Lab. 10 Switching Loops

Lab Objective:
Learn how to spot a switching loop on your layer 2 networks.

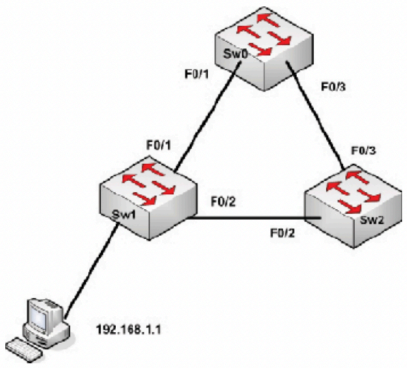
Lab Purpose:
When a network is crashing all the time, it could be due to a switching loop (Spanning Tree).

Note: Please never try this on a live network!!!!!!!!!!

Lab Tool:
Packet Tracer

Lab Topology:

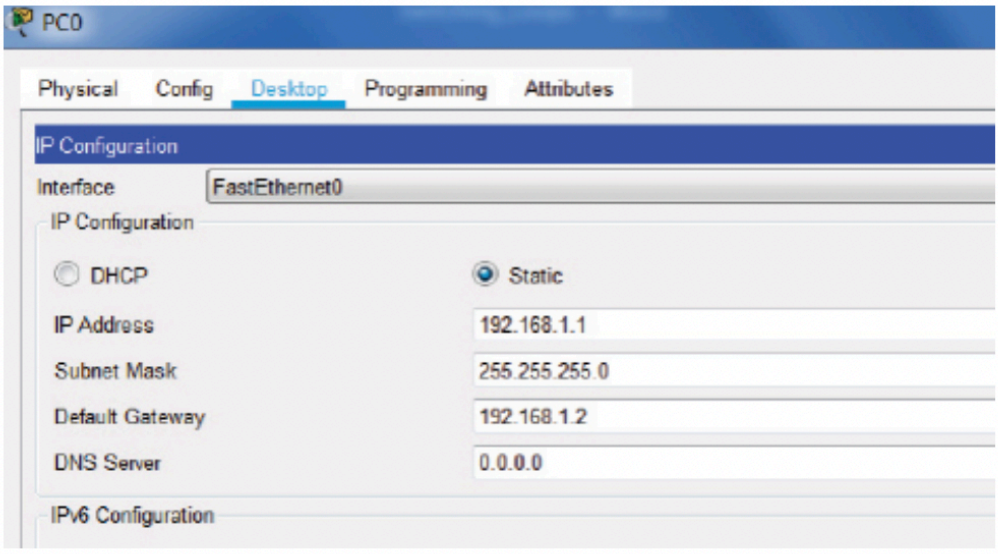
Please use the following topology to complete this lab exercise:



Lab Walkthrough:

Task 1:

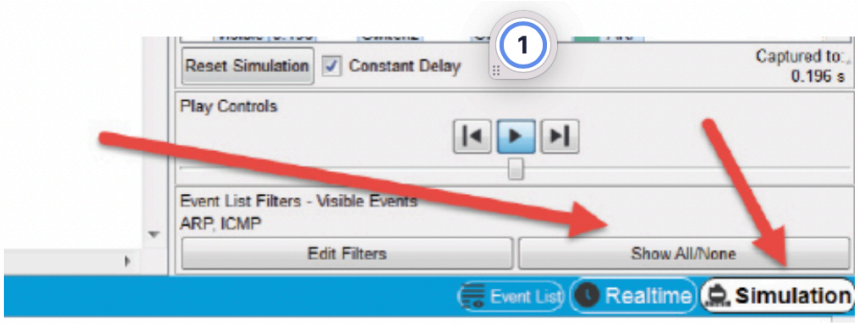
Connect three switches and one PC onto the canvas. Connect them up as per the diagram. Add the IP address to the PC and default gateway of 192.168.1.2 (which doesn't exist on the network).



Task 2:
Name the switches and then turn off STP in order to create a switching loop. Here is how to do it on Switch0.
Do the same on the other two switches, but name them Switch1 and Switch2.

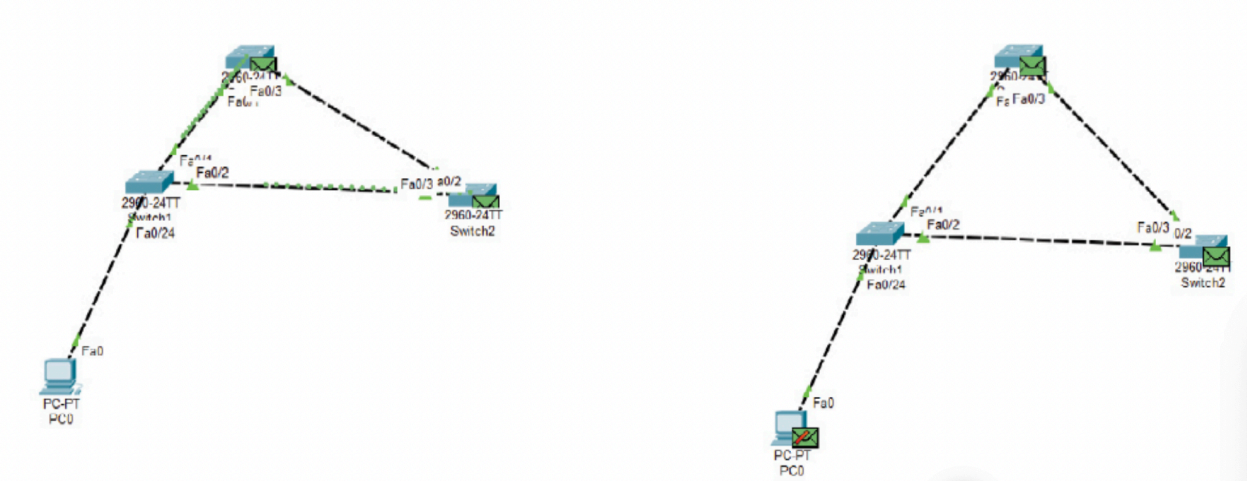
```
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#hostname Sw0
Sw0(config)#interface range f0/1-3
Sw0(config-if-range)#no spanning-tree vlan 1
Sw0(config)#end
Sw0#
```

Task 3:
Set Packet Tracer to simulation mode so that you can see the packets moving across the network. Set “Edit Filters” to show only ARP and ICMP.

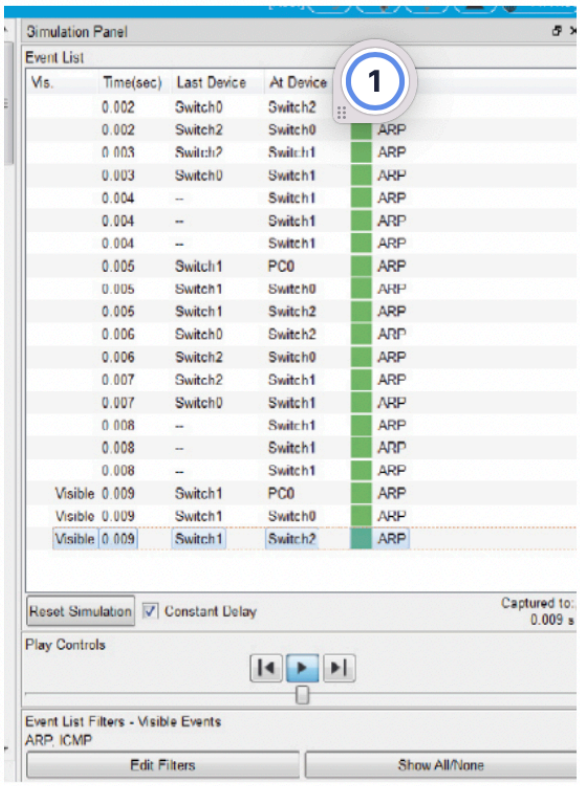


Click on ‘Show All/None’ and then tick the two you want.

Task 4:
From the PC, ping hose 192.168.1.2. You can press the play button in the simulation mode. Keep pressing play and watch the packet travel around the network endlessly, never resolving the ARP request for the host.



Task 5:
The packet capture window quickly fills with ARP requests. This will slow your network to crawl and eventually lead to a crash.



Task 6:
You can fix this particular issue by reenabling STP on the switches for VLAN1. Here is how to do it on Switch0. Repeat the steps on the other switches.

```
Sw0#conf
Sw0(config)#interface range f0/1-3
Sw0(config-if-range)#spanning-tree vlan 1
Sw0(config-if-range)#end
```

Task 7:
You can redo the test, however, from the canvas you can see one of the switch ports has been shut down by STP and so will not forward traffic. You might end up having a different port than mine. This time around ARP lookup will fail, and ICMP will inform the PC of the timeout. Only 5 ping packets will be sent.