

# Enterprise Network Project - Cisco Packet Tracer

## 1. Project Overview

This project demonstrates a network setup in Cisco Packet Tracer, featuring VLAN segmentation, Router-on-a-stick for inter-VLAN routing, DHCP server configuration, Port security, and SSH access.

## 2. Network Topology

Devices used:

- Router: Cisco 2911
- Switch: Cisco 3560-24PS (Layer 3 switch)
- PCs: Generic PC (3 units)
- Connections: Straight-through cables

## 3. Configuration

### 3.1 VLAN Configuration on Switch

```
enable
```

```
configure terminal
```

```
vlan 10
```

```
name Admin
```

```
vlan 20
```

```
name Sales
```

```
vlan 30
```

```
name IT
```

```
exit
```

### 3.2 Router-on-a-stick Configuration

```
interface GigabitEthernet0/0.10
```

```
encapsulation dot1Q 10
```

```
ip address 192.168.10.1 255.255.255.0
```

```
exit
```

```
interface GigabitEthernet0/0.20
```

```
encapsulation dot1Q 20
```

```
ip address 192.168.20.1 255.255.255.0
```

```
exit
```

```
interface GigabitEthernet0/0.30
```

```
encapsulation dot1Q 30
```

```
ip address 192.168.30.1 255.255.255.0
```

```
exit
```

### **3.3 DHCP Server Configuration**

```
ip dhcp pool Admin
```

```
network 192.168.10.0 255.255.255.0
```

```
default-router 192.168.10.1
```

```
exit
```

```
ip dhcp pool Sales
```

```
network 192.168.20.0 255.255.255.0
```

```
default-router 192.168.20.1
```

```
exit
```

```
ip dhcp pool IT
```

```
network 192.168.30.0 255.255.255.0
```

```
default-router 192.168.30.1
```

```
exit
```

### **4. Testing and Verification**

- Use the 'ping' command to test connectivity between VLANs.
- Use 'show ip route' to check the routing table.

- Use 'show vlan brief' to verify VLAN configuration on the switch.
- Use 'show interfaces trunk' to confirm trunk port settings.

## **5. Conclusion**

This project successfully demonstrates how to set up VLANs, inter-VLAN routing, and DHCP services in Cisco Packet Tracer. The implementation ensures efficient communication between network segments.