

Lab 08 – Configuring VLAN

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INTRODUCTION

The purpose of this lab is to allow the user to configure and simulate VLAN using Cisco's Packet Tracer. The user will be creating two VLANs on one switch, one for an accounting department and one for a logistics department, following the instructional guidance on *comparitech.com* [1].

PROCESS

Connect all devices:

In this step, a switch and 4x computers are connected via copper straight-wire connections using Fast Ethernet ports. The green arrows indicate traffic flowing between devices, emulating devices booting and connecting in the real world. The computers encompassed by the **blue** circle is the Accounting VLAN (ACCT) and **Red** is for the Logistics VLAN (LOGS). (Figure 1)

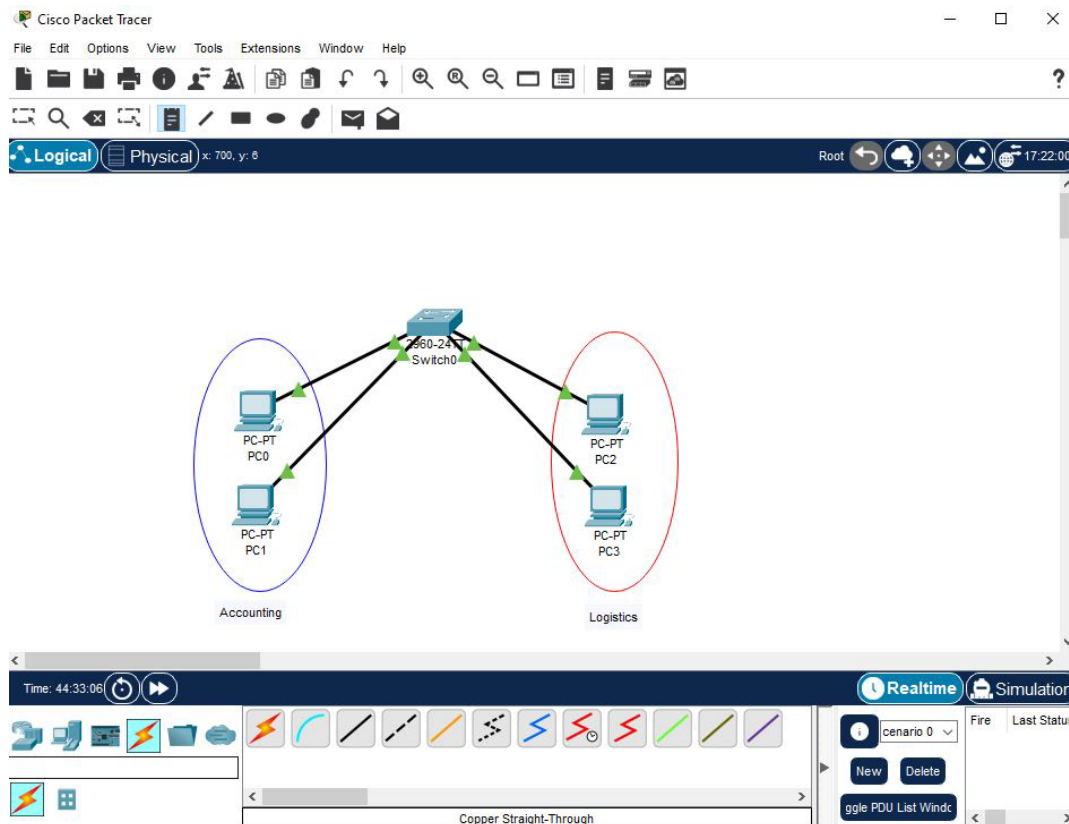


Figure 1: A switch connected to 4 computers via copper straight-wire connections on Fast Ethernet ports

Per the instructions on *comparitech.com*, I was supposed to drag a router into this configuration; however, the configuration for the router is for an inter-VLAN setup. I omitted the router for the purpose of this lab.

Configure interfaces:

Here (*Figure 2*), I assigned IP addresses so my computers could start communicating with one another. The IP assignments are as follows:

ACCT PC₀ = 192.168.1.10 (IPv4) / 255.255.255.0 (Subnet Mask)

ACCT PC₁ = 192.168.1.20 (IPv4) / 255.255.255.0 (Subnet Mask)

LOGS PC₂ = 192.168.2.10 (IPv4) / 255.255.255.0 (Subnet Mask)

LOGS PC₃ = 192.168.2.20 (IPv4) / 255.255.255.0 (Subnet Mask)

The default gateway for the computers is 192.168.1.1 for PC₀ and PC₁, and 192.168.2.1 for PC₂ and PC₃. (*Figure 2*)

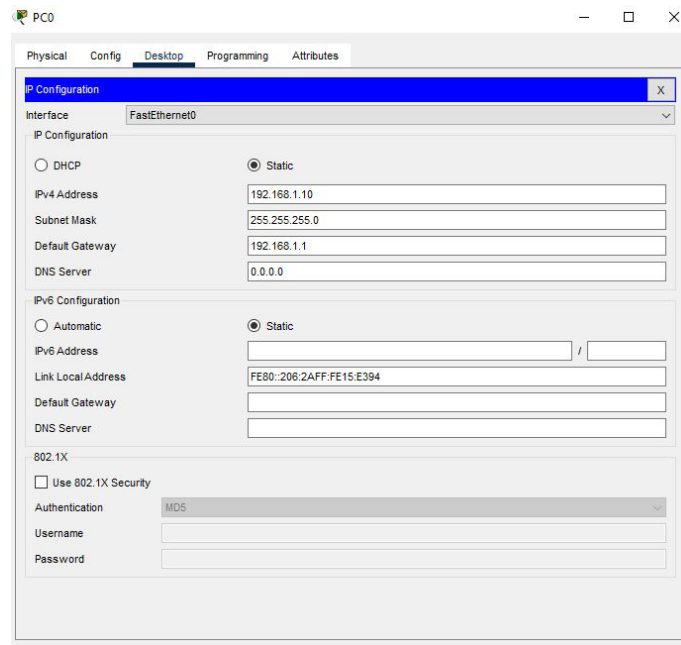


Figure 2: Configuring IPv4, Subnet Mask, and Default Gateway for each computer

Before I proceeded to the next step, I was instructed to delineate the differences between an Access port and Trunk port.

Access ports will be used to allow everyday devices like the computers in the configuration (and servers) to connect to it, in my configuration these are the FastEthernet ports, one for each computer. [1]

Trunk ports allow a switch to communicate with another switch. [1]

Create VLANs and assign computers:

Keeping in mind that there will be two types of ports on my switch—access ports and trunk ports—in this step I configured my switch. Using the GUI, I created ACCT (VLAN10) and LOGS (VLAN20) (*Figure 3*).

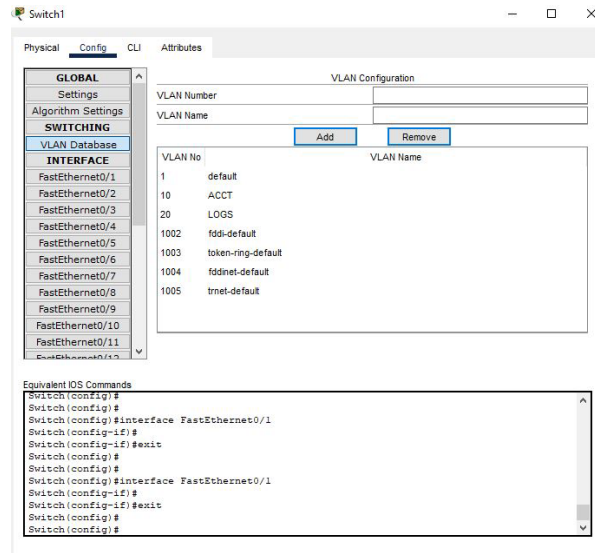


Figure 3: GUI depicting ACCT (VLAN10) and LOGS (VLAN20)

Next, I needed to assign each port, which the switch used to connect to the computers, to their respective VLANs. From the **INTERFACE**, I simply check the box of the corresponding VLAN from the configuration menu. (Figure 4)

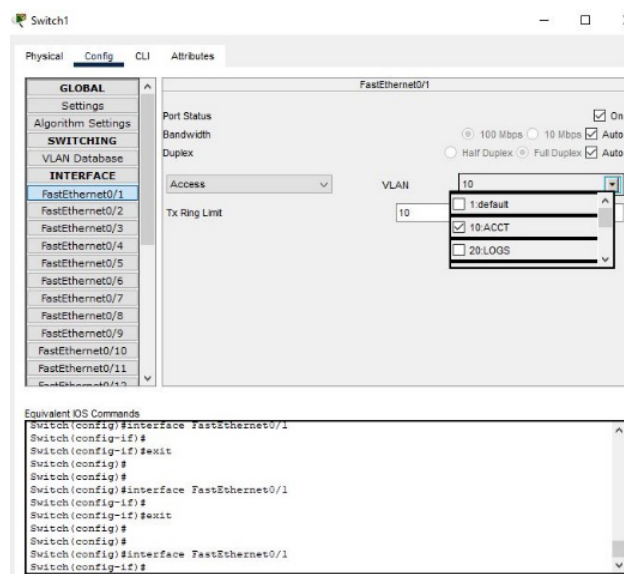
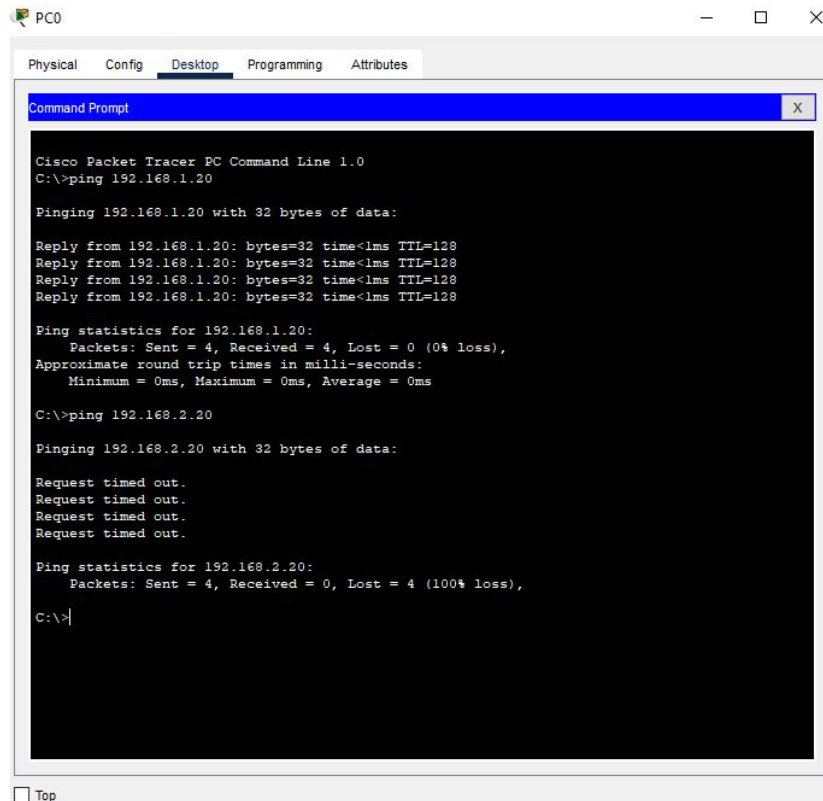


Figure 4: Configuring each FastEthernet to the respective VLAN

Confirm correct configuration:

After successfully creating my two VLANs on the same switch, I needed to test and confirm if my configuration was correct by attempting to ping PC₁ and PC₃ from PC₀. The first ping executed while the second one timed out and lost all the packets. (Figure 5)



```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.20

Pinging 192.168.1.20 with 32 bytes of data:

Reply from 192.168.1.20: bytes=32 time<1ms TTL=128
Reply from 192.168.1.20: bytes=32 time<1ms TTL=128
Reply from 192.168.1.20: bytes=32 time<1ms TTL=128
Reply from 192.168.1.20: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.20:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.2.20

Pinging 192.168.2.20 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.2.20:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>
```

Figure 5: Attempt to ping PC₁ and PC₃ from PC₀

LIMITATIONS/CONCLUSION

In conclusion the lab executed successfully. There were no limitations to report even if the VLANs were simulated in a controlled digital environment. The biggest takeaway from this lab was learning how to create a VLAN and configure it to allow data packets from another VLAN to cross over into it.

REFERENCES

[1] Zelleke, Comparitech [Online]. "How to Set Up a VLAN", June 6, 2022. Available: <https://www.comparitech.com/net-admin/how-to-set-up-a-vlan/> [Accessed: 01-Nov-2022]

COLLABORATION

The entirety of this lab was executed independently by the author. No additional collaboration to report.