

DATE : 23-OCTOBER-2024

## LAB- 3

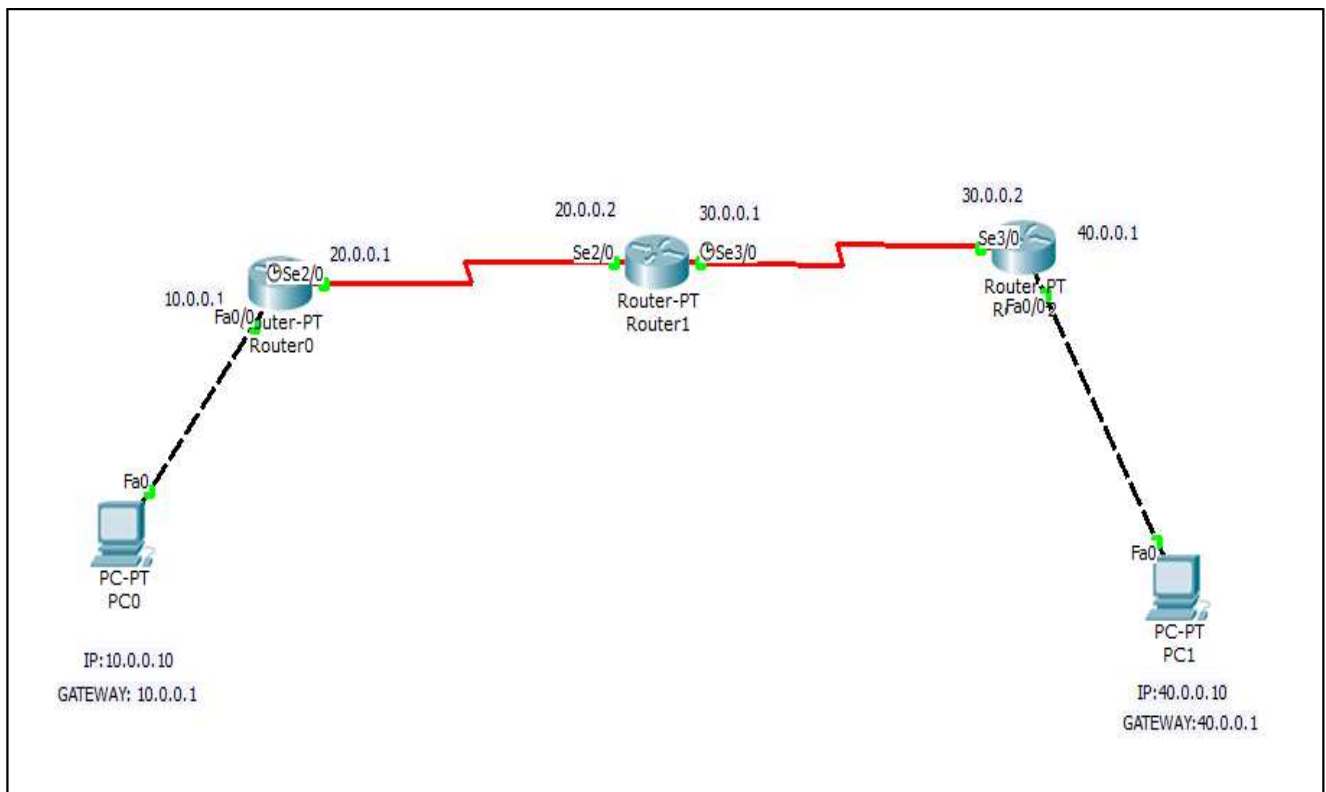
### Question:

Configure default route, static route to the Router

### Aim:

Configure static and default routing using three routers.

### Topology:



### Topology Description:

This network topology includes the following devices:

- **Two PCs:**
  - **PC0** with an IP of 10.0.0.10 and a gateway of 10.0.0.1.
  - **PC1** with an IP of 40.0.0.10 and a gateway of 40.0.0.1.
- **Three Routers:**
  - **Router0** is connected to PC0 and Router1.

- Interface **Fa0/0**: 10.0.0.1.
    - Interface **Se2/0**: 20.0.0.1.
  - **Router1** connects Router0 to Router2.
    - Interface **Se2/0**: 20.0.0.2.
    - Interface **Se3/0**: 30.0.0.1.
  - **Router2** is connected to PC1 and Router1.
    - Interface **Se3/0**: 30.0.0.2.
    - Interface **Fa0/0**: 40.0.0.1.
- **Configuring Router Interfaces:**
    - **Router0:**
      - Fa0/0: `ip address 10.0.0.1 255.255.255.0`
      - Se2/0: `ip address 20.0.0.1 255.255.255.252`
      - Set the clock rate and bring up the interfaces.
    - **Router1:**
      - Se2/0: `ip address 20.0.0.2 255.255.255.252`
      - Se3/0: `ip address 30.0.0.1 255.255.255.252`
      - Set the clock rate and bring up the interfaces.
    - **Router2:**
      - Se3/0: `ip address 30.0.0.2 255.255.255.252`
      - Fa0/0: `ip address 40.0.0.1 255.255.255.0`
      - Set the clock rate and bring up the interfaces.

- **Configuring Routing:**

On **Router0**:

Copy code

```
ip route 40.0.0.0 255.255.255.0 20.0.0.2
```

On **Router1**:

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```
ip route 10.0.0.0 255.255.255.0 20.0.0.1
```

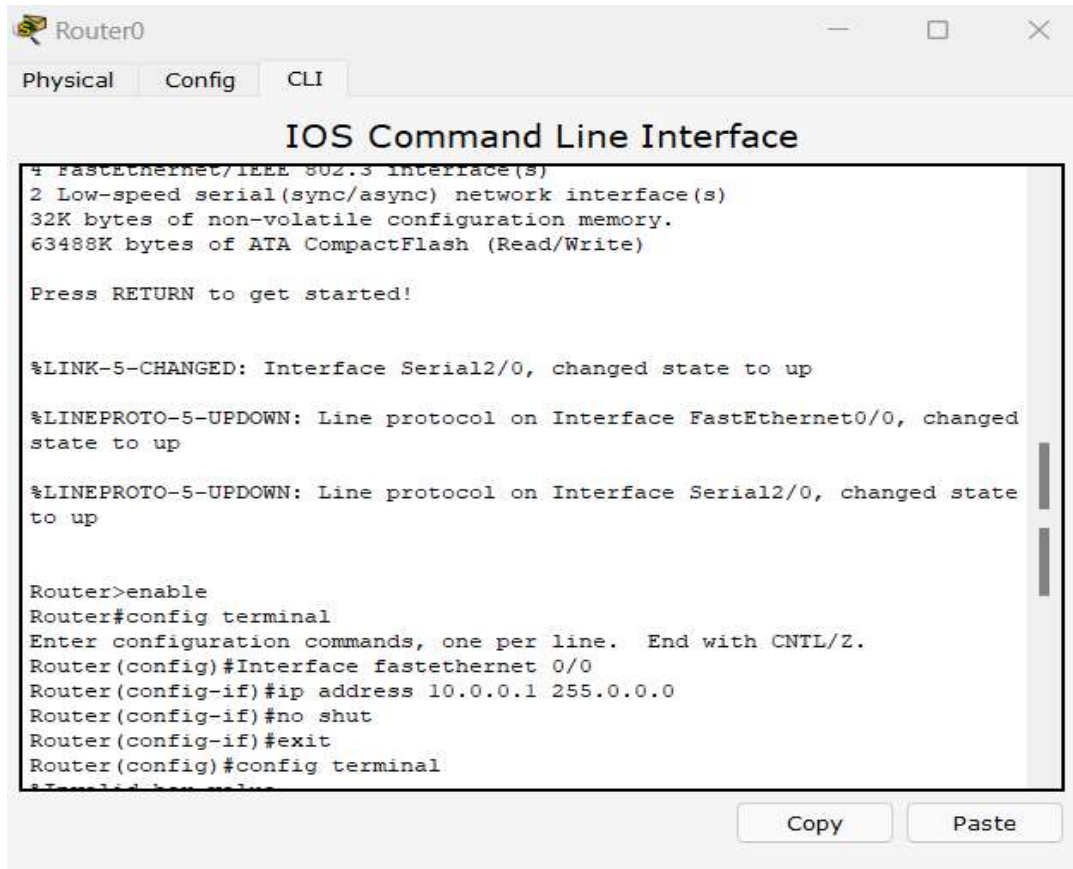
```
ip route 40.0.0.0 255.255.255.0 30.0.0.2
```

○

On **Router2**:

Copy code

```
ip route 10.0.0.0 255.255.255.0 30.0.0.1
```



The screenshot shows the Router0 CLI interface with tabs for Physical, Config, and CLI. The CLI tab is active, displaying the IOS Command Line Interface. The text in the terminal window is as follows:

```

1 FastEthernet/IEEE 802.3 interface(s)
2 Low-speed serial(sync/async) network interface(s)
32K bytes of non-volatile configuration memory.
63488K bytes of ATA CompactFlash (Read/Write)

Press RETURN to get started!

%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed
state to up

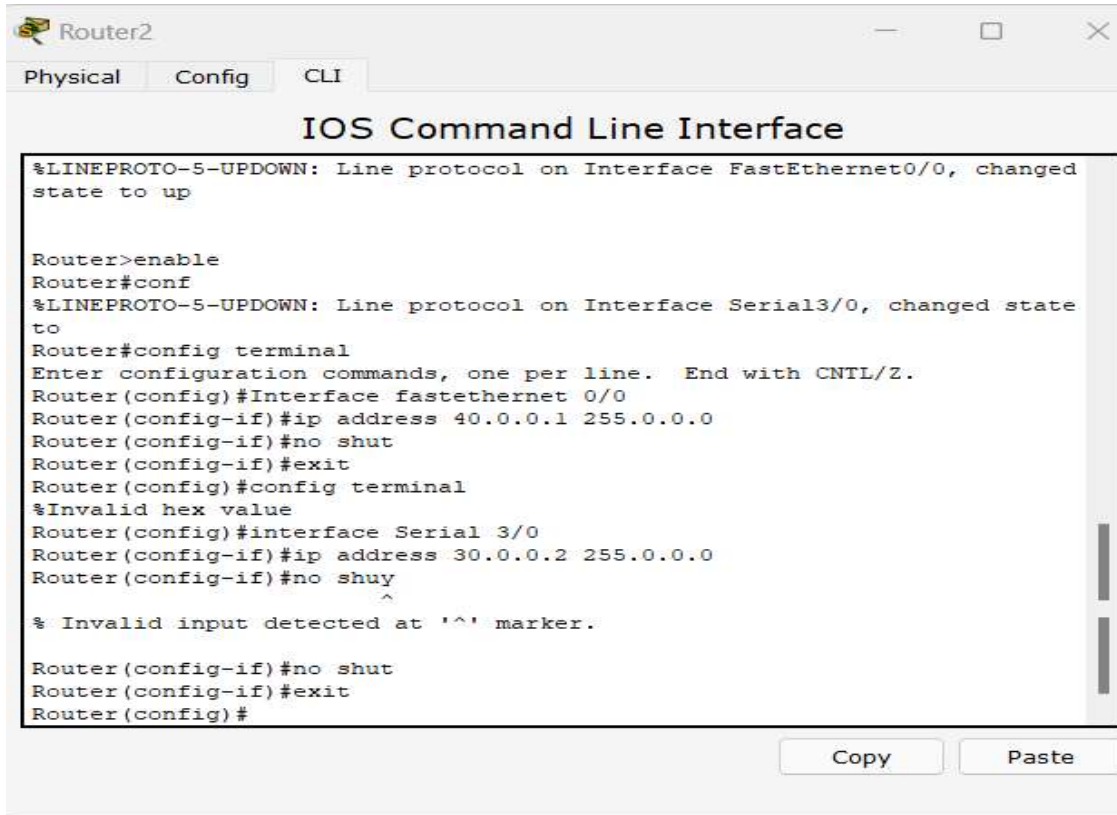
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state
to up

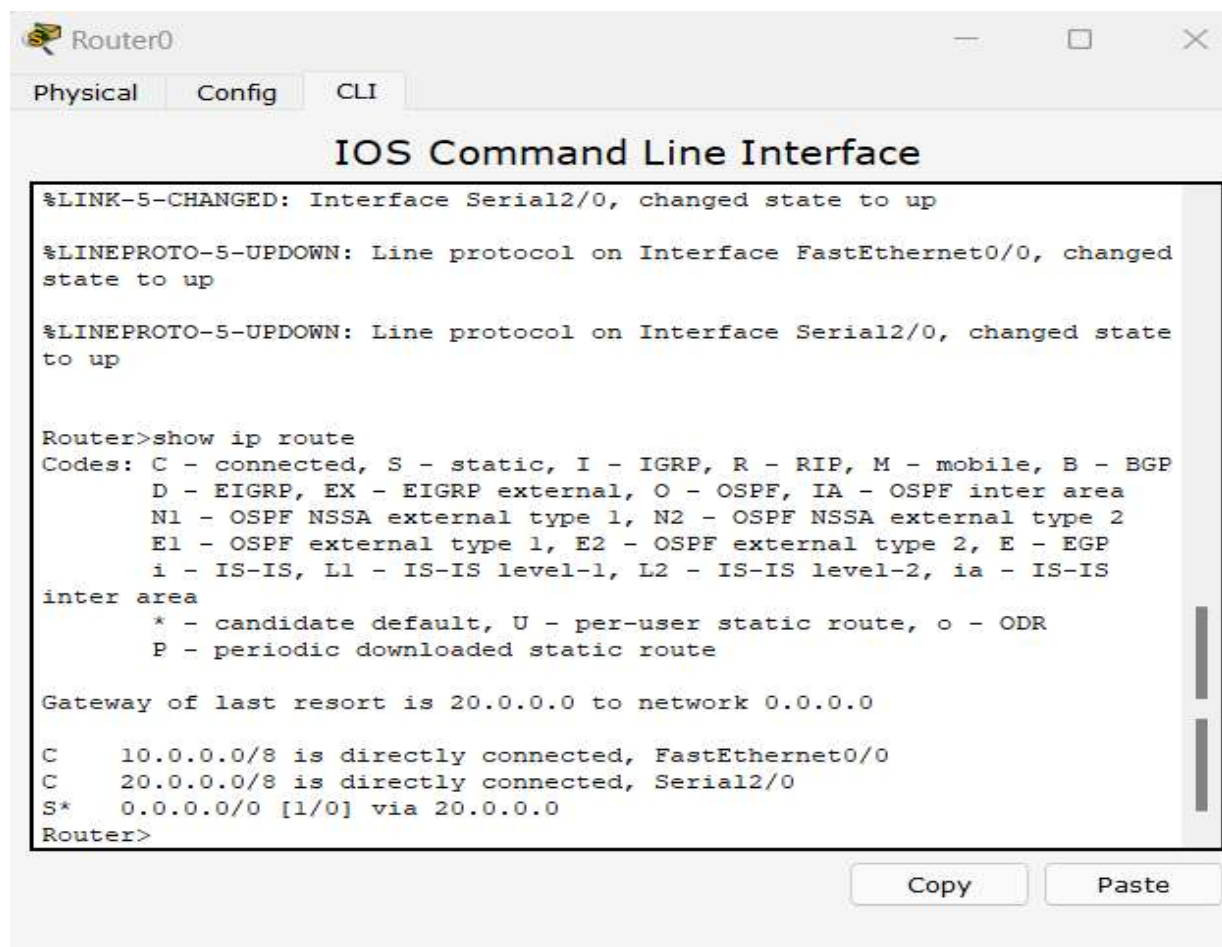
Router>enable
Router#config terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#Interface fastethernet 0/0
Router(config-if)#ip address 10.0.0.1 255.0.0.0
Router(config-if)#no shut
Router(config-if)#exit
Router(config)#config terminal
Router(config)#
  
```

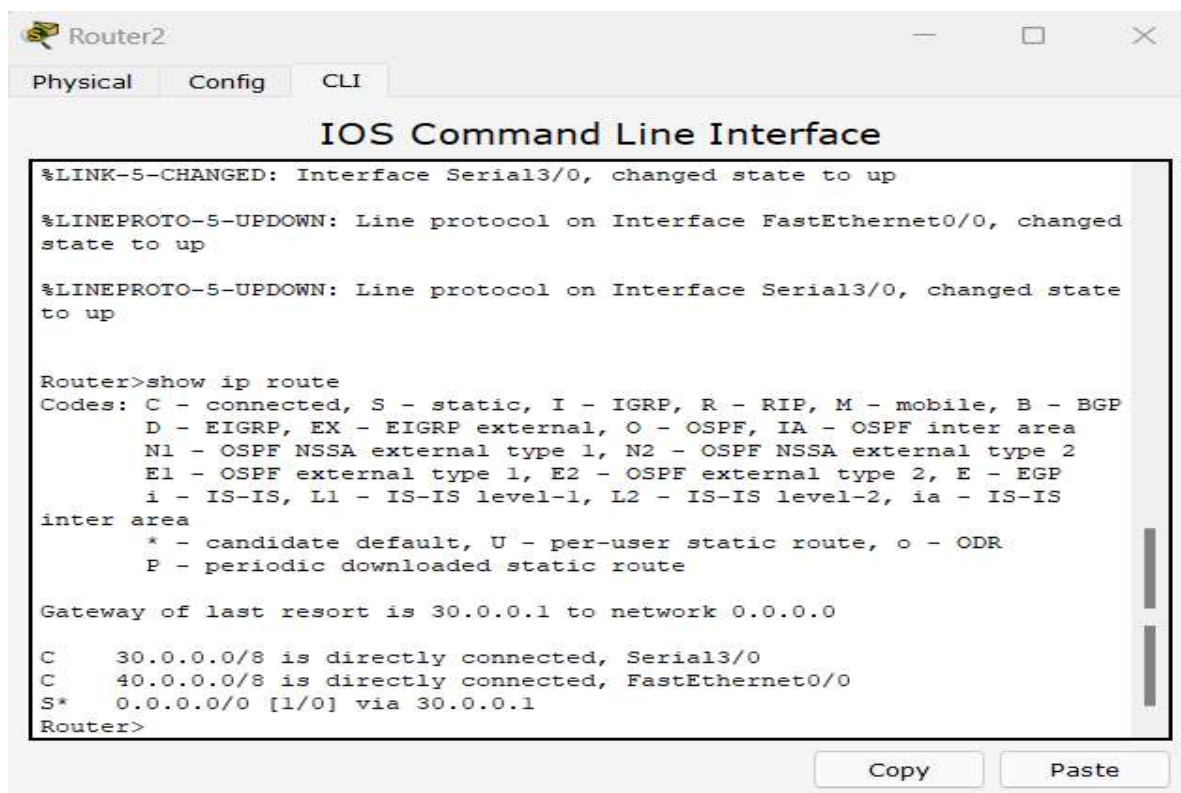
At the bottom of the window, there are 'Copy' and 'Paste' buttons.

```

Router(config)#Interface Serial2/0
Router(config-if)#ip address 20.0.0.1 255.0.0.0
Router(config-if)#no shut
Router(config-if)#exit
Router(config)#
  
```



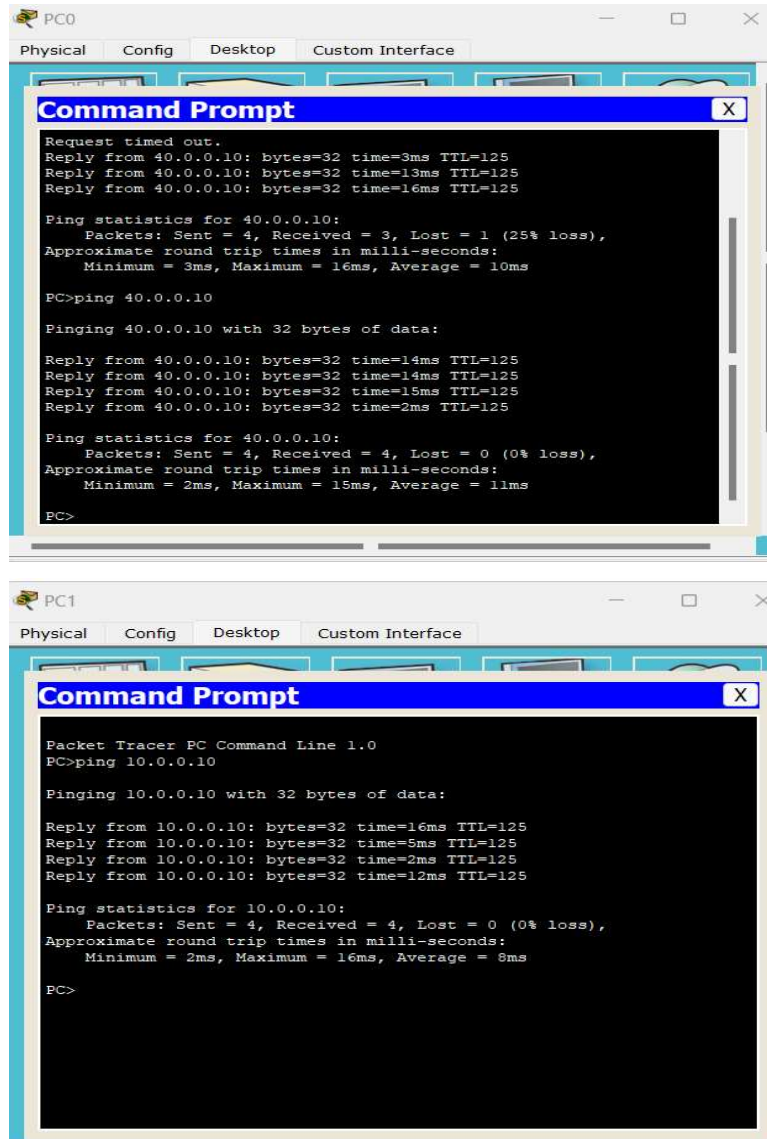






- **Testing Connectivity:**

- After configuring routing and interfaces, **ping** from PC0 to PC1 and vice versa to test connectivity across the network.



**Observation:**

After configuring IP addresses, interfaces, and static routes on the routers, you should be able to successfully ping between the two PCs across the routers.

Any failed ping may indicate an issue with routing tables, incorrect IP configurations, or inactive interfaces.