LAB-08

01. Objective:

Configure Web Server, DNS within a LAN.

Topology:


```
                    Fa0
Server-M
server0
10.0.0.2
                              Fa1/1
                                 ____
                              Switch-pr
                        Fa0/1  Switch0

     Fa0
PC-11
PC0
10.0.0.1
```
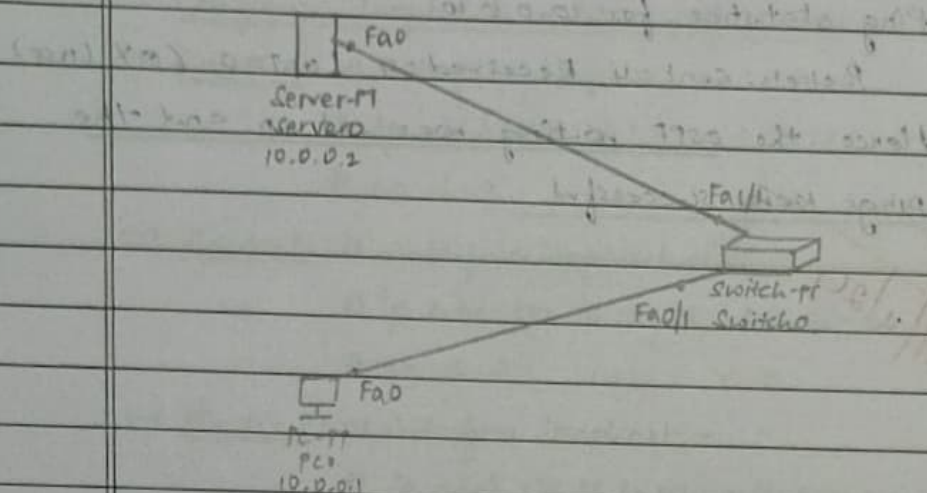
Procedure:

→ Place an end device, a server and a switch, and connect them using copper straight wires.

→ Assign the IP addresses as demonstrated in the topology.

→ To set the IP of the server,

↗ go to config

→ select static method, turn it on & add a resource.
  DNS

→ set IP, make sure port is on

→ select HTTP

→ turn the service to on.

→ amend the content of the code as needed and click on 'it'

→ Select the PC0 → Desktop → Web browser

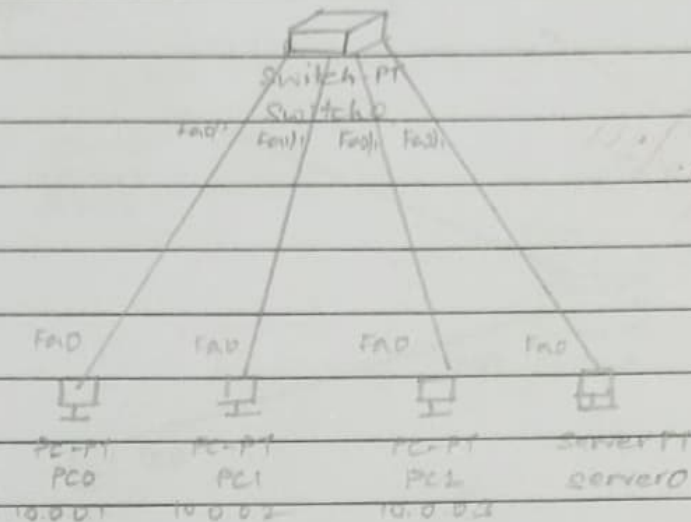→ Enter the URL specified in the DNS resource.

Observation:

→ The server's web page could be successfully accessed from the PC by entering the resource URL.

→ The DNS server could hence be configured within a LAN by enabling the DNS

26/12/24

02. **Objective:**

To construct simple LAN and understand the concept and operation of Address Resolution Protocol (ARP)

Topology:

Procedure:

→ Place three end devices, a server and a switch and connect the PCs and the server to the switch using copper straight wires

→ Use the inspect tool to click on a PC to view the ARP table.

→ The same can also be viewed in the command prompt by using 'arp -a'

→ Go to the CLI of the switch and do show mac address.

→ Similarly obtain ARP table of the server and other end devices.

→ Enter the simulation mode and click on 'Capture' by selecting PC1 and PC2 for simple PDUs

Observation:

→

→ Initially, the ARP tables of all end devices are observed to be empty.

→ The MAC address table is also found to be empty.

→ When the 'capture' button is clicked, it is found that the ARP table is updated in PC2 with the IP address of PC1 (10.0.0.2)

→ Once the acknowledgement is obtained, the ARP table of PC1 is updated with the IP address of PC2 (10.0.0.3).

→ The event List in the simulation panel shows the corresponding protocol used during the communication.

26/12/24

03. **Objective:**

To understand the operation of TELNET by accessing the router in server room from a PC in IT office.

Topology:

Router-PT
Router-0

PC-PT
PC0.
10.0.0.1
Def gateway:10.0.0.2
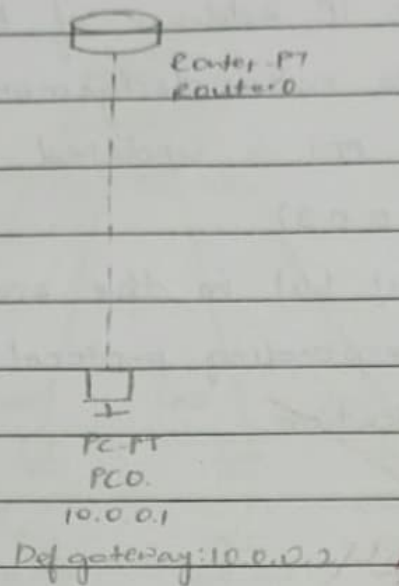
Procedure:

→ Place an end device and a router and connect them using a copper-crossover wire and assign the IP addresses as shown in the topology.

→ In router0, do:

> enable

\# config terminal

\# hostname R1

\# enable secret R1

\# interface fa0/0

\# ip address 10.0.0.1 255.0.0.0

\# no shut

\# line vty 0 5

\# login

\# password p0

\# exit

> exit

wr

\# vlan database

\# vlan 2 name cseise

\# exit

\# config terminal

\# interface fa 0/0.1

\# encapsulation dot1q 2

\# ip address 192.168.2.1 255.255.255.0

\# no shut

\# exit

→ In switch0, do:

Incomplete

→ choose VLAN database

→ Turn Port status on for the corresponding ethernet.

→ Enable Trunk

Observation:

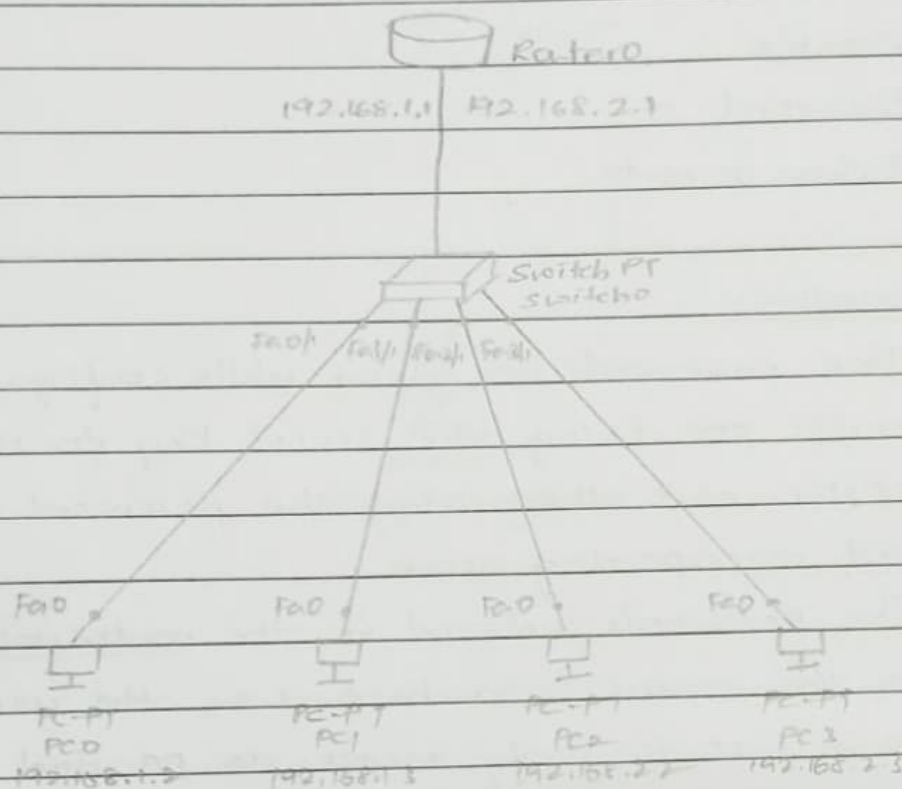→ Proper trunk configuration is enabled to make VLAN work properly.

→ VLAN trunking allows switches to forward frames from different VLANs to over a single link called trunk.

→ ping messages from different PCs are observed to be working successfully henceforth.

26/12/24

04. Objective:

To construct a VLAN and make the PCs communicate among a VLAN.

Topology:

Router0

192.168.1.1   192.168.2.1

Switch PT
Switch0

fa0/1 fa0/1 fa0/2 fa0/3

Fa0   Fa0   Fa0   Fa0

PC-PT   PC-PT   PC-PT   PC-PT
PC0   PC1   PC2   PC3
192.168.1.2 192.168.1.3 192.168.2.2 192.168.2.3

Procedure:

→ Place four end devices, a switch and a router, and connect the end devices to the switch and the switch to the router using copper straight wires.

→ Assign IP addresses to end devices as displayed in the topology. Give VLAN no, name in switch & add.

→ In Router 0, do:

> enable

config terminal

interface fa 0/0

exit

exit

→ In PC0, do:

ping 10.0.0.1

→ Now, to access the router0 CLI from PC0, do:

telnet 10.0.0.2

User Access verification.
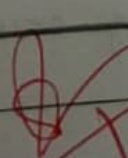
Password: p0

>enable

Password: p1

show ip route.

Observation:

→ Two passwords are given while configuring the router, one being the secret key for the router, and other being the password for login and corresponding access.

→ The passwords entered in the router are used in the reverse order here, i.e., the user has to login first to verify access via p0 and then obtain router access with secret key p1
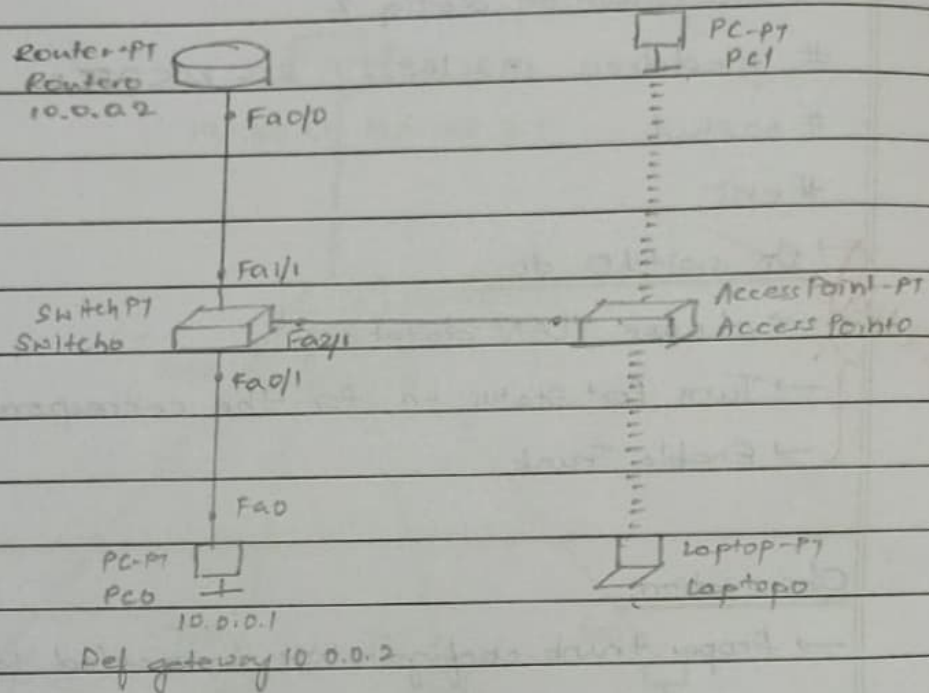
→ Hence, the admin in PC is able to run commands as run in router CLI and see the results from PC.

26/12/24

05. Objective:

To construct a WLAN and make the nodes communicate wirelessly.

Topology:

Router-PT
Router0
10.0.0.2   • Fa0/0

PC-PT
Pc1

Fa1/1
Switch PT
Switch0   Fa2/1
Fa0/1

AccessPoint-PT
Access Point0

Fa0

PC-PT
Pc0
10.0.0.1
Def gateway 10.0.0.2

Laptop-PT
Laptop0

Procedure:

→ Place three end devices, a switch, a router and an access-point. Connect the end device Pc0, access-point and the Router0 to switch 0 using copper-straight wire.

→ Assign the IP addresses as shown in the topology

→ In PC0, do: and Pc1, do:

    → Turn the PC off.

    → Remove the port.

    → Place the Linksys-WMP300N port to the PC and turn it back on.

→ Configure Access Point0:

    → Port status should be set to 'ON'.

    → Set SSID name as 'BMSCECSECN'.

    → Set channel authentication to 'WEP' and set

key as '1231567890'

→ In PCl and laptop0, do:

→ Turn the system off.

→ Remove the port.

→ Place the wireless port and turn it back on.

→ In config, do:

→ Set the same SSID.

→ Set authentication to WEP and enter same key.

→ Ping from different devices and observe the transmissions.

Observations:

→ After the setup of PCl and laptop0, wireless connections with dashed lines were observed in connection with Access Point0, indicating successful wireless connections.

→ Devices could connect to WLAN since they were in the network range.

→ Signal strength decreases with increase in distance.

26/12/24