Packet Tracer - DHCP for IPv4 and Routing Between VLANs (Instructor Version)

Instructor Note: Red font color or gray highlights indicate text that appears in the instructor copy only.

Answers: 1.2.1 Packet Tracer - DHCP for IPv4 and Routing Between VLANs

Addressing Table

Device	Interface	IP Address	Subnet Mask	Default Gateway
R1	G0/0.10	172.31.10.1	255.255.255.224	N/A
	G0/0.20	172.31.20.1	255.255.255.240	
	G0/0.30	172.31.30.1	255.255.255.128	
	G0/0.40	172.31.40.1	255.255.255.192	
	G0/1	DHCP Assigned	DHCP Assigned	
PC1	NIC	DHCP Assigned	DHCP Assigned	DHCP Assigned
PC2	NIC	DHCP Assigned	DHCP Assigned	DHCP Assigned
PC3	NIC	DHCP Assigned	DHCP Assigned	DHCP Assigned
PC4	NIC	DHCP Assigned	DHCP Assigned	DHCP Assigned

VLAN Port Assignments and DHCP Information

Ports	VLAN Number - Name	DHCP Pool Name	Network
F0/5 - F0/9	VLAN 10 - Sales	VLAN_10	172.31.10.0/27
F0/10 - F0/14	VLAN 20 - Production	VLAN_20	172.31.20.0/28
F0/15 - F0/19	VLAN 30 - Marketing	VLAN_30	172.31.30.0/25
F0/20 - F0/24	VLAN 40 - HR	VLAN_40	172.31.40.0/26

Scenario

In this activity, you will configure VLANs, trunks, DHCP Server pools, and configure a router as a DHCP client.

Requirements

Using the information in the tables above, implement the following requirements:

- Configure VLANs and trunking.
  - Create VLANs on **S2** and assign VLANs to appropriate ports. Names are case-sensitive

  - Configure **S2** ports for static trunking.
  - Configure all non-trunk ports on **S2** as static access ports.
- Configure **R1** to route between VLANs. Subinterface numbers should match the VLAN number.
- Configure **R1** to act as a DHCP server for the VLANs attached to S2.
  - Create a DHCP pool for each VLAN as shown in the VLAN Port Assignments and DHCP Information table. Names are case-sensitive.
  - Assign the appropriate addresses to each pool.
  - Configure DHCP to provide the default gateway address
  - Configure the DNS server address of 209.165.201.14 for each pool.
  - Prevent the first 10 addresses from each pool from being distributed to end devices.
- Configure **R1** as a DHCP client so that it receives an IP address from the ISP network.
- Verify that each PC has an address assigned from the correct DHCP pool.

  Note: DHCP address assignments may take some time. Click **Fast Forward Time** to speed up the process.
- Verify all devices can now ping each other and **www.cisco.pka**.

Device Scripts

Router R1

```
enable
config t
ip dhcp excluded-address 172.31.10.1 172.31.10.10
ip dhcp excluded-address 172.31.20.1 172.31.20.10
ip dhcp excluded-address 172.31.30.1 172.31.30.10
ip dhcp excluded-address 172.31.40.1 172.31.40.10
ip dhcp pool VLAN_10
 network 172.31.10.0 255.255.255.224
 default-router 172.31.10.1
 dns-server 209.165.201.14
ip dhcp pool VLAN_20
 network 172.31.20.0 255.255.255.240
 default-router 172.31.20.1
 dns-server 209.165.201.14
ip dhcp pool VLAN_30
 network 172.31.30.0 255.255.255.128
 default-router 172.31.30.1
 dns-server 209.165.201.14
ip dhcp pool VLAN_40
 network 172.31.40.0 255.255.255.192
 default-router 172.31.40.1
 dns-server 209.165.201.14
interface GigabitEthernet0/0
 no shutdown
interface GigabitEthernet0/0.10
 encapsulation dot1Q 10
```

```
 ip address 172.31.10.1 255.255.255.224
interface GigabitEthernet0/0.20
 encapsulation dot1Q 20
 ip address 172.31.20.1 255.255.255.240
interface GigabitEthernet0/0.30
 encapsulation dot1Q 30
 ip address 172.31.30.1 255.255.255.128
interface GigabitEthernet0/0.40
 encapsulation dot1Q 40
 ip address 172.31.40.1 255.255.255.192
interface GigabitEthernet0/1
 ip address dhcp
 no shutdown
end
```

Switch S2

```
enable
config
interface range f0/1 - 4
 switchport mode trunk
vlan 10
name Sales
vlan 20
name Production
vlan 30
name Marketing
vlan 40
name HR
interface range f0/5-24
 switchport mode access
interface range f0/5-9
 switchport access vlan 10
interface range f0/10-14
 switchport access vlan 20
interface range f0/15-19
 switchport access vlan 30
interface range f0/20-24
 switchport access vlan 40
end
```