

ITS 270 LAB 3

Please put your name and course number. Show all snapshots properly if it needs.

Please put all your codes in one zip file and name your zip file as “ITS270-Lab3-FirstName-LastName.(doc, docx, or zip)”. Any failure to do so will result in deduction. Each question is 5 points. Total points of Lab3 is 65.

In lab3, we will investigate the Spanning Tree Algorithm. Now, start “Packet Tracer”.

Create the network using switches

First, find the “2950-24” switch in “Switches”. Then, bring 3 of “2950-24” switches to the workspace (i.e., switch1, switch2, switch3) as shown in Figure 1.

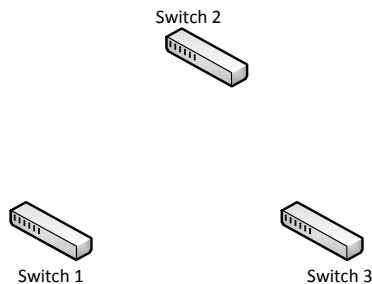


Figure 1. Three switches

1. For each switch, find the “**Base Ethernet MAC address**” and write that address next to corresponding switch using Place Note. The “Base Ethernet MAC address” can be found on “*Command Line Interface (CLI)*” tab on each switch. Present your snapshot.
2. Assume that the switches are fully connected; switch1-switch2, switch2-switch3, switch1-switch3. Based on those MAC addresses, find the root bridge, the Root Port (RP), Designated Port (DP), and Blocking Port (BP) for each switch just like we did in class. Draw your topology and show MAC address and all ports (RP, DP, and BP) for each switch.
3. Now use correct cable to connect the switches between switch1 and switch2, switch2 and switch3, switch1 and switch3. Wait until switches finish running the Spanning Tree Algorithm. Green dot indicates the port is forwarding while orange indicates that the port is blocked. Show the snapshot and compare it with the result from question 2.
4. Now, place another “2950-24” switch (i.e., switch 4) and assume that it is connected to switch 2 and switch 3. Then, place the note showing its Base Ethernet MAC address. Do the same thing as in question 2 by your own. Draw the topology and label the MAC addresses and ports (RP, DP, and BP).
5. Now connect the new switch 4 to switch 2 and switch 3 using proper cable. Show the snapshot of the Spanning Tree Algorithm results and compare it with your result from question 4.
6. Now, place another “2950-24” switch (i.e., switch 5) and assume that it is connected to switch 3 and switch 4. Then, place the note showing its Base Ethernet MAC address. Do the same thing as in question 2 by your own. Draw the topology and label the MAC addresses and ports (RP, DP, and BP).

7. Now connect the new switch 5 to switch 3 and switch 4 using proper cable. Show the snapshot of the Spanning Tree Algorithm results and compare it with your result from question 6.
8. Lastly, Now, place another “2950-24” switch (i.e., switch 6) and assume that it is connected to switch 1 and switch 5. Then, place the note showing its Base Ethernet MAC address. Do the same thing as in question 2 by your own. Draw the topology and label the MAC addresses and ports (RP, DP, and BP).
9. Now connect the new switch 6 to switch 1 and switch 5 using proper cable. Show the snapshot of the Spanning Tree Algorithm results and compare it with your result from question 8.
10. Bring 4 PCs and connect to switch. One PC1 (IP address of 192.168.10.1, subnetmask: 255.255.255.0) to switch1, another PC2 (IP address of 192.168.10.4, subne mask: 255.255.255.0) to switch4, another PC3 (IP address of 192.168.10.5, subnetmask: 255.255.255.0) to switch5, and last PC4 (IP address of 192.168.10.6, subnetmask: 255.255.255.0) to switch6. Assign IP address and subnetamsk to each PC. Then, generate simple PDU message from PC1 to PC2, PC3, and PC4 in simulation mode. Observe how your message travels on your network. Describe how each message is traveling by providing the order of switch numbers the message travels. Provide one snapshot showing message traveling.

More issue

Now, open new work space and place two switches.

11. Using place note, show the base Ethernet MAC address for each switch. Now assume that Ethernet port 0/1 of switch1 is connected to Ethernet port 0/10 of switch2 and Ethernet port 0/1 of switch2 is connected to Ethernet port 0/10 of switch1. Find the MAC address of each port. Based on given information, draw the topology and find the root, RP, DP, and BP.
12. Connect two switches as described in question 11. Then, show the snapshot of the Spanning Tree Algorithm results and compare it with your result from question 11.
13. Discuss what you have learned from this lab.