

Computer Networks

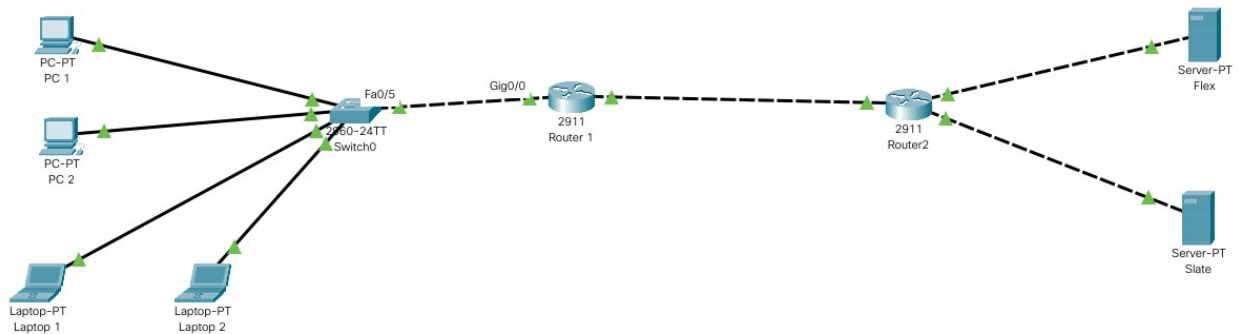
Lab 12

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Task:

Topology:

The network is like this.



Steps:

First assign IP to all the PC and laptops and also assign Default gateway.

The screenshot shows the configuration window for PC 1, specifically the 'Desktop' tab. The 'IP Configuration' section is active, showing the following settings:

- Interface: FastEthernet0
- IP Configuration:
 - ☐ DHCP
 - ☒ Static
 - IPv4 Address: 10.0.0.10
 - Subnet Mask: 255.0.0.0
 - Default Gateway: 10.0.0.1
 - DNS Server: 0.0.0.0
- IPv6 Configuration:
 - ☐ Automatic
 - ☒ Static
 - IPv6 Address: [Empty field] / [Empty field]
 - Link Local Address: FE80::201:96FF:FE73:C5A3
 - Default Gateway: [Empty field]
 - DNS Server: [Empty field]
- 802.1X:
 - ☐ Use 802.1X Security
- ☐ Top

PC 2

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 10.0.0.20

Subnet Mask 255.0.0.0

Default Gateway 10.0.0.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::201:C9FF:FE15:3910

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Top

Laptop 1

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 10.0.0.30

Subnet Mask 255.0.0.0

Default Gateway 10.0.0.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::2D0:BCFF:FE2E:3388

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Top

Laptop 2

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 10.0.0.40

Subnet Mask 255.0.0.0

Default Gateway 10.0.0.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::290:21FF:FE29:5793

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

☐ Top

Now do configuration of servers.

Flex

Physical Config Services **Desktop** Programming Attributes

IP Configuration X

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.1.10

Subnet Mask 255.255.255.0

Default Gateway 192.168.1.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::203:E4FF:FEDA:1911

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

☐ Top

The 'Slate' window displays the 'Desktop' tab for configuration. It features three main sections: IP Configuration, IPv6 Configuration, and 802.1X.

IP Configuration:

- ☐ DHCP
- ☒ Static
 - IPv4 Address: 192.168.1.20
 - Subnet Mask: 255.255.255.0
 - Default Gateway: 192.168.2.2
 - DNS Server: 0.0.0.0

IPv6 Configuration:

- ☐ Automatic
- ☒ Static
 - IPv6 Address: [empty] / [empty]
 - Link Local Address: FE80::260:70FF:FEEB:8E01
 - Default Gateway: [empty]
 - DNS Server: [empty]

802.1X:

- ☐ Use 802.1X Security
- Authentication: MD5

Now, do configuration of router connections by assigning IPs.

The 'Router 1' window shows the 'CLI' (Command Line Interface) tab. It displays the following sequence of commands and their outputs:

```

Press RETURN to get started!

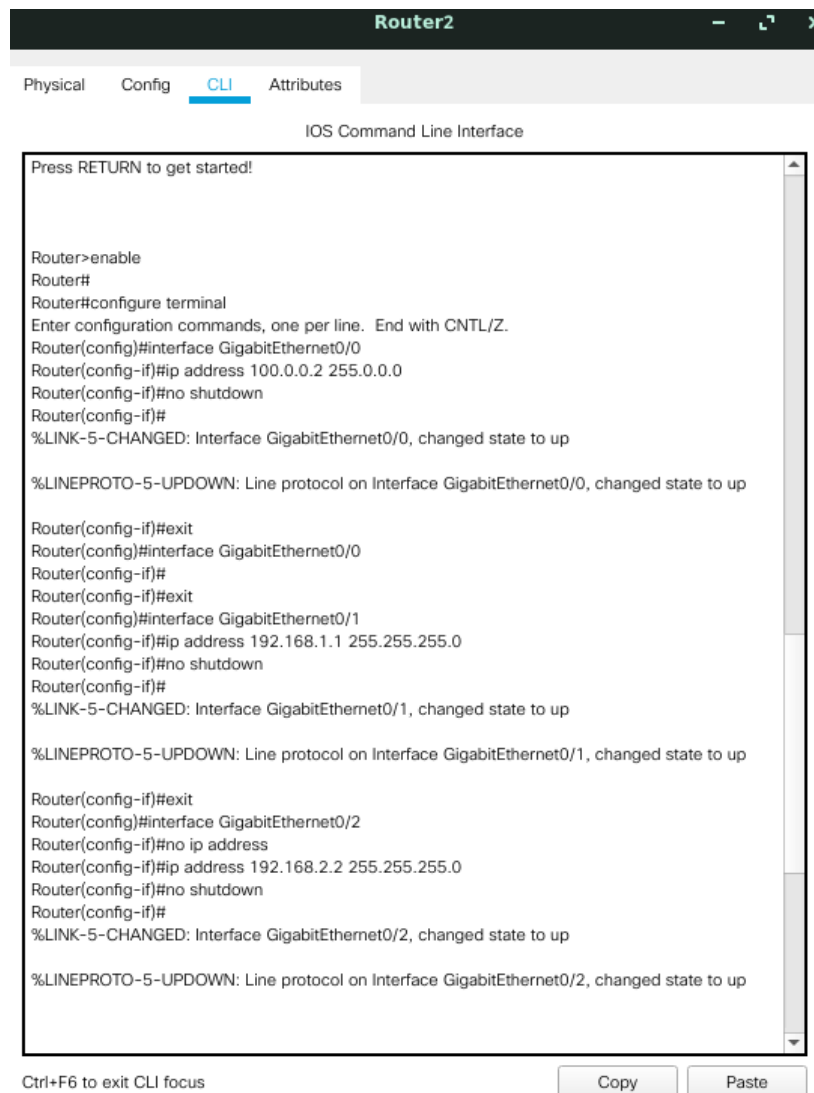
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/0
Router(config-if)#ip address 10.0.0.1 255.0.0.0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up

Router(config-if)#exit
Router(config)#interface GigabitEthernet0/1
Router(config-if)#ip address 100.0.0.1 255.0.0.0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up
  
```

At the bottom, there is a status bar with 'Ctrl+F6 to exit CLI focus' and buttons for 'Copy' and 'Paste'.



The screenshot shows the 'Router2' window with the 'CLI' tab selected. The 'IOS Command Line Interface' section contains the following text:

```
Press RETURN to get started!

Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/0
Router(config-if)#ip address 100.0.0.2 255.0.0.0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up

Router(config-if)#exit
Router(config)#interface GigabitEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface GigabitEthernet0/1
Router(config-if)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up

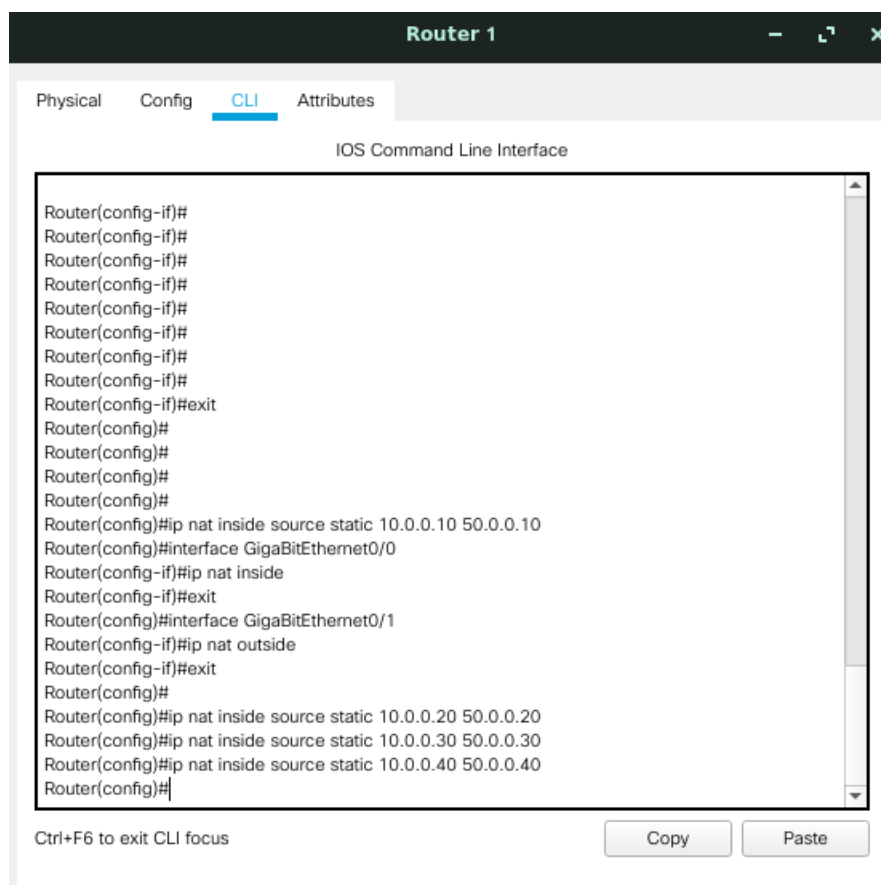
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up

Router(config-if)#exit
Router(config)#interface GigabitEthernet0/2
Router(config-if)#no ip address
Router(config-if)#ip address 192.168.2.2 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/2, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/2, changed state to up
```

Below the CLI window, there is a text label 'Ctrl+F6 to exit CLI focus' and two buttons: 'Copy' and 'Paste'.

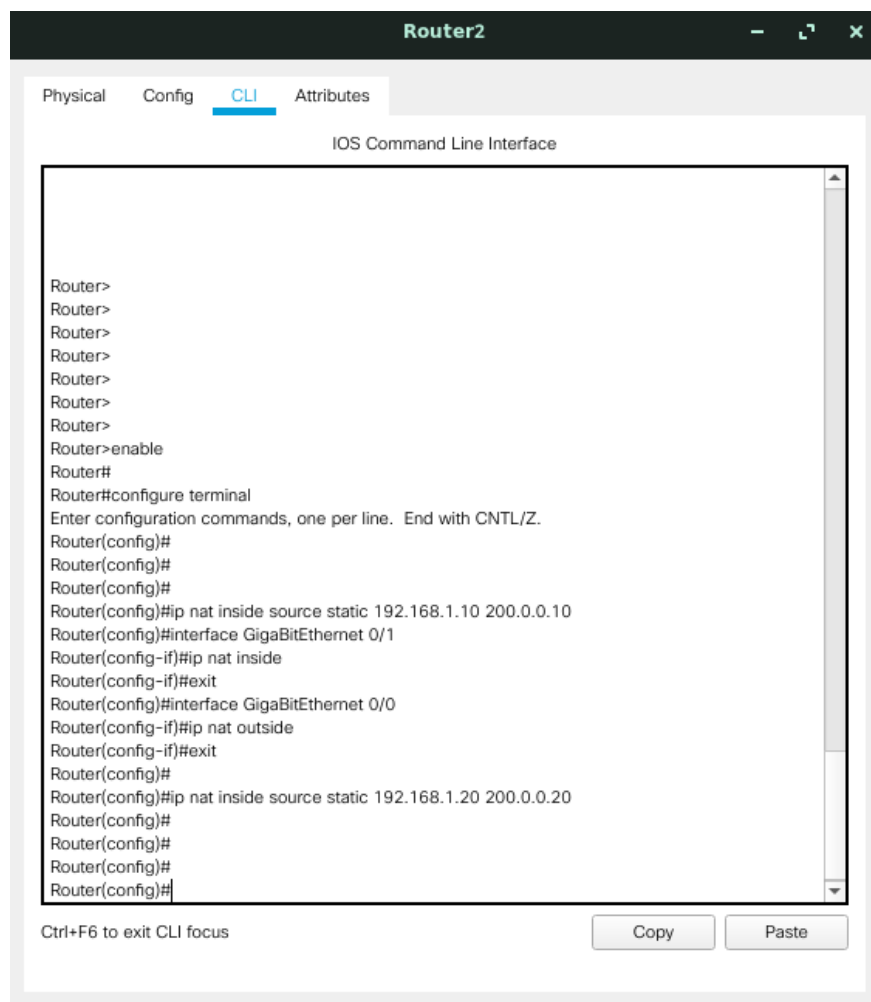
Now setup the NET addresses of all PCs.



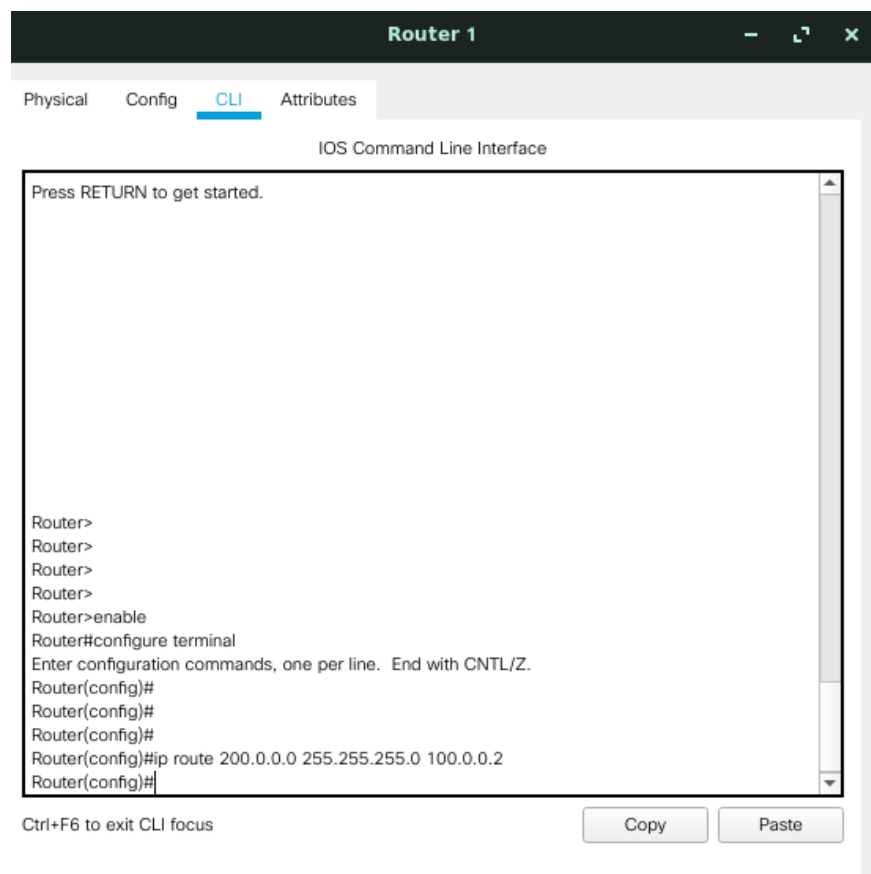
The screenshot shows the 'Router 1' window with the 'CLI' tab selected. The 'IOS Command Line Interface' section contains the following text:

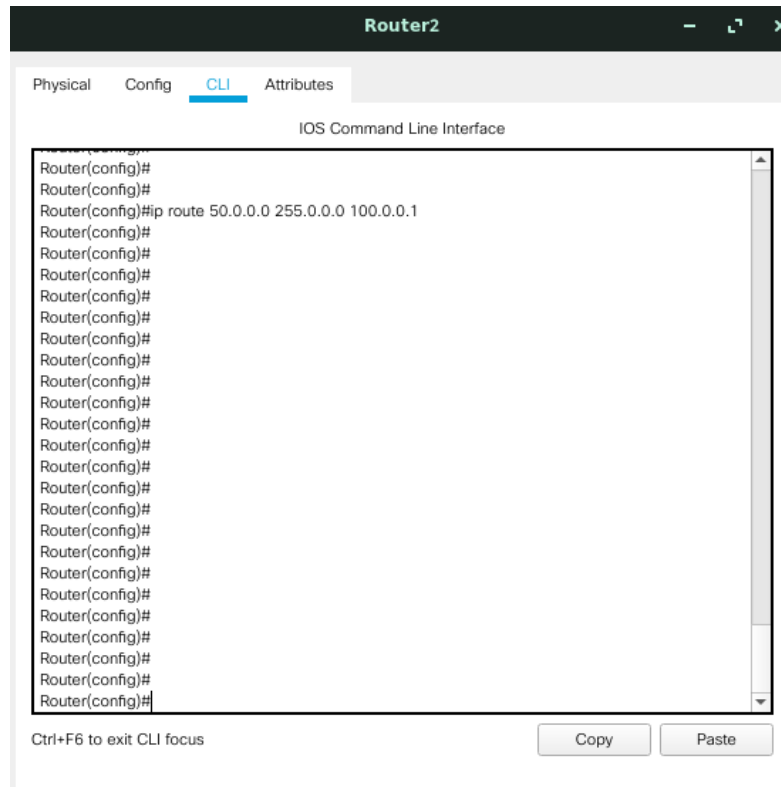
```
Router(config-if)#
Router(config-if)#
Router(config-if)#
Router(config-if)#
Router(config-if)#
Router(config-if)#
Router(config-if)#
Router(config-if)#
Router(config-if)#exit
Router(config)#
Router(config)#
Router(config)#
Router(config)#
Router(config)#ip nat inside source static 10.0.0.10 50.0.0.10
Router(config)#interface GigaBitEthernet0/0
Router(config-if)#ip nat inside
Router(config-if)#exit
Router(config)#interface GigaBitEthernet0/1
Router(config-if)#ip nat outside
Router(config-if)#exit
Router(config)#
Router(config)#ip nat inside source static 10.0.0.20 50.0.0.20
Router(config)#ip nat inside source static 10.0.0.30 50.0.0.30
Router(config)#ip nat inside source static 10.0.0.40 50.0.0.40
Router(config)#
```

Below the CLI window, there is a text label 'Ctrl+F6 to exit CLI focus' and two buttons: 'Copy' and 'Paste'.

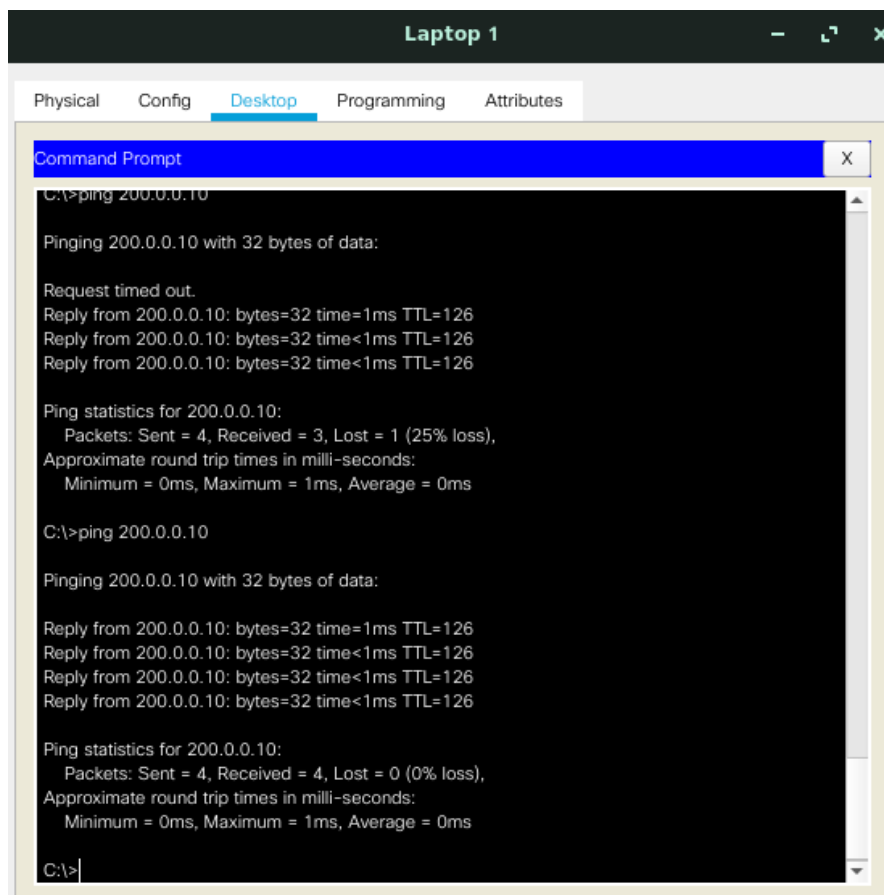


Now do configuration of route of routers.





Now you can verify your NAT connection by pinging through PC or laptops.



And can also verify by URL through browser.

