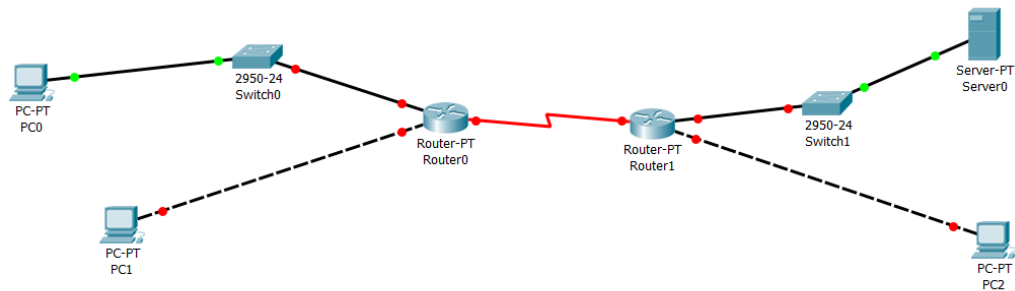


PRACTICAL NO:04

Step 1: Putting together all the devices and connecting them through cables.



Step 2: Configuring IP addresses of End Devices.

PC0

Physical Config Desktop Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.1.1

Subnet Mask 255.255.255.0

Default Gateway 192.168.1.10

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::2014:2FF:FE92:ABD0

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Top

PC2

Physical Config Desktop Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.3.1

Subnet Mask 255.255.255.0

Default Gateway 192.168.3.10

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::20C:CFFF:FE5D:C027

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Top

PC1

Physical Config Desktop Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.2.1

Subnet Mask 255.255.255.0

Default Gateway 192.168.2.10

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::2E0:F9FF:FED1:415E

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Top

Server0

Physical Config Services Desktop Programming Attributes

IP Configuration

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.4.1

Subnet Mask 255.255.255.0

Default Gateway 192.168.4.10

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::203:E4FF:FE88:2DE2

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication MD5

Top

Step3: Configuring IP addresses on Routers / Gateways and switching them on.

Router0

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

FastEthernet0/0

Port Status ☒ On

Bandwidth ☐ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0030.F22E.B24B

IP Configuration

IPv4 Address 192.168.3.10

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Equivalent IOS Commands

```
Router(config)#interface FastEthernet0/0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0,
changed state to up
```

☐ Top

Router0

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

FastEthernet1/0

Port Status ☒ On

Bandwidth ☐ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0002.160B.7E24

IP Configuration

IPv4 Address 192.168.1.10

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Equivalent IOS Commands

```
Router(config)#interface FastEthernet1/0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0,
changed state to up
```

☐ Top

Router1

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

FastEthernet0/0

Port Status ☒ On

Bandwidth ☐ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0000.0C12.9905

IP Configuration

IPv4 Address 192.168.4.10

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Equivalent IOS Commands

```
changed state to up
Router(config-if)#exit
Router(config)#interface FastEthernet1/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#
```

☐ Top

Router1

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

FastEthernet1/0

Port Status ☒ On

Bandwidth ☐ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0030.A39E.C17E

IP Configuration

IPv4 Address 192.168.2.10

Subnet Mask 255.255.255.0

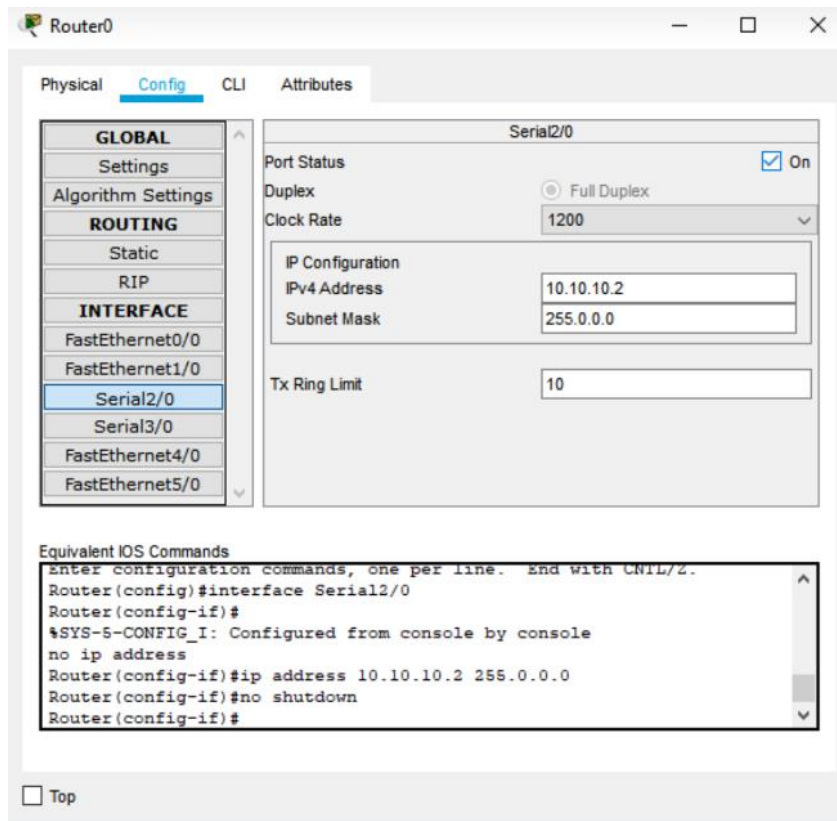
Tx Ring Limit 10

Equivalent IOS Commands

```
Router(config-if)#ip address 192.168.2.10 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0,
changed state to up
```

☐ Top

Step 4: Configuring IP addresses for Router-to-Router Serial Communication and switching it on.



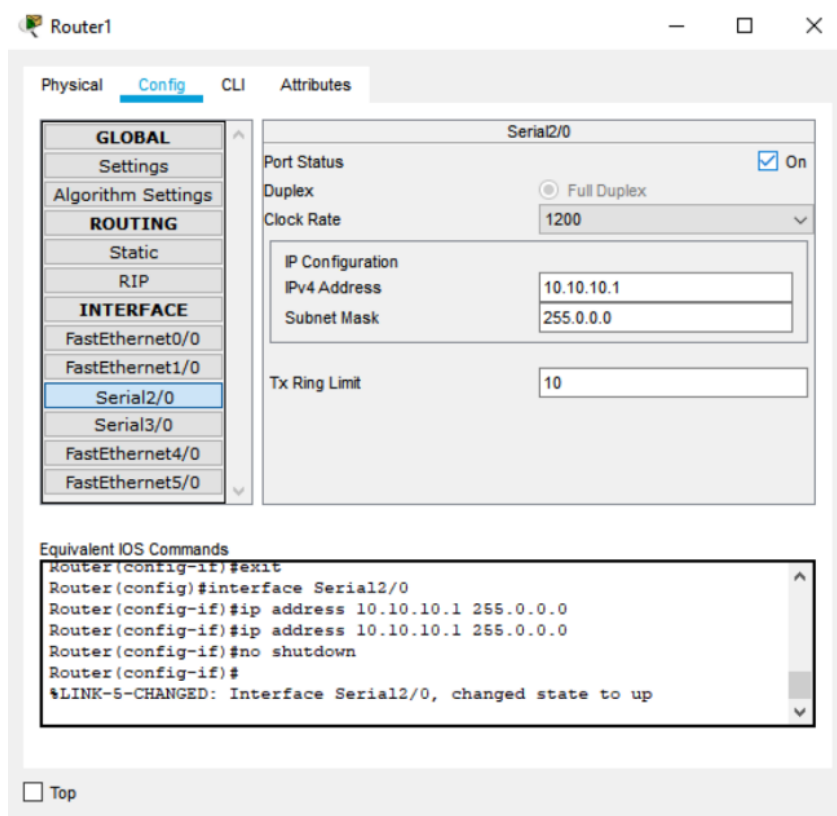
The screenshot shows the configuration window for Router0. The 'Config' tab is active, and the 'Serial2/0' interface is selected in the left sidebar. The main configuration area shows the following settings:

- Port Status: ☒ On
- Duplex: ☐ Full Duplex
- Clock Rate: 1200
- IP Configuration:
 - IPv4 Address: 10.10.10.2
 - Subnet Mask: 255.0.0.0
- Tx Ring Limit: 10

Below the configuration area, the 'Equivalent IOS Commands' section displays the following commands:

```
Enter configuration commands, one per line. End with CNTRL-Z.  
Router(config)#interface Serial2/0  
Router(config-if)#  
%SYS-5-CONFIG_I: Configured from console by console  
no ip address  
Router(config-if)#ip address 10.10.10.2 255.0.0.0  
Router(config-if)#no shutdown  
Router(config-if)#
```

A 'Top' button is located at the bottom left of the window.



The screenshot shows the configuration window for Router1. The 'Config' tab is active, and the 'Serial2/0' interface is selected in the left sidebar. The main configuration area shows the following settings:

- Port Status: ☒ On
- Duplex: ☐ Full Duplex
- Clock Rate: 1200
- IP Configuration:
 - IPv4 Address: 10.10.10.1
 - Subnet Mask: 255.0.0.0
- Tx Ring Limit: 10

Below the configuration area, the 'Equivalent IOS Commands' section displays the following commands:

```
Router(config-if)#exit  
Router(config)#interface Serial2/0  
Router(config-if)#ip address 10.10.10.1 255.0.0.0  
Router(config-if)#ip address 10.10.10.1 255.0.0.0  
Router(config-if)#no shutdown  
Router(config-if)#  
%LINK-5-CHANGED: Interface Serial2/0, changed state to up
```

A 'Top' button is located at the bottom left of the window.

Step 5: Configuring RIP Routing Protocol for Communication between all the devices across the Two Gateways.

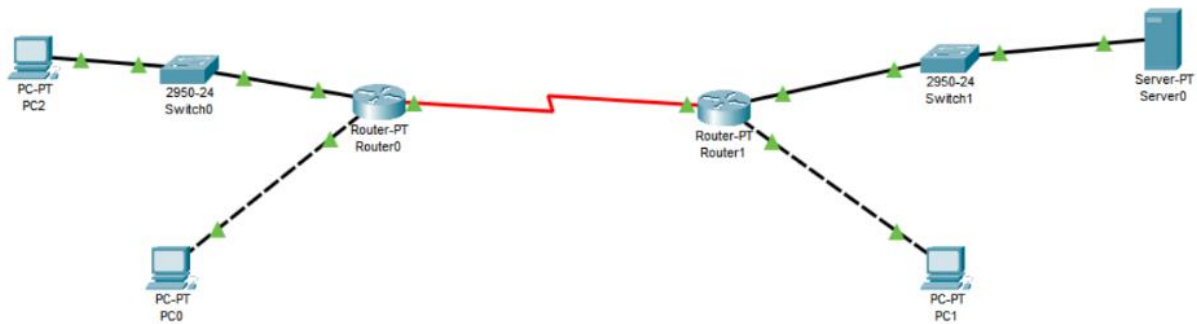
The screenshot shows the configuration window for Router0. The 'Config' tab is active, and the 'RIP' option under the 'ROUTING' section is selected. The 'RIP Routing' section displays a list of network addresses: 10.0.0.0, 192.168.1.0, 192.168.2.0, 192.168.3.0, 192.168.4.0, 192.168.2.0, and 192.168.4.0. An 'Add' button is visible next to the list, and a 'Remove' button is at the bottom right. The 'Equivalent IOS Commands' section shows the following commands:

```
Router(config-router)#network 10.0.0.0
Router(config-router)#network 192.168.1.0
Router(config-router)#network 192.168.2.0
Router(config-router)#network 192.168.3.0
Router(config-router)#network 192.168.4.0
Router(config-router)#no network 192.168.2.0
Router(config-router)#no network 192.168.4.0
Router(config-router)#
```

The screenshot shows the configuration window for Router1. The 'Config' tab is active, and the 'RIP' option under the 'ROUTING' section is selected. The 'RIP Routing' section displays a list of network addresses: 10.0.0.0, 192.168.2.0, and 192.168.4.0. An 'Add' button is visible next to the list, and a 'Remove' button is at the bottom right. The 'Equivalent IOS Commands' section shows the following commands:

```
state to up
Router(config-if)#exit
Router(config)#router rip
Router(config-router)#network 10.0.0.0
Router(config-router)#network 192.168.2.0
Router(config-router)#network 192.168.4.0
Router(config-router)#
```

Step 6: Checking if all the end devices across the network can communicate with each other.



```

Router#sh ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B -
BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS
inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

C    10.0.0.0/8 is directly connected, Serial2/0
R    192.168.1.0/24 [120/1] via 10.10.10.2, 00:00:20, Serial2/0
C    192.168.2.0/24 is directly connected, FastEthernet1/0
R    192.168.3.0/24 [120/1] via 10.10.10.2, 00:00:20, Serial2/0
C    192.168.4.0/24 is directly connected, FastEthernet0/0
  
```

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	^
	Successful	PC2	PC1	ICMP	Green	0.000	N	0	
	Successful	PC2	Server0	ICMP	Blue	0.000	N	1	
	Successful	PC0	PC1	ICMP	Red	0.000	N	2	
<									>

All the end devices can successfully communicate with each other.