Report of Day-4

Today's Objective:

Switch Configuration:

Theory:

1. Basics of Switch, hostname, VLAN, IP
2. VLAN Concepts: Access and Trunk Ports.

Practical:

1. Configure the Switch name, VLAN, IP.
2. Create the VLANs
3. Assign ports to VLANS.

What is a VLAN?

VLAN stands for **Virtual Local Area Network**. It is a technology used in computer networking to segment a physical network into multiple logical networks.

Even though all devices in a VLAN may be connected to the same physical switch, **they behave as if they are on separate, isolated networks**. VLANs operate at **Layer 2 (Data Link layer)** of the OSI model, using switches.

What is a Hostname in a Switch?

A **hostname** in a switch (or any network device) is the **name assigned to the device** to uniquely identify it within a network.

It serves as a **label** for the device, making it easier to recognize and manage — especially when dealing with multiple devices like switches, routers, or firewalls.

1. Access Port

Definition:

An **Access Port** is a switch port that carries traffic for **only one VLAN**. It is typically used to connect **end devices** like PCs, printers, IP phones, etc.

Key Characteristics:

- Assigned to a **single VLAN**.
- Does **not tag VLAN information** in the Ethernet frames (unless needed by internal mechanisms like voice VLAN).
- Frames sent and received are in **standard Ethernet format**.

Use Case:

- You want to connect a user's PC to VLAN 10.
- You set the port as an **Access Port and** assign it to VLAN 10.

2. Trunk Port

Definition:

A **Trunk Port** is a switch port that carries traffic for **multiple VLANs**. It is used to connect **two switches**, or a switch to a router or firewall, allowing VLAN information to travel between them.

Key Characteristics:

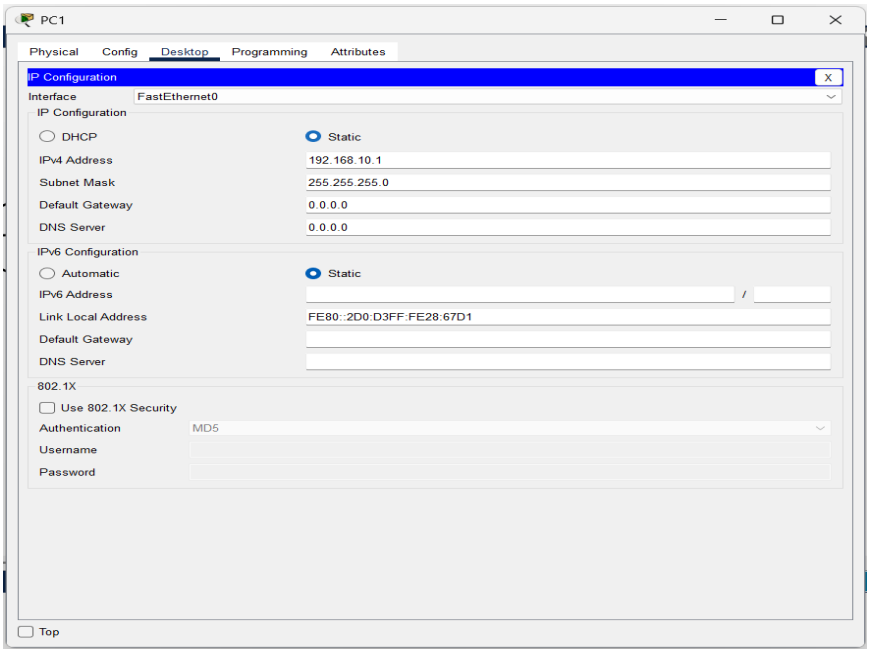
- Carries **tagged frames** using IEEE 802.1Q standard (adds VLAN ID to each frame).
- **One native VLAN** (untagged traffic) but can carry traffic for **many VLANs**.
- Allows inter-VLAN communication across switches.

Use Case:

- You want to connect two switches and allow VLAN 10, 20, and 30 to pass between them.
- You set the connecting port as a **Trunk Port**.

Practical:

Configuration of the IP address for the Devices:



Configuration of Switch Hostname:

```
Switch>enable
Switch#configure t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#hostname Transformer1
Transformer1(config)#exit
Transformer1#
%SYS-5-CONFIG_I: Configured from console by console

Transformer1#
```

Creating 1’st VLAN and Assigning ports: VLAN10

```
Switch#show vlan

VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------------
1    default                           active    Fa0/4, 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
2    VLAN10                            active    Fa0/1, Fa0/2, Fa0/3
1002 fddi-default                      active
1003 token-ring-default                active
1004 fddinet-default                   active
1005 trnet-default                     active

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
1    enet  100001     1500  -      -      -        -    -        0      0
2    enet  100002     1500  -      -      -        -    -        0      0
1002 fddi  101002     1500  -      -      -        -    -        0      0
1003 tr    101003     1500  -      -      -        -    -        0      0
1004 fdnet 101004     1500  -      -      -        ieee -        0      0
1005 trnet 101005     1500  -      -      -        ibm  -        0      0

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------

Remote SPAN VLANs
------------------------------------------------------------------------------

Primary Secondary Type              Ports
------- --------- ----------------- ------------------------------------------
Switch#
```

Creating 2’nd VLAN and Assigning ports: VLAN20

```
Switch#config t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#vlan 3
Switch(config-vlan)#name VLAN20
Switch(config-vlan)#exit
Switch(config)#interface range F
Switch(config)#interface range FastEthernet 0/4 - F
Switch(config)#interface range FastEthernet 0/4 - FastEthernet 0/6
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 3
Switch(config-if-range)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#show vlan

VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------------
1    default                           active    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
2    VLAN10                            active    Fa0/1, Fa0/2, Fa0/3
3    VLAN20                            active    Fa0/4, Fa0/5, Fa0/6
1002 fddi-default                      active
1003 token-ring-default                active
1004 fddinet-default                   active
1005 trnet-default                     active

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
```