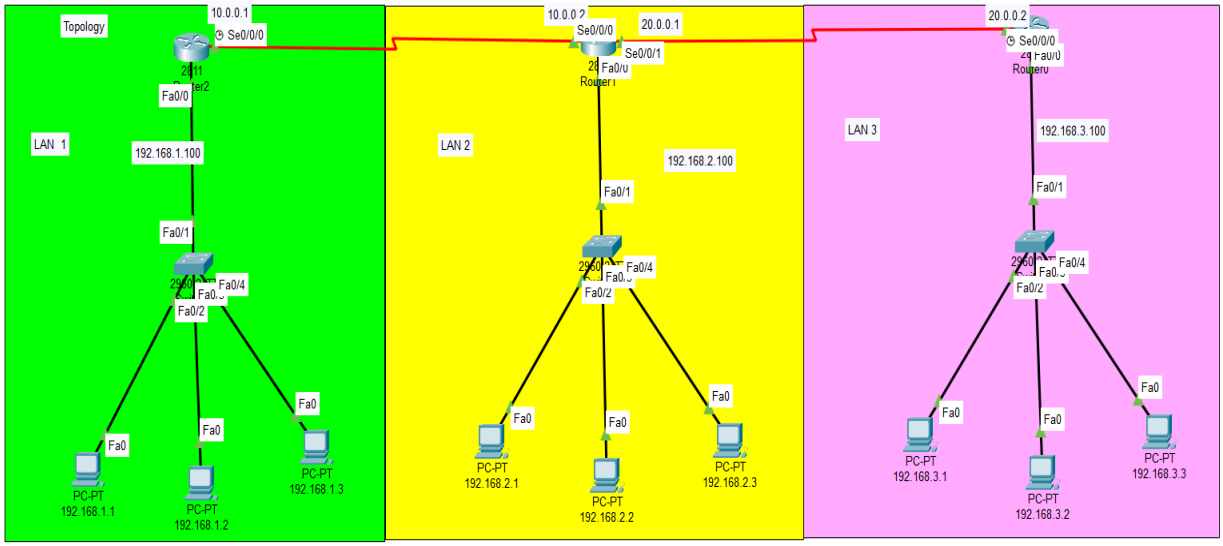
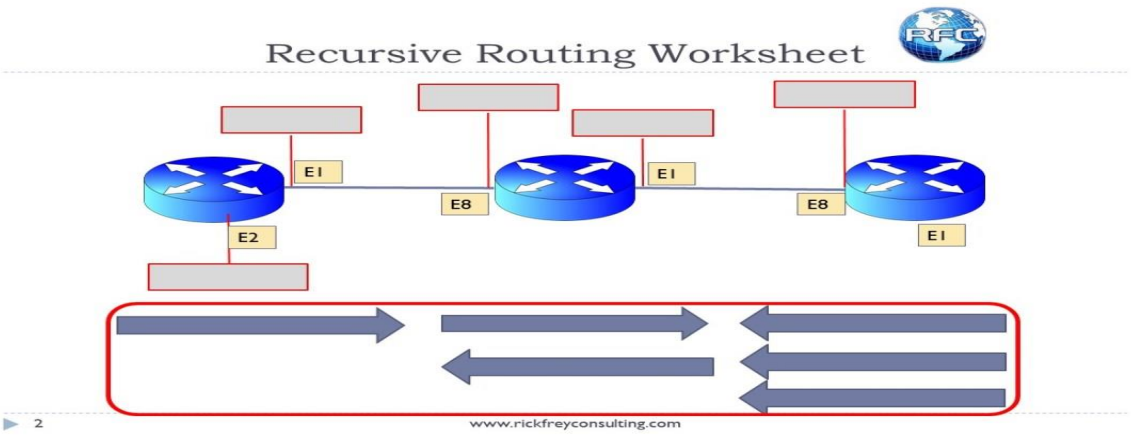
What is Recursive Routing?





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Recursive Static Routing is another method of manual routing, but instead of specifying an exit interface, we specify the **next-hop IP address**. The router then looks up that IP in its routing table to determine the correct outgoing interface — this process is called **recursive lookup**.

Key Characteristics:

- Uses the **next-hop IP address** instead of an interface
- Requires the router to **resolve the next-hop address**
- Useful in larger topologies where exit interface may change dynamically

Recursive Routing in Your Topology:

Using the same setup, instead of giving the **interface name**, we tell the routers which **IP address** to send the packets to — the next-hop router.

Recursive Route Commands:

On Router8 (R1):

```
ip route 192.168.2.0 255.255.255.0 10.0.0.2
```

"To reach 192.168.2.0, send packets to next-hop IP 10.0.0.2 (Router9)."

On Router9 (R2):

```
ip route 192.168.1.0 255.255.255.0 10.0.0.1
```

"To reach 192.168.1.0, send packets to next-hop IP 10.0.0.1 (Router8)."

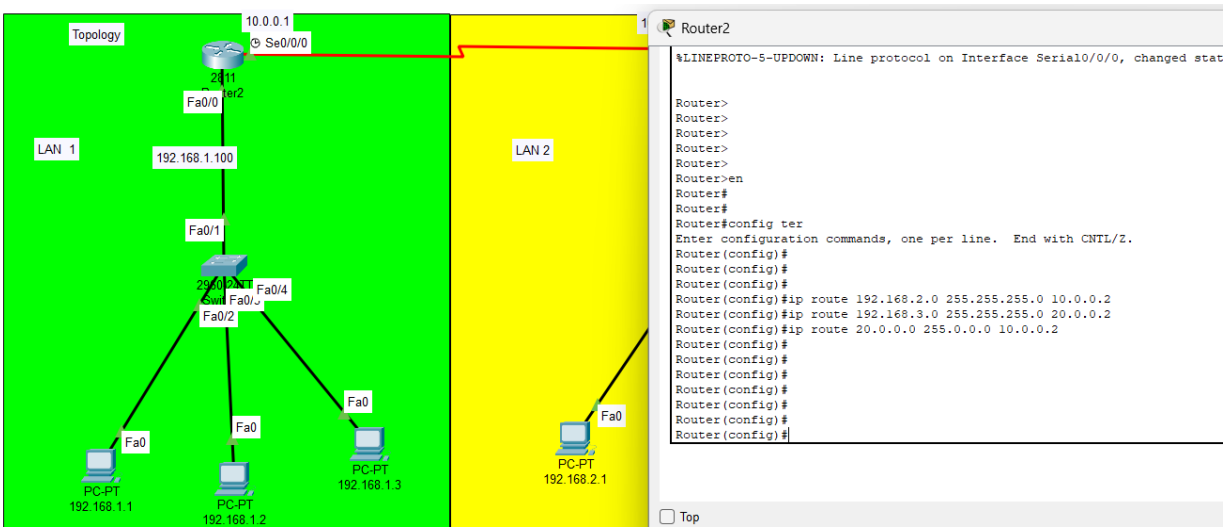
Difference Between Static and Recursive Routing

Feature	Static Routing	Recursive Routing
Route Destination	Defined using **interface**	Defined using **next-hop IP**
Lookup Method	Direct	Recursive lookup required
Performance	Faster	Slightly slower (extra lookup)
Configuration	Simple for small networks	Useful in dynamic environments

Summary:

- **Static Routing** is simple and direct, using interfaces.
- **Recursive Routing** is more flexible, using next-hop IPs.
- Both methods are **manually configured** and ideal for **lab setups**, **small enterprise networks**, and **controlled environments**.

Connectivity authentication from LAN-1



192.168.1.1

Physical Config Desktop Programming Attributes

Command Prompt

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.2.1

Pinging 192.168.2.1 with 32 bytes of data:

Reply from 192.168.2.1: bytes=32 time=1ms TTL=254
Reply from 192.168.2.1: bytes=32 time=20ms TTL=254
Reply from 192.168.2.1: bytes=32 time=1ms TTL=254
Reply from 192.168.2.1: bytes=32 time=1ms TTL=254

Ping statistics for 192.168.2.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 20ms, Average = 5ms

C:\>ping 192.168.3.1

Pinging 192.168.3.1 with 32 bytes of data:

Request timed out.
Reply from 192.168.3.1: bytes=32 time=2ms TTL=125
Reply from 192.168.3.1: bytes=32 time=24ms TTL=125
Reply from 192.168.3.1: bytes=32 time=27ms TTL=125

Ping statistics for 192.168.3.1:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 27ms, Average = 17ms

C:\>
```

Connectivity authentication from LAN-2