Configuration of ARP and Static Routing using Cisco network switch and verify the connectivity

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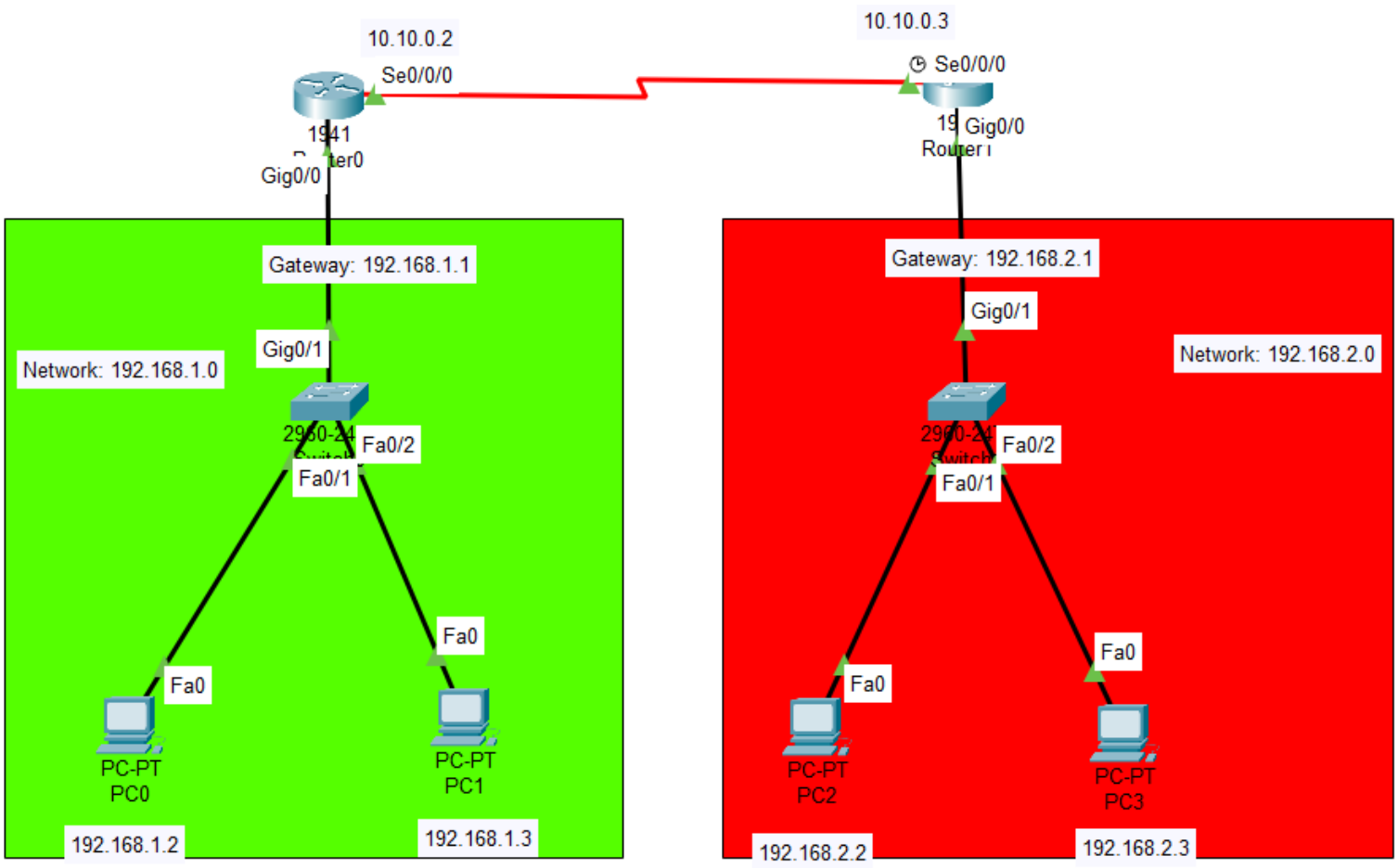

10.10.0.2
Se0/0/0
1941
Gig0/0
Gateway: 192.168.1.1
Gig0/1
Network: 192.168.1.0
Fa0/2
Fa0/1
Fa0
Fa0
PC-PT
PC0
PC-PT
PC1
192.168.1.2
192.168.1.3
10.10.0.3
Se0/0/0
Gig0/0
Gateway: 192.168.2.1
Gig0/1
Network: 192.168.2.0
Fa0/2
Fa0/1
Fa0
Fa0
PC-PT
PC2
PC-PT
PC3
192.168.2.2
192.168.2.3

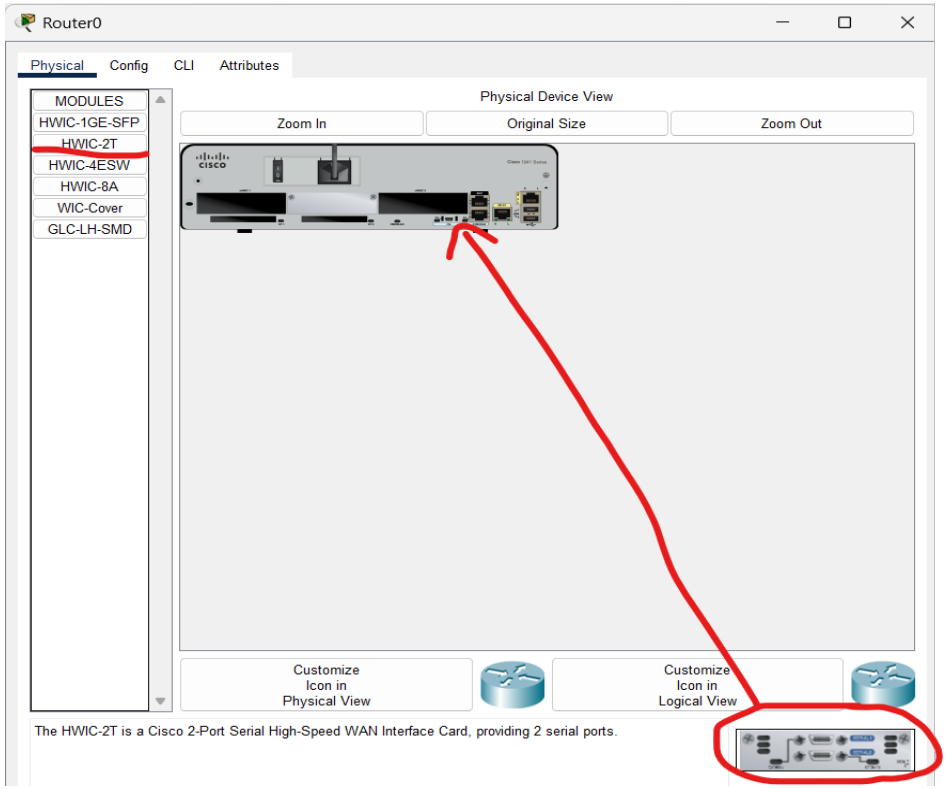
Devices and Connections

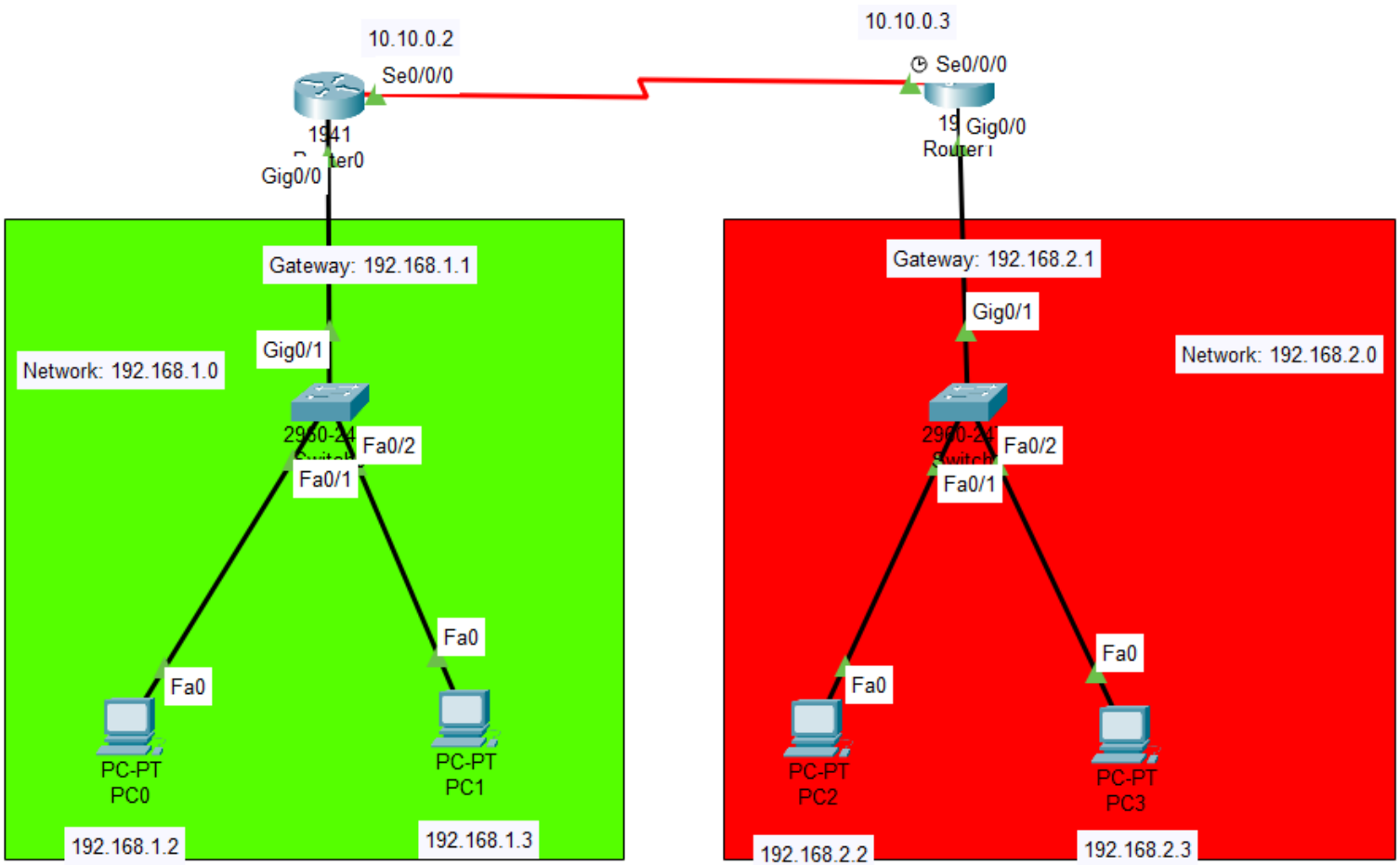
- Select two routers (Model: 1941) and place them on the workspace
- Select two switches (Model: 2960) and place them on the workspace
- Select four PCs and place them on the workspace
- Connections for left-side switch
  - Use a Copper straight-through and connect
    - FastEthernet of PC0 $\Longrightarrow$ FastEthernet0/1 of the switch
    - FastEthernet of PC1 $\Longrightarrow$ FastEthernet0/2 of the switch
    - GigabitEthernet0/1 of switch to GigabitEthernet0/0 of the left-side router
- Connections for right-side switch
  - Use a Copper straight-through and connect
    - FastEthernet of PC2 $\Longrightarrow$ FastEthernet0/1 of the switch
    - FastEthernet of PC3 $\Longrightarrow$ FastEthernet0/2 of the switch
    - GigabitEthernet0/1 of switch to GigabitEthernet0/0 of the right-side router

Router -Router Connection

Serial ports are required for connecting the routers

- Switch-OFF the Router
- Drag and Drop the HWIC-2T module on the empty rack of the router
- Switch-ON the Router
- Repeat this step for the second router
- Use Serial DTE wire to connect the serial ports of both the routers (Se0/0/0 $\leftrightarrow$ Se0/0/0)




10.10.0.2
Se0/0/0
1941
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Gateway: 192.168.1.1
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Fa0/2
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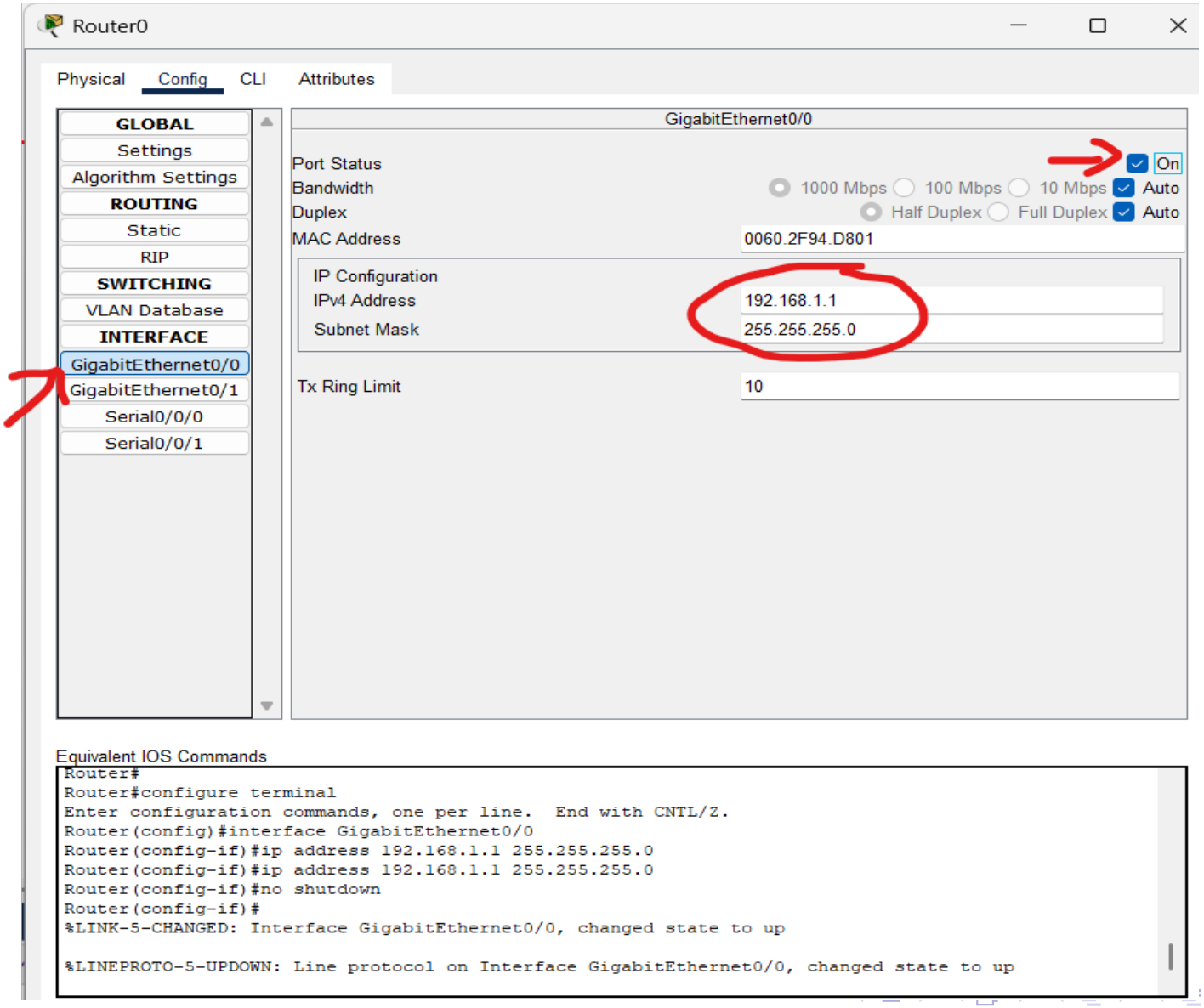
Fa0
PC-PT
PC0
PC-PT
PC1
192.168.1.2
192.168.1.3
10.10.0.3
Se0/0/0
Gig0/0
Gateway: 192.168.2.1
Gig0/1
Network: 192.168.2.0
Fa0/2
Fa0/1
Fa0
Fa0
PC-PT
PC2
PC-PT
PC3
192.168.2.2
192.168.2.3

Assign IP Address

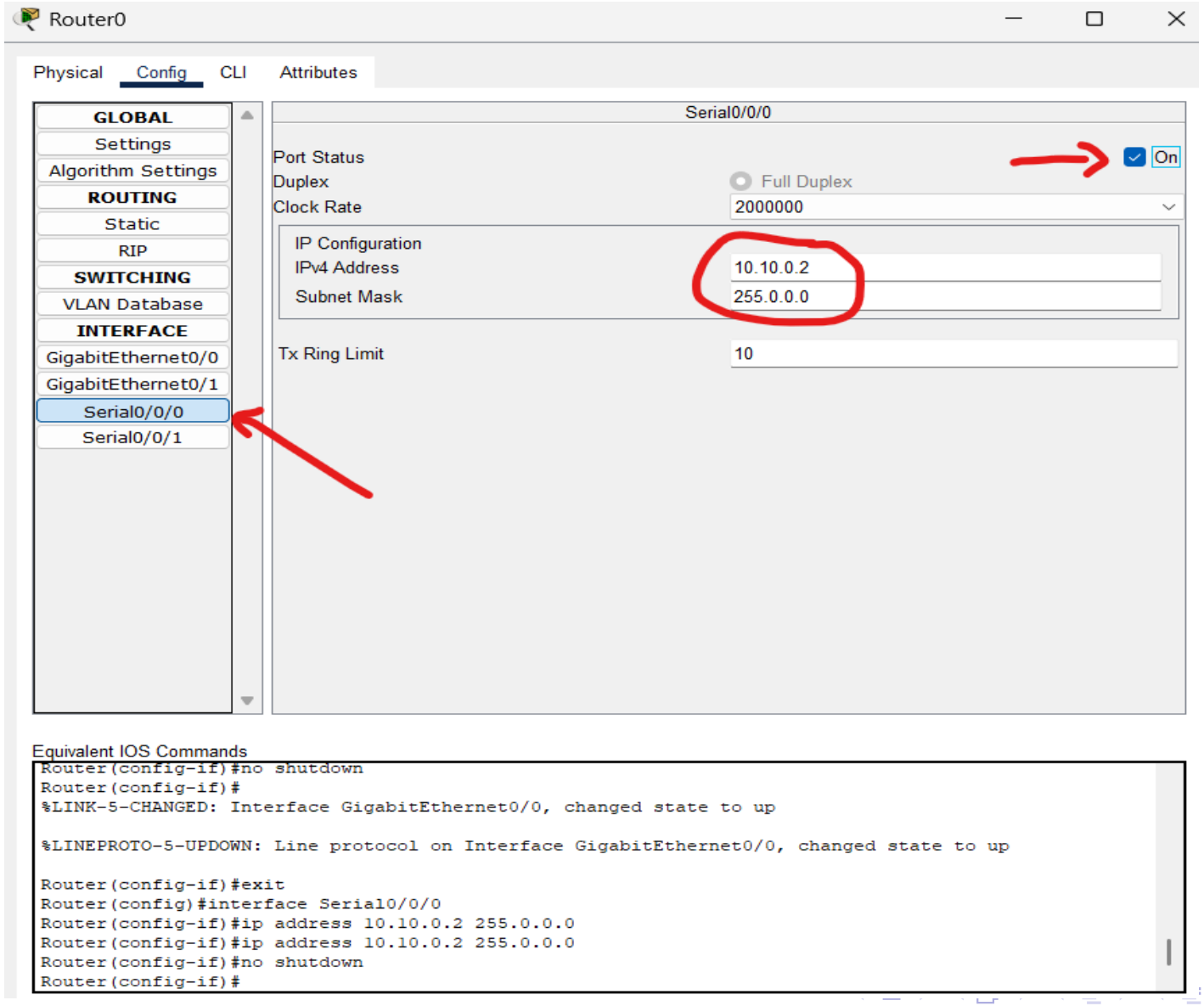
Click on PC → Desktop Tab → IP Configuration

- PC0: IPv4: 192.168.1.2; SubMask:255.255.255.0; Gateway: 192.168.1.1
- PC1: IPv4: 192.168.1.3; Sub Mask:255.255.255.0; Gateway: 192.168.1.1
- PC2: IPv4: 192.168.2.2; Sub Mask:255.255.255.0; Gateway: 192.168.2.1
- PC3: IPv4: 192.168.2.3; Sub Mask:255.255.255.0; Gateway: 192.168.2.1

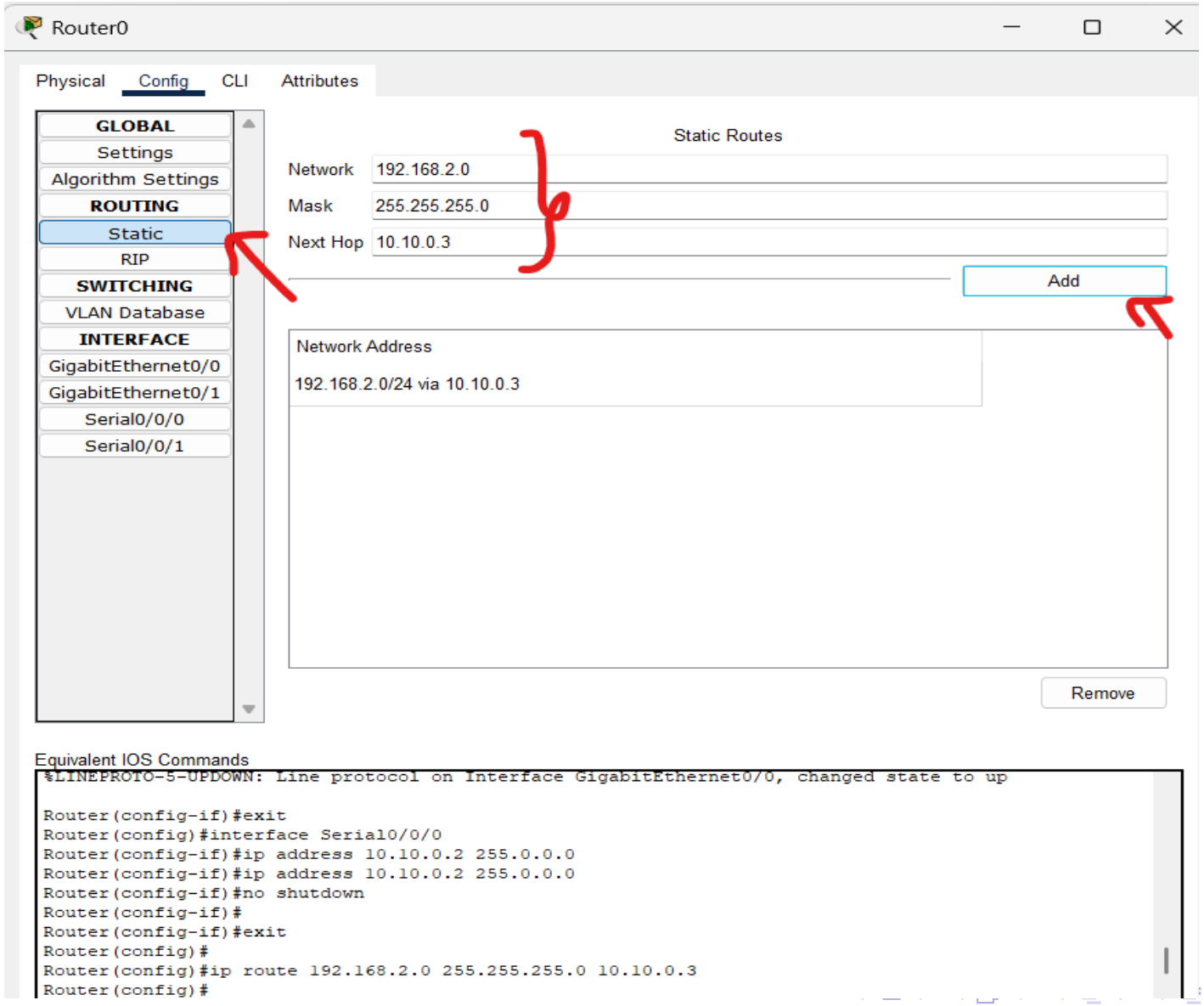
Configuring Gigabit Interface of router (Left)



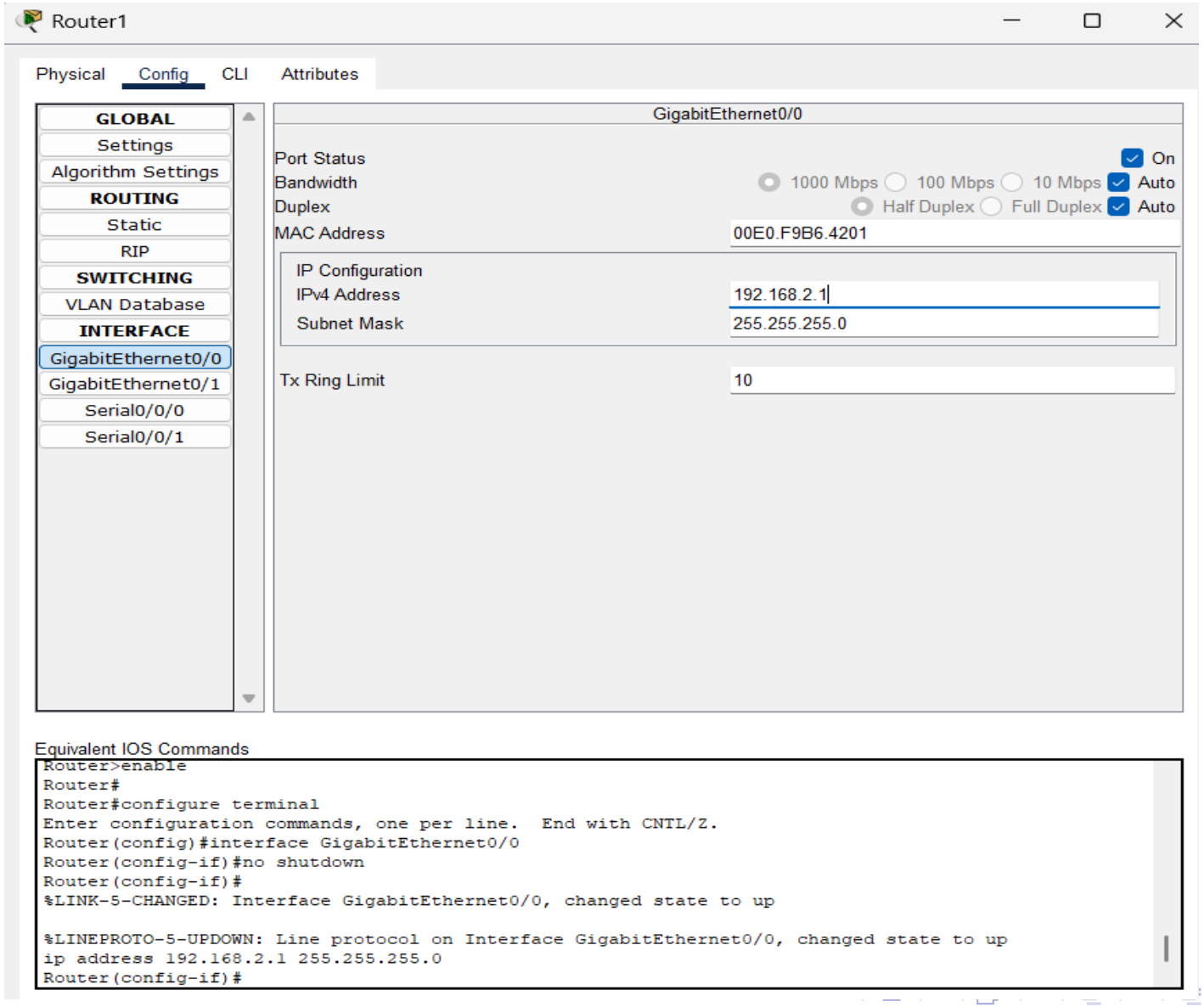
Configuring Serial Interface of router (Left)



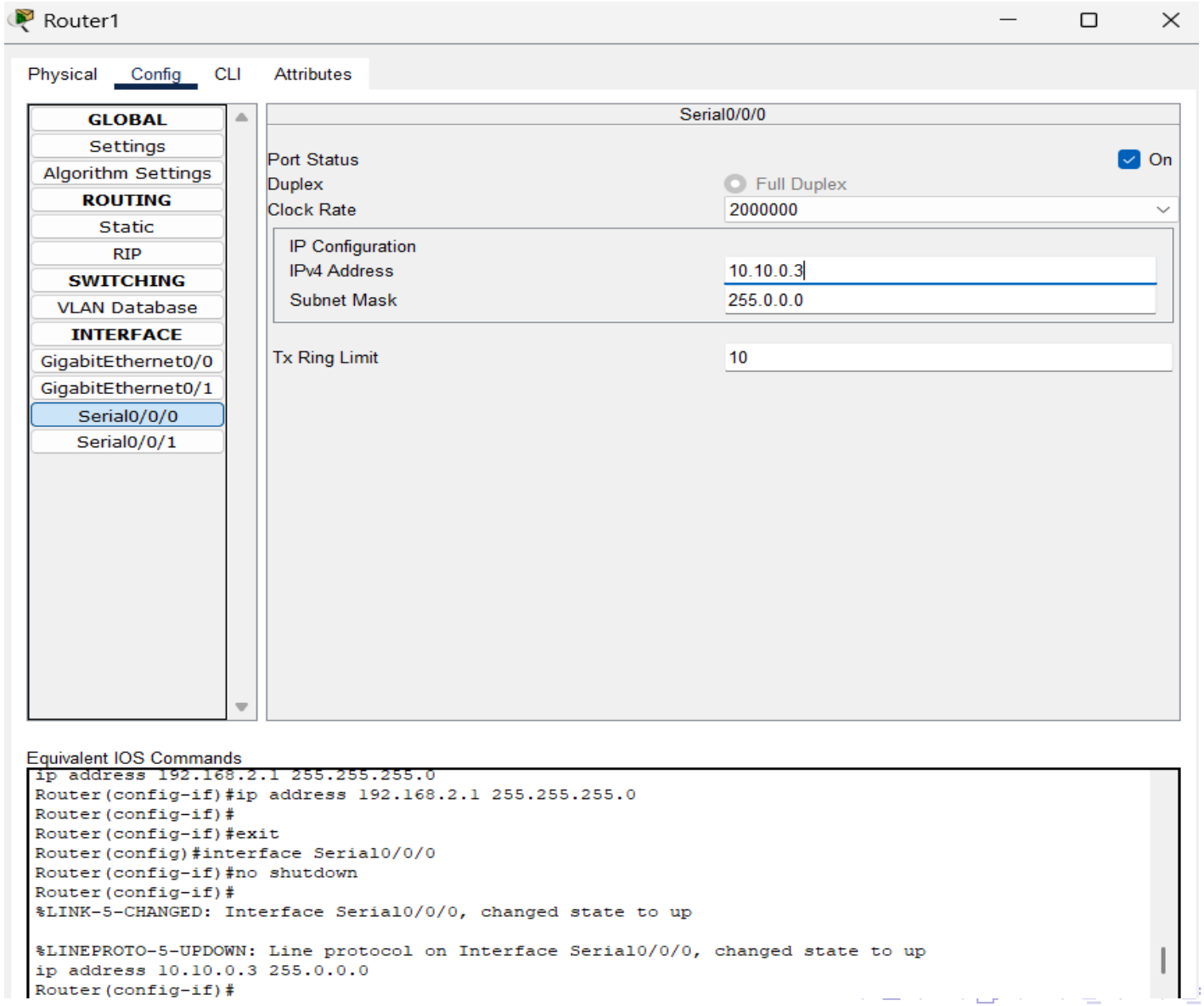
Configuring Static routing table of the router (left)



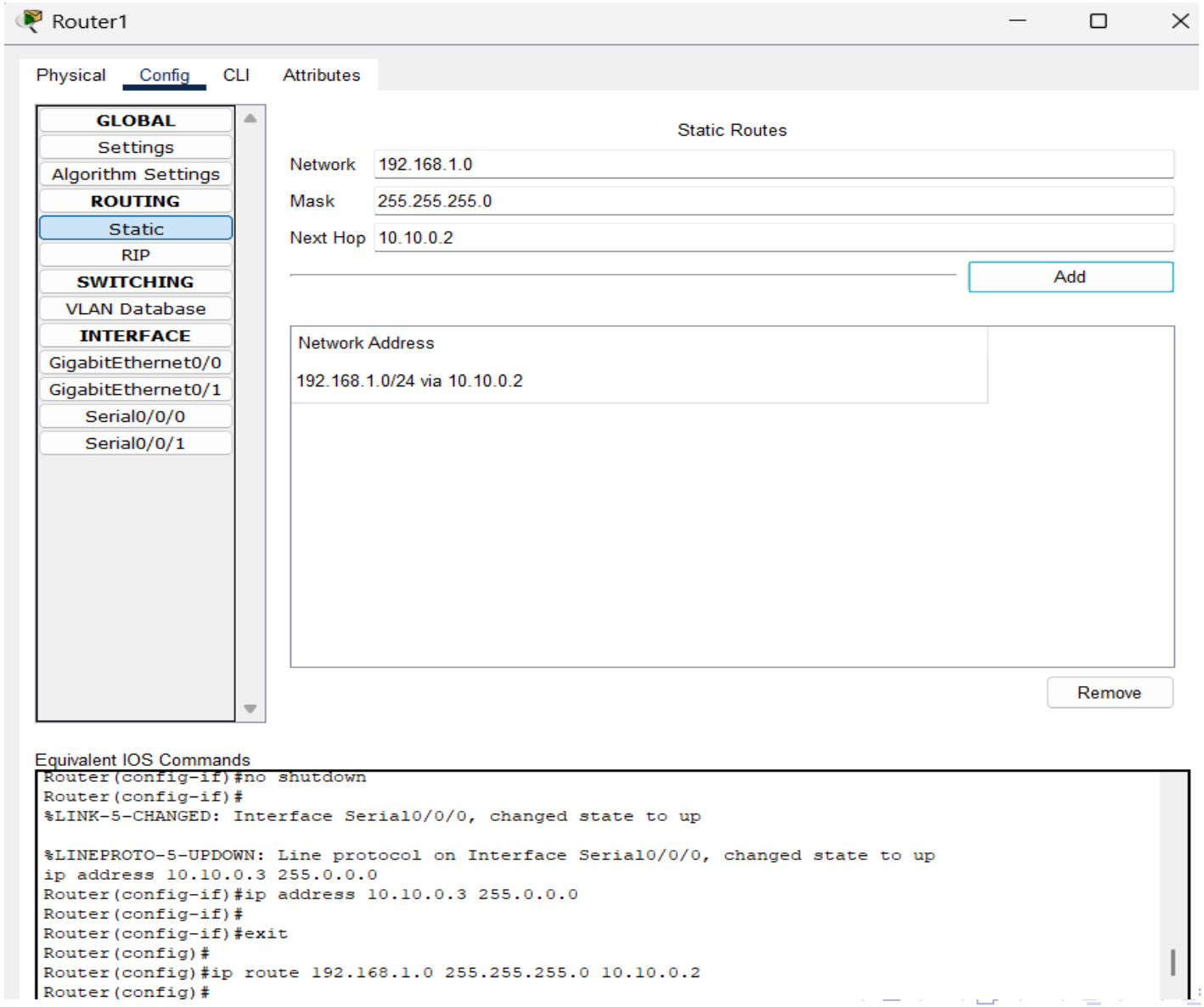
Configuring Gigabit Interface of router (Right)



Configuring Serial Interface of router (Right)



Configuring Static routing table of the router (Right)



Check Connection

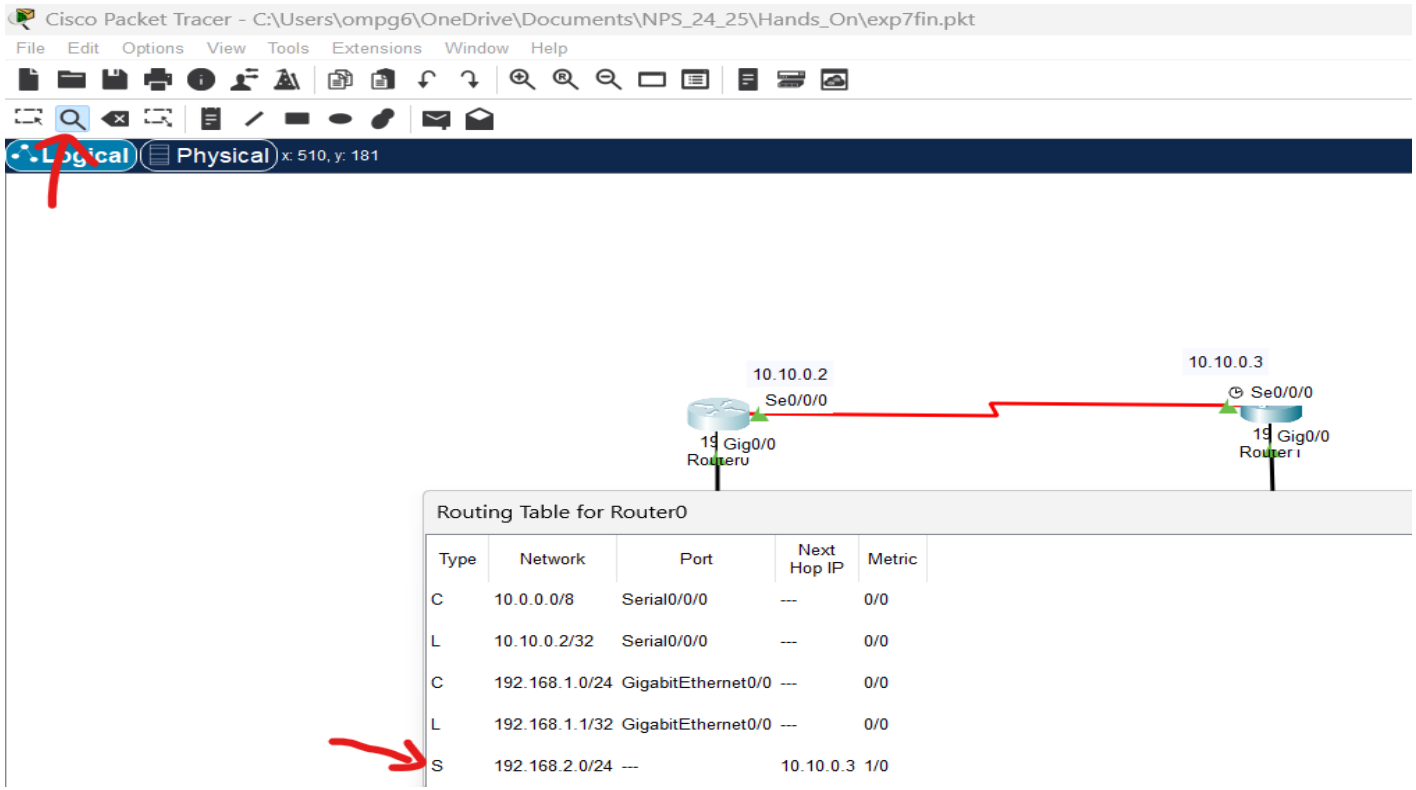
Ping the PCs to check connection. Every PC is connected to every other PC

For multiple networks:

`https://youtu.be/rZw_b0wpQ00?si=CTX54aCtjHj8iKcE`

Inspect Routing Tables

Select Inspect Icon $\Longrightarrow$ Click on the router to check routing table



Inspect ARP Tables

ARP is generally automatically handled by Cisco switches and routers.
Select Inspect Icon $\Longrightarrow$ Click on the router to check ARP table

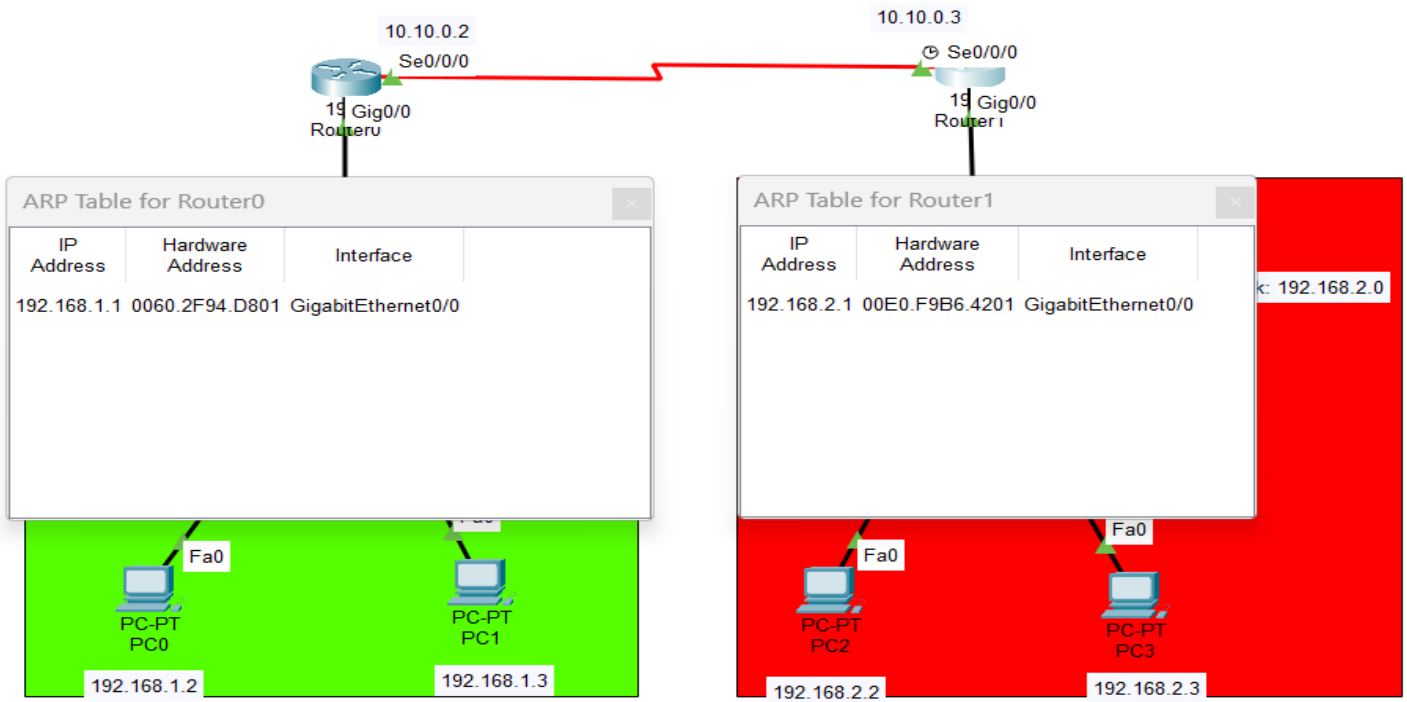


Figure: Initial Table

Inspect ARP Tables

Select Inspect Icon $\Longrightarrow$ Click on the router to check ARP table

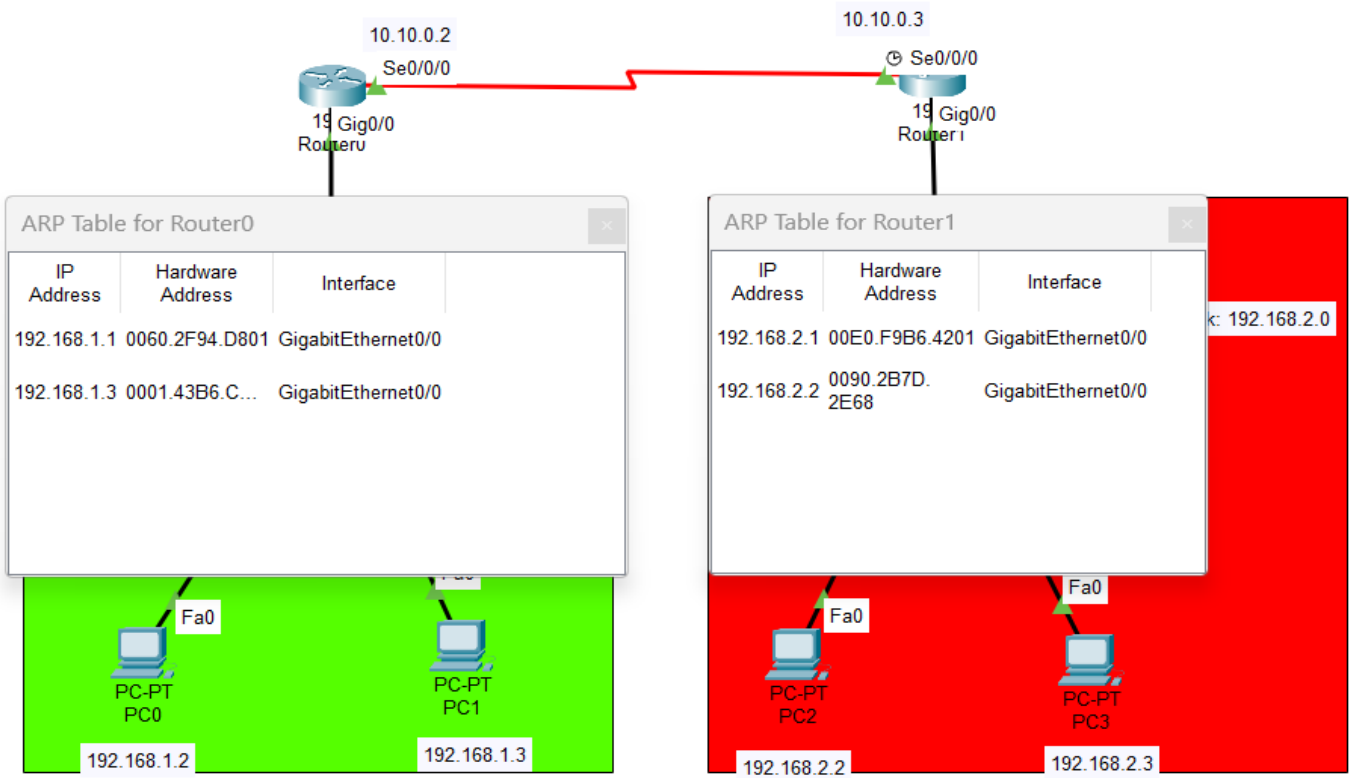


Figure: Table updated after sending message from PC1 to PC2

Inspect ARP Tables

Select Inspect Icon $\Longrightarrow$ Click on the router to check ARP table

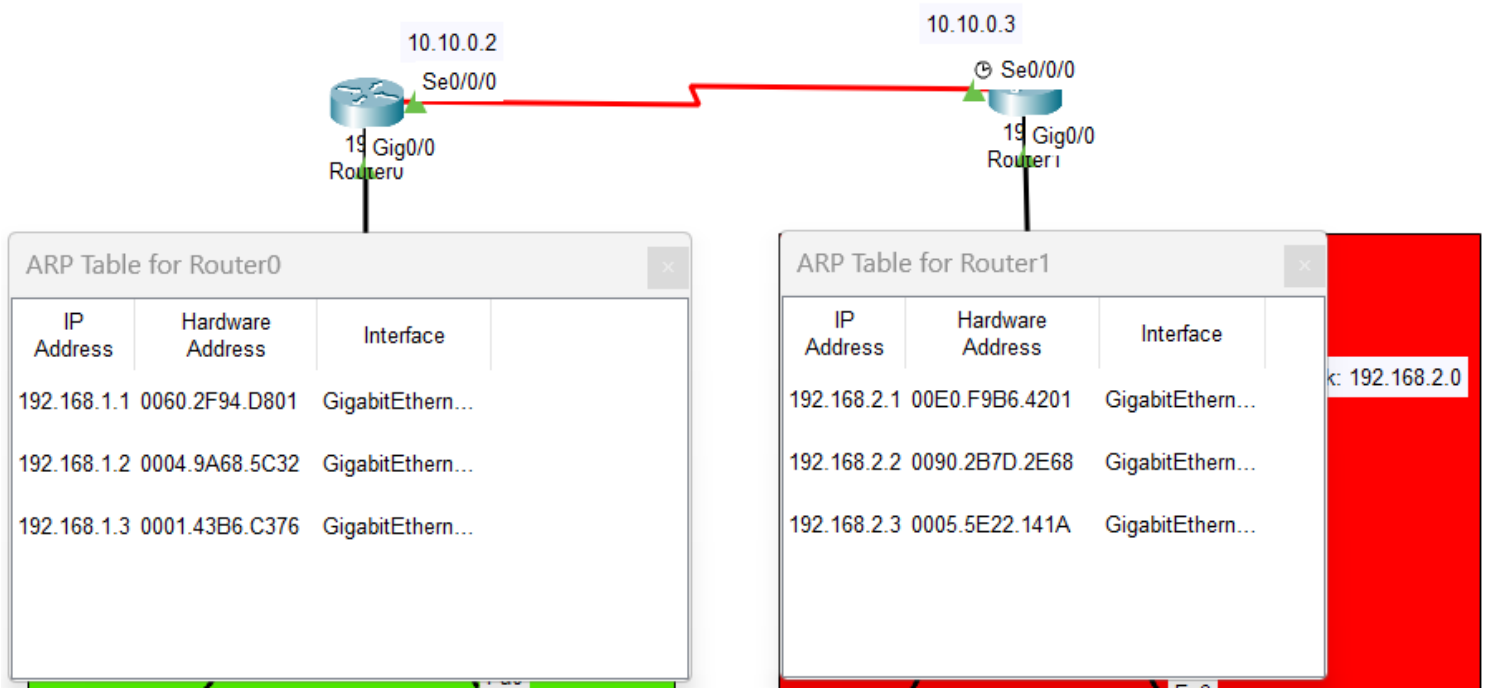


Figure: Table updated after sending message from PC0 to PC3

Conclusion

You have configured static routing for managing network traffic efficiently and ensuring proper connectivity in a multi-network environment