BỘ GIÁO DỤC VÀ ĐẠO TẠO

TRƯỜNG ĐẠI HỌC CÔNG NGHỆ

KHOA CÔNG NGHỆ THÔNG TIN

★ ★ ★

BÁO CÁO

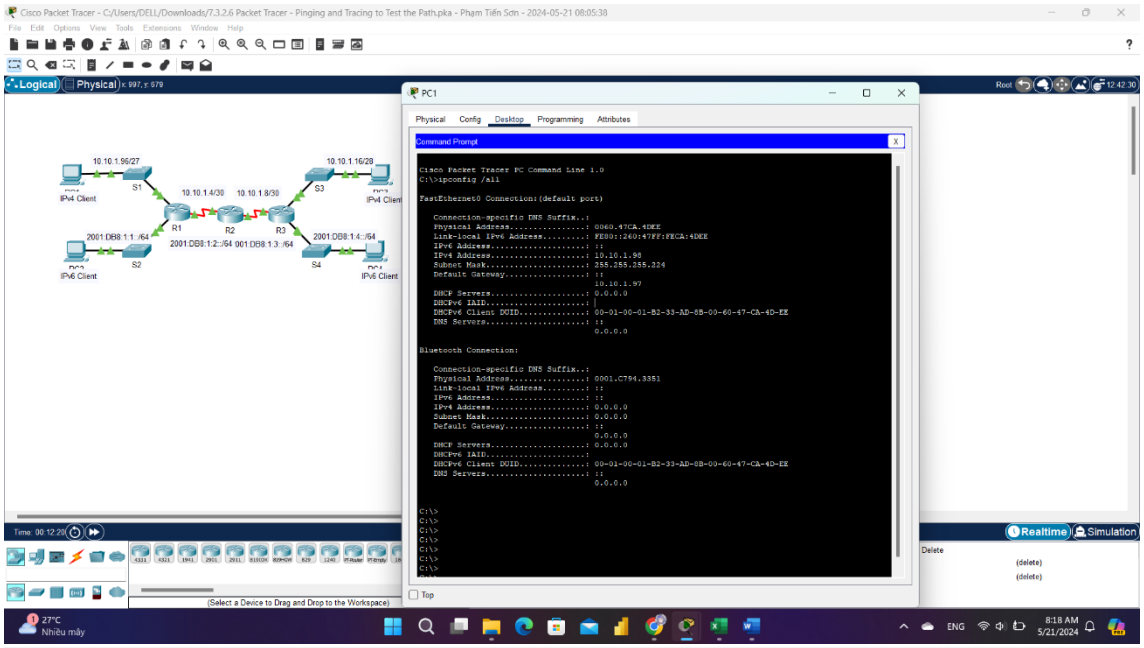
Pinging and Tracing to Test the Path & Subnetting Scenario

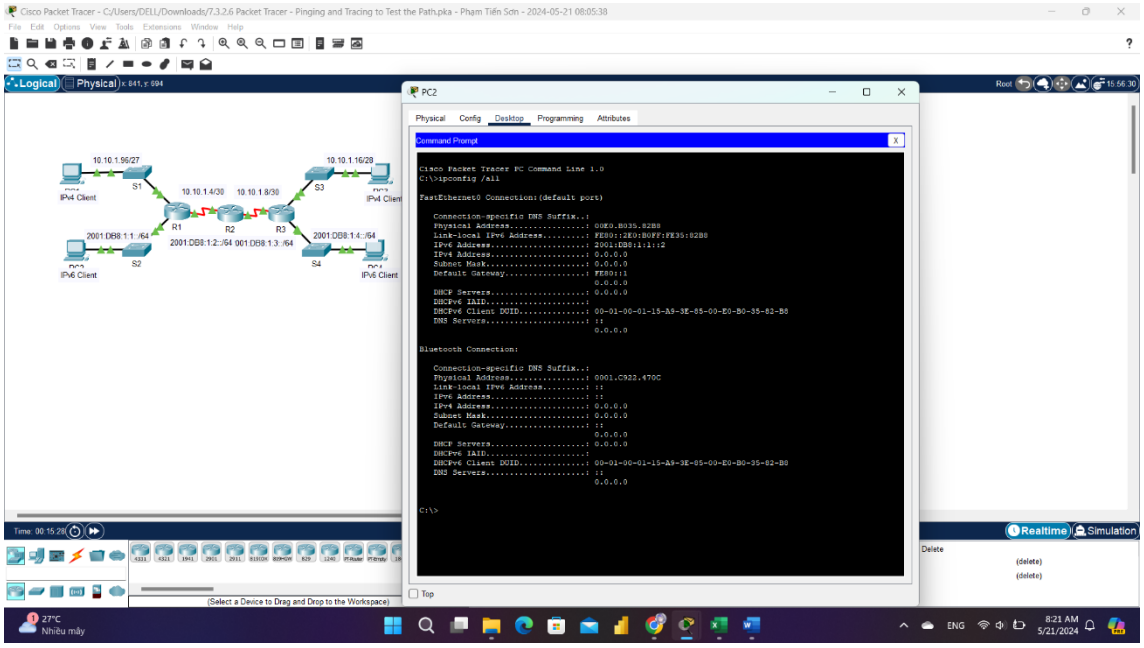
Sinh viên thực hiện: Phạm Tiến Sơn

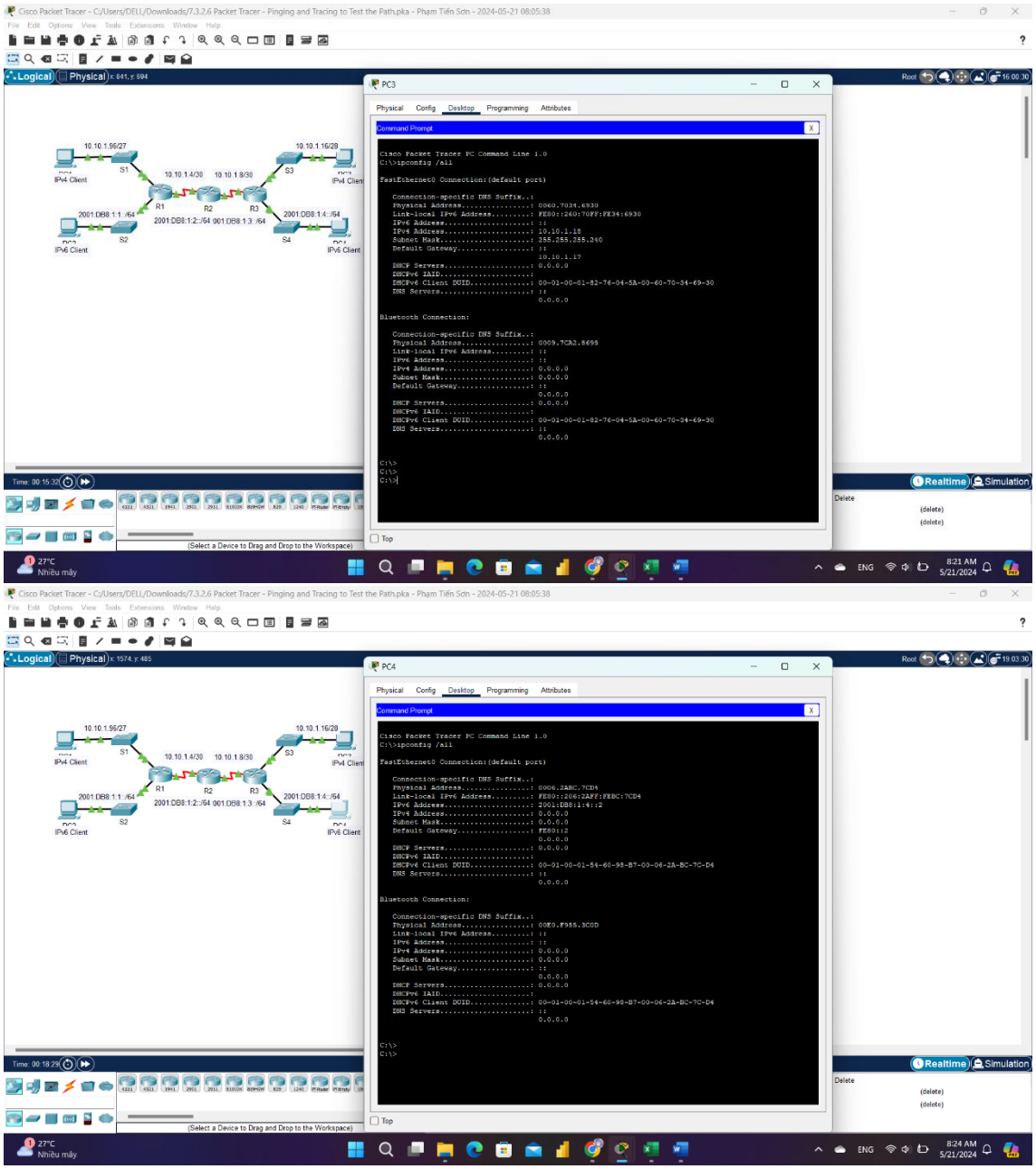
21, tháng05 năm2024

I. Pinging and Tracing to Test the Path

Device	Interface	IPv4 Address	Subnet Mask	Default Gateway
		IPv6 Address/Prefix		
R1	G0/0	2001:DB8:1:1::1/64		N/A
	G0/1	10.10.1.97	255.255.255.224	N/A
	S0/0/1	10.10.1.6	255.255.255.252	N/A
		2001:DB8:1:2::2/64		N/A
	Link-local	FE80::1		N/A
R2	S0/0/0	10.10.1.5	255.255.255.252	N/A
		2001:DB8:1:2::1/64		N/A
	S0/0/1	10.10.1.9	255.255.255.252	N/A
		2001:DB8:1:3::1/64		N/A
	Link-local	FE80::2		N/A
R3	G0/0	2001:DB8:1:4::1/64		N/A
	G0/1	10.10.1.17	255.255.255.240	N/A
	S0/0/1	10.10.1.10	255.255.255.252	N/A
		2001:DB8:1:3::2/64		N/A
	Link-local	FE80::3		N/A
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::3

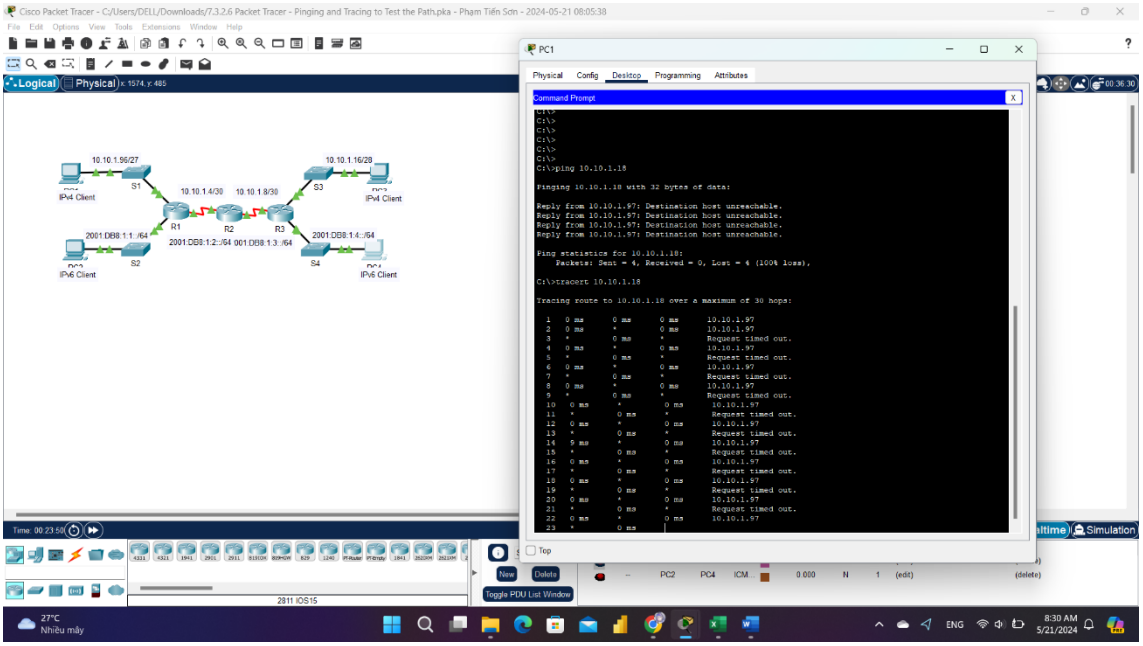

Cisco Packet Tracer - C:/Users/DELL/Downloads/7.3.2.6 Packet Tracer - Pinging and Tracing to Test the Path.pka - Phạm Tiến Sơn - 2024-05-21 08:05:38
PC1
Physical Config Desktop Programming Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ipconfig /all
FastEthernet0 Connection:(default port)
Connection-specific DNS Suffix..:
Physical Address.....: 0060.47CA.4DEE
Link-local IPv6 Address.....: FE80::2E0:47FF:FECA:4DEE
IPv6 Address.....: ::
IPv4 Address.....: 10.10.1.98
Subnet Mask.....: 255.255.255.224
Default Gateway.....: ::
10.10.1.97
DHCP Servers.....: 0.0.0.0
DHCPv6 IAID.....:
DHCPv6 Client DUID.....: 00-01-00-01-B2-33-AD-8B-00-60-47-CA-4D-EE
DNS Servers.....: ::
0.0.0.0
Bluetooth Connection:
Connection-specific DNS Suffix..:
Physical Address.....: 0001.C764.3351
Link-local IPv6 Address.....: ::
IPv6 Address.....: ::
IPv4 Address.....: 0.0.0.0
Subnet Mask.....: 0.0.0.0
Default Gateway.....: ::
0.0.0.0
DHCP Servers.....: 0.0.0.0
DHCPv6 IAID.....:
DHCPv6 Client DUID.....: 00-01-00-01-B2-33-AD-8B-00-60-47-CA-4D-EE
DNS Servers.....: ::
0.0.0.0
C:\>
Top
10.10.1.96/27
10.10.1.16/28
10.10.1.4/30
10.10.1.8/30
S1
S3
R1
R2
R3
S2
S4
IPv4 Client
IPv6 Client
2001:DB8:1:1::/64
2001:DB8:1:2::/64
2001:DB8:1:3::/64
2001:DB8:1:4::/64
Logical Physical
Root
Realtime Simulation
Delete
(delete)
(Select a Device to Drag and Drop to the Workspace)
27°C Nhiều mây
ENG
8:18 AM 5/21/2024


Cisco Packet Tracer - C:/Users/DELL/Downloads/7.3.2.6 Packet Tracer - Pinging and Tracing to Test the Path.pka - Phạm Tiến Sơn - 2024-05-21 08:05:38
PC2
Physical Config Desktop Programming Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ipconfig /all
FastEthernet0 Connection:(default port)
Connection-specific DNS Suffix..:
Physical Address.....: 00E0.B035.8288
Link-local IPv6 Address.....: FE80::2E0:B0FF:FE35:8288
IPv6 Address.....: 2001:DB8:1:1::2
IPv4 Address.....: 0.0.0.0
Subnet Mask.....: 0.0.0.0
Default Gateway.....: FE80::1
0.0.0.0
DHCP Servers.....: 0.0.0.0
DHCPv6 IAID.....:
DHCPv6 Client DUID.....: 00-01-00-01-15-A9-3E-85-00-E0-B0-35-82-88
DNS Servers.....: ::
0.0.0.0
Bluetooth Connection:
Connection-specific DNS Suffix..:
Physical Address.....: 0001.C922.470C
Link-local IPv6 Address.....: ::
IPv6 Address.....: ::
IPv4 Address.....: 0.0.0.0
Subnet Mask.....: 0.0.0.0
Default Gateway.....: ::
0.0.0.0
DHCP Servers.....: 0.0.0.0
DHCPv6 IAID.....:
DHCPv6 Client DUID.....: 00-01-00-01-15-A9-3E-85-00-E0-B0-35-82-88
DNS Servers.....: ::
0.0.0.0
C:\>
Top
10.10.1.96/27
10.10.1.16/28
10.10.1.4/30
10.10.1.8/30
S1
S3
R1
R2
R3
S2
S4
IPv4 Client
IPv6 Client
2001:DB8:1:1::/64
2001:DB8:1:2::/64
2001:DB8:1:3::/64
2001:DB8:1:4::/64
Logical Physical
Root
Realtime Simulation
Delete
(delete)
(Select a Device to Drag and Drop to the Workspace)
27°C Nhiều mây
ENG
8:21 AM 5/21/2024



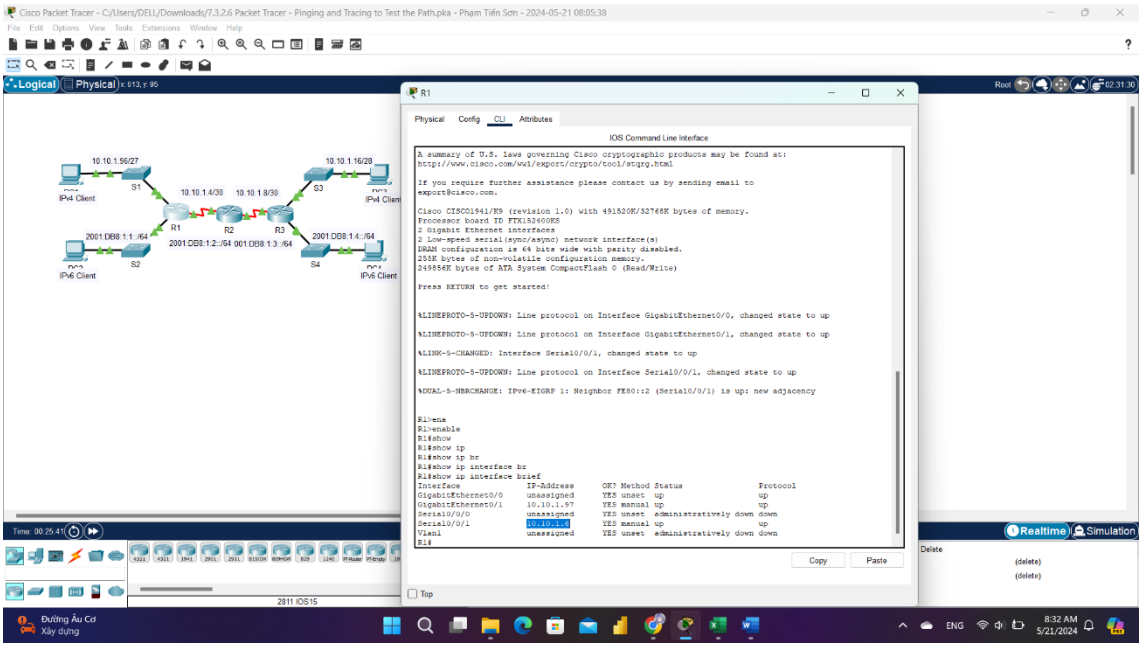
1) From PC1, enter the necessary command to trace the route to PC3. What is the last successful IPv4 address that was reached?

10.10.1.97



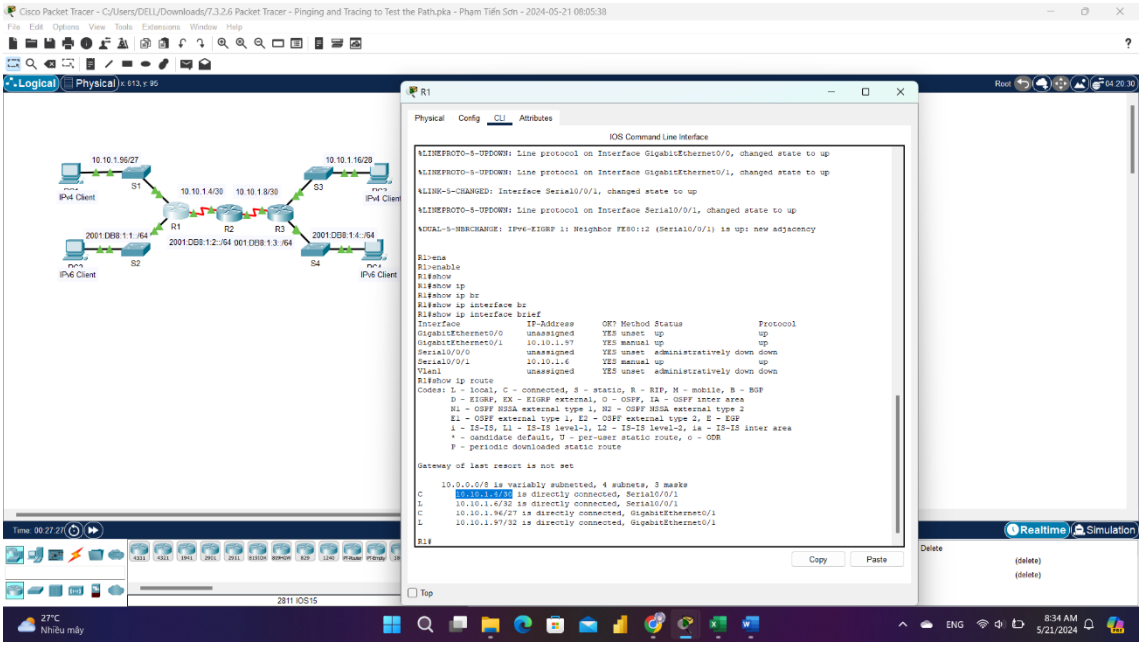
2) Enter the show ip interface brief command to list the interfaces and their status. There are two IPv4 addresses on the router. One should have been recorded in Step 2a. What is the other?

10.10.1.6

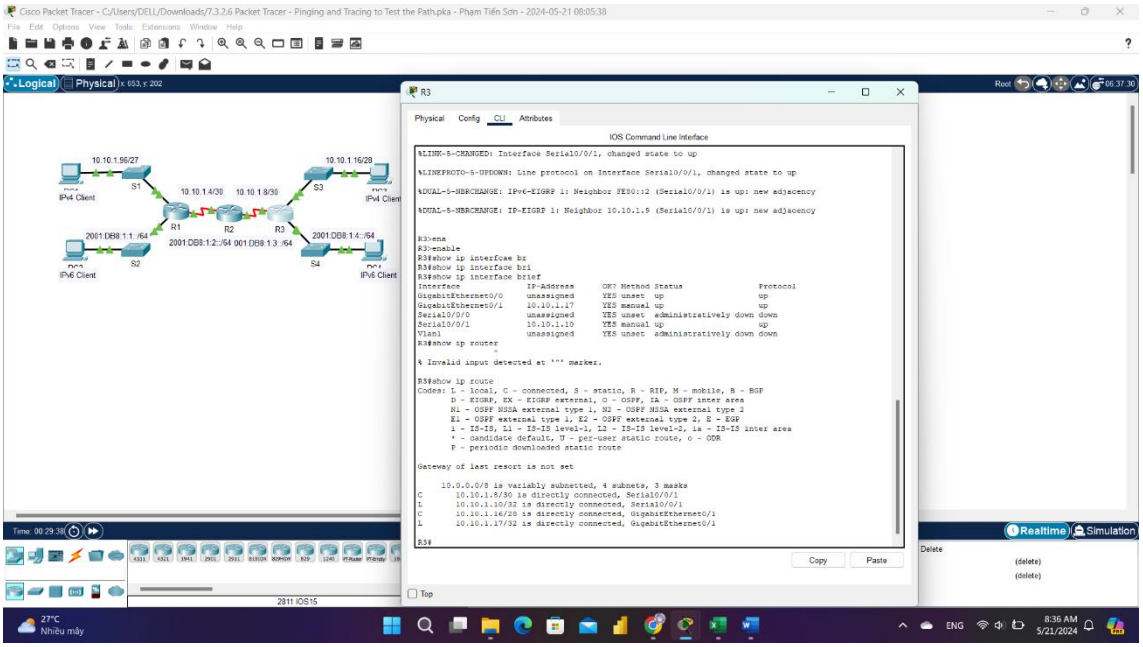


3) Enter the show ip route command to list the networks to which the router is connected. Note that there are two networks connected to the Serial0/0/1 interface. What are they?

10.10.1.6/32, 10.10.1.4/30

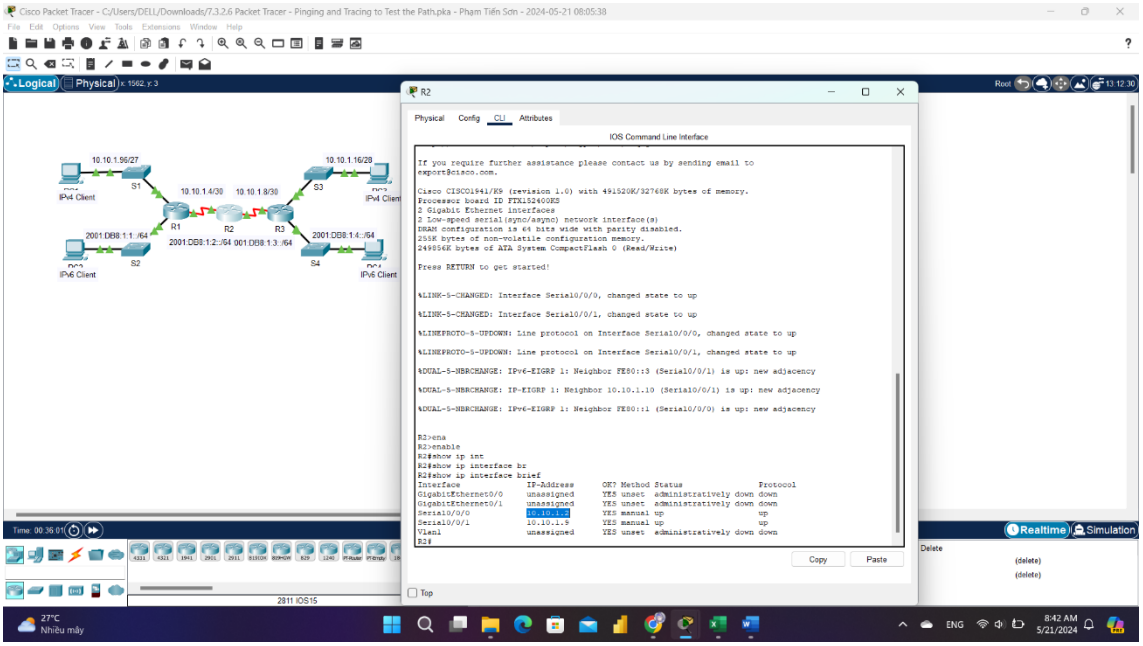


4) Repeat step 2e to 2g with R3 and the answers here.
10.10.1.10; 10.10.1.8/30, 10.10.1.10/32



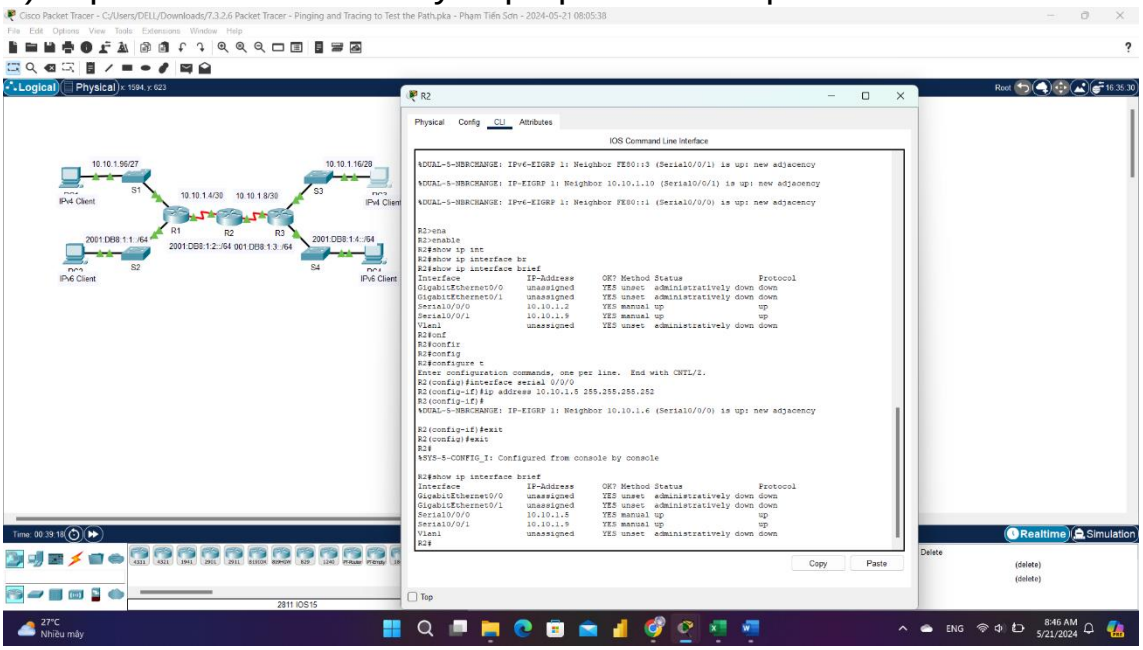
5) Compare your answers in Step 2 to the documentation you have available for the network. What is the error?

Giao diện Serial 0/0/0 của R2 được cấu hình sai địa chỉ IP.

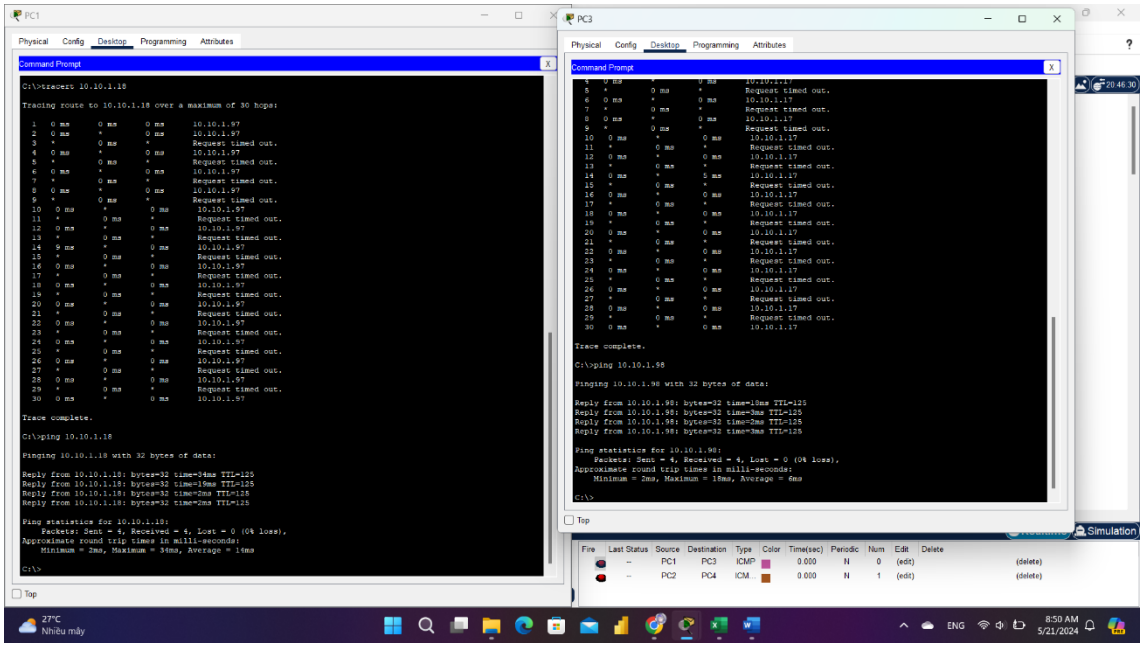


6) What solution would you propose to correct the problem?
Cấu hình địa chỉ IP chính xác trên giao diện Serial 0/0/0 của R2 (10.10.1.5)

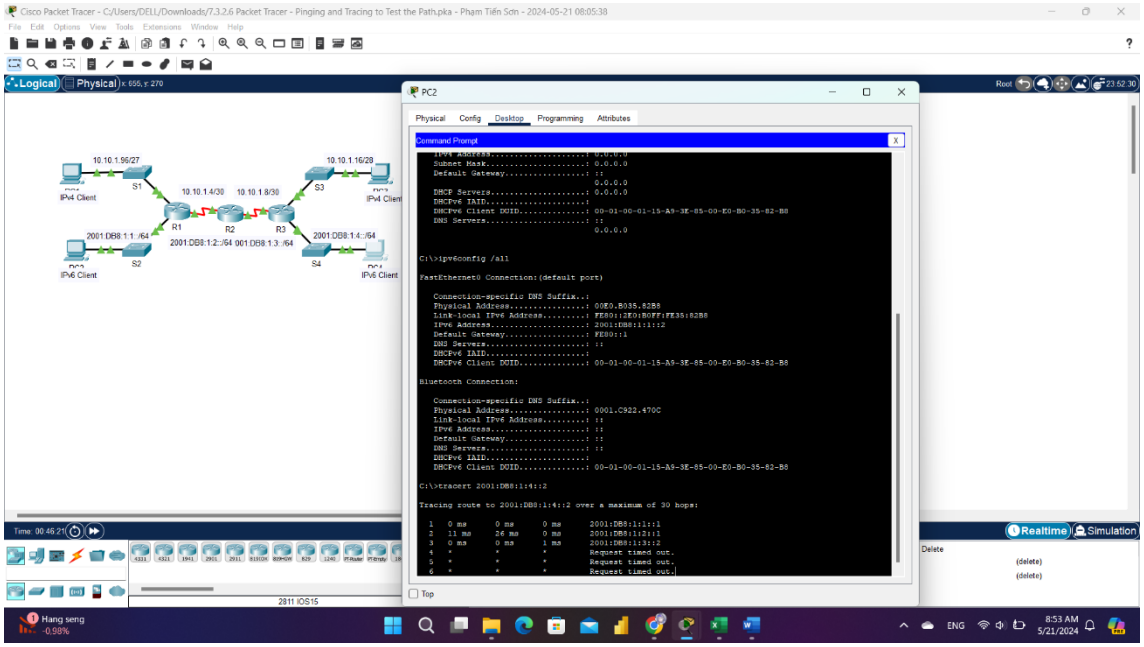
7) Implement the solution you proposed in Step 3b.



8) Is the problem resolved?
Có

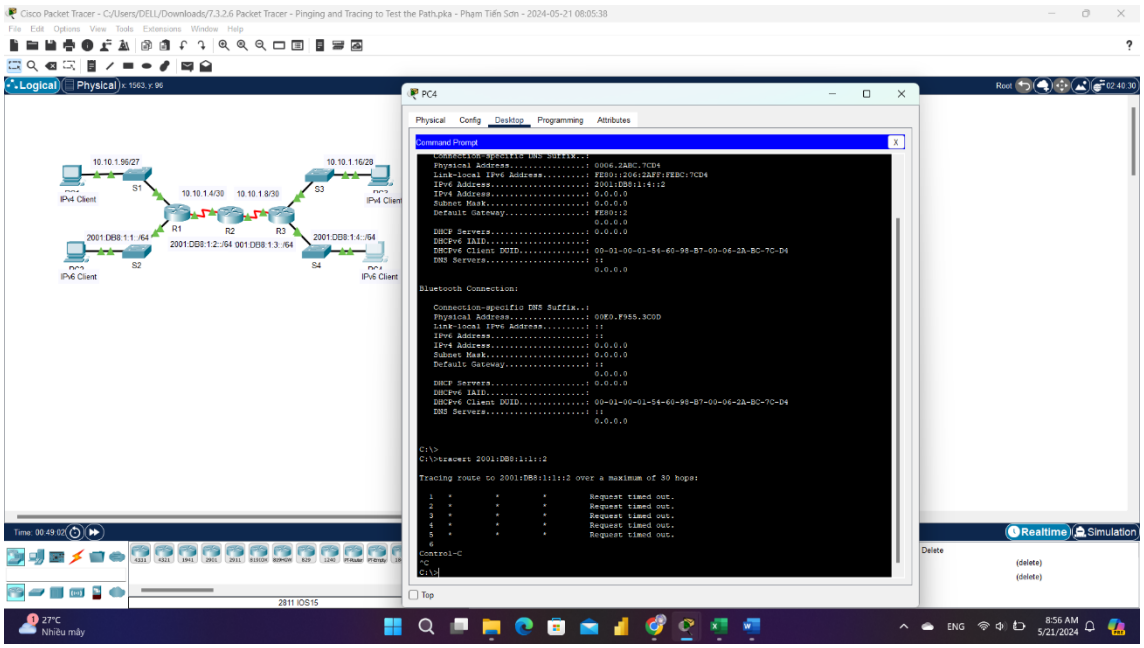


9) From PC2, enter the necessary command to trace the route to PC4. What is the last successful IPv6 address that was reached? The trace will eventually end after 30 attempts. Enter Ctrl+C to stop the trace before 30 attempts.
2001:DB8:1:3::2



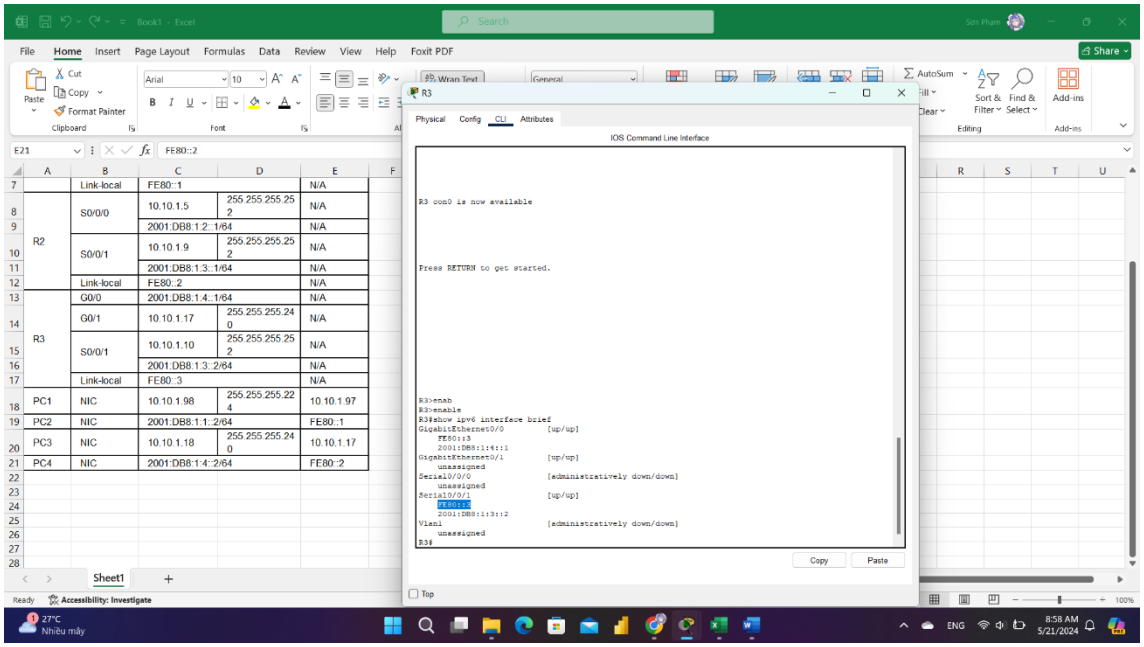
10) From PC4, enter the necessary command to trace the route to PC2. What is the last successful IPv6 address that was reached?

Không có địa chỉ IPv6 nào.



11) 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?

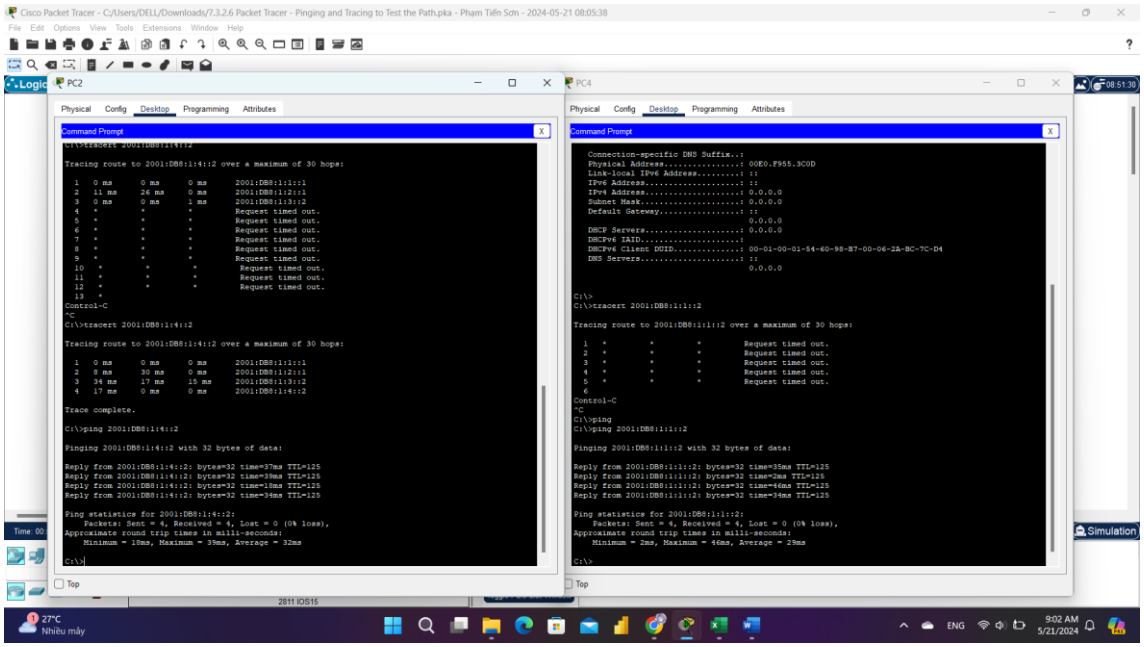
Có



12) Compare your answers in Step 2 to the documentation you have available for the network. What is the error?
PC4 đang sử dụng sai cấu hình cổng mặc định.

13) What solution would you propose to correct the problem?
Cấu hình PC4 với địa chỉ cổng mặc định chính xác: FE80::3.

14) Is the problem resolved?
Có



II. Subnetting Scenario

Addressing Table

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	VLAN 1	192.168.100.2	255.255.255.224	192.168.100.1
S2	VLAN 1	192.168.100.34	255.255.255.224	192.168.100.33
S3	VLAN 1	192.168.100.66	255.255.255.224	192.168.100.65
S4	VLAN 1	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

Subnet Table

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

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

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

3) How many subnets does this create? 2^3 = 8

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

5)
a. Assign Subnet 0 to the LAN connected to the GigabitEthernet 0/0 interface of R1: – 192.168.100.0 /27

b. Assign Subnet 1 to the LAN connected to the GigabitEthernet 0/1 interface of R1: – 192.168.100.32 /27
c. Assign Subnet 2 to the LAN connected to the GigabitEthernet 0/0 interface of R2: – 192.168.100.64 /27
d. Assign Subnet 3 to the LAN connected to the GigabitEthernet 0/1 interface of R2: – 192.168.100.96 /27
e. Assign Subnet 4 to the WAN link between R1 to R2: – 192.168.100.128 /27