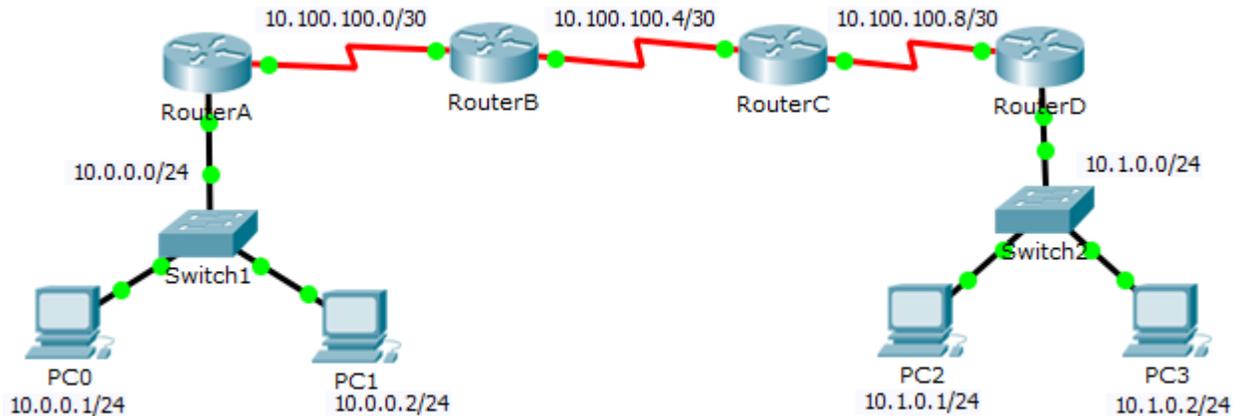


# Packet Tracer - Testing Connectivity with Traceroute (Instructor Version)

**Instructor Note:** Red font color or gray highlights indicate text that appears in the instructor copy only.

## Topology



## Objectives

**Part 1: Test End-to-End Connectivity with the tracert Command**

**Part 2: Compare to the traceroute Command on a Router**

## Background

This activity is designed to help you troubleshoot network connectivity issues using commands to trace the route from source to destination. You are required to examine the output of **tracert** (the Windows command) and **traceroute** (the IOS command) as packets traverse the network and determine the cause of a network issue. After the issue is corrected, use the **tracert** and **traceroute** commands to verify the completion.

## Part 1: Test End-to-End Connectivity with the tracert Command

**Step 1: Send a ping from one end of the network to the other end.**

Click **PC1** and open the **Command Prompt**. Ping **PC3** at **10.1.0.2**. What message is displayed as a result of the ping? **Destination host unreachable**

**Step 2: Trace the route from PC1 to determine where in the path connectivity fails.**

- From the **Command Prompt** of **PC1**, enter the **tracert 10.1.0.2** command.
- When you receive the **Request timed out** message, press **Ctrl+C**. What was the first IP address listed in the **tracert** output? **10.0.0.254**—the gateway address of the PC
- Observe the results of the **tracert** command. What is the last address reached with the **tracert** command? **10.100.100.6**

**Step 3: Correct the network problem.**

- Compare the last address reached with the **tracert** command with the network addresses listed on the topology. The furthest device from the host 10.0.0.2 with an address in the network range found is the

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point of failure. What devices have addresses configured for the network where the failure occurred?  
RouterB and RouterC

- Click **RouterC** and then the **CLI** tab. What is the status of the interfaces? They appear to be up and active.
- Compare the IP addresses on the interfaces with the network addresses on the topology. Does there appear to be anything extraordinary? The Serial 0/0/0 interface has an incorrect IP address based on the topology.
- Make the necessary changes to restore connectivity; however, do not change the subnets. What is solution? Change the IP address on S0/0/0 to 10.100.100.9/30

### Step 4: Verify that end-to-end connectivity is established.

- From the **PC1 Command Prompt**, enter the **tracert 10.1.0.2** command.
- Observe the output from the **tracert** command. Was the command successful? Yes

### Part 2: Compare to the traceroute Command on a Router

- Click **RouterA** and then the **CLI** tab.
- Enter the **traceroute 10.1.0.2** command. Did the command complete successfully? Yes
- Compare the output from the router **traceroute** command with the PC **tracert** command. What is noticeably different about the list of addresses returned? The router has one less IP address because it will be using RouterB as the next device along the path.

### Suggested Scoring Rubric

Activity Section	Question Location	Possible Points	Earned Points
Part 1: Test End-to-End Connectivity with the <b>tracert</b> Command	Step 1	10	
	Step 2b	10	
	Step 2c	10	
	Step 3a	10	
	Step 3c	10	
	Step 3d	10	
	Step 3e	10	
	Step 4b	10	
<b>Part 1 Total</b>		<b>80</b>	
Part 2: Compare to the <b>traceroute</b> Command on a Router	a	10	
	b	10	
<b>Part 2 Total</b>		<b>20</b>	
<b>Total Score</b>		<b>100</b>	