LAB-8

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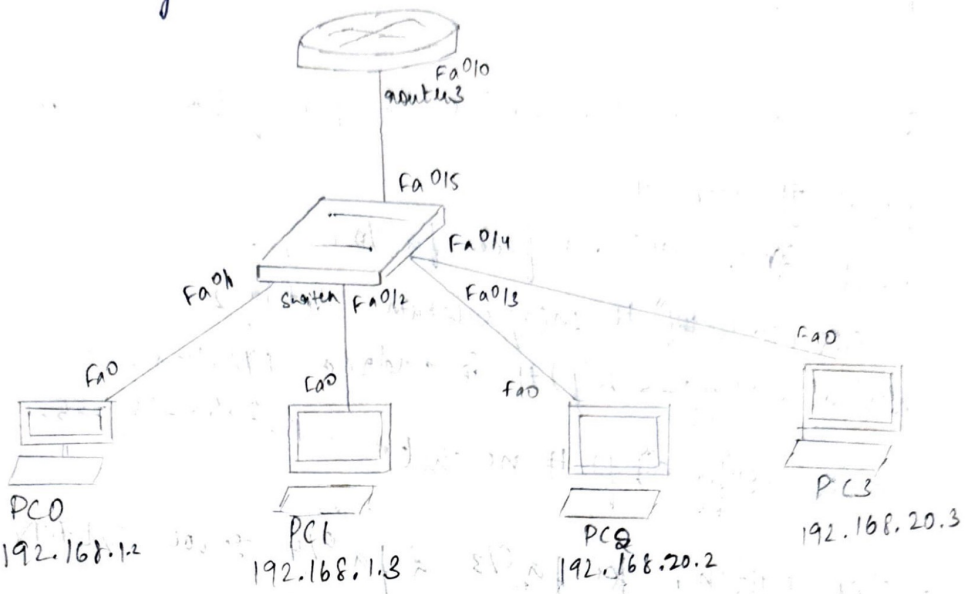
Aim: To construct a VLAN and make the pc's communicate among a VLAN



Procedure:

1) Create the topology as given above.
2) Configure IP addres for pc's as 192.168.1.2, 192.168.1.3, 192.168.20.2, 192.168.20.3.
3) Configure the IP address for the router using following commands

```
router > enable
router # config t
router (config) # interface fa0/0.
router (config) # ip address 192.168.1.1 255.255.255.0.
router (config-if) # exit
```

4) On the switch go to VLAN database & create/add new VLAN database.
5) Now, under fastEthernet 0/5 & make it trunk, in VLAN everything need to be selected.

6) Now, in router., select VLAN1 database Enter the no & name of entered before. Also. in switch for interface 0/3 & 0/4., VLAN1 should be selected as 2.

7) Goto CLI in the router & give following commands

router # config t
router (config) # interface fa 0/0.1
router (config-subif) # encapsulation dot1q 2
router (config-subif) # ip address 192.168.20.1 255.255.255.0
router (config-subif) # no shut

8) In the switch, for fa 0/3 & fa 0/4 select VLAN & no as no given for VLAN1 Database.

Now ping from PC0 to PC3,

PC> ping 192.168.20.2

pinging 192.168.20.2 with 32 bytes of data

reply from 192.168.20.2 : bytes = 32 time = 4ms TTL = 127
reply from 192.168.20.2 : bytes = 32 time = 0ms TTL = 127
reply from 192.168.20.2 : bytes = 32 time = 3ms TTL = 127
reply from 192.168.20.2 : bytes = 32 time = 1ms TTL = 127.

Ping statistics for 192.168.20.2

packets : sent = 4, recieved = 4, lost = 0 (0% loss)

Approximate round trip times in milli-seconds:

minimum = 0ms, maximum = 3ms, Avg = 2ms.

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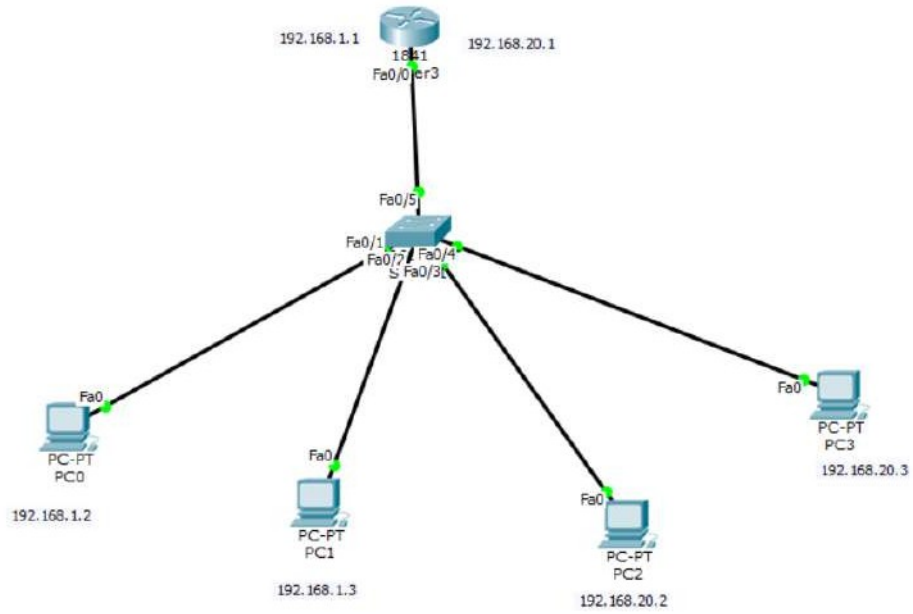
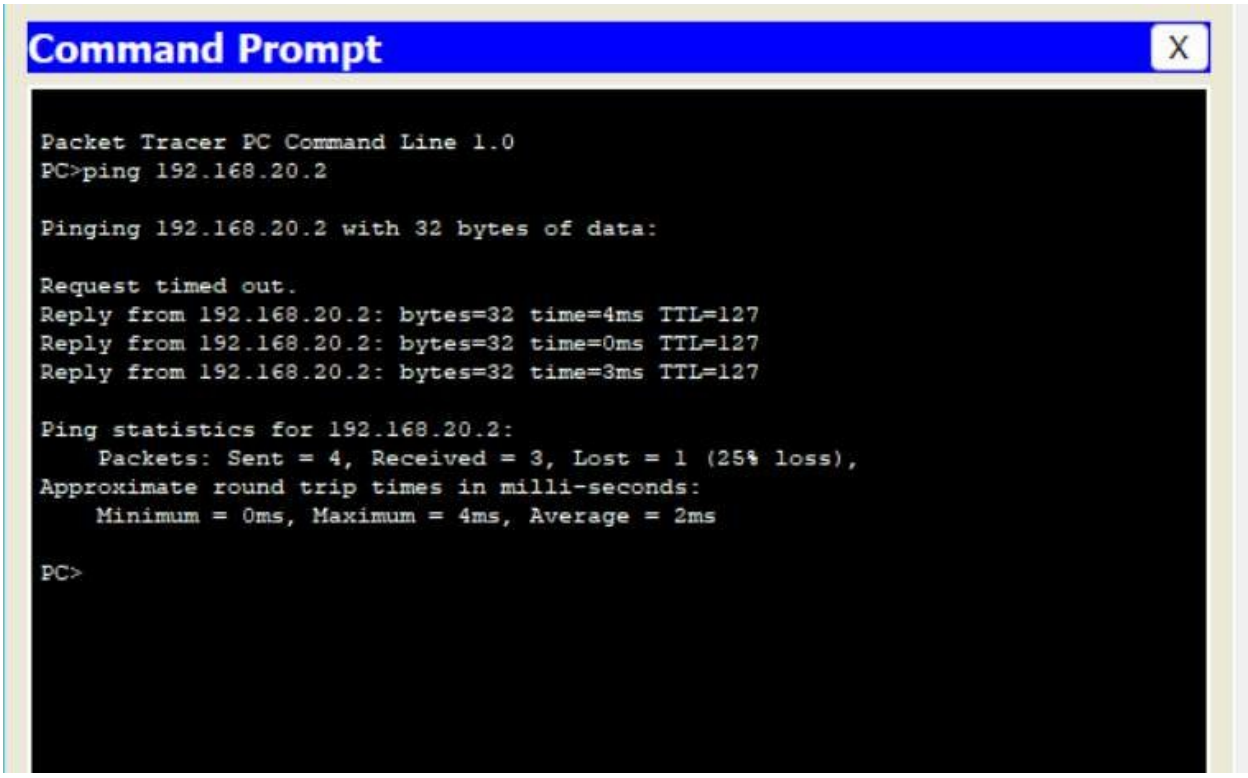
Topology:

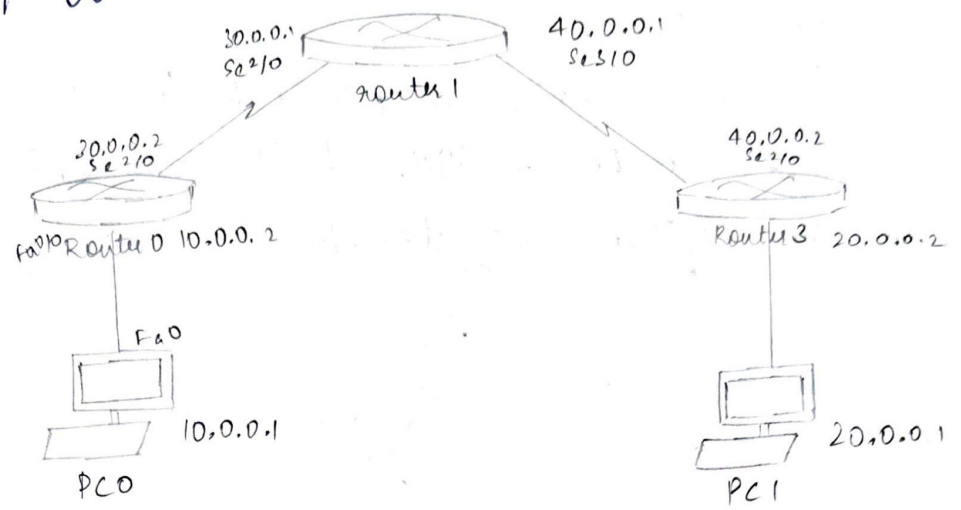


Output:



Aim: To demostrate the TTL / life of a packet

Topology:



Procedure:

Step 1: Create the above topology

Step 2: Configure the IP address as 10.0.0.1 & 20.0.0.1 for PC0 & PC1.

Step 3: Configure the IP address for routers & static / default routing

~~Step 4~~: Routes 0:

```
router # config t
router (config) # interface fa 0/0
router (config-if) # IP address 10.0.0.2 255.0.0.0
router (config-if) # no shut
router (config-if) # exit
router (config) # interface se 2/0
router (config-if) # ip address 30.0.0.2 255.0.0.0
router (config-if) # no shut
router (config-if) # exit
router (config) # IP route 0.0.0.0 0.0.0.0 30.0.0.1
router (config) # exit.
```

~~router~~

Similarly, configure for router 1 & router 2.

Step 4: In simulation mode, send a simple PDU from one pc to another.

Step 5: Click on PDU during every transfer to see the Inbound & outbound PDU details, use capture button to capture every transfer.

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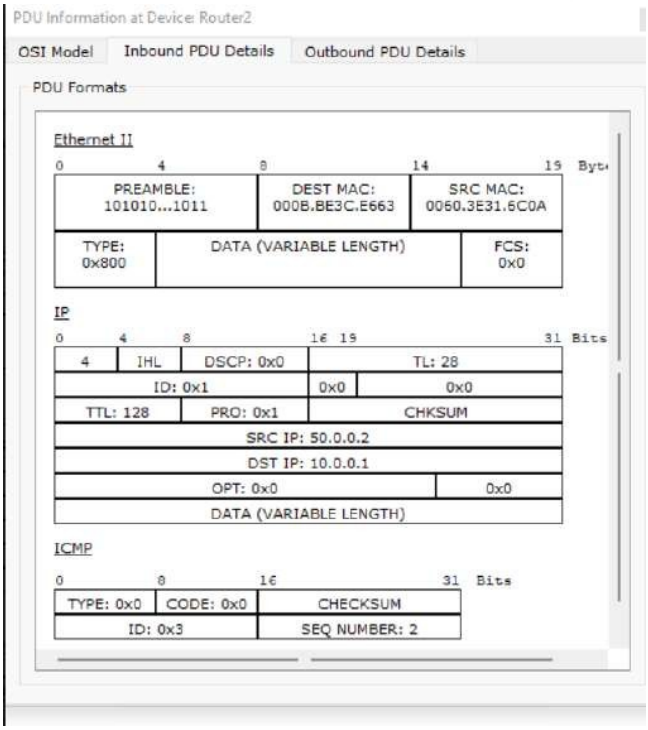


PDU Information at Device: Router0

OSI Model | Inbound PDU Details | Outbound PDU Details

PDU Formats

Ethernet II

0	4	8	14	19 Byt
PREAMBLE: 101010...1011		DEST MAC: 0090.2118.395A	SRC MAC: 000C.CF9B.CCE1	
TYPE: 0x800	DATA (VARIABLE LENGTH)		FCS: 0x0	

IP

0	4	8	16 19	31 Bits
4	IHL	DSCP: 0x0	TL: 28	
ID: 0x2		0x0	0x0	
TTL: 255	PRO: 0x1	CHKSUM		
SRC IP: 10.0.0.1				
DST IP: 50.0.0.2				
OPT: 0x0		0x0		
DATA (VARIABLE LENGTH)				

ICMP

0	8	16	31 Bits
TYPE: 0x8	CODE: 0x0	CHECKSUM	
ID: 0x3		SEQ NUMBER: 2	

PDU Information at Device: Router2

OSI Model | Inbound PDU Details | Outbound PDU Details

PDU Formats

HDLC

0	8	16	32	32+x	48+x	56+
FLG: 0111 1110	ADR: 0x8f	CONTROL: 0x0	DATA: (VARIABLE LENGTH)		FCS: 0x0	FLG: 0111 1110

IP

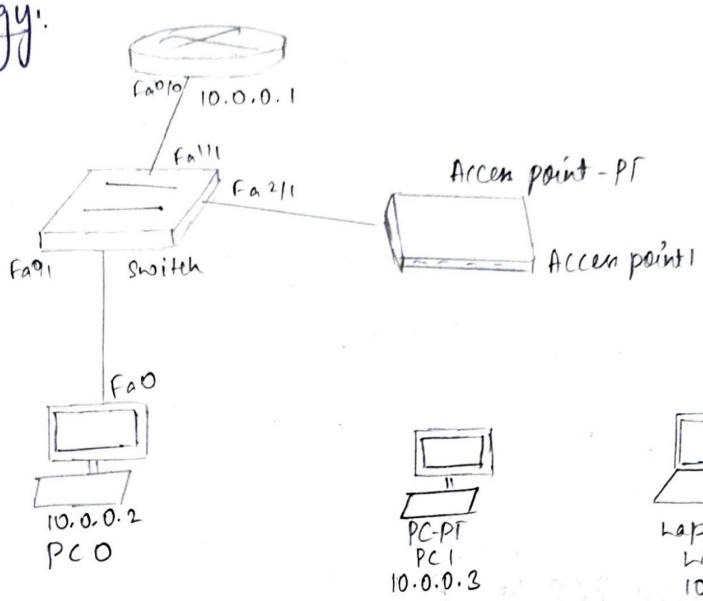
0	4	8	16 19	31 Bits
4	IHL	DSCP: 0x0	TL: 28	
ID: 0x2		0x0	0x0	
TTL: 253	PRO: 0x1	CHKSUM		
SRC IP: 10.0.0.1				
DST IP: 50.0.0.2				
OPT: 0x0		0x0		
DATA (VARIABLE LENGTH)				

ICMP

0	8	16	31 Bits
TYPE: 0x8	CODE: 0x0	CHECKSUM	
ID: 0x3		SEQ NUMBER: 2	

Aim - To construct a WLAN & make the nodes communicate wirelessly.

Topology:



Procedure:

Step 1: Create the topology as given above.

Step 2: Configure PC0 & router as normally done.

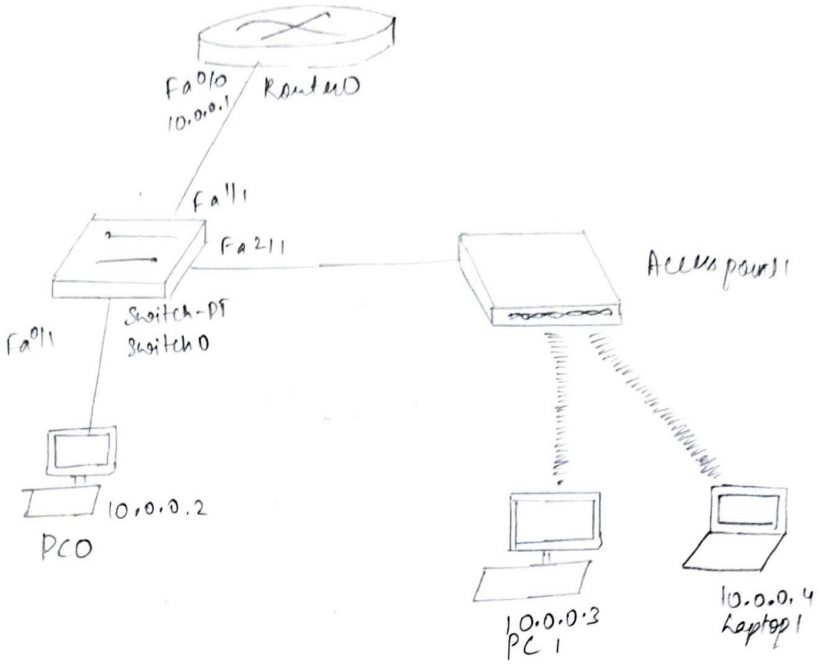
Step 3: Configure the Accen point 1, go to port 1 & give SSID name (any name).

Step 4: Select WEP & give any 10 digit Hex key. (1234567890). Configure PC1 & laptop with wireless standards.

Step 5: Switch off the device. Drag the existing PT-HOST.NM-1AM to the component listed in LHS. Drag WMP300N wirelss interface to empty port.

Step 6: In the config tab a new wireless interface would have been added. Now configure SSID, WEP, WEP key, IP address & Gateway (as normally done) to device.

Final topology on screen.



Now ping from PC0 to PC1

PC > ping 10.0.0.3

ping 10.0.0.3 with 32 bytes of data:

reply from 10.0.0.3: bytes=32 Time=47ms TTL=128

reply from 10.0.0.3: bytes=32 time=32ms TTL=128

reply from 10.0.0.3: bytes=32 time=35ms TTL=128

reply from 10.0.0.3: bytes=32 time=3 ms TTL=128

ping statistics for 10.0.0.3:

packets: sent=4, recieved=4, lost=0 (0% loss)

Approximate round trip time in milli-seconds

minimum=3ms Maximum=47ms, Avg=29 ms

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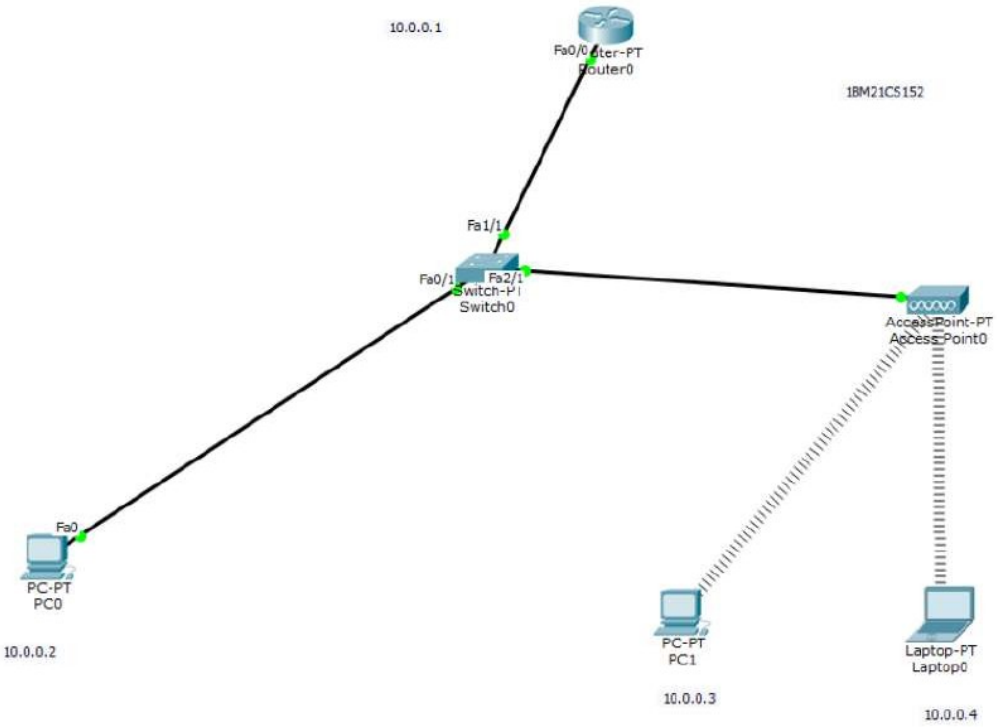
Topology:



Output: