**VLAN Configuration.**

**Objective:**

* To configure **VLANs** on a **Layer 2 switch** and show that devices on different VLANs cannot communicate without routing.
* To configure **Inter-VLAN Routing** using a **Layer 3 switch** and allow devices on different VLANs to communicate.

1. **Layer 2 Switch Configuration (Without Routing)**

A diagram of a computer network

AI-generated content may be incorrect.

🔧 **VLAN Configuration on Switch**

1. Create VLANs on the layer 2 Switch

Click on the **switch**, go to the CLI tab and type the following commands.

**Switch>enable**

**Switch# configure terminal**

**Switch(config) vlan 10**

**Switch(config-vlan) name Sales**

**Switch(config-vlan) vlan 20**

**Switch(config-vlan) name HR**

**Switch(config) end**

1. Assign Ports to VLANs

**Switch(config) interface FastEthernet 0/1**

**Switch(config-if) switchport mode access**

**Switch(config-if) switchport access vlan 10**

**Switch(config-if) exit**

**Switch(config) interface FastEthernet 0/2**

**Switch(config-if) switchport mode access**

**Switch(config-if) switchport access vlan 20**

**Switch(config-if) exit**

1. **Inter-VLAN Routing Using a Router**

Create Subinterfaces for VLAN on the Router

**Router>enable**

**Router# configure terminal**

**Router(config) interface GigabitEthernet 0/0.10**

**Router(config-if) encapsulation dot1Q 10**

**Router(config-if) ip address 192.168.10.1 255.255.255.0**

**Router(config-if) exit**

**Router(config) interface GigabitEthernet 0/0.20**

**Router(config-if) encapsulation dot1Q 10**

**Router(config-if) ip address 192.168.20.1 255.255.255.0**

**Router(config-if) exit**

**Router(config) interface GigabitEthernet 0/0**

**Router(config-if) no shutdown**

**Router(config-if) exit**

1. Set Default Gateway on each PC

|  |  |  |
| --- | --- | --- |
| **VLAN** | **PC IP Address** | **Default Gateway** |
| VLAN 1O (SALES) | 192.168.10.10 /24 | 192.168.10.1 |
| VLAN 20 (HR) | 192.168.20.10 /24 | 192.168.20.1 |

1. ✅ Testing & Verification

After setting everything up, test **Inter-VLAN communication**.

From VLAN 10 to VLAN 20

**ping 192.168.20.10**

If everything is configured correctly, you should receive a reply message confirming that the PC in vlan10 can communicate with the PC in vlan 20

1. **Layer 3 Switch Configuration (With Inter-VLAN Routing)**

A diagram of a computer network

AI-generated content may be incorrect.

🔧 **VLAN Configuration on Switch**

1. Create VLANs on the layer 3 Switch

Click on the **switch**, go to the CLI tab and type the following commands.

**Switch>enable**

**Switch# configure terminal**

**Switch(config) vlan 10**

**Switch(config-vlan) name Sales**

**Switch(config-vlan) vlan 20**

**Switch(config-vlan) name HR**

1. Assign Ports to VLANs

**Switch(config) interface FastEthernet 0/1**

**Switch(config-if) switchport mode access**

**Switch(config-if) switchport access vlan 10**

**Switch(config-if) exit**

**Switch(config) interface FastEthernet 0/2**

**Switch(config-if) switchport mode access**

**Switch(config-if) switchport access vlan 20**

**Switch(config-if) exit**

1. Enable routing on the layer 3 switch

**Switch(config) ip routing**

1. Create Switch Virtual Interfaces (SVIs)

Click on the Switch, go to the CLI tab and type the following commands.

**Switch>enable**

**Switch # configure terminal**

**Switch (config) interface vlan 10**

**Switch (config-if) ip address 192.168.10.1 255.255.255.0**

**Switch (config-if) no shutdown**

**Switch (config-if) exit**

**Switch (config) interface vlan 20**

**Switch (config-if) ip address 192.168.20.1 255.255.255.0**

**Switch (config-if) no shutdown**

**Switch (config-if) exit**

1. Set Default Gateway on each PC

|  |  |  |
| --- | --- | --- |
| **VLAN** | **PC IP Address** | **Default Gateway** |
| VLAN 1O (SALES) | 192.168.10.10 /24 | 192.168.10.1 |
| VLAN 20 (HR) | 192.168.20.10 /24 | 192.168.20.1 |

✅ Testing & Verification

After setting everything up, test **Inter-VLAN communication**.

From VLAN 10 to VLAN 20

**ping 192.168.20.10**

if everything is configured correctly, you should receive a reply message confirming that the PC in vlan10 can communicate with the PC in vlan 20