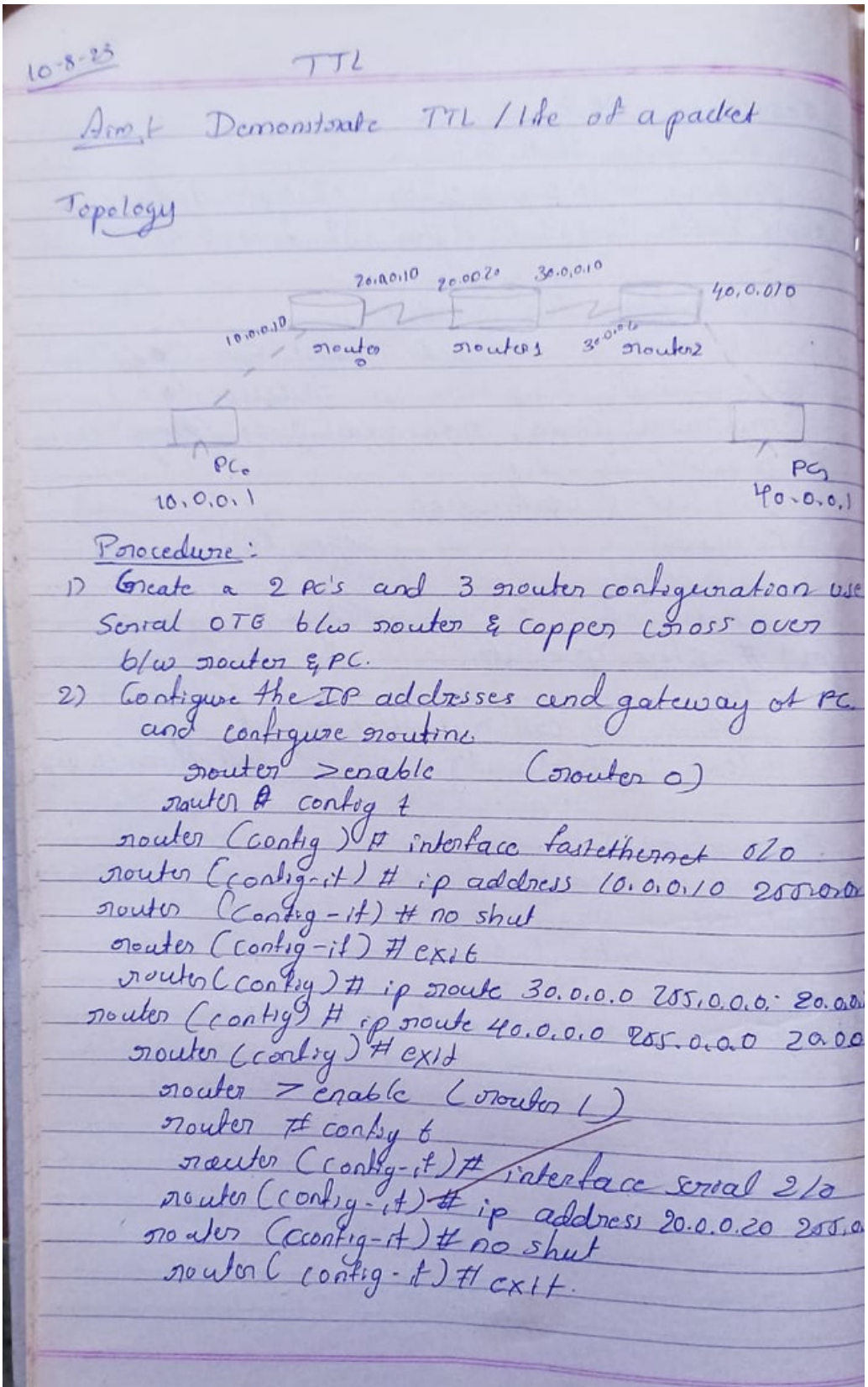
WEEK 10

Demonstrate the TTL/ Life of a Packet. OBSERVATION:



10-8-23 TTL

Aim: Demonstrate TTL / life of a packet

Topology

Procedure:

1) Create a 2 PC's and 3 router configuration use Serial DTE b/w router & copper cross over b/w router & PC.
2) Configure the IP addresses and gateway of PC. and configure routing.

router >enable (router 0)
router # config t
router (config) # interface fastethernet 0/0
router (config-if) # ip address 10.0.0.10 255.0.0.
router (config-if) # no shut
router (config-if) # exit
router (config) # ip route 30.0.0.0 255.0.0.0 20.0.0.
router (config) # ip route 40.0.0.0 255.0.0.0 20.0.0.
router (config) # exit
router > enable (router 1)
router # config t
router (config-if) # interface serial 2/0
router (config-if) # ip address 20.0.0.20 255.0.
router (config-if) # no shut
router (config-if) # exit.

router (config-if)# interface serial 3/0
router (config-if)# ip address 30.0.0.10 255.0.0.0
router (config-if)# no shut
router (config-if)# exit
router (config)# ip route 10.0.0.0 255.0.0.0 20.0.0.10
router (config)# ip route 40.0.0.0 255.0.0.0 30.0.0.20
router (config)# exit
router # config t
router (config)# interface serial 2/0
router (config-if)# ip address 30.0.0.20 255.0.0.0
router (config-if)# no shut
router (config-if)# exit
router (config)# interface fast ethernet 0/0
router (config-if)# ip address 40.0.0.10 & 255.0.0.0
router (config-if)# no shut
router (config)# ip route 10.0.0.0 255.0.0.0 30.0.0.10
router (config)# ip route 20.0.0.0 255.0.0.0 30.0.0.2

iii) Select Simulation mode, select simple PDU and select & source & destination PC's
iv) use captore button to send PDU, from PC to router to PC
v) click on PDU every transfer to see inbound & out PDU details observe the different in TTCS

Result

PDU information at source PC0
outbound PDU details
TTL : 255
PDU information at device : router 0
inbound PDU details
TTL : 255
outbound PDU details
TTL : ~~255~~ 254

PDU info at device : router 1
inbound PDU details
TTL : 254
outbound PDU details
TTL : 253
PDU info at device : router 2
inbound PDU details
TTL : 253
Outbound PDU details at device : PC1
Inbound PDU details
TTL : 252
An example : for inbound details of router 0
PDU format

Ethernet II

Preamble	DEST MAC	SRC MAC
10101010 - - 1011	00E0 F439 - -	0009.7C08 E079
Type	DATA	FCS
0x800	(variable length	0x5

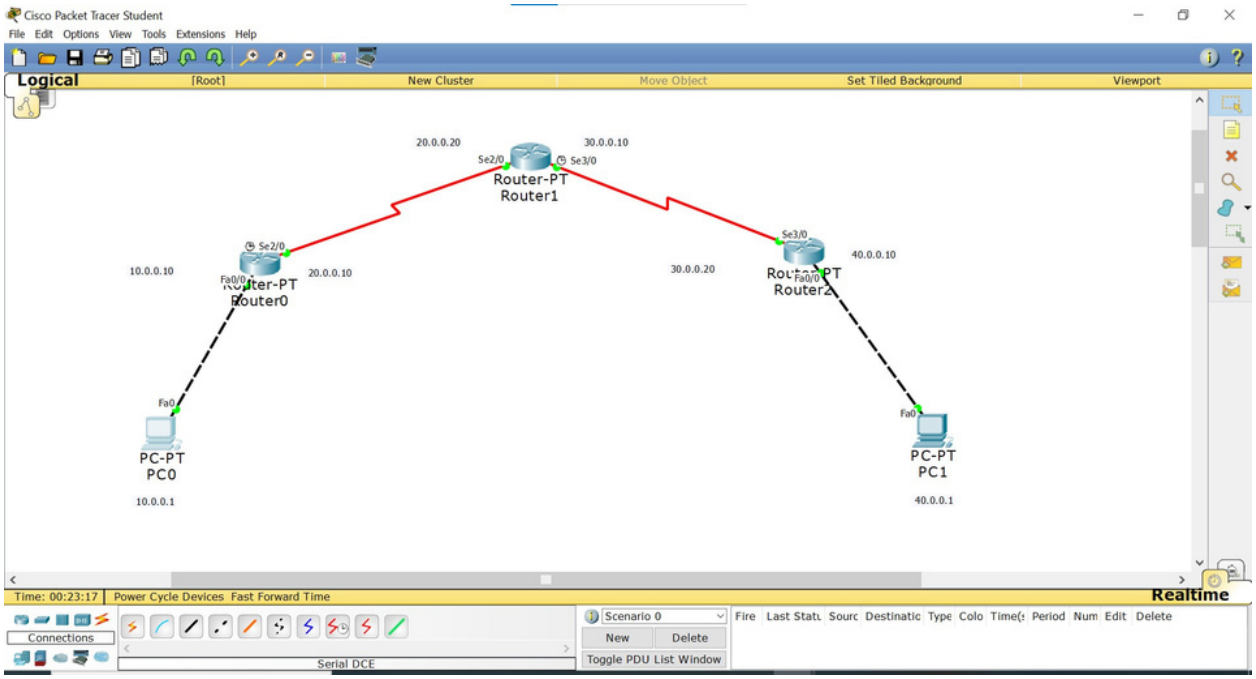
14 19

observation

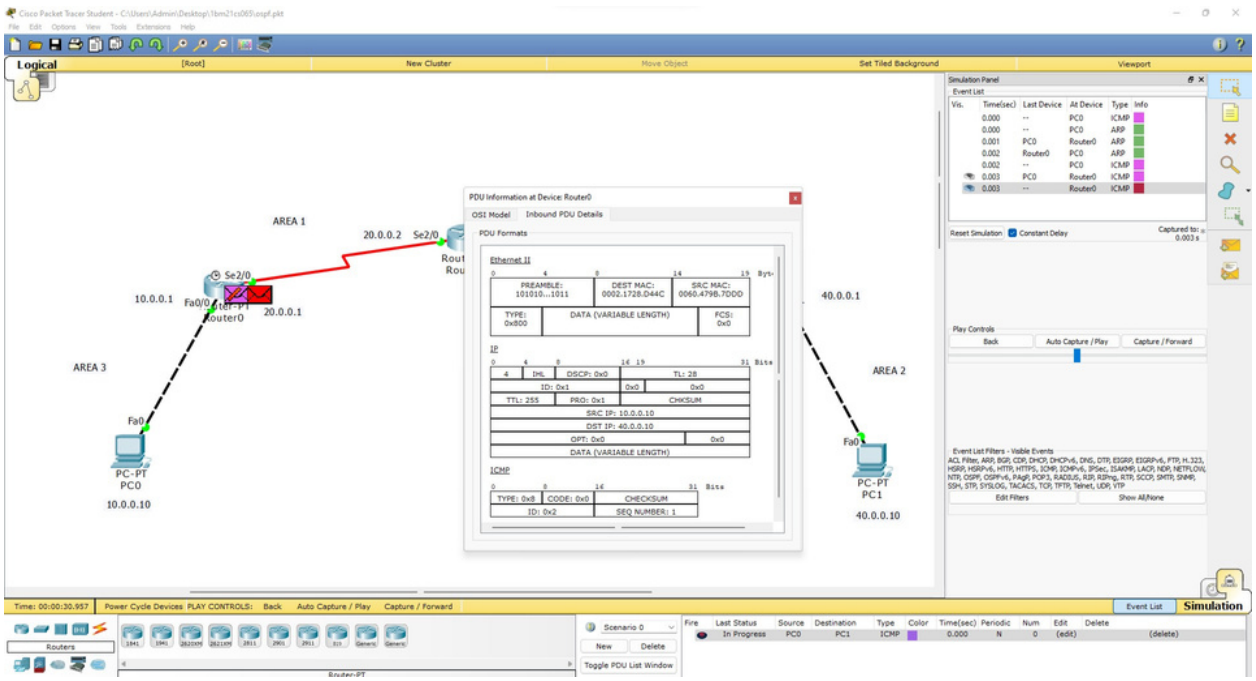
1) The TTL is reduced by 1 in every router
Time to live (TTL) is a mechanism which limits the life form or lifetime data in a computer or network. It is a computer
255 is set as max TTL

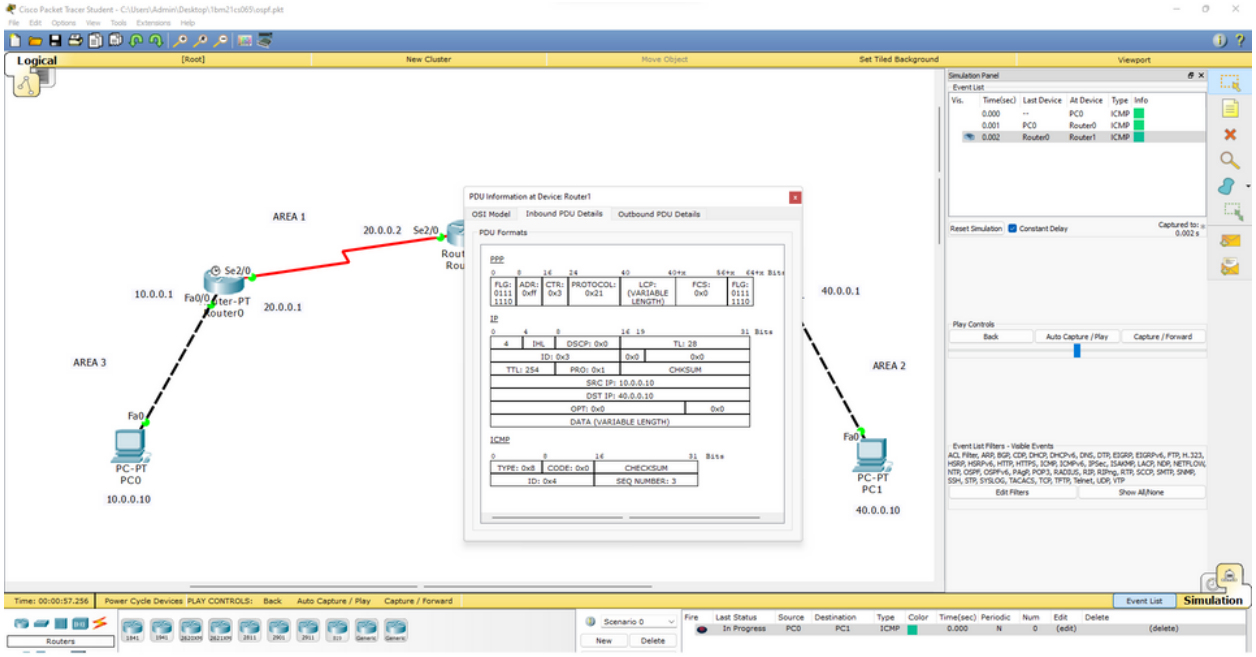
NL
29/8/2023

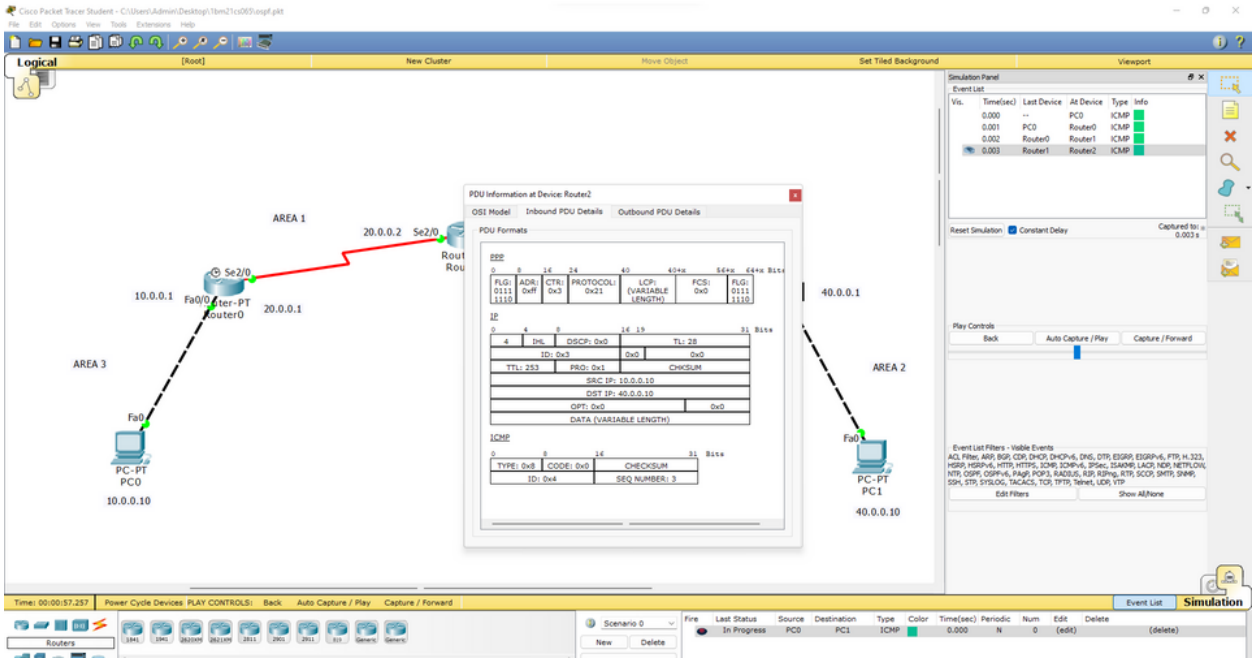
TOPOLOGY:

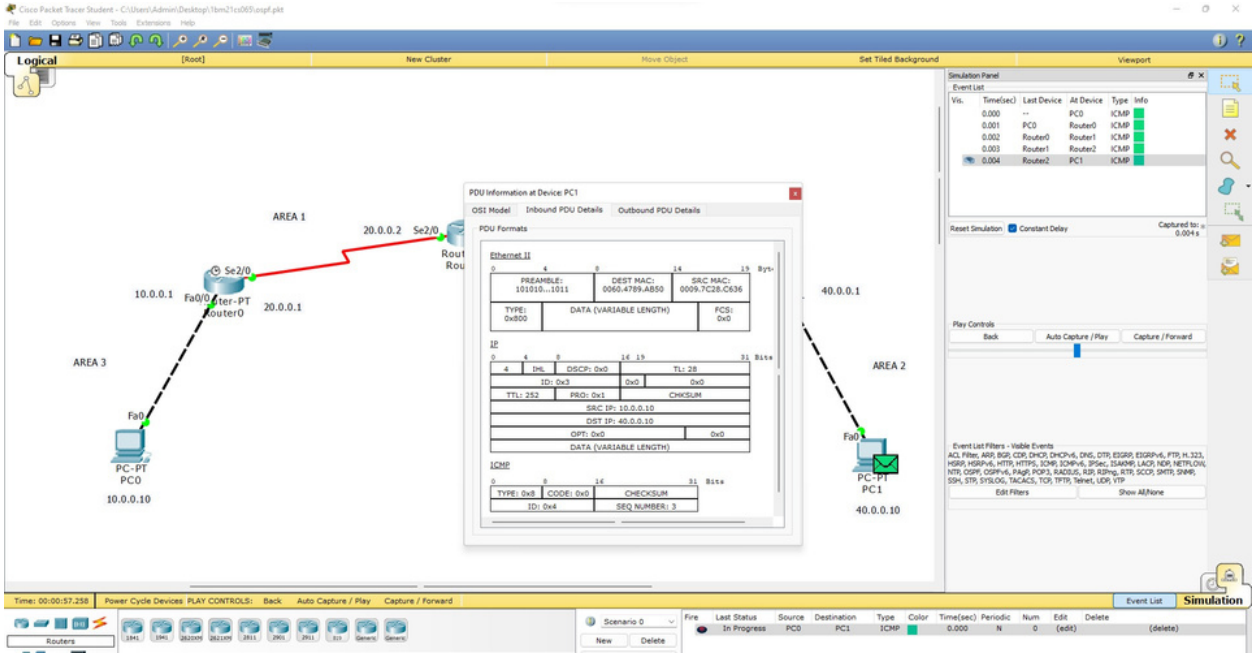


OUTPUT:




Logical
AREA 1
AREA 2
AREA 3
20.0.0.2
Se2/0
10.0.0.1
Fa0/0
20.0.0.1
40.0.0.1
Fa0
PC-PT
PC0
10.0.0.10
PC1
40.0.0.10
PDU Information at Device: Router1
OSI Model
Inbound PDU Details
Outbound PDU Details
PDU Formats
PPP
IP
ICMP
TTL: 254
PRO: 0x1
CHKSUM
SRC IP: 10.0.0.10
DST IP: 40.0.0.10
DATA (VARIABLE LENGTH)
TYPE: 0x8
CODE: 0x0
CHECKSUM
ID: 0x4
SEQ NUMBER: 3
Simulation Panel
Event List
Reset Simulation
Constant Delay
Play Controls
Back
Auto Capture / Play
Capture / Forward
Edit Filters
Show All/None
Time: 00:00:57.256
Power Cycle Devices
PLAY CONTROLS:
Simulation
Routers
Scenario 0
New
Delete
In Progress
ICMP


Logical
AREA 1
AREA 2
AREA 3
20.0.0.2
Se2/0
10.0.0.1
Fa0/0
20.0.0.1
40.0.0.1
Fa0
PC-PT
PC0
10.0.0.10
PC1
40.0.0.10
PDU Information at Device: Router2
OSI Model
Inbound PDU Details
Outbound PDU Details
PDU Formats
PPP
IP
ICMP
TTL: 253
PRO: 0x1
CHKSUM
SRC IP: 10.0.0.10
DST IP: 40.0.0.10
DATA (VARIABLE LENGTH)
TYPE: 0x8
CODE: 0x0
CHECKSUM
ID: 0x4
SEQ NUMBER: 3
Simulation Panel
Event List
Reset Simulation
Constant Delay
Play Controls
Back
Auto Capture / Play
Capture / Forward
Edit Filters
Show All/None
Time: 00:00:57.257
Power Cycle Devices
PLAY CONTROLS:
Simulation
Routers
Scenario 0
New
Delete
In Progress
ICMP


Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
AREA 1
AREA 2
AREA 3
20.0.0.2
Se2/0
10.0.0.1
Fa0/0
20.0.0.1
40.0.0.1
Fa0
PC-PT
PC0
10.0.0.10
PC-PT
PC1
40.0.0.10
PDU Information at Device: PC1
OSI Model
Inbound PDU Details
Outbound PDU Details
PDU Formats
Ethernet II
PREAMBLE: 101010...1011
DEST MAC: 0060.4789.AB50
SRC MAC: 0009.7C28.C636
TYPE: 0x800
DATA (VARIABLE LENGTH)
FCS: 0x0
IP
SRC IP: 10.0.0.10
DST IP: 40.0.0.10
ICMP
TYPE: 0x8
CODE: 0x0
CHECKSUM
ID: 0x4
SEQ NUMBER: 3
Simulation Panel
Event List
Reset Simulation
Constant Delay
Play Controls
Back
Auto Capture / Play
Capture / Forward
Edit Filters
Show All/None
Time: 00:00:57.258
Power Cycle Devices
PLAY CONTROLS:
Back
Auto Capture / Play
Capture / Forward
Event List
Simulation
Routers
Scenario 0
New
Delete
In Progress
PC0
PC1
ICMP
(edit)
(delete)