I. Troubleshooting Default Gateway Issues

Addressing Table

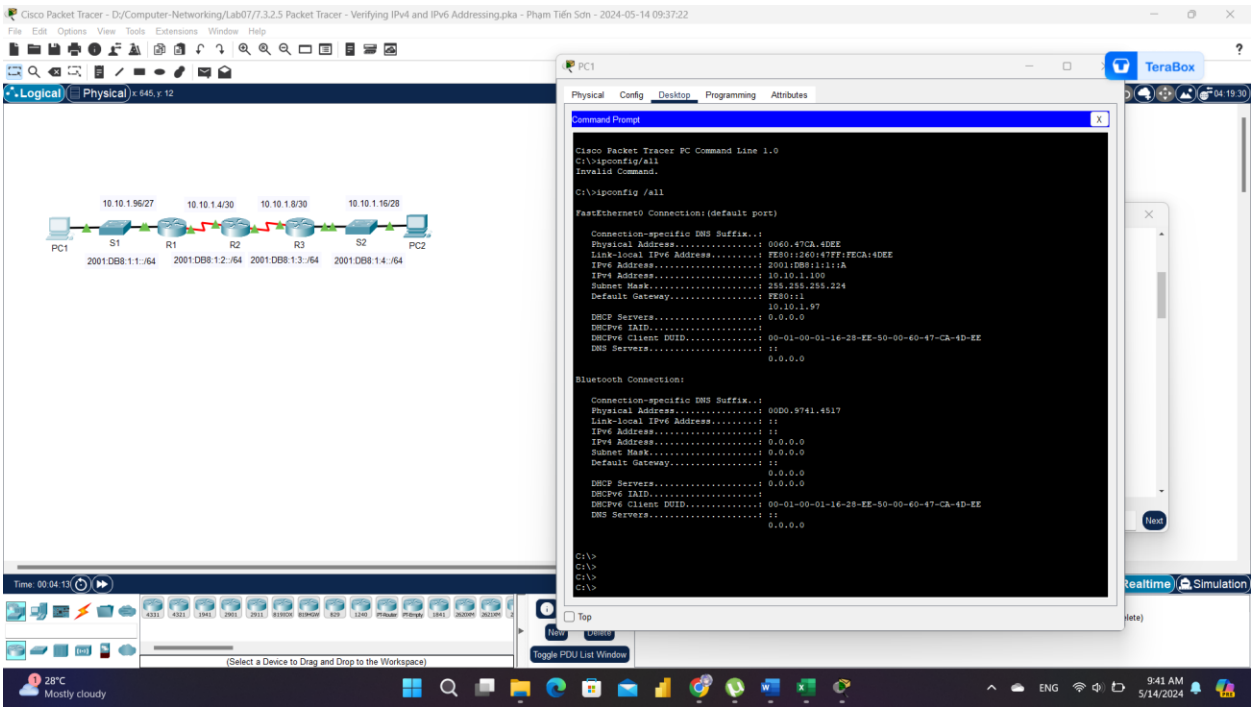
Device	Interface	IP Address	Subnet Mask	Default Gateway
R1	G0/0	192.168.10.1	255.255.255.0	N/A
	G0/1	192.168.11.1	255.255.255.0	N/A
S1	VLAN 1	192.168.10.2	255.255.255.0	192.168.10.1
S2	VLAN 1	192.168.11.2	255.255.255.0	192.168.11.1
PC1	NIC	192.168.10.10	255.255.255.0	192.168.10.1
PC2	NIC	192.168.10.11	255.255.255.0	192.168.10.1
PC3	NIC	192.168.11.10	255.255.255.0	192.168.11.1
PC4	NIC	192.168.11.11	255.255.255.0	192.168.11.1

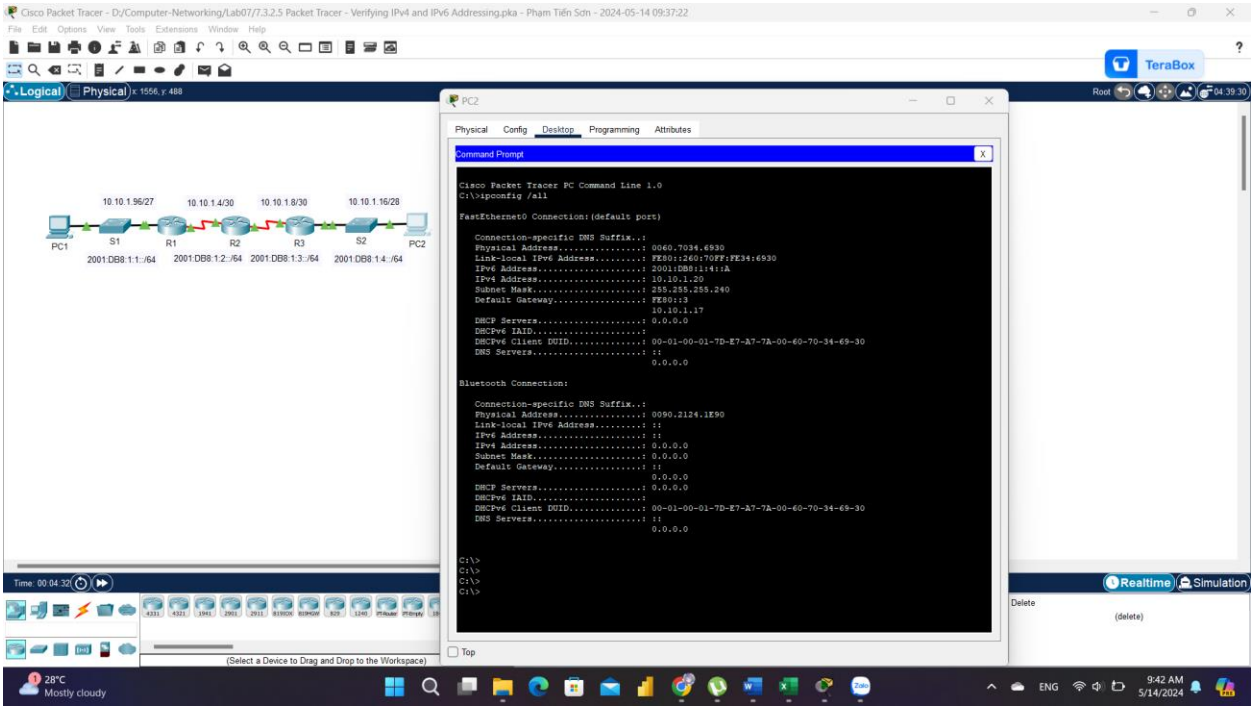
Testing and Verification Documentation

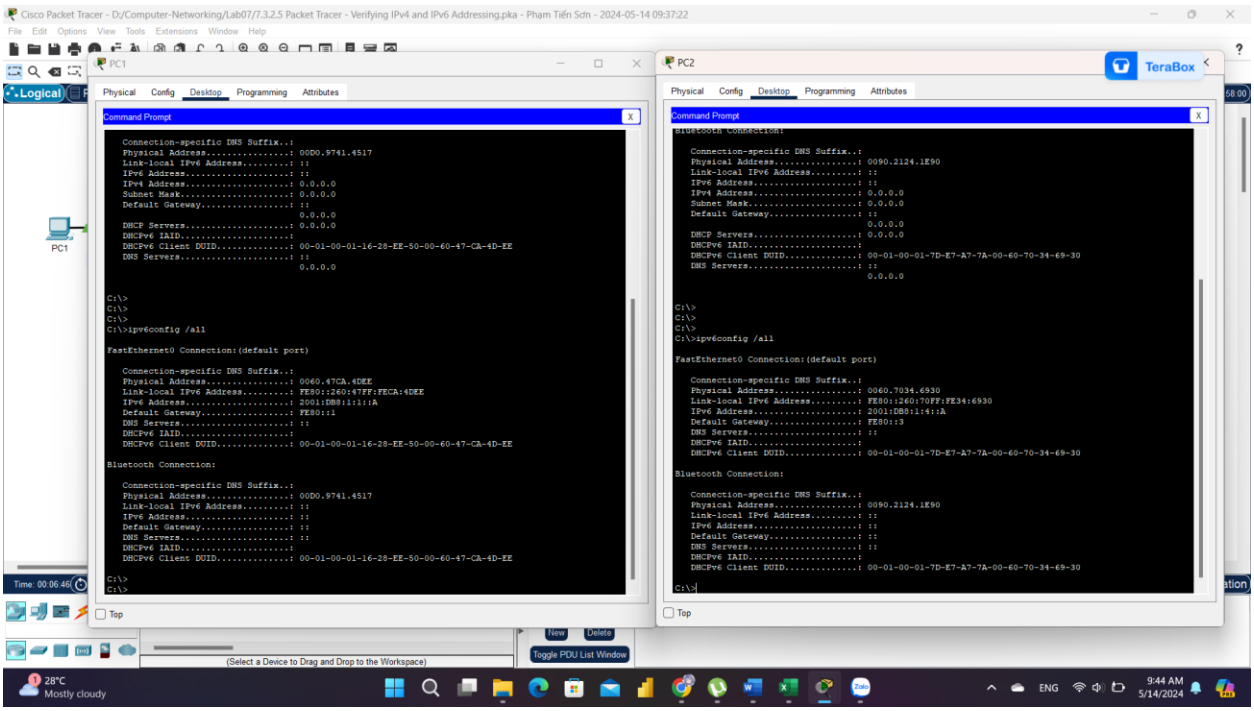
Test	Successful?	Issues	Solution	Verified
PC1 to PC2	**No**	**IP address on PC1**	**Change PC1 IP address**	Yes
PC1 to S1	No	**IP address on PC1**	**Change PC1 IP address**	Yes
PC1 to R1	No	**IP address on PC1**	**Change PC1 IP address**	Yes
PC2 to S1	Yes			Yes
PC2 to R1	Yes			Yes
PC3 to S2	No	IP address is not set	Set IP address for S2	Yes
PC3 to R1	Yes			Yes
PC4 to S2	No	IP address is not set	Set IP address for S2	Yes
PC4 to R1	Yes			Yes
PC1 to PC3	No	Incorrect Default Gateway on PC 3	Change Default Gateway on PC 3	Yes
PC3 to PC4	Yes			Yes

II. Verifying IPv4 and IPv6 Addressing

Device	Interface	IPv4 Address	Subnet Mask	Default Gateway
		IPv6 Address/Prefix		
R1	G0/0	10.10.1.97	255.255.255.224	N/A
		2001:DB8:1:1::1/64		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	10.10.1.17	255.255.255.240	N/A
		2001:DB8:1:4::1/64		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	10.10.1.100	255.255.255.224	10.10.1.97
		2001:DB8:1:1::A/64		FE80::1
PC2	NIC	10.10.1.20	255.255.255.240	10.10.1.17
		2001:DB8:1:4::A/64		FE80::3


Cisco Packet Tracer - D:/Computer-Networking/Lab07/7.3.2.5 Packet Tracer - Verifying IPv4 and IPv6 Addressing.pka - Phạm Tiến Sơn - 2024-05-14 09:37:22
PC1
Physical Config Desktop Programming Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ipconfig/all
Invalid Command.
C:\>ipconfig /all
FastEthernet0 Connection:(default port)
Connection-specific DNS Suffix..:
Physical Address.....: 0060.47CA.4DEE
Link-local IPv6 Address.....: FE80::260:47FF:FECA:4DEE
IPv6 Address.....: 2001:DB8:1:1::A
IPv4 Address.....: 10.10.1.100
Subnet Mask.....: 255.255.255.224
Default Gateway.....: FE80::1
10.10.1.97
DHCP Servers.....: 0.0.0.0
DHCPv6 IAID.....:
DHCPv6 Client DUID.....: 00-01-00-01-16-28-EE-50-00-60-47-CA-4D-EE
DNS Servers.....: ::
0.0.0.0
Bluetooth Connection:
Connection-specific DNS Suffix..:
Physical Address.....: 00D0.9741.4517
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.....: 00-01-00-01-16-28-EE-50-00-60-47-CA-4D-EE
DNS Servers.....: ::
0.0.0.0
C:\>
C:\>
C:\>
C:\>
Top
10.10.1.96/27
10.10.1.4/30
10.10.1.8/30
10.10.1.16/28
PC1
S1
R1
R2
R3
S2
PC2
2001:DB8:1:1::/64
2001:DB8:1:2::/64
2001:DB8:1:3::/64
2001:DB8:1:4::/64
Logical Physical
TeraBox
Next
Realtime Simulation
Toggle PDU List Window
(Select a Device to Drag and Drop to the Workspace)
28°C Mostly cloudy
ENG
9:41 AM 5/14/2024


Cisco Packet Tracer - D:/Computer-Networking/Lab07/7.3.2.5 Packet Tracer - Verifying IPv4 and IPv6 Addressing.pka - Phạm Tiến Sơn - 2024-05-14 09:37:22
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.....: 0060.7036.6930
Link-local IPv6 Address.....: FE80::260:70FF:FE36:6930
IPv6 Address.....: 2001:DB8:1:14::A
IPv4 Address.....: 10.10.1.20
Subnet Mask.....: 255.255.255.240
Default Gateway.....: FE80::3
10.10.1.17
DHCP Servers.....: 0.0.0.0
DHCPv6 IAID.....:
DHCPv6 Client DUID.....: 00-01-00-01-7D-E7-A7-7A-00-60-70-34-69-30
DNS Servers.....: ::
0.0.0.0
Bluetooth Connection:
Connection-specific DNS Suffix..:
Physical Address.....: 0090.2124.1E90
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.....: 00-01-00-01-7D-E7-A7-7A-00-60-70-34-69-30
DNS Servers.....: ::
0.0.0.0
C:\>
C:\>
C:\>
C:\>
Top
10.10.1.96/27
10.10.1.4/30
10.10.1.8/30
10.10.1.16/28
PC1
S1
R1
R2
R3
S2
PC2
2001:DB8:1:1::/64
2001:DB8:1:2::/64
2001:DB8:1:3::/64
2001:DB8:1:4::/64
Logical Physical
TeraBox
Realtime Simulation
Delete
(delete)
(Select a Device to Drag and Drop to the Workspace)
28°C Mostly cloudy
ENG
9:42 AM 5/14/2024



Step 1: Use ping to verify IPv4 connectivity.

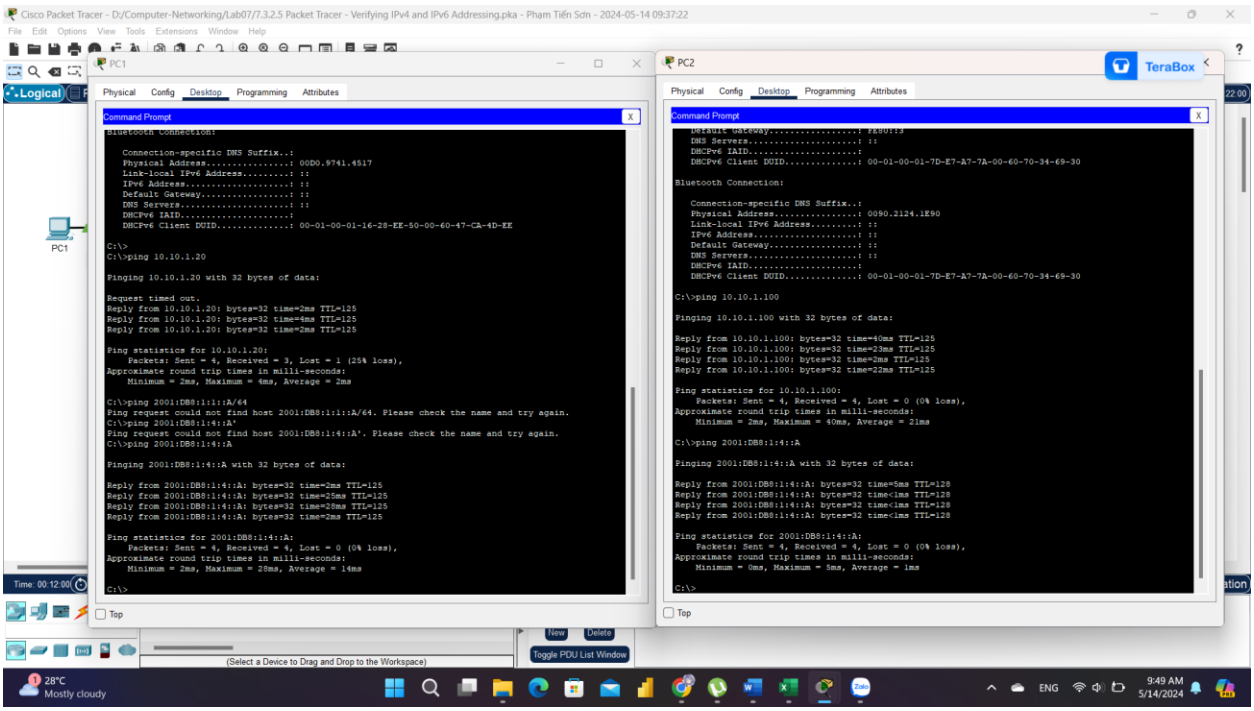
a. From PC1, ping the IPv4 address for PC2. Was the result successful? Thành công

b. From PC2, ping the IPv4 address for PC1. Was the result successful? Thành công

Step 2: Use ping to verify IPv6 connectivity.

a. From PC1, ping the IPv6 address for PC2. Was the result successful? Thành công

b. From PC2, ping the IPv6 address of PC1. Was the result successful? Thành công



a. From PC1, trace the route to PC2.

What addresses were encountered along the path?

10.10.1.97, 10.10.1.5, 10.10.1.10, 10.10.1.20

With which interfaces are the four addresses associated?

G0/0 of R1, S0/0/0 on R2, S0/0/01 on R3, NIC of PC2

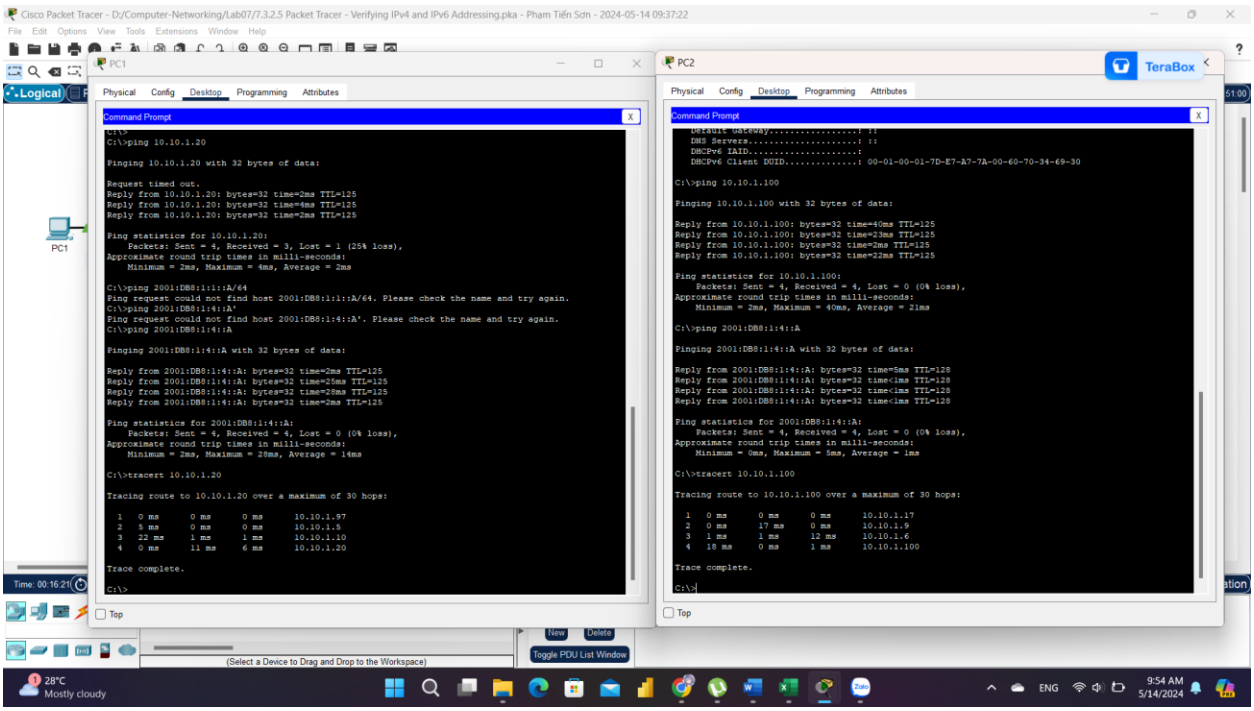
b. From PC2, trace the route to PC1.

What addresses were encountered along the path?

10.10.1.17, 10.10.1.9, 10.10.1.6, 10.10.1.100

With which interfaces are the four addresses associated?

G0/0 of R3, S0/0/1 of R2, S0/0/1 of R1, NIC of PC1



Step 2: Use tracert to discover the IPv6 path.

a. From PC1, trace the route to the IPv6 address for PC2. What addresses were encountered along the path?
2001:DB8:1:1::1, 2001:DB8:1:2::1, 2001:DB8:1:3::2, 2001:DB8:1:4::A

With which interfaces are the four addresses associated?
g0/0 of R1, S0/0/0 of r2, S0/0/1 of R3, NIC of PC2

b. From PC2, trace the route to the IPv6 address for PC1. What addresses were encountered along the path?
2001:DB8:1:4::1, 2001:DB8:1:3::1, 2001:DB8:1:2::2, 2001:DB8:1:1::A
With which interfaces are the four addresses associated?

Ga0/0 of R3, S0/0/1 of R2, S0/0/1 of R1, NIC of PC1