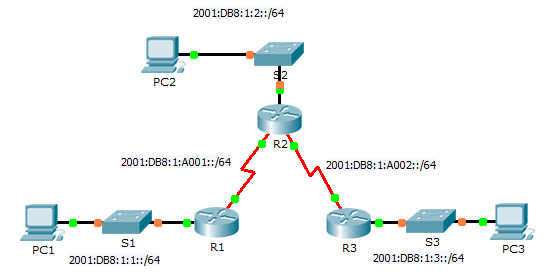
Packet Tracer - Configuring IPv6 Static and Default Routes



1. IPv6 Addressing Table

|  |  |  |  |
| --- | --- | --- | --- |
| Device | Interface | IPv6 Address/Prefix | Default Gateway |
| R1 | G0/0 | 2001:DB8:1:1::1/64 | N/A |
| S0/0/0 | 2001:DB8:1:A001::1/64 | N/A |
| R2 | G0/0 | 2001:DB8:1:2::1/64 | N/A |
| S0/0/0 | 2001:DB8:1:A001::2/64 | N/A |
| S0/0/1 | 2001:DB8:1:A002::1/64 | N/A |
| R3 | G0/0 | 2001:DB8:1:3::1/64 | N/A |
| S0/0/1 | 2001:DB8:1:A002::2/64 | N/A |
| PC1 | NIC | 2001:DB8:1:1::F/64 | FE80::1 |
| PC2 | NIC | 2001:DB8:1:2::F/64 | FE80::2 |
| PC3 | NIC | 2001:DB8:1:3::F/64 | FE80::3 |

1. Objectives

Part 1: Examine the Network and Evaluate the Need for Static Routing

Part 2: Configure IPv6 Static and Default Routes

Part 3: Verify Connectivity

1. Background

In this activity, you will configure IPv6 static and default routes. A static route is a route that is entered manually by the network administrator in order to create a route that is reliable and safe. There are four different static routes used in this activity: a recursive static route; a directly attached static route; a fully specified static route; and a default route.

1. Examine the Network and Evaluate the Need for Static Routing
   * 1. Looking at the topology diagram, how many networks are there in total? \_\_5\_\_\_\_\_\_\_\_\_\_\_\_
     2. How many networks are directly connected to R1, R2, and R3? \_\_R1 = 1 , R2 = 3, R3 = 2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
     3. How many static routes are required by each router to reach networks that are not directly connected?

\_\_\_\_\_R1 needs 3, R2 needs 2, R3 needs 3 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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* + 1. Which command is used to configure IPv6 static routes?

\_\_\_\_ ipv6 route \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Configure IPv6 Static and Default Routes
   1. Enable IPv6 routing on all routers.

Before configuring static routes, we must configure the router to forward IPv6 packets

Which command accomplishes this? \_\_ ipv6 unicast-routing\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Enter this command on each router.

* 1. Configure recursive static routes on R1.

Configure an IPv6 recursive static route to every network not directly connected to R1.

ipv6 route 2001:DB8:1:2::/64 2001:DB8:1:A001::2

ipv6 route 2001:DB8:1:A002::/64 2001:DB8:1:A001::2

ipv6 route 2001:DB8:1:3::/64 2001:DB8:1:A001::2

* 1. Configure a directly attached and a fully specified static route on R2.
     1. Configure a directly attached static route from R2 to the R1 LAN.

ipv6 route 2001:DB8:1:1::/64 Serial0/0/0

* + 1. Configure a fully specific route from R2 to the R3 LAN.   
       **Note:** Packet Tracer v6.0.1 only checks for directly attached and recursive static routes. Your instructor may ask to review your configuration of a fully specified IPv6 static route.

ipv6 route 2001:DB8:1:3::/64 Serial0/0/1 2001:DB8:1:A002::2

* 1. Configure a default route on R3.

Configure a recursive default route on R3 to reach all networks not directly connected.

ipv6 route ::/0 2001:DB8:1:A002::1

* 1. Verify static route configurations.
     1. Which command is used in Packet Tracer to verify the IPv6 configuration of a PC from the command prompt?

\_\_\_\_ ipv6config \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* + 1. Which command displays the IPv6 addresses configured on a router's interface?

\_\_\_\_\_ Show ipv6 Interface brief \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* + 1. Which command displays the contents of the IPv6 routing table? \_\_\_\_ show ipv6 route \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Verify Network Connectivity

Every device should now be able to ping every other device. If not, review your static and default route configurations.

1. Suggested Scoring Rubric

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| --- | --- | --- | --- |
| Activity Section | Question Location | Possible Points | Earned Points |
| Part 1: Exam the Network and Evaluate the Need for Static Routing | a - d | 20 |  |
| **Part 1 Total** | | **20** |  |
| Part 2: Configure IPv6 Static and Default Routes | Step 1 | 5 |  |
| Step 5 | 15 |  |
| **Part 2 Total** | | **20** |  |
| **Packet Tracer Score** | | **60** |  |
| **Total Score** | | **100** |  |