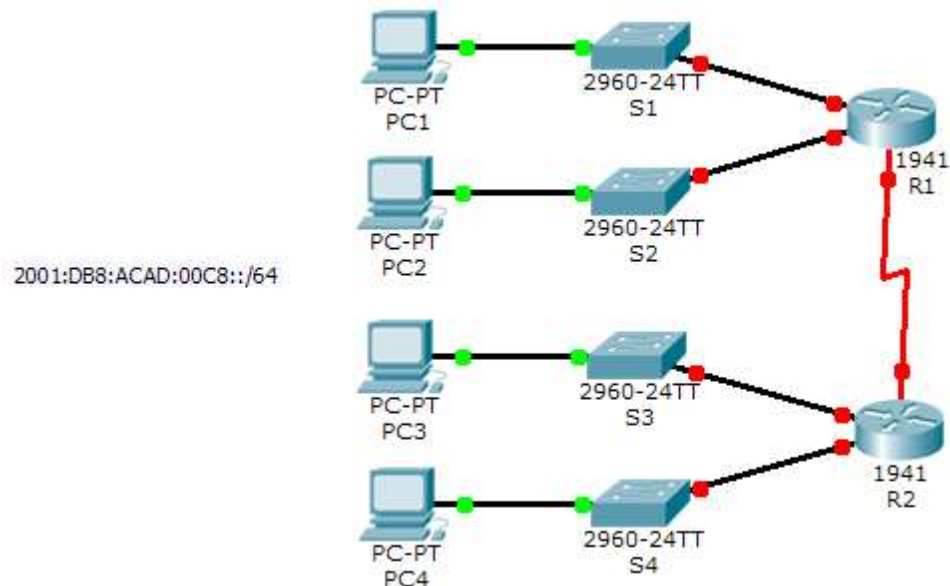


Packet Tracer - Implementing a Subnetted IPv6 Addressing Scheme (Instructor Version)

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

Topology



Addressing Table

Device	Interface	IPv6 Address	Link-Local
R1	G0/0	2001:DB8:ACAD:00C8::1/64	FE80::1
	G0/1	2001:DB8:ACAD:00C9::1/64	FE80::1
	S0/0/0	2001:DB8:ACAD:00CC::1/64	FE80::1
R2	G0/0	2001:DB8:ACAD:00CA::1/64	FE80::2
	G0/1	2001:DB8:ACAD:00CB::1/64	FE80::2
	S0/0/0	2001:DB8:ACAD:00CC::2/64	FE80::2
PC1	NIC	Auto Config	
PC2	NIC	Auto Config	
PC3	NIC	Auto Config	
PC4	NIC	Auto Config	

Objectives

Part 1: Determine the IPv6 Subnets and Addressing Scheme

Part 2: Configure the IPv6 Addressing on Routers and PCs and Verify Connectivity

Scenario

Your network administrator wants you to assign five /64 IPv6 subnets to the network shown in the topology. Your job is to determine the IPv6 subnets, assign IPv6 addresses to the routers, and set the PCs to automatically receive IPv6 addressing. Your final step is to verify connectivity between IPv6 hosts.

Part 1: Determine the IPv6 Subnets and Addressing Scheme

Step 1: Determine the number of subnets needed.

Start with the IPv6 subnet 2001:DB8:ACAD:00C8::/64 and assign it to the R1 LAN attached to GigabitEthernet 0/0, as shown in the **Subnet Table**. For the rest of the IPv6 subnets, increment the 2001:DB8:ACAD:00C8::/64 subnet address by 1 and complete the **Subnet Table** with the IPv6 subnet addresses.

Subnet Table

Subnet Description	Subnet Address
R1 G0/0 LAN	2001:DB8:ACAD:00C8::0/64
R1 G0/1 LAN	2001:DB8:ACAD:00C9::0/64
R2 G0/0 LAN	2001:DB8:ACAD:00CA::0/64
R2 G0/1 LAN	2001:DB8:ACAD:00CB::0/64
WAN Link	2001:DB8:ACAD:00CC::0/64

Step 2: Assign IPv6 addressing to the routers.

- Assign the first IPv6 addresses to R1 for the two LAN links and the WAN link.
- Assign the first IPv6 addresses to R2 for the two LANs. Assign the second IPv6 address for the WAN link.
- Document the IPv6 addressing scheme in the **Addressing Table**.

Part 2: Configure the IPv6 Addressing on Routers and PCs and Verify Connectivity

Step 1: Configure the routers with IPv6 addressing.

Note: This network is already configured with some IPv6 commands that are covered in a later course. At this point in your studies, you only need to know how to configure IPv6 address on an interface.

Configure R1 and R2 with the IPv6 addresses you specified in the **Addressing Table** and activate the interfaces.

```
Router(config-if) # ipv6 address ipv6-address/prefix
Router(config-if) # ipv6 address ipv6-link-local link-local
```

Step 2: Configure the PCs to automatically receive IPv6 addressing.

Configure the four PCs for autoconfiguration. Each should then automatically receive full IPv6 addresses from the routers.

Step 3: Verify connectivity between the PCs.

Each PC should be able to ping the other PCs and the routers.

Suggested Scoring Rubric

Activity Section	Question Location	Possible Points	Earned Points
Part 1: Determine IPv6 Subnets and Addressing Scheme	Subnet Table	30	
	Addressing Table	30	
Part 1 Total		60	
Packet Tracer Score		40	
Total Score		100	