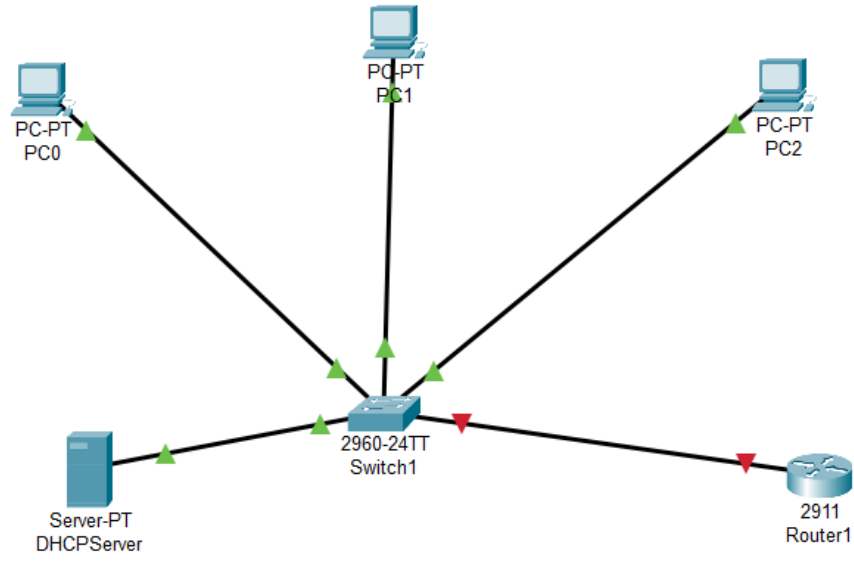


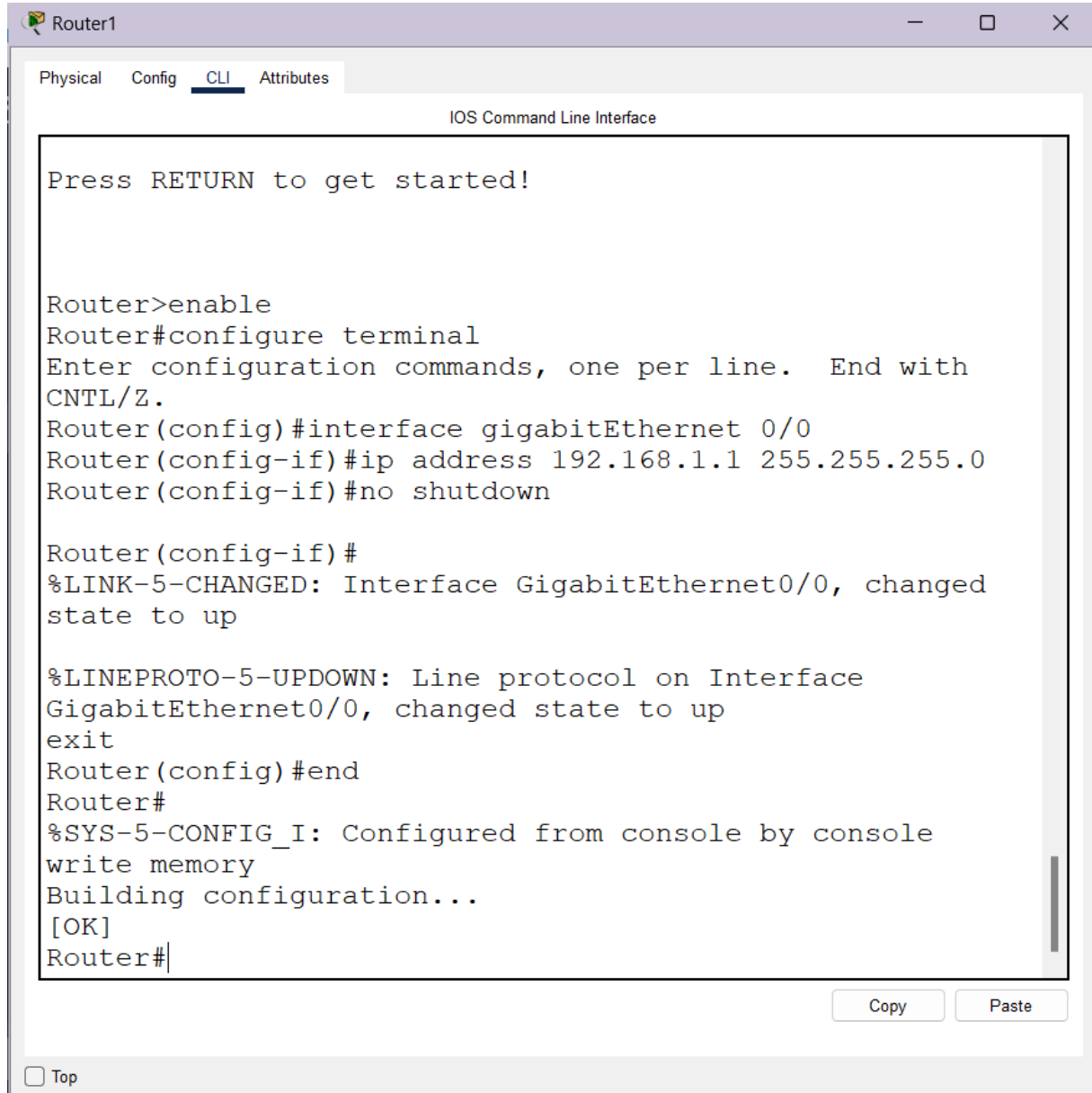
BİLGİSAYAR AĞLARI – TAKE HOME EXAM-IV DHCP

NETWORK – 1 (192.168.1.0/24)

1. Ağın mantıksal görüntüsünü ekran görüntüsü ile gösteriniz



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



The screenshot shows a web-based interface for a router named 'Router1'. The 'CLI' tab is selected, displaying the 'IOS Command Line Interface'. The terminal output shows the following sequence of commands and responses:

```
Press RETURN to get started!

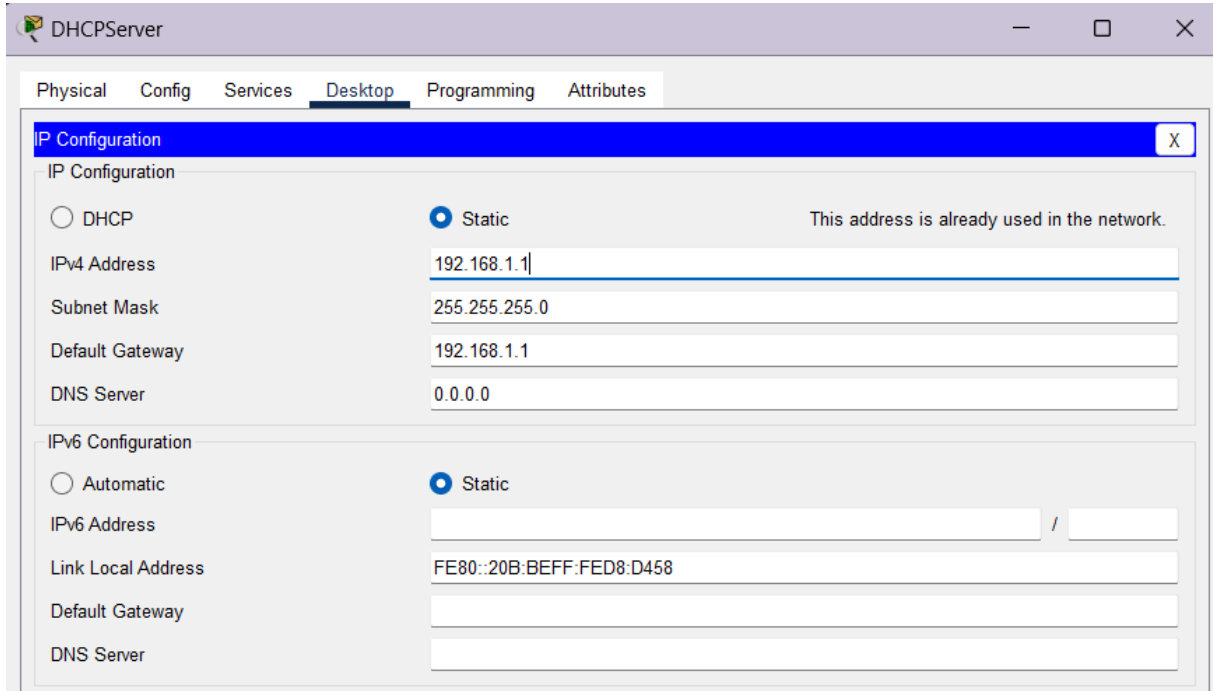
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with
CNTL/Z.
Router(config)#interface gigabitEthernet 0/0
Router(config-if)#ip address 192.168.1.1 255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed
state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface
GigabitEthernet0/0, changed state to up
exit
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console
write memory
Building configuration...
[OK]
Router#
```

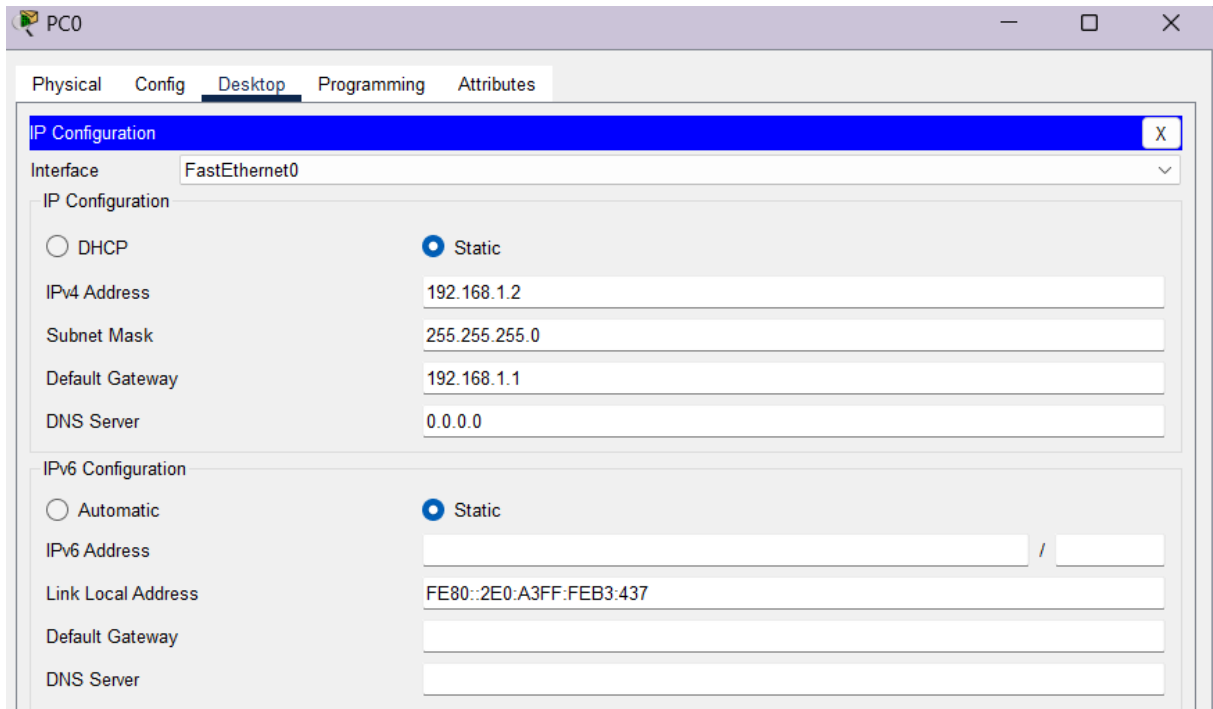
At the bottom of the terminal window, there are 'Copy' and 'Paste' buttons. Below the terminal window, there is a 'Top' link.

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.



The screenshot shows the DHCP Server configuration window in Packet Tracer. The window has a title bar with a minus, maximize, and close button. Below the title bar are tabs: Physical, Config, Services, Desktop, Programming, and Attributes. The Desktop tab is selected. The main area is titled "IP Configuration" and contains two sections: IP Configuration and IPv6 Configuration. In the IP Configuration section, the "Static" radio button is selected. The IPv4 Address field contains "192.168.1.1", the Subnet Mask field contains "255.255.255.0", the Default Gateway field contains "192.168.1.1", and the DNS Server field contains "0.0.0.0". A message "This address is already used in the network." is displayed next to the Static radio button. In the IPv6 Configuration section, the "Static" radio button is selected. The IPv6 Address field is empty, the Link Local Address field contains "FE80::20B:BEFF:FED8:D458", the Default Gateway field is empty, and the DNS Server field is empty.

Field	Value
IP Configuration	
<input type="radio"/> DHCP	
<input checked="" type="radio"/> Static	This address is already used in the network.
IPv4 Address	192.168.1.1
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1
DNS Server	0.0.0.0
IPv6 Configuration	
<input type="radio"/> Automatic	
<input checked="" type="radio"/> Static	
IPv6 Address	
Link Local Address	FE80::20B:BEFF:FED8:D458
Default Gateway	
DNS Server	



The screenshot shows the PC0 configuration window in Packet Tracer. The window has a title bar with a minus, maximize, and close button. Below the title bar are tabs: Physical, Config, Desktop, Programming, and Attributes. The Desktop tab is selected. The main area is titled "IP Configuration" and contains two sections: IP Configuration and IPv6 Configuration. In the IP Configuration section, the "Static" radio button is selected. The IPv4 Address field contains "192.168.1.2", the Subnet Mask field contains "255.255.255.0", the Default Gateway field contains "192.168.1.1", and the DNS Server field contains "0.0.0.0". In the IPv6 Configuration section, the "Static" radio button is selected. The IPv6 Address field is empty, the Link Local Address field contains "FE80::2E0:A3FF:FEB3:437", the Default Gateway field is empty, and the DNS Server field is empty.

Field	Value
Interface	FastEthernet0
IP Configuration	
<input type="radio"/> DHCP	
<input checked="" type="radio"/> Static	
IPv4 Address	192.168.1.2
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1
DNS Server	0.0.0.0
IPv6 Configuration	
<input type="radio"/> Automatic	
<input checked="" type="radio"/> Static	
IPv6 Address	
Link Local Address	FE80::2E0:A3FF:FEB3:437
Default Gateway	
DNS Server	

PC1

Physical Config Desktop Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.1.3

Subnet Mask 255.255.255.0

Default Gateway 192.168.1.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::207:ECFF:FE27:11D1

Default Gateway

DNS Server

PC2

Physical Config Desktop Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.1.4

Subnet Mask 255.255.255.0

Default Gateway 192.168.1.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::230:A3FF:FE87:D05B

Default Gateway

DNS Server

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

The screenshot shows the DHCPServer configuration window with the 'Services' tab selected. The 'DHCP' service is enabled for the 'FastEthernet0' interface. The configuration includes a pool named 'serverPool' with a default gateway of 192.168.1.1, a DNS server of 0.0.0.0, and a start IP address of 192.168.1.10 with a subnet mask of 255.255.255.0. The maximum number of users is set to 100. The TFTP server and WLC address are both set to 0.0.0.0. The 'Save' button is highlighted.

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

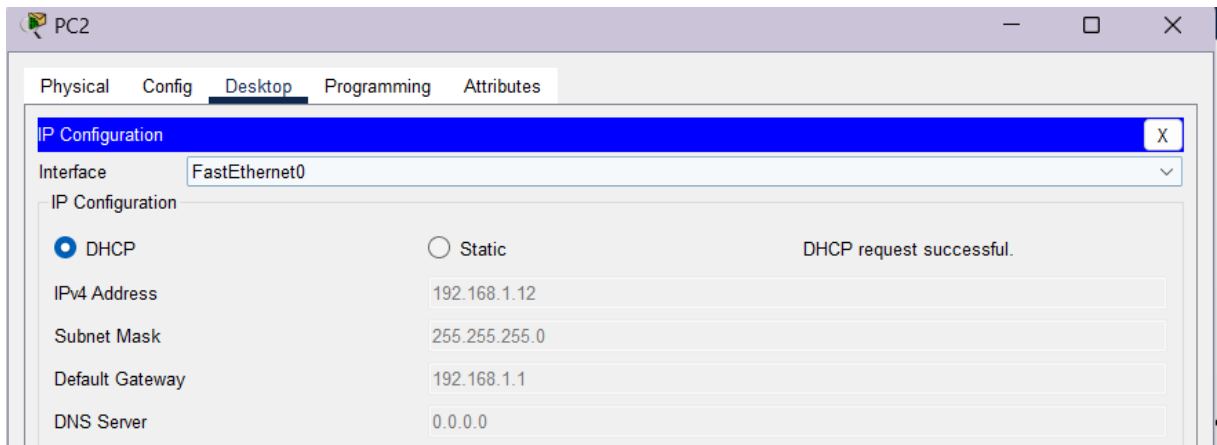
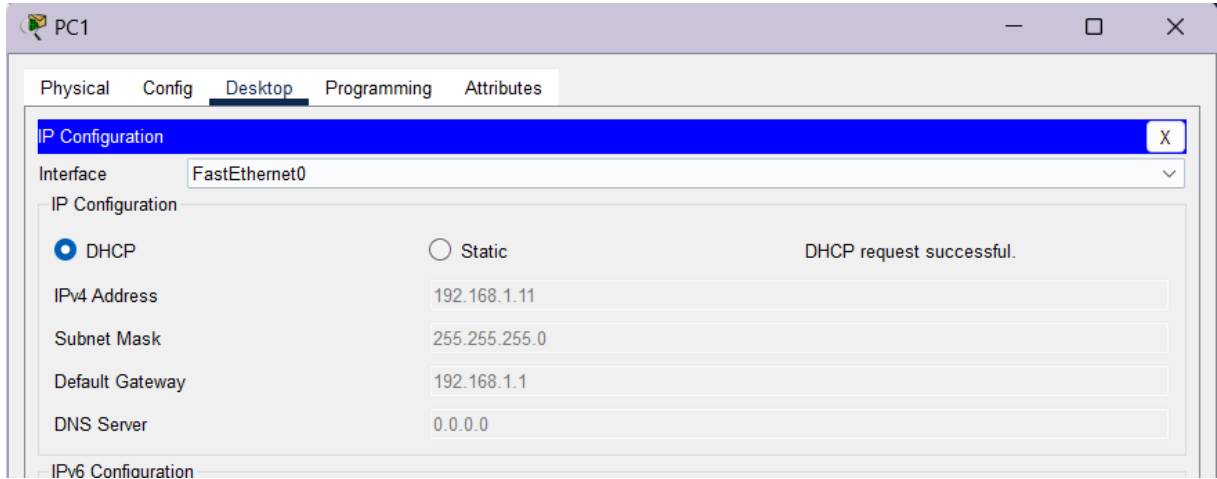
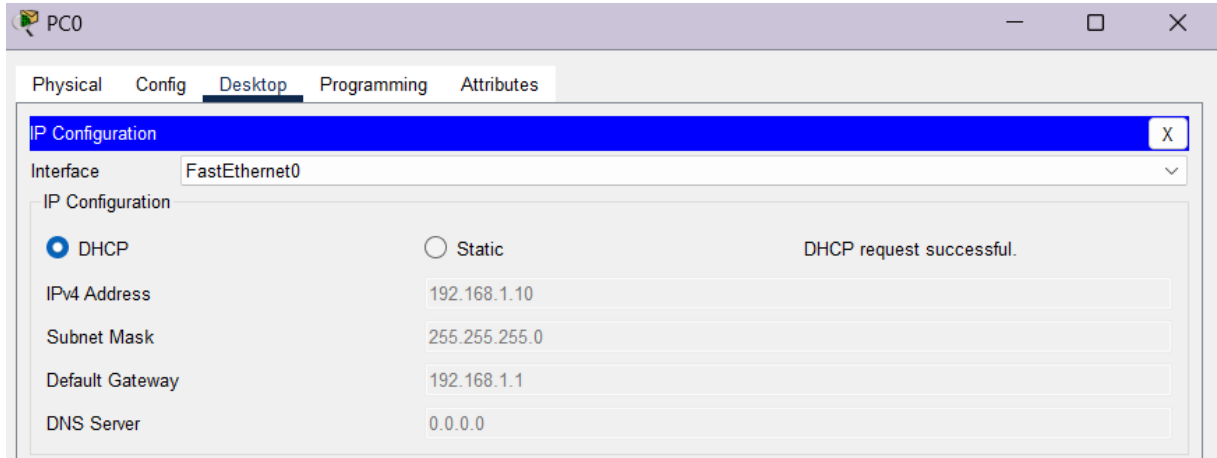
TFTP Server: 0.0.0.0

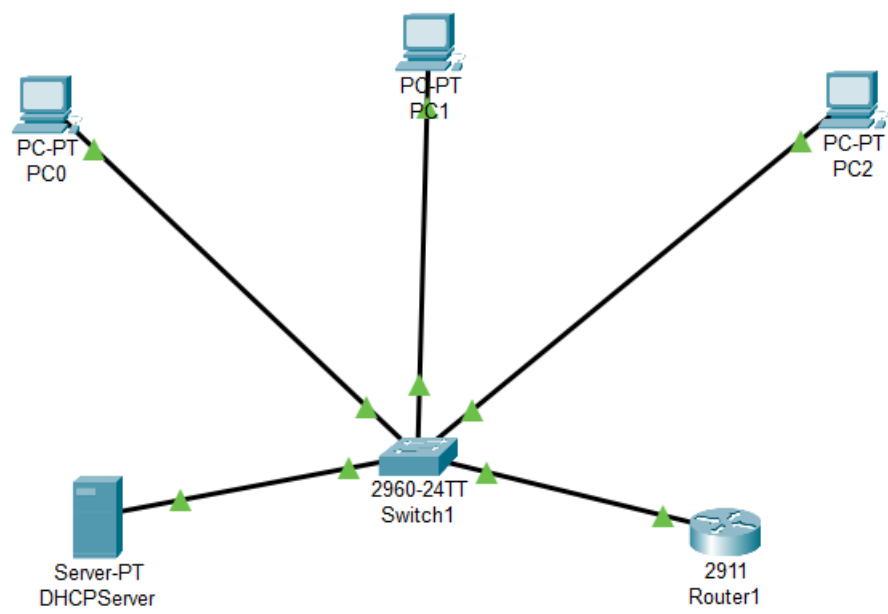
WLC Address: 0.0.0.0

Buttons: Add Save Remove

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

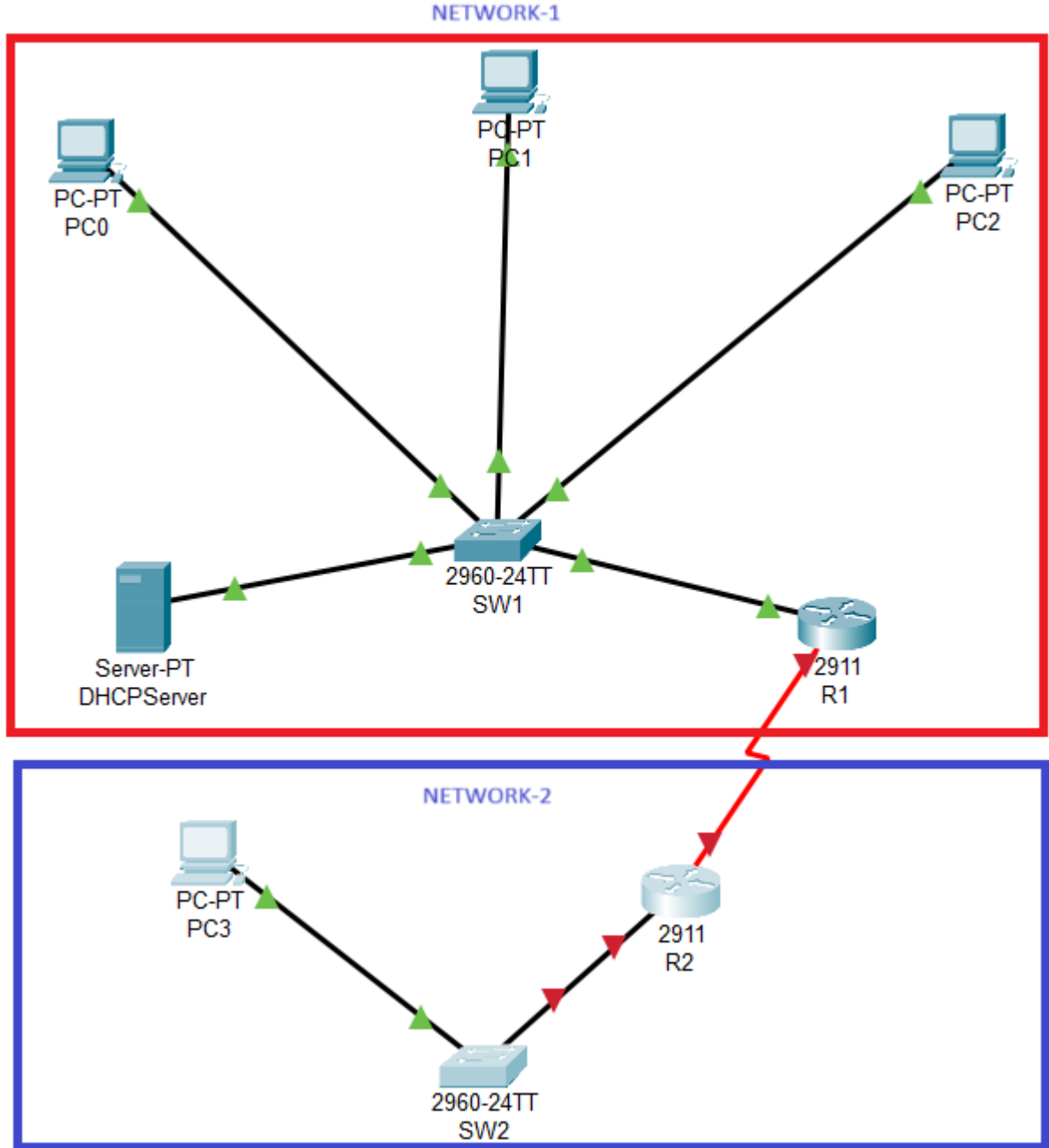
5. Her üç istemciden de DHCP ile dinamik IP tahsisi yapınız. Ekran görüntüsü ile gösteriniz.



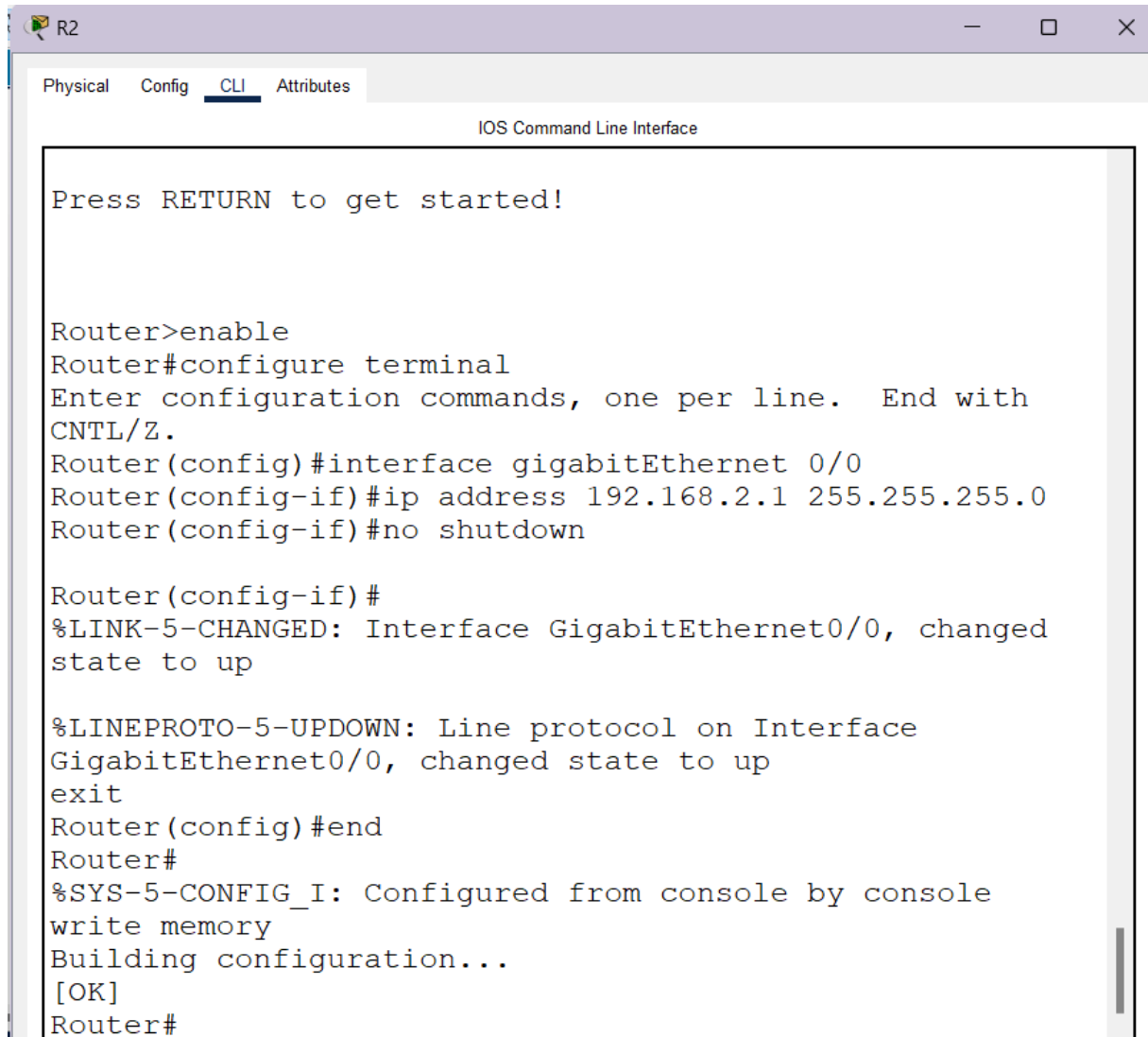


NETWORK – 2 (192.168.2.0/24)

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 routerinin ağı bağlanan arayüzüne 192.168.2.1 IP adresini atayınız. Ekran görüntüsü ile gösteriniz.



```
R2
Physical Config CLI Attributes
IOS Command Line Interface

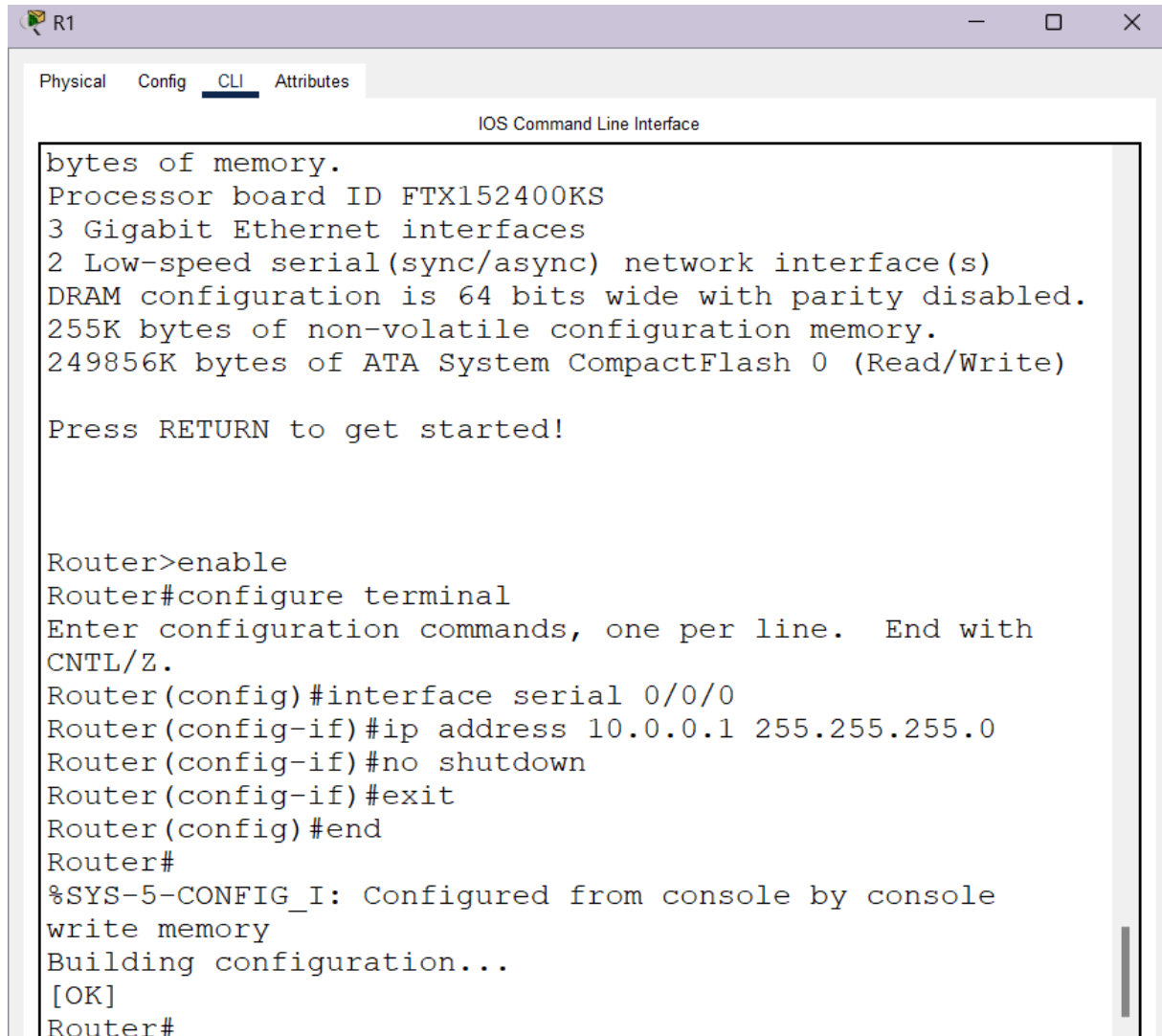
Press RETURN to get started!

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 192.168.2.1 255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed
state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface
GigabitEthernet0/0, changed state to up
exit
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console
write memory
Building configuration...
[OK]
Router#
```

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

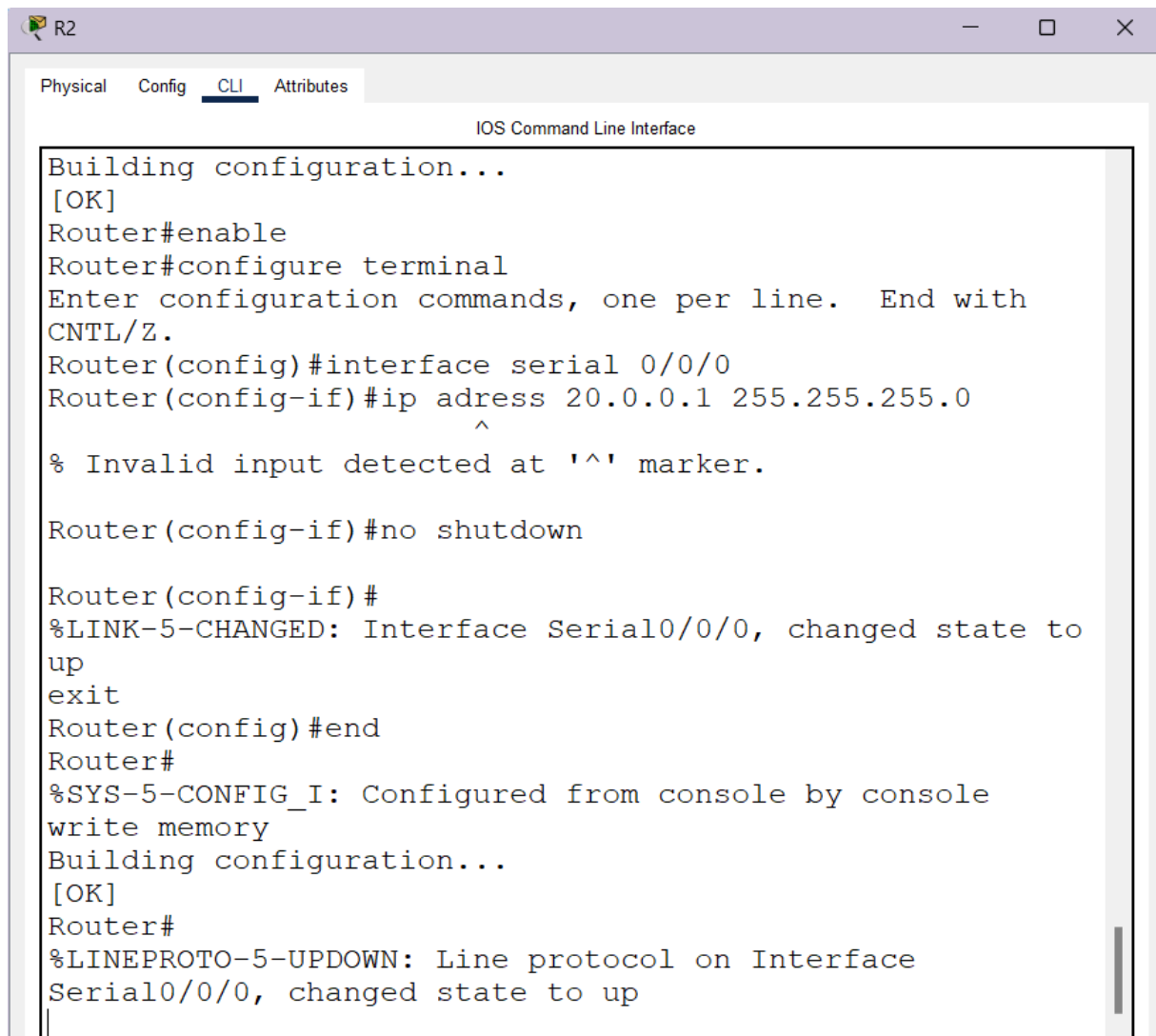


```
R1
Physical  Config  CLI  Attributes
IOS Command Line Interface

bytes of memory.
Processor board ID FTX152400KS
3 Gigabit Ethernet interfaces
2 Low-speed serial(sync/async) network interface(s)
DRAM configuration is 64 bits wide with parity disabled.
255K bytes of non-volatile configuration memory.
249856K bytes of ATA System CompactFlash 0 (Read/Write)

Press RETURN to get started!

Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with
CNTL/Z.
Router(config)#interface serial 0/0/0
Router(config-if)#ip address 10.0.0.1 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console
write memory
Building configuration...
[OK]
Router#
```



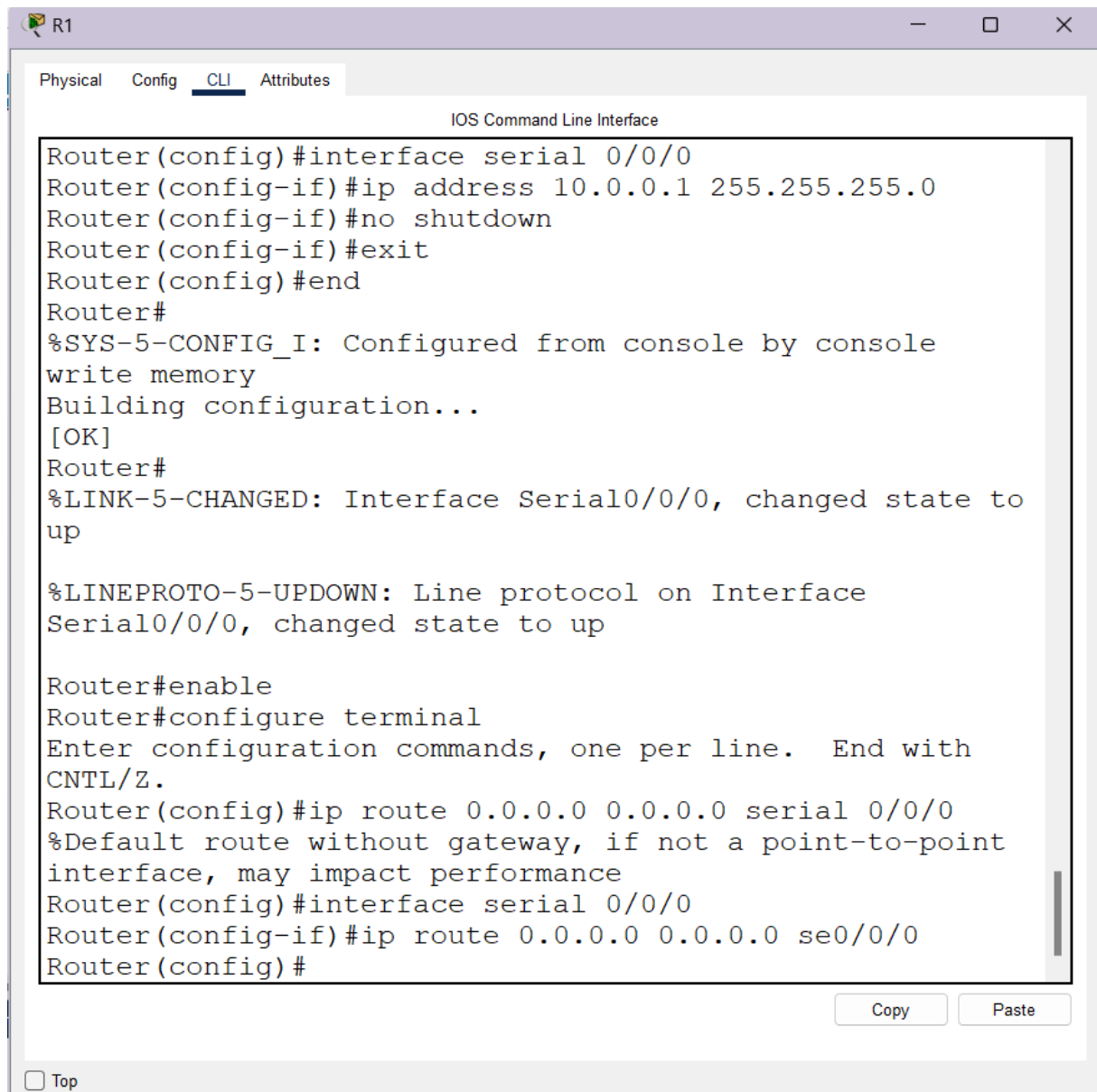
```
Building configuration...
[OK]
Router#enable
Router#configure terminal
Enter configuration commands, one per line.  End with
CNTL/Z.
Router(config)#interface serial 0/0/0
Router(config-if)#ip adress 20.0.0.1 255.255.255.0
      ^
% Invalid input detected at '^' marker.

Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to
up
exit
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console
write memory
Building configuration...
[OK]
Router#
%LINEPROTO-5-UPDOWN: Line protocol on Interface
Serial0/0/0, changed state to up
|
```

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 a window titled 'R1' with a tabbed interface. The 'CLI' tab is active, displaying the 'IOS Command Line Interface'. The terminal output shows the configuration of interface serial 0/0/0 with IP address 10.0.0.1 and subnet mask 255.255.255.0. It also shows the router enabling the terminal and configuring a default route.

```
Router(config)#interface serial 0/0/0
Router(config-if)#ip address 10.0.0.1 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console
write memory
Building configuration...
[OK]
Router#
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to
up

%LINEPROTO-5-UPDOWN: Line protocol on Interface
Serial0/0/0, changed state to up

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

At the bottom of the window, there are 'Copy' and 'Paste' buttons, and a 'Top' link.

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

R2

Physical

Config

CLI

Attributes

IOS Command Line Interface

```
write memory
Building configuration...
[OK]
Router#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0,
changed state to up

Router#enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface serial 0/0/0
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)#
Router#
%SYS-5-CONFIG_I: Configured from console by console

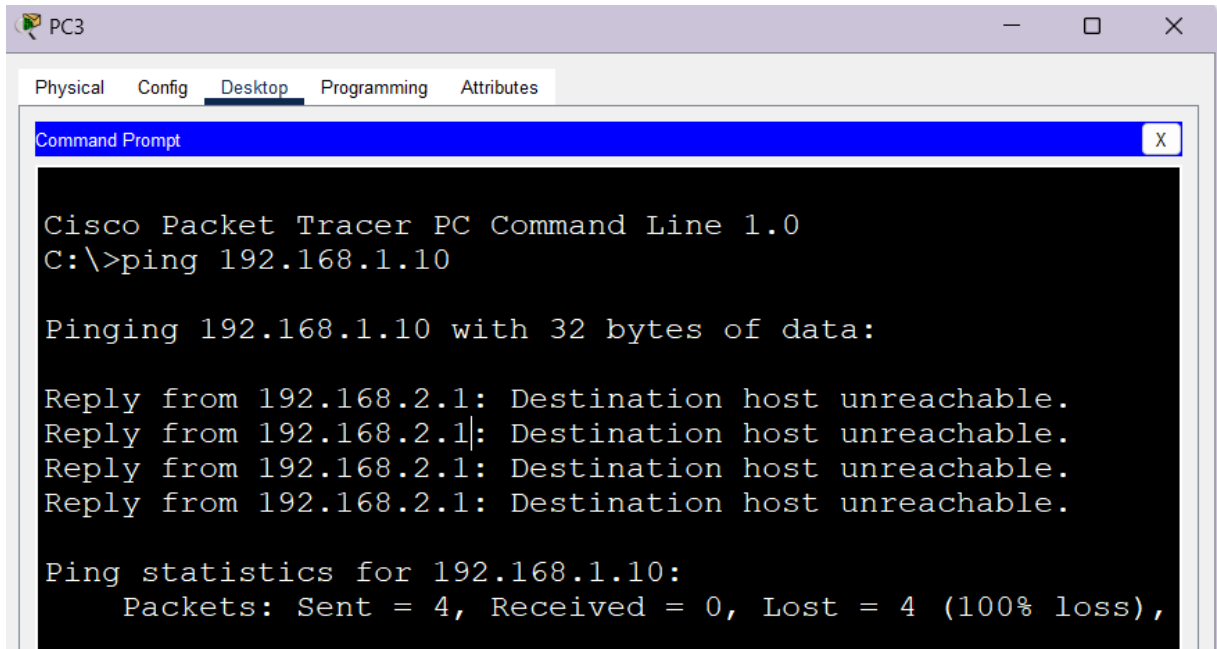
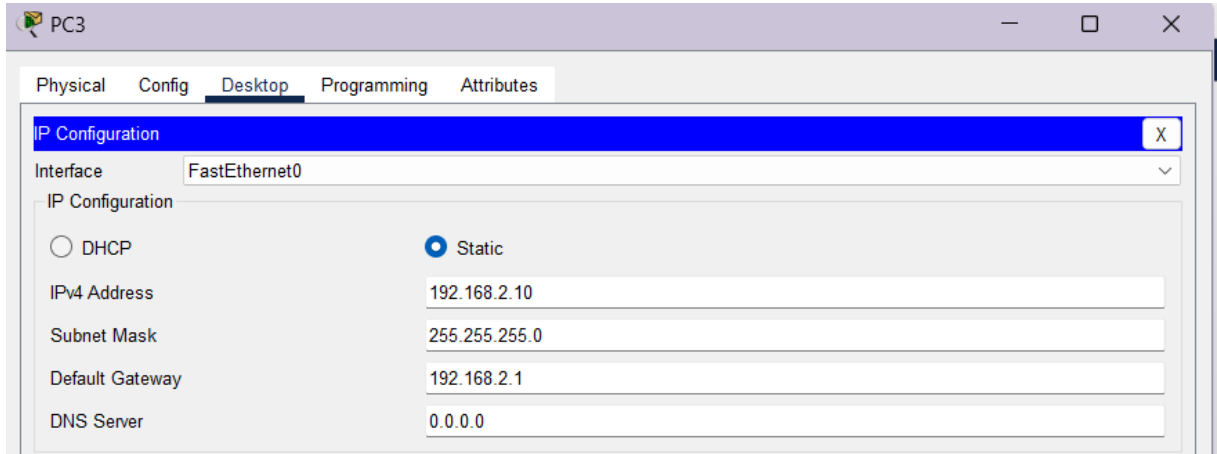
Router#enable
Router#configure term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface serial 0/0/0
Router(config-if)#ip route 0.0.0.0 0.0.0.0 se0/0/0
%Default route without gateway, if not a point-to-point
interface, may impact performance
Router(config)#ip route 0.0.0.0 0.0.0.0 se0/0/0
%Default route without gateway, if not a point-to-point
interface, may impact performance
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
```

Copy

Paste

☐ Top

10. PC3 istemcisine uygun bir IP deęerini statik olarak atayınız. PC3 bilgisayarından PC0 bilgisayarına ping atarak baęlantınızın saęlandığını teyit ediniz. Ekran görüntüsü ile gösteriniz.



DHCP Relay Konfigürasyonu

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

DHCPServer

Physical
Config
Services
Desktop
Programming
Attributes

SERVICES

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

DHCP

Interface
FastEthernet0
Service
☒ On
☐ Off

Pool Name
NET2

Default Gateway
192.168.2.1

DNS Server
0.0.0.0

Start IP Address :
192
168
2
10

Subnet Mask:
255
255
255
0

Maximum Number of Users :
100

TFTP Server:
0.0.0.0

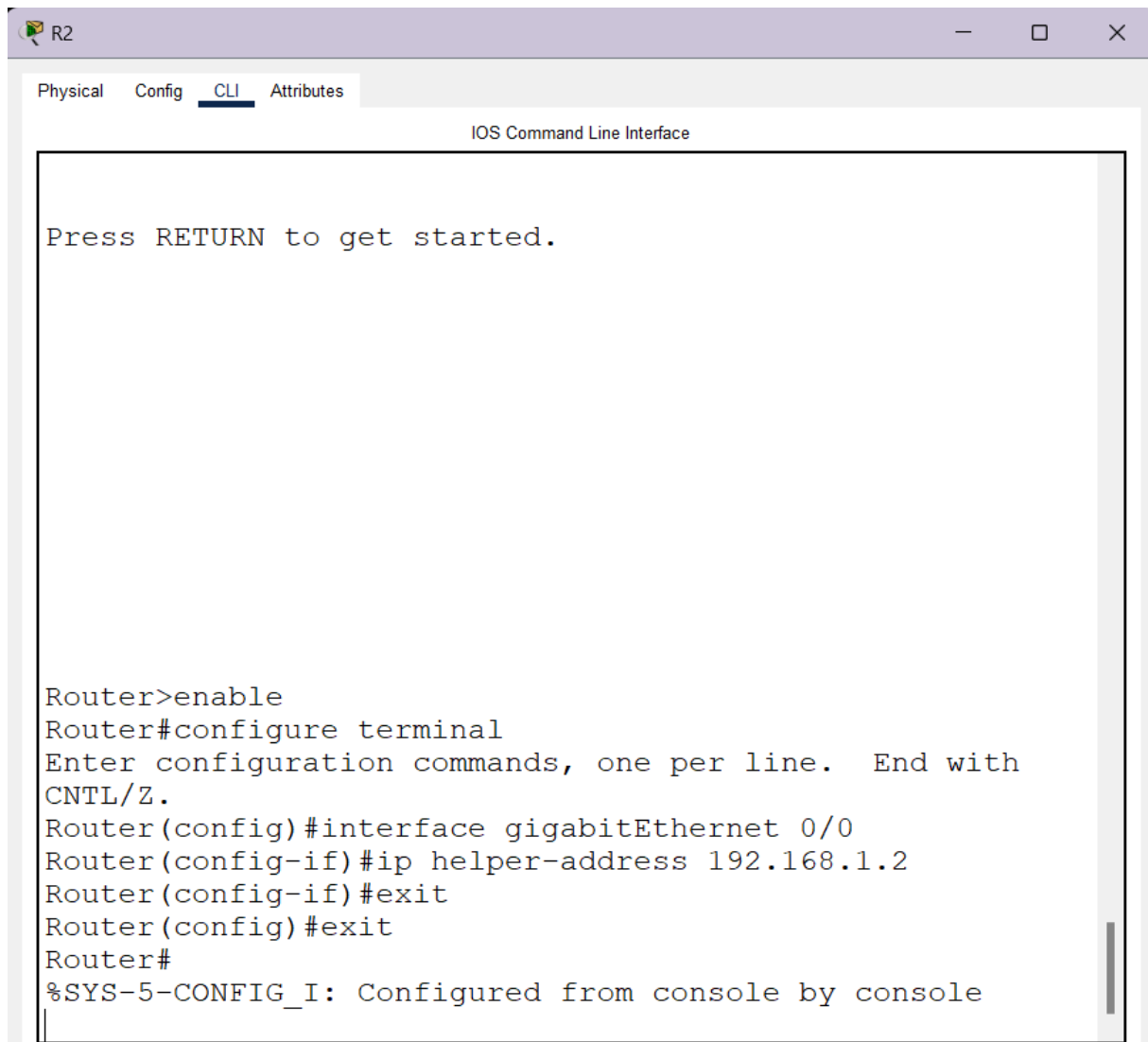
WLC Address:
0.0.0.0

Add
Save
Remove

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
NET2	192.168.2.1	0.0.0.0	192.168.2.10	255.255.2...	100	0.0.0.0	0.0.0.0
serverPool	192.168.1.1	0.0.0.0	192.168.1.0	255.255.2...	100	0.0.0.0	0.0.0.0

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

- R2(config-if)# ip helper-address



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

PC3

Physical

Config

Desktop

Programming

Attributes

IP Configuration

X

Interface

FastEthernet0

IP Configuration

DHCP

Static

IPv4 Address

192.168.2.10

Subnet Mask

255.255.255.0

Default Gateway

192.168.2.1

DNS Server

0.0.0.0

IPv6 Configuration

Automatic

Static

IPv6 Address

/

Link Local Address

FE80::20B:BEFF:FE57:C661

Default Gateway

DNS Server

802.1X

Use 802.1X Security

Authentication

MD5

Username

Password

PC3

Physical

Config

Desktop

Programming

Attributes

IP Configuration

X

Interface

FastEthernet0

IP Configuration

☒ DHCP

☐ Static

IPv4 Address

169.254.198.97

Subnet Mask

255.255.0.0

Default Gateway

0.0.0.0

DNS Server

0.0.0.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

/

Link Local Address

FE80::20B:BEFF:FE57:C661

Default Gateway

DNS Server

802.1X

☐ Use 802.1X Security

Authentication

MD5

Username

Password