

# BİLGİSAYAR AĞLARI – TAKE HOME EXAM-IV

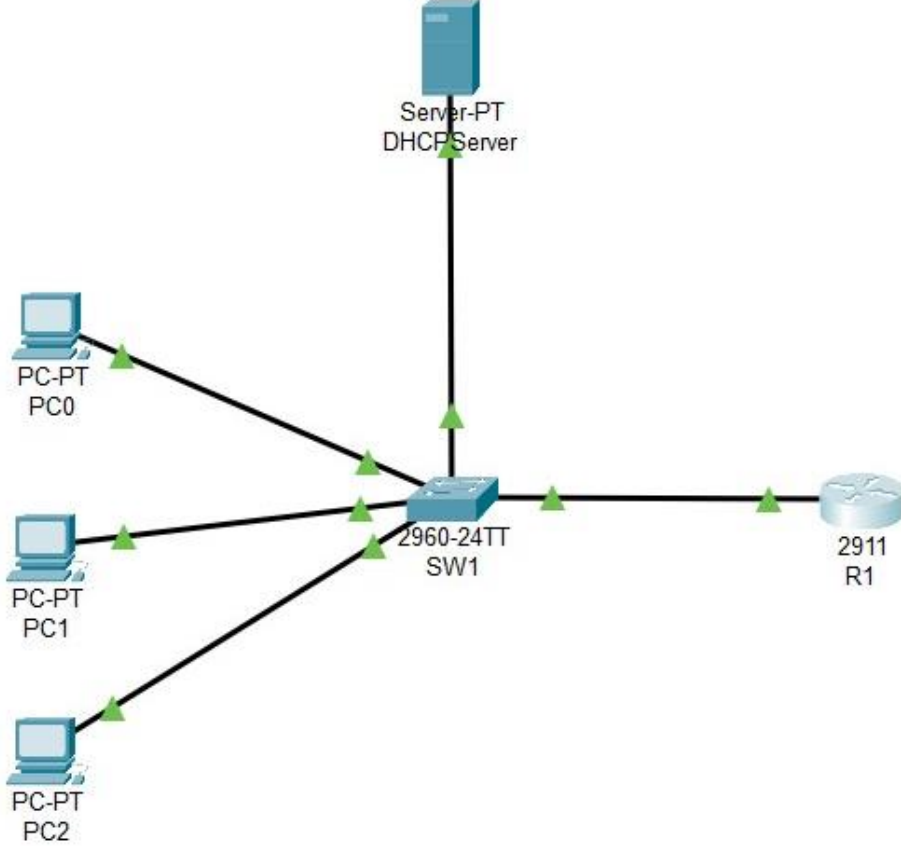
## DHCP

DERYA NAİLİYE KIMIRTI

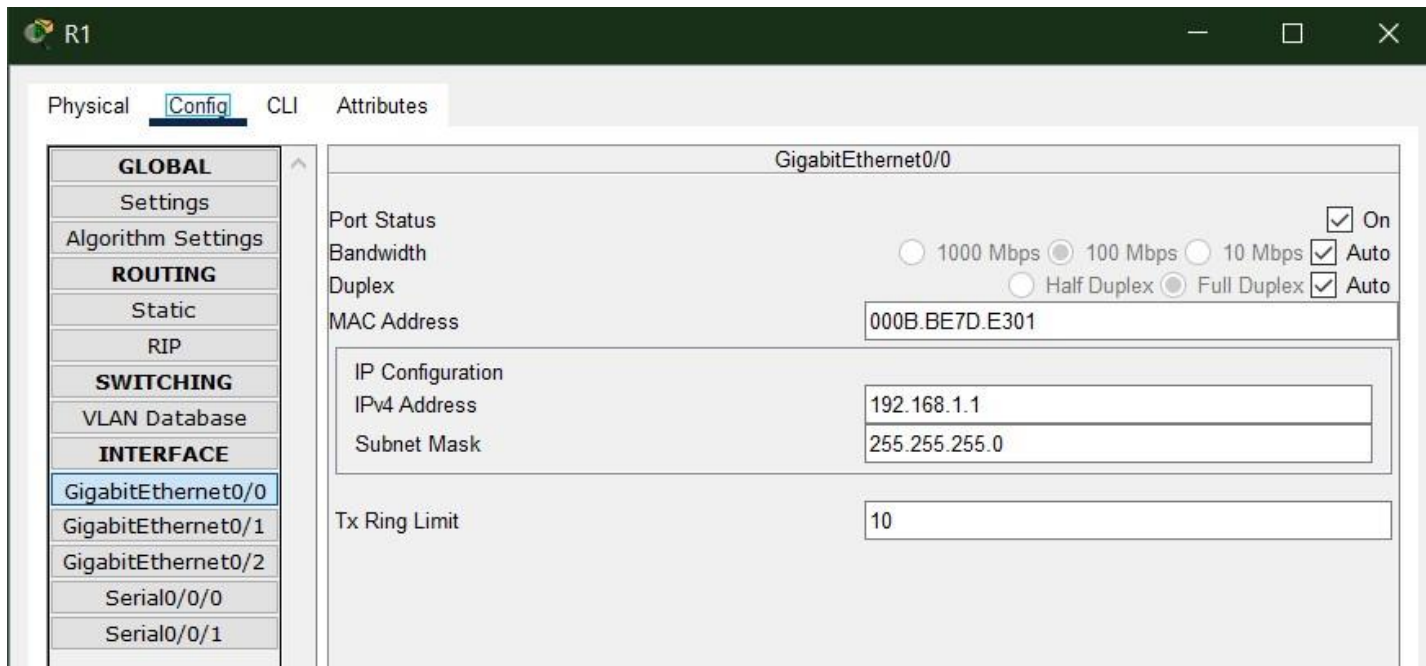
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### NETWORK – 1 (192.168.1.0/24)

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

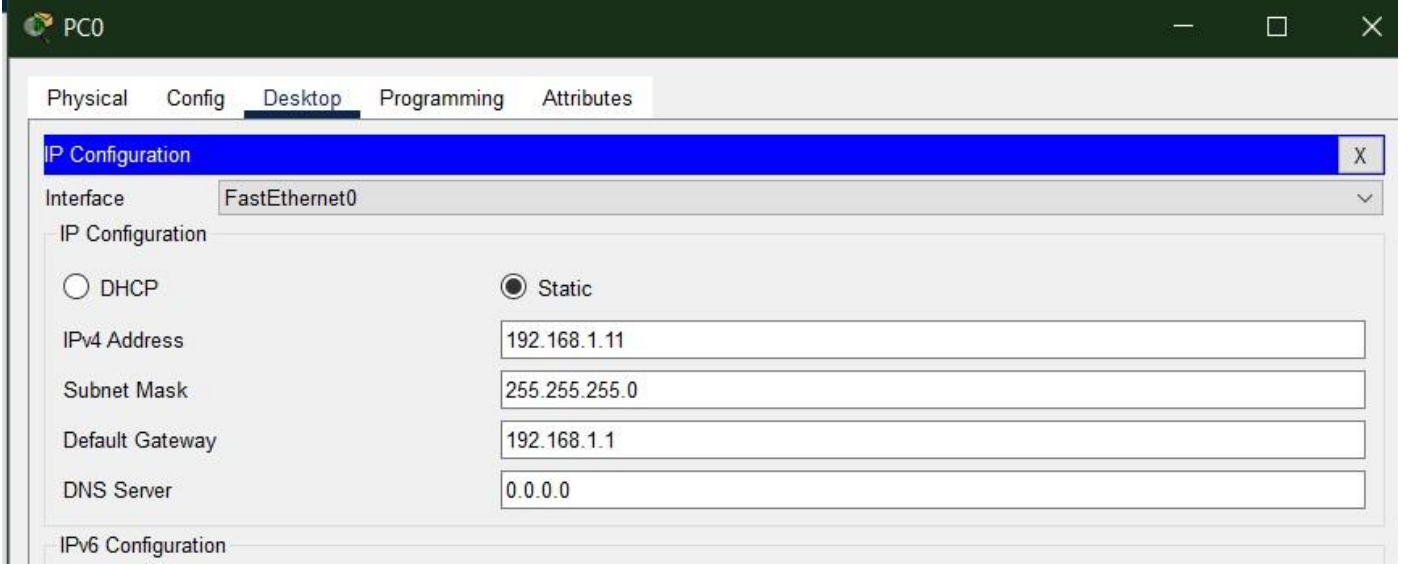


2. R1 routerının ağa bağlanan arayüzüne 192.168.1.1 IP adresini atayınız. Ekran görüntüsü ile gösteriniz.



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

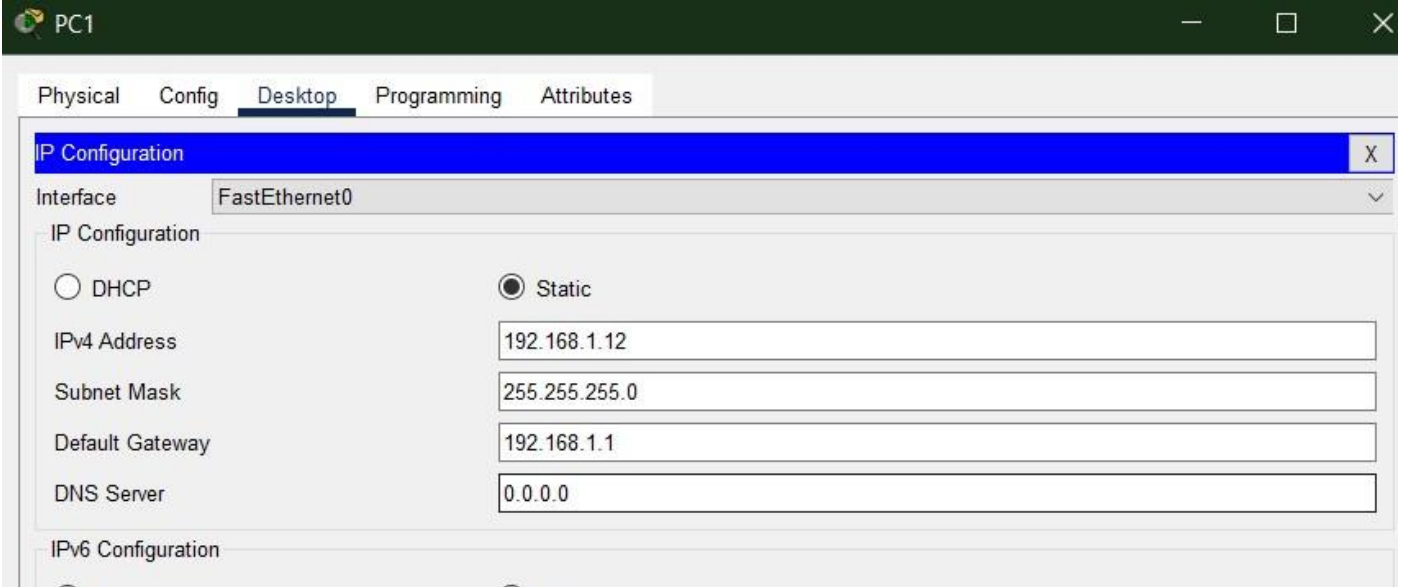
PC0



The screenshot shows the configuration window for PC0. The 'Desktop' tab is selected. Under 'IP Configuration', the 'Static' radio button is chosen. The fields are filled with the following values:

Field	Value
IPv4 Address	192.168.1.11
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1
DNS Server	0.0.0.0

PC1



The screenshot shows the configuration window for PC1. The 'Desktop' tab is selected. Under 'IP Configuration', the 'Static' radio button is chosen. The fields are filled with the following values:

Field	Value
IPv4 Address	192.168.1.12
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1
DNS Server	0.0.0.0

## PC2

The screenshot shows the 'PC2' configuration window with the 'Desktop' tab selected. The 'IP Configuration' section is expanded, showing the 'FastEthernet0' interface. The 'Static' radio button is selected for IP configuration. The fields are filled with the following values:

Field	Value
IPv4 Address	192.168.1.13
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1
DNS Server	0.0.0.0

## DHCP Server

The screenshot shows the 'DHCP Server' configuration window with the 'Desktop' tab selected. The 'IP Configuration' section is expanded. The 'Static' radio button is selected for IP configuration. The fields are filled with the following values:

Field	Value
IPv4 Address	192.168.1.10
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1
DNS Server	0.0.0.0

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

**SERVICES**

- HTTP
- DHCP**
- DHCPv6
- TFTP
- DNS
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP
- IoT
- VM Management
- Radius EAP

**DHCP**

Interface: FastEthernet0 Service: ☒ On ☐ Off

Pool Name: serverPool

Default Gateway: 192.168.1.1

DNS Server: 0.0.0.0

Start IP Address: 192 168 1 10

Subnet Mask: 255 255 255 0

Maximum Number of Users: 100

TFTP Server: 0.0.0.0

WLC Address: 0.0.0.0

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
serverPool	192.168.1.1	0.0.0.0	192.168.1.10	255.255.255.0	100	0.0.0.0	0.0.0.0

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

PC0

**PC0**

Physical Config **Desktop** Programming Attributes

**IP Configuration**

Interface: FastEthernet0

IP Configuration

☒ DHCP ☐ Static DHCP request successful.

IPv4 Address: 192.168.1.11

Subnet Mask: 255.255.255.0

Default Gateway: 192.168.1.1

DNS Server: 0.0.0.0

PC1

The screenshot shows the configuration window for PC1. The 'Desktop' tab is selected. The 'IP Configuration' section is highlighted in blue. The 'Interface' dropdown is set to 'FastEthernet0'. Under 'IP Configuration', the 'DHCP' radio button is selected, and the 'Static' radio button is unselected. The text 'DHCP request successful.' is displayed. The following fields are filled: IPv4 Address (192.168.1.12), Subnet Mask (255.255.255.0), Default Gateway (192.168.1.1), and DNS Server (0.0.0.0). The 'IPv6 Configuration' section is partially visible at the bottom.

Field	Value
Interface	FastEthernet0
IP Configuration	
<input checked="" type="radio"/> DHCP	<input type="radio"/> Static
DHCP request successful.	
IPv4 Address	192.168.1.12
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1
DNS Server	0.0.0.0
IPv6 Configuration	

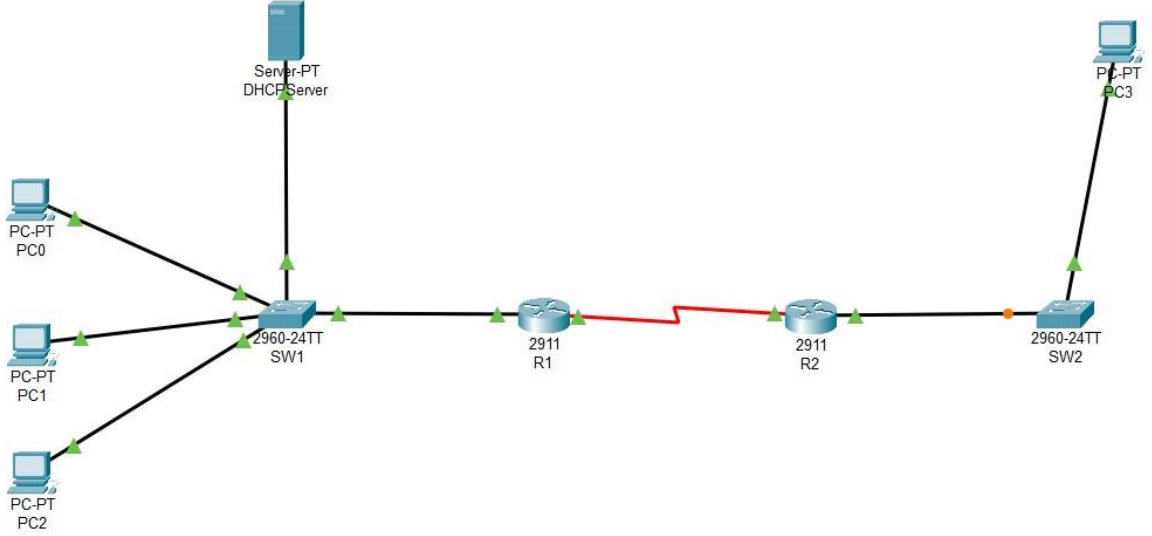
PC2

The screenshot shows the configuration window for PC2. The 'Desktop' tab is selected. The 'IP Configuration' section is highlighted in blue. The 'Interface' dropdown is set to 'FastEthernet0'. Under 'IP Configuration', the 'DHCP' radio button is selected, and the 'Static' radio button is unselected. The text 'DHCP request successful.' is displayed. The following fields are filled: IPv4 Address (192.168.1.13), Subnet Mask (255.255.255.0), Default Gateway (192.168.1.1), and DNS Server (0.0.0.0). The 'IPv6 Configuration' section is partially visible at the bottom.

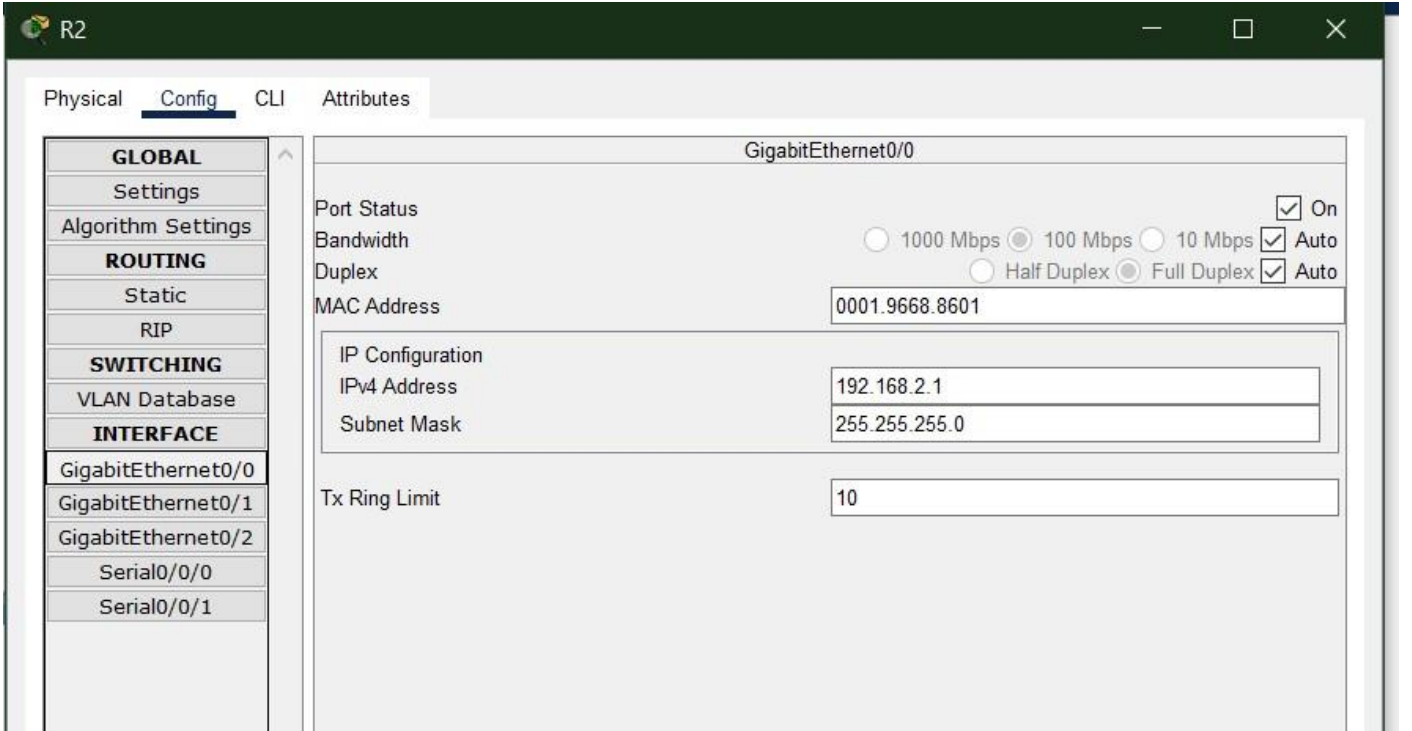
Field	Value
Interface	FastEthernet0
IP Configuration	
<input checked="" type="radio"/> DHCP	<input type="radio"/> Static
DHCP request successful.	
IPv4 Address	192.168.1.13
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1
DNS Server	0.0.0.0
IPv6 Configuration	

## NETWORK – 2 (192.168.2.0/24)

6. Ağı uygun kablolama ile bağlayınız. R1 ve R2 routerlarını “Serial DTE” kablosu ile Se0/0/0 portları üzerinden bağlayınız. Tüm ağın mantıksal görüntüsünü ekran görüntüsü ile gösteriniz.



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



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.

R1:

The screenshot shows the configuration window for R1. The 'Config' tab is selected. In the left sidebar, the 'INTERFACE' section is expanded, and 'Serial0/0/0' is selected. The main area displays the configuration for 'Serial0/0/0'. The 'Port Status' is checked and set to 'On'. 'Duplex' is set to 'Full Duplex'. 'Clock Rate' is set to '2000000'. Under 'IP Configuration', the 'IPv4 Address' is '10.0.0.1' and the 'Subnet Mask' is '255.0.0.0'. The 'Tx Ring Limit' is set to '10'.

Serial0/0/0	
Port Status	<input checked="" type="checkbox"/> On
Duplex	<input checked="" type="radio"/> Full Duplex
Clock Rate	2000000
IP Configuration	
IPv4 Address	10.0.0.1
Subnet Mask	255.0.0.0
Tx Ring Limit	10

R2:

The screenshot shows the configuration window for R2. The 'Config' tab is selected. In the left sidebar, the 'INTERFACE' section is expanded, and 'Serial0/0/0' is selected. The main area displays the configuration for 'Serial0/0/0'. The 'Port Status' is checked and set to 'On'. 'Duplex' is set to 'Full Duplex'. 'Clock Rate' is set to '1200'. Under 'IP Configuration', the 'IPv4 Address' is '20.0.0.1' and the 'Subnet Mask' is '255.0.0.0'. The 'Tx Ring Limit' is set to '10'.

Serial0/0/0	
Port Status	<input checked="" type="checkbox"/> On
Duplex	<input checked="" type="radio"/> Full Duplex
Clock Rate	1200
IP Configuration	
IPv4 Address	20.0.0.1
Subnet Mask	255.0.0.0
Tx Ring Limit	10



9. Her iki routerın 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**

The screenshot shows the configuration interface for router R1. The 'Config' tab is selected, and the 'Static Routes' section is active. The left sidebar shows a tree view with 'GLOBAL' (Settings, Algorithm Settings), 'ROUTING' (Static, RIP), 'SWITCHING' (VLAN Database), and 'INTERFACE' (GigabitEthernet0/0, GigabitEthernet0/1, GigabitEthernet0/2, Serial0/0/0, Serial0/0/1). The main area has input fields for 'Network', 'Mask', and 'Next Hop', an 'Add' button, and a list of configured routes. One route is listed: '0.0.0.0/0 via Serial0/0/0'.

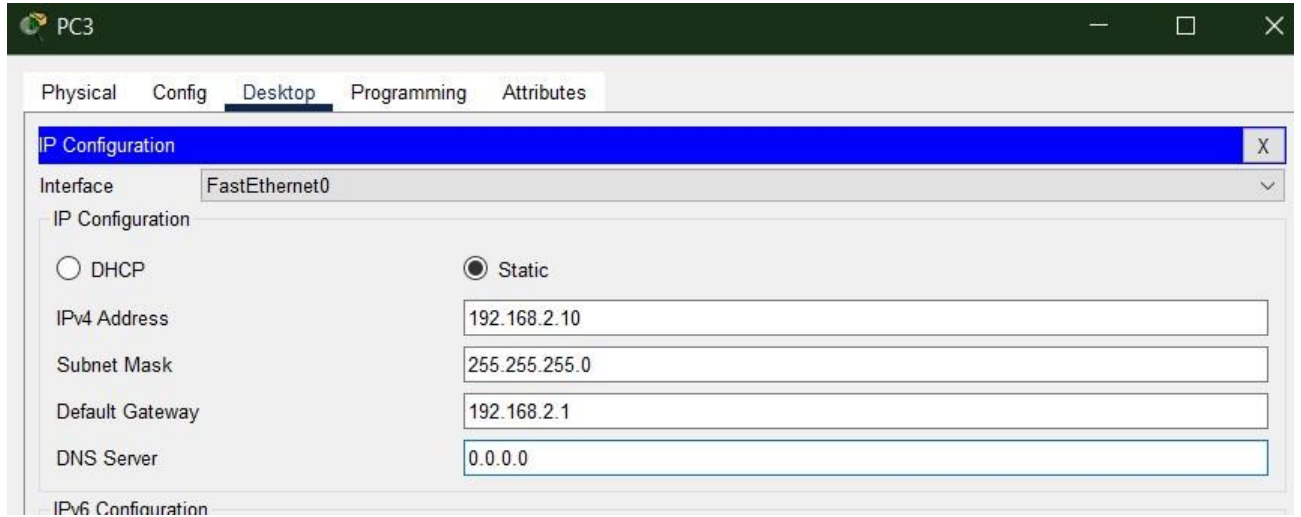
**R2(config-if)# ip route 0.0.0.0 0.0.0.0 se0/0/0**

The screenshot shows the configuration interface for router R2. The 'Config' tab is selected, and the 'Static Routes' section is active. The left sidebar shows a tree view with 'GLOBAL' (Settings, Algorithm Settings), 'ROUTING' (Static, RIP), 'SWITCHING' (VLAN Database), and 'INTERFACE' (GigabitEthernet0/0, GigabitEthernet0/1, GigabitEthernet0/2, Serial0/0/0, Serial0/0/1). The main area has input fields for 'Network', 'Mask', and 'Next Hop', an 'Add' button, and a list of configured routes. One route is listed: '0.0.0.0/0 via Serial0/0/0'. At the bottom, the 'Equivalent IOS Commands' section shows the following commands:

```
Router(config)#  
Router(config)#interface Serial0/0/0  
Router(config-if)#ip route 0.0.0.0 0.0.0.0 se0/0/0  
%Default route without gateway, if not a point-to-point interface, may impact performance  
Router(config)#ip route 0.0.0.0 0.0.0.0 se0/0/0  
Router(config)#  
Router(config)#  
Router(config)#interface Serial0/0/0
```



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



```
C:\>ping 192.168.1.11

Pinging 192.168.1.11 with 32 bytes of data:

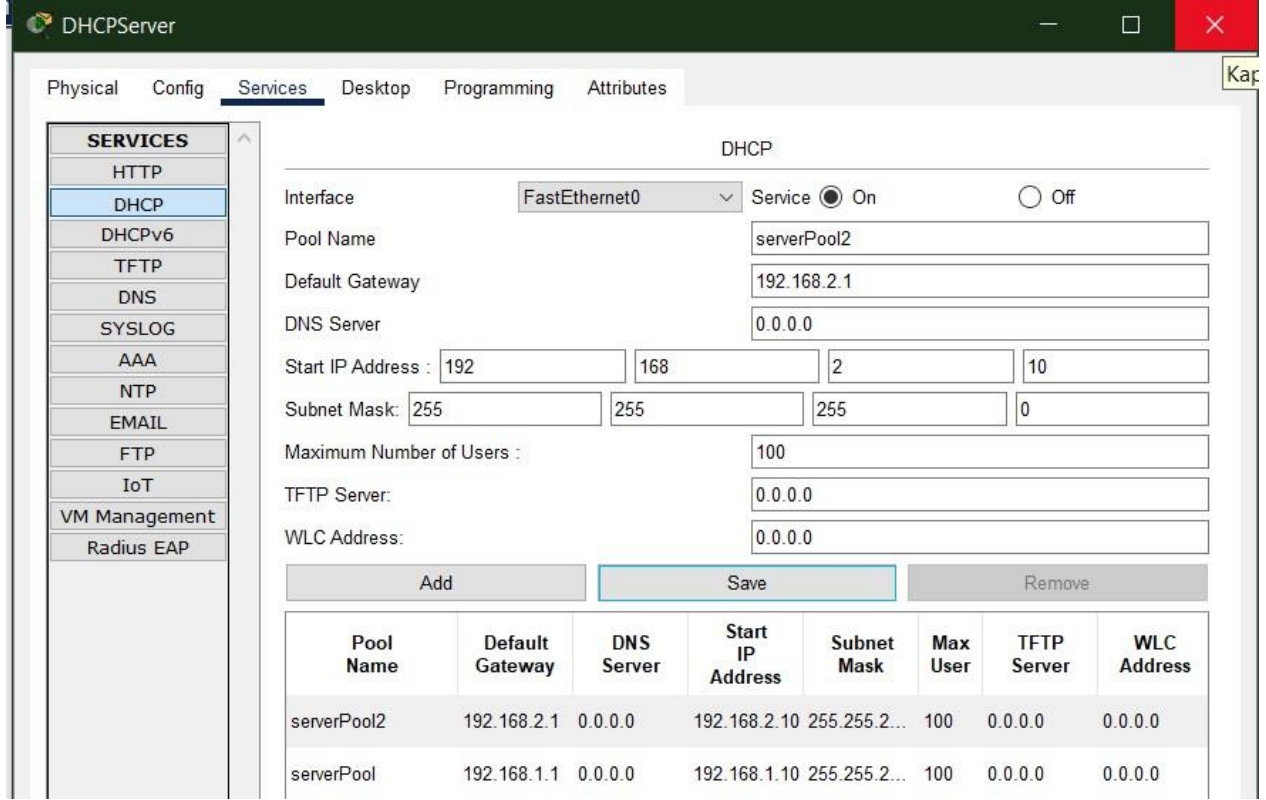
Reply from 192.168.1.11: bytes=32 time=12ms TTL=126
Reply from 192.168.1.11: bytes=32 time=12ms TTL=126
Reply from 192.168.1.11: bytes=32 time=1ms TTL=126
Reply from 192.168.1.11: bytes=32 time=19ms TTL=126

Ping statistics for 192.168.1.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 19ms, Average = 11ms

C:\>
```

## DHCP Relay Konfigürasyonu

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



Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
serverPool2	192.168.2.1	0.0.0.0	192.168.2.10	255.255.255.0	100	0.0.0.0	0.0.0.0
serverPool	192.168.1.1	0.0.0.0	192.168.1.10	255.255.255.0	100	0.0.0.0	0.0.0.0

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

•R2(config-if)# ip helper-address <DHCPServer address>

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

