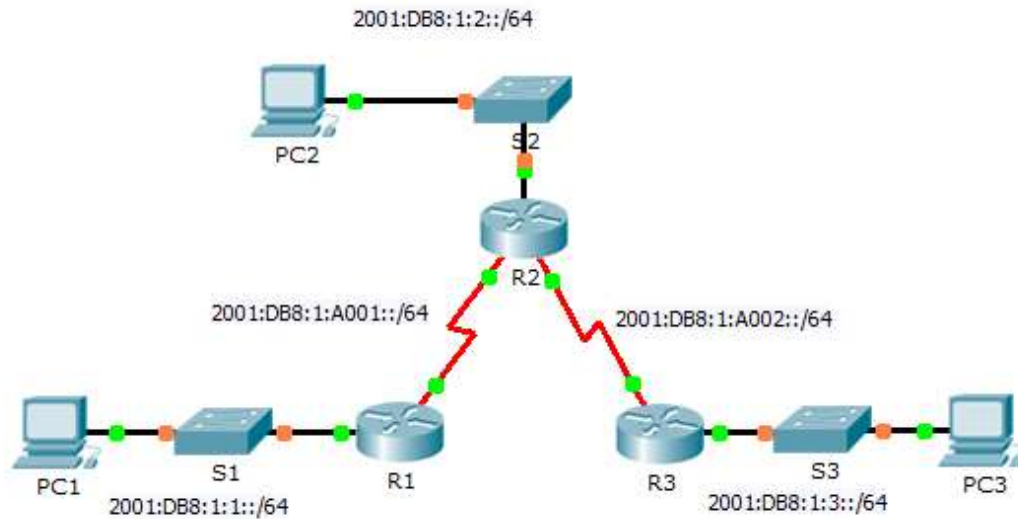


Packet Tracer - Configuring IPv6 Static and Default Routes (Instructor Version)

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



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

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

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.

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

- Looking at the topology diagram, how many networks are there in total? **5**
- How many networks are directly connected to R1, R2, and R3? **R1 has 2, R2 has 3, and R3 has 2.**
- How many static routes are required by each router to reach networks that are not directly connected? **R1 needs to configure 3 static routes, R2 needs to configure 2 static routes, and R3 needs to configure 3 static routes.**
- Which command is used to configure IPv6 static routes? **ipv6 route [network/prefix] [exit interface/next hop address]**

Part 2: Configure IPv6 Static and Default Routes

Step 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.

Step 2: 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
```

Step 3: Configure a directly attached and a fully specified static route on R2.

- Configure a directly attached static route from R2 to the R1 LAN.

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

- 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
```

Step 4: 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
```

Step 5: Verify static route configurations.

- Which command is used to verify the IPv6 configuration of a PC from the command prompt? **ipv6config**

- b. Which command displays the IPv6 addresses configured on a router's interface? `show ipv6 interface brief`
- c. Which command displays the contents of the IPv6 routing table? `show ipv6 route`

Part 3: Verify Network Connectivity

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

Suggested Scoring Rubric

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	