

## Packet Tracer - VLSM Design and Implementation Practice Topology

You will receive one of three possible topologies.

### Addressing Table

Device	Interface	IP Address	Subnet Mask	Default Gateway
	G0/0			N/A
	G0/1			N/A
	S0/0/0			N/A
	G0/0			N/A
	G0/1			N/A
	S0/0/0			N/A
	VLAN 1			
	VLAN 1			
	VLAN 1			
	VLAN 1			
	NIC			
	NIC			
	NIC			
	NIC			

### Objectives

**Part 1: Examine the Network Requirements**

**Part 2: Design the VLSM Addressing Scheme**

**Part 3: Assign IP Addresses to Devices and Verify Connectivity**

### Background

In this activity, you are given a /24 network address to use to design a VLSM addressing scheme. Based on a set of requirements, you will assign subnets and addressing, configure devices and verify connectivity.

### Instructions

#### Part 1: Examine the Network Requirements

##### Step 1: Determine the number of subnets needed.

You will subnet the network address . The network has the following requirements:

- LAN will require                      host IP addresses
- LAN will require                      host IP addresses
- LAN will require                      host IP addresses
- LAN will require                      host IP addresses

How many subnets are needed in the network topology?

### Step 2: Determine the subnet mask information for each subnet.

- Which subnet mask will accommodate the number of IP addresses required for                      ?  
How many usable host addresses will this subnet support?
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- Which subnet mask will accommodate the number of IP addresses required for                      ?  
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- Which subnet mask will accommodate the number of IP addresses required for                      ?  
How many usable host addresses will this subnet support?
- Which subnet mask will accommodate the number of IP addresses required for the connection between                      and                      ?

## Part 2: Design the VLSM Addressing Scheme

### Step 1: Divide the                      network based on the number of hosts per subnet.

- Use the first subnet to accommodate the largest LAN.
- Use the second subnet to accommodate the second largest LAN.
- Use the third subnet to accommodate the third largest LAN.
- Use the fourth subnet to accommodate the fourth largest LAN.
- Use the fifth subnet to accommodate the connection between                      and                      .

### Step 2: Document the VLSM subnets.

Complete the **Subnet Table**, listing the subnet descriptions (e.g. [[S1Name]] LAN), number of hosts needed, then network address for the subnet, the first usable host address, and the broadcast address. Repeat until all addresses are listed.

#### Subnet Table

Subnet Description	Number of Hosts Needed	Network Address/CIDR	First Usable Host Address	Broadcast Address

### Step 3: Document the addressing scheme.

- Assign the first usable IP addresses to \_\_\_\_\_ for the two LAN links and the WAN link.
- Assign the first usable IP addresses to \_\_\_\_\_ for the two LAN links. Assign the last usable IP address for the WAN link.
- Assign the second usable IP addresses to the switches.
- Assign the last usable IP addresses to the hosts.

## Part 3: Assign IP Addresses to Devices and Verify Connectivity

Most of the IP addressing is already configured on this network. Implement the following steps to complete the addressing configuration.

**Step 1: Configure IP addressing on the \_\_\_\_\_ router LAN interfaces.**

**Step 2: Configure IP addressing on the \_\_\_\_\_, switch including the default gateway.**

**Step 3: Configure IP addressing on \_\_\_\_\_, including the default gateway.**

### Step 4: Verify connectivity.

You can only verify connectivity from \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_. However, you should be able to ping every IP address listed in the **Addressing Table**.