MIT WORLD PEACE UNIVERSITY

Computer Networks
Second Year B. Tech, Semester 3

CONFIGURATION OF A VIRTUAL LAN

PRACTICAL REPORT
ASSIGNMENT 3

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Contents

1 Aim and Objectives

To Design and configure a virtual LAN using Packet Tracer and To understand the concept of VLAN and implement it using packet tracer.

2 Devices

2.1 Devices Used

1. 1 Generic Switch

2. 2 Switch 2960 with 24 LAN Ports

3. 6 Generic PCs

4. 4 Laptops

2.2 Device Info and IP Addresses

No	Device Name	Model	IP
1	Switch0	2950-24	-
2	PC0 - CS	PC-PT	192.168.0.1
3	PC1 - ECE	PC-PT	192.168.0.5
4	PC2 MECH	PC-PT	192.168.0.2
5	Switch1	2950-24	-
6	PC3 CS	PC-PT	192.168.0.3
7	PC4 PH	PC-PT	192.168.0.4
8	Switch2	2950-24	-
9	Laptop0 CS	Laptop-PT	192.168.0.6
10	Laptop1 PH	Laptop-PT	192.168.0.9
11	Laptop2 MECH	Laptop-PT	192.168.0.8
12	Laptop3 ECE	Laptop-PT	192.168.0.7
13	PC5 ECE	PC-PT	192.168.0.10

3 Cables

1. Straight LAN Cable to connect unlike Devices

2. Crossover LAN Cable to connect like Devices

4 Procedure to Configure VLAN

1. Create a Simple network with a switch and a few PCs

2. Create as many other networks you want, connect a few PCS or laptops to it. Use a generic Switch.

3. Name the PCs and Laptops according to some virtual division you want to make, be it different divisions of a single institution, wings in a hospital or anything.

4. Connect the switches to each toher using a crossover cable, and the PCs to the switch using a Straight cable.

5. Click on the Switch and open its terminal, or GUI, where you can add the VLAN name and Number. Add the VLANS respective to the ones you have in your network, to all the switches either via its GUI or terminal using commands given below.

6. Select Each interface and set its particular VLAN. You can do this in the terminal for each switch or with the GUI.

5   Commands

```
# enable
# configure terminal
# exitverbatim
# vlan 20 name Mechanical
# vlan 10 name CS
# vlan 30 name Pharma
# terminal Show VLAN
# vlan database
# interface F0/2
# switchport access vlan <VLAN_NO>
# exit
# interface F0/1 // the one connected to another switch
# switchport mode trunk
```

6   Output

6.1   Switch 1

```
 1 Switch#show vlan
 2
 3 VLAN Name                             Status    Ports
 4 ---- -------------------------------- --------- -------------------------------
 5 1    default                          active    Fa0/1, Fa0/7, Fa0/8, Fa0/9
 6                                                 Fa0/11, Fa0/12, Fa0/13, Fa0/14
 7                                                 Fa0/15, Fa0/16, Fa0/17, Fa0/18
 8                                                 Fa0/19, Fa0/20, Fa0/21, Fa0/22
 9                                                 Fa0/23, Fa0/24
10 10   CS                               active    Fa0/6, Fa0/10
11 11   ECE                              active    Fa0/3
12 12   MECH                             active    Fa0/4
13 13   PH                               active    Fa0/2
14 1002 fddi-default                     active
15 1003 token-ring-default               active
16 1004 fddinet-default                  active
17 1005 trnet-default                    active
18
19 VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
20 ---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
21 1    enet  100001     1500  -      -      -        -    -        0      0
22 10   enet  100010     1500  -      -      -        -    -        0      0
```

```
23 11    enet   100011     1500  -       -      -        -     -        0      0
24 12    enet   100012     1500  -       -      -        -     -        0      0
25 13    enet   100013     1500  -       -      -        -     -        0      0
26 1002 fddi   101002     1500  -       -      -        -     -        0      0
27 1003 tr     101003     1500  -       -      -        -     -        0      0
28 1004 fdnet  101004     1500  -       -      -        ieee  -        0      0
29 1005 trnet  101005     1500  -       -      -        ibm   -        0      0
30
31 VLAN Type   SAID       MTU   Parent RingNo BridgeNo Stp   BrdgMode Trans1 Trans2
32 ---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
33
34 Remote SPAN VLANs
35 ------------------------------------------------------------------------------
36
37 Primary Secondary Type             Ports
38 ------- --------- ---------------- ------------------------------------------
```

6.2   Switch 2

```
1 Switch#show vlan
2
3 VLAN Name                             Status    Ports
4 ---- -------------------------------- --------- -------------------------------
5 1    default                          active    Fa0/7, Fa0/8, Fa0/9, Fa0/10
6                                                 Fa0/11, Fa0/12, Fa0/13, Fa0/14
7                                                 Fa0/15, Fa0/16, Fa0/17, Fa0/18
8                                                 Fa0/19, Fa0/20, Fa0/21, Fa0/22
9                                                 Fa0/23, Fa0/24
10 10   CS                               active    Fa0/5
11 11   ECE                              active    Fa0/6
12 12   MECH                             active    Fa0/4
13 13   PH                               active    Fa0/3
14 1002 fddi-default                     active
15 1003 token-ring-default               active
16 1004 fddinet-default                  active
17 1005 trnet-default                    active
18
19 VLAN Type   SAID       MTU   Parent RingNo BridgeNo Stp   BrdgMode Trans1 Trans2
20 ---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
21 1    enet   100001     1500  -       -      -        -     -        0      0
22 10   enet   100010     1500  -       -      -        -     -        0      0
23 11   enet   100011     1500  -       -      -        -     -        0      0
24 12   enet   100012     1500  -       -      -        -     -        0      0
25 13   enet   100013     1500  -       -      -        -     -        0      0
26 1002 fddi   101002     1500  -       -      -        -     -        0      0
27 1003 tr     101003     1500  -       -      -        -     -        0      0
28 1004 fdnet  101004     1500  -       -      -        ieee  -        0      0
29 1005 trnet  101005     1500  -       -      -        ibm   -        0      0
30
31 VLAN Type   SAID       MTU   Parent RingNo BridgeNo Stp   BrdgMode Trans1 Trans2
32 ---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
33
34 Remote SPAN VLANs
35 ------------------------------------------------------------------------------
36
37 Primary Secondary Type             Ports
38 ------- --------- ---------------- ------------------------------------------
```

6.3 Switch 3

```
1  Switch#show vlan
2
3  VLAN Name                             Status     Ports
4  ---- -------------------------------- --------- -------------------------------
5  1    default                          active     Fa0/8, Fa0/9, Fa0/10, Fa0/11
6                                                    Fa0/12, Fa0/13, Fa0/14, Fa0/15
7                                                    Fa0/16, Fa0/17, Fa0/18, Fa0/19
8                                                    Fa0/20, Fa0/21, Fa0/22, Fa0/23
9                                                    Fa0/24
10 10   CS                               active     Fa0/3, Fa0/6
11 11   ECE                              active     Fa0/7
12 12   MECH                             active     Fa0/4
13 13   PH                               active     Fa0/2, Fa0/5
14 1002 fddi-default                     active
15 1003 token-ring-default               active
16 1004 fddinet-default                  active
17 1005 trnet-default                    active
18
19 VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
20 ---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
21 1    enet  100001     1500  -      -      -        -    -        0      0
22 10   enet  100010     1500  -      -      -        -    -        0      0
23 11   enet  100011     1500  -      -      -        -    -        0      0
24 12   enet  100012     1500  -      -      -        -    -        0      0
25 13   enet  100013     1500  -      -      -        -    -        0      0
26 1002 fddi  101002     1500  -      -      -        -    -        0      0
27 1003 tr    101003     1500  -      -      -        -    -        0      0
28 1004 fdnet 101004     1500  -      -      -        ieee -        0      0
29 1005 trnet 101005     1500  -      -      -        ibm  -        0      0
30
31 VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
32 ---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
33
34 Remote SPAN VLANs
35 -------------------------------------------------------------------------------
36
37 Primary Secondary Type              Ports
38 ------- --------- ----------------- ---------------------------------------------
```
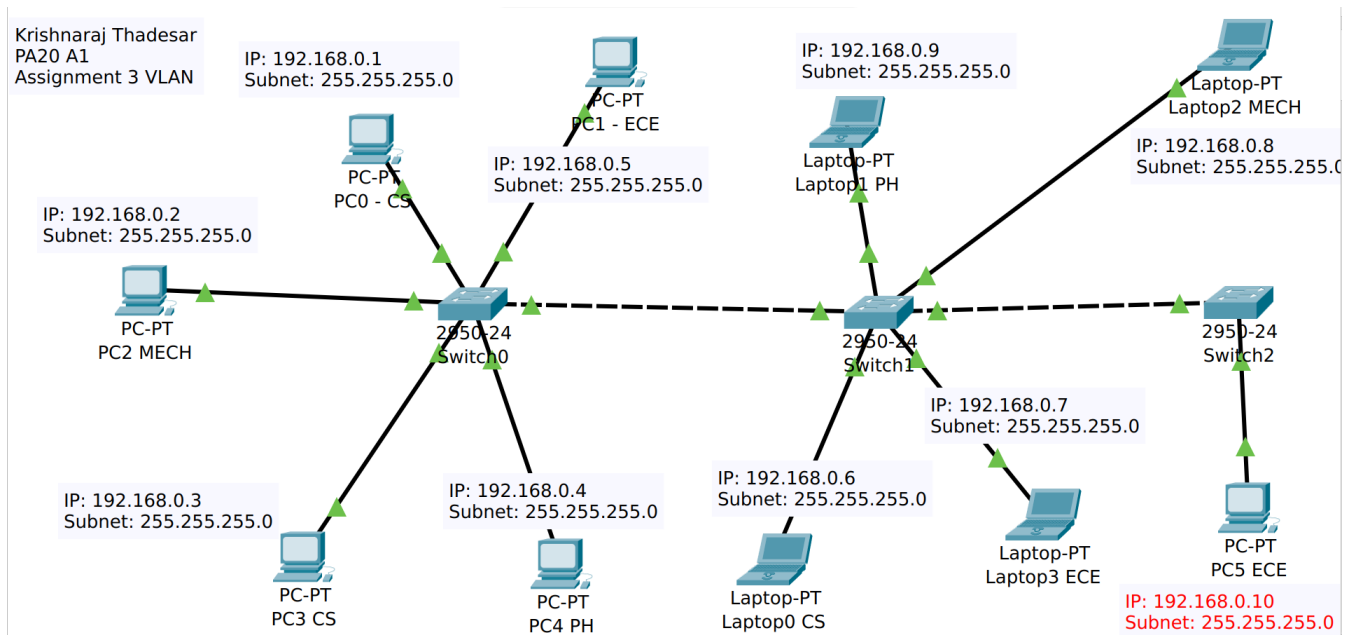
7 Platform

Operating System: Arch Linux x86-64
IDEs or Text Editors Used: Visual Studio Code
Programs Used: Cisco Packet Tracer v8.2

8 Connection Screenshot

9 Conclusion

A Virtual Local Area Network was implemented successfulyl with 3 switches and 4 Virtual LANS. The Concept and its uses were understood.