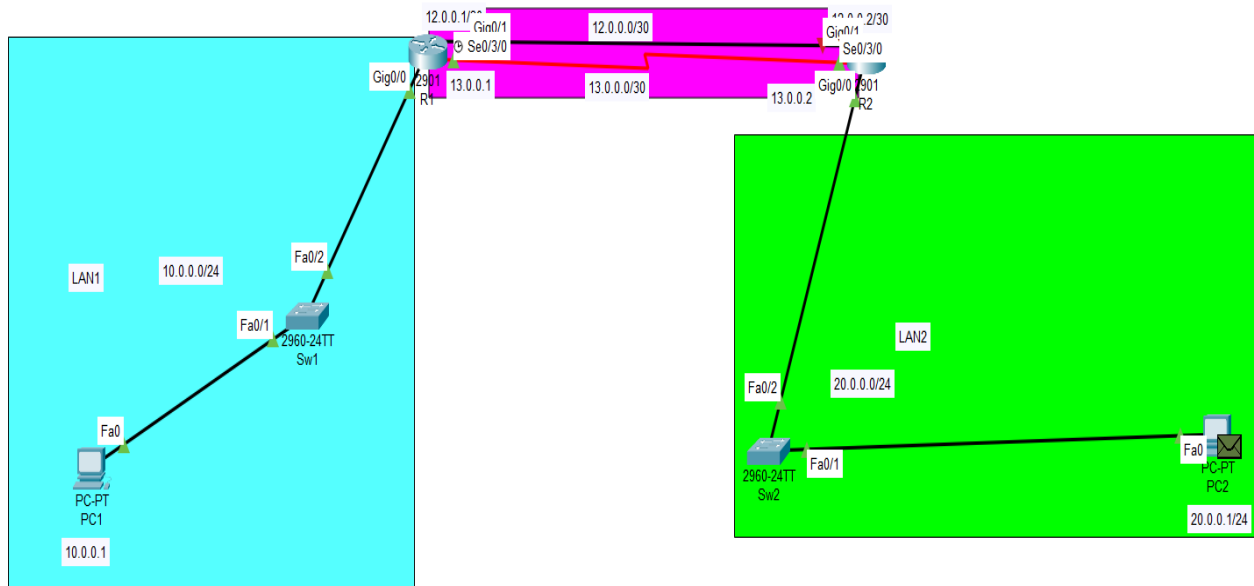


Objective

The objective of this lab is to configure static routing between two routers and verify end-to-end connectivity among the network devices.

Network Topology



IP Addressing

| Device | Interface | IP address | Default Gateway |
|--------|-----------|---------------|-----------------|
| R1 | Gig0/0 | 10.0.0.254/24 | — |
| | Se0/3/0 | 13.0.0.1/30 | — |
| | Gig0/1 | 12.0.0.1/30 | — |
| R2 | Gig0/0 | 20.0.0.254/24 | — |
| | Se0/3/0 | 13.0.0.2/30 | — |
| | Gig0/1 | 12.0.0.2/30 | — |
| PC1 | NIC | 10.0.0.1/24 | 10.0.0.254 |
| PC2 | NIC | 20.0.0.1/24 | 20.0.0.254 |

Configuration

R1

Enable

Configure terminal

hostname R1

interface g0/0

ip address 10.0.0.254 255.255.255.0

no shutdown

!

interface g0/1

ip address 12.0.0.1 255.255.255.252

no shutdown

!

interface s0/3/0

ip address 13.0.0.1 255.255.255.252

clock rate 2000000

no shutdown

!

ip route 20.0.0.0 255.255.255.0 12.0.0.2

ip route 20.0.0.0 255.255.255.0 13.0.0.2 2

R2

Enable

Configure terminal

hostname R2

interface g0/0

ip address 20.0.0.254 255.255.255.0

no shutdown

!

interface g0/1

ip address 12.0.0.2 255.255.255.252

no shutdown

!

interface s0/3/0

ip address 13.0.0.2 255.255.255.252

no shutdown

!

ip route 10.0.0.0 255.255.255.0 12.0.0.1

ip route 10.0.0.0 255.255.255.0 13.0.0.1 2

Configure PC1

PC1

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 10.0.0.1

Subnet Mask 255.255.255.0

Default Gateway 10.0.0.254

DNS Server 0.0.0.0

Configure PC2

PC1

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 10.0.0.1

Subnet Mask 255.255.255.0

Default Gateway 10.0.0.254

DNS Server 0.0.0.0

Testing & Verification (PC1 & PC2)

PC1

Physical Config **Desktop** Programming Attributes

Command Prompt

```
C:\>ping 20.0.0.1

Pinging 20.0.0.1 with 32 bytes of data:

Reply from 20.0.0.1: bytes=32 time=10ms TTL=126
Reply from 20.0.0.1: bytes=32 time=10ms TTL=126
Reply from 20.0.0.1: bytes=32 time=10ms TTL=126
Reply from 20.0.0.1: bytes=32 time=10ms TTL=126

Ping statistics for 20.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 10ms, Maximum = 10ms, Average = 10ms
```

PC2

Physical Config **Desktop** Programming Attributes

Command Prompt

```
0.0.0.0

C:\>ping 10.0.0.1

Pinging 10.0.0.1 with 32 bytes of data:

Reply from 10.0.0.1: bytes=32 time=15ms TTL=126
Reply from 10.0.0.1: bytes=32 time=10ms TTL=126
Reply from 10.0.0.1: bytes=32 time=10ms TTL=126
Reply from 10.0.0.1: bytes=32 time=10ms TTL=126

Ping statistics for 10.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 10ms, Maximum = 15ms, Average = 11ms
```

Conclusion

In this lab, static routing with a backup route was configured between two routers, enabling communication between the two LAN networks.