

Packet Tracer - Design and Implement a VLSM Addressing Scheme

Addressing Table

Device	Interface	IP Address	Subnet Mask	Default Gateway
<i>police</i>	G0/0	192.168.203.129	255.255.255.240	N/A
<i>police</i>	G0/1	192.168.203.97 <i>lank</i>	<i>Blank</i> 255.255.255.224	N/A
<i>police</i>	S0/0/0	192.168.203.145	255.255.255.252	N/A
<i>school</i>	G0/0	192.168.203.65	255.255.255.224	N/A
<i>school</i>	G0/1	192.168.203.1	255.255.255.192	N/A
<i>school</i>	S0/0/0	192.168.203.146	255.255.255.252	N/A
<i>PD-1</i>	VLAN 1	192.168.203.130	255.255.255.240	192.168.203.129
<i>PD-2</i>	VLAN 1	192.168.203.98	255.255.255.224	192.168.203.97
<i>PS-101</i>	VLAN 1	192.168.203.66	255.255.255.224	192.168.203.65
<i>PS-115</i>	VLAN 1	192.168.203.2	255.255.255.192	192.168.203.1
<i>PD-1-11</i>	NIC	192.168.203.142	255.255.255.240	192.168.203.129
<i>PD-2-23</i>	NIC	192.168.203.126	255.255.255.224	192.168.203.97
<i>PS-101-87</i>	NIC	192.168.203.94	255.255.255.224	192.168.203.65
<i>PS-115-12</i>	NIC	192.168.203.62	255.255.255.192	192.168.203.1

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
PS-115 LAN	32
PS-101 LAN	19
PD-1 LAN	14
PD-2 LAN	21

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
PS-115 LAN	32	192.168.203.96	192.168.203.126	192.168.203.127
PS-101 LAN	19	192.168.203.0/26	192.168.203.1	192.168.203.63
PD-1 LAN	14	192.168.203.64/27	192.168.203.65	192.168.203.95
PD-2 LAN	21	192.168.203.128/28	192.168.203.129	192.168.203.143
WAN link	2	192.168.203.144/30	192.168.203.145	192.168.203.147

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 Police for the two LAN links and the WAN link.
- Assign the first usable IP addresses in the appropriate subnets to Schools 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.