

Aim-10

10. Demonstrate the TTL/ Life of a Packet

Topology:

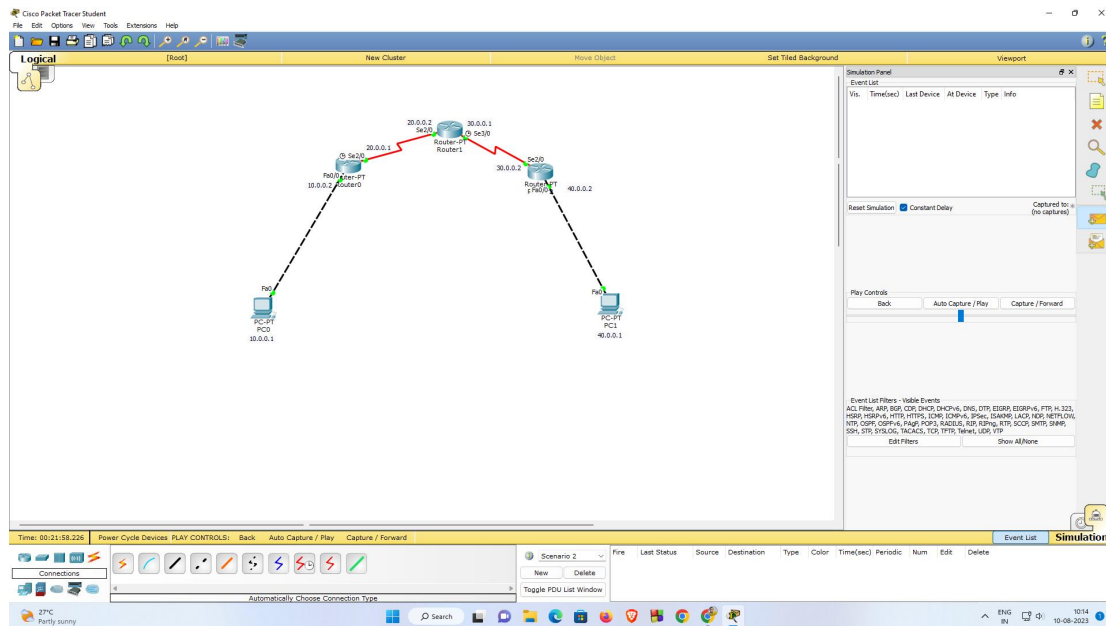


Fig 1: Topology

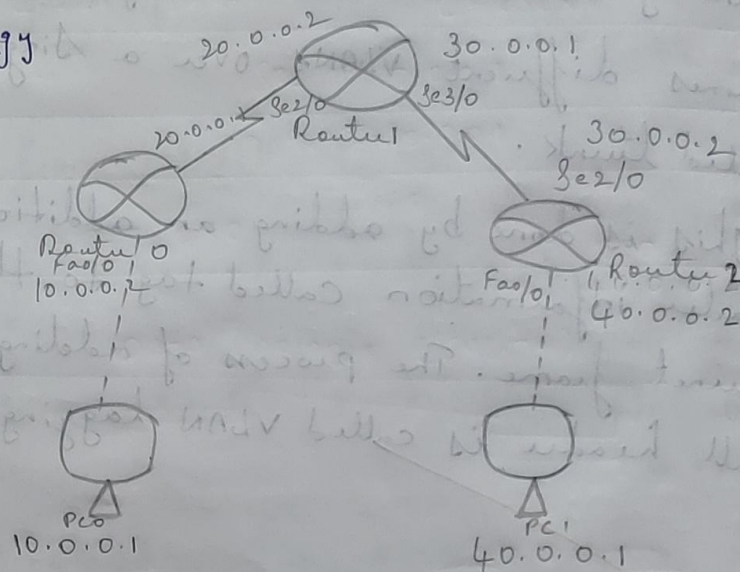
Procedure and Observation:

10/08/23

Aim - 10

10) Demonstrate the TTL / Life of a packet.

Topology



Procedure

=> Create a topology of 2 PCs and 3 routers.

=> Configure the IP addresses and default gateway of the PCs.

- ⇒ Configure the devices as per static/default / dynamic routing.
- ⇒ In the Simulation mode, send a simple PDU from one pc to another.
- ⇒ Use capture button to capture every transfer.
- ⇒ click on the PDU during every transfer to see the Inbound and Outbound PDU details observe that there is a difference of 1 in TTL when it crosses every router.

Output

- ⇒ Initially when a packet (PDU) is sent from pc1 to pc0 (when it is at pc0 with the acknowledgement).

The PDU information at Device pc0

Ethernet II (header)

| | | | |
|---------------------------|------------------------|-----------------------------|----------------------------|
| PREAMBLE 101010...1011 | | DEST MAC: 000c:8586:DA04 | SRC MAC: 000A:F3C3:77E4 |
| TYPE: 0x800 | DATA (VARIABLE LENGTH) | | FCS 0x0 |

Bytes
4 8 14 19

| | | | | | |
|------------------------|-----|-----------|--------|-----|---------|
| IP | 4 | 8 | 16 | 19 | 31 Bits |
| 4 | IHL | DSCP: 0x0 | TL: 28 | | |
| ID: 0x1 | | | 0x0 | 0x0 | |
| TTL: 255 | | PRO: 0x1 | CHKSUM | | |
| SRC IP: 10.0.0.1 | | | | | |
| DST IP: 40.0.0.1 | | | | | |
| OPT: 0x0 | | | | 0x0 | |
| DATA (VARIABLE LENGTH) | | | | | |

ICMP

| | | | |
|-----------|---|---------------|----------|
| 0 | 8 | 16 | 31 Bits |
| TYPE: 0x8 | | CODE: 0x0 | CHECKSUM |
| ID: 0x2 | | SEQ NUMBER: 1 | |

⇒ when the PDU has been sent reached successfully PC1 with the PDU information at Device PC1 is as follows.

Ethernet II

| 0 | 4 | 8 | 14 | Bytes |
|---------------------------|------------------------|-----------------------------|----------------------------|-------------|
| | | | | 19 |
| PREAMBLE 101010...1011 | | DEST MAC: 00ED.8FB1.B507 | SRC MAC: 0002.157B.6EBC | |
| TYPE 0x800 | DATA (VARIABLE LENGTH) | | | FCS: 0x0 |

| 0 IP | | 4 | 8 | 16 | 19 | Bits |
|------------------------|-----|-----------|---|--------|-----|------|
| | | | | | | 31 |
| 4 | IHL | DSCP: 0x0 | | TL: 28 | | |
| ID: 0x2 | | | | 0x0 | 0x0 | |
| TTL: 128 | | PRO: 0x1 | | CHKSUM | | |
| SRC IP: 40.0.0.1 | | | | | | |
| DST IP: 10.0.0.1 | | | | | | |
| OPT: 0x0 | | | | | 0x0 | |
| DATA (VARIABLE LENGTH) | | | | | | |

ICMP

| | | | |
|-----------|-----------|---------------|---------|
| 0 | 8 | 16 | 31 Bits |
| TYPE: 0x0 | CODE: 0x0 | CHECKSUM | |
| ID: 0x4 | | SEQ NUMBER: 3 | |

Output:

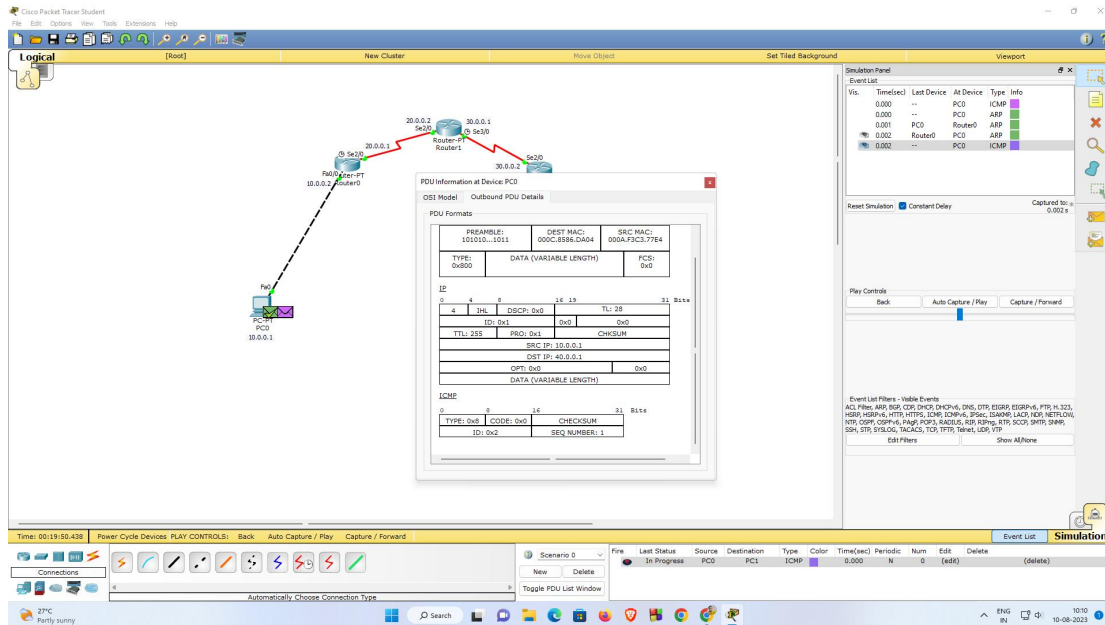


Fig 2: PDU information at device pc0

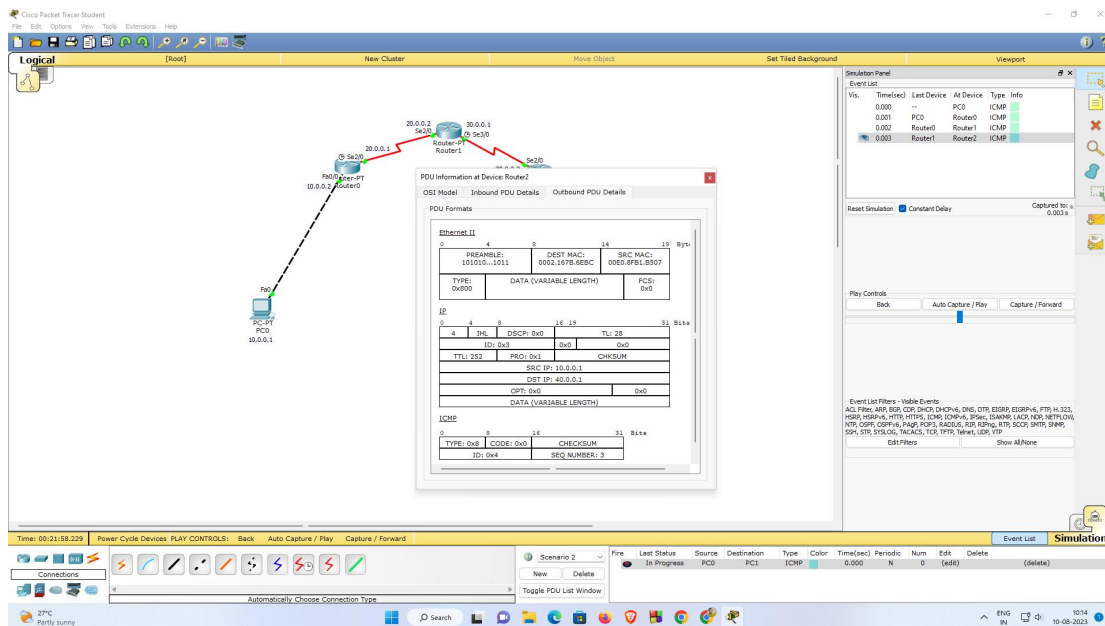


Fig 3: PDU information at device router2

