# LAB-7

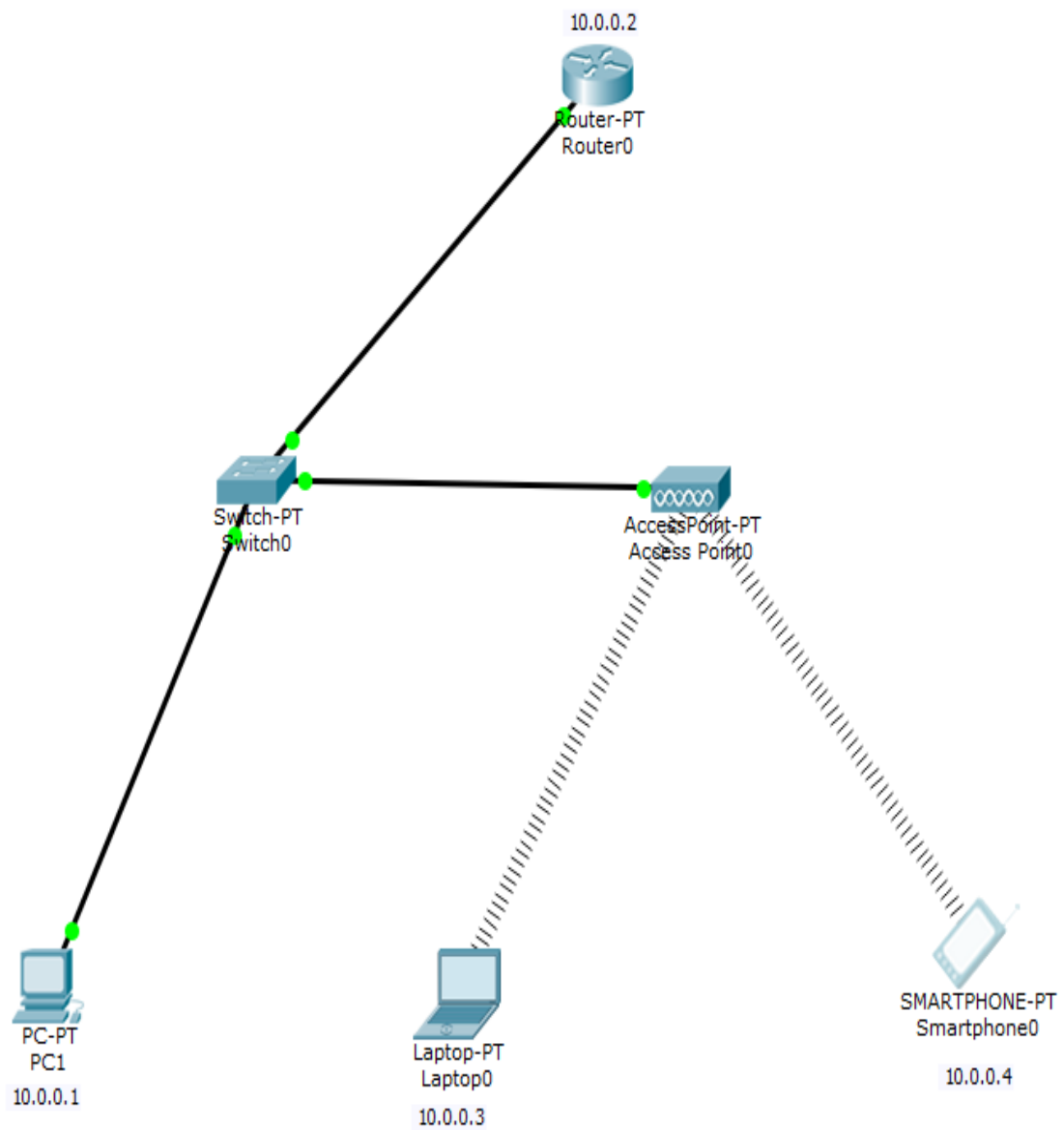## 7.1)To demonstrate communication between 2 devices using wireless LAN

Daigram:=

**OUTPUT:=**

```
Packet Tracer PC Command Line 1.0
PC>ping 10.0.0.1

Pinging 10.0.0.1 with 32 bytes of data:

Reply from 10.0.0.1: bytes=32 time=25ms TTL=128
Reply from 10.0.0.1: bytes=32 time=15ms TTL=128
Reply from 10.0.0.1: bytes=32 time=10ms TTL=128
Reply from 10.0.0.1: bytes=32 time=11ms TTL=128

Ping statistics for 10.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 10ms, Maximum = 25ms, Average = 15ms

PC>ping 10.0.0.2

Pinging 10.0.0.2 with 32 bytes of data:

Reply from 10.0.0.2: bytes=32 time=25ms TTL=255
Reply from 10.0.0.2: bytes=32 time=10ms TTL=255
Reply from 10.0.0.2: bytes=32 time=8ms TTL=255
Reply from 10.0.0.2: bytes=32 time=11ms TTL=255

Ping statistics for 10.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 8ms, Maximum = 25ms, Average = 13ms

PC>ping 10.0.0.3

Pinging 10.0.0.3 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 10.0.0.3:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

PC>ping 10.0.0.3

Pinging 10.0.0.3 with 32 bytes of data:

Reply from 10.0.0.3: bytes=32 time=17ms TTL=128
Reply from 10.0.0.3: bytes=32 time=10ms TTL=128
Reply from 10.0.0.3: bytes=32 time=12ms TTL=128
Reply from 10.0.0.3: bytes=32 time=12ms TTL=128

Ping statistics for 10.0.0.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 10ms, Maximum = 17ms, Average = 12ms

PC>
```

```
Packet Tracer PC Command Line 1.0
PC>
Packet Tracer PC Command Line 1.0
PC>
Packet Tracer PC Command Line 1.0
PC>ping 10.0.0.1

Pinging 10.0.0.1 with 32 bytes of data:

Reply from 10.0.0.1: bytes=32 time=20ms TTL=128
Reply from 10.0.0.1: bytes=32 time=9ms TTL=128
Reply from 10.0.0.1: bytes=32 time=9ms TTL=128
Reply from 10.0.0.1: bytes=32 time=12ms TTL=128

Ping statistics for 10.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 9ms, Maximum = 20ms, Average = 12ms

PC>ping 10.0.0.2

Pinging 10.0.0.2 with 32 bytes of data:

Reply from 10.0.0.2: bytes=32 time=18ms TTL=255
Reply from 10.0.0.2: bytes=32 time=10ms TTL=255
Reply from 10.0.0.2: bytes=32 time=13ms TTL=255
Reply from 10.0.0.2: bytes=32 time=11ms TTL=255

Ping statistics for 10.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 10ms, Maximum = 18ms, Average = 13ms

PC>ping 10.0.0.4

Pinging 10.0.0.4 with 32 bytes of data:

Reply from 10.0.0.4: bytes=32 time=27ms TTL=128
Reply from 10.0.0.4: bytes=32 time=13ms TTL=128
Reply from 10.0.0.4: bytes=32 time=14ms TTL=128
Reply from 10.0.0.4: bytes=32 time=20ms TTL=128

Ping statistics for 10.0.0.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 13ms, Maximum = 27ms, Average = 18ms

PC>
```

**Observation :=**

① To demonstrate communicate between 2 devices using wireless lan

SSID - Name of the wireless n/w

10.0.0.2

Router-RT
Router 0

Accesspoint -RT
Access point 0

Switch -RT
Switch 0

PC-PT
PC1
10.0.0.1

Laptop-PT
Laptop 0
10.0.0.3

Smartphone-PT
Smartphone 0
10.0.0.4

① take 1 switch, 1 PC, 1 laptop, 1 smartphone and 1 router and 1 Access point. and connect wired only for PC, switch only

② give IP address for PC, router only

③ click on the access point in config in that port 0 - click on button and Bandwidth and duplex as Auto with 100kbps and full duplex.

④ in that access point in port 1 - on the port 1 give SSID Name as WLAN1 and click on WPA2-PSK PSK Pass Phase 123456789.

④ go to smart phone click on config in that config click on wireless d in that on the 8 wireless and give SSID as access point name - WLAN and WPA2 - PSK PSK Pass phrase - 123456789 it connected to the access point only if we give ipaddress as 10.0.0.3 and subnet Mask as 255.0.0.0

⑤ click on laptop in that physical off the pc and remove ethernet and add the wireless port. now we see on config wireless 0 In that wireless0 on the wireless add SSID as WLAN1 and in that WPA2-PSK PSK Pass phrase -123456789 as password now it connected to the wireless access point now add the IP address 10.0.0.3 and subnet Mask as 255.0.0.0. then it completely connected

Observation →

ping 10.0.0.3 -
Pinging 10.0.0.3 with 32 bytes of data:
reply from 10.0.0.3: bytes =32 time = 17MS TTL = 128
            "         "       " = 10MS TTL: "
            "         "       " = 12MS  "  = "
            "         "       " = 12MS  "  = " 2024.11.2

ping statistics for 10.0.0.3:
packet : sent = 4, received = 4, lost = 0 (0% loss),
Approximate round trip times in milliseconds:
Minimum = 10MS, Maximum = 17MS, Average = 12M

## 7.2) Demonstrate working of Address Resolution protocal communication with LAN

**Daigram:=**
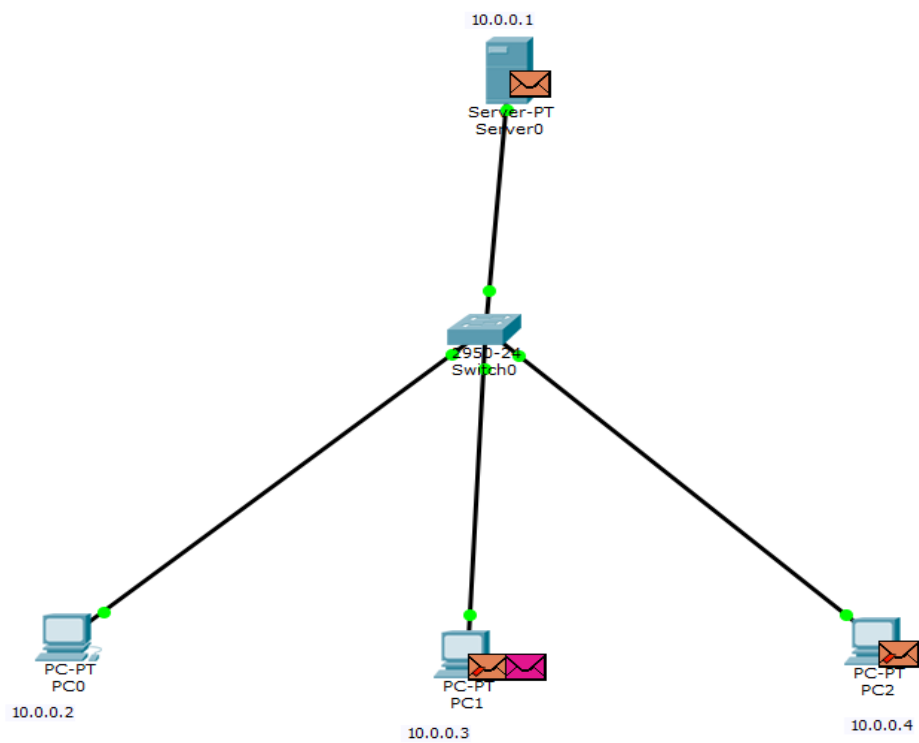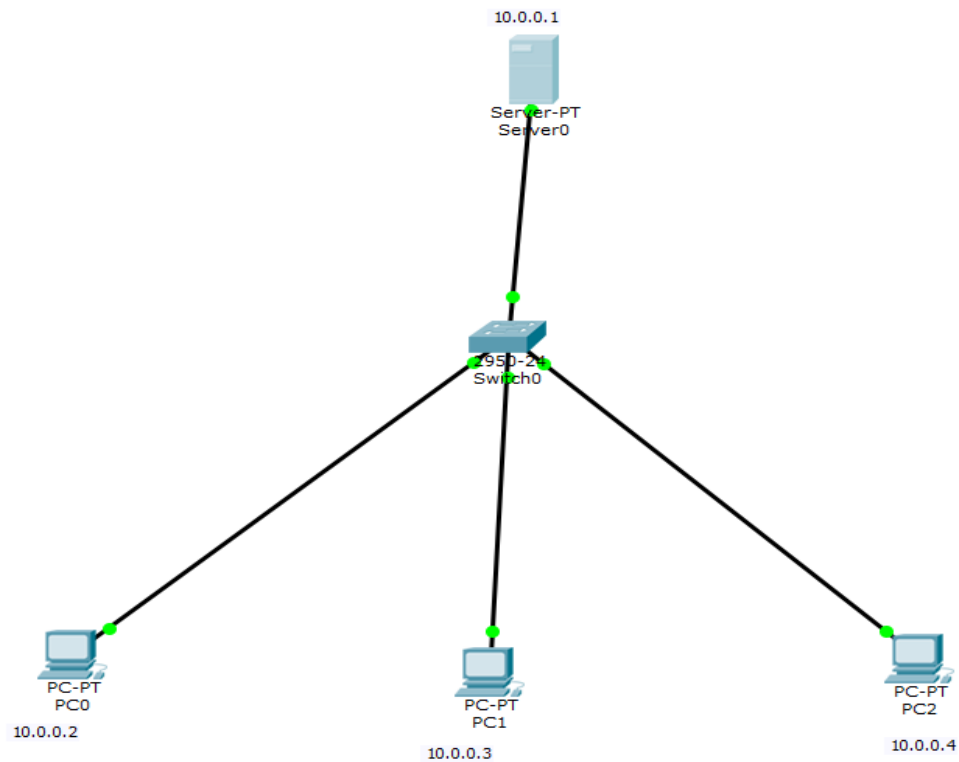
**ARP Table:=**

**ARP Table for PC0**

| IP Address | Hardware Address | Interface | |
|---|---|---|---|
| 10.0.0.1 | 0009.7C69.3C0A | FastEthernet0 | |

**ARP Table for PC1**

| IP Address | Hardware Address | Interface | |
|---|---|---|---|
| 10.0.0.1 | 0009.7C69.3C0A | FastEthernet0 | |

**ARP Table for Server0**

| IP Address | Hardware Address | Interface | |
|---|---|---|---|
| 10.0.0.2 | 00D0.5880.759C | FastEthernet0 | |
| 10.0.0.3 | 0090.21D2.380E | FastEthernet0 | |

**OUTPUT of PC0=**

```
Packet Tracer PC Command Line 1.0
PC>ARP -A
  Internet Address       Physical Address       Type
  10.0.0.1               0009.7c69.3c0a          dynamic
```

**OUTPUT of PC1=**

```
Packet Tracer PC Command Line 1.0
PC>ARP -A
  Internet Address       Physical Address       Type
  10.0.0.1               0009.7c69.3c0a          dynamic
```

**OUTPUT of server=**

```
Packet Tracer SERVER Command Line 1.0
SERVER>ARP -A
  Internet Address       Physical Address       Type
  10.0.0.2               00d0.5880.759c          dynamic
  10.0.0.3               0090.21d2.380e          dynamic
```
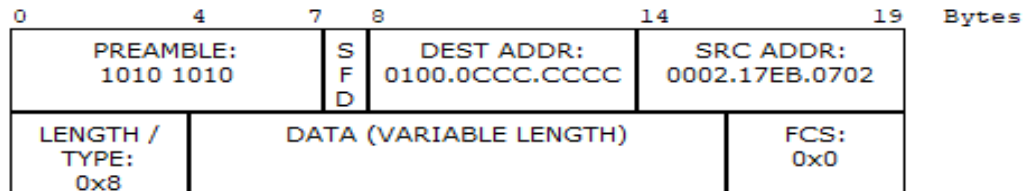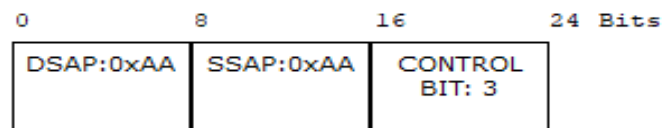
## ARP Table:=

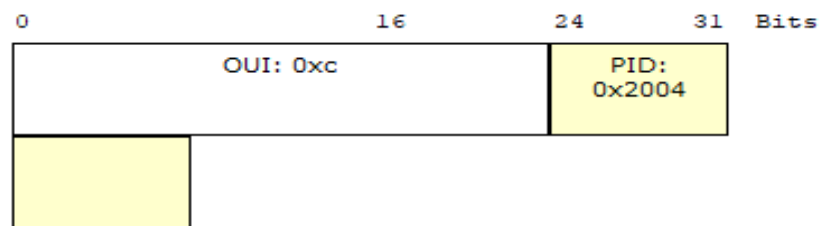PDU Information at Device: PC1

OSI Model | Inbound PDU Details

PDU Formats

**Ethernet 802.3**

```
0           4      7  8              14           19   Bytes
┌───────────────────┬───┬───────────────┬───────────────┐
│    PREAMBLE:      │ S │  DEST ADDR:   │  SRC ADDR:    │
│    1010 1010      │ F │ 0100.0CCC.CCCC│ 0002.17EB.0702│
│                   │ D │               │               │
├───────────────────┼───┴───────────────┼────┬──────────┤
│ LENGTH /          │  DATA (VARIABLE LENGTH)  │  FCS:   │
│ TYPE:             │                          │  0x0    │
│ 0x8               │                          │         │
└───────────────────┴──────────────────────────┴─────────┘
```

**LLC**

```
0           8           16           24 Bits
┌───────────┬───────────┬───────────┐
│ DSAP:0xAA │ SSAP:0xAA │  CONTROL  │
│           │           │  BIT: 3   │
└───────────┴───────────┴───────────┘
```

**SNAP**

```
0                       16         24        31  Bits
┌───────────────────────────────────┬──────────┐
│           OUI: 0xc                │  PID:    │
│                                   │  0x2004  │
├───────────────────┐               └──────────┘
│                   │
└───────────────────┘
```

**DTP**

```
0                      2                    Bytes
┌───────────┬──────────────────────┬──────────┐
│ VERSION: 1│      TYPE: 1         │ LENGTH:  │
│           │                      │  0x0     │
├───────────┼──────────────────────┴──────────┤
│           │      DOMAIN NAME:               │
├───────────┴──────────┬──────────────────────┤
│      TYPE: 2         │    LENGTH: 0x1       │
├───────────┬──────────┴──────────┬───────────┤
│ DTP TYPE: │      TYPE: 3        │ LENGTH:   │
│ Access    │                     │  0x1      │
├───────────┼──────┬──────────────┴───────────┤
│           │  D   │      TYPE: 4             │
│           │  T   │                          │
├───────────┴──────┼──────────────────────────┤
│  LENGTH: 0x6     │                          │
├──────────────────┴──────────────────────────┤
│  NEIGHBOR MAC ADDRESS: 0002.17EB.0702        │
│                                              │
└──────────────────────────────────────────────┘
```
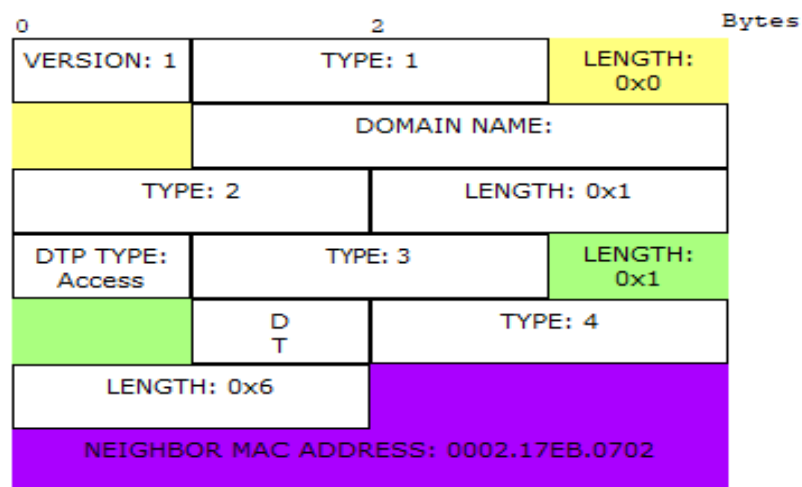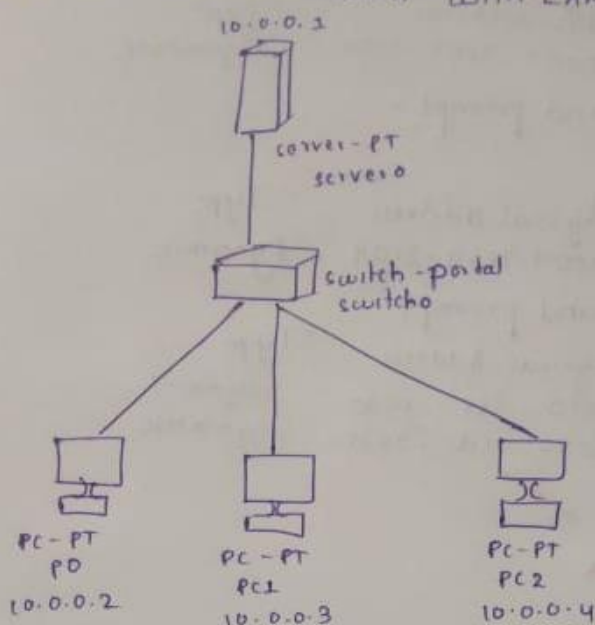
**Observation:=**

72) AIM - demonstrate working of pro Adress Resolution
protocol to communication with LAN.

10.0.0.1

corver-PT
serveo

switch-portal
switcho

PC-PT
PO
10.0.0.2

PC-PT
PC1
10.0.0.3

PC-PT
PC2
10.0.0.4

steps take →
Server, switch, Pcs connect thiseall each other as chow in above

Server - in Desktop   IP address - 10.0.0.1   and subnet Mask 25.0.0.0
PC0 =    in Desktop      "         10.0.0.2      "      "   "  255.0.0.0
PC1 =    in Desktop      "         10.0.0.3      "      "   "  255.0.0.0
PC2 =    in Desktop      "         10.0.0.4      "      "   "  255.0.0.0

step 2 →
take PDU connect from P0 to Server - click on Auto capture
in left side click on Q then click on Pc0 - then APP table then

we see -

IP addres     Hardware addrees     Interface
10.0.0.1      0009.7cc9.3c0A       FastEthernet 0

step 3
take pou connect from Pc 1 to server - click on Auto capture
in left side click on a then click on Pc0 then APP table then
we see table as →

IP address     Hlw address          Interface
10.0.6.1       00097 669.3C04       faitethnet 0.

step u similarly in server click on a then click on server then
APP table then we see table as →

IP address     Hlw address          Interface
10.0.0.2       0000.58r0.759C       FastEthnet 0
10.0.0.3       0.090.2102.380f      fastellnto

Observation —

click on Pc0 on command prompt

Pc> ARP -A

| Ilp address | Hlw address | Type |
|---|---|---|
| 10.0.0.1 | 0009.7c69.3c0a | dynamic |

Click on PC0 on command prompt -

PC > ARP- A

| Ilp address | physical address | Type |
|---|---|---|
| 10.0.01 | 0009.7c69.3c09 | Dynamic |

click on Server on command prompt

| Ilp address | physical Address | Type |
|---|---|---|
| 10.0.0.2 | 00d0.5880.759c | dynami |
| 10.0.0.3 | 0090.21d2.380e | dynamic |

leela.
26/4/24