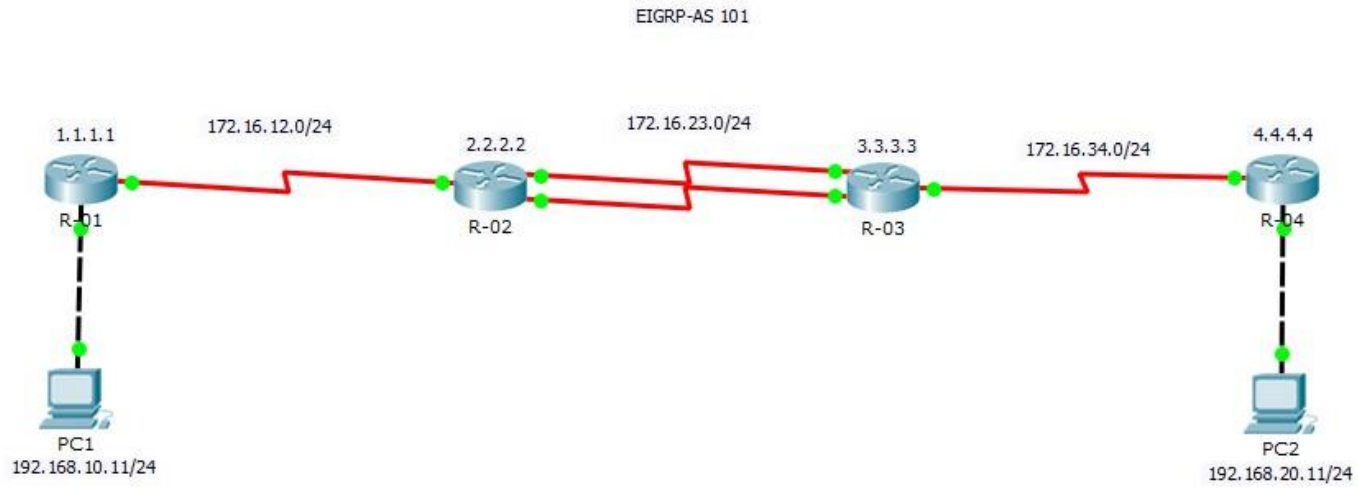
# LAB-241




## Hedef

Router'larda PPP konfigurasyonu gerçekleştirmek, PPP PAP ve PPP CHAP Authentication konfigurasyonu yapmak ve neticede ise farklı networklerin haberleşmesini gerçekleştirmek.

PC'lerin IP konfigurasyonları

| | | | |
|---|---|---|---|
| PC1 | VLAN 10 | 192.168.10.11/24 | Default GateWay 192.168.10.1 |
| PC2 | VLAN 10 | 192.168.20.11/24 | Default GateWay 192.168.20.1 |

## Çalışma-01

Bu çalışmamızda R-01 ve R-02 arasında **PPP PAP Athentication** konfigurasyonu yapacağız. R-02'de ilgili ayarlar önceden konfigure edilmiştir.

Öncelikle R-01'in Serial 0/0/0 interface'inin durumuna bir bakalım:

```
R-01#show ip int brief

Interface              IP-Address      OK? Method Status                Protocol
GigabitEthernet0/0     192.168.10.1    YES manual up                    up
GigabitEthernet0/1     unassigned      YES unset  up                    down

Serial0/0/0            172.16.12.1     YES manual up                    down

Serial0/0/1            unassigned      YES unset  administratively down down
Loopback0              1.1.1.1         YES manual up                    up
Vlan1                  unassigned      YES unset  administratively down down

R-01#
```

Serial 0/0/0 interface'i fiziksel olarak (Layer-1) **UP** olmasına ramen protokol (Layer-2) olarak **DOWN** durumdadır. Bunun sebebi karşılıklı olarak router'ların bu interface'lerde aynı dili (protokolü) konuşmuyor olmasıdır. R-01 bu interface'de **HDLC** protokolünü konuşurken R-02 ilgili interface'de **PPP** protokolünü konuşmaktadır. İlk olarak bu ayrık durumu giderecez ve router'ların birbirlerine bakan interface'lerinden aynı dili konuşmalarını sağlayacağız.

```
R-01#configure terminal
R-01(config)#interface serial 0/0/0
R-01(config-if)#encapsulation ppp
R-01(config-if)#end
R-01#
```

R-01'de Serial 0/0/0 interface'inin konuştuğu protokolü değiştirmemize karşılık hala interface'in UP olmadığını görmekteyiz. Çünki karşı taraf PPP PAP Authentication beklemektedir. İlgili ayarları yapıyoruz:

```
R-01#configure terminal
R-01(config)#
R-01(config)#username R-02 password cisco
R-01(config)#
R-01(config)#interface serial 0/0/0
R-01(config-if)#
R-01(config-if)#ppp authentication pap
R-01(config-if)#ppp pap sent-username R-01 password cisco
R-01(config-if)#
R-01(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed
state to up R-01(config-if)#
%DUAL-5-NBRCHANGE: IP-EIGRP 101: Neighbor 172.16.12.2 (Serial0/0/0) is
up: new adjacency R-01(config-if)#end
R-01#
```

Loglardan da görüldüğü gibi hem interface UP konumuna geçti hemde EIGRP komşuluğu tesis edildi.

```
R-01#show ip interface brief
Interface              IP-Address      OK? Method Status                Protocol
GigabitEthernet0/0     192.168.10.1    YES manual up                    up
GigabitEthernet0/1     unassigned      YES unset  up                    down
Serial0/0/0            172.16.12.1     YES manual up                    up
Serial0/0/1            unassigned      YES unset  administratively down down
Loopback0              1.1.1.1         YES manual up                    up
Vlan1                  unassigned      YES unset  administratively down down
```

```
R-01#show ip eigrp neighbors
IP-EIGRP neighbors for process 101
H   Address         Interface      Hold Uptime    SRTT   RTO   Q   Seq
                                   (sec)          (ms)        Cnt  Num 0
172.16.12.2     Se0/0/0        13   00:02:43  40     1000  0   11
R-01#
```

```
R-01#show interfaces serial 0/0/0

Serial0/0/0 is up, line protocol is up (connected)
  Hardware is HD64570
```

```
  Internet address is 172.16.12.1/24
  MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation PPP, loopback not set, keepalive set (10 sec)
  LCP Open
  Open: IPCP, CDPCP
  Last input never, output never, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0 (size/max/drops); Total output drops: 0
  Queueing strategy: weighted fair
  Output queue: 0/1000/64/0 (size/max total/threshold/drops)
     Conversations  0/0/256 (active/max active/max total)
     Reserved Conversations 0/0 (allocated/max allocated)
     Available Bandwidth 1158 kilobits/sec
  5 minute input rate 102 bits/sec, 0 packets/sec
  5 minute output rate 104 bits/sec, 0 packets/sec
     223 packets input, 13323 bytes, 0 no buffer
     Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
     218 packets output, 13009 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
     0 output buffer failures, 0 output buffers swapped out
     0 carrier transitions
     DCD=up  DSR=up  DTR=up  RTS=up  CTS=up

R-01#
```

Bu çalışmamızda R-04 ve R-03 arasında **PPP CHAP Athentication** konfigurasyonu yapacağız. R-03'de ilgili ayarlar önceden konfigure edilmiştir.

Öncelikle R-04'in Serial 0/0/0 interface'inin durumuna bir bakalım:

```
R-04#show ip int brief

Interface              IP-Address      OK? Method Status                Protocol
GigabitEthernet0/0     192.168.20.1    YES manual up                    up
GigabitEthernet0/1     unassigned      YES unset  administratively down down

Serial0/0/0            172.16.34.4     YES manual up                    down
Serial0/0/1            unassigned      YES unset  administratively down down
Loopback0              4.4.4.4         YES manual up                    up
Vlan1                  unassigned      YES unset  administratively down down

R-04#
```

Serial 0/0/0 interface'i fiziksel olarak (Layer-1) **UP** olmasına ramen protokol (Layer-2) olarak **DOWN** durumdadır. Bunun sebebi karşılıklı olarak router'ların bu interface'lerde aynı dili (protokolü) konuşmuyor olmasıdır. R-04 bu interface'de **HDLC** protokolünü konuşurken R-03 ilgili interface'de **PPP** protokolünü konuşmaktadır. İlk olarak bu ayrık durumu giderecez ve router'ların birbirlerine bakan interface'lerinden aynı dili konuşmalarını sağlayacağız.

```
R-04#configure terminal
R-04(config)#interface serial 0/0/0
R-04(config-if)#encapsulation ppp
R-04(config-if)#end
R-04#
```

R-04'de Serial 0/0/0 interface'inin konuştuğu protokolü değiştirmemize karşılık hala interface'in UP olmadığını görmekteyiz. Çünki karşı taraf PPP CHAP Authentication beklemektedir. İlgili ayarları yapıyoruz:

```
R-04#configure terminal
R-04(config)#
R-04(config)#username R-03 password cisco
R-04(config)#
R-04(config)#interface serial 0/0/0
R-04(config-if)#
R-04(config-if)#ppp authentication chap
R-04(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed
state to up

%DUAL-5-NBRCHANGE: IP-EIGRP 101: Neighbor 172.16.34.3 (Serial0/0/0) is
up: new adjacency R-04(config-if)#
```

```
R-04(config-if)#end
R-04#
```

Loglardan da görüldüğü gibi hem interface UP konumuna geçti hemde EIGRP komşuluğu tesis edildi.

```
R-04#show ip interface brief

Interface              IP-Address      OK? Method Status                Protocol
GigabitEthernet0/0     192.168.20.1    YES manual up                    up
GigabitEthernet0/1     unassigned      YES unset  administratively down down
Serial0/0/0            172.16.34.4     YES manual up                    up
Serial0/0/1            unassigned      YES unset  administratively down down
Loopback0              4.4.4.4         YES manual up                    up
Vlan1                  unassigned      YES unset  administratively down down

R-04#

R-04#show ip eigrp neighbors

IP-EIGRP neighbors for process 101
H   Address         Interface      Hold Uptime    SRTT   RTO   Q   Seq
                                   (sec)          (ms)       Cnt Num
0   172.16.34.3     Se0/0/0        11   00:01:31  40     1000  0   6
R-04#
```

```
R-04#show interfaces serial 0/0/0

Serial0/0/0 is up, line protocol is up (connected)
  Hardware is HD64570
  Internet address is 172.16.34.4/24
```

```
  MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation PPP, loopback not set, keepalive set (10 sec)
  LCP Open
  Open: IPCP, CDPCP
  Last input never, output never, output hang never
  Last clearing of "show interface" counters never
  Input queue: 0/75/0 (size/max/drops); Total output drops: 0
  Queueing strategy: weighted fair
  Output queue: 0/1000/64/0 (size/max total/threshold/drops)
     Conversations  0/0/256 (active/max active/max total)
     Reserved Conversations 0/0 (allocated/max allocated)
     Available Bandwidth 1158 kilobits/sec
  5 minute input rate 104 bits/sec, 0 packets/sec
  5 minute output rate 105 bits/sec, 0 packets/sec
     112 packets input, 6676 bytes, 0 no buffer
     Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
     108 packets output, 6460 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
     0 output buffer failures, 0 output buffers swapped out
     0 carrier transitions
     DCD=up  DSR=up  DTR=up  RTS=up  CTS=up

R-04#
```

PC’lerin birbirlerinie erişimine test edebiliriz. PC1 den PC2’ye ping atıp durumu kontrol ediyoruz.

```
PC>ping 192.168.20.11

Pinging 192.168.20.11 with 32 bytes of data:

Reply from 192.168.20.11: bytes=32 time=3ms TTL=124
Reply from 192.168.20.11: bytes=32 time=6ms TTL=124
Reply from 192.168.20.11: bytes=32 time=12ms TTL=124 Reply
from 192.168.20.11: bytes=32 time=3ms TTL=124

Ping statistics for 192.168.20.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 3ms, Maximum = 12ms, Average = 6ms

PC>
```

## Router'ların son config`leri

```
R-01#show running-config  Building
configuration...

Current configuration : 1086 bytes
!
version 15.1
no service timestamps log datetime msec no
service timestamps debug datetime msec no
service password-encryption
!
hostname R-01
!
no ip cef no
ipv6 cef
!
username R-02 password 0 cisco
!
license udi pid CISCO2901/K9 sn FTX1524ALVY
!
no ip domain-lookup
!
spanning-tree mode pvst
!
interface Loopback0  ip address
1.1.1.1 255.255.255.255
! interface GigabitEthernet0/0  ip
address 192.168.10.1 255.255.255.0
duplex auto  speed auto
! interface
GigabitEthernet0/1  no ip
address  duplex auto  speed
auto
! interface Serial0/0/0  ip address
172.16.12.1 255.255.255.0
encapsulation ppp  ppp authentication
pap
 ppp pap sent-username R-01 password 0 cisco
!



!
```

```
interface Serial0/0/1
no ip address  clock
rate 2000000
shutdown
!
interface Vlan1
no ip address
shutdown
!
router eigrp 101  network
1.1.1.1 0.0.0.0  network
172.16.12.1 0.0.0.0  network
192.168.10.1 0.0.0.0
!
ip classless
!
ip flow-export version 9
!
line con 0  exec-
timeout 0 0  logging
synchronous
!
line aux 0
! line vty 0
4  login
!
end
R-
04#s
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Current configuration : 1052 bytes
!
version 15.1
```

```
no service timestamps log datetime msec no
service timestamps debug datetime msec no
service password-encryption
!
hostname R-04
!
no ip cef no
ipv6 cef
!
username R-03 password 0 cisco
!
license udi pid CISCO2901/K9 sn FTX1524UDPU
!
no ip domain-lookup
!
spanning-tree mode pvst
!
interface Loopback0  ip address
4.4.4.4 255.255.255.255
! interface GigabitEthernet0/0  ip
address 192.168.20.1 255.255.255.0
duplex auto  speed auto
! interface
GigabitEthernet0/1  no ip
address  duplex auto  speed
auto  shutdown
! interface Serial0/0/0  ip address
172.16.34.4 255.255.255.0
encapsulation ppp  ppp authentication
chap
! interface
Serial0/0/1  no ip
address  clock rate
2000000  shutdown
!
!
interface Vlan1
no ip address
shutdown
!
router eigrp 101  network
4.4.4.4 0.0.0.0  network
172.16.34.4 0.0.0.0  network
192.168.20.1 0.0.0.0
```

```
!
ip classless
!
ip flow-export version 9
!
line con 0  exec-
timeout 0 0  logging
synchronous
!
line aux 0
! line vty 0
4  login
! end
```

https://goo.gl/rn8Lzq

Umarım faydalı bir LAB çalışması olmuştur. Soru ve yorumlarınız için, info@sinanozcelik.com