98
    ↪  Echo (ping) request  id=0x79cc, seq=7/1792, ttl=64 (reply in 14)

Frame 13: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪  0
Ethernet II, Src: ae:87:7b:17:1c:83 (ae:87:7b:17:1c:83), Dst: 52:cc:7c:5b:db:ea
↪  (52:cc:7c:5b:db:ea)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol

No.    Time          Source              Destination         Protocol
↪  Length Info
    14 6.056609575   10.0.0.2            10.0.0.1            ICMP    98
    ↪  Echo (ping) reply    id=0x79cc, seq=7/1792, ttl=64 (request in 13)

Frame 14: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪  0
Ethernet II, Src: 52:cc:7c:5b:db:ea (52:cc:7c:5b:db:ea), Dst: ae:87:7b:17:1c:83
↪  (ae:87:7b:17:1c:83)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol

No.    Time          Source              Destination         Protocol
↪  Length Info
    15 7.012097728   10.0.0.1            10.0.0.2            ICMP    98
    ↪  Echo (ping) request  id=0x79cc, seq=8/2048, ttl=64 (reply in 16)

Frame 15: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪  0
```

```
Ethernet II, Src: ae:87:7b:17:1c:83 (ae:87:7b:17:1c:83), Dst: 52:cc:7c:5b:db:ea
↪  (52:cc:7c:5b:db:ea)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol

No.    Time           Source                Destination          Protocol
↪  Length Info
    16 7.033470173    10.0.0.2              10.0.0.1             ICMP     98
    ↪  Echo (ping) reply    id=0x79cc, seq=8/2048, ttl=64 (request in 15)

Frame 16: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪  0
Ethernet II, Src: 52:cc:7c:5b:db:ea (52:cc:7c:5b:db:ea), Dst: ae:87:7b:17:1c:83
↪  (ae:87:7b:17:1c:83)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol

No.    Time           Source                Destination          Protocol
↪  Length Info
    17 8.013762628    10.0.0.1              10.0.0.2             ICMP     98
    ↪  Echo (ping) request  id=0x79cc, seq=9/2304, ttl=64 (reply in 18)

Frame 17: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪  0
Ethernet II, Src: ae:87:7b:17:1c:83 (ae:87:7b:17:1c:83), Dst: 52:cc:7c:5b:db:ea
↪  (52:cc:7c:5b:db:ea)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol

No.    Time           Source                Destination          Protocol
↪  Length Info
    18 8.061189685    10.0.0.2              10.0.0.1             ICMP     98
    ↪  Echo (ping) reply    id=0x79cc, seq=9/2304, ttl=64 (request in 17)

Frame 18: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪  0
Ethernet II, Src: 52:cc:7c:5b:db:ea (52:cc:7c:5b:db:ea), Dst: ae:87:7b:17:1c:83
↪  (ae:87:7b:17:1c:83)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol

No.    Time           Source                Destination          Protocol
↪  Length Info
    19 9.015152215    10.0.0.1              10.0.0.2             ICMP     98
    ↪  Echo (ping) request  id=0x79cc, seq=10/2560, ttl=64 (reply in 20)

Frame 19: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪  0
Ethernet II, Src: ae:87:7b:17:1c:83 (ae:87:7b:17:1c:83), Dst: 52:cc:7c:5b:db:ea
↪  (52:cc:7c:5b:db:ea)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol

No.    Time           Source                Destination          Protocol
↪  Length Info
    20 9.038478454    10.0.0.2              10.0.0.1             ICMP     98
    ↪  Echo (ping) reply    id=0x79cc, seq=10/2560, ttl=64 (request in 19)
```

```
Frame 20: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪   0
Ethernet II, Src: 52:cc:7c:5b:db:ea (52:cc:7c:5b:db:ea), Dst: ae:87:7b:17:1c:83
↪   (ae:87:7b:17:1c:83)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol
root@ac678ab07346:/home# cat h2-eth0.txt
No.     Time            Source                Destination           Protocol
↪   Length Info
       1 0.000000000    10.0.0.1              10.0.0.2              ICMP     98
       ↪   Echo (ping) request  id=0x79cc, seq=1/256, ttl=64 (reply in 2)

Frame 1: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: ae:87:7b:17:1c:83 (ae:87:7b:17:1c:83), Dst: 52:cc:7c:5b:db:ea
↪   (52:cc:7c:5b:db:ea)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol

No.     Time            Source                Destination           Protocol
↪   Length Info
       2 0.000056436    10.0.0.2              10.0.0.1              ICMP     98
       ↪   Echo (ping) reply    id=0x79cc, seq=1/256, ttl=64 (request in 1)

Frame 2: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: 52:cc:7c:5b:db:ea (52:cc:7c:5b:db:ea), Dst: ae:87:7b:17:1c:83
↪   (ae:87:7b:17:1c:83)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol

No.     Time            Source                Destination           Protocol
↪   Length Info
       3 0.976819852    10.0.0.1              10.0.0.2              ICMP     98
       ↪   Echo (ping) request  id=0x79cc, seq=2/512, ttl=64 (reply in 4)

Frame 3: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: ae:87:7b:17:1c:83 (ae:87:7b:17:1c:83), Dst: 52:cc:7c:5b:db:ea
↪   (52:cc:7c:5b:db:ea)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol

No.     Time            Source                Destination           Protocol
↪   Length Info
       4 0.976867310    10.0.0.2              10.0.0.1              ICMP     98
       ↪   Echo (ping) reply    id=0x79cc, seq=2/512, ttl=64 (request in 3)

Frame 4: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: 52:cc:7c:5b:db:ea (52:cc:7c:5b:db:ea), Dst: ae:87:7b:17:1c:83
↪   (ae:87:7b:17:1c:83)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol

No.     Time            Source                Destination           Protocol
↪   Length Info
       5 2.004819679    10.0.0.1              10.0.0.2              ICMP     98
       ↪   Echo (ping) request  id=0x79cc, seq=3/768, ttl=64 (reply in 6)

Frame 5: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
```

```
Ethernet II, Src: ae:87:7b:17:1c:83 (ae:87:7b:17:1c:83), Dst: 52:cc:7c:5b:db:ea
↪  (52:cc:7c:5b:db:ea)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol


No.    Time            Source                Destination           Protocol
↪  Length Info
     6 2.004894609    10.0.0.2              10.0.0.1              ICMP    98
      ↪  Echo (ping) reply    id=0x79cc, seq=3/768, ttl=64 (request in 5)


Frame 6: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: 52:cc:7c:5b:db:ea (52:cc:7c:5b:db:ea), Dst: ae:87:7b:17:1c:83
↪  (ae:87:7b:17:1c:83)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol


No.    Time            Source                Destination           Protocol
↪  Length Info
     7 2.983164671    10.0.0.1              10.0.0.2              ICMP    98
      ↪  Echo (ping) request  id=0x79cc, seq=4/1024, ttl=64 (reply in 8)


Frame 7: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: ae:87:7b:17:1c:83 (ae:87:7b:17:1c:83), Dst: 52:cc:7c:5b:db:ea
↪  (52:cc:7c:5b:db:ea)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol


No.    Time            Source                Destination           Protocol
↪  Length Info
     8 2.983199096    10.0.0.2              10.0.0.1              ICMP    98
      ↪  Echo (ping) reply    id=0x79cc, seq=4/1024, ttl=64 (request in 7)


Frame 8: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: 52:cc:7c:5b:db:ea (52:cc:7c:5b:db:ea), Dst: ae:87:7b:17:1c:83
↪  (ae:87:7b:17:1c:83)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol


No.    Time            Source                Destination           Protocol
↪  Length Info
     9 4.011969794    10.0.0.1              10.0.0.2              ICMP    98
      ↪  Echo (ping) request  id=0x79cc, seq=5/1280, ttl=64 (reply in 10)


Frame 9: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: ae:87:7b:17:1c:83 (ae:87:7b:17:1c:83), Dst: 52:cc:7c:5b:db:ea
↪  (52:cc:7c:5b:db:ea)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol


No.    Time            Source                Destination           Protocol
↪  Length Info
    10 4.011997025    10.0.0.2              10.0.0.1              ICMP    98
      ↪  Echo (ping) reply    id=0x79cc, seq=5/1280, ttl=64 (request in 9)


Frame 10: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪  0
Ethernet II, Src: 52:cc:7c:5b:db:ea (52:cc:7c:5b:db:ea), Dst: ae:87:7b:17:1c:83
↪  (ae:87:7b:17:1c:83)
```

```
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol

No.     Time            Source              Destination          Protocol
↪  Length Info
    11 4.990598538    10.0.0.1            10.0.0.2             ICMP      98
    ↪  Echo (ping) request  id=0x79cc, seq=6/1536, ttl=64 (reply in 12)


Frame 11: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪  0
Ethernet II, Src: ae:87:7b:17:1c:83 (ae:87:7b:17:1c:83), Dst: 52:cc:7c:5b:db:ea
↪  (52:cc:7c:5b:db:ea)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol

No.     Time            Source              Destination          Protocol
↪  Length Info
    12 4.990631359    10.0.0.2            10.0.0.1             ICMP      98
    ↪  Echo (ping) reply    id=0x79cc, seq=6/1536, ttl=64 (request in 11)


Frame 12: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪  0
Ethernet II, Src: 52:cc:7c:5b:db:ea (52:cc:7c:5b:db:ea), Dst: ae:87:7b:17:1c:83
↪  (ae:87:7b:17:1c:83)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol

No.     Time            Source              Destination          Protocol
↪  Length Info
    13 6.017461519    10.0.0.1            10.0.0.2             ICMP      98
    ↪  Echo (ping) request  id=0x79cc, seq=7/1792, ttl=64 (reply in 14)


Frame 13: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪  0
Ethernet II, Src: ae:87:7b:17:1c:83 (ae:87:7b:17:1c:83), Dst: 52:cc:7c:5b:db:ea
↪  (52:cc:7c:5b:db:ea)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol

No.     Time            Source              Destination          Protocol
↪  Length Info
    14 6.017495122    10.0.0.2            10.0.0.1             ICMP      98
    ↪  Echo (ping) reply    id=0x79cc, seq=7/1792, ttl=64 (request in 13)


Frame 14: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪  0
Ethernet II, Src: 52:cc:7c:5b:db:ea (52:cc:7c:5b:db:ea), Dst: ae:87:7b:17:1c:83
↪  (ae:87:7b:17:1c:83)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol

No.     Time            Source              Destination          Protocol
↪  Length Info
    15 6.994228333    10.0.0.1            10.0.0.2             ICMP      98
    ↪  Echo (ping) request  id=0x79cc, seq=8/2048, ttl=64 (reply in 16)


Frame 15: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪  0
```

```
Ethernet II, Src: ae:87:7b:17:1c:83 (ae:87:7b:17:1c:83), Dst: 52:cc:7c:5b:db:ea
↪   (52:cc:7c:5b:db:ea)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol

No.     Time            Source                Destination          Protocol
↪   Length Info
     16 6.994268688     10.0.0.2              10.0.0.1             ICMP      98
     ↪   Echo (ping) reply    id=0x79cc, seq=8/2048, ttl=64 (request in 15)

Frame 16: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪   0
Ethernet II, Src: 52:cc:7c:5b:db:ea (52:cc:7c:5b:db:ea), Dst: ae:87:7b:17:1c:83
↪   (ae:87:7b:17:1c:83)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol

No.     Time            Source                Destination          Protocol
↪   Length Info
     17 8.021898332     10.0.0.1              10.0.0.2             ICMP      98
     ↪   Echo (ping) request  id=0x79cc, seq=9/2304, ttl=64 (reply in 18)

Frame 17: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪   0
Ethernet II, Src: ae:87:7b:17:1c:83 (ae:87:7b:17:1c:83), Dst: 52:cc:7c:5b:db:ea
↪   (52:cc:7c:5b:db:ea)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol

No.     Time            Source                Destination          Protocol
↪   Length Info
     18 8.021923399     10.0.0.2              10.0.0.1             ICMP      98
     ↪   Echo (ping) reply    id=0x79cc, seq=9/2304, ttl=64 (request in 17)

Frame 18: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪   0
Ethernet II, Src: 52:cc:7c:5b:db:ea (52:cc:7c:5b:db:ea), Dst: ae:87:7b:17:1c:83
↪   (ae:87:7b:17:1c:83)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol

No.     Time            Source                Destination          Protocol
↪   Length Info
     19 8.999129844     10.0.0.1              10.0.0.2             ICMP      98
     ↪   Echo (ping) request  id=0x79cc, seq=10/2560, ttl=64 (reply in 20)

Frame 19: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪   0
Ethernet II, Src: ae:87:7b:17:1c:83 (ae:87:7b:17:1c:83), Dst: 52:cc:7c:5b:db:ea
↪   (52:cc:7c:5b:db:ea)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol

No.     Time            Source                Destination          Protocol
↪   Length Info
     20 8.999159950     10.0.0.2              10.0.0.1             ICMP      98
     ↪   Echo (ping) reply    id=0x79cc, seq=10/2560, ttl=64 (request in 19)
```

```
Frame 20: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
→  0
Ethernet II, Src: 52:cc:7c:5b:db:ea (52:cc:7c:5b:db:ea), Dst: ae:87:7b:17:1c:83
→  (ae:87:7b:17:1c:83)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol
```

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No.    Time            Source               Destination          Protocol
→  Length Info
     1 0.000000000    10.0.0.1             10.0.0.2             ICMP      98
       →  Echo (ping) request  id=0x01e4, seq=1/256, ttl=64 (no response found!)

Frame 1: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: 12:93:f1:72:e5:a0 (12:93:f1:72:e5:a0), Dst: 2e:89:5c:6c:32:51
→  (2e:89:5c:6c:32:51)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol


No.    Time            Source               Destination          Protocol
→  Length Info
     2 1.020458985    10.0.0.1             10.0.0.2             ICMP      98
       →  Echo (ping) request  id=0x01e4, seq=2/512, ttl=64 (no response found!)

Frame 2: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: 12:93:f1:72:e5:a0 (12:93:f1:72:e5:a0), Dst: 2e:89:5c:6c:32:51
→  (2e:89:5c:6c:32:51)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol


No.    Time            Source               Destination          Protocol
→  Length Info
     3 2.041329997    10.0.0.1             10.0.0.2             ICMP      98
       →  Echo (ping) request  id=0x01e4, seq=3/768, ttl=64 (reply in 4)

Frame 3: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: 12:93:f1:72:e5:a0 (12:93:f1:72:e5:a0), Dst: 2e:89:5c:6c:32:51
→  (2e:89:5c:6c:32:51)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol


No.    Time            Source               Destination          Protocol
→  Length Info
     4 2.042020411    10.0.0.2             10.0.0.1             ICMP      98
       →  Echo (ping) reply    id=0x01e4, seq=3/768, ttl=64 (request in 3)

Frame 4: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: 2e:89:5c:6c:32:51 (2e:89:5c:6c:32:51), Dst: 12:93:f1:72:e5:a0
→  (12:93:f1:72:e5:a0)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol


No.    Time            Source               Destination          Protocol
→  Length Info
     5 3.065337537    10.0.0.1             10.0.0.2             ICMP      98
       →  Echo (ping) request  id=0x01e4, seq=4/1024, ttl=64 (reply in 6)
```

```
Frame 5: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: 12:93:f1:72:e5:a0 (12:93:f1:72:e5:a0), Dst: 2e:89:5c:6c:32:51
↪   (2e:89:5c:6c:32:51)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol

No.    Time            Source                Destination         Protocol
↪  Length Info
     6 3.065385698    10.0.0.2              10.0.0.1            ICMP    98
       ↪  Echo (ping) reply    id=0x01e4, seq=4/1024, ttl=64 (request in 5)

Frame 6: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: 2e:89:5c:6c:32:51 (2e:89:5c:6c:32:51), Dst: 12:93:f1:72:e5:a0
↪   (12:93:f1:72:e5:a0)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol

No.    Time            Source                Destination         Protocol
↪  Length Info
     7 4.089111961    10.0.0.1              10.0.0.2            ICMP    98
       ↪  Echo (ping) request  id=0x01e4, seq=5/1280, ttl=64 (reply in 8)

Frame 7: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: 12:93:f1:72:e5:a0 (12:93:f1:72:e5:a0), Dst: 2e:89:5c:6c:32:51
↪   (2e:89:5c:6c:32:51)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol

No.    Time            Source                Destination         Protocol
↪  Length Info
     8 4.089149041    10.0.0.2              10.0.0.1            ICMP    98
       ↪  Echo (ping) reply    id=0x01e4, seq=5/1280, ttl=64 (request in 7)

Frame 8: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: 2e:89:5c:6c:32:51 (2e:89:5c:6c:32:51), Dst: 12:93:f1:72:e5:a0
↪   (12:93:f1:72:e5:a0)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol

No.    Time            Source                Destination         Protocol
↪  Length Info
     9 5.113446240    10.0.0.1              10.0.0.2            ICMP    98
       ↪  Echo (ping) request  id=0x01e4, seq=6/1536, ttl=64 (reply in 10)

Frame 9: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: 12:93:f1:72:e5:a0 (12:93:f1:72:e5:a0), Dst: 2e:89:5c:6c:32:51
↪   (2e:89:5c:6c:32:51)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol

No.    Time            Source                Destination         Protocol
↪  Length Info
    10 5.113491976    10.0.0.2              10.0.0.1            ICMP    98
       ↪  Echo (ping) reply    id=0x01e4, seq=6/1536, ttl=64 (request in 9)

Frame 10: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪   0
```

```
Ethernet II, Src: 2e:89:5c:6c:32:51 (2e:89:5c:6c:32:51), Dst: 12:93:f1:72:e5:a0
↪   (12:93:f1:72:e5:a0)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol

No.     Time            Source                Destination           Protocol
↪   Length Info
    11 6.139735702    10.0.0.1              10.0.0.2              ICMP      98
    ↪   Echo (ping) request  id=0x01e4, seq=7/1792, ttl=64 (reply in 12)

Frame 11: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪   0
Ethernet II, Src: 12:93:f1:72:e5:a0 (12:93:f1:72:e5:a0), Dst: 2e:89:5c:6c:32:51
↪   (2e:89:5c:6c:32:51)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol

No.     Time            Source                Destination           Protocol
↪   Length Info
    12 6.139789744    10.0.0.2              10.0.0.1              ICMP      98
    ↪   Echo (ping) reply    id=0x01e4, seq=7/1792, ttl=64 (request in 11)

Frame 12: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪   0
Ethernet II, Src: 2e:89:5c:6c:32:51 (2e:89:5c:6c:32:51), Dst: 12:93:f1:72:e5:a0
↪   (12:93:f1:72:e5:a0)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol

No.     Time            Source                Destination           Protocol
↪   Length Info
    13 7.163120095    10.0.0.1              10.0.0.2              ICMP      98
    ↪   Echo (ping) request  id=0x01e4, seq=8/2048, ttl=64 (reply in 14)

Frame 13: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪   0
Ethernet II, Src: 12:93:f1:72:e5:a0 (12:93:f1:72:e5:a0), Dst: 2e:89:5c:6c:32:51
↪   (2e:89:5c:6c:32:51)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol

No.     Time            Source                Destination           Protocol
↪   Length Info
    14 7.163164729    10.0.0.2              10.0.0.1              ICMP      98
    ↪   Echo (ping) reply    id=0x01e4, seq=8/2048, ttl=64 (request in 13)

Frame 14: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪   0
Ethernet II, Src: 2e:89:5c:6c:32:51 (2e:89:5c:6c:32:51), Dst: 12:93:f1:72:e5:a0
↪   (12:93:f1:72:e5:a0)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol

No.     Time            Source                Destination           Protocol
↪   Length Info
    15 8.184907435    10.0.0.1              10.0.0.2              ICMP      98
    ↪   Echo (ping) request  id=0x01e4, seq=9/2304, ttl=64 (reply in 16)
```

```
Frame 15: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪   0
Ethernet II, Src: 12:93:f1:72:e5:a0 (12:93:f1:72:e5:a0), Dst: 2e:89:5c:6c:32:51
↪   (2e:89:5c:6c:32:51)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol


No.     Time            Source                Destination            Protocol
↪   Length Info
     16 8.184967046     10.0.0.2              10.0.0.1               ICMP      98
     ↪   Echo (ping) reply    id=0x01e4, seq=9/2304, ttl=64 (request in 15)


Frame 16: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪   0
Ethernet II, Src: 2e:89:5c:6c:32:51 (2e:89:5c:6c:32:51), Dst: 12:93:f1:72:e5:a0
↪   (12:93:f1:72:e5:a0)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol


No.     Time            Source                Destination            Protocol
↪   Length Info
     17 9.211755349     10.0.0.1              10.0.0.2               ICMP      98
     ↪   Echo (ping) request  id=0x01e4, seq=10/2560, ttl=64 (reply in 18)


Frame 17: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪   0
Ethernet II, Src: 12:93:f1:72:e5:a0 (12:93:f1:72:e5:a0), Dst: 2e:89:5c:6c:32:51
↪   (2e:89:5c:6c:32:51)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol


No.     Time            Source                Destination            Protocol
↪   Length Info
     18 9.211823717     10.0.0.2              10.0.0.1               ICMP      98
     ↪   Echo (ping) reply    id=0x01e4, seq=10/2560, ttl=64 (request in 17)


Frame 18: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
↪   0
Ethernet II, Src: 2e:89:5c:6c:32:51 (2e:89:5c:6c:32:51), Dst: 12:93:f1:72:e5:a0
↪   (12:93:f1:72:e5:a0)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol
```

D T4 h2-eth0

```
No.     Time            Source                Destination            Protocol
↪   Length Info
      1 0.000000000     10.0.0.1              10.0.0.2               ICMP      98
      ↪   Echo (ping) request  id=0x01e4, seq=1/256, ttl=64 (reply in 2)


Frame 1: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: 12:93:f1:72:e5:a0 (12:93:f1:72:e5:a0), Dst: 2e:89:5c:6c:32:51
↪   (2e:89:5c:6c:32:51)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol
```

```
No.     Time            Source                  Destination             Protocol
→   Length Info
    2 0.000064280    10.0.0.2                10.0.0.1                ICMP      98
    →   Echo (ping) reply    id=0x01e4, seq=1/256, ttl=64 (request in 1)

Frame 2: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: 2e:89:5c:6c:32:51 (2e:89:5c:6c:32:51), Dst: 12:93:f1:72:e5:a0
→   (12:93:f1:72:e5:a0)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol

No.     Time            Source                  Destination             Protocol
→   Length Info
    3 2.021983469    10.0.0.1                10.0.0.2                ICMP      98
    →   Echo (ping) request  id=0x01e4, seq=3/768, ttl=64 (reply in 4)

Frame 3: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: 12:93:f1:72:e5:a0 (12:93:f1:72:e5:a0), Dst: 2e:89:5c:6c:32:51
→   (2e:89:5c:6c:32:51)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol

No.     Time            Source                  Destination             Protocol
→   Length Info
    4 2.022033042    10.0.0.2                10.0.0.1                ICMP      98
    →   Echo (ping) reply    id=0x01e4, seq=3/768, ttl=64 (request in 3)

Frame 4: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: 2e:89:5c:6c:32:51 (2e:89:5c:6c:32:51), Dst: 12:93:f1:72:e5:a0
→   (12:93:f1:72:e5:a0)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol

No.     Time            Source                  Destination             Protocol
→   Length Info
    5 3.045523203    10.0.0.1                10.0.0.2                ICMP      98
    →   Echo (ping) request  id=0x01e4, seq=4/1024, ttl=64 (reply in 6)

Frame 5: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: 12:93:f1:72:e5:a0 (12:93:f1:72:e5:a0), Dst: 2e:89:5c:6c:32:51
→   (2e:89:5c:6c:32:51)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol

No.     Time            Source                  Destination             Protocol
→   Length Info
    6 3.045547148    10.0.0.2                10.0.0.1                ICMP      98
    →   Echo (ping) reply    id=0x01e4, seq=4/1024, ttl=64 (request in 5)

Frame 6: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: 2e:89:5c:6c:32:51 (2e:89:5c:6c:32:51), Dst: 12:93:f1:72:e5:a0
→   (12:93:f1:72:e5:a0)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol

No.     Time            Source                  Destination             Protocol
→   Length Info
```

```
     7 4.069293980    10.0.0.1                10.0.0.2                ICMP    98
     →  Echo (ping) request  id=0x01e4, seq=5/1280, ttl=64 (reply in 8)


Frame 7: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: 12:93:f1:72:e5:a0 (12:93:f1:72:e5:a0), Dst: 2e:89:5c:6c:32:51
 →  (2e:89:5c:6c:32:51)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol


No.    Time           Source               Destination          Protocol
 →  Length Info
     8 4.069311994    10.0.0.2                10.0.0.1                ICMP    98
     →  Echo (ping) reply    id=0x01e4, seq=5/1280, ttl=64 (request in 7)


Frame 8: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: 2e:89:5c:6c:32:51 (2e:89:5c:6c:32:51), Dst: 12:93:f1:72:e5:a0
 →  (12:93:f1:72:e5:a0)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol


No.    Time           Source               Destination          Protocol
 →  Length Info
     9 5.093631565    10.0.0.1                10.0.0.2                ICMP    98
     →  Echo (ping) request  id=0x01e4, seq=6/1536, ttl=64 (reply in 10)


Frame 9: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface 0
Ethernet II, Src: 12:93:f1:72:e5:a0 (12:93:f1:72:e5:a0), Dst: 2e:89:5c:6c:32:51
 →  (2e:89:5c:6c:32:51)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol


No.    Time           Source               Destination          Protocol
 →  Length Info
    10 5.093653396    10.0.0.2                10.0.0.1                ICMP    98
     →  Echo (ping) reply    id=0x01e4, seq=6/1536, ttl=64 (request in 9)


Frame 10: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
 →  0
Ethernet II, Src: 2e:89:5c:6c:32:51 (2e:89:5c:6c:32:51), Dst: 12:93:f1:72:e5:a0
 →  (12:93:f1:72:e5:a0)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol


No.    Time           Source               Destination          Protocol
 →  Length Info
    11 6.119923813    10.0.0.1                10.0.0.2                ICMP    98
     →  Echo (ping) request  id=0x01e4, seq=7/1792, ttl=64 (reply in 12)


Frame 11: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
 →  0
Ethernet II, Src: 12:93:f1:72:e5:a0 (12:93:f1:72:e5:a0), Dst: 2e:89:5c:6c:32:51
 →  (2e:89:5c:6c:32:51)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol


No.    Time           Source               Destination          Protocol
 →  Length Info
```

```
    12 6.119951585    10.0.0.2                  10.0.0.1                  ICMP    98
     ↪ Echo (ping) reply    id=0x01e4, seq=7/1792, ttl=64 (request in 11)

Frame 12: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
 ↪  0
Ethernet II, Src: 2e:89:5c:6c:32:51 (2e:89:5c:6c:32:51), Dst: 12:93:f1:72:e5:a0
 ↪  (12:93:f1:72:e5:a0)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol


No.    Time            Source              Destination          Protocol
 ↪  Length Info
    13 7.143304569    10.0.0.1                  10.0.0.2                  ICMP    98
     ↪ Echo (ping) request  id=0x01e4, seq=8/2048, ttl=64 (reply in 14)

Frame 13: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
 ↪  0
Ethernet II, Src: 12:93:f1:72:e5:a0 (12:93:f1:72:e5:a0), Dst: 2e:89:5c:6c:32:51
 ↪  (2e:89:5c:6c:32:51)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol


No.    Time            Source              Destination          Protocol
 ↪  Length Info
    14 7.143326330    10.0.0.2                  10.0.0.1                  ICMP    98
     ↪ Echo (ping) reply    id=0x01e4, seq=8/2048, ttl=64 (request in 13)

Frame 14: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
 ↪  0
Ethernet II, Src: 2e:89:5c:6c:32:51 (2e:89:5c:6c:32:51), Dst: 12:93:f1:72:e5:a0
 ↪  (12:93:f1:72:e5:a0)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol


No.    Time            Source              Destination          Protocol
 ↪  Length Info
    15 8.165100875    10.0.0.1                  10.0.0.2                  ICMP    98
     ↪ Echo (ping) request  id=0x01e4, seq=9/2304, ttl=64 (reply in 16)

Frame 15: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
 ↪  0
Ethernet II, Src: 12:93:f1:72:e5:a0 (12:93:f1:72:e5:a0), Dst: 2e:89:5c:6c:32:51
 ↪  (2e:89:5c:6c:32:51)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol


No.    Time            Source              Destination          Protocol
 ↪  Length Info
    16 8.165127515    10.0.0.2                  10.0.0.1                  ICMP    98
     ↪ Echo (ping) reply    id=0x01e4, seq=9/2304, ttl=64 (request in 15)

Frame 16: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
 ↪  0
Ethernet II, Src: 2e:89:5c:6c:32:51 (2e:89:5c:6c:32:51), Dst: 12:93:f1:72:e5:a0
 ↪  (12:93:f1:72:e5:a0)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol
```

```
No.     Time            Source                  Destination           Protocol
→   Length Info
    17 9.191940404    10.0.0.1                10.0.0.2              ICMP     98
    →   Echo (ping) request  id=0x01e4, seq=10/2560, ttl=64 (reply in 18)

Frame 17: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
→   0
Ethernet II, Src: 12:93:f1:72:e5:a0 (12:93:f1:72:e5:a0), Dst: 2e:89:5c:6c:32:51
→   (2e:89:5c:6c:32:51)
Internet Protocol Version 4, Src: 10.0.0.1, Dst: 10.0.0.2
Internet Control Message Protocol

No.     Time            Source                  Destination           Protocol
→   Length Info
    18 9.191983966    10.0.0.2                10.0.0.1              ICMP     98
    →   Echo (ping) reply    id=0x01e4, seq=10/2560, ttl=64 (request in 17)

Frame 18: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface
→   0
Ethernet II, Src: 2e:89:5c:6c:32:51 (2e:89:5c:6c:32:51), Dst: 12:93:f1:72:e5:a0
→   (12:93:f1:72:e5:a0)
Internet Protocol Version 4, Src: 10.0.0.2, Dst: 10.0.0.1
Internet Control Message Protocol
```

E   T2 pcapng

```
"No.","Time","Source","Destination","Protocol","Length","Info"
"4","3.896650971","10.0.0.1","10.0.0.2","OpenFlow","182","Type: OFPT_PACKET_IN"
"5","3.933310793","10.0.0.1","10.0.0.2","OpenFlow","188","Type: OFPT_PACKET_OUT"
"7","3.934009941","10.0.0.2","10.0.0.1","OpenFlow","182","Type: OFPT_PACKET_IN"
"8","3.935142899","10.0.0.2","10.0.0.1","OpenFlow","188","Type: OFPT_PACKET_OUT"
"10","4.898186089","10.0.0.1","10.0.0.2","OpenFlow","182","Type: OFPT_PACKET_IN"
"11","4.910094338","10.0.0.1","10.0.0.2","OpenFlow","188","Type: OFPT_PACKET_OUT"
"13","4.910882672","10.0.0.2","10.0.0.1","OpenFlow","182","Type: OFPT_PACKET_IN"
"14","4.912089248","10.0.0.2","10.0.0.1","OpenFlow","188","Type: OFPT_PACKET_OUT"
"16","5.900396401","10.0.0.1","10.0.0.2","OpenFlow","182","Type: OFPT_PACKET_IN"
"17","5.938146852","10.0.0.1","10.0.0.2","OpenFlow","188","Type: OFPT_PACKET_OUT"
"19","5.938728331","10.0.0.2","10.0.0.1","OpenFlow","182","Type: OFPT_PACKET_IN"
"20","5.940076692","10.0.0.2","10.0.0.1","OpenFlow","188","Type: OFPT_PACKET_OUT"
"22","6.902047736","10.0.0.1","10.0.0.2","OpenFlow","182","Type: OFPT_PACKET_IN"
"23","6.916114621","10.0.0.1","10.0.0.2","OpenFlow","188","Type: OFPT_PACKET_OUT"
"25","6.916983265","10.0.0.2","10.0.0.1","OpenFlow","182","Type: OFPT_PACKET_IN"
"26","6.918183781","10.0.0.2","10.0.0.1","OpenFlow","188","Type: OFPT_PACKET_OUT"
"28","7.903266062","10.0.0.1","10.0.0.2","OpenFlow","182","Type: OFPT_PACKET_IN"
"29","7.945372331","10.0.0.1","10.0.0.2","OpenFlow","188","Type: OFPT_PACKET_OUT"
"31","7.945780703","10.0.0.2","10.0.0.1","OpenFlow","182","Type: OFPT_PACKET_IN"
"32","7.947694393","10.0.0.2","10.0.0.1","OpenFlow","188","Type: OFPT_PACKET_OUT"
"34","8.904681637","10.0.0.1","10.0.0.2","OpenFlow","182","Type: OFPT_PACKET_IN"
"35","8.923936273","10.0.0.1","10.0.0.2","OpenFlow","188","Type: OFPT_PACKET_OUT"
"37","8.924395932","10.0.0.2","10.0.0.1","OpenFlow","182","Type: OFPT_PACKET_IN"
"38","8.925864980","10.0.0.2","10.0.0.1","OpenFlow","188","Type: OFPT_PACKET_OUT"
"40","9.907123802","10.0.0.1","10.0.0.2","OpenFlow","182","Type: OFPT_PACKET_IN"
"41","9.950774969","10.0.0.1","10.0.0.2","OpenFlow","188","Type: OFPT_PACKET_OUT"
"43","9.951306081","10.0.0.2","10.0.0.1","OpenFlow","182","Type: OFPT_PACKET_IN"
"44","9.952708605","10.0.0.2","10.0.0.1","OpenFlow","188","Type: OFPT_PACKET_OUT"
"46","10.908547121","10.0.0.1","10.0.0.2","OpenFlow","182","Type: OFPT_PACKET_IN"
```

```
"47","10.927584932","10.0.0.1","10.0.0.2","OpenFlow","188","Type:
↪  OFPT_PACKET_OUT"
"49","10.928096349","10.0.0.2","10.0.0.1","OpenFlow","182","Type: OFPT_PACKET_IN"
"50","10.929501426","10.0.0.2","10.0.0.1","OpenFlow","188","Type:
↪  OFPT_PACKET_OUT"
"52","11.910161999","10.0.0.1","10.0.0.2","OpenFlow","182","Type: OFPT_PACKET_IN"
"54","11.955327398","10.0.0.1","10.0.0.2","OpenFlow","188","Type:
↪  OFPT_PACKET_OUT"
"56","11.955777128","10.0.0.2","10.0.0.1","OpenFlow","182","Type: OFPT_PACKET_IN"
"58","11.957292553","10.0.0.2","10.0.0.1","OpenFlow","188","Type:
↪  OFPT_PACKET_OUT"
"60","12.911597973","10.0.0.1","10.0.0.2","OpenFlow","182","Type: OFPT_PACKET_IN"
"62","12.932499347","10.0.0.1","10.0.0.2","OpenFlow","188","Type:
↪  OFPT_PACKET_OUT"
"64","12.933054456","10.0.0.2","10.0.0.1","OpenFlow","182","Type: OFPT_PACKET_IN"
"66","12.934568277","10.0.0.2","10.0.0.1","OpenFlow","188","Type:
↪  OFPT_PACKET_OUT"
```

F   T4 pcapng

```
"No.","Time","Source","Destination","Protocol","Length","Info"
"1","0.000000000","10.0.0.1","10.0.0.2","OpenFlow","182","Type: OFPT_PACKET_IN"
"2","0.019145446","10.0.0.1","10.0.0.2","OpenFlow","188","Type: OFPT_PACKET_OUT"
"4","0.020064628","10.0.0.2","10.0.0.1","OpenFlow","182","Type: OFPT_PACKET_IN"
"5","0.022328021","127.0.0.1","127.0.0.1","OpenFlow","146","Type: OFPT_FLOW_MOD"
"7","1.020835786","10.0.0.1","10.0.0.2","OpenFlow","182","Type: OFPT_PACKET_IN"
"8","1.036850163","127.0.0.1","127.0.0.1","OpenFlow","146","Type: OFPT_FLOW_MOD"
```