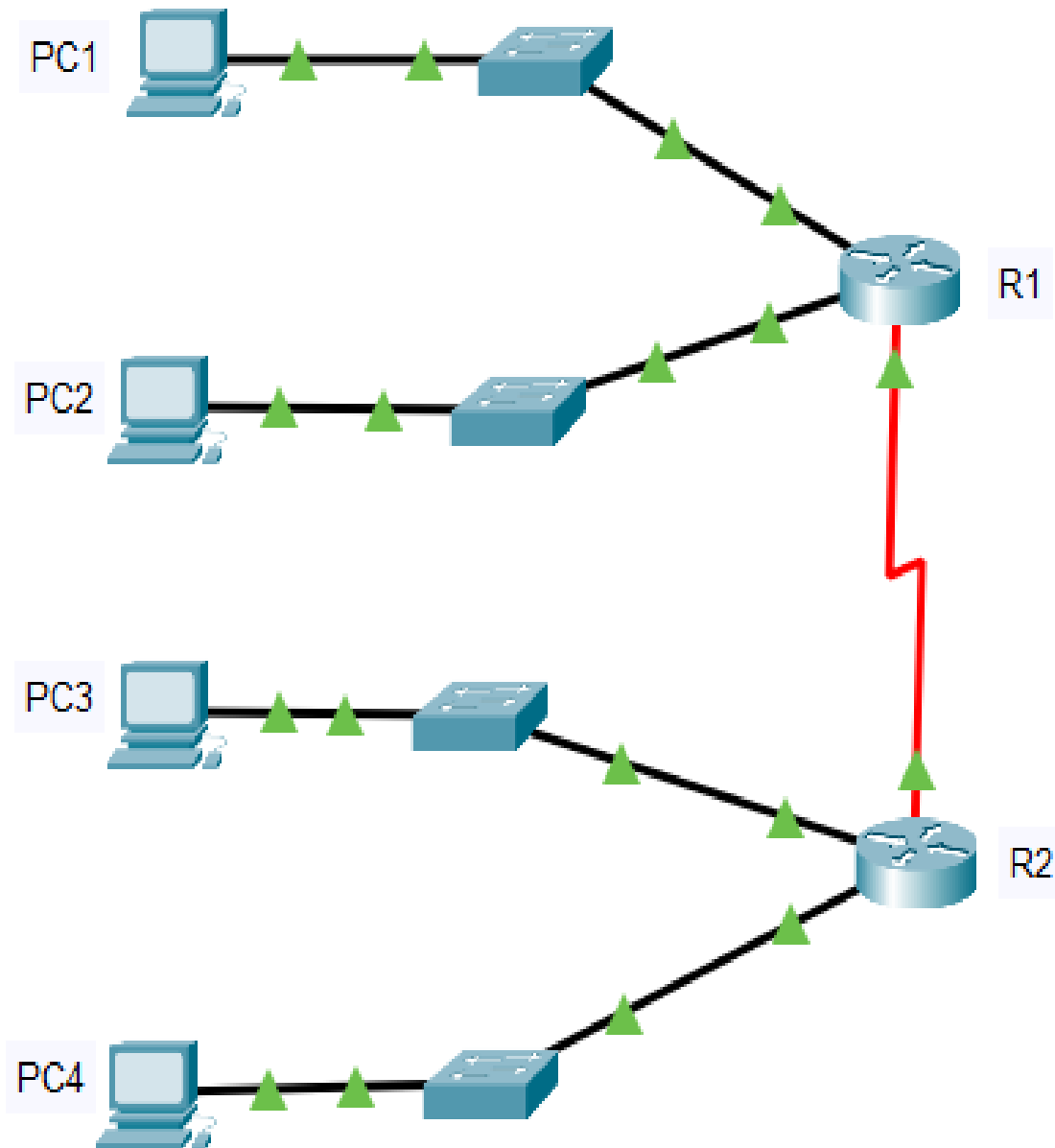


## EXPERIMENT-15

Aim- Implement a Subnetted IPv6 Addressing Scheme

Software Used: Cisco Packet-Tracer

Topology:



### Objectives

- Step 1: Determine IPv6 subnets and addressing scheme.
- Step 2: Configure IPv6 addressing on routers and PCs.
- Step 3: Verify IPv6 connectivity.

## Addressing Table

Device	Interface	IPv6 Address	Link-local Address
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::2/64	fe80::2
	G0/1	2001:db8:acad:00cb::2/64	fe80::2
	S0/0/0	2001:db8:acad:00c8c::2/64	fe80::2
PC1	NIC	Auto Config	
PC2	NIC	Auto Config	
PC3	NIC	Auto Config	
PC4	NIC	Auto Config	

## Background / Scenario

Network administrators must know how to implement IPv6 in their networks. You have been asked to set up a network for use by the sales staff for a customer demonstration. The network will use a series of consecutive IPv6 subnets for four LANs. Your job is to assign the subnets to the LANs and configure the routers and PCs with IPv6 addressing. Make certain to configure all the necessary components for IPv6 routing on the routers.

## Procedure:

Step 1: Determine IPv6 subnets and addressing scheme.

### Subnet Table

Subnet	Address
R1 G0/0/ LAN	2001:db8:acad:00c8::0/64
R1 G0/1 LAN	2001:db8:acad:00c9::0/64

Subnet	Address
R2 G0/0 LAN	2001:db8:acad:00ca::0/64
R2 G0/1 LAN	2001:db8:acad:00cb::0/64
R1 to R2 link network	2001:db8:acad:00cc::0/64

Step 2: Configure IPv6 addressing on routers and PCs.

### Step 3: Verify IPv6 connectivity.

#### Results:

R1

```
R1>enable
R1#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#interface gigabitEthernet 0/0
R1(config-if)#ipv6 address 2001:db8:acad:00c8::1/64
R1(config-if)#ipv6 address fe80::1 link-local
R1(config-if)#no shutdown

R1(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up

R1(config-if)#exit
R1(config)#interface gigabitEthernet 0/1
R1(config-if)#ipv6 address 2001:db8:acad:00c9::1/64
R1(config-if)#ipv6 address fe80::1 link-local
R1(config-if)#no shutdown

R1(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up

R1(config-if)#exit
R1(config)#interface serial 0/0/0
R1(config-if)#ipv6 address 2001:db8:acad:00cc::1/64
R1(config-if)#ipv6 address fe80::1 link-local
R1(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial0/0/0, changed state to down
R1(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up

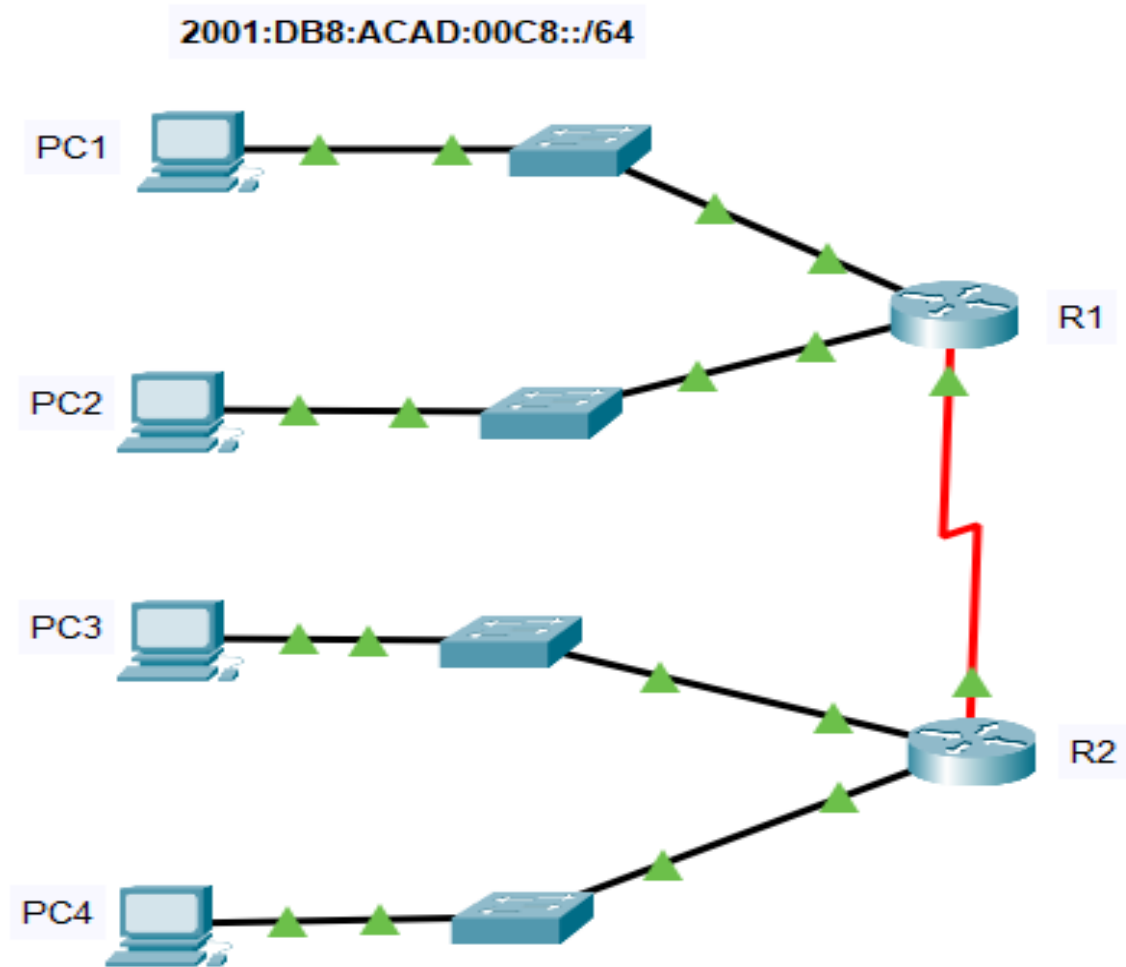
R1(config-if)#exit
R1(config)#
R1(config)#ipv6 unicast-routing
R1(config)#
```

R2

```
R2#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#interface gigabitEthernet 0/0/0
%Invalid interface type and number
R2(config)#interface gigabitEthernet 0/0
R2(config-if)#ipv6 address 2001:db8:acad:00ca::2/64
R2(config-if)#ipv6 address fe80::2 link-local
R2(config-if)#no shutdown
R2(config-if)#exit
R2(config)#interface gigabitEthernet 0/1
R2(config-if)#ipv6 address 2001:db8:acad:00cb::2/64
R2(config-if)#ipv6 address fe80::2 link-local
R2(config-if)#no shutdown
R2(config-if)#exit
R2(config)#interface serial 0/0/0
R2(config-if)#ipv6 address 2001:db8:acad:00cc::2/64
R2(config-if)#ipv6 address fe80::2 link-local
R2(config-if)#no shutdown
R2(config-if)#exit
R2(config)#interface ^
% Invalid input detected at '^' marker.

R2(config)#ipv6 unicast-routing
R2(config)#
```

**Final Result:**



Hence the Implementation of Subnetted IPv6 Addressing Scheme has been successfully performed.