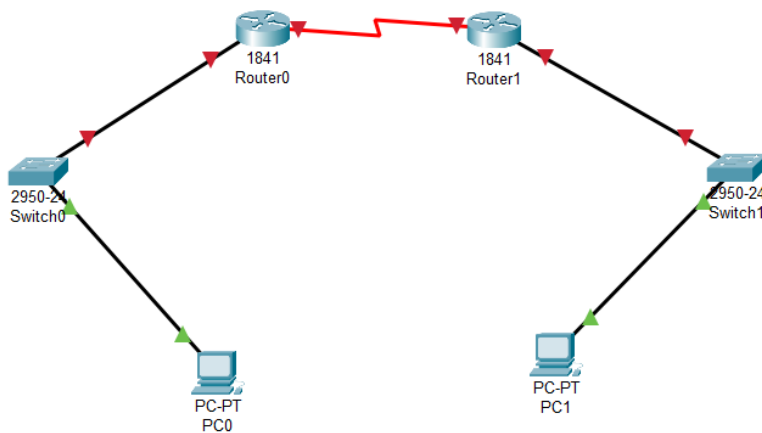
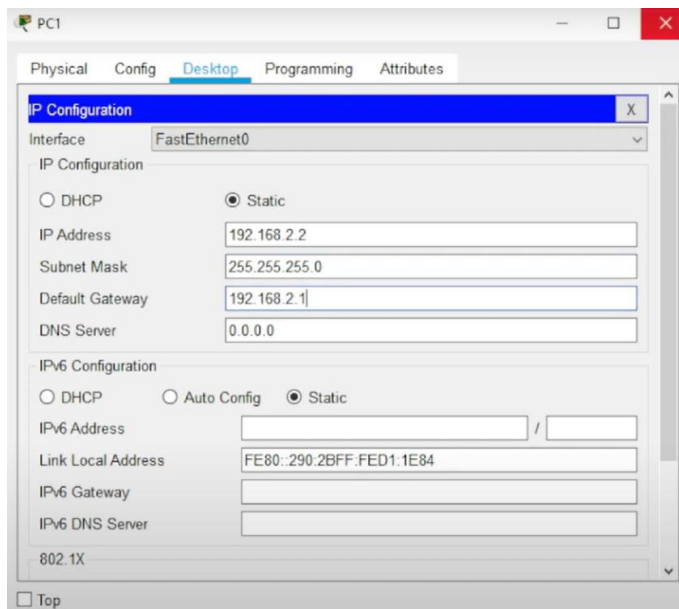
 Marwadi University Marwadi Chandarana Group	Marwadi University Faculty of Engineering and Technology Department of Information and Communication Technology	
Subject: Computer Networks (01CT0503)	Aim: Design WAN as per the given scenario and get the connectivity between all PCs using BGP.	
Experiment No: 08	Date: 16-11-2024	Enrolment No: 92200133021

Aim: Design WAN as per the given scenario and get the connectivity between all PCs using BGP.

Connect PC and Switches and routers



Then we will assign IP address to both the PCs



Then we will assign IP address to routers

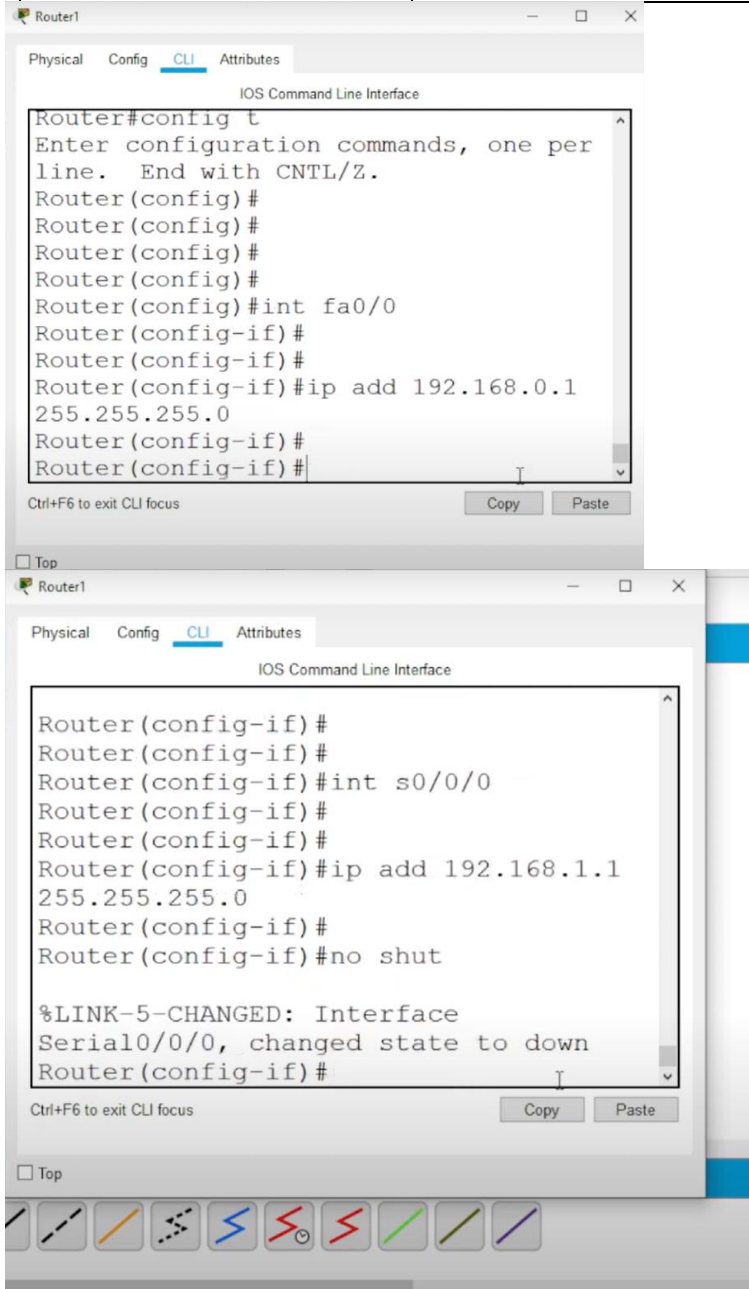
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```
Router1
Physical Config CLI Attributes
IOS Command Line Interface
Router#config t
Enter configuration commands, one per
line. End with CNTL/Z.
Router(config)#
Router(config)#
Router(config)#
Router(config)#
Router(config)#int fa0/0
Router(config-if)#
Router(config-if)#
Router(config-if)#ip add 192.168.0.1
255.255.255.0
Router(config-if)#
Router(config-if)#

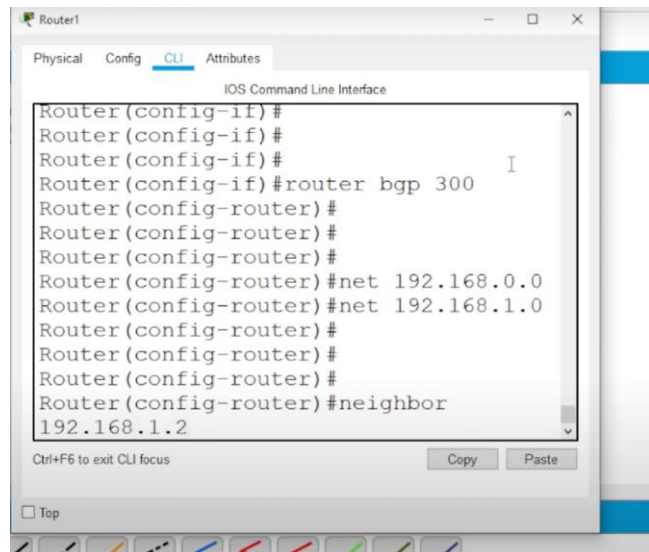
Router1
Physical Config CLI Attributes
IOS Command Line Interface
Router(config-if)#
Router(config-if)#
Router(config-if)#int s0/0/0
Router(config-if)#
Router(config-if)#
Router(config-if)#ip add 192.168.1.1
255.255.255.0
Router(config-if)#
Router(config-if)#no shut

%LINK-5-CHANGED: Interface
Serial0/0/0, changed state to down
Router(config-if)#
```

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Enable BGP and assign a unique AS number to each router.

Define the BGP neighbor with neighbor 192.168.1.2 remote-as 300

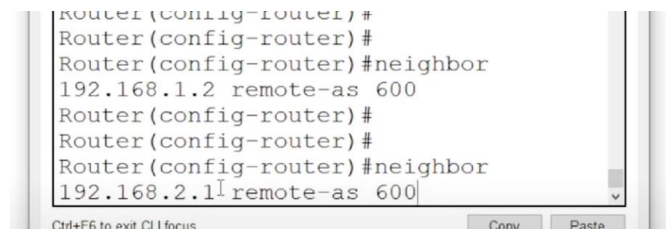


```

Router1
Physical Config CLI Attributes
IOS Command Line Interface
Router(config-if) #
Router(config-if) #
Router(config-if) #
Router(config-if) #router bgp 300
Router(config-router) #
Router(config-router) #
Router(config-router) #
Router(config-router) #net 192.168.0.0
Router(config-router) #net 192.168.1.0
Router(config-router) #
Router(config-router) #
Router(config-router) #
Router(config-router) #neighbor
192.168.1.2
Ctrl+F6 to exit CLI focus
Copy Paste

```

Establish a BGP neighbor relationship by specifying the neighbor's IP address and AS number.




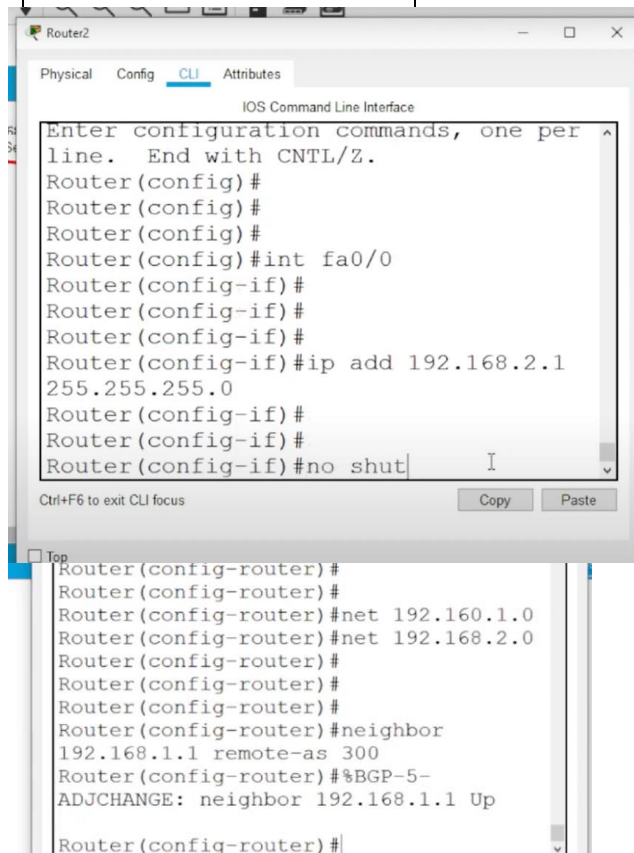
```

Router(config-router) #
Router(config-router) #
Router(config-router) #neighbor
192.168.1.2 remote-as 600
Router(config-router) #
Router(config-router) #
Router(config-router) #neighbor
192.168.2.1 remote-as 600
Ctrl+F6 to exit CLI focus
Copy Paste

```

Configuring router 2 in same way

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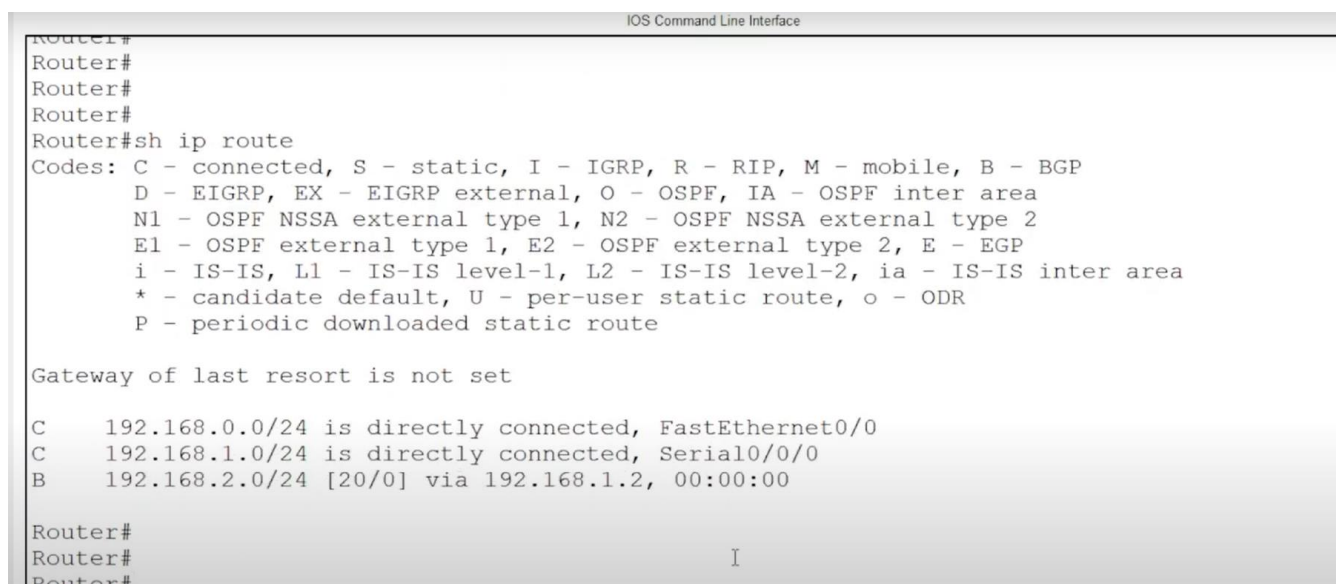


```

Router2
Physical Config CLI Attributes
IOS Command Line Interface
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#
Router(config)#
Router(config)#
Router(config)#int fa0/0
Router(config-if)#
Router(config-if)#
Router(config-if)#
Router(config-if)#ip add 192.168.2.1
255.255.255.0
Router(config-if)#
Router(config-if)#
Router(config-if)#no shut
Router(config-router)#
Router(config-router)#
Router(config-router)#net 192.160.1.0
Router(config-router)#net 192.168.2.0
Router(config-router)#
Router(config-router)#
Router(config-router)#
Router(config-router)#neighbor
192.168.1.1 remote-as 300
Router(config-router)%%BGP-5-
ADJCHANGE: neighbor 192.168.1.1 Up
Router(config-router)#
  
```

Advertise networks to be shared via BGP.

Use the network 192.168.1.1 mask 255.255.255.0 command under BGP configuration to advertise local networks.



```


Router1#
Router#
Router#
Router#
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

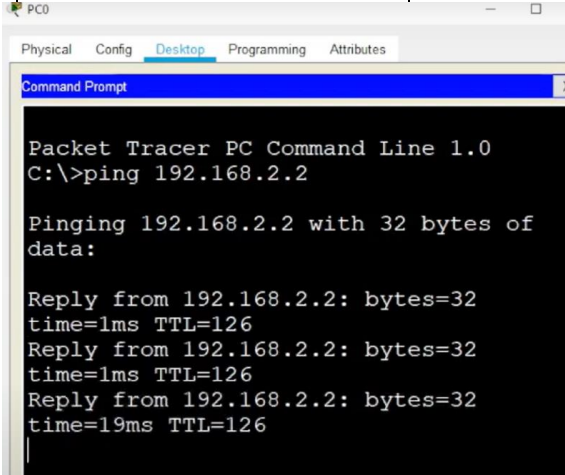
Gateway of last resort is not set

C    192.168.0.0/24 is directly connected, FastEthernet0/0
C    192.168.1.0/24 is directly connected, Serial0/0/0
B    192.168.2.0/24 [20/0] via 192.168.1.2, 00:00:00

Router#
Router#
Router#
  
```

Use the ping command from a PC or router to test if the advertised networks are reachable.

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```

Packet Tracer PC Command Line 1.0
C:\>ping 192.168.2.2

Pinging 192.168.2.2 with 32 bytes of data:

Reply from 192.168.2.2: bytes=32
time=1ms TTL=126
Reply from 192.168.2.2: bytes=32
time=1ms TTL=126
Reply from 192.168.2.2: bytes=32
time=19ms TTL=126

```

Conclusion:

In this experiment, I designed a WAN as per the given scenario by configuring BGP. I assigned IP addresses to router interfaces, set Autonomous System (AS) numbers, and established neighbor relationships between routers. Networks were advertised for inter-AS communication. Finally, I verified the BGP configuration, ensuring successful connectivity between all PCs.



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