

Routing at Network Layer:

a) Simulate Static Routing Protocol Configuration using CISCO Packet Tracer.

Aim:

To simulate and configure **Static Routing** between multiple routers in Cisco Packet Tracer for successful communication between different networks.

The screenshot shows the configuration window for PC0 in Cisco Packet Tracer. The window has tabs for Physical, Config, Desktop, Programming, and Attributes. The Desktop tab is active, displaying the IP Configuration, IPv6 Configuration, and 802.1X settings for the selected interface, FastEthernet0.

IP Configuration

Interface: FastEthernet0

☐ DHCP ☒ Static

IPv4 Address: 192.168.2.7

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.2.3

DNS Server: 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address: /

Link Local Address: FE80::20A:41FF:FE16:C900

Default Gateway:

DNS Server:

802.1X

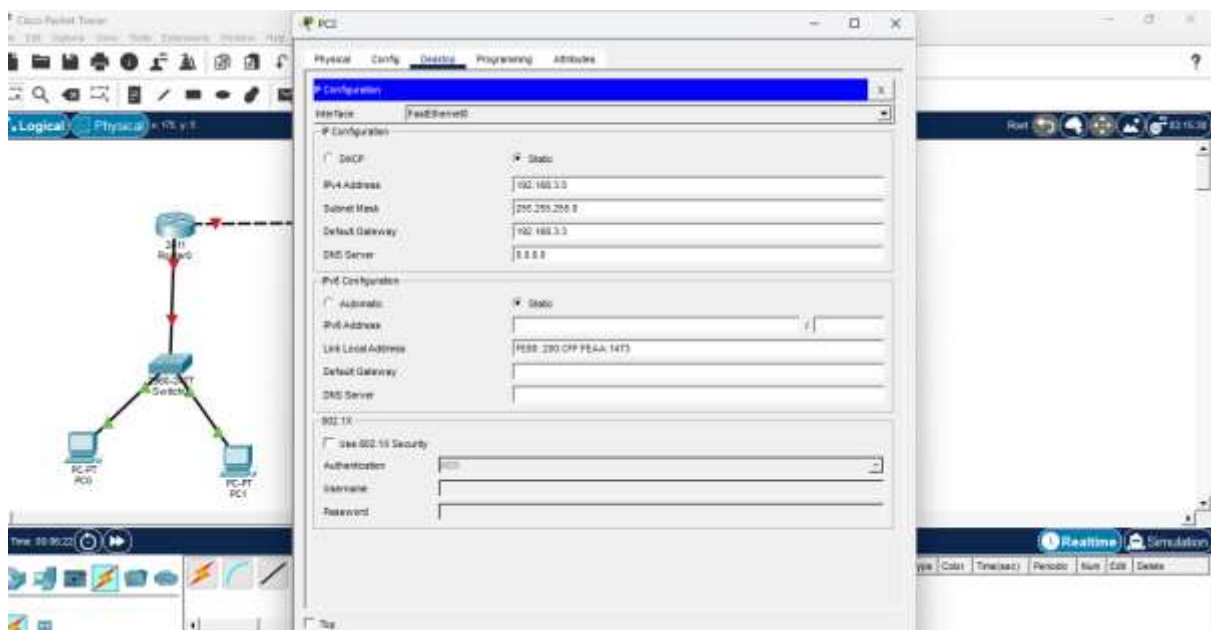
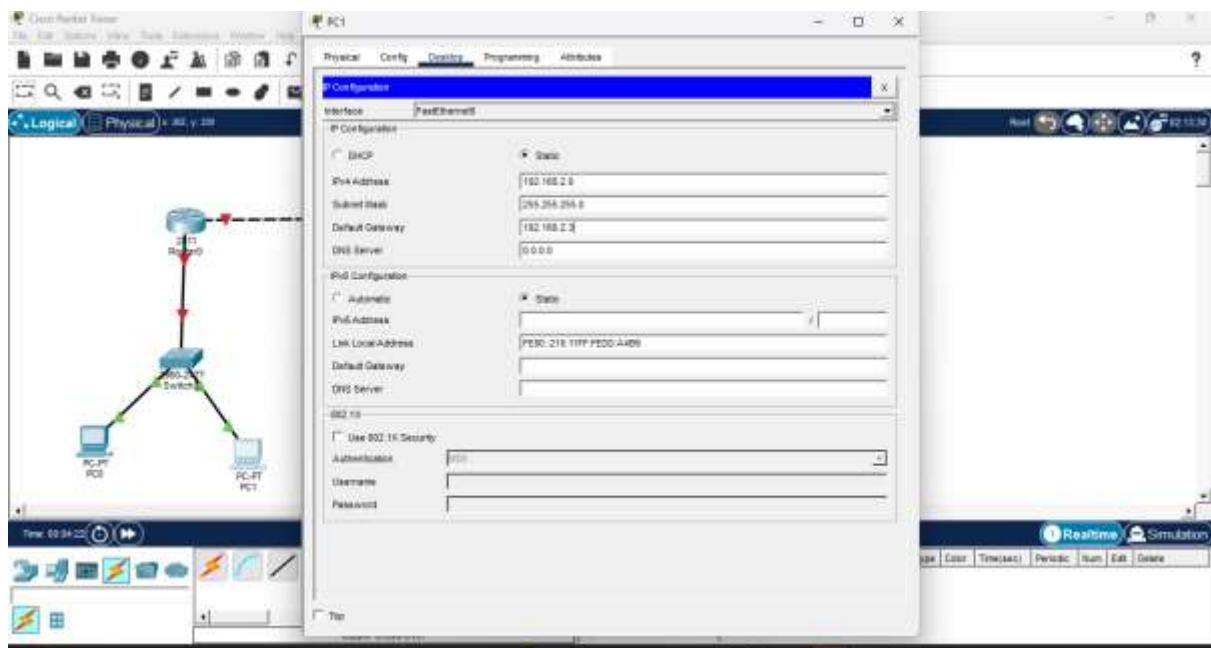
☐ Use 802.1X Security

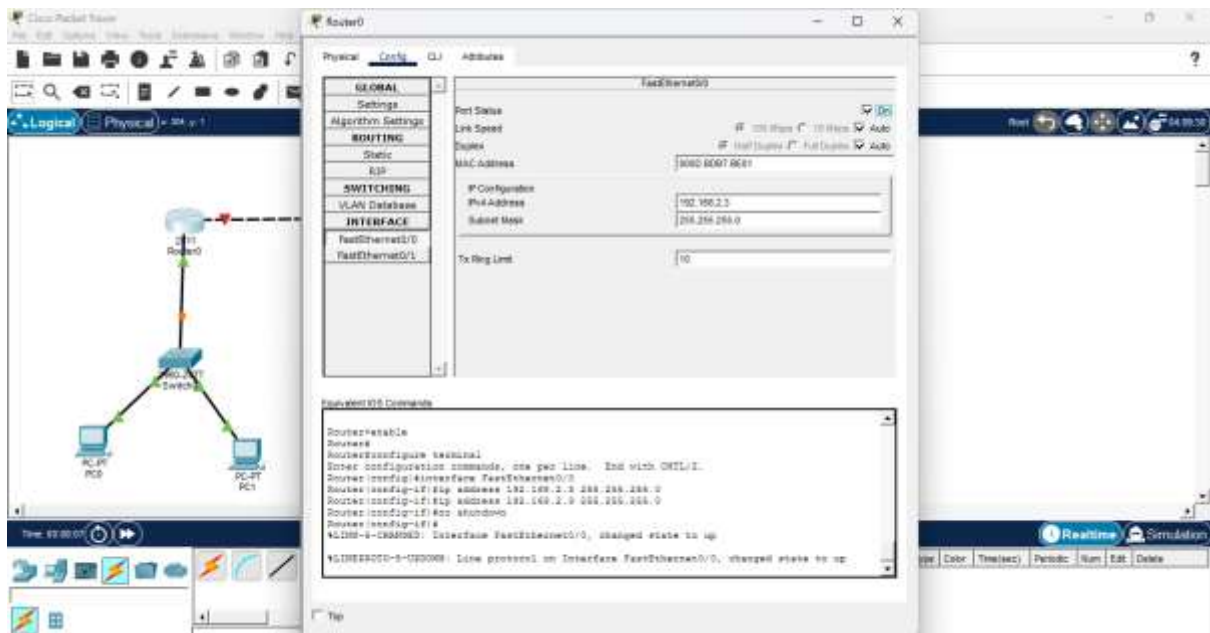
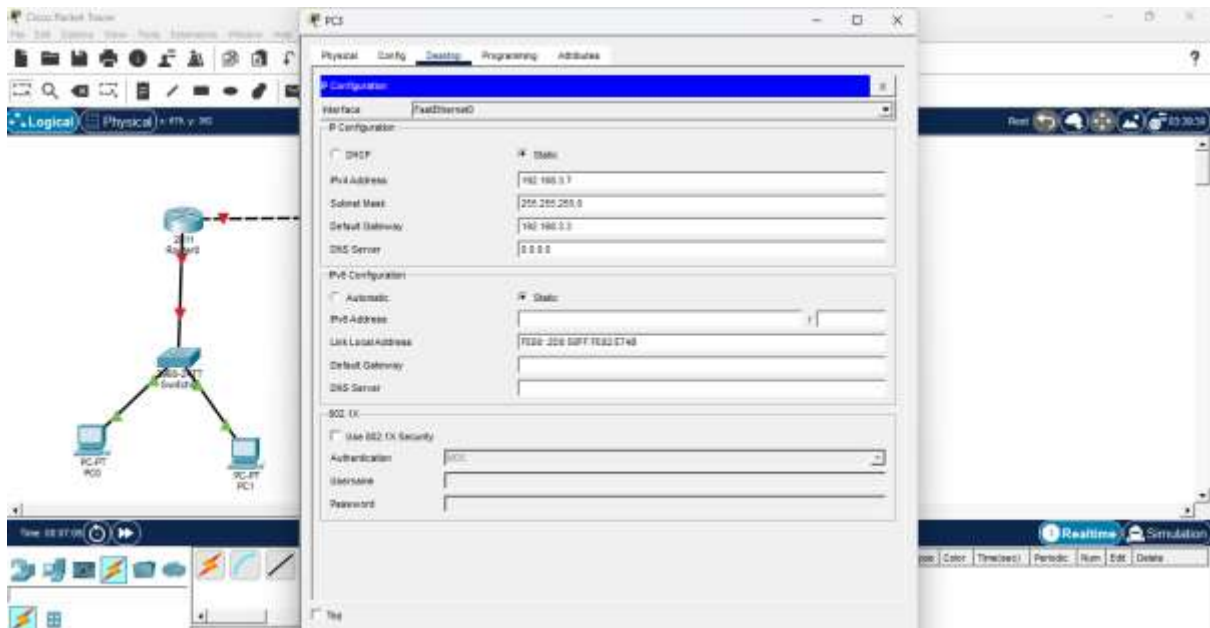
Authentication: MD5

Username:

Password:

Top





Router0 Configuration:

Section	Configuration
GLOBAL	<ul style="list-style-type: none"> Port Status: <input checked="" type="checkbox"/> On Link Speed: 100 Mbps Duplex: Half Duplex MAC Address: 000D.6007.0C43
IP Configuration	<ul style="list-style-type: none"> IPv4 Address: 192.168.1.4 Subnet Mask: 255.255.255.0
To Ring Link	10

Executed IOS Commands:

```

Router(config)#end
Router(config)#exit
%LINK-3-CHANGED: Interface FastEthernet0/0, changed state to up
%LINEPROTO-3-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 192.168.1.4 255.255.255.0
Router(config-if)#exit
Router(config)#end
Router(config)#exit
%LINK-3-CHANGED: Interface FastEthernet0/1, changed state to up
  
```

Router1 Configuration:

Section	Configuration
GLOBAL	<ul style="list-style-type: none"> Port Status: <input checked="" type="checkbox"/> On Link Speed: 100 Mbps Duplex: Half Duplex MAC Address: 000D.674D.9801
IP Configuration	<ul style="list-style-type: none"> IPv4 Address: 192.168.2.3 Subnet Mask: 255.255.255.0
To Ring Link	10

Executed IOS Commands:

```

Router(config)#enable
Router(config)#end
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 192.168.2.3 255.255.255.0
Router(config-if)#ip address 192.168.2.3 255.255.255.0
Router(config-if)#end
Router(config)#end
Router(config)#exit
%LINK-3-CHANGED: Interface FastEthernet0/0, changed state to up
%LINEPROTO-3-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
  
```

Router1 Configuration:

FastEthernet0/1

Port Status: ☒ On

Link Speed: 100 Mbps

duplex: ☒ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address: 9000.97AD.0002

IP Configuration:

IPv4 Address: 192.168.1.4

Subnet Mask: 255.255.255.0

Tx/Rx Link: 10

Configured IOS Commands:

```

Router(config)# interface FastEthernet0/1
Router(config)# ip address 192.168.1.4 255.255.255.0
Router(config)# no shutdown
Router(config)# exit
  
```

ACL 9999: Line protocol on Interface FastEthernet0/1, changed state to up

IP-4-DISCORD: Duplicate address 192.168.1.4 on FastEthernet0/1, assumed by 0000.0000.0000

IP-4-DISCORD: Duplicate address 192.168.1.4 on FastEthernet0/1, assumed by 0000.0000.0000

Router2 Configuration:

Static Routes

Network: 192.168.0.0

Mask: 255.255.255.0

Next Hop: 192.168.1.4

Configured IOS Commands:

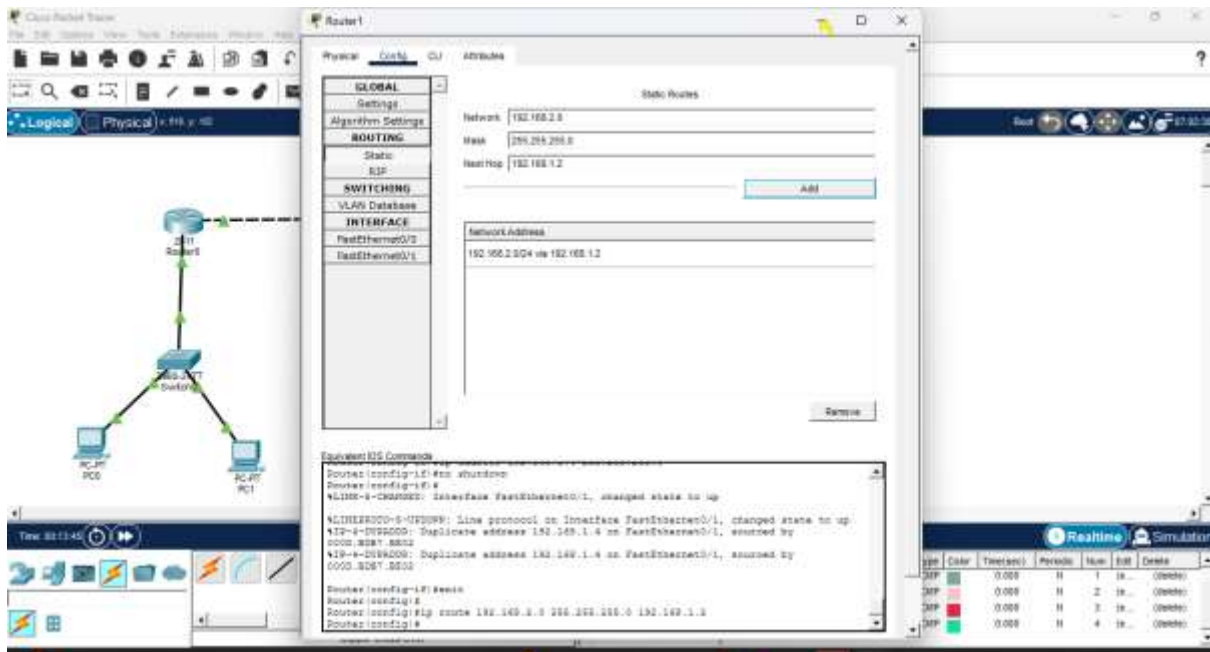
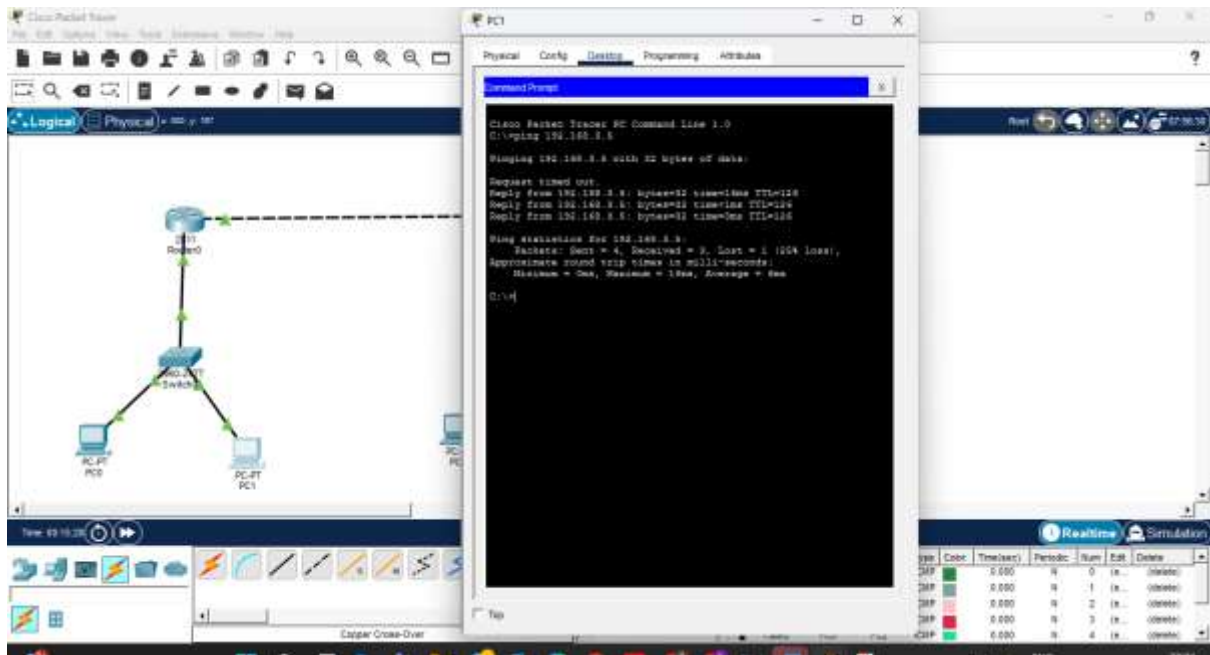
```

Router(config)# ip route 192.168.0.0 255.255.255.0 192.168.1.4
Router(config)# exit
  
```

ACL 9999: Duplicate address 192.168.1.4 on FastEthernet0/1, assumed by 0000.0000.0000

IP-4-DISCORD: Duplicate address 192.168.1.4 on FastEthernet0/1, assumed by 0000.0000.0000

IP-4-DISCORD: Duplicate address 192.168.1.4 on FastEthernet0/1, assumed by 0000.0000.0000



Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC2	Router1	ICMP		0.000	N	3	(e...)	(delete)
	Failed	PC0	PC2	ICMP		0.000	N	4	(e...)	(delete)
	Successful	PC0	PC1	ICMP		0.000	N	5	(e...)	(delete)
	Successful	PC1	PC2	ICMP		0.000	N	6	(e...)	(delete)

Result:

Static routing protocol was successfully configured. Routers automatically shared routing information, and all networks communicated dynamically without manual route entries.