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**PES1UG20CS821**

## **Week 7-IPv4 Addressing and Static Routing**

**Task 1: Assign IP addresses to all 4 computers host,router1,router2,destination.**

**Step 1:** Assign the IP address to the Host

```
student@CSELAB:~$ sudo ip addr add 172.16.10.1/24 dev enp2s0
[sudo] password for student:
student@CSELAB:~$ ip addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1
    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: enp2s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 1000
    link/ether b8:ae:ed:a5:a6:c1 brd ff:ff:ff:ff:ff:ff
    inet 172.16.10.1/24 scope global enp2s0
        valid_lft forever preferred_lft forever
        inet6 fe80::baae:edff:fea5:a6c1/64 scope link
            valid_lft forever preferred_lft forever
student@CSELAB:~$
```

**Step 2:** Assign the IP address to Router1

```
student@CSELAB:~$ sudo ip addr add 172.16.10.201/24 dev enp2s0
student@CSELAB:~$ sudo ip addr add 172.16.10.201/24 dev enxd03745b8f18d
student@CSELAB:~$ ip addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1
    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: enp2s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 1000
    link/ether b8:ae:ed:35:c1:52 brd ff:ff:ff:ff:ff:ff
    inet 172.16.10.201/24 scope global enp2s0
        valid_lft forever preferred_lft forever
        inet6 fe80::baae:edff:fe35:c152/64 scope link
            valid_lft forever preferred_lft forever
3: enxd03745b8f18d: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 1000
    link/ether d0:37:45:b8:f1:8d brd ff:ff:ff:ff:ff:ff
    inet 172.16.10.201/24 scope global enxd03745b8f18d
```

**Step 3:** Assign the IP address to Router2

```
student@CSELAB:~$ sudo ip addr add 172.16.11.201/24 dev enp2s0
[sudo] password for student:
student@CSELAB:~$ sudo ip addr add 172.16.11.1/24 dev enxd03745b8f341
student@CSELAB:~$ ip addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1
    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: enp2s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 1000
    link/ether b8:ae:d:a5:a6:82 brd ff:ff:ff:ff:ff:ff
    inet 172.16.11.201/24 scope global enp2s0
        valid_lft forever preferred_lft forever
        inet6 fe80::baae:edff:fe35:a682/64 scope link
            valid_lft forever preferred_lft forever
3: enxd03745b8f341: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 1000
    link/ether d0:37:45:b8:f3:41 brd ff:ff:ff:ff:ff:ff
    inet 172.16.11.1/24 scope global enxd03745b8f341
        valid_lft forever preferred_lft forever
        inet6 fe80::d237:45ff:feb8:f341/64 scope link
```

#### Step 4: Assign the IP address to the destination

```
student@CSELAB:~$ sudo ip addr add 172.16.12.201/24 dev enp2s0
[sudo] password for student:
student@CSELAB:~$ ip addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1
    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: enp2s0: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 1000
    link/ether b8:ae:ed:a5:a5:99 brd ff:ff:ff:ff:ff:ff
    inet 172.16.12.201/24 brd 172.16.12.255 scope global enp2s0
        valid_lft forever preferred_lft forever
    inet6 fe80::baae:edff:fea5:a599/64 scope link
        valid_lft forever preferred_lft forever
student@CSELAB:~$
```

#### Task 2: Convert the machines into routers.

```
student@CSELAB:~$ sudo sysctl -w net.ipv4.conf.all.accept_redirects=0
net.ipv4.conf.all.accept_redirects = 0
student@CSELAB:~$ sysctl net.ipv4.ip_forward
net.ipv4.ip_forward = 0
student@CSELAB:~$ sudo sysctl -w net.ipv4.ip_forward=1
net.ipv4.ip_forward = 1
```

#### Task 3: Verify the connection between Ha and Hd using ping command.

##### At host

```
PING 172.16.10.1 (172.16.10.1) 56(84) bytes of data.
64 bytes from 172.16.10.1: icmp_seq=1 ttl=64 time=0.045 ms
64 bytes from 172.16.10.1: icmp_seq=2 ttl=64 time=0.049 ms
64 bytes from 172.16.10.1: icmp_seq=3 ttl=64 time=0.040 ms
64 bytes from 172.16.10.1: icmp_seq=4 ttl=64 time=0.047 ms
64 bytes from 172.16.10.1: icmp_seq=5 ttl=64 time=0.051 ms
64 bytes from 172.16.10.1: icmp_seq=6 ttl=64 time=0.050 ms
64 bytes from 172.16.10.1: icmp_seq=7 ttl=64 time=0.040 ms
^Z
[1]+  Stopped                  ping 172.16.10.1
```

```
student@CSELAB:~$ ping 172.16.12.1
PING 172.16.12.1 (172.16.12.1) 56(84) bytes of data.
64 bytes from 172.16.12.1: icmp_seq=1 ttl=64 time=0.419 ms
64 bytes from 172.16.12.1: icmp_seq=2 ttl=64 time=0.341 ms
64 bytes from 172.16.12.1: icmp_seq=3 ttl=64 time=0.349 ms
64 bytes from 172.16.12.1: icmp_seq=4 ttl=64 time=0.283 ms
64 bytes from 172.16.12.1: icmp_seq=5 ttl=64 time=0.300 ms
64 bytes from 172.16.12.1: icmp_seq=6 ttl=64 time=0.266 ms
64 bytes from 172.16.12.1: icmp_seq=7 ttl=64 time=0.296 ms
^Z
[1]+  Stopped                  ping 172.16.12.1
```

##### At destination

#### Task 4: Insert routing table entries

##### At Host

```
student@CSELAB:~$ sudo ip route add 172.16.12.0/24 via 172.16.10.201
[sudo] password for student:
student@CSELAB:~$ sudo ip route add 172.16.11.0/24 via 172.16.10.201
student@CSELAB:~$ ip route show
169.254.0.0/16 dev enp2s0 scope link metric 1000
172.16.10.0/24 dev enp2s0 proto kernel scope link src 172.16.10.1
172.16.11.0/24 via 172.16.10.201 dev enp2s0
172.16.12.0/24 via 172.16.10.201 dev enp2s0
```

## At Router 1

```
student@CSELAB:~$ sudo ip route add 172.16.11.0/24 via 172.16.10.2
student@CSELAB:~$ ip route show
169.254.0.0/16 dev enp2s0 scope link metric 1000
172.16.10.0/24 dev enp2s0 proto kernel scope link src 172.16.10.1 metric 100
172.16.11.0/24 via 172.16.10.2 dev enp2s0
```

## At Router 2

```
student@CSELAB:~$ sudo ip route add 172.16.10.0/24 via 172.16.11.1
student@CSELAB:~$ ip route show
169.254.0.0/16 dev enp2s0 scope link metric 1000
172.16.10.0/24 via 172.16.11.1 dev enp2s0
172.16.11.0/24 dev enp2s0 proto kernel scope link src 172.16.11.201
172.16.12.0/24 dev enxd03745b8f341 proto kernel scope link src 172.16.12.1
```

## At Hd:

```
student@CSELAB:~$ sudo ip route add 172.16.10.0/24 via 172.16.12.1
[sudo] password for student:
student@CSELAB:~$ sudo ip route add 172.16.11.0/24 via 172.16.12.1
student@CSELAB:~$ ip route show
169.254.0.0/16 dev enp2s0 scope link metric 1000
172.16.10.0/24 via 172.16.12.1 dev enp2s0
172.16.11.0/24 via 172.16.12.1 dev enp2s0
172.16.12.0/24 dev enp2s0 proto kernel scope link src 172.16.12.201
```

## Task 5: verify the connection from host and destination using ping command.

### Step 1: Testing path from Host and destination

```
student@CSELAB:~$ ping 172.16.12.1
PING 172.16.12.1 (172.16.12.1) 56(84) bytes of data.
64 bytes from 172.16.12.1: icmp_seq=1 ttl=63 time=0.777 ms
64 bytes from 172.16.12.1: icmp_seq=2 ttl=63 time=0.595 ms
64 bytes from 172.16.12.1: icmp_seq=3 ttl=63 time=0.508 ms
64 bytes from 172.16.12.1: icmp_seq=4 ttl=63 time=0.489 ms
64 bytes from 172.16.12.1: icmp_seq=5 ttl=63 time=0.551 ms
64 bytes from 172.16.12.1: icmp_seq=6 ttl=63 time=0.530 ms
^Z
[2]+  Stopped                  ping 172.16.12.1
student@CSELAB:~$ ping 172.16.12.201
PING 172.16.12.201 (172.16.12.201) 56(84) bytes of data.
64 bytes from 172.16.12.201: icmp_seq=1 ttl=62 time=0.861 ms
64 bytes from 172.16.12.201: icmp_seq=2 ttl=62 time=0.920 ms
64 bytes from 172.16.12.201: icmp_seq=3 ttl=62 time=0.905 ms
64 bytes from 172.16.12.201: icmp_seq=4 ttl=62 time=0.903 ms
^Z
[3]+  Stopped                  ping 172.16.12.201
```

### Step 2: Testing path from destination and host

```
student@CSELAB:~$ ping 172.16.12.1
PING 172.16.12.1 (172.16.12.1) 56(84) bytes of data.
64 bytes from 172.16.12.1: icmp_seq=1 ttl=64 time=0.254 ms
64 bytes from 172.16.12.1: icmp_seq=2 ttl=64 time=0.283 ms
64 bytes from 172.16.12.1: icmp_seq=3 ttl=64 time=0.275 ms
64 bytes from 172.16.12.1: icmp_seq=4 ttl=64 time=0.275 ms
^Z
[2]+  Stopped                  ping 172.16.12.1
student@CSELAB:~$ ping 172.16.12.201
PING 172.16.12.201 (172.16.12.201) 56(84) bytes of data.
64 bytes from 172.16.12.201: icmp_seq=1 ttl=64 time=0.039 ms
64 bytes from 172.16.12.201: icmp_seq=2 ttl=64 time=0.044 ms
64 bytes from 172.16.12.201: icmp_seq=3 ttl=64 time=0.033 ms
64 bytes from 172.16.12.201: icmp_seq=4 ttl=64 time=0.045 ms
64 bytes from 172.16.12.201: icmp_seq=5 ttl=64 time=0.090 ms
^Z
[3]+  Stopped                  ping 172.16.12.201
```

## Task 6: Check each system neighbor to verify the connection.

### At Host

```
student@CSELAB:~$ ip neigh show
172.16.10.201 dev enp2s0 lladdr b8:ae:ed:35:c1:52 REACHABLE
student@CSELAB:~$ █
```

## At Router1

```
student@CSELAB:~$ ip neigh show
172.16.10.1 dev enp2s0 lladdr b8:ae:ed:a5:a6:c1 STALE
172.16.11.201 dev enxd03745b8f18d lladdr b8:ae:ed:a5:a6:82 STALE
student@CSELAB:~$
```

## At Router2

```
student@CSELAB:~$ ip neigh show
172.16.12.201 dev enxd03745b8f341 lladdr b8:ae:ed:a5:a5:99 STALE
student@CSELAB:~$
```

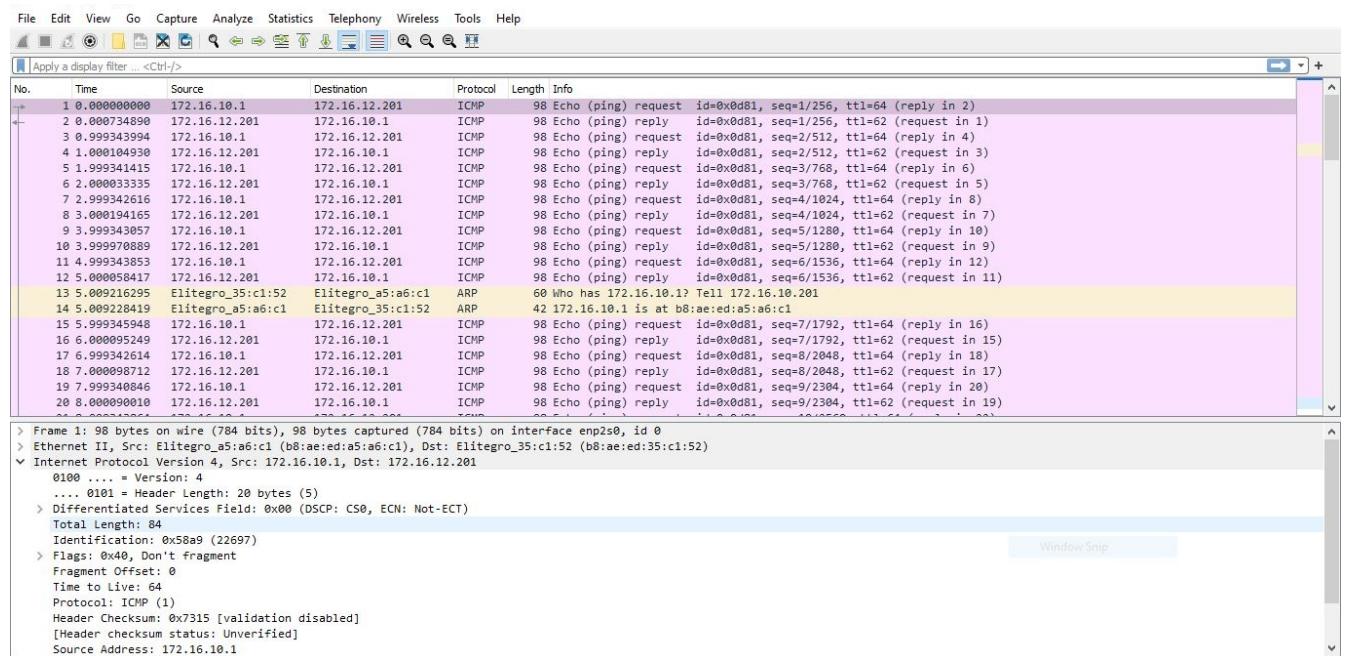
## At destination

```
student@CSELAB:~$ ip neigh show
172.16.12.1 dev enp2s0 lladdr d0:37:45:b8:f3:41 STALE
```

## Task 7: Capture packets from Ha and Hb using Wireshark tool.

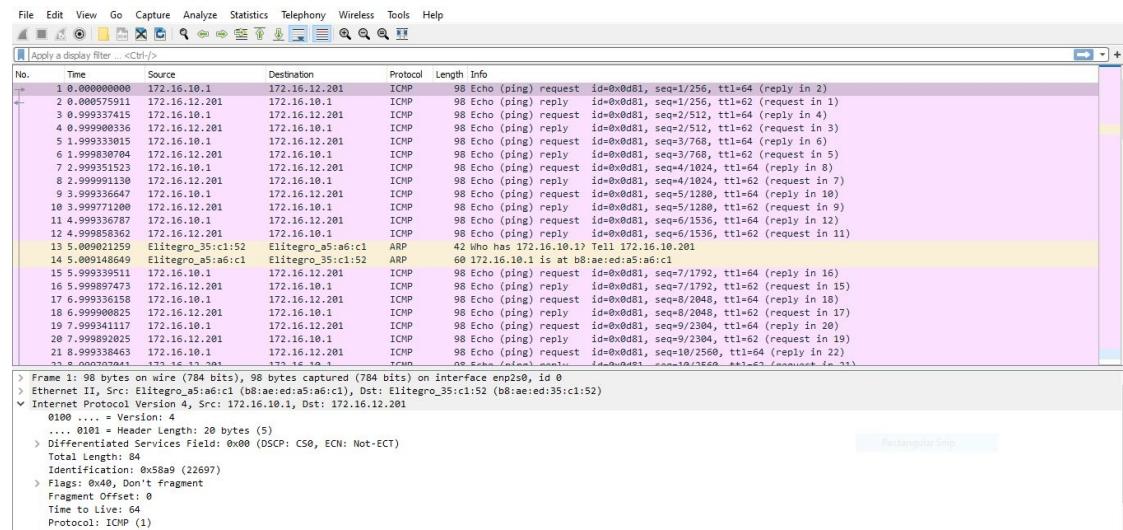
### Step 1: Capture packets from Host

#### At Host



### Step 2: Capture packets from R1 using both eth1 and eth2 interfaces.

#### At inbuilt eth-interface



## At external eth-interface

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000000	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0x0d81, seq=1/256, ttl=63 (reply in 2)
2	0.000543924	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0x0d81, seq=1/256, ttl=63 (request in 1)
3	0.999332248	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0x0d81, seq=2/512, ttl=63 (reply in 4)
4	0.999873518	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0x0d81, seq=2/512, ttl=63 (request in 3)
5	1.999326102	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0x0d81, seq=3/768, ttl=63 (reply in 6)
6	1.999805353	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0x0d81, seq=3/768, ttl=63 (request in 5)
7	2.999352502	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0x0d81, seq=4/1024, ttl=63 (reply in 8)
8	2.999958165	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0x0d81, seq=4/1024, ttl=63 (request in 7)
9	3.999330083	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0x0d81, seq=5/1280, ttl=63 (reply in 10)
10	3.999745359	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0x0d81, seq=5/1280, ttl=63 (request in 9)
11	4.999330851	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0x0d81, seq=6/1536, ttl=63 (reply in 12)
12	4.999831683	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0x0d81, seq=6/1536, ttl=63 (request in 11)
13	5.0008225278	Elitegro_a5:a6:82	Tp-LinkT_b8:f1:8d	ARP	60	Who has 172.16.11.1? Tel: 172.16.11.201
14	5.0008247977	Tp-LinkT_b8:f1:8d	Elitegro_a5:a6:82	ARP	42	172.16.11.1 is at d0:37:45:b8:f1:8d
15	5.999335111	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0x0d81, seq=7/1792, ttl=63 (reply in 16)
16	5.999872191	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0x0d81, seq=7/1792, ttl=63 (request in 15)
17	6.9993239943	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0x0d81, seq=8/2048, ttl=63 (reply in 18)
18	6.9999785474	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0x0d81, seq=8/2048, ttl=63 (request in 17)
19	7.999337765	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0x0d81, seq=9/2304, ttl=63 (reply in 20)
20	7.999863042	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0x0d81, seq=9/2304, ttl=63 (request in 19)
21	8.999331829	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0x0d81, seq=10/2560, ttl=63 (reply in 22)

> Frame 1: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface enxd03745b8f18d, id 0

> Ethernet II, Src: Tp-LinkT\_b8:f1:8d (d0:37:45:b8:f1:8d), Dst: Elitegro\_a5:a6:82 (b8:ae:ed:a5:a6:82)

> Internet Protocol Version 4, Src: 172.16.10.1, Dst: 172.16.12.201

0100 .... = Version: 4  
.... 0101 = Header Length: 20 bytes (5)  
> Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)  
Total Length: 84  
Identification: 0x58a9 (22697)  
> Flags: 0x40, Don't fragment  
Fragment Offset: 0  
Time to Live: 63  
Protocol: ICMP (1)

## Step 3: Capture packets from R2 using both eth1 and eth2 interfaces.

### At inbuilt eth-interface

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000000	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0x0d81, seq=1/256, ttl=63 (reply in 2)
2	0.0002926054	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0x0d81, seq=1/256, ttl=63 (request in 1)
3	0.999333121	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0x0d81, seq=2/512, ttl=63 (reply in 4)
4	0.999636896	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0x0d81, seq=2/512, ttl=63 (request in 3)
5	1.999313818	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0x0d81, seq=3/768, ttl=63 (reply in 6)
6	1.99957678	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0x0d81, seq=3/768, ttl=63 (request in 5)
7	2.9993653907	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0x0d81, seq=4/1024, ttl=63 (reply in 8)
8	2.999704853	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0x0d81, seq=4/1024, ttl=63 (request in 7)
9	3.9992389571	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0x0d81, seq=5/1280, ttl=63 (reply in 10)
10	3.999510211	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0x0d81, seq=5/1280, ttl=63 (request in 9)
11	4.999328012	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0x0d81, seq=6/1536, ttl=63 (reply in 12)
12	4.999614356	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0x0d81, seq=6/1536, ttl=63 (request in 11)
13	5.0008018099	Elitegro_a5:a6:82	Tp-LinkT_b8:f1:8d	ARP	42	Who has 172.16.11.1? Tel: 172.16.11.201
14	5.0008199121	Tp-LinkT_b8:f1:8d	Elitegro_a5:a6:82	ARP	60	172.16.11.1 is at d0:37:45:b8:f1:8d
15	5.999346511	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0x0d81, seq=7/1792, ttl=63 (reply in 16)
16	5.999658331	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0x0d81, seq=7/1792, ttl=63 (request in 15)
17	6.999340663	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0x0d81, seq=8/2048, ttl=63 (reply in 18)
18	6.999655453	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0x0d81, seq=8/2048, ttl=63 (request in 17)
19	7.999348981	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0x0d81, seq=9/2304, ttl=63 (reply in 20)
20	7.999627117	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0x0d81, seq=9/2304, ttl=63 (request in 19)
21	8.999339564	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0x0d81, seq=10/2560, ttl=63 (reply in 22)

> Frame 1: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface enpd0, id 0

> Ethernet II, Src: Tp-LinkT\_b8:f1:8d (d0:37:45:b8:f1:8d), Dst: Elitegro\_a5:a6:82 (b8:ae:ed:a5:a6:82)

> Internet Protocol Version 4, Src: 172.16.10.1, Dst: 172.16.12.201

0100 .... = Version: 4  
.... 0101 = Header Length: 20 bytes (5)  
> Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)  
Total Length: 84  
Identification: 0x58a9 (22697)  
> Flags: 0x40, Don't fragment  
Fragment Offset: 0  
Time to Live: 63  
Protocol: ICMP (1)

### At external eth-interface

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000000	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0x0d81, seq=1/256, ttl=62 (reply in 2)
2	0.000250579	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0x0d81, seq=1/256, ttl=64 (request in 1)
3	0.999324915	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0x0d81, seq=2/512, ttl=62 (reply in 4)
4	0.999592224	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0x0d81, seq=2/512, ttl=64 (request in 3)
5	1.999298653	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0x0d81, seq=3/768, ttl=62 (reply in 6)
6	1.999538447	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0x0d81, seq=3/768, ttl=64 (request in 5)
7	2.999355750	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0x0d81, seq=4/1024, ttl=62 (reply in 7)
8	2.999613021	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0x0d81, seq=4/1024, ttl=64 (request in 6)
9	3.999374089	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0x0d81, seq=5/1280, ttl=62 (reply in 10)
10	3.999478191	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0x0d81, seq=5/1280, ttl=64 (request in 9)
11	4.999311475	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0x0d81, seq=6/1536, ttl=62 (reply in 12)
12	4.999576079	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0x0d81, seq=6/1536, ttl=64 (request in 11)
13	5.0008011069	Elitegro_a5:a5:99	Tp-LinkT_b8:f3:41	ARP	42	Who has 172.16.12.1? Tel: 172.16.12.201
14	5.000818558	Tp-LinkT_b8:f3:41	Elitegro_a5:a5:99	ARP	60	172.16.12.1 is at d0:37:45:b8:f3:41
15	5.999340858	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0x0d81, seq=7/1792, ttl=62 (reply in 16)
16	5.999613348	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0x0d81, seq=7/1792, ttl=64 (request in 15)
17	6.999330018	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0x0d81, seq=8/2048, ttl=62 (reply in 18)
18	6.999613310	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0x0d81, seq=8/2048, ttl=64 (request in 17)
19	7.999336380	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0x0d81, seq=9/2304, ttl=62 (reply in 20)
20	7.999586787	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0x0d81, seq=9/2304, ttl=64 (request in 19)
21	8.999326667	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0x0d81, seq=10/2560, ttl=62 (reply in 22)

> Frame 1: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface enxd03745b8f341, id 0

> Ethernet II, Src: Tp-LinkT\_b8:f3:41 (d0:37:45:b8:f3:41), Dst: Elitegro\_a5:a5:99 (b8:ae:ed:a5:a5:99)

> Internet Protocol Version 4, Src: 172.16.10.1, Dst: 172.16.12.201

0100 .... = Version: 4  
.... 0101 = Header Length: 20 bytes (5)  
> Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)  
Total Length: 84  
Identification: 0x58a9 (22697)  
> Flags: 0x40, Don't fragment  
Fragment Offset: 0  
Time to Live: 62  
Protocol: ICMP (1)

## Step 4: Capture packets from destination

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help

Apply a display filter... <Ctrl+>/

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000000	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0xd81, seq=1/256, ttl=62 (reply in 2)
2	0.000021455	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0xd81, seq=1/256, ttl=64 (request in 1)
3	0.999321992	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0xd81, seq=2/512, ttl=62 (reply in 4)
4	0.999342690	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0xd81, seq=2/512, ttl=64 (request in 3)
5	1.999293775	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0xd81, seq=3/768, ttl=62 (reply in 6)
6	1.999322522	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0xd81, seq=3/768, ttl=64 (request in 5)
7	2.999363868	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0xd81, seq=4/1024, ttl=62 (reply in 8)
8	2.999396955	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0xd81, seq=4/1024, ttl=64 (request in 7)
9	3.999253935	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0xd81, seq=5/1280, ttl=62 (reply in 10)
10	3.999274545	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0xd81, seq=5/1280, ttl=64 (request in 9)
11	4.999306621	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0xd81, seq=6/1536, ttl=62 (reply in 12)
12	4.999336473	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0xd81, seq=6/1536, ttl=64 (request in 11)
13	5.007565320	Elitegro_a5:a5:99	Tp-LinkT_b8:f3:41	ARP	42	Who has 172.16.12.1? Tell 172.16.12.201
14	5.007725345	Tp-LinkT_b8:f3:41	Elitegro_a5:a5:99	ARP	60	172.16.12.1 is at d0:37:45:b8:f3:41
15	5.999325992	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0xd81, seq=7/1792, ttl=62 (reply in 16)
16	5.999347014	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0xd81, seq=7/1792, ttl=64 (request in 15)
17	6.999321448	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0xd81, seq=8/2048, ttl=62 (reply in 18)
18	6.999347691	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0xd81, seq=8/2048, ttl=64 (request in 17)
19	7.999317173	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0xd81, seq=9/2304, ttl=62 (reply in 20)
20	7.999336773	172.16.12.201	172.16.10.1	ICMP	98	Echo (ping) reply id=0xd81, seq=9/2304, ttl=64 (request in 19)
21	8.999298754	172.16.10.1	172.16.12.201	ICMP	98	Echo (ping) request id=0xd81, seq=10/2560, ttl=62 (reply in 22)

```
> Frame 1: 98 bytes on wire (784 bits), 98 bytes captured (784 bits) on interface enp2s0, id 0
> Ethernet II, Src: Tp-LinkT_b8:f3:41 (d0:37:45:b8:f3:41), Dst: Elitegro_a5:a5:99 (b8:aee:ed:a5:a5:99)
> Internet Protocol Version 4, Src: 172.16.10.1, Dst: 172.16.12.201
  0100 .... = Version: 4
  .... 0101 = Header Length: 20 bytes (5)
> Differentiated Services Field: 0x00 (DSCP: CS0, ECN: Not-ECT)
  Total Length: 84
  Identification: 0x58a9 (22697)
  Flags: 0x40, Don't fragment
  Fragment Offset: 0
  Time to Live: 62
  Protocol: ICMP (1)
```

Rectangular Snip