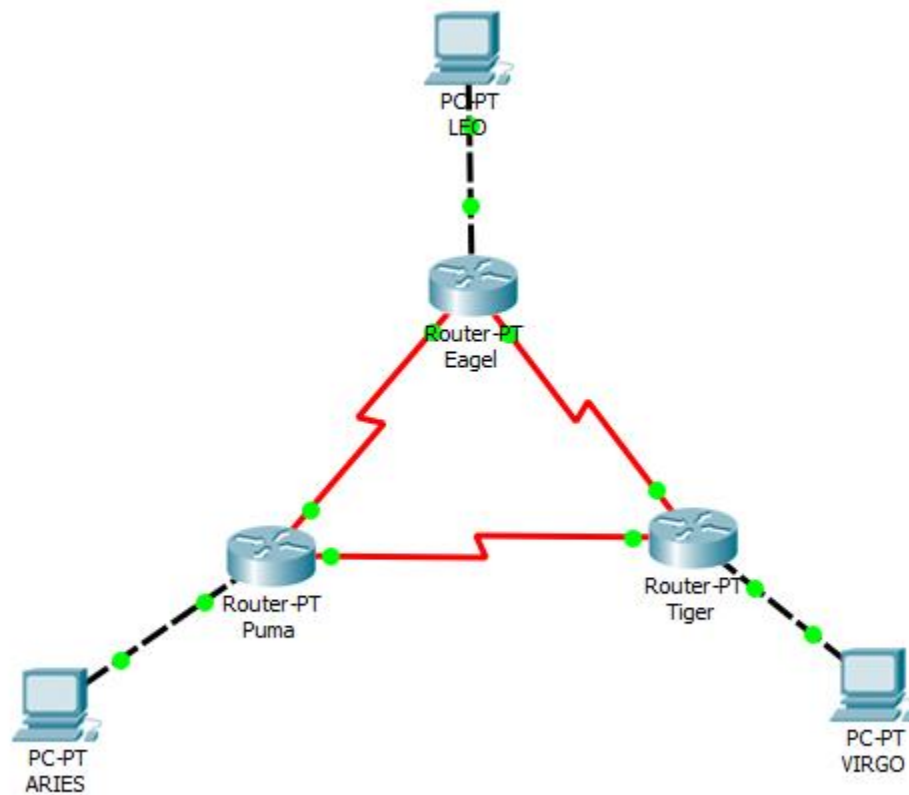


MODUL 7

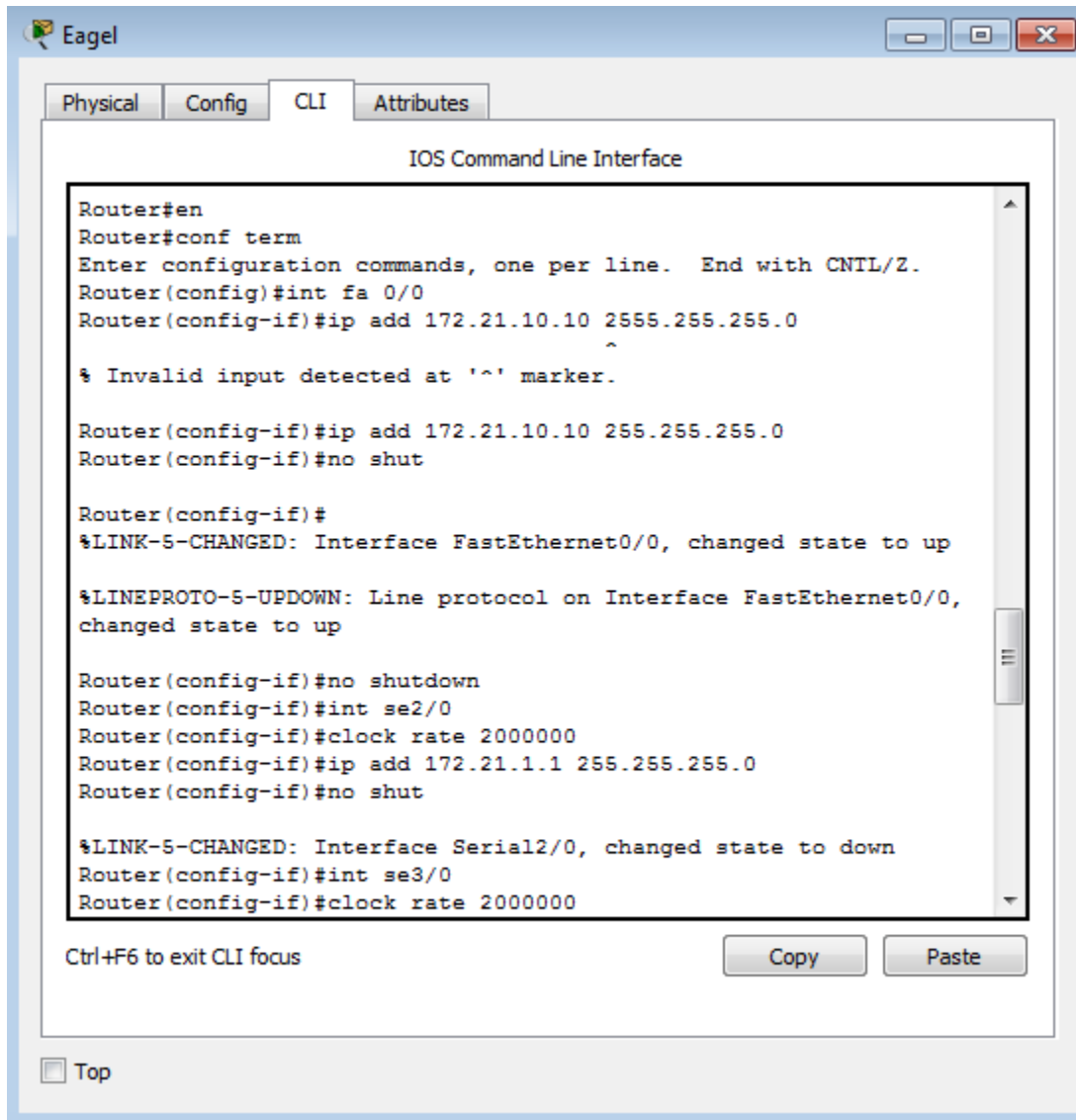
Kegiatan 1

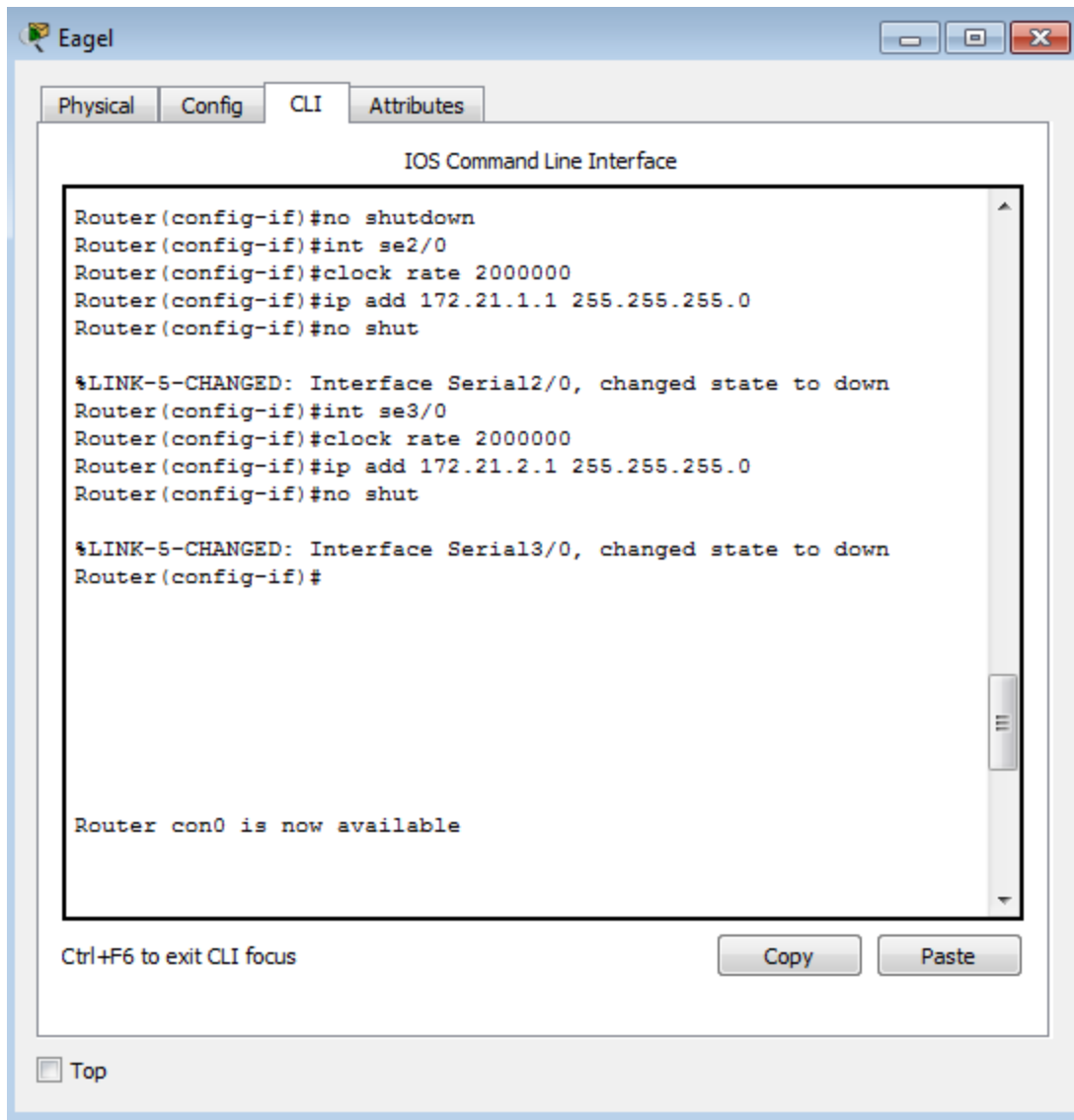
1. Membuat topologi dengan menggunakan Router genetic.

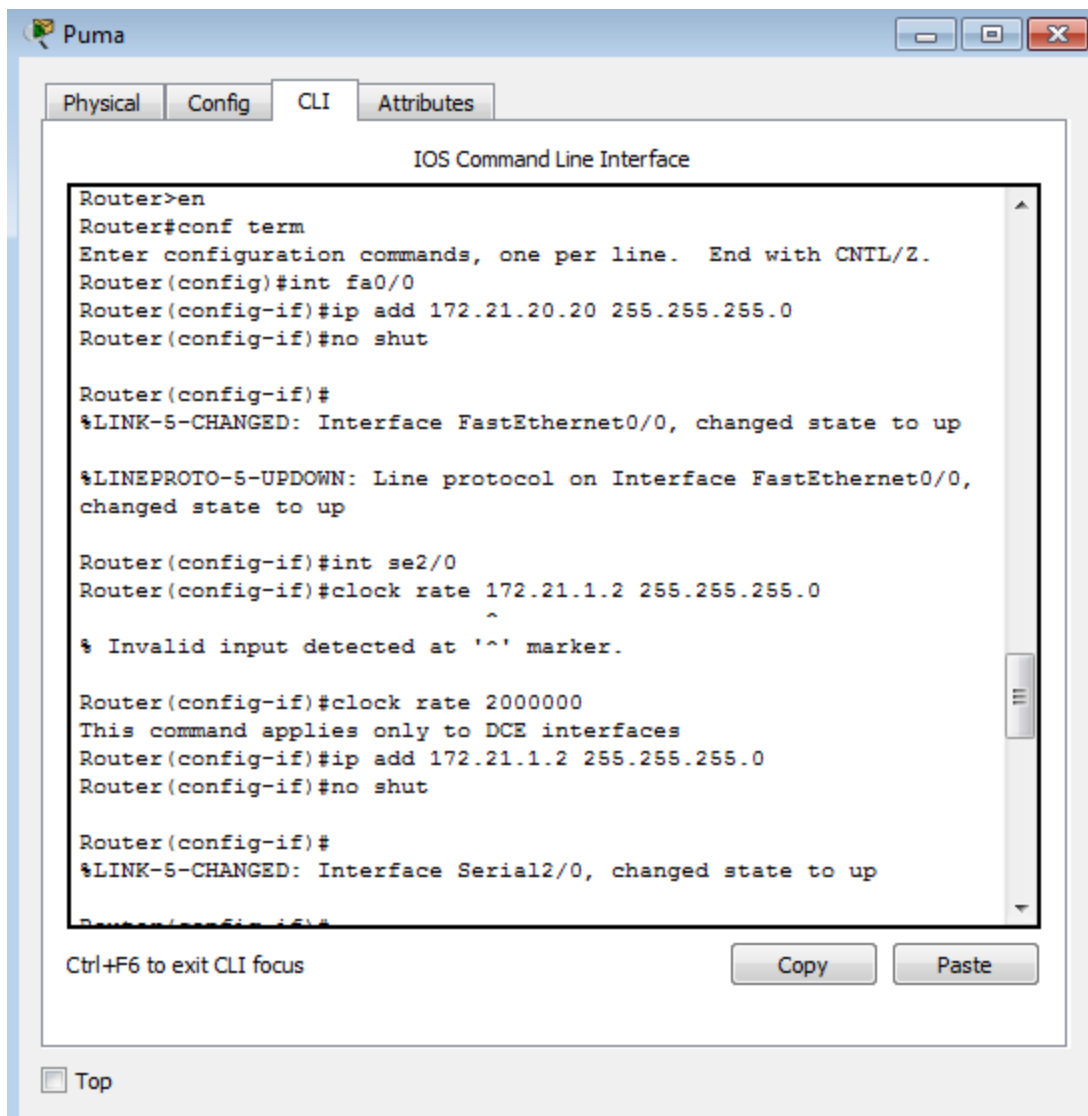


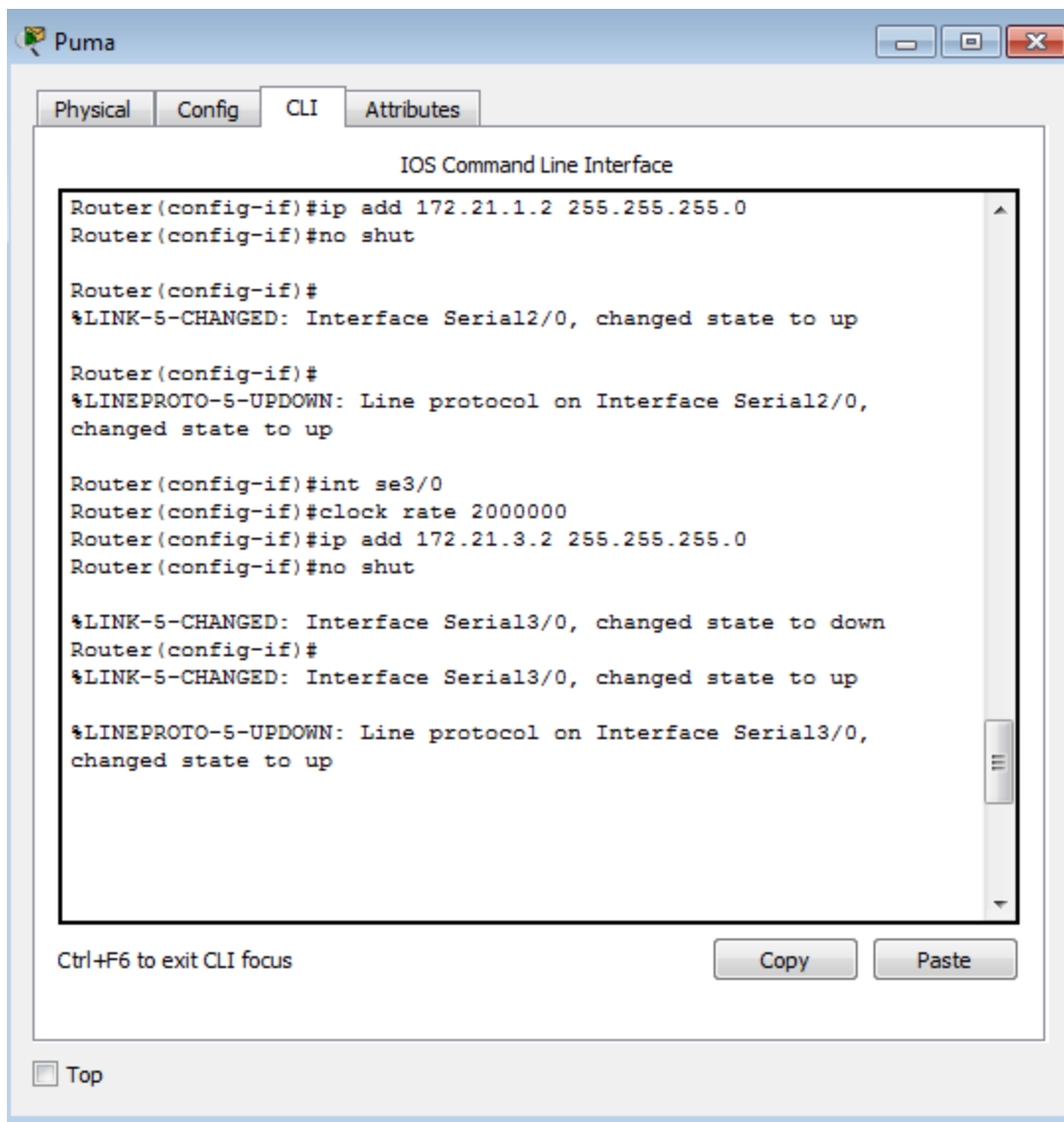
Sebelumnya Berwarna hijau, awalnya berwarna merah.. Gambar diatas adalah materi samapi menguji PING

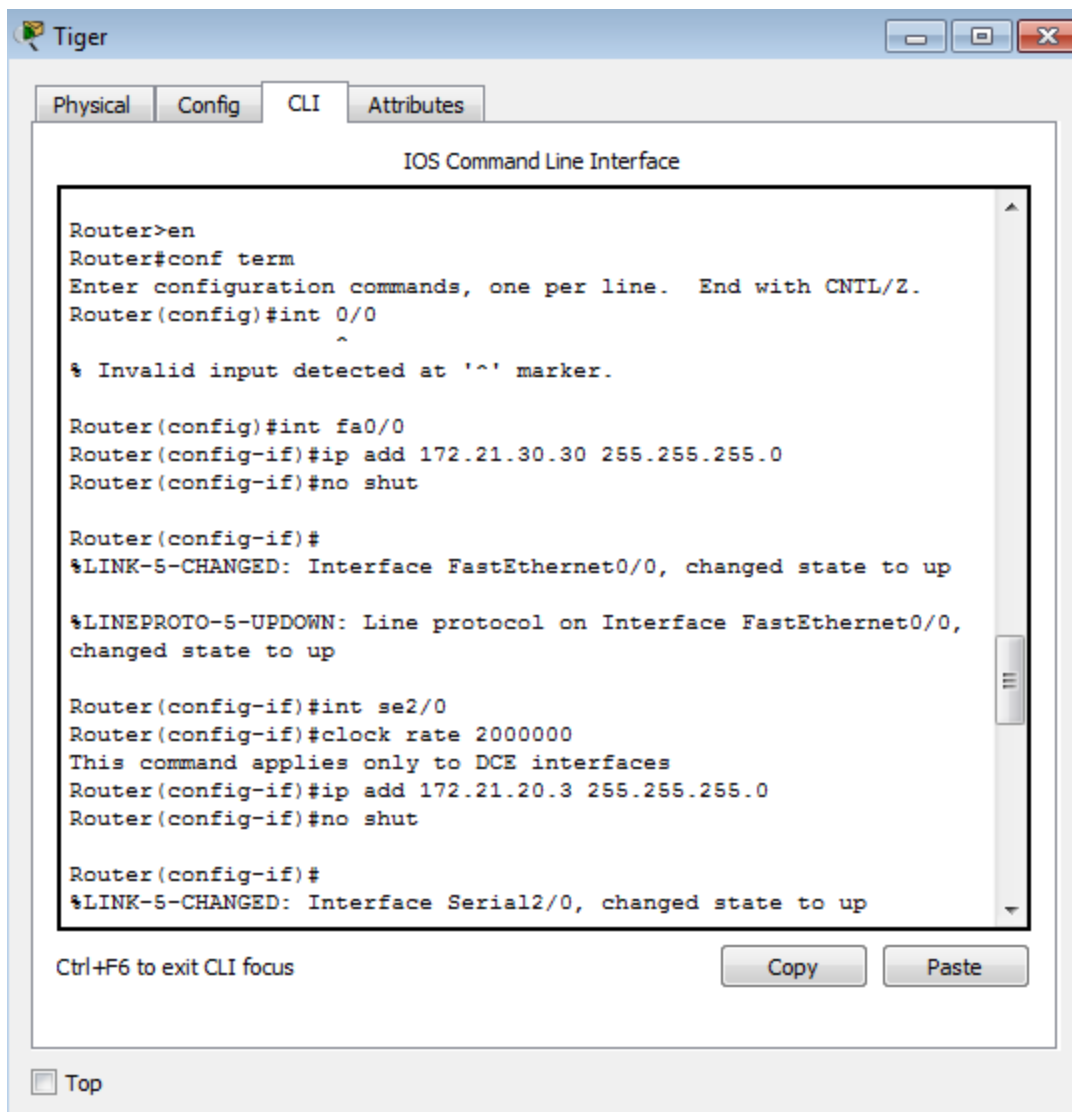
2. Konfigurasi masing-masing interface tiap router dengan alamat IP yang sudah ditentukan.

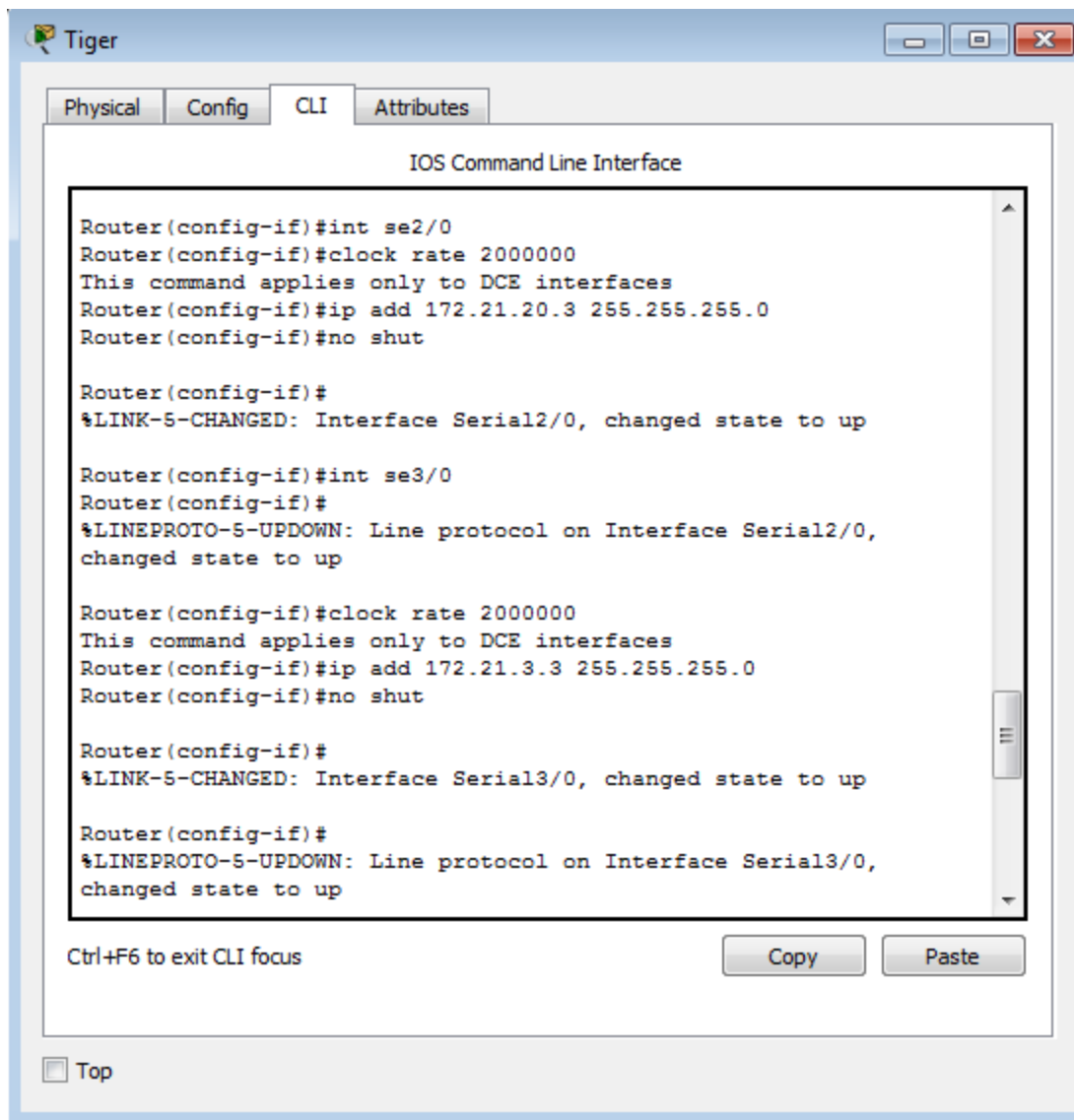












3. Mengkonfigurasi masing-masing PC dengan nama dan alamat IP yang sudah ditentukan.

LEO

Physical Config Desktop Programming Attributes

IP Configuration

IP Configuration

☐ DHCP ☒ Static

IP Address 172.21.10.1

Subnet Mask 255.255.255.0

Default Gateway 172.21.10.10

DNS Server 0.0.0.0

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address /

Link Local Address FE80::201:C9FF:FED2:101D

IPv6 Gateway

IPv6 DNS Server

Top

ARIES

Physical Config Desktop Programming Attributes

IP Configuration

IP Configuration

☐ DHCP ☒ Static

IP Address 172.21.20.2

Subnet Mask 255.255.255.0

Default Gateway 172.21.20.20

DNS Server 0.0.0.0

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

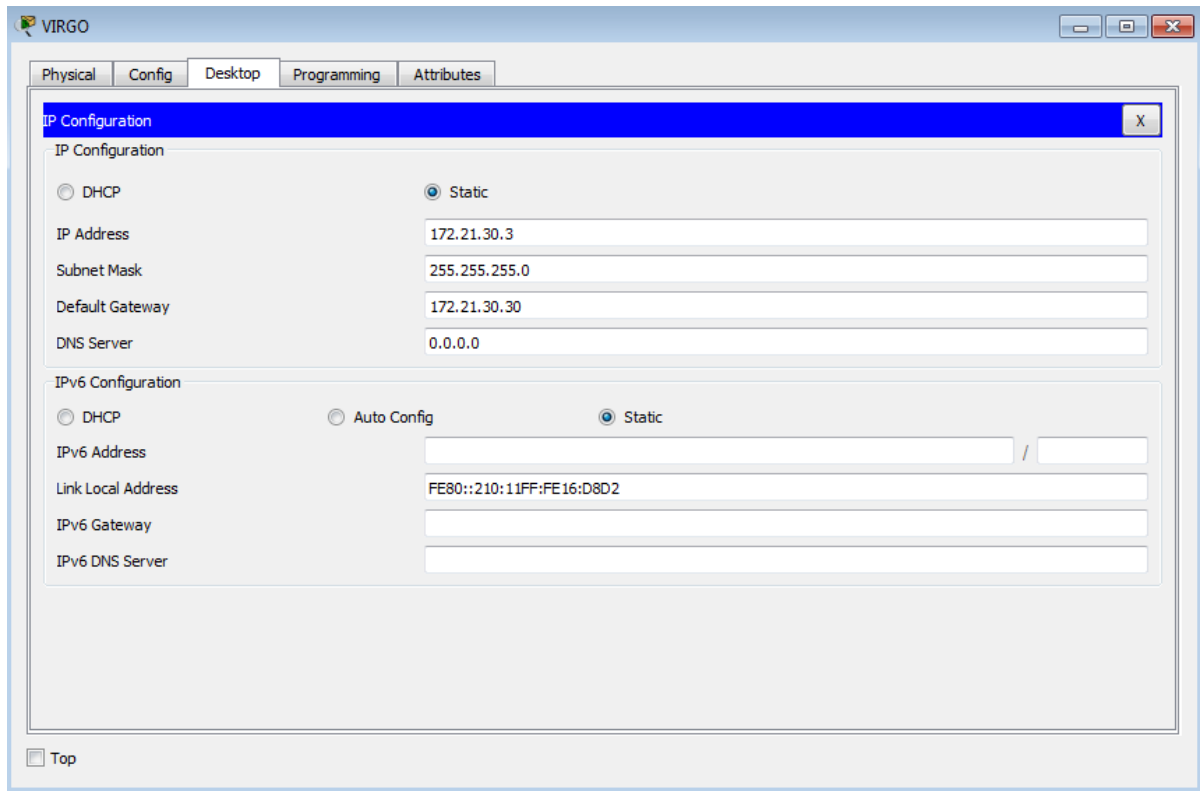
IPv6 Address /

Link Local Address FE80::202:16FF:FE67:7E08

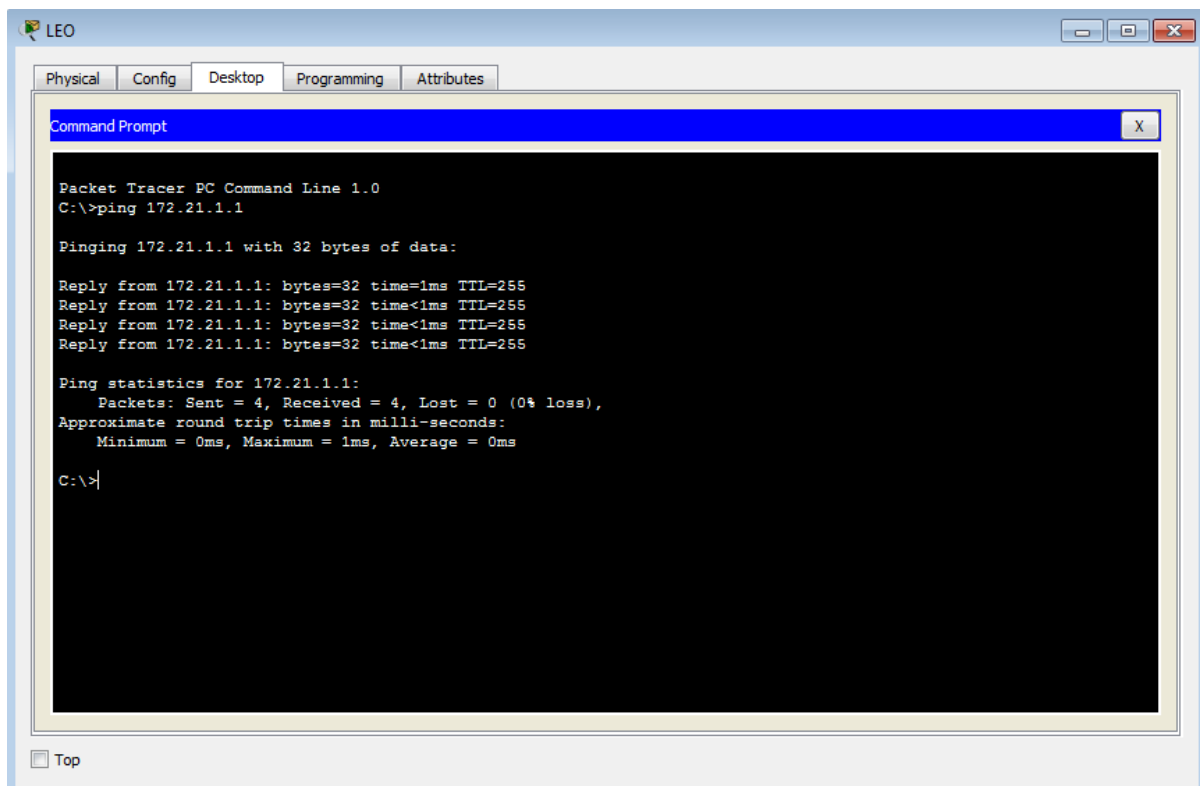
IPv6 Gateway

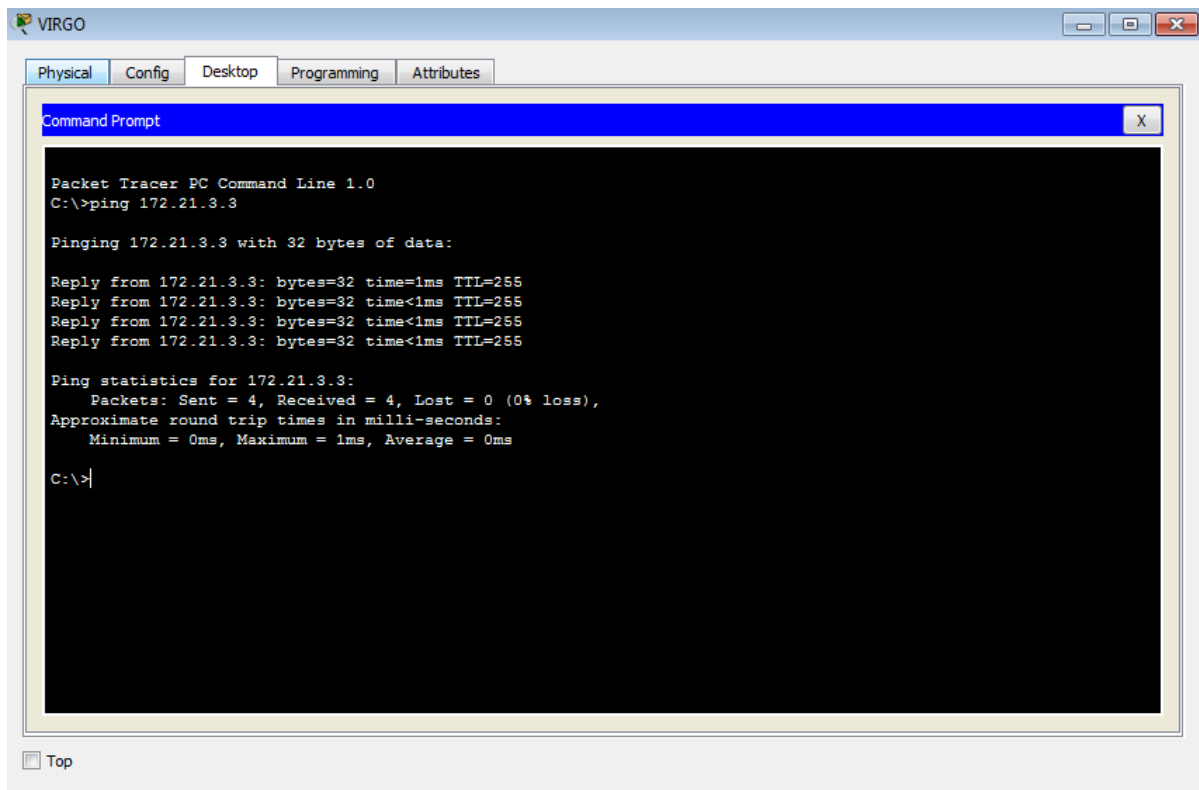
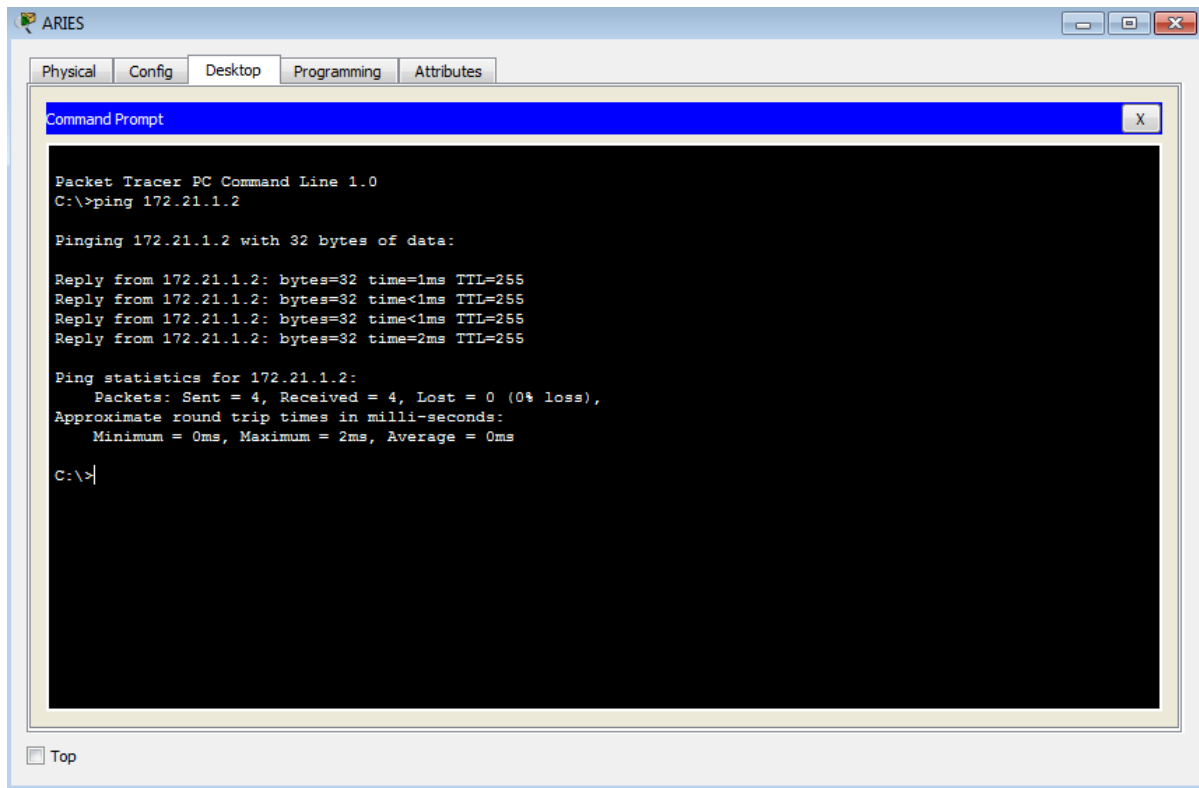
IPv6 DNS Server

Top

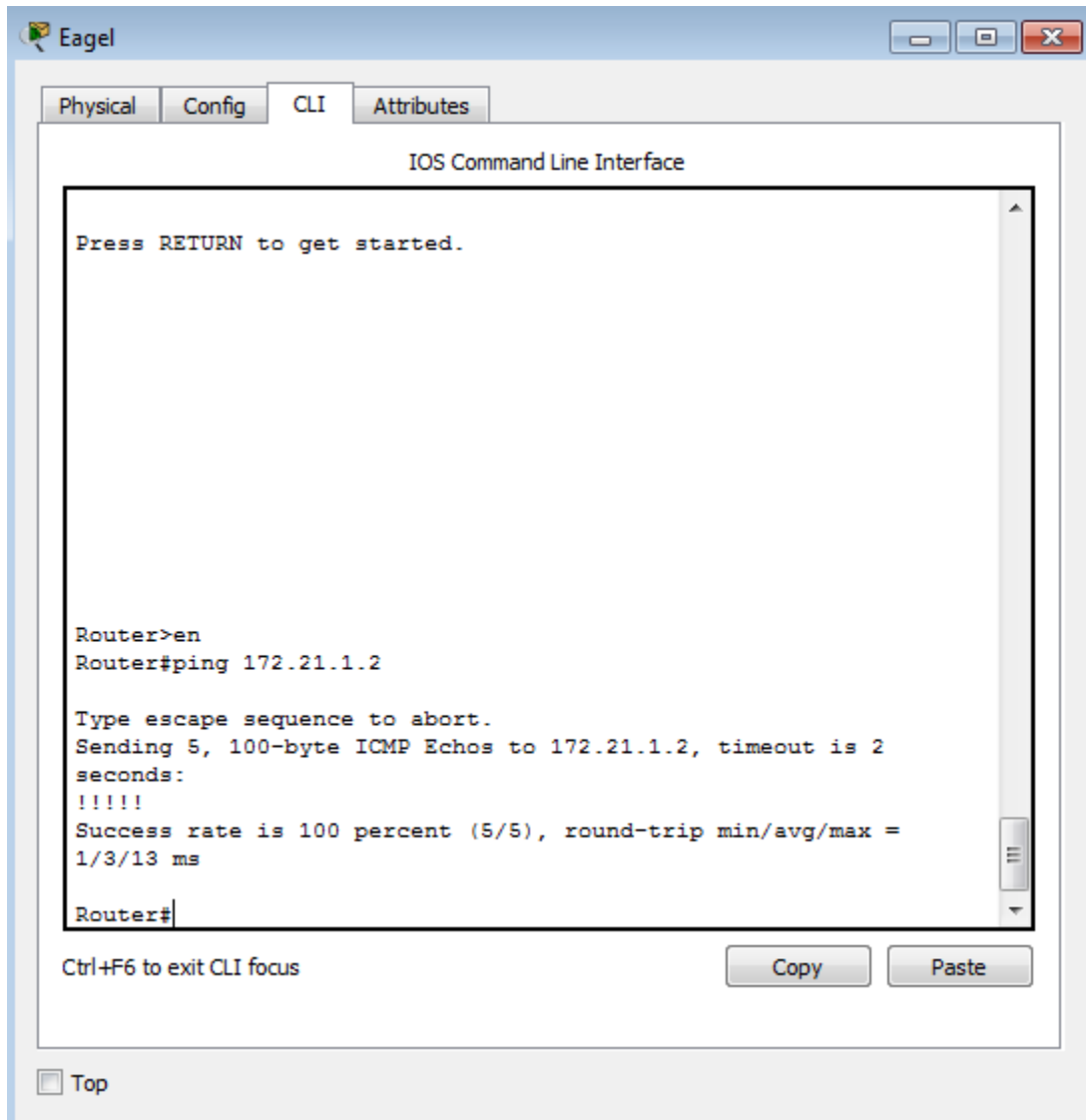


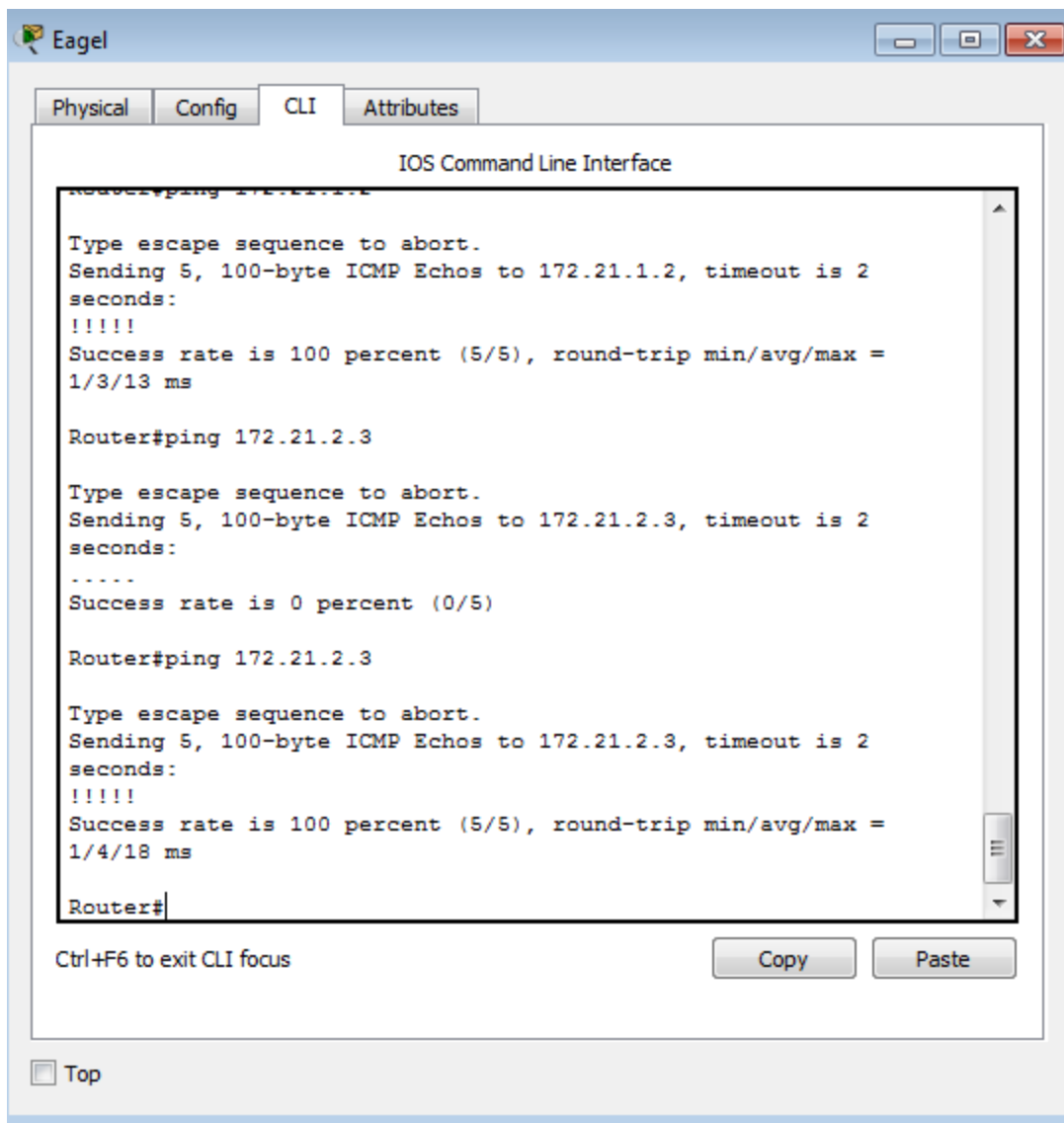
4. Langkah pengujian untuk memastikan kesesuaian konfigurasi

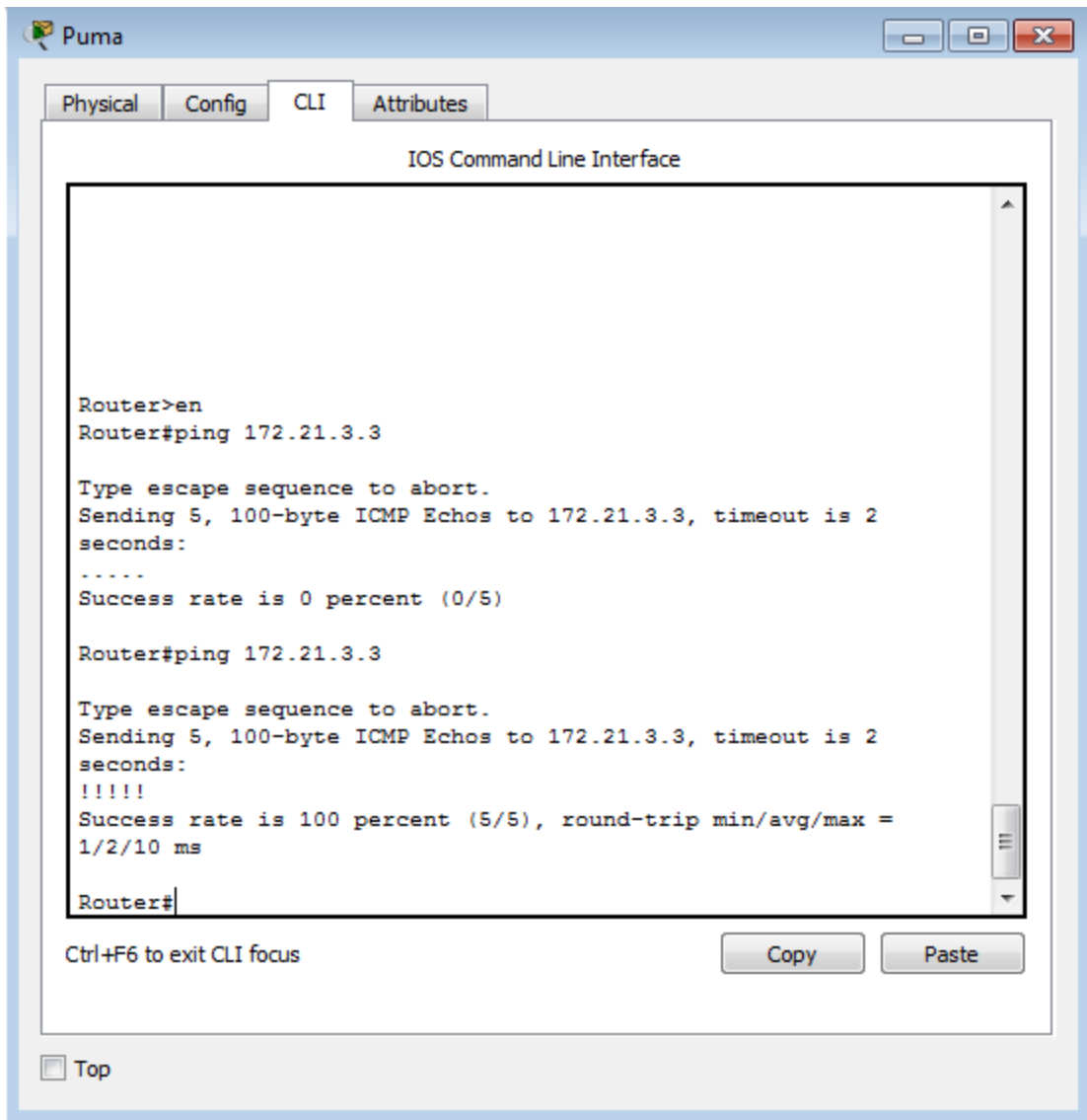




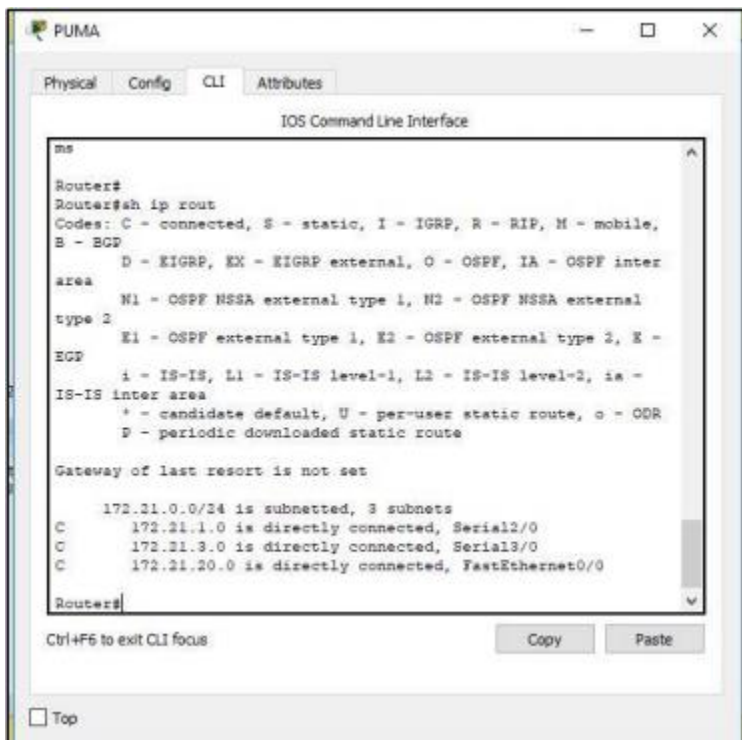
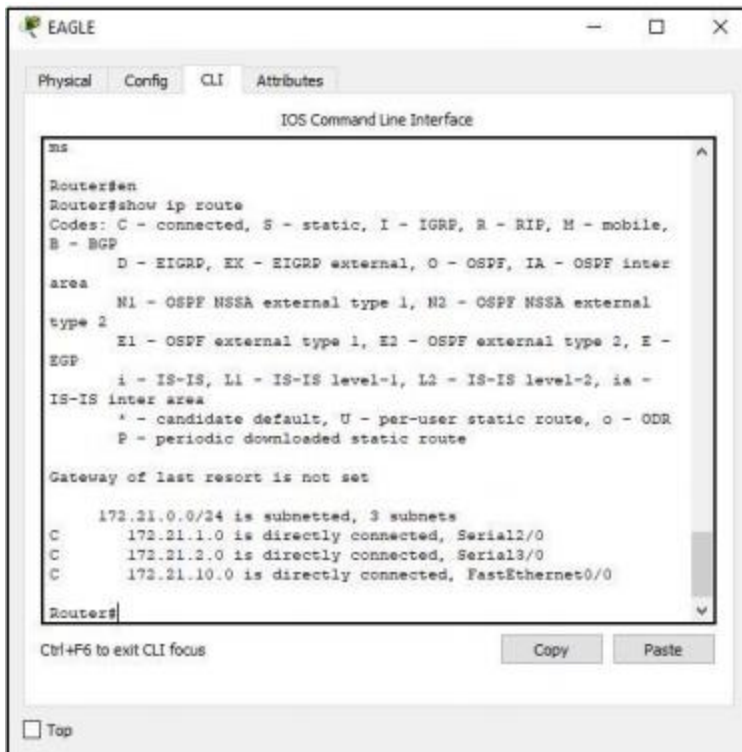
5. Melakukan test PING tiap router ke router lain

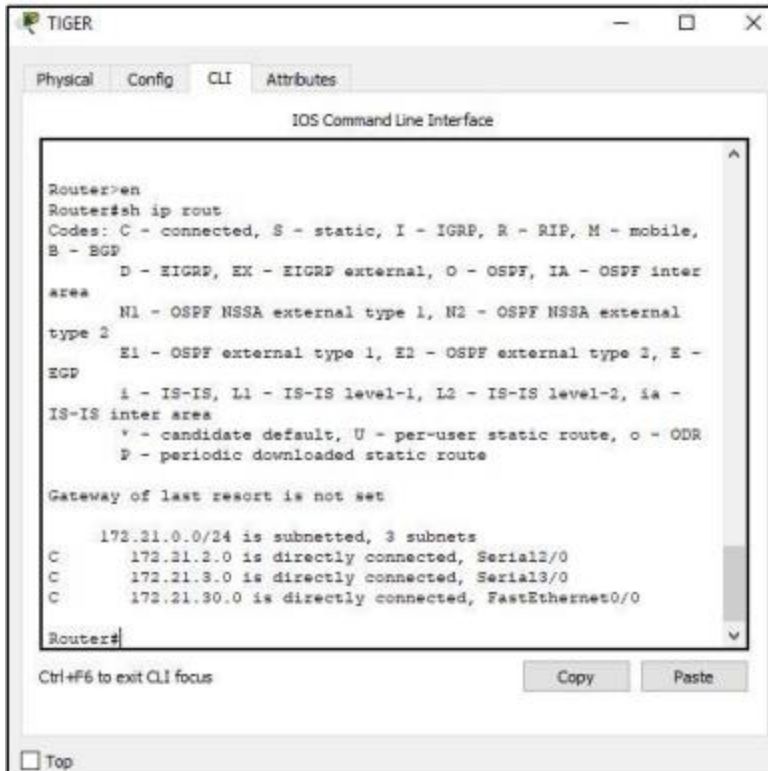






6. Melihat table tiap router dari tiap-tiap router yang dibuat.





7. Melakukan PING di router eagle ke alamat interface e0 ke router puma (172.21.20.20)

```

Router#ping 172.21.20.20

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.21.20.20, timeout is 2
seconds:
.....
Success rate is 0 percent (0/5)

Router#

```

8. Lakukan trace dari PC Leo ke PC aries

```

C:\>tracert 172.21.20.2

Tracing route to 172.21.20.2 over a maximum of 30 hops:

  0  0 ms    0 ms    0 ms    172.21.10.10
  1  1 ms     4 ms    13 ms   172.21.1.2
  2  13 ms    3 ms    10 ms   172.21.20.2

Trace complete.

C:\>

```

9. Lakukan trace dari PC leo ke alamat interface s0 router eagle(172.21.1.1)

```
C:\>tracert 172.21.1.1

Tracing route to 172.21.1.1 over a maximum of 30 hops:

  1  0 ms      0 ms      0 ms      172.21.1.1

Trace complete.

C:\>|
```

10. Penambahan router table pada masing-masing router tiap alamat jaringan yang tidak terhubung secara langsung dengan interface router.

- a. Menambah router table ke router eagle

```
Router#en
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip route 172.21.20.0 255.255.255.0 172.21.1.2
Router(config)#ip route 172.21.30.0 255.255.255.0 172.21.2.3
Router(config)#
```

- b. Menambahkan router table ke router puma

```
Router>en
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip route 172.21.10.0 255.255.255.0 172.21.1.1
Router(config)#ip route 172.21.30.0 255.255.255.0 172.21.3.3
Router(config)#
```

- c. Menambahkan router table ke router tiger

```
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip route 172.21.10.0 255.255.255.0 172.21.2.1
Router(config)#ip route 172.21.20.0 255.255.255.0 172.21.3.2
Router(config)#
```


11. Lakukan PING PC leo ke PC aries.

```
C:\>tracert 172.21.1.1

Tracing route to 172.21.1.1 over a maximum of 30 hops:

  1    0 ms      0 ms      0 ms      172.21.1.1

Trace complete.

C:\>ping 172.21.20.2

Pinging 172.21.20.2 with 32 bytes of data:

Reply from 172.21.20.2: bytes=32 time=1ms TTL=126
Reply from 172.21.20.2: bytes=32 time=2ms TTL=126
Reply from 172.21.20.2: bytes=32 time=1ms TTL=126
Reply from 172.21.20.2: bytes=32 time=1ms TTL=126

Ping statistics for 172.21.20.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 2ms, Average = 1ms
```

12. Lakukan Tracert PC leo ke PC aries.

```
C:\>tracert 172.21.20.2

Tracing route to 172.21.20.2 over a maximum of 30 hops:

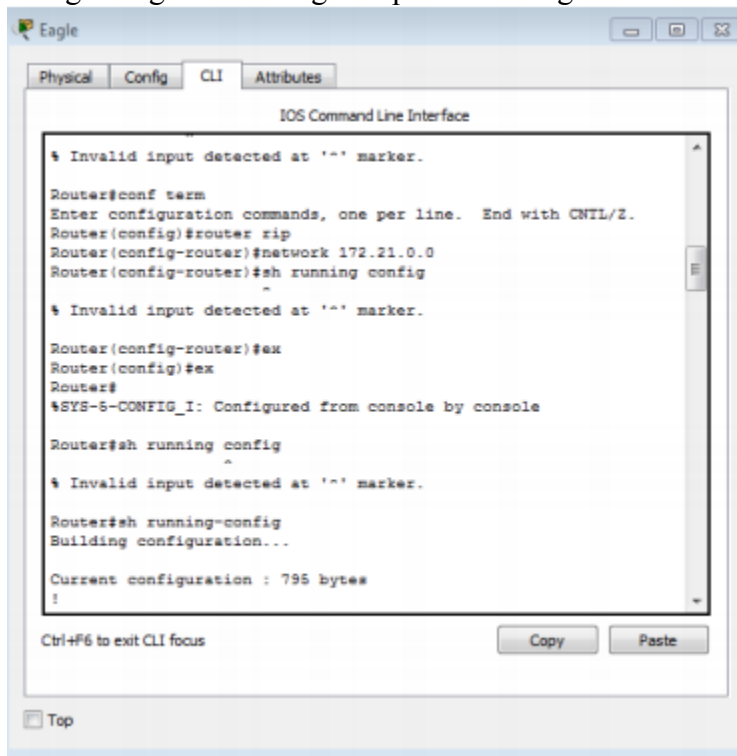
  1    0 ms      0 ms      0 ms      172.21.10.10
  2    1 ms      4 ms      13 ms     172.21.1.2
  3   13 ms      3 ms      10 ms     172.21.20.2

Trace complete.

C:\>|
```

Kegiatan 2 (Routing Informasi Protocol)

1. Mengkonfigurasi routing RIP pada roter eagle.



The screenshot shows the Eagle emulator window with the 'CLI' tab selected. The 'IOS Command Line Interface' window displays the following commands and output:

```
% Invalid input detected at '^' marker.

Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router rip
Router(config-router)#network 172.21.0.0
Router(config-router)#sh running config
^
% Invalid input detected at '^' marker.

Router(config-router)#ex
Router(config)#ex
Router#
%SYS-5-CONFIG_I: Configured from console by console

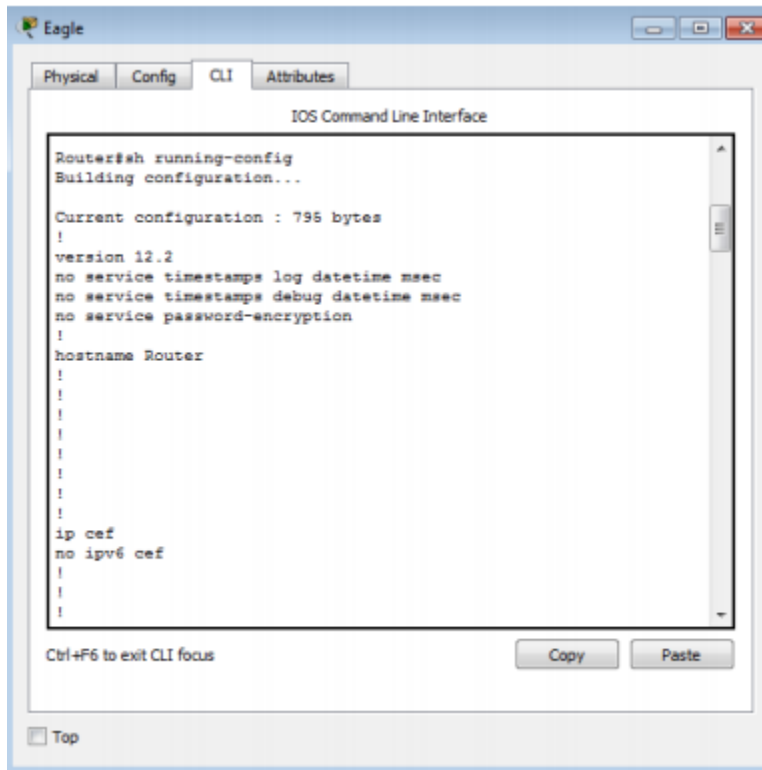
Router#sh running config
^
% Invalid input detected at '^' marker.

Router#sh running-config
Building configuration...

Current configuration : 795 bytes
!
```

At the bottom of the CLI window, there is a prompt 'Ctrl+F6 to exit CLI focus' and two buttons: 'Copy' and 'Paste'. Below the CLI window, there is a 'Top' button.

2. Konfigurasi routing RIP dibuat perintah “**show runningconfig**”, konfigurasi bagian “router rip”.



```

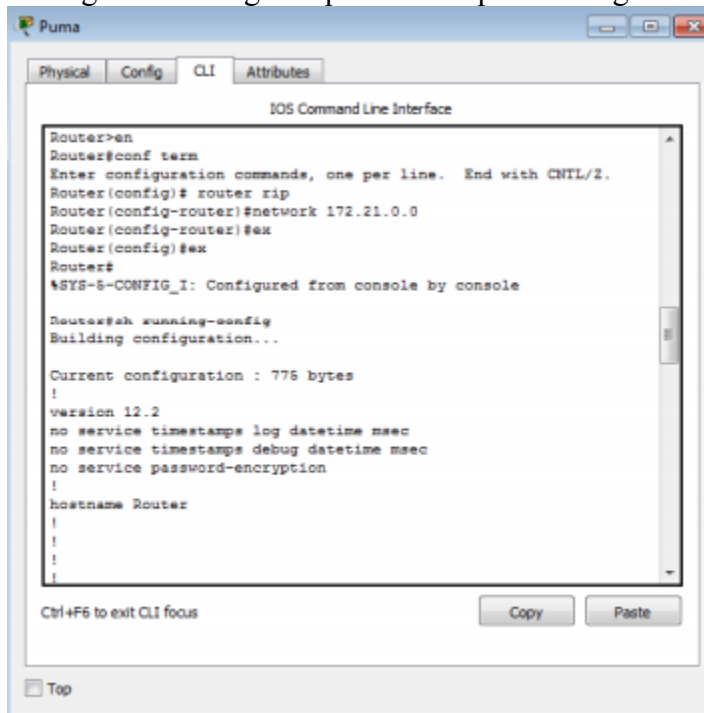
!
!
interface FastEthernet0/0
ip address 172.21.10.10 255.255.255.0
duplex auto
speed auto
!
interface FastEthernet1/0
no ip address
duplex auto
speed auto
shutdown
!
interface Serial2/0
ip address 172.21.1.1 255.255.255.0
clock rate 2000000
!
interface Serial3/0
ip address 172.21.2.1 255.255.255.0
clock rate 2000000
!
interface FastEthernet4/0
no ip address
shutdown
!
interface FastEthernet5/0
no ip address
shutdown
!
router rip
network 172.21.0.0
!
ip classless
!
ip flow-export version 9
!
!
!

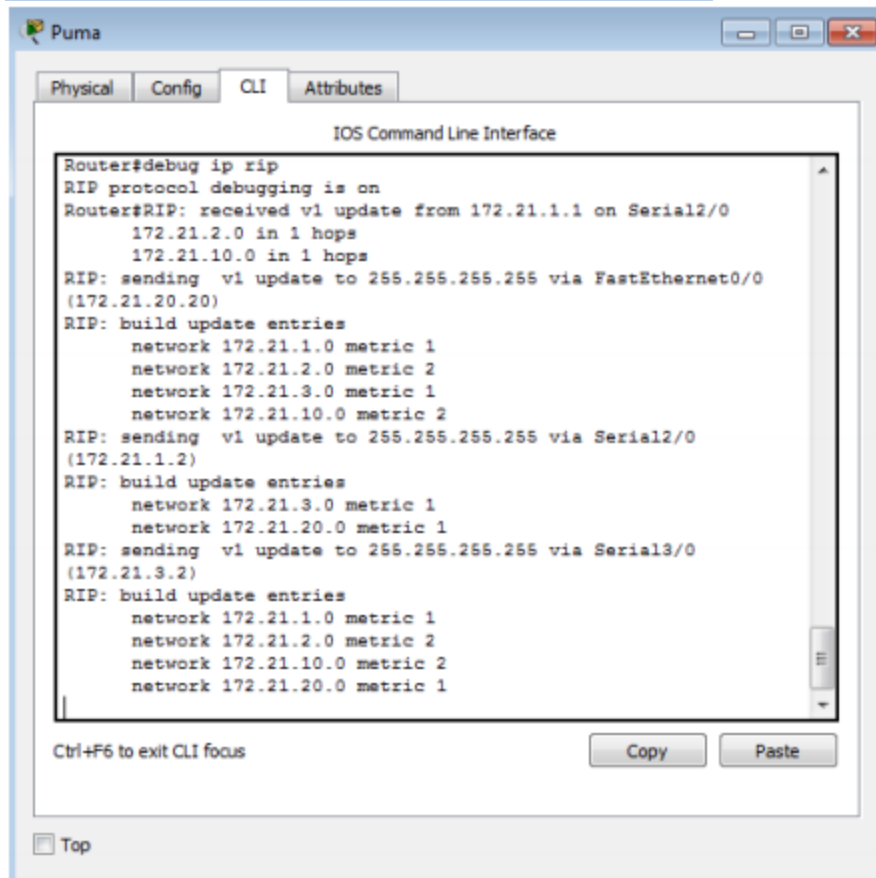
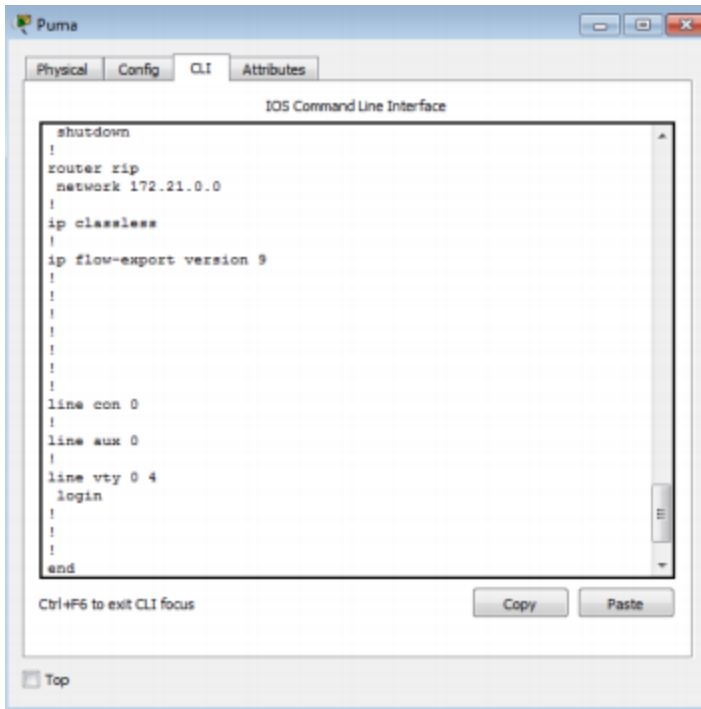
```

3. Lihat proses update routing RIP pada router eagle dengan perintah “**debug ip rip**”

```
Router#
Router#debug ip rip
RIP protocol debugging is on
Router#RIP: sending v1 update to 255.255.255.255 via FastEthernet0/0 (172.21.10.10)
RIP: build update entries
    network 172.21.1.0 metric 1
    network 172.21.2.0 metric 1
RIP: sending v1 update to 255.255.255.255 via Serial2/0 (172.21.1.1)
RIP: build update entries
    network 172.21.2.0 metric 1
    network 172.21.10.0 metric 1
RIP: sending v1 update to 255.255.255.255 via Serial3/0 (172.21.2.1)
RIP: build update entries
    network 172.21.1.0 metric 1
    network 172.21.10.0 metric 1
RIP: sending v1 update to 255.255.255.255 via FastEthernet0/0 (172.21.10.10)
RIP: build update entries
    network 172.21.1.0 metric 1
    network 172.21.2.0 metric 1
RIP: sending v1 update to 255.255.255.255 via Serial2/0 (172.21.1.1)
RIP: build update entries
    network 172.21.2.0 metric 1
    network 172.21.10.0 metric 1
RIP: sending v1 update to 255.255.255.255 via Serial3/0 (172.21.2.1)
RIP: build update entries
    network 172.21.1.0 metric 1
    network 172.21.10.0 metric 1
RIP: sending v1 update to 255.255.255.255 via FastEthernet0/0 (172.21.10.10)
RIP: build update entries
    network 172.21.1.0 metric 1
    network 172.21.2.0 metric 1
RIP: sending v1 update to 255.255.255.255 via Serial2/0 (172.21.1.1)
RIP: build update entries
    network 172.21.2.0 metric 1
    network 172.21.10.0 metric 1
RIP: sending v1 update to 255.255.255.255 via Serial3/0 (172.21.2.1)
RIP: build update entries
    network 172.21.1.0 metric 1
```

4. Konfigurasi routing RIP pada router puma ke tiger.





5. Lakukan Trace PC leo ke PC aries

```
Packet Tracer PC Command Line 1.0
C:\>tracert 172.21.20.0

Tracing route to 172.21.20.0 over a maximum of 30 hops:

  1  1 ms    0 ms    0 ms    172.21.10.10
  2  0 ms    1 ms    2 ms    172.21.1.2

Trace complete.

C:\>|
```

6. Buat hubungan antara router eagle dan puma terputus dan perhatikan proses update routing RIP yang terjadi.

```
Router(config-if)#shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to
administratively down

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0,
changed state to down
RIP: received v1 update from 172.21.3.3 on Serial3/0
      172.21.1.0 in 16 hops
RIP: sending v1 update to 255.255.255.255 via FastEthernet0/0
(172.21.20.20)
RIP: build update entries
      network 172.21.2.0 metric 16
      network 172.21.3.0 metric 1
      network 172.21.10.0 metric 16
      network 172.21.30.0 metric 2
RIP: sending v1 update to 255.255.255.255 via Serial3/0
(172.21.3.2)
RIP: build update entries
```

7. Dari PC leo lakukan trace ke PC aries

```
C:\>tracert 172.21.20.2

Tracing route to 172.21.20.2 over a maximum of 30 hops:

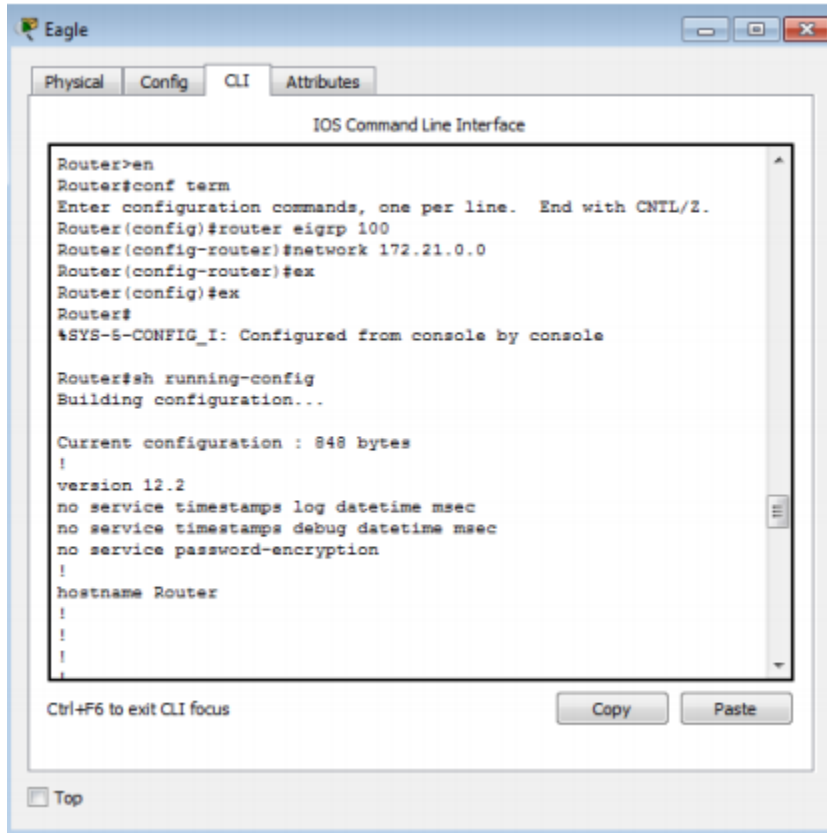
  1  0 ms    0 ms    0 ms    172.21.10.10
  2  1 ms    2 ms    1 ms    172.21.2.3
  3  0 ms    2 ms    1 ms    172.21.3.2
  4  0 ms    0 ms    0 ms    172.21.20.2

Trace complete.

C:\>|
```

Kegiatan 3 EIGRP

1. Pada mode configuration, konfigurasi routing RIP pada router eagle.



The screenshot shows the Eagle network simulator interface. The 'CLI' tab is selected, displaying the 'IOS Command Line Interface'. The configuration process is as follows:

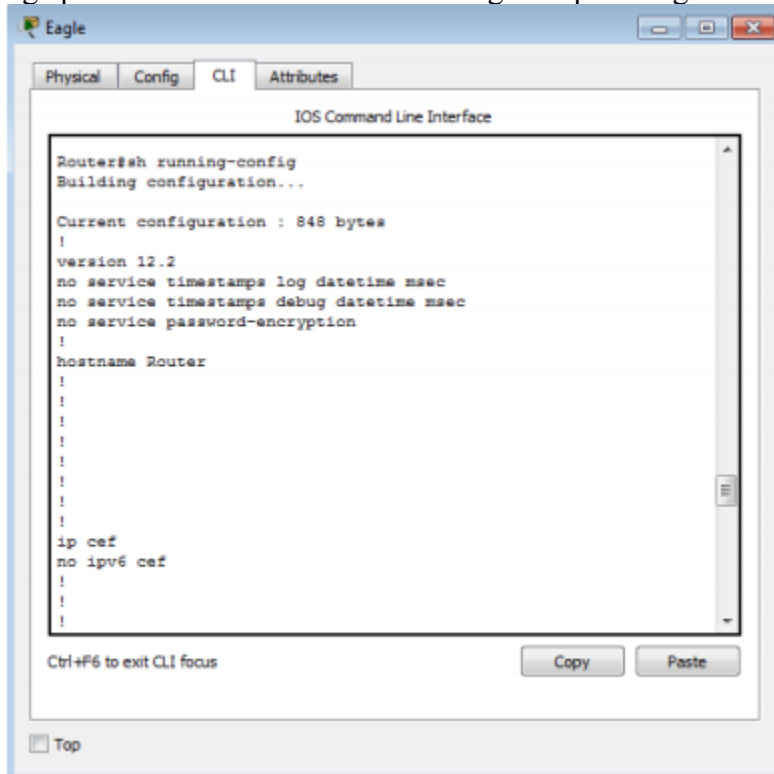
```
Router>en
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router eigrp 100
Router(config-router)#network 172.21.0.0
Router(config-router)#ex
Router(config)#ex
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#sh running-config
Building configuration...

Current configuration : 848 bytes
!
version 12.2
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Router
!
!
```

At the bottom of the CLI window, there is a prompt 'Ctrl+F6 to exit CLI focus' and two buttons: 'Copy' and 'Paste'. A 'Top' button is located at the bottom left of the simulator window.

2. Lihat konfigurasi routing EIGRP yang telah dibuat dengan perintah “Show running-config” pada mode user. Perhatikan konfigurasi pada bagian “router rip”

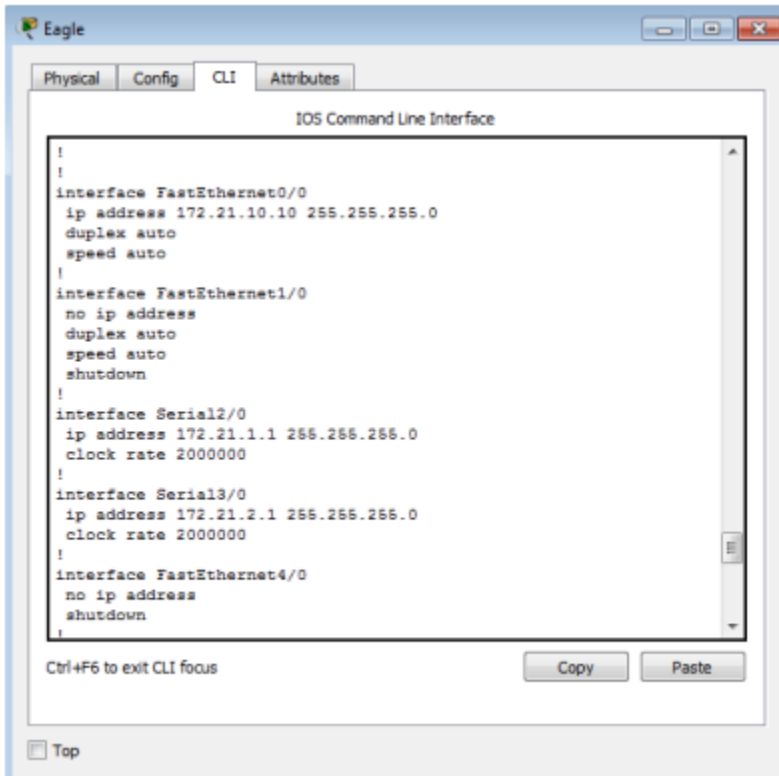


The screenshot shows the Eagle simulator window with the 'CLI' tab selected. The 'IOS Command Line Interface' window displays the output of the 'show running-config' command. The configuration includes version 12.2, service timestamps, hostname Router, and various interface configurations. The 'router rip' section is visible at the bottom of the output.

```
Router#sh running-config
Building configuration...

Current configuration : 848 bytes
!
version 12.2
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Router
!
!
!
!
!
!
!
!
ip cef
no ipv6 cef
!
!
!
```

Below the text area, there are buttons for 'Copy' and 'Paste', and a 'Top' button at the bottom left.



This screenshot shows the same Eagle simulator window, but the output of the 'show running-config' command is scrolled down to show the interface configurations. The configurations for FastEthernet0/0, FastEthernet1/0, Serial2/0, Serial3/0, and FastEthernet4/0 are visible.

```
!
!
interface FastEthernet0/0
 ip address 172.21.10.10 255.255.255.0
 duplex auto
 speed auto
!
interface FastEthernet1/0
 no ip address
 duplex auto
 speed auto
 shutdown
!
interface Serial2/0
 ip address 172.21.1.1 255.255.255.0
 clock rate 2000000
!
interface Serial3/0
 ip address 172.21.2.1 255.255.255.0
 clock rate 2000000
!
interface FastEthernet4/0
 no ip address
 shutdown
!
```

Similar to the first screenshot, there are 'Copy' and 'Paste' buttons at the bottom of the text area, and a 'Top' button at the bottom left.

4. Lihat proses transaksi routing EIGRP pada router eagle dengan perintah "debug ip eigrp transactions" pada mode user. Tunggu beberapa saat untuk melihat informasi transaksi routing EIGRP yang terjadi.
 - Catatan : Hasil tampilan perintah "debug ip eigrp transactions" memperlihatkan informasi update routing EIGRP secara detail. Untuk melihat informasi update routing EIGRP secara lebih ringkas digunakan perintah "debug ip eigrp events". (dengan lebih dahulu menonaktifkan "debug ip eigrp transactions" dengan perintah "no debug ip eigrp transactions").
5. Lakukan konfigurasi routing EIGRP pada router puma dan tiger. Perhatikan proses update routing EIGRP pada router eagle (secara detail) ketika konfigurasi router puma dan tiger dilakukan.

Router Puma :

- Konfigurasi routing EIGRP pada router puma :

```
Router>en
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router eigrp 100
Router(config-router)#network 172.21.0.0
Router(config-router)#
%DUAL-5-NBRCHANGE: IP-EIGRP 100: Neighbor 172.21.1.1 (Serial2/0)
is up: new adjacency
```

- Melihat konfigurasi routing EIGRP yang telah dibuat

```
Router#show running-config
Building configuration...

Current configuration : 795 bytes
!
version 12.2
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Router
!
!
!
!
!
!
!
ip cef
no ipv6 cef
!
!
--More--
```

- Melihat proses transaksi routing EIGRP pada router puma.

```
Router#debug eigrp packets
EIGRP Packets debugging is on
  (UPDATE, REQUEST, QUERY, REPLY, HELLO, ACK )
Router#
EIGRP: Received HELLO on Serial2/0 nbr 172.21.1.1
      AS 100, Flags 0x0, Seq 6/0 idbQ 0/0

EIGRP: Sending HELLO on FastEthernet0/0
      AS 100, Flags 0x0, Seq 6/0 idbQ 0/0 iibQ un/rely 0/0

EIGRP: Sending HELLO on Serial3/0
      AS 100, Flags 0x0, Seq 6/0 idbQ 0/0 iibQ un/rely 0/0

EIGRP: Sending HELLO on Serial2/0
      AS 100, Flags 0x0, Seq 6/0 idbQ 0/0 iibQ un/rely 0/0
```

Router Tiger :

- Konfigurasi EIGRP pada router tiger

```
Router>en
Router#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#router eigrp 100
Router(config-router)#network 172.21.0.0
Router(config-router)#
%DUAL-5-NBRCHANGE: IP-EIGRP 100: Neighbor 172.21.3.2 (Serial3/0)
is up: new adjacency

%DUAL-5-NBRCHANGE: IP-EIGRP 100: Neighbor 172.21.2.1 (Serial2/0)
is up: new adjacency
|
```

- Konfigurasi routing EIGRP yang telah dibuat.

```
Router#show running-config
Building configuration...

Current configuration : 775 bytes
!
version 12.2
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Router
!
!
!
!
!
!
!
!
ip cef
no ipv6 cef
!
!
--More-- |
```

- Melihat Proses transaksi routing EIGRP yang dibuat.

```
Router#debug eigrp packets
EIGRP Packets debugging is on
(UPDATE, REQUEST, QUERY, REPLY, HELLO, ACK )
Router#
EIGRP: Received HELLO on Serial2/0 nbr 172.21.2.1
      AS 100, Flags 0x0, Seq 9/0 idbQ 0/0

EIGRP: Sending HELLO on Serial3/0
      AS 100, Flags 0x0, Seq 11/0 idbQ 0/0 iidbQ un/rely 0/0

EIGRP: Received HELLO on Serial3/0 nbr 172.21.3.2
      AS 100, Flags 0x0, Seq 9/0 idbQ 0/0

EIGRP: Sending HELLO on FastEthernet0/0
      AS 100, Flags 0x0, Seq 11/0 idbQ 0/0 iidbQ un/rely 0/0
```

6. Dari PC Leo lakukan trace ke PC aries

```
Packet Tracer PC Command Line 1.0
C:\>tracert 172.21.20.2

Tracing route to 172.21.20.2 over a maximum of 30 hops:

  1  1 ms    0 ms    0 ms    172.21.10.10
  2  1 ms    1 ms    1 ms    172.21.1.2
  3  *        2 ms    0 ms    172.21.20.2

Trace complete.

C:\>
```

7. Buat hubungan antara router eagle dan puma terputus dan perhatikan proses update routing RIP yang terjadi.

```
Router#no debug eigrp packets
EIGRP Packets debugging is off
Router#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int se2/0
Router(config-if)#shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to
administratively down

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0,
changed state to down

%DUAL-5-NBRCHANGE: IP-EIGRP 100: Neighbor 172.21.1.1 (Serial2/0)
is down: interface down
```