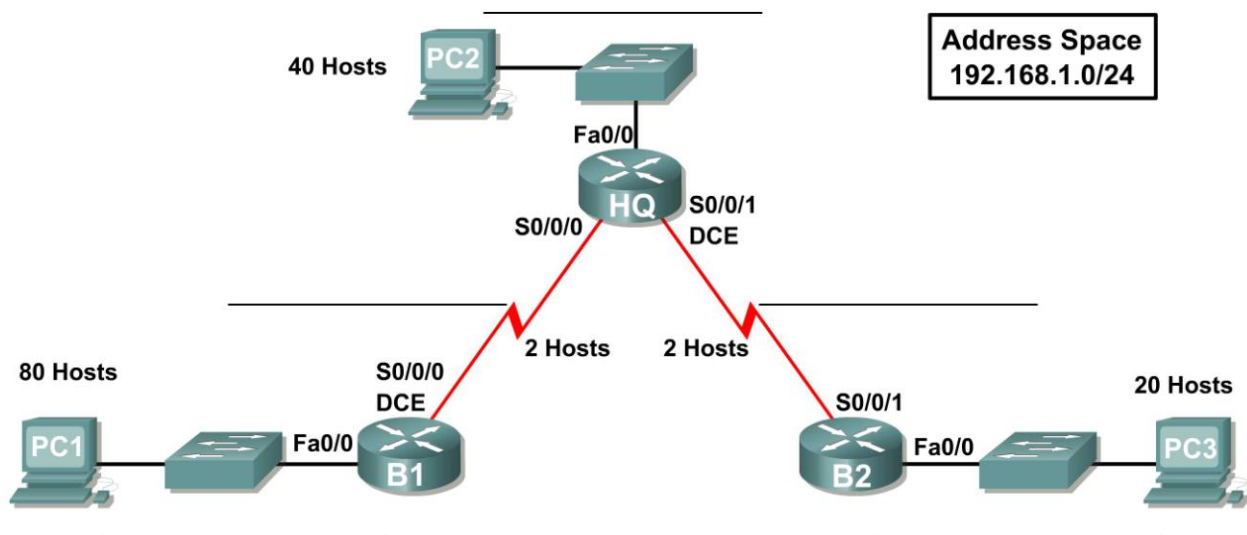


## 1.6.1: Packet Tracer Skills Integration Challenge

### Topology Diagram



### Addressing Table

Device	Interface	IP Address	Subnet Mask	Default Gateway
HQ	Fa0/0			N/A
	S0/0/0			N/A
	S0/0/1			N/A
B1	Fa0/0			N/A
	S0/0/0			N/A
B2	Fa0/0			N/A
	S0/0/1			N/A
PC1	NIC			
PC2	NIC			
PC3	NIC			

### Objectives

- Design and document an addressing scheme based on requirements.
- Select appropriate equipment and cable the devices.
- Apply a basic configuration to the devices.
- Verify full connectivity between all devices in the topology.
- Identify layer 2 and layer 3 addresses used to switch packets.

## **Task 1: Design and document an addressing scheme.**

### **Step 1: Design an addressing scheme.**

Based on the network requirements shown in the topology, design an appropriate addressing scheme.

- Starting with the largest LAN, determine the size of each subnet you will need for the given host requirement.
- After the addresses have been determined for all the LAN subnets, assign the first available address space to the WAN link between B1 and HQ.
- Assign the second available address space to the WAN link between HQ and B2.

(**Note:** Remember that the interfaces of network devices are also host IP addresses and are included in the above addressing requirements.)

### **Step 2: Document the addressing scheme.**

- Use the blank spaces on the topology to record the network addresses in dotted-decimal/slash format.
- Use the table provided in the printed instructions to document the IP addresses, subnet masks and default gateway addresses.
  - For the LANs, assign the first IP address to the router interface. Assign the last IP address to the PC
  - For the WAN links, assign the first IP address to HQ.

## **Task 2: Select equipment and cable devices.**

### **Step 1: Select the necessary equipment.**

Select the remaining devices you will need and add them to the working space inside Packet Tracer. Use the labels as a guide as to where to place the devices.

### **Step 2: Finish cabling the devices.**

Cable the networks according to the topology taking care that interfaces match your documentation in Task 1.

## **Task 3: Apply a basic configuration.**

### **Step 1: Configure the routers.**

Using your documentation, configure the routers with basic configurations including addressing. Use **cisco** as the line passwords and **class** as the secret password. Use 64000 as the clock rate.

### **Step 2: Configure the PCs.**

Using your documentation, configure the PCs with an IP address, subnet mask, and default gateway.

## **Task 4: Test connectivity and examine the configuration.**

### **Step 1: Test connectivity.**

RIP routing has already been configured for you. Therefore, you should have end-to-end connectivity.

- Can PC1 ping PC2? \_\_\_\_\_

- Can PC1 ping PC3? \_\_\_\_\_
- Can PC3 ping PC2? \_\_\_\_\_

Troubleshoot until pings are successful.

### Step 2: Examine the configuration.

Use verification commands to make sure your configurations are complete.

## Task 5: Identify layer 2 and layer 3 addresses used to switch packets.

### Step 1: Create a simple PDU ping packet

- Enter Simulation Mode.
- Use the Add Simple PDU button to create a ping from PC1 to PC3.
- Change “Edit Filters” so that only ICMP is simulated.

### Step 2: Addresses at PC1

Record the addresses used by PC1 to send the ping packet to B1:

Layer 3 Source: \_\_\_\_\_

Layer 3 Destination: \_\_\_\_\_

Layer 2 Source: \_\_\_\_\_

Layer 2 Destination: \_\_\_\_\_

### Step 3: Addresses at B1

Record the addresses used by B1 to switch the ping packet to HQ:

Layer 3 Source: \_\_\_\_\_

Layer 3 Destination: \_\_\_\_\_

Layer 2 Source: \_\_\_\_\_

Layer 2 Destination: \_\_\_\_\_

### Step 4: Addresses at HQ

Record the addresses used by HQ to switch the ping packet to B2:

Layer 3 Source: \_\_\_\_\_

Layer 3 Destination: \_\_\_\_\_

Layer 2 Source: \_\_\_\_\_

Layer 2 Destination: \_\_\_\_\_

### Step 5: Addresses at B2

Record the addresses used by B2 to switch the ping packet to PC3:

Layer 3 Source: \_\_\_\_\_

Layer 3 Destination: \_\_\_\_\_

Layer 2 Source: \_\_\_\_\_

Layer 2 Destination: \_\_\_\_\_