

NETWORK – 1 (192.168.1.0/24)

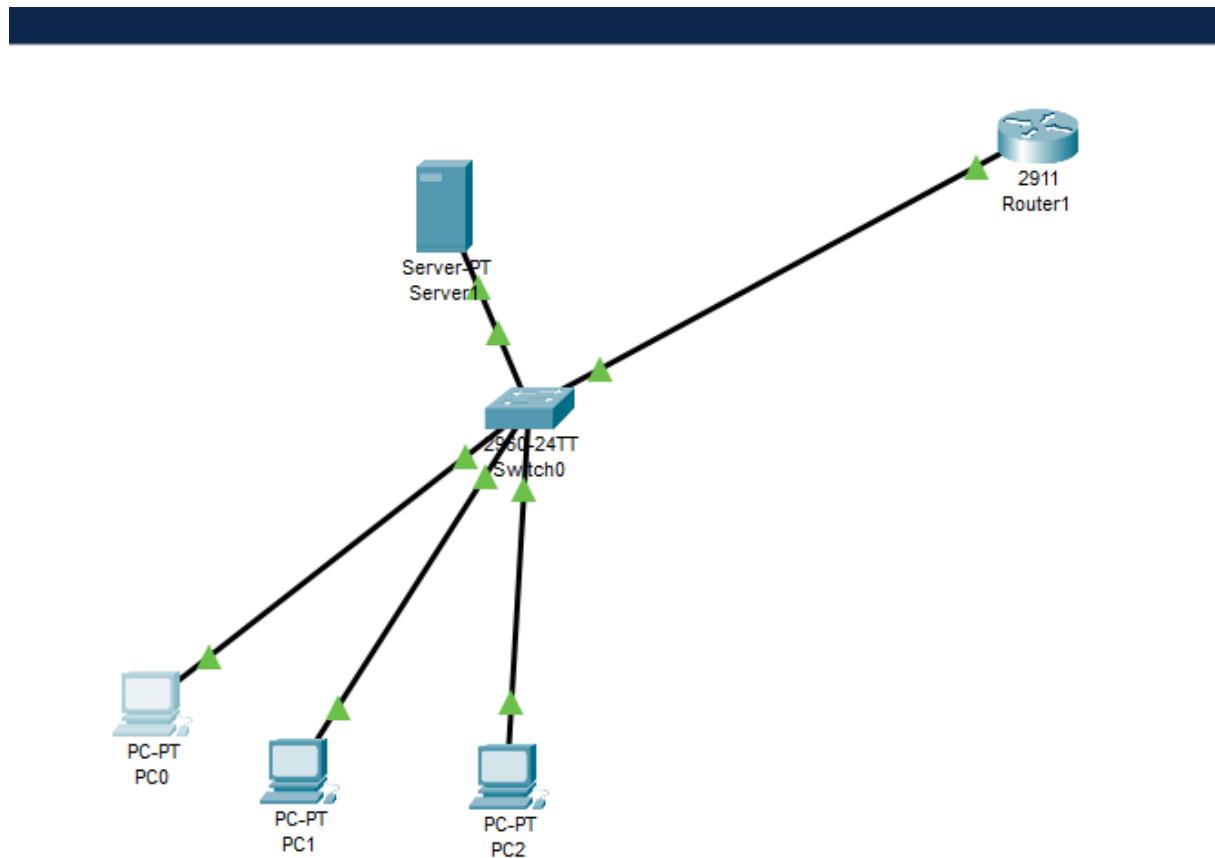
Ağ bileşenleri: 3 adet istemci (PC0,PC1,PC2), 1 adet 2960 switch (SW1),

1 adet HWIC-2T arayüzüne sahip 2911 router (R1), 1 adet server (DHCPServer)

1. Ağı uygun kablolama ile bağlayınız. Ağın mantıksal görüntüsünü ekran görüntüsü ile gösteriniz.

Network-1 Topolojisi

- PC0, PC1, PC2, Server1, Switch0 ve Router1'dan oluşan topoloji kuruldu.
- Tüm cihazlar Switch0 üzerinden Router1'e bağlıdır.
- Server1'in IP adresi: **192.168.1.5**



2. R1 routerının ağa bağlanan arayüzüne 192.168.1.1 IP adresini atayınız. Ekran görüntüsü ile gösteriniz

interface GigabitEthernet0/0

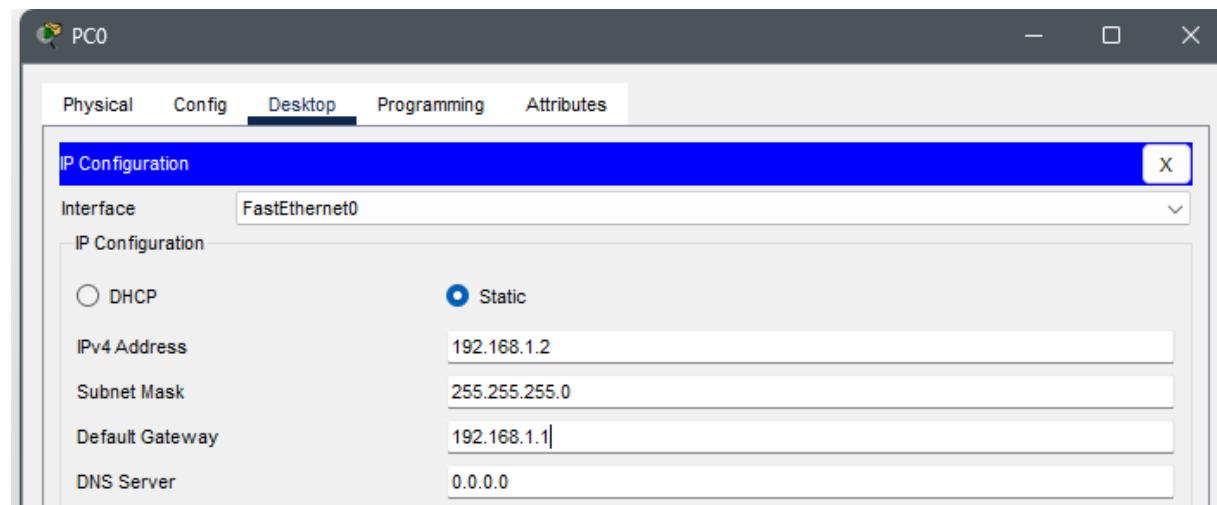
ip address 192.168.1.1 255.255.255.0

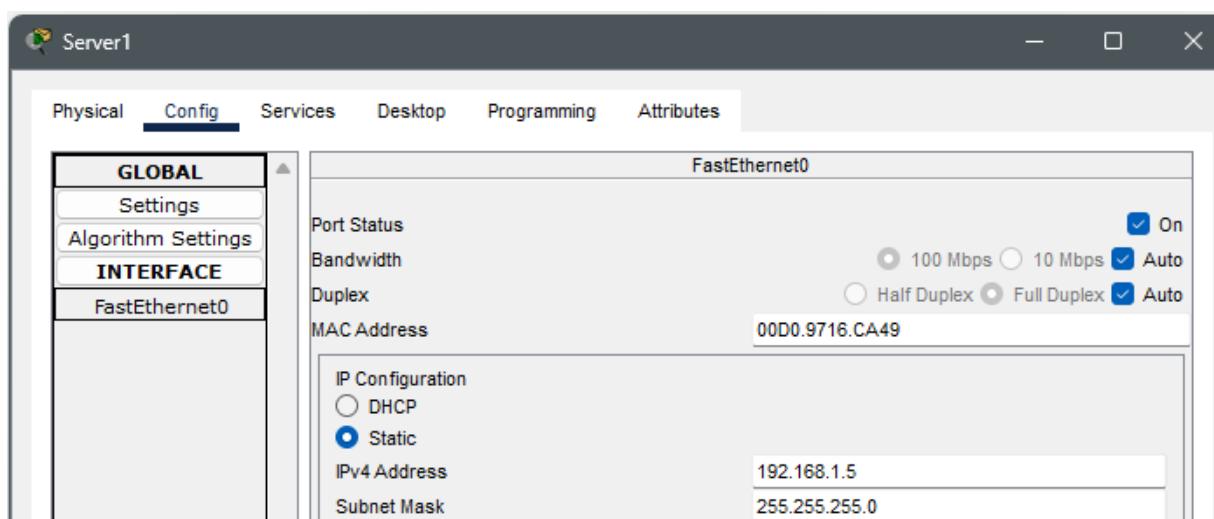
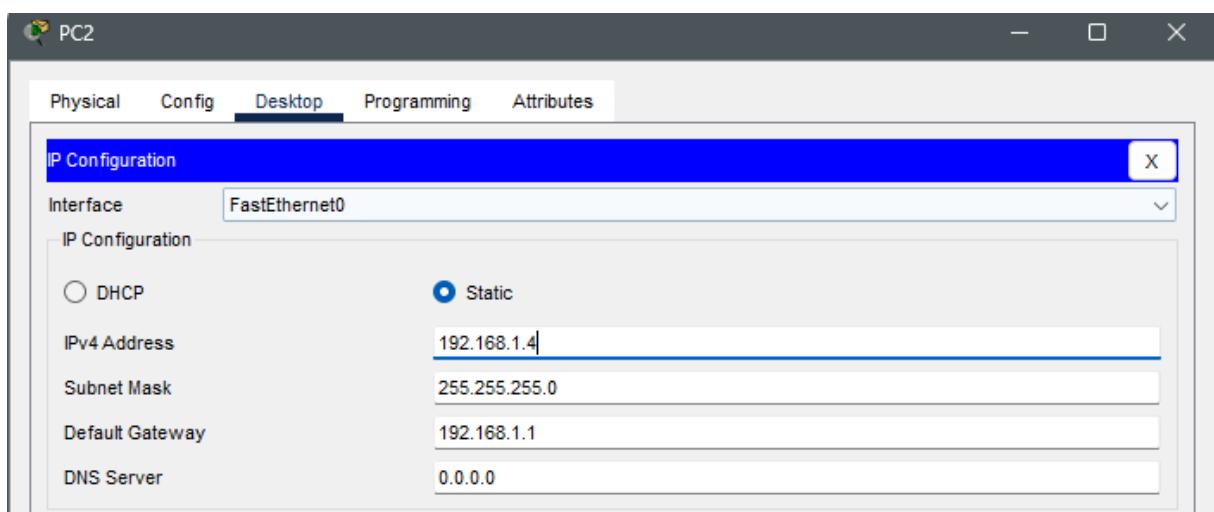
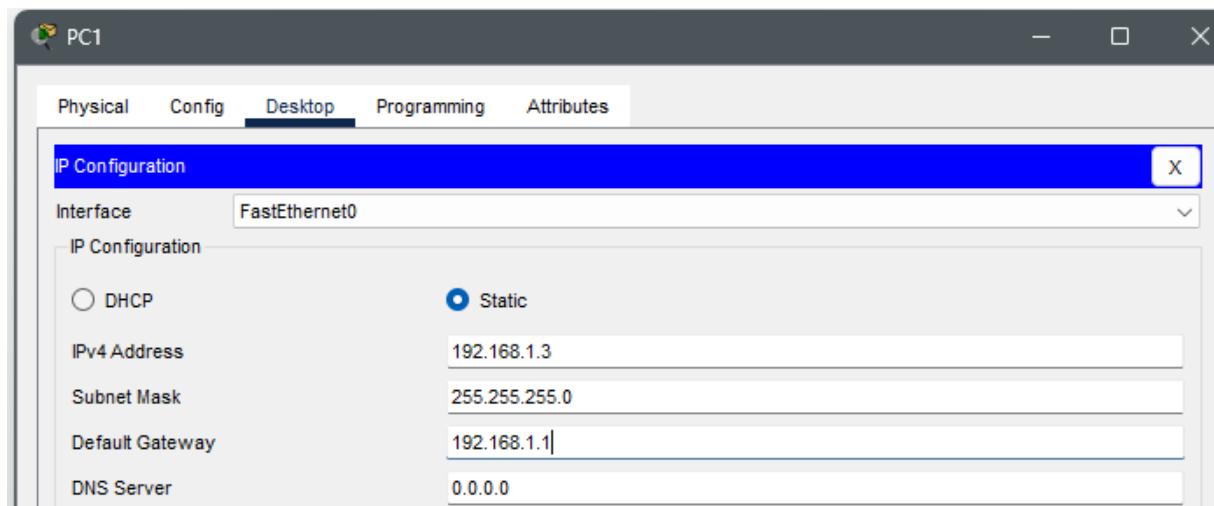
no shutdown

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface gigabitEthernet 0/0
Router(config-if)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#exit
Router#
*SYS-5-CONFIG_I: Configured from console by console
exit(7)

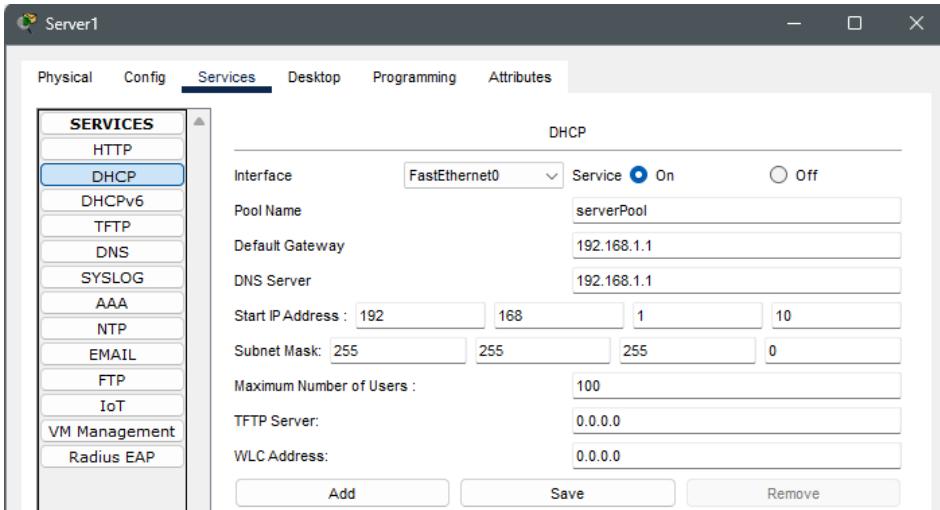
Router#show ip interface brief
Interface          IP-Address      OK? Method Status          Protocol
GigabitEthernet0/0  192.168.1.1    YES manual up           up
GigabitEthernet0/1  unassigned      YES unset administratively down down
GigabitEthernet0/2  unassigned      YES unset administratively down down
Serial0/3/0         unassigned      YES unset administratively down down
Serial0/3/1         unassigned      YES unset administratively down down
Vlan1              unassigned      YES unset administratively down down
Dumb0              unassigned      YES unset administratively down down
```

3. Sunucu ve istemcilere statik olarak ağa uygun IP adresi atayınız. IP değerleriniz için uygun subnet mask ve default gateway değerlerini giriniz. Ekran görüntüsü ile gösteriniz.

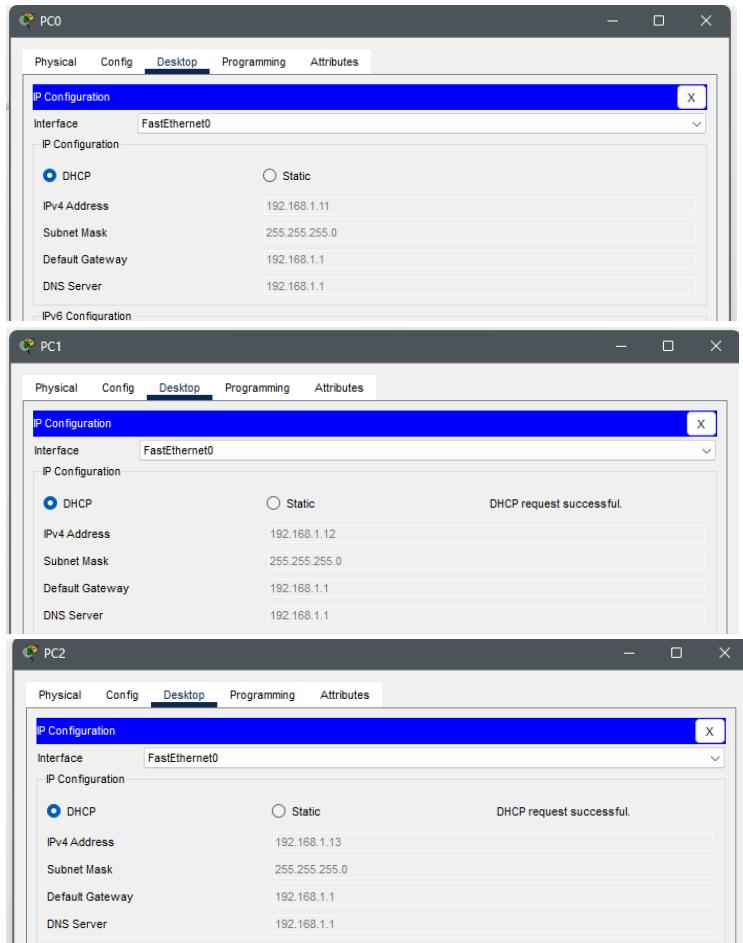




4. DHCSERVER sunucusunu DHCP sunucusu olacak şekilde konfigüre ediniz. Ağ için 192.168.1.10'dan başlayan ve 100 adet IP tâhsisi yapabilen bir IP havuzu oluşturunuz. Ekran görüntüsü ile gösteriniz.



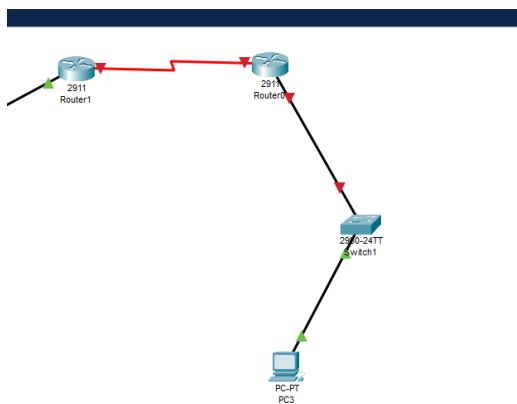
5. Her üç istemciden de DHCP ile dinamik IP tahsisini yapınız. Ekran görüntüsü ile gösteriniz.



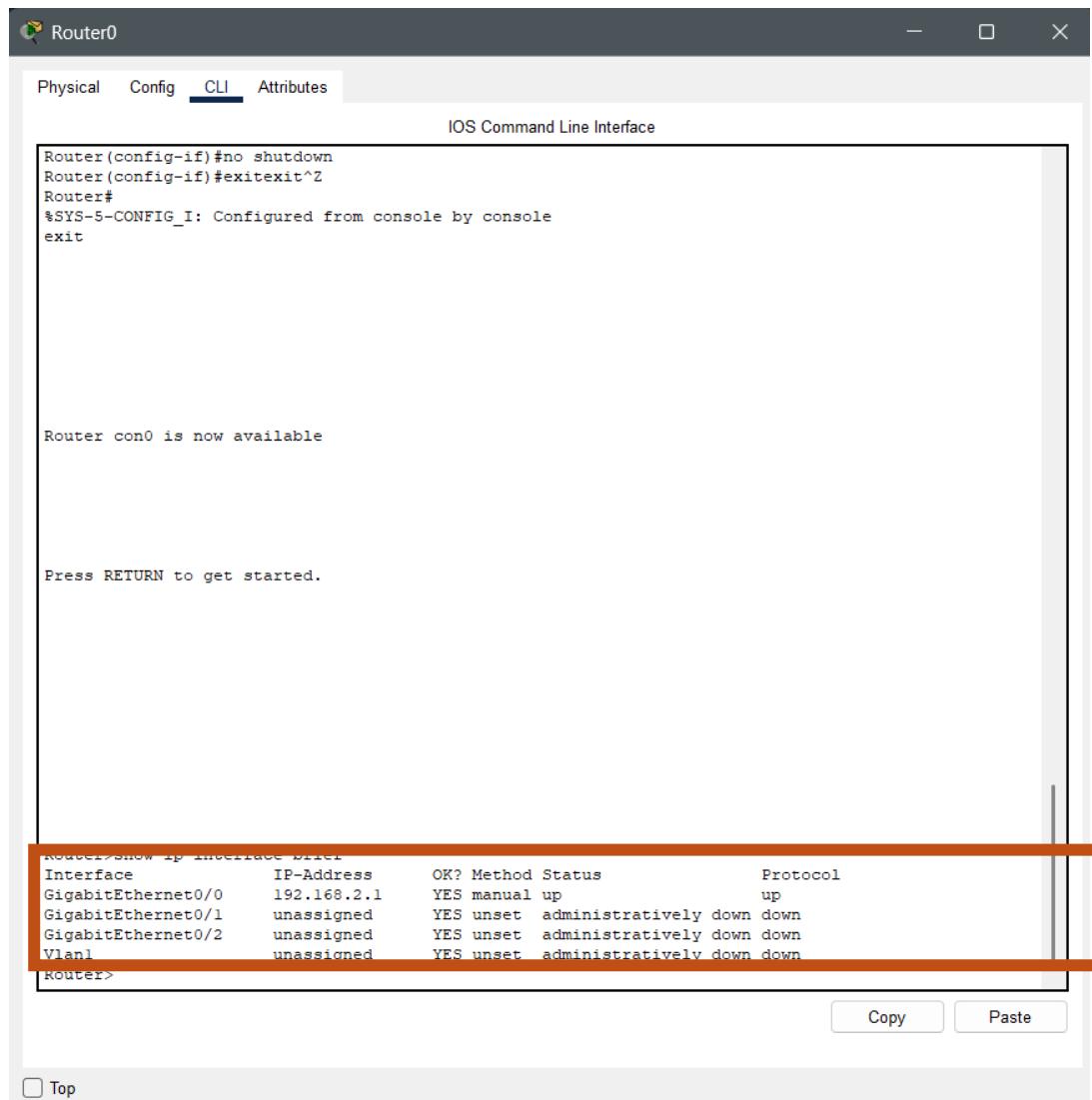
NETWORK – 2 (192.168.2.0/24)

Ağ bileşenleri: 1 adet istemci (PC3), 1 adet 2960 switch (SW2),

- 1 adet HWIC-2T arayüzüne sahip 2911 router (R2)
6. Ağ uygun kablolama ile bağlayınız. R1 ve R2 routelerini “Serial DTE” kablosu ile Se0/0/0 portları üzerinden bağlayınız. Tüm ağın mantıksal görüntüsünü ekran görüntüsü ile gösteriniz.



7. R2 routerinin ağa bağlanan arayüzüne 192.168.2.1 IP adresini atayınız. Ekran görüntüsü ile gösteriniz.



Router0

Physical Config **CLI** Attributes

IOS Command Line Interface

```
Router(config-if)#no shutdown
Router(config-if)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
exit

Router con0 is now available

Press RETURN to get started.

Router>
```

Interface	IP-Address	OK?	Method	Status	Protocol
GigabitEthernet0/0	192.168.2.1	YES	manual	up	up
GigabitEthernet0/1	unassigned	YES	unset	administratively down	down
GigabitEthernet0/2	unassigned	YES	unset	administratively down	down
Vlan1	unassigned	YES	unset	administratively down	down

Copy Paste

Top

8. R1 ve R2 routerlarının birbirlerine bağlandıkları arayüze sırası ile 10.0.0.1 ve 20.0.0.1 IP adreslerini atayınız.

Ekran	görüntüsü	ile	gösteriniz.

HOCAM BOŞ Portlara atama yaptım.

9. Her iki routerin ilgili arayüzüne giriş yaparak routerlar arasında yönlendirme protokolünü örnekteki gibi yazınız.

- R1(config-if)# ip route 0.0.0.0 0.0.0.0 se0/0/0
- R2(config-if)# ip route 0.0.0.0 0.0.0.0 se0/0/0

The image shows two side-by-side Cisco IOS Command Line Interface windows. Both windows have tabs for Physical, Config, CLI (which is selected), and Attributes. The left window (Router1) shows the configuration of interface Serial0/3/0, including setting its IP address to 20.0.0.1. The right window (Router2) shows the configuration of interface Serial0/3/0, also setting its IP address to 20.0.0.1. Both windows display configuration messages like 'SYS-5-CONFIG_I: Configured from console by console' and 'LINK-3-UPDOWN: Interface Serial0/3/0, changed state to down'. At the bottom of each window, there is a red box highlighting the command 'ip route 0.0.0.0 0.0.0.0 Serial0/3/0'.

```
Router#no shutdown
Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#
%LINK-3-UPDOWN: Interface Serial0/3/0, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/3/0, changed state to down
%LINK-5-CHANGED: Interface Serial0/3/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/3/0, changed state to up

Router#show ip interface brief
Interface          IP-Address      OK? Method Status        Protocol
GigabitEthernet0/0  192.168.1.1   YES manual up           up
GigabitEthernet0/1  unassigned     YES unset administratively down down
GigabitEthernet0/2  unassigned     YES unset administratively down down
Serial0/3/0         10.0.0.1      YES manual up           up
Serial0/3/1         unassigned     YES unset administratively down down
Vlan1              unassigned     YES unset administratively down down
Router#enable
Router#config terminal
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip route 0.0.0.0 0.0.0.0 Serial0/3/0
%Ddefault route without gateway, if not a point-to-point interface, may impact performance
Router(config)#show running-config | include ip route
^
% Invalid input detected at '^' marker.

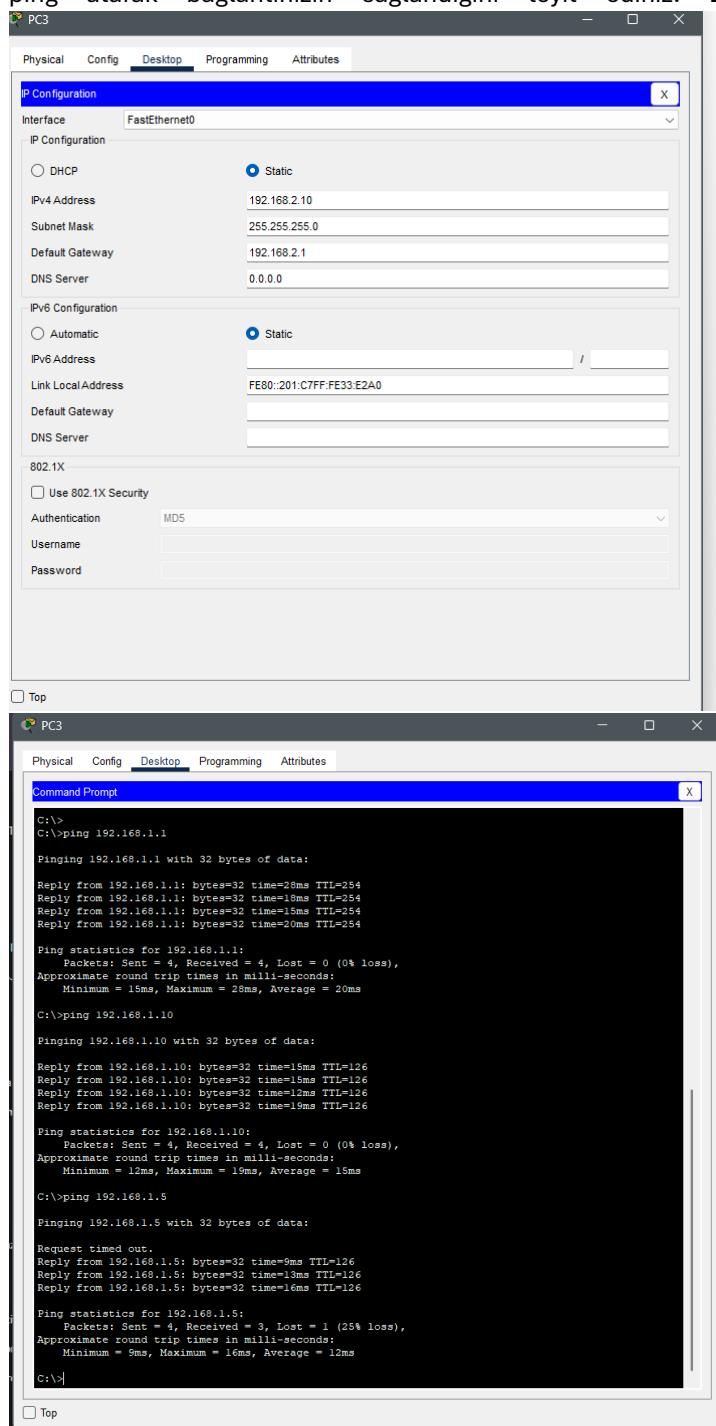
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#show running-config | include ip route
ip route 0.0.0.0 0.0.0.0 Serial0/3/0

Router#no shutdown
Router(config-if)#ip address 20.0.0.1 255.255.255.252
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#
%LINK-3-UPDOWN: Interface Serial0/3/0, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/3/0, changed state to down
%LINK-5-CHANGED: Interface Serial0/3/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/3/0, changed state to up

Router#show ip interface brief
Interface          IP-Address      OK? Method Status        Protocol
GigabitEthernet0/0  192.168.2.1   YES manual up           up
GigabitEthernet0/1  unassigned     YES unset administratively down down
GigabitEthernet0/2  unassigned     YES unset administratively down down
Serial0/3/0         20.0.0.1      YES manual up           up
Serial0/3/1         unassigned     YES unset administratively down down
Vlan1              unassigned     YES unset administratively down down
Router#enable
Router#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip route 0.0.0.0 0.0.0.0 Serial0/3/0
%Ddefault route without gateway, if not a point-to-point interface, may impact performance
Router(config)#show running-config | include ip route
^
% Invalid input detected at '^' marker.

Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#show running-config | include ip route
ip route 0.0.0.0 0.0.0.0 Serial0/3/0
```

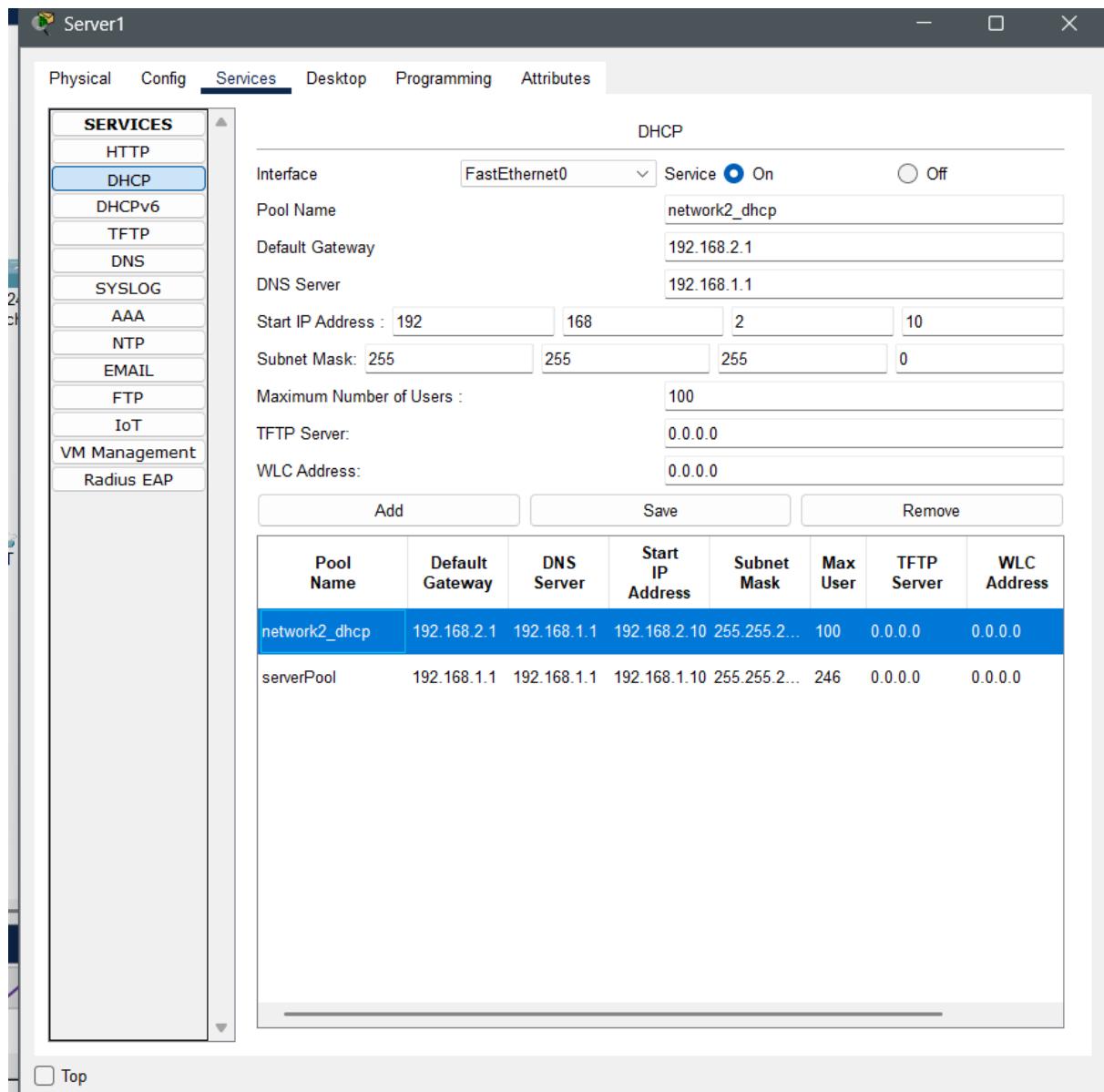
10. PC3 istemcisine uygun bir IP değerini statik olarak atayınız. PC3 bilgisayarından PC0 bilgisayarına ping atarak bağlantınızın sağlandığını teyit ediniz. Ekran görüntüsü ile gösteriniz.



ping 192.168.1.1 → R1'in LAN bacağı:

- **%0 packet loss** →
- ◆ **ping 192.168.1.10 → PC0 (DHCP ile IP almış istemci):**
 - **%0 packet loss** →
- ◆ **ping 192.168.1.5 → Server1 (DHCP sunucusu):**
 - **%25 packet loss** ama bu ilk "Request timed out" sadece ARP kaynaklı olabilir →

11. Ağdaki DHCP sunucusuna 2. Ağ için IP ataması yapılacak bir IP havuzu ekleyiniz. (Başlangıç IP: 192.168.2.10, maksimum kullanıcı sayısı: 100)



12. R2'nin ağa bağlanan arayüzünde DHCP sunucusunun adresini veriniz.

- R2 (config-if)# ip helper-address <DHCP Server address>

The screenshot shows the Cisco Network Assistant interface with a window titled "Router0". The "CLI" tab is selected, displaying the IOS Command Line Interface. The terminal window shows the configuration process for Router R2:

```
Press RETURN to get started.

Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/0
Router(config-if)#ip helper-address 192.168.1.5
Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#confi
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface GigabitEthernet0/0
Router(config-if)#ip helper-address 192.168.1.5
Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#
Router#show running-config | include helper
  ip helper-address 192.168.1.5
Router#
```

A red box highlights the command `ip helper-address 192.168.1.5` and its confirmation message. At the bottom right of the terminal window, there are "Copy" and "Paste" buttons. At the bottom left, there is a "Top" button.

13. PC3 istemcisinde DHCP ile dinamik IP adresi ataması gerçekleştiriniz. Ekran görüntüsü ile gösteriniz.

