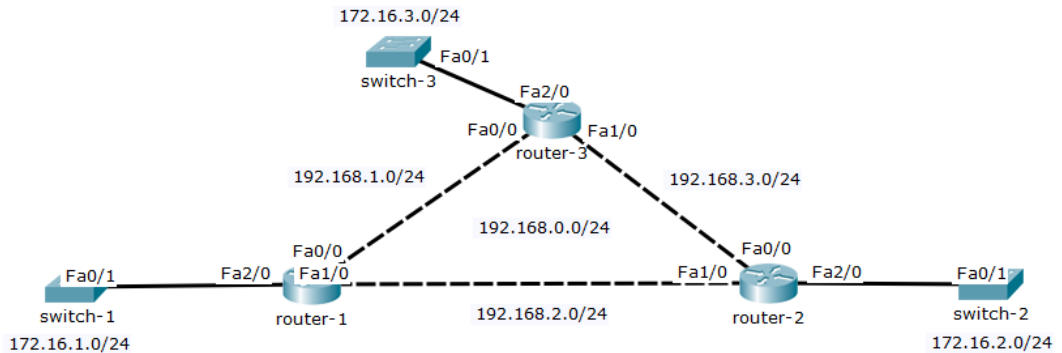


IPv4 Addressing

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**

Table 1 IP Addressing Plan

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

Router-1:

Click on the *router-1* icon and select the *CLI* folder. Hit the <enter> key for user mode prompt (>).

Step 1: Enter global configuration mode.

```
router-1> enable  
Password: cisconet  
router-1# configure terminal
```

Step 2: Configure LAN interface Fa2/0 on router-1

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

Step 3: Configure WAN interface Fa1/0 on router-1

```
router-1(config)# interface fastethernet1/0  
router-1(config-if)# description router-2 link  
router-1(config-if)# ip address 192.168.2.1 255.255.255.0  
router-1(config-if)# no shutdown
```

Step 4: Configure WAN interface Fa0/0 on router-1

```
router-1(config)# interface fastethernet0/0  
router-1(config-if)# description router-3 link  
router-1(config-if)# ip address 192.168.1.1 255.255.255.0  
router-1(config-if)# no shutdown  
router-2(config-if)# end  
router-2# copy running-config startup-config
```

Router-2:

Click on the *router-2* icon and select the *CLI* folder. Hit the <enter> key for user mode prompt (>).

Step 5: Enter global configuration mode

```
router-2> enable  
Password: cisconet  
router-2# configure terminal
```

Step 6: Configure LAN interface Fa2/0 on router-2

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

Step 7: Configure WAN interface Fa1/0 on router-2

```
router-2(config)# interface fastethernet1/0  
router-2(config-if)# description router-1 link  
router-2(config-if)# ip address 192.168.2.2 255.255.255.0  
router-2(config-if)# no shutdown
```

Step 8: Configure WAN interface Fa0/0 on router-2

```
router-2(config)# interface fastethernet0/0  
router-2(config-if)# description router-3 link  
router-2(config-if)# ip address 192.168.3.1 255.255.255.0  
router-2(config-if)# no shutdown  
router-2(config-if)# end  
router-2# copy running-config startup-config
```

Router-3:

Click on the *router-3* icon and select the *CLI* folder. Hit the <enter> key for user mode prompt (>).

Step 9: Enter global configuration mode

```
router-3> enable  
Password: cisconet  
router-3# configure terminal
```

Step 10: Configure LAN interface Fa2/0 on router-3

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

Step 11: Configure WAN interface Fa1/0 on router-3

```
router-3(config)# interface fastethernet1/0  
router-3(config-if)# description router-2 link  
router-3(config-if)# ip address 192.168.3.2 255.255.255.0  
router-3(config-if)# no shutdown
```

Step 12: Configure WAN interface Fa0/0 on router-3

```
router-3(config)# interface fastethernet0/0  
router-3(config-if)# description router-1 link  
router-3(config-if)# ip address 192.168.1.2 255.255.255.0  
router-3(config-if)# no shutdown  
router-3(config-if)# end  
router-3# 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.

```
router-1# show running-config  
router-1# show ip interface brief  
router-2# show running-config  
router-2# show ip interface brief  
router-3# show running-config  
router-3# show ip interface brief  
router-1# ping 192.168.1.2  
router-1# ping 192.168.2.2  
router-2# ping 192.168.16.2
```

Lab Notes

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