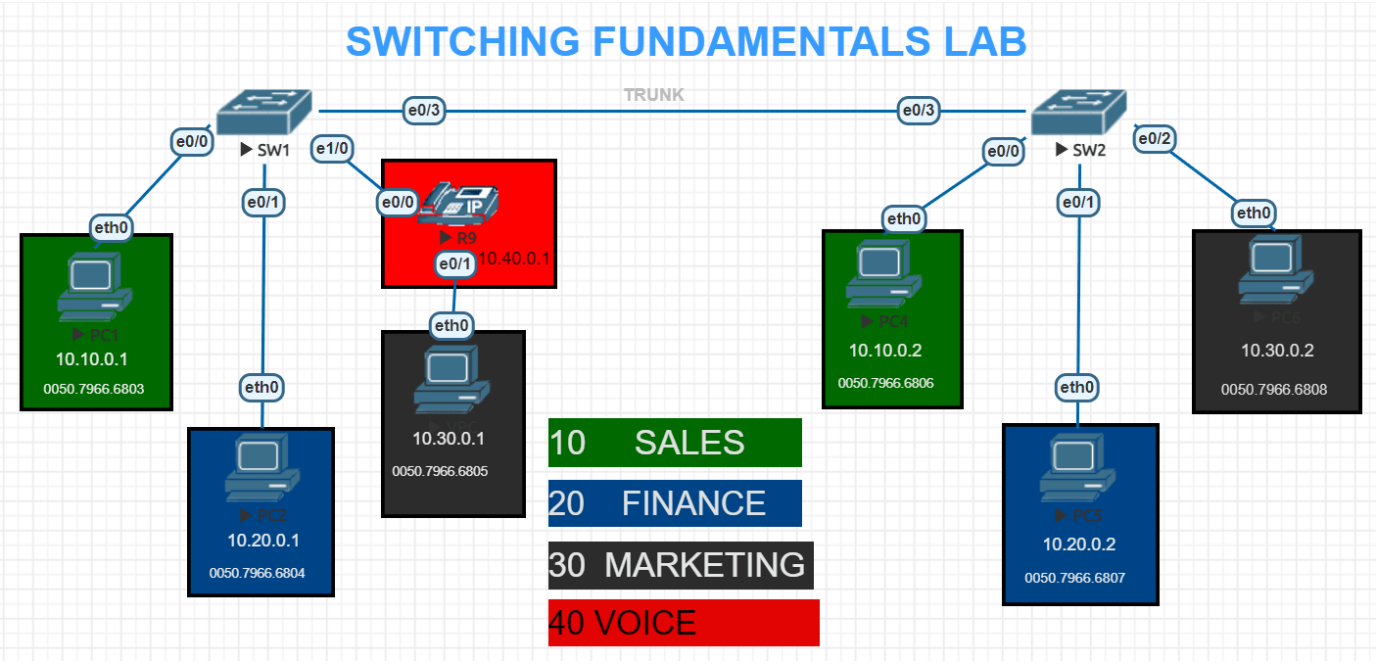
Creating and Assigning VLANs

In this How To we will cover creating an Access and Voice VLAN and assigning VLANs to a switchport.



- We will have to create 4 VLANs on each switch and will assign the VLANs to the correct ports.

Configuration

- To create VLANs we must go into Global Configuration mode on the CLI, and then create the VLANs using the syntax below.

`SW1#configure terminal` # This command puts us in Global Config mode

`SW1(config)#vlan 10` # This command puts us into the VLAN sub-configuration mode

`SW1(config-vlan)#name SALES` # This command sets a name for the VLAN.

`SW1(config-vlan)#exit` # This command will actually save the VLAN into the VLAN database

- The complete configuration to create all four VLANs is shown below.

```
SW1>en
SW1#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
SW1(config)#vlan 10
SW1(config-vlan)#name SALES
SW1(config-vlan)#vlan 20
SW1(config-vlan)#name FINANCE
SW1(config-vlan)#vlan 30
SW1(config-vlan)#name MARKETING
SW1(config-vlan)#vlan 40
SW1(config-vlan)#name VOICE
SW1(config-vlan)#
```

- Now that we have created the VLANs we will need to assign the VLANs to the correct ports. We assign VLANs from Global Configuration Mode using the syntax below.

`SW1(config)#interface ethernet 1/0` # This command puts us into the interface sub-configuration mode

`SW1(config-if)#switchport mode access` # This command sets this interface to actually be an "**access**" port for users.

`SW1(config-if)#switchport access vlan 30` # This command will actually assign **VLAN 30** to this interface

`SW1(config-if)#switchport voice vlan 40` # This command will set a **VOICE VLAN** for the interface

- The complete configuration to assign all VLANs is shown below.

```
SW1>en
SW1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
SW1(config)#interface ethernet 0/0
SW1(config-if)#switchport mode access
SW1(config-if)#switchport access vlan 10
SW1(config-if)#interface ethernet 0/1
SW1(config-if)#switchport mode access
SW1(config-if)#switchport access vlan 20
SW1(config-if)#interface ethernet 1/0
SW1(config-if)#switchport mode access
SW1(config-if)#switchport access vlan 30
SW1(config-if)#switchport voice vlan 40
```

Verification

- The following show commands will verify that the VLANs are created and are assigned to the correct port.

`SW1#show vlan` # This command will show the entire VLAN database

```
SW1#show vlan

VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------------
1    default                           active    Et0/2, Et0/3, Et1/0, Et1/1
                                                 Et1/2, Et1/3
10   SALES                             active    Et0/0
20   FINANCE                           active    Et0/1
30   MARKETING                         active
40   VOICE                             active
1002 fddi-default                      act/unsup
1003 token-ring-default                act/unsup
1004 fddinet-default                   act/unsup
1005 trnet-default                     act/unsup

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
1    enet  100001     1500  -      -      -        -    -        0      0
10   enet  100010     1500  -      -      -        -    -        0      0
20   enet  100020     1500  -      -      -        -    -        0      0
30   enet  100030     1500  -      -      -        -    -        0      0
40   enet  100040     1500  -      -      -        -    -        0      0
1002 fddi  101002     1500  -      -      -        -    -        0      0
1003 tr    101003     1500  -      -      -        -    -        0      0

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
1004 fdnet 101004     1500  -      -      -        ieee -        0      0
1005 trnet 101005     1500  -      -      -        ibm  -        0      0
```

`SW1#show vlan brief` # This command will show only a brief output of the VLAN database

```
SW1#show vlan brief

VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------------
1    default                           active    Et0/2, Et0/3, Et1/0, Et1/1
                                                 Et1/2, Et1/3
10   SALES                             active    Et0/0
20   FINANCE                           active    Et0/1
30   MARKETING                         active
40   VOICE                             active
1002 fddi-default                      act/unsup
1003 token-ring-default                act/unsup
1004 fddinet-default                   act/unsup
1005 trnet-default                     act/unsup
```

`SW1#show running-config interface ethernet 0/0` # This command will show you the configuration for just the specified port

```
SW1#show running-config interface ethernet 0/0
Building configuration...

Current configuration : 80 bytes
!
interface Ethernet0/0
 switchport access vlan 10
 switchport mode access
end
```

`SW1#show interface ethernet 0/0 switchport` # This command will show how the hardware of the port is actually configured. Whether its Layer 2 and what mode the port is configured for.

```
SW1#show interface ethernet0/0 switchport
Name: Et0/0
Switchport: Enabled
Administrative Mode: static access
Operational Mode: static access
Administrative Trunking Encapsulation: negotiate
Operational Trunking Encapsulation: native
Negotiation of Trunking: Off
Access Mode VLAN: 10 (SALES)
Trunking Native Mode VLAN: 1 (default)
Administrative Native VLAN tagging: enabled
Voice VLAN: none
Administrative private-vlan host-association: none
Administrative private-vlan mapping: none
Administrative private-vlan trunk native VLAN: none
Administrative private-vlan trunk Native VLAN tagging: enabled
Administrative private-vlan trunk encapsulation: dot1q
Administrative private-vlan trunk normal VLANs: none
Administrative private-vlan trunk associations: none
Administrative private-vlan trunk mappings: none
Operational private-vlan: none
Trunking VLANs Enabled: ALL
Pruning VLANs Enabled: 2-1001
Capture Mode Disabled
Capture VLANs Allowed: ALL
```