Packet Tracer - Design and Implement a VLSM Addressing Scheme

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General Instruction

Place your answers (in **bold red**) inside the box provided or on the table on each question.

Addressing Table

Device	Interface	IP Address	Subnet Mask	Default Gateway
East	G0/0	***10.1.1.97***	***255.255.255.240***	N/A
	G0/1	***10.1.1.65***	**255.255.255.224**	N/A
	S0/0/0	***10.1.1.121***	**255.255.255.252**	N/A
West	G0/0	***10.1.1.113***	**255.255.255.248**	N/A
	G0/1	***10.1.1.1***	**255.255.255.192**	N/A
	S0/0/0	***10.1.1.122***	**255.255.255.252**	N/A
ES-1	VLAN 1	***10.1.1.98***	**255.255.255.240**	***10.1.1.97***
ES-2	VLAN 1	***10.1.1.66***	**255.255.255.224**	***10.1.1.65***
WS-1	VLAN 1	***10.1.1.114***	**255.255.255.248**	***10.1.1.113***
WS-2	VLAN 1	***10.1.1.2***	**255.255.255.192**	***10.1.1.1***
PC E1-22	NIC	***10.1.1.110***	**255.255.255.240**	***10.1.1.97***
PC E2-47	NIC	***10.1.1.94***	**255.255.255.224**	***10.1.1.65***
PC W1-201	NIC	***10.1.1.118***	**255.255.255.248**	***10.1.1.113***
PC W2-87	NIC	***10.1.1.62***	**255.255.255.192**	***10.1.1.1***

Objectives

In this lab you will design a VLSM addressing scheme given a network address and host requirements. You will configure addressing on routers, switches, and network hosts.

- Design a VLSM IP addressing scheme given requirements.
- Configure addressing on network devices and hosts.

- Verify IP connectivity.
- Troubleshoot connectivity issues as required.

Background / Scenario

You have been asked to design, implement, and test an addressing scheme for a customer. The customer has given you the network address that is suitable for the network, the topology, and the host requirements. You will implement and test your design.

Instructions

You have been given the network address by your customer. The host address requirements are:

Requirements

Host Requirements:

LAN	Number of Addresses Required
ES-1	*13*
ES-2	*30*
WS-1	*7*
WS-2	*49*

Design Requirements

- Create the addressing design. Follow guidelines provided in the curriculum regarding the order of the subnets.
- The subnets should be contiguous. There should be no unused address space between subnets.
- Provide the most efficient subnet possible for the point-to-point link between the routers.
- Document your design in a table such as the one below.

Subnet Description	Number of Hosts Needed	Network Address/CIDR	First Usable Host Address	Broadcast Address
WS-2 LAN	*47*	*10.1.1.0/26*	*10.1.1.1*	*10.1.1.63*
ES-2 LAN	*28*	*10.1.1.64/27*	*10.1.1.65*	*10.1.1.95*
ES-1 LAN	*11*	*10.1.1.96/28*	*10.1.1.97*	*10.1.1.111*
WS-1 LAN	*5*	*10.1.1.112/29*	*10.1.1.113*	*10.1.1.119*
Router WAN Link	*2*	*10.1.1.120/30*	*10.1.1.121*	*10.1.1.123*

Configuration Requirements

Note: You will configure addressing on **all** devices and hosts in the network.

- Assign the first usable IP addresses in the appropriate subnets to [[R1Name]] for the two LAN links and the WAN link.

- Assign the first usable IP addresses in the appropriate subnets to [[R2Name]] for the two LANs links. Assign the last usable IP address for the WAN link.
- Assign the second usable IP addresses in the appropriate subnets to the switches.
- The switch management interface should be reachable from hosts on all of the LANs.
- Assign the last usable IP addresses in the appropriate subnets to the hosts.

If the addressing design and implementation are correct, all hosts and devices should be reachable over the network.

Part 1: Post your screenshots

On the PT Activity window, make sure that the completion grade is **100%**. Click on the **Check Results** button and select the **Assessment Items** tab. Take a screen shot of the whole window, showing the table of assessment items, and the score/item count. Own your photo by placing a watermark on your photo with your name and USC ID Number. Paste your screenshot below: