

Lab 9. VLANs

Lab Objective:

Learn how to configure VLAN's and see why you need a Layer 3 device to communicate between them.

Lab Purpose:

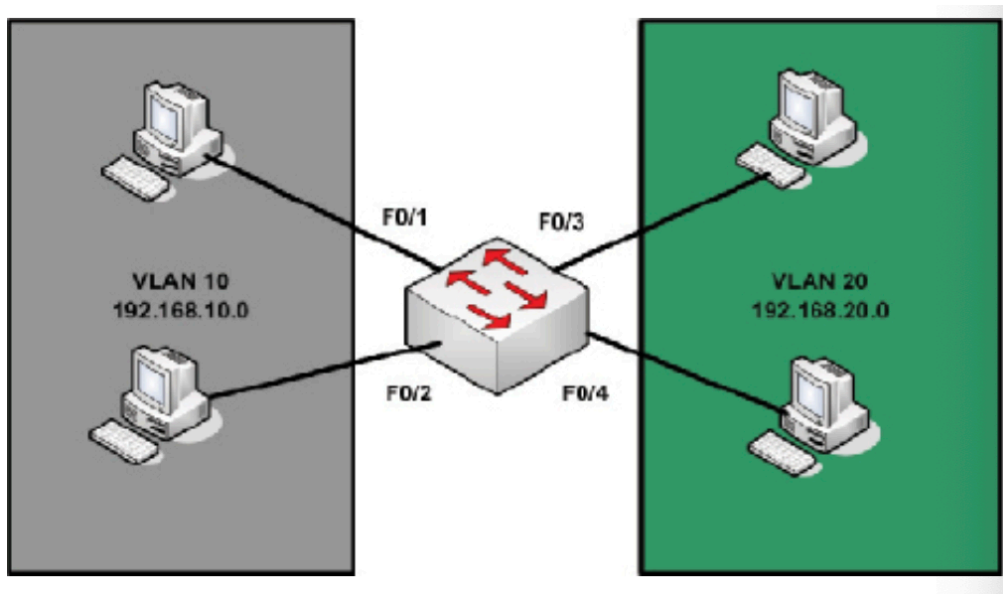
VLAN's help you segment your network for easier administration and added security. It's important you understand how they work because they will form part of your daily routine as a network engineer.

Lab Tool:

Packet Tracer

Lab Topology:

Please use the following topology to complete this lab exercise:



Lab Walkthrough:

Task 1:

Connect four hosts to a Cisco switch (Please use a 2960 in this lab) using straight-through cables. Note which devices you connect to which switch interfaces because you will be putting these interfaces into their respective VLANs shortly.

Task 2:

Allocate IP addresses to hosts from within the addresses below according to the topology.

VLAN 10 - 192.168.10.0

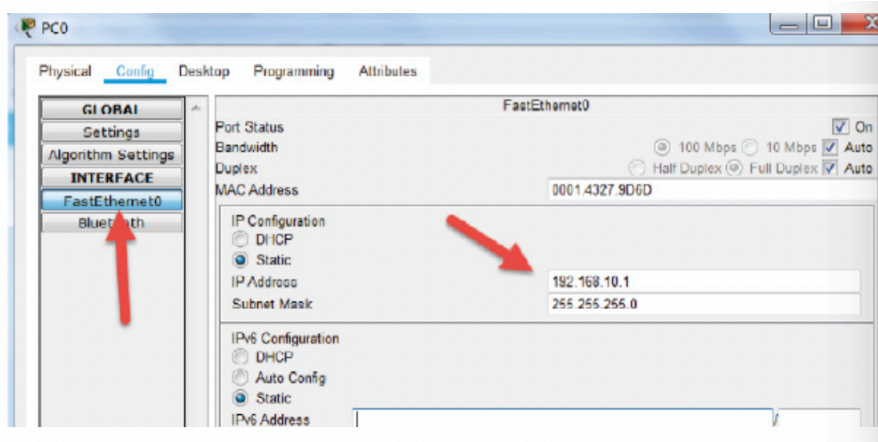
VLAN 20 - 192.168.20.0

Remember that no device can have .0 assigned for this labs.

Do you remember why?

I suggest that you use 192.168.10.1 and 192.168.10.2 for VLAN 10 and 192.168.20.1 and 192.168.20.2 for VLAN 20, but feel free to use any IP address within the subnet.

Here is an example from a host on VLAN 10.



Task 3:

Configure interfaces F0/1 and F0/2 into VLAN 10 and F0/3 and F0/4 into VLAN 20. Force the ports to be access-only (to never become a trunk), which you do with the 'SWITCHPORT MODE ACCESS' command.

```
Switch#conf t
Enter configuration commands, one per line. End with
CNTL/Z.
Switch(config)#vlan 10
Switch(config-vlan)#interface f0/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 10
Switch(config-if)#interface f0/2
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 10
Switch(config-if)#vlan 20
Switch(config-vlan)#interface f0/3
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 20
Switch(config-if)#int f0/4
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 20
Switch(config-if)#end
```

Task 4:

Check the VLANs on the switch and which ports are in which VLANs. By default, all ports are in the native VLAN named 'DEFAULT'. Use the 'SHOW VLAN BRIEF' command.

```
Switch#show vlan brief
```

VLAN	Name	Status	Ports
1	default	active	Fa0/5, Fa0/6, Fa0/7, Fa0/8 Fa0/9, Fa0/10, Fa0/11, Fa0/12 Fa0/13, Fa0/14, Fa0/15, Fa0/16 Fa0/17, Fa0/18, Fa0/19, Fa0/20 Fa0/21, Fa0/22, Fa0/23, Fa0/24 Gig0/1, Gig0/2
10	VLAN0010	active	Fa0/1, Fa0/2
20	VLAN0020	active	Fa0/3, Fa0/4
1002	fddi default	active	
1003	token-ring-default	active	
1004	token-ring-default	active	
1005	token-ring-default	active	

Task 5:

Now test some pings. You should be able to ping between hosts in the same VLAN but not to the other VLAN (you would need a router to be able to do this). Below a test from 192.168.10.1, which sits on VLAN 10.

```
Command Prompt
Packet Tracer PC Command Line 1.0
C:\>ping 192.168.10.2

Pinging 192.168.10.2 with 32 bytes of data:

Reply from 192.168.10.2: bytes=32 time=2ms TTL=128
Reply from 192.168.10.2: bytes=32 time=3ms TTL=128
Reply from 192.168.10.2: bytes=32 time<1ms TTL=128
Reply from 192.168.10.2: bytes=32 time=2ms TTL=128

Ping statistics for 192.168.10.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 3ms, Average = 1ms

C:\>ping 192.168.20.1

Pinging 192.168.20.1 with 32 bytes of data:

Request timed out.
```

Notes:

You will need a Layer 3 device to ping between VLANs. We will do this in another lab.

You can make recognizing each VLAN easier by naming it ADMIN or SALES, for example.

```
Switch>en
Switch#conf t
Enter configuration commands, one per line. End with
CNTL/Z.
Switch(config)#vlan 10
Switch(config-vlan)#name SALES
Switch(config-vlan)#end
Switch#show vlan brief
[output truncated]
10 SALES active
1002 fddi-default active
```