Assignment

Network systems assignment

OBJECTIVE:

Design and configure a network in Cisco Packet Tracer with two separate LANs. Each LAN contains ten PCs connected to a switch. Connect these two LANs using two routers through Serial link. Implement default routing between the routers to establish communication between the LANs. Assign IP addresses to each device either manually or through DHCP, as per the network details provided below. Verify the connectivity by pinging devices across the two LANs.

Following are the network details:

Network 1 (Class C):

Starting IP Address: 192.168.16.10

Router0 (Ethernet Interface): 192.168.16.1

Network 2 (Class B):

Starting IP Address: 172.168.16.10

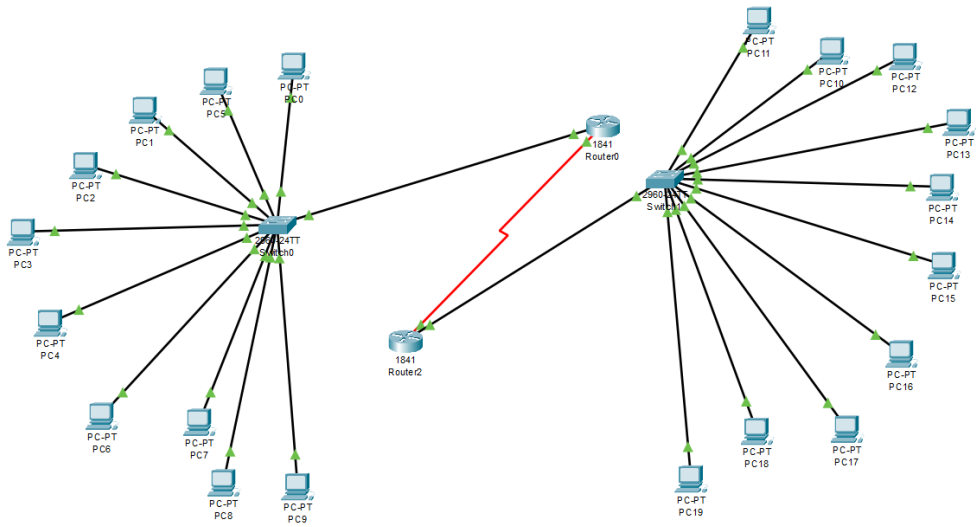
Router1 (Ethernet Interface): 172.168.16.1

Router Interconnection:

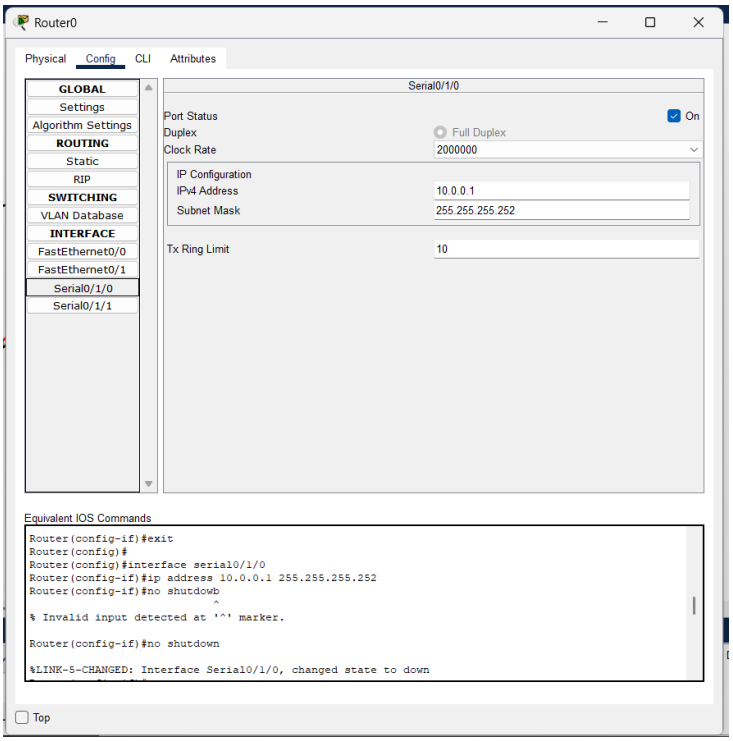
Network Address of Router0 to Router1: 10.0.0.0

Establish a successful connection and verify the default routing implementation. Attach all screenshots (including IP configuration, default routing configuration, successful ping outputs, and network structure) along with a description in a PDF file and submit.

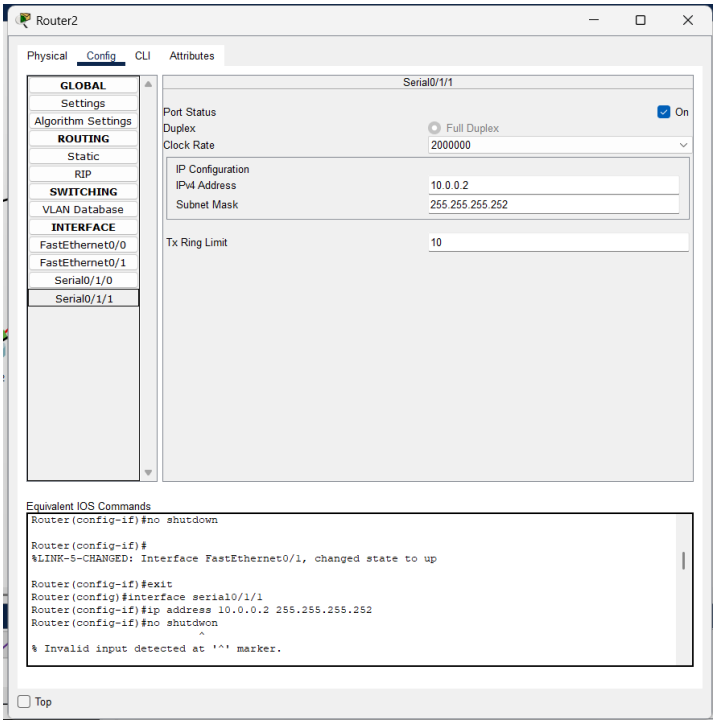
Network Structure



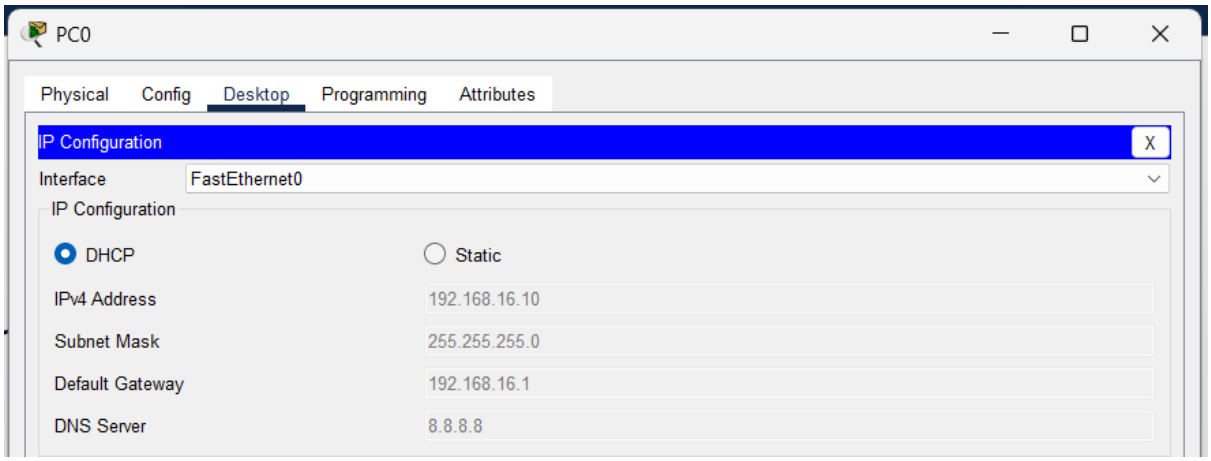
Serial Router0 configuration –



Serial Router1 configuration –



DHCP IP configuration done via router to PC1



Router0 –

```
Router(config)#ip dhcp pool LAN1
Router(dhcp-config)#network 192.168.16.0 255.255.255.0
Router(dhcp-config)#default-router 192.168.16.1
Router(dhcp-config)#dns-server 8.8.8.8
Router(dhcp-config)#exit
Router(config)#ip dhcp excluded-address 192.168.16.1 192.168.16.9
Router(config)#exit
Router#
```

Router1 –

```
Router(config)#ip dhcp pool LAN2
Router(dhcp-config)#network 172.168.16.0 255.255.255.0
Router(dhcp-config)#default-router 172.168.16.1
Router(dhcp-config)#dns-server 8.8.8.8
Router(dhcp-config)#exit
Router(config)#ip dhcp excluded-address 172.168.16.1 172.168.16.9
Router(config)#exit
Router#
```

Pinging from LAN1 →LAN2

Event List

Vis.	Time(sec)	Last Device
	0.000	--
	0.001	PC0
	0.002	Switch0
	0.003	Router0
	0.004	Router2
	0.005	Switch1
	0.005	Switch1
	0.005	Switch1
	0.005	Switch1
	0.005	Switch1
	0.005	Switch1
	0.005	Switch1
	0.005	Switch1
	0.005	Switch1
	0.005	Switch1
	0.006	PC17

← Event viewer

Fire	Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Num	Edit	Delete
	Successful	PC0	PC17	ICMP		0.000	N	0	(edit)	(delete)

IP route

Router0

```
Router#show 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 10.0.0.2 to network 0.0.0.0

     10.0.0.0/30 is subnetted, 1 subnets
C       10.0.0.0 is directly connected, Serial0/1/0
C    192.168.16.0/24 is directly connected, FastEthernet0/0
S*   0.0.0.0/0 [1/0] via 10.0.0.2
```

Router1

```
Router#show 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 10.0.0.1 to network 0.0.0.0

     10.0.0.0/30 is subnetted, 1 subnets
C       10.0.0.0 is directly connected, Serial0/1/1
     172.168.0.0/24 is subnetted, 1 subnets
C       172.168.16.0 is directly connected, FastEthernet0/1
S*   0.0.0.0/0 [1/0] via 10.0.0.1
```

Submitted By Neeraj Jayesh

SOCSE 24137