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Packet Tracer - Pinging and Tracing to Test the Path

Device	Interface	IPv4 Address	Subnet Mask	Default Gateway
		IPv6 Address/Prefix		
PC1	NIC	10.10.1.98	255.255.255.224	10.10.1.97
PC2	NIC	2001:DB8:1:1::2/64		FE80::1
PC3	NIC	10.10.1.18	255.255.255.240	10.10.1.17
PC4	NIC	2001:DB8:1:4::2/64		FE80::1

Answer:

Step 2:

*From **PC1**, enter the necessary command to trace the route to **PC3**. What is the last successful IPv4 address that was reached?* 10.10.1.97

*From **PC3**, enter the necessary command to trace the route to PC1. What is the last successful IPv4 address that was reached?* 10.10.1.17

*Enter the show ip interface brief command to list the interfaces and their status. There are two **IPv4** addresses on the router. One should have been recorded in Step 2a. What is the other?* 10.10.1.6

*Enter the **show ip route** command to list the networks to which the router is connected. Note that there are two networks connected to the **Serial0/0/1** interface. What are they?* 10.10.1.6/32, 10.10.1.4/30

Repeat step 2e to 2g with R3 and the answers here.

- 10.10.1.10;
- 10.10.1.8/30, 10.10.1.10/32

Step 3:

*Compare your answers in **Step 2** to the documentation you have available for the network. What is the error?*

R2's Serial 0/0/0 interface is configured with the wrong IP address

What solution would you propose to correct the problem?

Configure the correct IP address on R2's Serial 0/0/0 interface (10.10.1.5)

Step 5:
*From **PC3** test connectivity to **PC1**. Is the problem resolved? YesFrom **PC2**, enter the necessary command to trace the route to **PC4**. What is the last successful **IPv6** address that was reached? The trace will eventually end after 30 attempts. Enter **Ctrl+C** to stop the trace before 30 attempts.* 2001:DB8:1:3::2

*From **PC4**, enter the necessary command to trace the route to **PC2**. What is the last successful IPv6 address that was reached? Enter Ctrl+C to stop the trace.* No IPv6 address (Request timed out)

*Enter the **show ipv6 interface brief** command to list the interfaces and their status. There are two **IPv6** addresses on the router. One should match the gateway address recorded in Step 1d. Is there a discrepancy?* Yes

Step 3:

Compare your answers in Step 2 to the documentation you have available for the network. What is the error?

PC4 default gateway configuration was wrong

What solution would you propose to correct the problem?

Configure default gateway address to **FE80::3.**

Step 5:
From **PC4** test connectivity to **PC2**. Is the problem resolved? Yes

Packet Tracer - Subnetting Scenario

Device	Interface	IP address	Subnet Mask	Default gateway
R1	G0/0	192.168.100.1	255.255.255.224	N/A
	G0/1	192.168.100.33	255.255.255.224	N/A
	S0/0/0	192.168.100.129	255.255.255.224	N/A
R2	G0/0	192.168.100.65	255.255.255.224	N/A
	G0/1	192.168.100.97	255.255.255.224	N/A
	S0/0/0	192.168.100.158	255.255.255.224	N/A
S1	VLAN1	192.168.100.2	255.255.255.224	192.168.100.1
S2	VLAN1	192.168.100.34	255.255.255.224	192.168.100.33
S3	VLAN1	192.168.100.66	255.255.255.224	192.168.100.65
S4	VLAN1	192.168.100.98	255.255.255.224	192.168.100.97
PC1	NIC	192.168.100.30	255.255.255.224	192.168.100.1
PC2	NIC	192.168.100.62	255.255.255.224	192.168.100.33
PC3	NIC	192.168.100.94	255.255.255.224	192.168.100.65
PC4	NIC	192.168.100.126	255.255.255.224	192.168.100.97

Part 1:

Based on the topology, how many subnets are needed? **5**

How many bits must be borrowed to support the number of subnets in the topology table? **3 bits**

How many subnets does this create? **2^3 = 8 subnets (support subnet zero)**

How many usable hosts does this create per subnet? **2^5 – 2 = 30 hosts**

Calculate the binary value for the first five subnets :

Net 0:

192.168.100	0	0	0	0	0	0	0

Net 1:

192.168.100	0	0	1	0	0	0	0

Net 2:

192.168.100	0	1	0	0	0	0	0

Net 3:

192.168.100	0	1	1	0	0	0	0

Net 4:

192.168.100	1	0	0	0	0	0	0

Calculate the binary and decimal value of the new subnet mask.

11111111.11111111.11111111.	1	1	1	0	0	0	0

255.255.255.	**224**

Subnet Number	Subnet Address	First Usable Host Address	Last Usable Host Address	Broadcast Address
0	192.168.100.0	192.168.100.1	192.168.100.30	192.168.100.31
1	192.168.100.32	192.168.100.33	192.168.100.62	192.168.100.63
2	192.168.100.64	192.168.100.65	192.168.100.94	192.168.100.95
3	192.168.100.96	192.168.100.97	192.168.100.126	192.168.100.127
4	192.168.100.128	192.168.100.129	192.168.100.158	192.168.100.159
5	192.168.100.160	192.168.100.161	192.168.100.190	192.168.100.191
6	192.168.100.192	192.168.100.193	192.168.100.222	192.168.100.223
7	192.168.100.224	192.168.100.225	192.168.100.254	192.168.100.255

Step 2:

Assign Subnet 0 to the **LAN** connected to the **GigabitEthernet 0/0** interface of **R1**:
192.168.100.0 /27

Assign Subnet 1 to the **LAN** connected to the **GigabitEthernet 0/1** interface of **R1**:
192.168.100.32 /27

Assign Subnet 2 to the **LAN** connected to the **GigabitEthernet 0/0** interface of **R2**:
192.168.100.64 /27

Assign Subnet 3 to the **LAN** connected to the **GigabitEthernet 0/1** interface of **R2**:
192.168.100.96 /27

Assign Subnet 4 to the **WAN** link between **R1** to **R2**:

192.168.100.128 /27