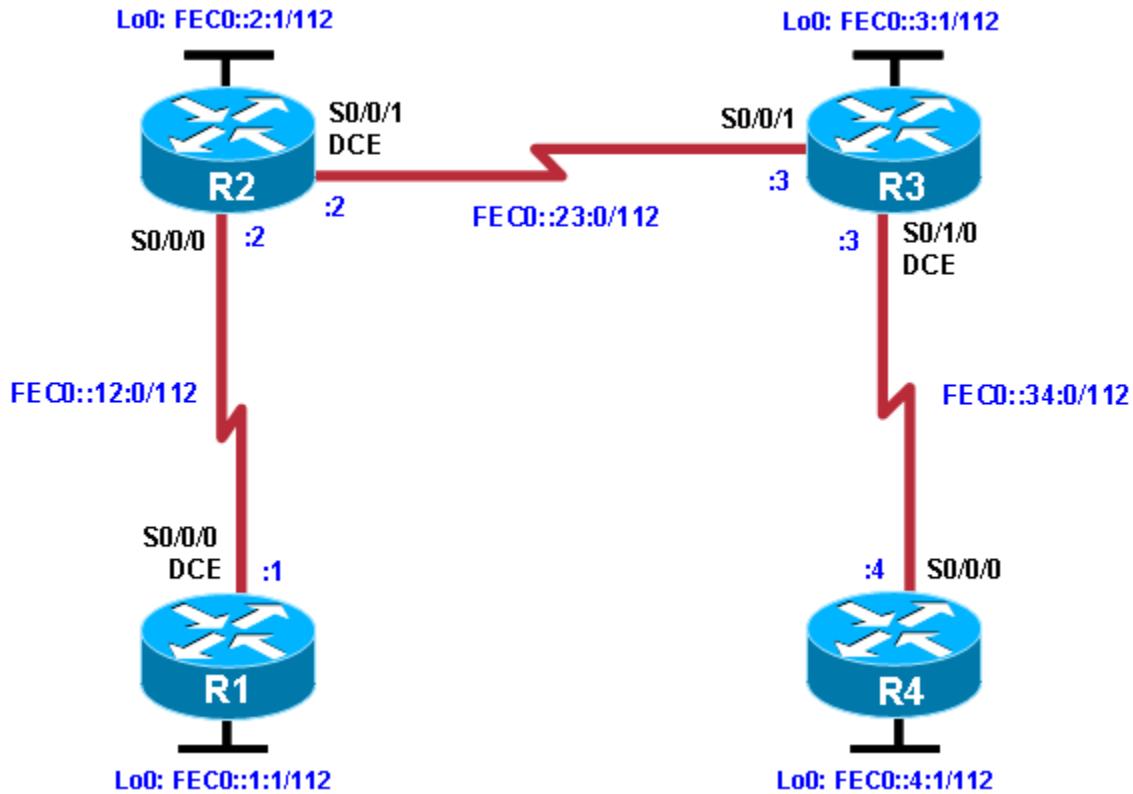


Chapter 8 Lab 8-5, IPv6 Troubleshooting Lab

Topology



Objective

- Troubleshoot and correct issues in an IPv6 topology.

Background

In this lab, you troubleshoot existing configurations to get a working topology. Copy and paste the initial configurations from this lab into the routers. Some of these configurations have intentional errors introduced. Your goal is to troubleshoot and correct any problems in the scenario that prevent full IPv6 connectivity. Full IPv6 connectivity means every address in the scenario is reachable from every router. If you do not know where to start, try pinging remote addresses and see which ones are reachable by either manually performing pings or using a Tcl script.

Note: This lab uses Cisco 1841 routers with Cisco IOS Release 12.4(24)T1 and the Advanced IP Services image c1841-advipservicesk9-mz.124-24.T1.bin. You can use other routers (such as a 2801 or 2811) and Cisco IOS Software versions if they have comparable capabilities and features. Depending on the router model and Cisco IOS Software version, the commands available and output produced might vary from what is shown in this lab.

Required Resources

- 4 routers (Cisco 1841 with Cisco IOS Release 12.4(24)T1 Advanced IP Services or comparable)
- Serial and console cables

Requirements

1. Use the IPv6 addressing scheme shown in the diagram.
2. All interfaces must be in OSPFv3 area 0.
3. The router IDs are manually configured with the initial configurations.
4. Do not use static routes, default routes, or routing protocols other than OSPFv3.
5. All IPv6 addresses in the topology must be reachable from all routers.

Notes:

Initial Configurations

Router R1

```
hostname R1
!
ipv6 unicast-routing
!
interface Loopback0
  ipv6 address FEC0::1:1/112
!
interface Serial0/0/0
  ipv6 address FEC0::12:1/112
  ipv6 ospf 1 area 0
  clock rate 64000
  bandwidth 64
  no shutdown
!
ipv6 router ospf 1
  router-id 172.16.1.1
end
```

Router R2

```
hostname R2
!
ipv6 unicast-routing
!
interface Loopback0
  ipv6 address FEC0::2:1/112
  ipv6 ospf 1 area 0
!
interface Serial0/0/0
  ipv6 address FEC0::12:2/112
  ipv6 ospf 1 area 0
  bandwidth 64
  no shutdown
!
interface Serial0/0/1
  ipv6 address FEC0::23:2/112
  ipv6 ospf 1 area 0
  clock rate 64000
  bandwidth 64
  no shutdown
!
ipv6 router ospf 1
  router-id 172.16.2.1
end
```

Router R3

```
hostname R3
!
ipv6 unicast-routing
!
interface Loopback0
  ipv6 address FEC0::3:1/112
  ipv6 ospf 1 area 0
!
```

CCNPv6 ROUTE

```
interface Serial0/0/1
  ipv6 address FEC0::23:3/112
  ipv6 ospf 1 area 0
  bandwidth 64
  no shutdown
!
interface Serial0/1/0
  ipv6 address FEC0::34:3/112
  ipv6 ospf 1 area 0
  clock rate 64000
  bandwidth 64
  no shutdown
!
ipv6 router ospf 1
  router-id 172.16.3.1
end
```

Router R4

```
hostname R4
!
ipv6 unicast-routing
!
interface Loopback0
  ipv6 address FEC0::4:1/112
  ipv6 ospf 1 area 0
!
interface Serial0/0/0
  ipv6 address FEC0::34:4/112
  ipv6 ospf 100 area 0
  bandwidth 64
  no shutdown
!
ipv6 router ospf 1
  router-id 172.16.4.1
end
```

Router Interface Summary Table

Router Interface Summary				
Router Model	Ethernet Interface #1	Ethernet Interface #2	Serial Interface #1	Serial Interface #2
1700	Fast Ethernet 0 (FA0)	Fast Ethernet 1 (FA1)	Serial 0 (S0)	Serial 1 (S1)
1800	Fast Ethernet 0/0 (FA0/0)	Fast Ethernet 0/1 (FA0/1)	Serial 0/0/0 (S0/0/0)	Serial 0/0/1 (S0/0/1)
2600	Fast Ethernet 0/0 (FA0/0)	Fast Ethernet 0/1 (FA0/1)	Serial 0/0 (S0/0)	Serial 0/1 (S0/1)
2800	Fast Ethernet 0/0 (FA0/0)	Fast Ethernet 0/1 (FA0/1)	Serial 0/0/0 (S0/0/0)	Serial 0/0/1 (S0/0/1)

Note: To find out how the router is configured, look at the interfaces to identify the type of router and how many interfaces the router has. Rather than list all combinations of configurations for each router class, this table includes identifiers for the possible combinations of Ethernet and serial interfaces in the device. The table does not include any other type of interface, even though a specific router might contain one. For example, for an ISDN BRI interface, the string in parenthesis is the legal abbreviation that can be used in Cisco IOS commands to represent the interface.