Basic VLAN Configuration Guide for Cisco Packet Tracer Lab

Lab Overview

This lab demonstrates the setup of basic VLANs to segment the network into Sales and Accounts departments using a single switch. The topology includes:

- One switch (2960-24TT)
- One server (Server-PT)
- Four PCs (PC1, PC2, PC3, PC4)
- IP addressing as per the diagram

Network Details

- **Sales Department VLAN (VLAN 10):** 192.168.1.0/24
  - PC1: 192.168.1.2
  - PC2: 192.168.1.3
- **Accounts Department VLAN (VLAN 20):** 192.168.2.0/24
  - PC3: 192.168.2.2
  - PC4: 192.168.2.3
  - Server-PT: 192.168.2.4
- **Switch Management IP:** 192.168.1.1 (VLAN 1 for management)

Step-by-Step Configuration

Step 1: Configure the Switch

1. Enter global configuration mode:

```
enable
configure terminal
```

2. Create VLAN 10 for Sales Department:

```
vlan 10
name Sales_Department
exit
```

3. Create VLAN 20 for Accounts Department:

```
vlan 20
name Accounts_Department
exit
```

4. Assign ports to VLANs:

```
interface FastEthernet0/1
switchport mode access
switchport access vlan 10
exit
interface FastEthernet0/2
switchport mode access
switchport access vlan 10
exit
interface FastEthernet0/3
switchport mode access
switchport access vlan 20
exit
interface FastEthernet0/4
switchport mode access
switchport access vlan 20
exit
interface FastEthernet0/5
switchport mode access
switchport access vlan 20
exit
```

5. Configure management IP address on VLAN 1:

```
interface vlan 1
ip address 192.168.1.1 255.255.255.0
no shutdown
exit
```

6. Save the configuration:

```
write memory
```

Step 2: Configure PCs and Server

1. Configure PC1:
   - IP Address: 192.168.1.2
   - Subnet Mask: 255.255.255.0
   - Gateway: 192.168.1.1
2. Configure PC2:
   - IP Address: 192.168.1.3
   - Subnet Mask: 255.255.255.0
   - Gateway: 192.168.1.1
3. Configure PC3:
   - IP Address: 192.168.2.2
   - Subnet Mask: 255.255.255.0
   - Gateway: 192.168.1.1
4. Configure PC4:
   - IP Address: 192.168.2.3
   - Subnet Mask: 255.255.255.0
   - Gateway: 192.168.1.1
5. Configure Server-PT:
   - IP Address: 192.168.2.4
   - Subnet Mask: 255.255.255.0
   - Gateway: 192.168.1.1

Step 3: Verify Configuration

1. Check VLAN configuration:

```
show vlan brief
```

2. Test connectivity within VLANs:

- From PC1, ping PC2 (should succeed).
- From PC3, ping PC4 (should succeed).
- From PC3, ping Server-PT (should succeed).

3. Test inter-VLAN connectivity:
   - From PC1, ping PC3 (should fail, as VLANs are isolated by default).
4. If connectivity fails, troubleshoot:
   - Verify IP configurations on PCs and server.
   - Ensure switch ports are correctly assigned to VLANs.
   - Check cable connections in Packet Tracer.

Troubleshooting Tips

- Use `ping` to test connectivity.
- Verify VLAN assignments with `show vlan brief`.
- Ensure no misconfigured ports or IP settings.

Conclusion

This configuration sets up basic VLANs to segment the Sales and Accounts departments. Intra-VLAN communication should work, while inter-VLAN communication is blocked without a router (not configured here). Test the setup to confirm segregation.