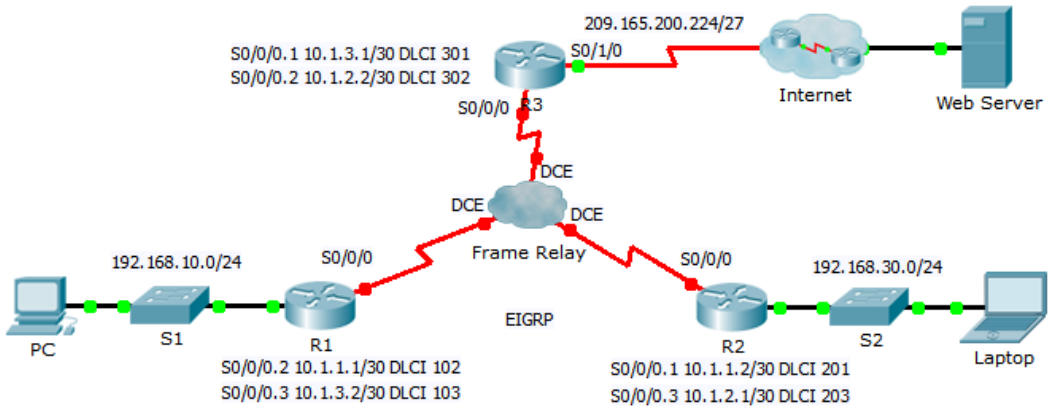
Packet Tracer – Configuring Frame Relay Point-to-Point Subinterfaces

Topology



Addressing Table

Device	Interface	IP Address	Subnet Mask	Default Gateway
R1	G0/0	192.168.10.1	255.255.255.0	N/A
	S0/0/0.2	10.1.1.1	255.255.255.252	N/A
	S0/0/0.3	10.1.3.2	255.255.255.252	N/A
R2	G0/0	192.168.30.1	255.255.255.0	N/A
	S0/0/0.1	10.1.1.2	255.255.255.252	N/A
	S0/0/0.3	10.1.2.1	255.255.255.252	N/A
R3	S0/0/0.1	10.1.3.1	255.255.255.252	N/A
	S0/0/0.2	10.1.2.2	255.255.255.252	N/A
	S0/1/0	209.165.200.225	255.255.255.224	N/A
ISP	S0/0/0	209.165.200.226	255.255.255.224	N/A
Web	NIC	209.165.200.2	255.255.255.252	209.165.200.1
PC	NIC	192.168.10.10	255.255.255.0	192.168.10.1
Laptop	NIC	192.168.30.10	255.255.255.0	192.168.30.1

Objectives

Part 1: Configure Frame Relay

Part 2: Configure Frame Relay Point-to-Point Subinterfaces

Part 3: Verify Configuration and Connectivity

Scenario

In this activity, you will configure Frame Relay with two subinterfaces on each router to reach the other two routers. You will also configure EIGRP and verify end-to-end connectivity.

Part 1: Configure Frame Relay

Step 1: Configure Frame Relay encapsulation on the S0/0/0 interface of R1.

```
R1(config)# interface s0/0/0
R1(config-if)# encapsulation frame-relay
R1(config-if)# no shutdown
```

Step 2: Configure Frame Relay encapsulation on the S0/0/0 interfaces of R2 and R3.

Step 3: Test connectivity.

From the command prompt on **PC**, verify connectivity to the **Laptop**, located at 192.168.30.10, using the **ping** command.

The ping from **PC** to **Laptop** should fail because the **R1** router does not have to route to reach the 192.168.30.0 network. **R1** must be configured with a Frame Relay on subinterfaces so that it can find the next hop destination to reach that network.

Part 2: Configure Frame Relay Point-to-Point Subinterfaces

Each router requires two subinterfaces to reach the other routers. The DLCIs to reach these routers are provided below.

Step 1: Configure subinterfaces on R1, R2, and R3.

a. Configure **R1** to use subinterfaces. **DLCI 102** is used to communicate from **R1** to **R2**, while **DLCI 103** is used to communicate from **R1** to **R3**.

```
R1(config)# interface s0/0/0.2 point-to-point
R1(config-subif)# ip address 10.1.1.1 255.255.255.252
R1(config-subif)# frame-relay interface-dlci 102
R1(config-subif)# interface s0/0/0.3 point-to-point
R1(config-subif)# ip address 10.1.3.2 255.255.255.252
R1(config-subif)# frame-relay interface-dlci 103
```

b. Add network entries to EIGRP autonomous system 1 to reflect the IP addresses above.

```
R1(config)# router eigrp 1
R1(config-router)# network 10.1.1.0 0.0.0.3
R1(config-router)# network 10.1.3.0 0.0.0.3
```

c. Configure **R2** to use subinterfaces. **DLCI 201** is used to communicate from **R2** to **R1**, while **DLCI 203** is used to communicate from **R2** to **R3**. Use the correct IP address in the **Address Table** for each subinterface.

d. Add the appropriate EIGRP entries to **R2** for autonomous system of 1.

e. Configure **R3** to use subinterfaces. **DLCI 301** is used to communicate from **R3** to **R1**, while **DLCI 302** is used to communicate from **R3** to **R2**. Use the correct IP address for each subinterface.

f. Add the appropriate EIGRP entries to **R3** for autonomous system of 1.

Part 3: Verify Configuration and Connectivity

Step 1: Verify the Frame Relay configuration.

Show information about Frame Relay and the connections that have been made. Note the fields for BECN, FECN, DE, DLCI, and LMI TYPE.

```
R1# show frame-relay map
R1# show frame-relay pvc
R1# show frame-relay lmi
```

Step 2: Verify end-to-end connectivity.

The **PC** and **Laptop** should be able to ping each other and the **Web Server**.