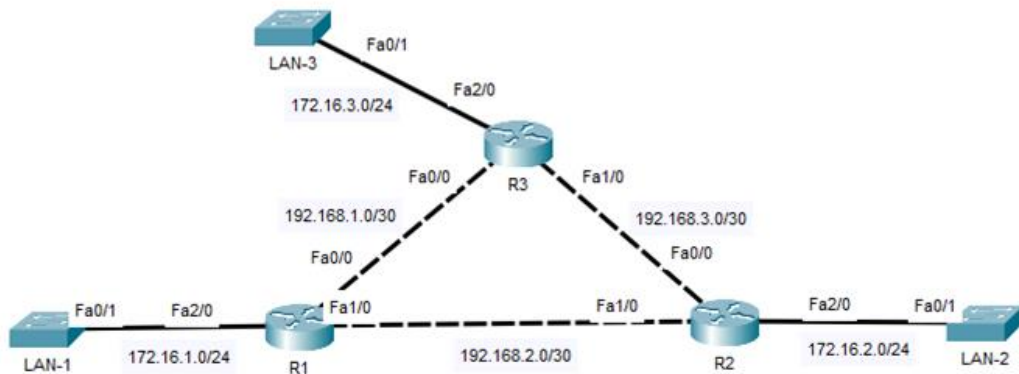


IPv4 Addressing

Lab Summary

Configure the IP addressing plan and enable all interfaces on all routers.

Figure 1 Lab Topology



Lab Configuration

Start Packet Tracer File: **ipv4 addressing.pkt**

Table 1 IP Addressing Plan

Hostname	Interface	IP Address	Subnet Mask	Description
R1	Fa2/0	172.16.1.1	255.255.255.0	Link to LAN-1
R1	Fa1/0	192.168.2.1	255.255.255.252	Link to R2
R1	Fa0/0	192.168.1.1	255.255.255.252	Link to R3
R2	Fa2/0	172.16.2.1	255.255.255.0	Link to LAN-2
R2	Fa1/0	192.168.2.2	255.255.255.252	Link to R1
R2	Fa0/0	192.168.3.1	255.255.255.252	Link to R3
R3	Fa2/0	172.16.3.1	255.255.255.0	Link to LAN-3
R3	Fa1/0	192.168.3.2	255.255.255.252	Link to R2
R3	Fa0/0	192.168.1.2	255.255.255.252	Link to R1

Click on *R1* icon and select *CLI* folder.

Step 1: Enter global configuration mode.

```
R1> enable  
R1# configure terminal
```

Step 2: Configure LAN interface Fa2/0 on R1

```
R1(config)# interface fastethernet2/0  
R1(config-if)# description link to LAN-1  
R1(config-if)# ip address 172.16.1.1 255.255.255.0  
R1(config-if)# no shutdown
```

Step 3: Configure WAN interface Fa1/0 on R1

```
R1(config)# interface fastethernet1/0  
R1(config-if)# description link to R2  
R1(config-if)# ip address 192.168.2.1 255.255.255.252  
R1(config-if)# no shutdown
```

Step 4: Configure WAN interface Fa0/0 on R1

```
R1(config)# interface fastethernet0/0  
R1(config-if)# description link to R3  
R1(config-if)# ip address 192.168.1.1 255.255.255.252  
R1(config-if)# no shutdown  
R2(config-if)# end  
R2# copy running-config startup-config
```

Click on *R2* icon and select *CLI* folder.

Step 5: Enter global configuration mode

```
R2> enable  
R2# configure terminal
```

Step 6: Configure LAN interface Fa2/0 on R2

```
R2(config)# interface fastethernet2/0  
R2(config-if)# description link to LAN-2  
R2(config-if)# ip address 172.16.2.1 255.255.255.0  
R2(config-if)# no shutdown
```

Step 7: Configure WAN interface Fa1/0 on R2

```
R2(config)# interface fastethernet1/0  
R2(config-if)# description link to R1
```

```
R2(config-if)# ip address 192.168.2.2 255.255.255.252  
R2(config-if)# no shutdown
```

Step 8: Configure WAN interface Fa0/0 on R2

```
R2(config)# interface fastethernet0/0  
R2(config-if)# description link to R3  
R2(config-if)# ip address 192.168.3.1 255.255.255.252  
R2(config-if)# no shutdown  
R2(config-if)# end  
R2# copy running-config startup-config
```

Click on *R3* icon and select *CLI* folder.

Step 9: Enter global configuration mode

```
R3> enable  
R3# configure terminal
```

Step 10: Configure LAN interface Fa2/0 on R3

```
R3(config)# interface fastethernet2/0  
R3(config-if)# description link to LAN-3  
R3(config-if)# ip address 172.16.3.1 255.255.255.0  
R3(config-if)# no shutdown
```

Step 11: Configure WAN interface Fa1/0 on R3

```
R3(config)# interface fastethernet1/0  
R3(config-if)# description link to R2  
R3(config-if)# ip address 192.168.3.2 255.255.255.252  
R3(config-if)# no shutdown
```

Step 12: Configure WAN interface Fa0/0 on R3

```
R3(config)# interface fastethernet0/0  
R3(config-if)# description link to R1  
R3(config-if)# ip address 192.168.1.2 255.255.255.252  
R3(config-if)# no shutdown  
R3(config-if)# end  
R3# copy running-config startup-config
```

Step 13: Verify Lab

Verify configuration and confirm Layer 3 interfaces are enabled. In addition ping the directly connected neighbor interfaces to confirm basic Layer 3 connectivity.

```
R1# show running-config
```

```
R1# show ip interface brief
```

```
R2# show running-config
```

```
R2# show ip interface brief
```

```
R3# show running-config
```

```
R3# show ip interface brief
```

```
R1# ping 192.168.1.2
```

```
R1# ping 192.168.2.2
```

```
R2# ping 192.168.3.2
```

Lab Notes

Layer 3 interfaces often require an explicit **no shutdown** command to enable packet forwarding after assigning an IP address.