Packet Tracer - Investigating Directly Connected Routes

1. Topology



1. Objectives

Part 1: Investigate IPv4 Directly Connected Routes

Part 2: Investigate IPv6 Directly Connected Routes

1. Background

The network in the activity is already configured. You will log in to the routers and use **show** commands to discover and answer the questions below about the directly connected routes.

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

1. Investigate IPv4 Directly Connected Routes
	1. Use show commands to gather information about the IPv4 directly connected networks.

Enter the following command on **R1**:

R1> **show ip route ?**

* + 1. What option would be most beneficial in determining the networks assigned to the interfaces of the router? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
		2. Which networks are directly connected on **R1**? Hint: Use the option determined above.

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* + 1. Which IP addresses are assigned to the LAN interfaces on **R1**?

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* + 1. Which networks are directly connected on **R2**?

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* + 1. Which IP addresses are assigned to the LAN interfaces on **R2**?

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* 1. Verify PC addressing and test connectivity.
		1. Open a command prompt on **PC1**. Issue the command to display the IP settings. Based on the output, would you expect **PC1** to be able to communicate with all interfaces on the router? Provide a short answer describing your expectations.

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* + 1. Open a command prompt on **PC2**. Issue the command to display the IP settings. Based on the output, would you expect **PC2** to be able to communicate with **PC1**? Verify your expectations. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
		2. Determine the IP addresses of **PC3** and **PC4**. Record the results and determine if **PC3** and **PC4** are able to communicate.

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* + 1. Test connectivity from **PC1** to **PC3**. Was the test successful? \_\_\_\_\_\_\_\_\_\_\_\_\_\_
		2. **Bonus**: Looking at the outputs of the routing tables on **R1** and **R2**, what might indicate a reason for the success or failure of communication between **PC1** and **PC3**? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
1. Investigate IPv6 Directly Connected Routes
	1. Use show commands to gather information about the IPv6 directly connected networks.
		1. Which IPv6 networks are available on **R1**?

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* + 1. Which IPv6 unicast addresses are assigned to the LAN interfaces on **R1**?

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* + 1. Which IPv6 networks are available on R2?

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* + 1. Which IPv6 addresses are assigned to the LAN interfaces on **R2**?

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* 1. Verify PC settings and connectivity.
		1. Open a command prompt on **PC1**. Issue the command to display the IPv6 settings. Based on the output, would you expect **PC1** to be able to communicate with all interfaces on the router? Provide a short answer describing your expectations

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* + 1. Open a command prompt on **PC2**. Issue the command to display the IPv6 settings. Based on the output, would you expect **PC2** to be able to communicate with **PC1**? Verify your expectations. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
		2. Determine the IPv6 addresses of **PC3** and **PC4**. Record the results and determine if **PC3** and **PC4** are able to communicate.

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* + 1. Test connectivity from **PC1** to **PC3**. Was the test successful? \_\_\_\_\_\_\_\_\_\_\_\_\_\_
		2. **Bonus**: What might indicate a reason for the success or failure of communication between **PC1** and **PC3** after looking at the outputs of the IPv6 routing tables on **R1** and **R2**?

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1. Suggested Scoring Rubric

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| Activity Section | Question Location | Possible Points | Earned Points |
| Part 1: Investigate IPv4 Directly Connected Routes | Step 1 | 25 |  |
| Step 2 | 25 |  |
| Part 2: Investigate IPv6 Directly Connected Routes | Step 1 | 25 |  |
| Step 2 | 25 |  |
| **Total Score** | **100** |  |