EXPERIMENT- 10

Demonstrate the TTL/ Life of a Packet

Experiment - 10

Aim: Demonstrate TTL / life of a packet

Topology:
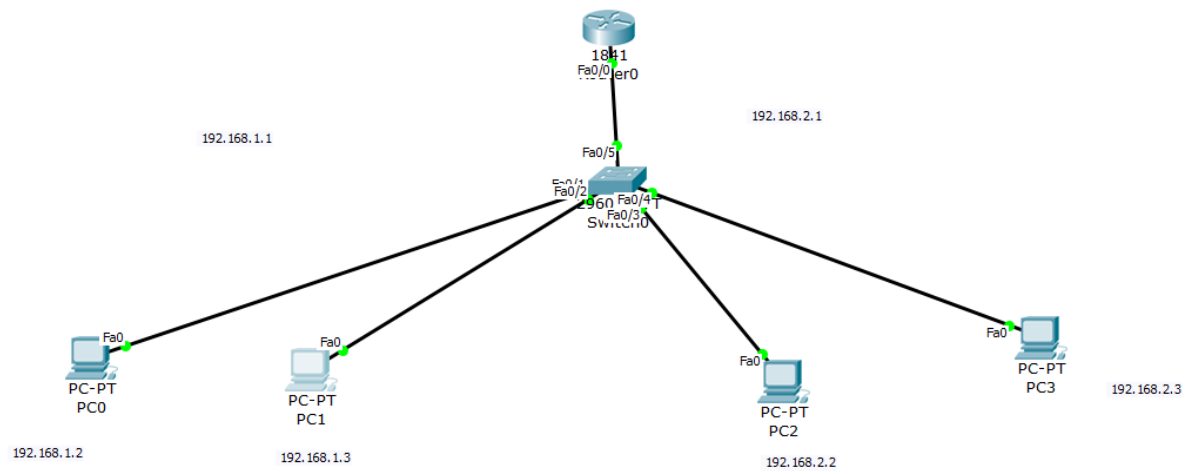

Procedure:

① Create a topology as shown with 2 end devices and 3 routers.

② Set ip addresses to end devices and also set gateways.

③ Configure routers either statically ~~or dynamically~~ / default routing.

④ In simulation mode, send a simple PDU from one end device to another.

⑤ Use capture button to view each movement of the PDU.

⑥ Click on the ~~the~~ PDU at each step and observe inbound and outbound details.

Results:

		DSCP			
20	0x6			0x	0.0
TTL 255		Protocol		CHKSM	
	SRC IP 10.0.0.1				
	DST IP 40.0.0.1				
OPT 0x0				0x0	
DATA					

Observation:

The number of hops the packet travels before being dropped is known as Time-to-Live (TTL. Data gram TTL field is set by the sender and reduced by each router along the path to its destination. The router reduces TTL value by one while forwarding the packets. When TTL value is 0 the router drops packet and sends an ICMP message to sender.

Topology:

1841
Fa0/0ler0

192.168.1.1

192.168.2.1

Fa0/5

Fa0/1
Fa0/2   Fa0/4
     960 Fa0/3
Switch0

PC-PT
PC0

Fa0

PC-PT
PC1

Fa0

PC-PT
PC2

Fa0

PC-PT
PC3

192.168.2.3

192.168.1.2

192.168.1.3

192.168.2.2

Result:

PDU Information at Device: Router0 — Inbound PDU Details

PDU Formats

Ethernet II

0	4	8	14	19 Bytes

PREAMBLE: 101010...1011	DEST MAC: 00E0.A374.8A02	SRC MAC: 0090.2BC9.7819

TYPE: 0x800	DATA (VARIABLE LENGTH)	FCS: 0x0

IP

0	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	

PDU Information at Device: Router0 — Outbound PDU Details

PDU Formats

HDLC

0	8	16	32	32+x	48+x 56+x Bits

FLG: 011	ADR:	CONTROL: 0x0	DATA: (VARIABLE LENGTH)	FCS: 0x0	FLG: 011

IP

0	4	8	16 19	31 Bits

4	IHL	DSCP: 0x0	TL: 28
ID: 0x1	0x0	0x0	
TTL: 254	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	

PDU Information at Device: Router1 — Inbound PDU Details

PDU Formats

HDLC

0	8	16	32	32+x	48+x 56+x Bits

FLG: 011	ADR:	CONTROL: 0x0	DATA: (VARIABLE LENGTH)	FCS: 0x0	FLG: 011

IP

0	4	8	16 19	31 Bits

4	IHL	DSCP: 0x0	TL: 28
ID: 0x1	0x0	0x0	
TTL: 254	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	

PDU Information at Device: Router1 — Outbound PDU Details

PDU Formats

HDLC

0	8	16	32	32+x	48+x 56+x Bits

FLG: 011	ADR:	CONTROL: 0x0	DATA: (VARIABLE LENGTH)	FCS: 0x0	FLG: 011

IP

0	4	8	16 19	31 Bits

4	IHL	DSCP: 0x0	TL: 28
ID: 0x1	0x0	0x0	
TTL: 253	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	