

Packet Tracer - Use Ping and Traceroute to Test Network Connectivity

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General Instruction

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

Addressing Table

Device	Interface	IP Address / Prefix		Default Gateway
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		
		fe80::1		
R2	S0/0/0	10.10.1.5	255.255.255.252	N/A
		2001:db8:1:2::1/64		
	S0/0/1	10.10.1.9	255.255.255.252	N/A
		2001:db8:1:3::1/64		
		fe80::2		
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		
		fe80::3		
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::2

Objectives

Part 1: Test and Restore IPv4 Connectivity

Part 2: Test and Restore IPv6 Connectivity

Scenario

There are connectivity issues in this activity. In addition to gathering and documenting information about the network, you will locate the problems and implement acceptable solutions to restore connectivity.

Note: The user EXEC password is **cisco**. The privileged EXEC password is **class**.

Instructions

Part 1: Test and Restore IPv4 Connectivity

Step 1: Use ipconfig and ping to verify connectivity.

- Click **PC1** and open the **Command Prompt**.
- Enter the **ipconfig /all** command to collect the IPv4 information. Complete the **Addressing Table** with the IPv4 address, subnet mask, and default gateway.
- Click **PC3** and open the **Command Prompt**.
- Enter the **ipconfig /all** command to collect the IPv4 information. Complete the **Addressing Table** with the IPv4 address, subnet mask, and default gateway.
- Use the **ping** command to test connectivity between **PC1** and **PC3**. The ping should fail.

Step 2: Locate the source of connectivity failure.

- 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

- The trace will eventually end after 30 attempts. Enter **Ctrl+C** to stop the trace before 30 attempts.
- 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 **Ctrl+C** to stop the trace.
- Click **R1**. Press **ENTER** and log in to the router.
- 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?

Type your answers here.

```
C      10.10.1.4/30 is directly connected, Serial0/0/1
L      10.10.1.6/32 is directly connected, Serial0/0/1
```

- h. Repeat steps 2e through 2g with **R3** and record your answers.

Other ip: 10.10.1.10

```
C      10.10.1.8/30 is directly connected, Serial0/0/1
L      10.10.1.10/32 is directly connected, Serial0/0/1
```

- i. Click **R2**. Press **ENTER** and log into the router.W
- j. Enter the **show ip interface brief** command and record your addresses.
- k. Run more tests if it helps visualize the problem. Simulation mode is available.

Step 3: Propose a solution to solve the problem.

Compare your answers in Step 2 to the documentation you have available for the network.

What is the error?

```
Wrong IP address for Serial0/0/0
```

What solution would you propose to correct the problem?

Type your answers here.

```
Configure Serial0/0/0 IP address to be 10.10.1.5
```

Step 4: Implement the plan.

Implement the solution you proposed in Step 3b.

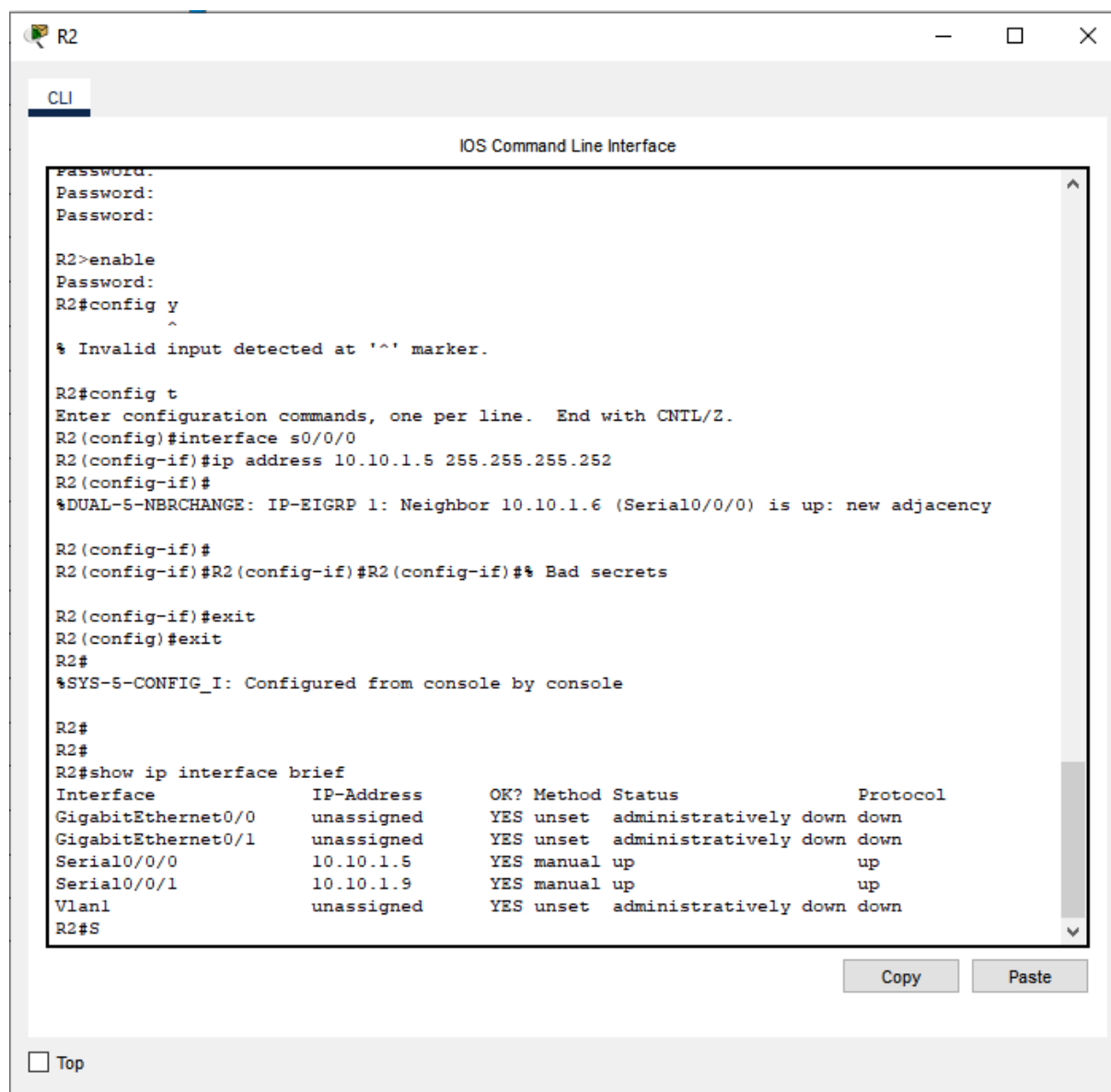
Step 5: Verify that connectivity is restored.

- a. From **PC1** test connectivity to **PC3**.
- b. From **PC3** test connectivity to **PC1**.

Is the problem resolved?

```
Yes
```

Step 6: Document the solution.



The screenshot shows the R2 CLI window with the following text:

```

R2
CLI
IOS Command Line Interface

Password:
Password:
Password:

R2>enable
Password:
R2#config y
^
% Invalid input detected at '^' marker.

R2#config t
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#interface s0/0/0
R2(config-if)#ip address 10.10.1.5 255.255.255.252
R2(config-if)#
%DUAL-5-NBRCHANGE: IP-EIGRP 1: Neighbor 10.10.1.6 (Serial0/0/0) is up: new adjacency

R2(config-if)#
R2(config-if)#R2(config-if)#R2(config-if)# Bad secrets

R2(config-if)#exit
R2(config)#exit
R2#
%SYS-5-CONFIG_I: Configured from console by console

R2#
R2#
R2#show ip interface brief
Interface          IP-Address      OK? Method Status              Protocol
GigabitEthernet0/0 unassigned      YES unset  administratively down down
GigabitEthernet0/1 unassigned      YES unset  administratively down down
Serial0/0/0        10.10.1.5       YES manual  up                  up
Serial0/0/1        10.10.1.9       YES manual  up                  up
Vlan1              unassigned      YES unset  administratively down down
R2#S
    
```

At the bottom of the CLI window, there are 'Copy' and 'Paste' buttons, and a 'Top' button.

Part 2: Test and Restore IPv6 Connectivity

Step 1: Use ipv6config and ping to verify connectivity.

- Click **PC2** and open the **Command Prompt**.
- Enter the **ipv6config /all** command to collect the IPv6 information. Complete the **Addressing Table** with the IPv6 address, subnet prefix, and default gateway.
- Click **PC4** and open the **Command Prompt**.
- Enter the **ipv6config /all** command to collect the IPv6 information. Complete the **Addressing Table** with the IPv6 address, subnet prefix, and default gateway.
- Test connectivity between **PC2** and **PC4**. The ping should fail.

Step 2: Locate the source of connectivity failure.

- a. From **PC2**, enter the necessary command to trace the route to **PC4**.

What is the last successful IPv6 address that was reached?

2001:db8:1:3::2

- b. The trace will eventually end after 30 attempts. Enter **Ctrl+C** to stop the trace before 30 attempts.
c. From **PC4**, enter the necessary command to trace the route to **PC2**.

What is the last successful IPv6 address that was reached?

Request timed out.

- d. Enter **Ctrl+C** to stop the trace.
e. Click **R3**. Press **ENTER** and log in to the router.
f. 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

- g. Run more tests if it helps visualize the problem. Simulation mode is available.

Step 3: Propose a solution to solve the problem.

Compare your answers in Step 2 to the documentation you have available for the network.

What is the error?

Incorrect default gateway for PC4

What solution would you propose to correct the problem?

Configure default gateway of PC4 to FE80::3 to match the router

Step 4: Implement the plan.

Implement the solution you proposed in Step 3b.

Step 5: Verify that connectivity is restored.

- a. From **PC2** test connectivity to **PC4**.
b. From **PC4** test connectivity to **PC2**.

Is the problem resolved?

Yes

Step 6: Document the solution.

PC4

Desktop Programming

IP Configuration

Interface: FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address:

Subnet Mask:

Default Gateway: 0.0.0.0

DNS Server: 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address: 2001:DB8:1:4::2 / 64

Link Local Address: FE80::206:2AFF:FEBC:7CD4

Default Gateway: FE80::3

DNS Server:

802.1X

☐ Use 802.1X Security

Authentication: MD5

Username:

Password:

☐ Top