

Step 1. Configure the switch (switch_A) and the PC's attached to the switch

Configure the hostname, access and command mode passwords, as well as the management LAN settings. These values are shown in the chart. If problems occur while performing this configuration, refer to the Basic Switch Configuration lab.

Configure the host to use the same subnet for the address, mask, and default gateway as on the switch.

Step 2. Verify Connectivity

Ping the switch from the hosts. If the pings were unsuccessful, troubleshoot the host and switches configurations.

Step 3. Show the IOS version

Type show version command at the user EXEC or privileged EXEC mode prompt. Document the following: version of the switch IOS, does switch have a standard or enterprise edition software, what was the firmware version

Step 4. Display the VLAN Interface information

On Switch_A, type the command show vlan at the privileged EXEC prompt.

Which ports belong to the default VLAN? _____

How many VLANs are set up by default on the switch? _____

What does the VLAN 1003 represent? _____

How many ports are in the 1003 VLAN? _____

Step 5. Create VLANs and display VLAN interface information

Enter the following commands to create and name three VLANs:

```
Switch_A#vlan database
Switch_A(vlan)#vlan 10 name Staff
Switch_A(vlan)#vlan 20 name Students
Switch_A(vlan)#vlan 30 name External
Switch_A(vlan)#exit
```

On Switch_A, type the command show vlan at the privileged EXEC prompt as follows:

```
Switch_A#show vlan
```

Are there new VLANs in the listing? _____

Do they have any ports assigned to them yet? _____

Step 6. Assign ports to VLAN 10

Assigning ports to VLANs must be done from the interface mode. Enter the following commands to add port 4 to VLAN 10:

```
Switch_A#configure terminal
Switch_A(config)#interface fastethernet 0/4
Switch_A(config-if)#switchport mode access
Switch_A(config-if)#switchport access vlan 10
Switch_A(config-if)#exit
```

Assign ports 5 – 6 also to VLAN 10.

Step 7. Assign ports to VLAN 20

Assign ports 7 – 9 to VLAN 20.

Step 8. Assign ports to VLAN 30

Assign ports 10 – 12 to VLAN 30

Step 9. Display the VLAN interface information

What ports are still assigned to default vlan (VLAN 1)? _____

Are ports 4 -6 assigned to VLAN 10? _____

Are ports 7 -9 assigned to VLAN 20? _____

Are ports 10 -12 assigned to VLAN 30? _____

Step 10. Test the VLANs

Ping from the host in port 0/4 to the host in port 0/1.

Was the ping successful? _____

Why? _____

Ping from the host in port 0/4 to the switch IP 192.168.1.2.

Was the ping successful? _____

Why? _____

Ping from the host in port 0/1 to the switch IP 192.168.1.2.

Was the ping successful? _____

Why? _____

Step 11. Move hosts and test the VLANs

Move the host in port 0/4 to port 0/3. Wait until the port LED goes green and then go to the next step.

Ping from the host in port 0/1 to the host in port 0/3.

Was the ping successful? _____

Ping from the host in port 0/3 to the switch IP 192.168.1.2.

Was the ping successful? _____

Step 12. Move hostst and test the VLANs

Move the hosts in port 0/3 to port 0/4 and the host in port 0/1 to port 0/5. Wait until the port LED goes green and then go to the next step.

Ping from the host in port 0/5 to the host in port 0/4.

Was the ping successful? _____

Ping from the host in port 0/4 to the switch IP 192.168.1.2.

Was the ping successful? _____

Ping from the host in port 0/5 to the switch IP 192.168.1.2.

Was the ping successful? _____

Why? _____

Step 13. Delete a Host from a VLAN

To remove a host from a VLAN, use the no form of the switchport commands in the port interface configuration mode.

```
Switch_A#configure terminal
Switch_A(config)#interface fastethernet 0/4
Switch_A(config-if)#no switchport mode access
Switch_A(config-if)#no switchport access vlan 10
```

On Switch_A, type the command show vlan at the privileged EXEC prompt.

Is port 0/4 removed from VLAN 2? _____

Step 14. Delete a VLAN

To remove an entire VLAN, enter the VLAN database mode and use the negative form of the command.

```
Switch_A#vlan database
Switch_A(vlan)#no vlan 3
Deleting VLAN 3
Switch_A(vlan)#exit
```

On Switch_A, type the command show vlan at the privileged EXEC prompt

Is VLAN 3 removed? _____

What happened to the ports that were released from the VLANs? _____

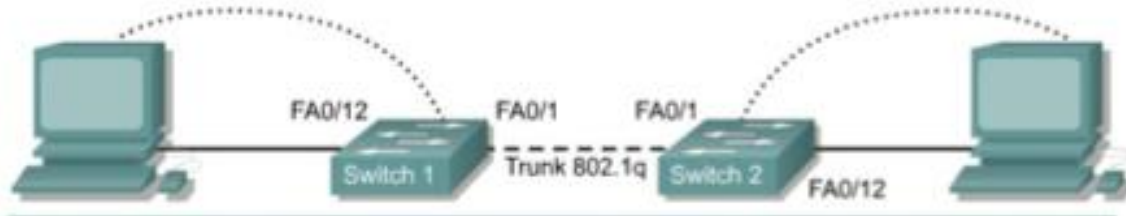
Check the front panel of the Switch_A if the ports have physically disappeared, are they? _____

Assing port 0/3 back to VLAN 1? How do you do it? _____

Step 15. Delete VLAN 1

Try to delete VLAN 1, what is the result? _____

Step 16. Configuring Trunking with 802.1q



Leave Switch_A's configuration as it were. Add a new Switch (Switch_B) into your network and cable it similar to above picture. Configure the Hostname, access and command mode passwords as well as the management LAN settings. The values are shown in the chart in the beginning of this lab.

Step 17. Create VLANs on Switch_B

Create and name three VLANs identical to Switch_A: Staff VLAN 10, Students VLAN 20, External VLAN 30

Step 18. Assign ports to a VLAN 10 on Switch_B

Assign ports 0/4 – 0/8 to a VLAN 10. You may use interface range ... command in order to configure several interfaces at the same time. Find out how to use interface range command.

Step 19. Assign ports to a VLAN 20 on Switch_B

Assign ports 0/9 – 0/10 to a VLAN 20.

Step 20. Assign ports to a VLAN 30 on Switch_B

Assign ports 0/11 – 0/12 to a VLAN 20.

Step 21. Display the VLAN information and test the VLANs.

On both switches, type the command show vlan at the privileged EXEC prompt as follows:

```
Switch_A#show vlan  
Switch_B#show vlan
```

On a Switch_A, are ports 0/10 through 0/12 assigned to VLAN 30? _____

On a Switch_B, are ports 0/11 through 0/12 assigned to VLAN 30? _____

Ping from the host in Switch_A port 0/12 to the host in Switch_B port 0/12.

Was the ping successful? _____

Ping from the host in Switch_A port 0/12 to the switch IP 192.168.1.2.

Was the ping successful? _____

Why? _____

Step 22 Create the trunk and verify it

On both switches, Switch_A and Switch_B, type the following command at the fastethernet 0/1 interface command prompt. Note that it is not necessary to specify the encapsulation on a 2950, since it only supports 802.1Q.

```
Switch_A(config)#interface fastethernet 0/1
Switch_A(config-if)#switchport mode trunk
Switch_A(config-if)#end
```

```
Switch_B(config)#interface fastethernet 0/1
Switch_B(config-if)#switchport mode trunk
Switch_B(config-if)#end
```

To verify that port Fast Ethernet 0/1 has been established as a trunk port, type show interface fastethernet 0/1 switchport at the privileged EXEC mode prompt.

What type of trunking encapsulation is shown on the output results?

According to the output with show interface fastethernet 0/1 switchport on Switch_B, is there a difference from the Administrative Trunking Encapsulation from the Operational Trunking Encapsulation?

On the fragment "Trunking VLANs Enable" from the output, what does the word "ALL" mean?

What would happen if the two ports of the trunk were using different encapsulation? _____

Explain _____

Step 23. Test the VLANs and the trunk

Ping from the host in Switch_A port 0/12 to the host in Switch_B port 0/12.

Was the ping successful? _____

Move the host in Switch_A from port 0/12 to port 0/8. Wait until the port LED goes green and then ping from the host in Switch_A port 0/8 to the host in Switch_B port 0/12.

Was the ping successful? _____

Why? _____

Step 24. Erase and reload both switches

First remove the VLAN database information file. After that wipe out the startup-configuration file and finally reload the switch.

```
Switch_A# delete flash:vlan.dat  
Switch_A# erase startup-config  
Switch_A# reload
```