



1.8. Configure and verify IPv6 addressing and prefix (Troubleshooting)

Objective:

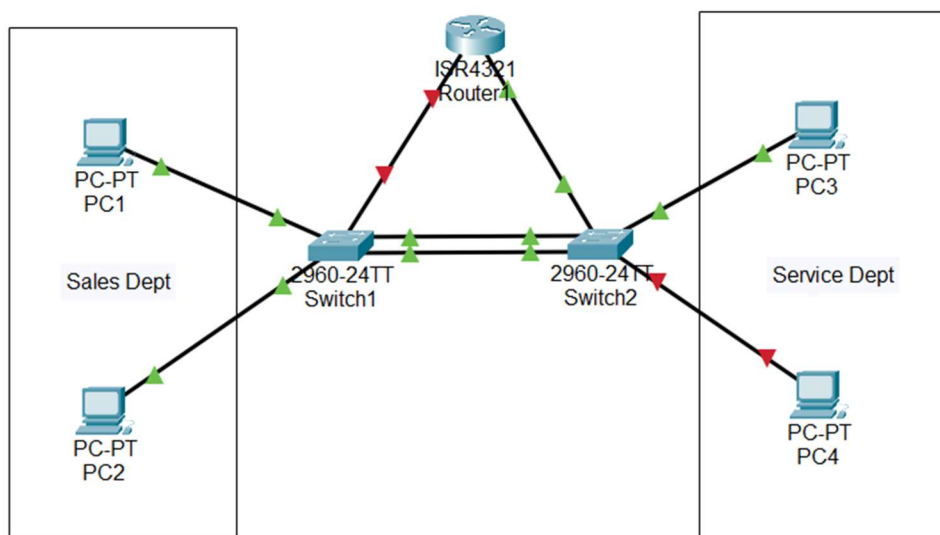
Troubleshoot IPv6 addressing misconfigurations to restore connectivity between subnets.

Topology

- **Router1** connected to **Switch1** and **Switch2**
- **Switch1** connected to **PC1**, and **PC2**,
- **Switch2** connected to **PC3**, and **PC4**
- **Switch1** and **Switch2** connected via etherchannel

IPv6 Subnet Allocations

- **Service Dept Subnet:** 2001:db8:acad:1::/64 → Router1 G0/0/0 + PC1, PC2
- **Sales Dept Subnet:** 2001:db8:acad:2::/64 → Router1 G0/0/1 + PC3, PC4



This is an unofficial practice lab. Not affiliated with Cisco Systems, Inc.

Lab Tasks

Identify IPv6 network problems and apply fixes.

- Test IPv6 connectivity between devices and record your results.
- Identify any misconfigurations that prevent successful communication.
- Apply the necessary corrections to restore connectivity.
- Verify that all PCs can reach their default gateway and communicate across subnets.

The lab is considered “fixed”, when all PC’s can ping their default gateway AND each PC.

Ensure you use the IPv6 subnet allocations provided on page 1.

ANSWERS BEYOND THIS POINT.
LET’S SEE HOW YOU DID!.....

Solution Key

1. Enable IPv6 routing on Router1.

- Router1>enable
- Router1#configure terminal
- Router1(config)#ipv6 unicast-routing
- Router1#show run

```
Router1#show run
Building configuration...

Current configuration : 647 bytes
!
version 15.4
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Router1
!
!
!
!
!
!
!
!
ip cef
ipv6 unicast-routing
!
no ipv6 cef
!
```

2. Bring up interface Gig0/0/0 on Router1.

- Router1>enable
- Router1#configure terminal
- Router1(config)#interface gig0/0/0
- Router1(config-if)#no shut

3. Assign correct IPv6 address on Router1, interface Gig0/0/1.

- Router1> enable
- Router1# configure terminal
- Router1(config)# interface gig0/0/1
- Router1(config-if)# no ipv6 address 2001:BD8:ACAD:2::1/64
- Router1(config-if)# ipv6 address 2001:DB8:ACAD:2::1/64

4. Correct PC2 and PC3 default gateway.

- PC2: 2001:DB8:ACAB:1::1 → 2001:DB8:ACAD:1::1
- PC3: 2001:DB8:ACAB:2::1 → 2001:DB8:ACAD:2::1

5. Bring up Fa0/2 on Switch2.

- Switch2>enable
- Switch2#configure terminal
- Switch2(config)#interface fa0/2
- Switch2(config-if)#no shut

```
Switch2>en
Switch2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch2(config)#int fa0/2
Switch2(config-if)#no shut

Switch2(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/2, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to up
```