

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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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 other 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
# exit
# 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
```

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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 -----
```

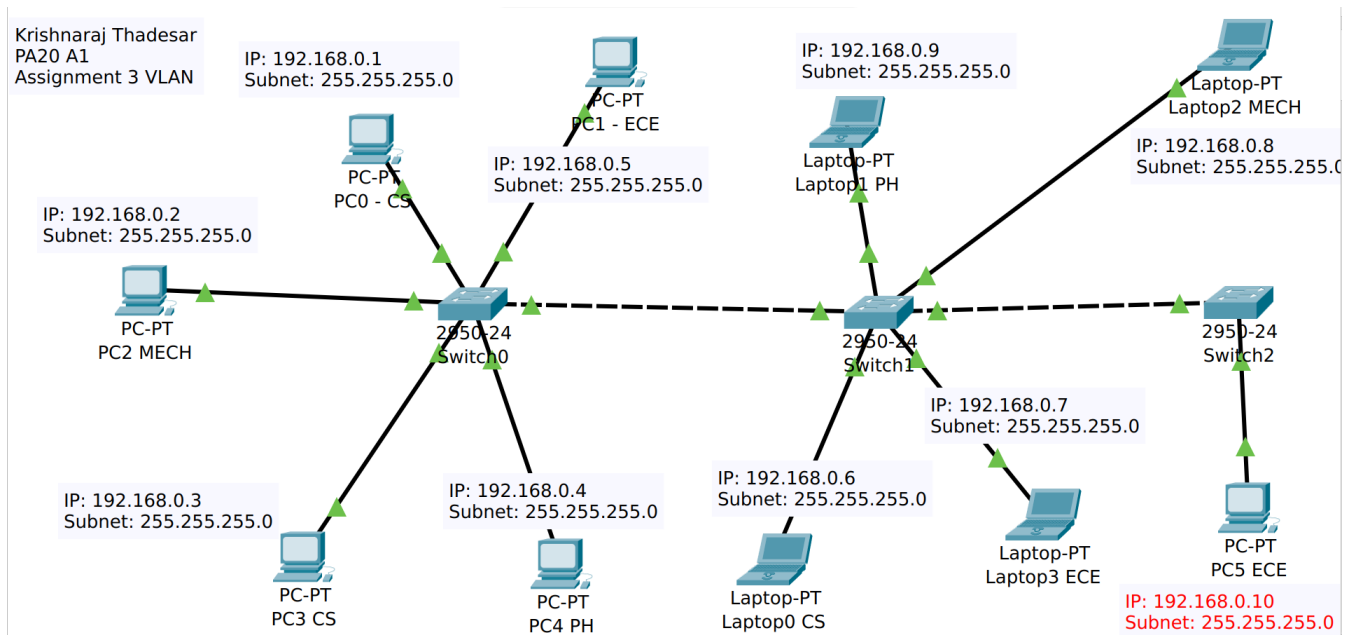
7 Platform

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 successfully with 3 switches and 4 Virtual LANS. The Concept and its uses were understood.