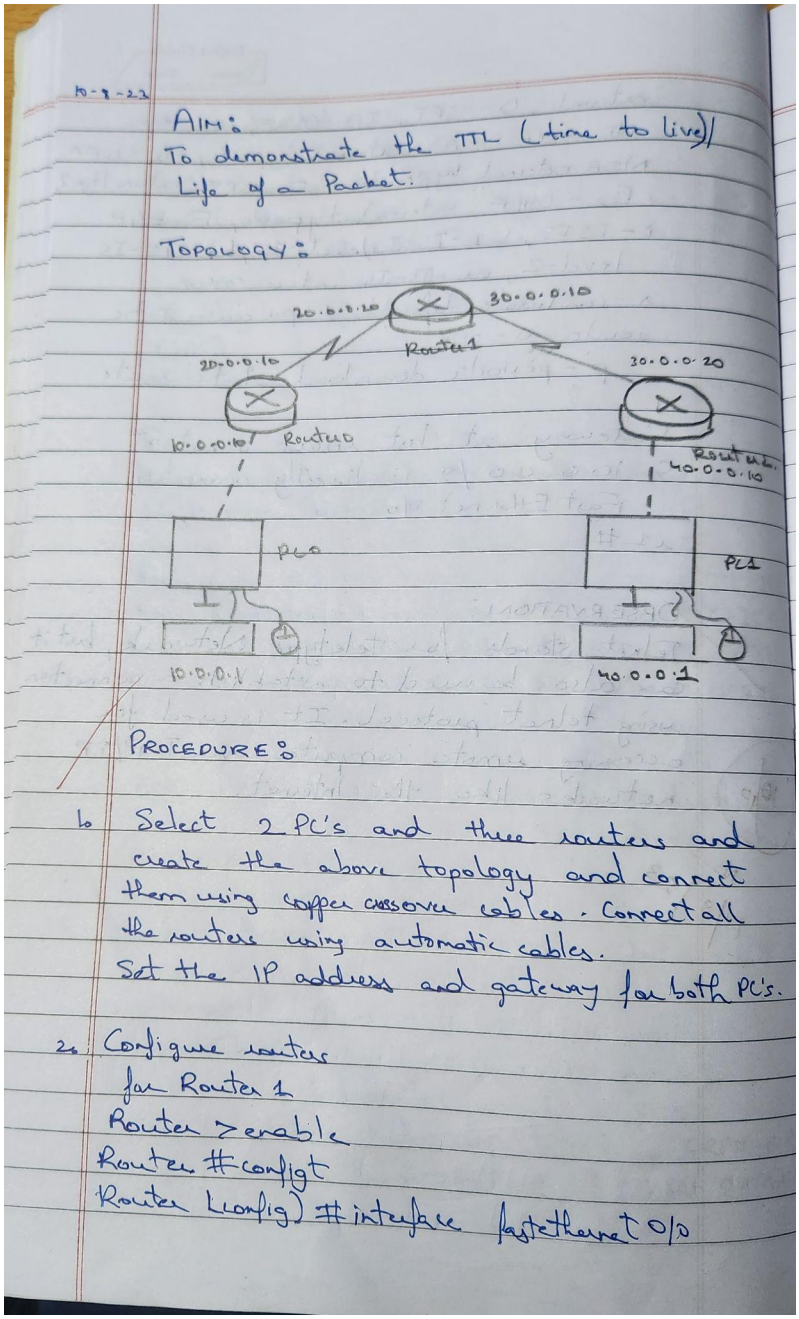
EXPERIMENT 7

AIM:

Demonstrate the TTL/ Life of a Packet.

OBSERVATION:



AIM:
To demonstrate the TTL (time to live)/ Life of a Packet.

TOPOLOGY:

PROCEDURE:

1. Select 2 PC's and three routers and create the above topology and connect them using copper crossover cables. Connect all the routers using automatic cables.
   Set the IP address and gateway for both PC's.
2. Configure routers
   for Router 1
   Router >enable
   Router #config t
   Router (config) #interface fastethernet 0/0

Bafna Gold
Date: Page:

Router (config-if) # ip address 10.0.0.10 255.0.0.0
Router (config-if) # no shut
Router (config-if) # exit
Router (config) # interface serial 2/0
Router (config-if) # ip address 20.0.0.10 255.0.0.0
Router (config-if) # no shut
Router (config-if) # exit

Router 2 :

Router > enable
Router # config t
Router (config) # interface serial 2/0
Router (config) # ip address 20.0.0.20 255.0.0.0
Router (config-if) # no shut
Router (config-if) # exit
Router (config) # 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 3 :
Router > enable
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 fastethernet 0/0
Router (config-if) # ip address 40.0.0.10 255.0.0.0
Router (config-if) # no shut
Router (config-if) # exit.
Router (config) # exit.

Router 1:

Router # config t.
Router (config) # ip route 30.0.0.0 255.0.0.0 20.0.0.20
Router (config) # ip route 40.0.0.0 255.0.0.0 20.0.0.20
Router (config) # exit

Similarly for Router 2:

Router # config t
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 3:
Router # config t
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 30.0.0.10

3. Select simulation mode, select simple PDU send a simple PDU from one PC to another.

4. Use capture button to capture every transfer.

5. Click on the PDU during every transfer to see the inbound and outbound PDU details.

6. Observe that there is a difference of 1 in the TTL value if crosses every router.

OBSERVATION:
Time to live is the amount of time or hops that a packet is set to exist inside a network before being discarded by a router.

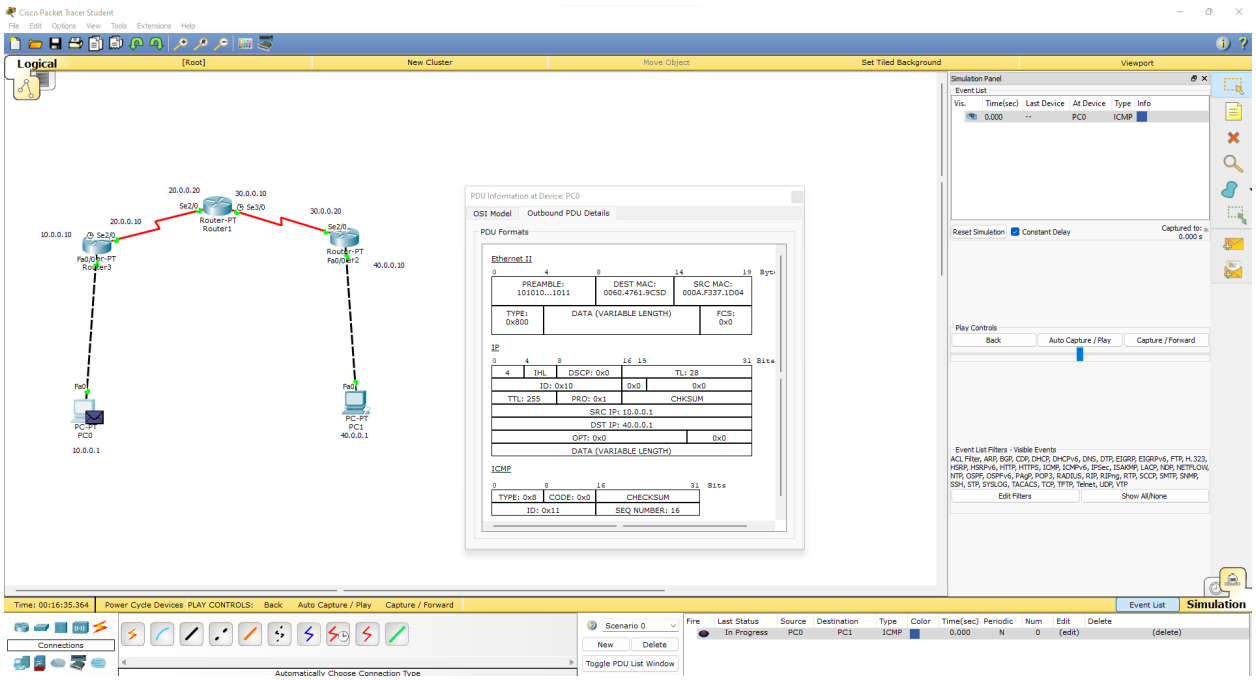
RESULT:
Select the PDU during every transfer to see ~~inbound and~~ inbound and outbound PDU details.

PDU information at Device : PC0
Outbound PDU details
TTL : 255.
PDU information at Device : Router 0
Inbound PDU details
TTL : 255.
Outbound PDU details
TTL : 254.
PDU information at Device : Router 1
Inbound PDU details:
TTL : 254
Outbound PDU details:
TTL : 253
PDU information at Device : Router 2
Inbound PDU details:
TTL : 253
Outbound PDU details:
TTL : 252
PDU information at Device : PC1
Inbound PDU details:
TTL : 252.

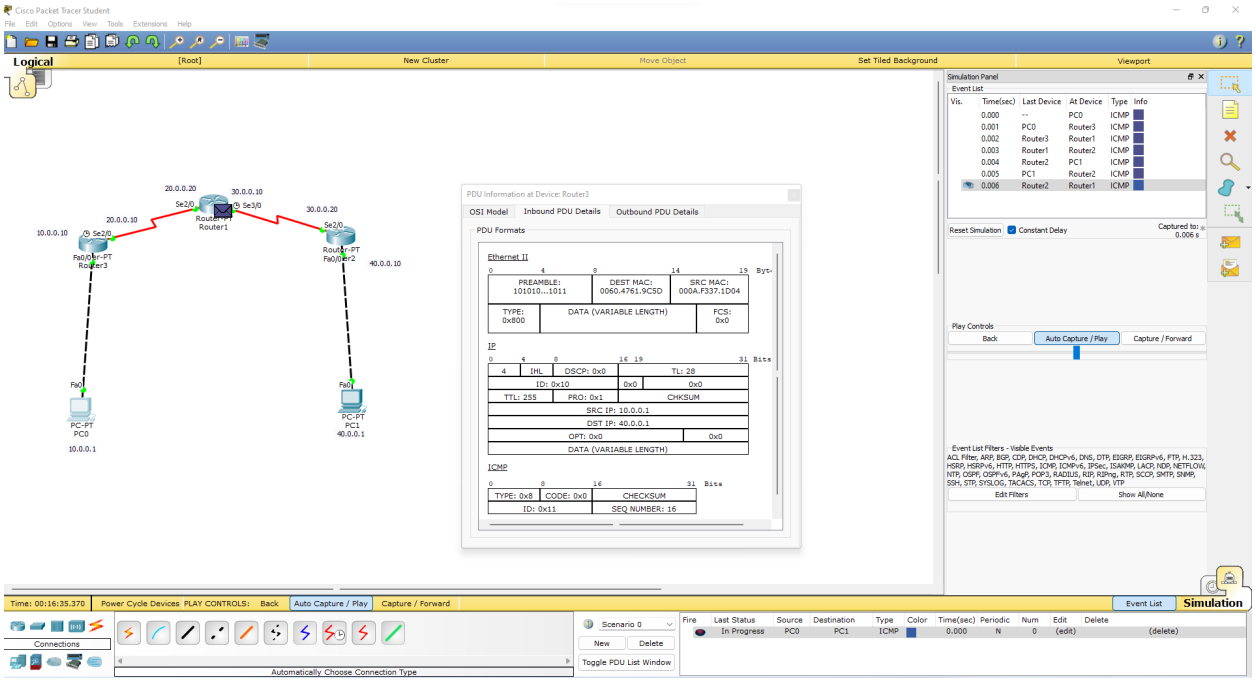
17/8/23
10/10

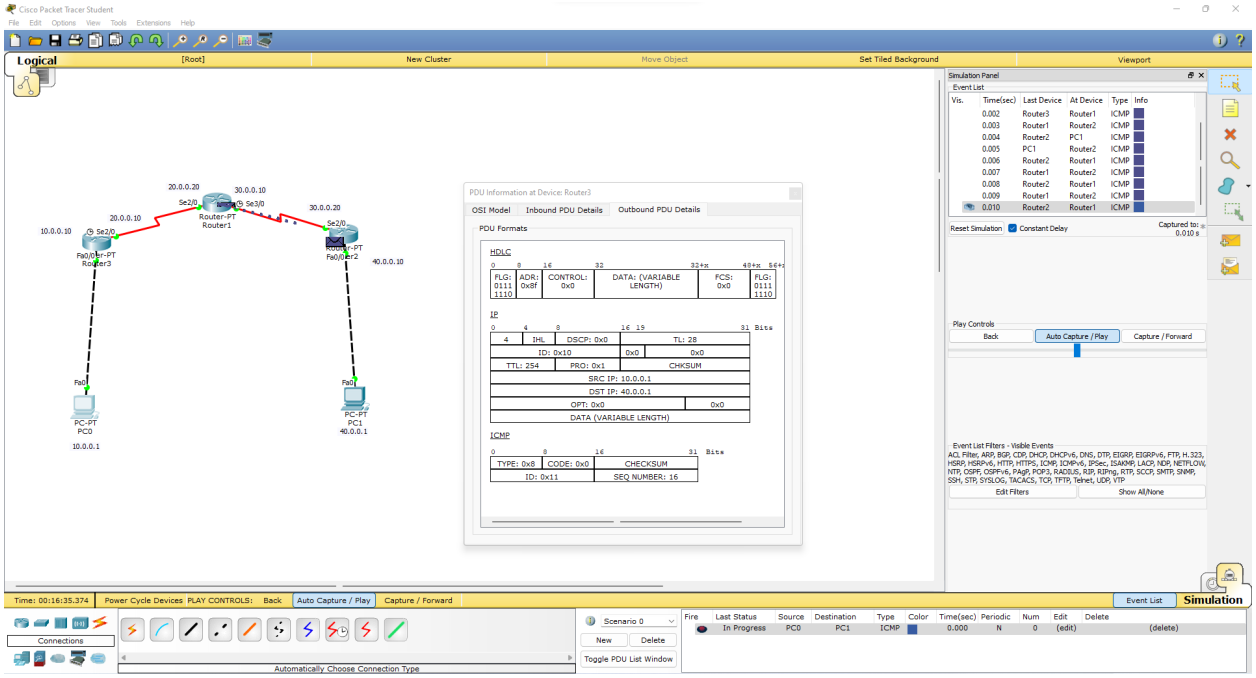
Result:

PC0:

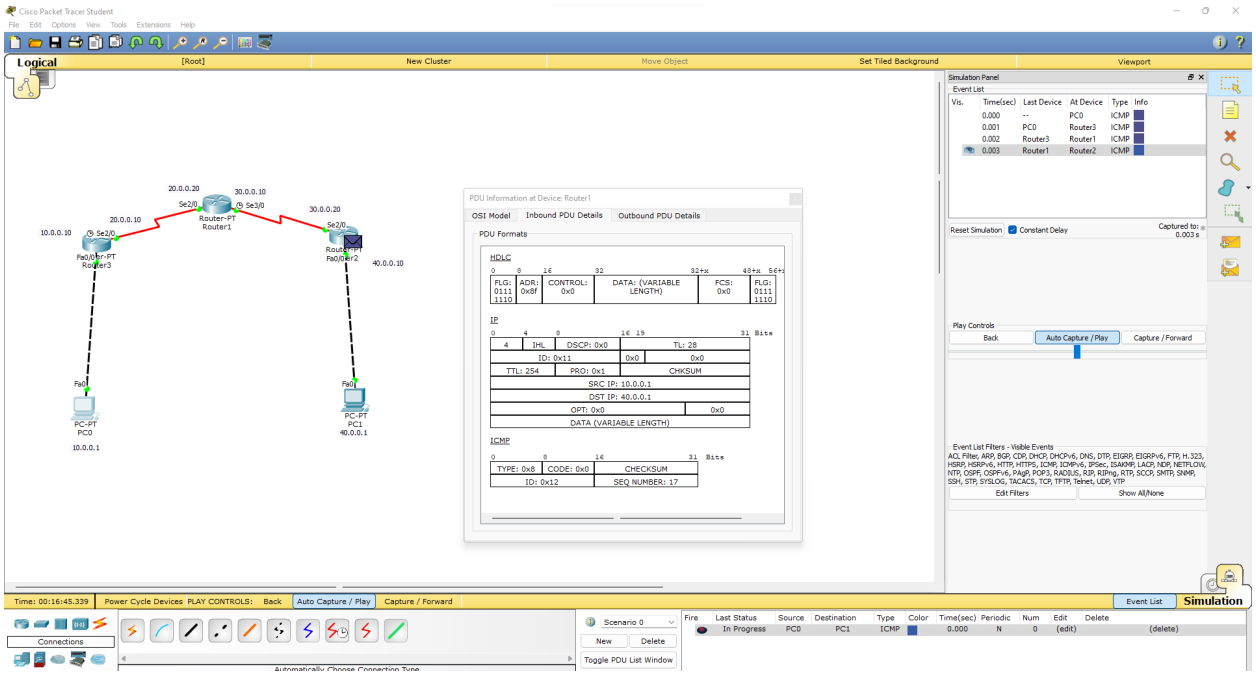


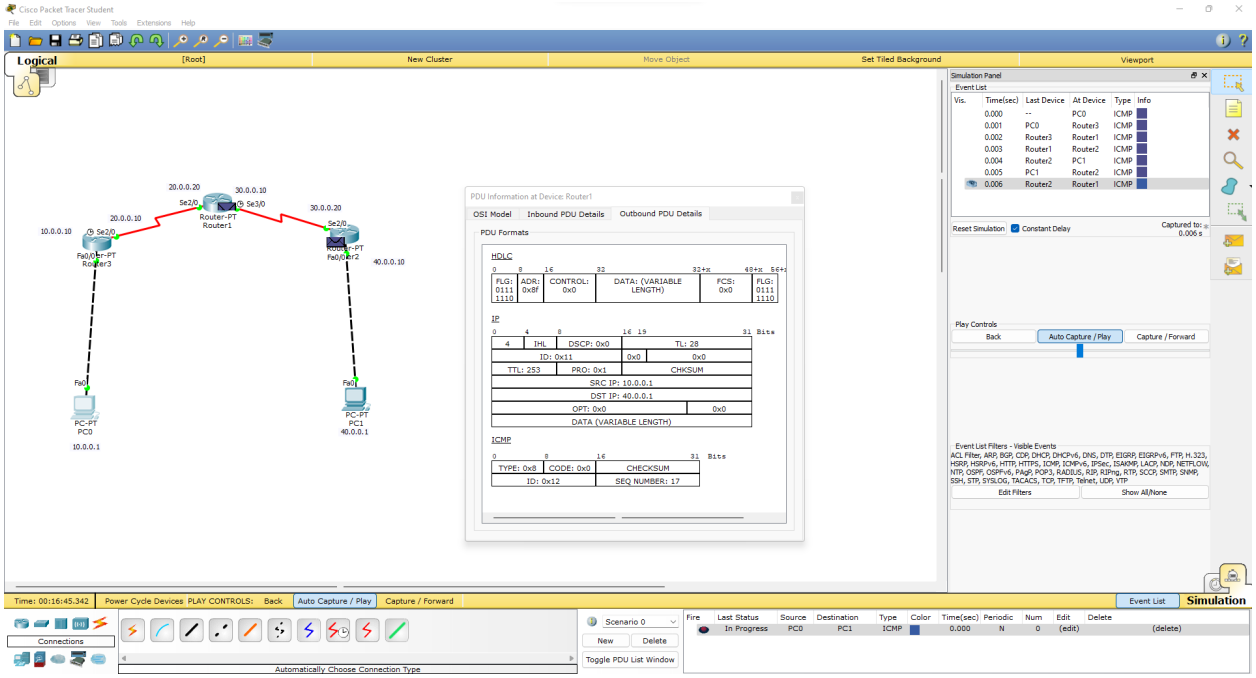
Router 0:



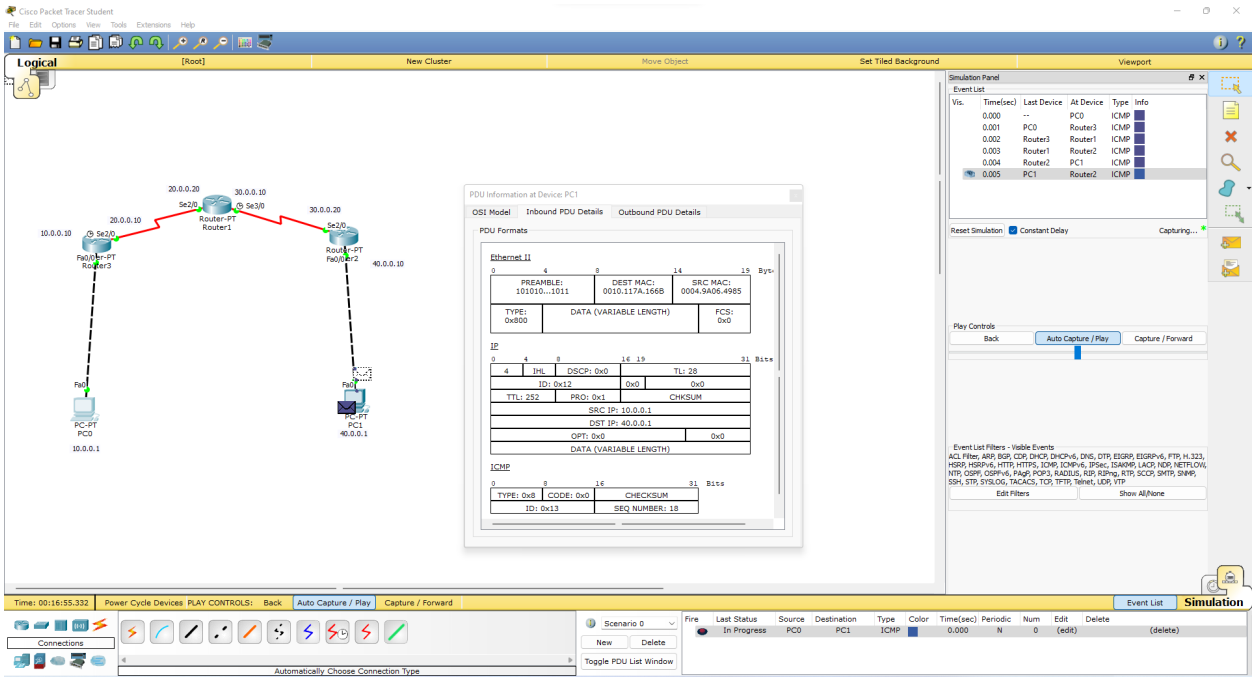

Cisco Packet Tracer Student
Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
Router-PT
Router1
Router-PT
Router3
Router-PT
Router2
PC-PT
PC0
PC-PT
PC1
20.0.0.20
30.0.0.10
20.0.0.10
10.0.0.10
30.0.0.20
40.0.0.10
10.0.0.1
40.0.0.1
PDU Information at Device: Router3
OSI Model
Inbound PDU Details
Outbound PDU Details
PDU Formats
HDLC
IP
ICMP
TYPE: 0x8
CODE: 0x0
CHECKSUM
ID: 0x11
SEQ NUMBER: 16
Simulation Panel
Event List
Play Controls
Back
Auto Capture / Play
Capture / Forward
Time: 00:16:35.374
Power Cycle Devices
PLAY CONTROLS:
Connections
Automatically Choose Connection Type
Scenario 0
New
Delete
Toggle PDU List Window
Simulation

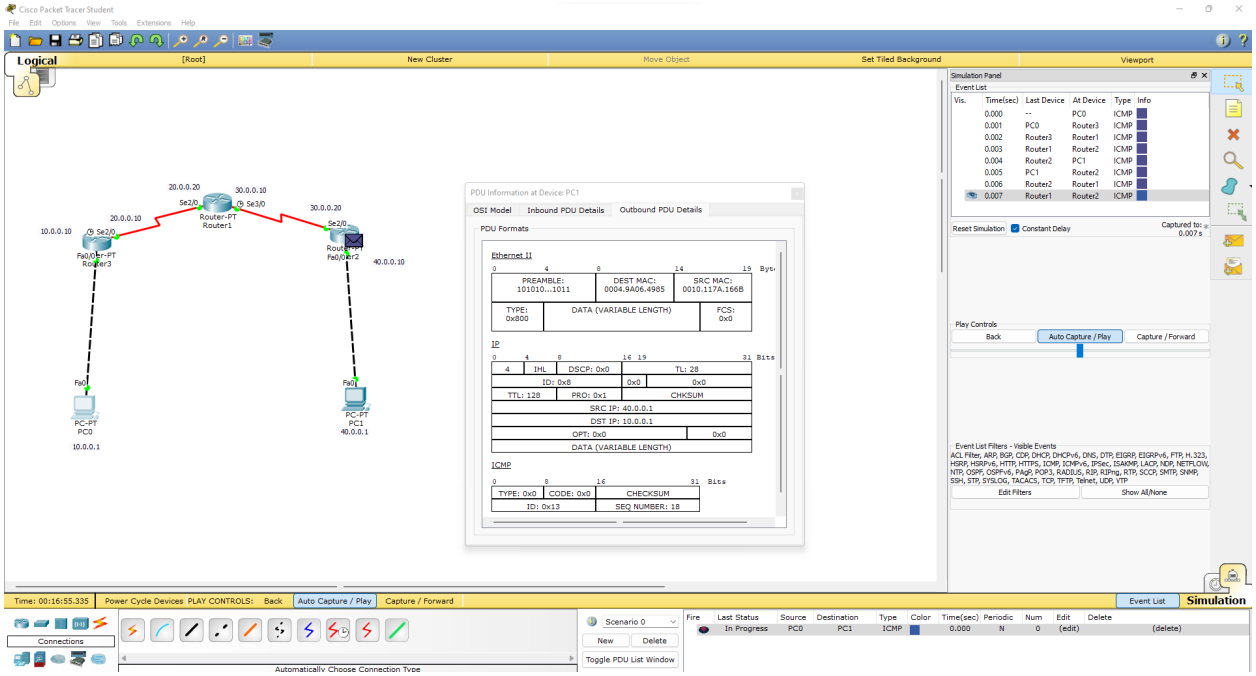
Router 1:


Cisco Packet Tracer Student
Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
Router-PT
Router1
Router-PT
Router3
Router-PT
Router2
PC-PT
PC0
PC-PT
PC1
20.0.0.20
30.0.0.10
20.0.0.10
10.0.0.10
30.0.0.20
40.0.0.10
10.0.0.1
40.0.0.1
PDU Information at Device: Router1
OSI Model
Inbound PDU Details
Outbound PDU Details
PDU Formats
HDLC
IP
ICMP
TYPE: 0x8
CODE: 0x0
CHECKSUM
ID: 0x12
SEQ NUMBER: 17
Simulation Panel
Event List
Play Controls
Back
Auto Capture / Play
Capture / Forward
Time: 00:16:45.339
Power Cycle Devices
PLAY CONTROLS:
Connections
Scenario 0
New
Delete
Toggle PDU List Window
Simulation

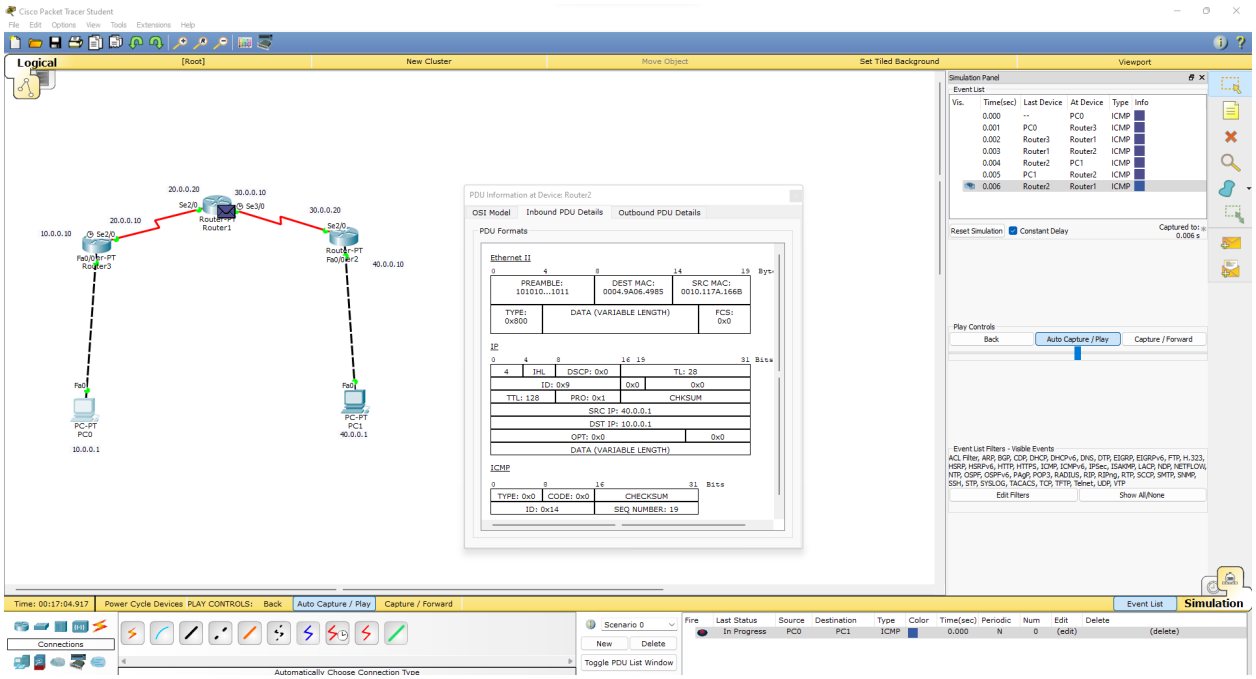

Cisco Packet Tracer Student
Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
Router-PT Router1
Router-PT Router3
Router-PT Router2
PC-PT PC0
PC-PT PC1
20.0.0.20
30.0.0.10
20.0.0.10
30.0.0.20
10.0.0.10
40.0.0.10
10.0.0.1
40.0.0.1
PDU Information at Device: Router1
OSI Model
Inbound PDU Details
Outbound PDU Details
PDU Formats
HDLC
IP
ICMP
Simulation Panel
Event List
Play Controls
Back
Auto Capture / Play
Capture / Forward
Time: 00:16:45.342
Power Cycle Devices
PLAY CONTROLS:
Event List
Simulation
Connections
Automatically Choose Connection Type
Scenario 0
New
Delete
Toggle PDU List Window

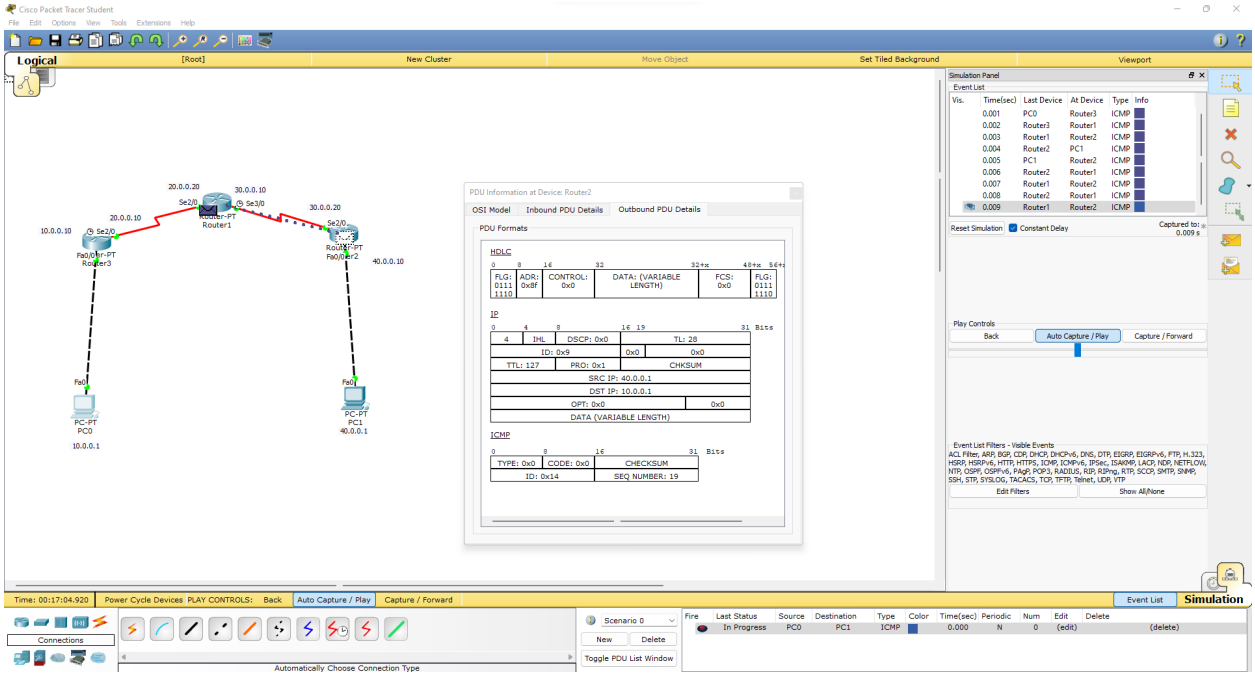
Router 2:


Cisco Packet Tracer Student
Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
Router-PT Router1
Router-PT Router3
Router-PT Router2
PC-PT PC0
PC-PT PC1
20.0.0.20
30.0.0.10
20.0.0.10
30.0.0.20
10.0.0.10
40.0.0.10
10.0.0.1
40.0.0.1
PDU Information at Device: PC1
OSI Model
Inbound PDU Details
Outbound PDU Details
PDU Formats
Ethernet II
IP
ICMP
Simulation Panel
Event List
Play Controls
Back
Auto Capture / Play
Capture / Forward
Time: 00:16:55.332
Power Cycle Devices
PLAY CONTROLS:
Event List
Simulation
Connections
Automatically Choose Connection Type
Scenario 0
New
Delete
Toggle PDU List Window


Cisco Packet Tracer Student
Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
Router-PT Router1
Router-PT Router3
Router-PT Router2
PC-PT PC0
PC-PT PC1
20.0.0.20
30.0.0.10
20.0.0.10
30.0.0.20
10.0.0.10
40.0.0.10
10.0.0.1
40.0.0.1
PDU Information at Device: PC1
OSI Model
Inbound PDU Details
Outbound PDU Details
PDU Formats
Ethernet II
PREAMBLE: 101010...1011
DEST MAC: 0004.9A06.4985
SRC MAC: 0010.117A.166B
TYPE: 0x800
DATA (VARIABLE LENGTH)
FCS: 0x0
IP
IHL
DSCP: 0x0
TL: 28
ID: 0x8
TTL: 128
PRO: 0x1
CHKSUM
SRC IP: 40.0.0.1
DST IP: 10.0.0.1
OPT: 0x0
DATA (VARIABLE LENGTH)
ICMP
TYPE: 0x0
CODE: 0x0
CHECKSUM
ID: 0x13
SEQ NUMBER: 18
Simulation Panel
Event List
Reset Simulation
Constant Delay
Play Controls
Back
Auto Capture / Play
Capture / Forward
Event List Filters - Visible Events
Edit Filters
Show All/None
Time: 00:16:55.335
Power Cycle Devices
PLAY CONTROLS:
Event List
Simulation
Connections
Automatically Choose Connection Type
Scenario 0
New
Delete
Toggle PDU List Window
In Progress
(edit)
(delete)

PC1:


Cisco Packet Tracer Student
Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
Router-PT Router1
Router-PT Router3
Router-PT Router2
PC-PT PC0
PC-PT PC1
20.0.0.20
30.0.0.10
20.0.0.10
30.0.0.20
10.0.0.10
40.0.0.10
10.0.0.1
40.0.0.1
PDU Information at Device: Router2
OSI Model
Inbound PDU Details
Outbound PDU Details
PDU Formats
Ethernet II
PREAMBLE: 101010...1011
DEST MAC: 0004.9A06.4985
SRC MAC: 0010.117A.166B
TYPE: 0x800
DATA (VARIABLE LENGTH)
FCS: 0x0
IP
IHL
DSCP: 0x0
TL: 28
ID: 0x9
TTL: 128
PRO: 0x1
CHKSUM
SRC IP: 40.0.0.1
DST IP: 10.0.0.1
OPT: 0x0
DATA (VARIABLE LENGTH)
ICMP
TYPE: 0x0
CODE: 0x0
CHECKSUM
ID: 0x14
SEQ NUMBER: 19
Simulation Panel
Event List
Reset Simulation
Constant Delay
Play Controls
Back
Auto Capture / Play
Capture / Forward
Event List Filters - Visible Events
Edit Filters
Show All/None
Time: 00:17:04.917
Power Cycle Devices
PLAY CONTROLS:
Event List
Simulation
Connections
Automatically Choose Connection Type
Scenario 0
New
Delete
Toggle PDU List Window
In Progress
(edit)
(delete)


Cisco Packet Tracer Student
Logical
[Root]
New Cluster
Move Object
Set Tiled Background
Viewport
20.0.0.20
30.0.0.10
Se2/0
Se3/0
Router-PT
Router1
20.0.0.10
30.0.0.20
10.0.0.10
Router-PT
Router3
Router-PT
Router2
40.0.0.10
PC-PT
PC0
10.0.0.1
PC-PT
PC1
40.0.0.1
PDU Information at Device: Router2
OSI Model
Inbound PDU Details
Outbound PDU Details
PDU Formats
HDLC
IP
ICMP
Simulation Panel
Event List
Play Controls
Back
Auto Capture / Play
Capture / Forward
Time: 00:17:04.920
Power Cycle Devices
PLAY CONTROLS:
Event List
Simulation
Connections
Automatically Choose Connection Type
Scenario 0
New
Delete
Toggle PDU List Window
Fire
Last Status
Source
Destination
Type
Color
Time(sec)
Periodic
Num
Edit
Delete
In Progress
PC0
PC1
ICMP
(edit)
(delete)