

**LAPORAN PRAKTIKUM JARINGAN KOMPUTER  
MODUL 7  
“STATIC ROUTE, RIP DAN IGRP”**



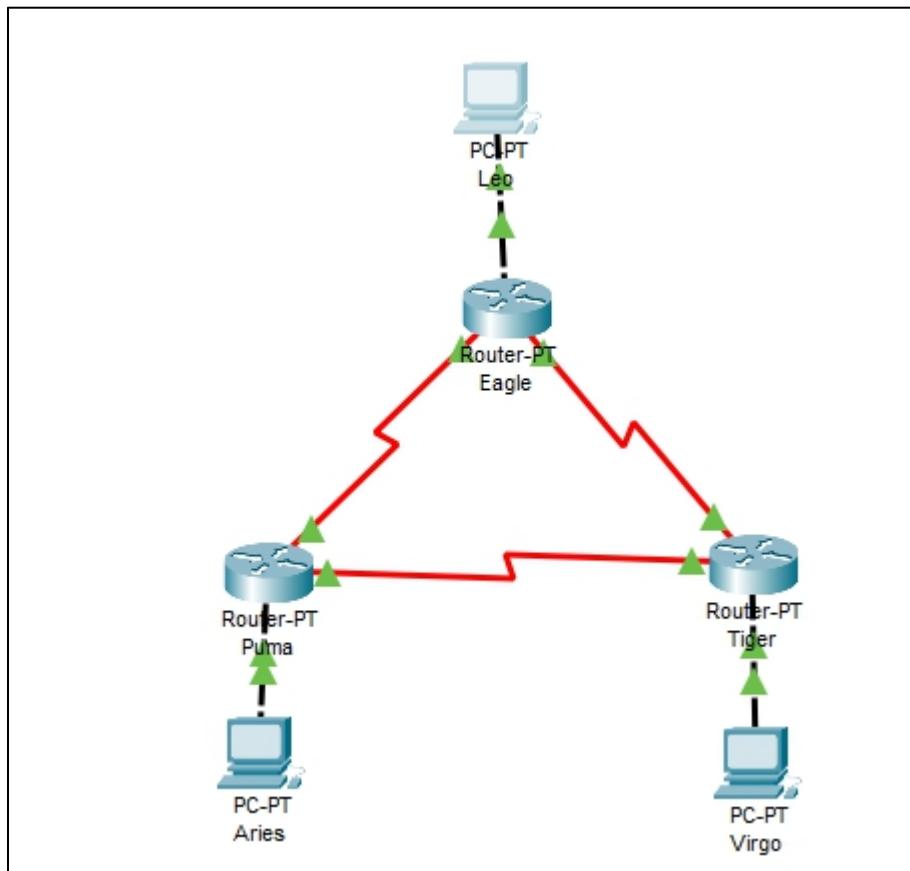
**Oleh:**

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## C. Kegiatan Praktikum

### 1. Kegiatan 1. Topologi 1 (Static Routing)



#### 1. Konfigurasi Router dengan IP Address.

##### a. Router Eagle.

The screenshot shows the Cisco IOS Command Line Interface (CLI) window for Router Eagle. The interface includes tabs for Physical, Config, and Attributes, with the Config tab selected. The window title is "Eagle". The command-line area displays the following configuration commands:

```
Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int fa0/0
Router(config-if)#ip address 172.21.10.10 255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#
*LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

*LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#exit
Router(config)#int se2/0
Router(config-if)#clock rate 2000000
This command applies only to DCE interfaces
Router(config-if)#ip address 172.21.1.1 255.255.255.0
Router(config-if)#no shutdown

*LINK-5-CHANGED: Interface Serial1/0, changed state to down
Router(config-if)#exit
Router(config)#int se3/0
Router(config-if)#clock rate 2000000
Router(config-if)#ip address 172.21.2.1 255.255.255.0
Router(config-if)#no shutdown

*LINK-5-CHANGED: Interface Serial1/0, changed state to down
Router(config-if)#exit
Router(config)#

Ctrl+F6 to exit CLI focus
```

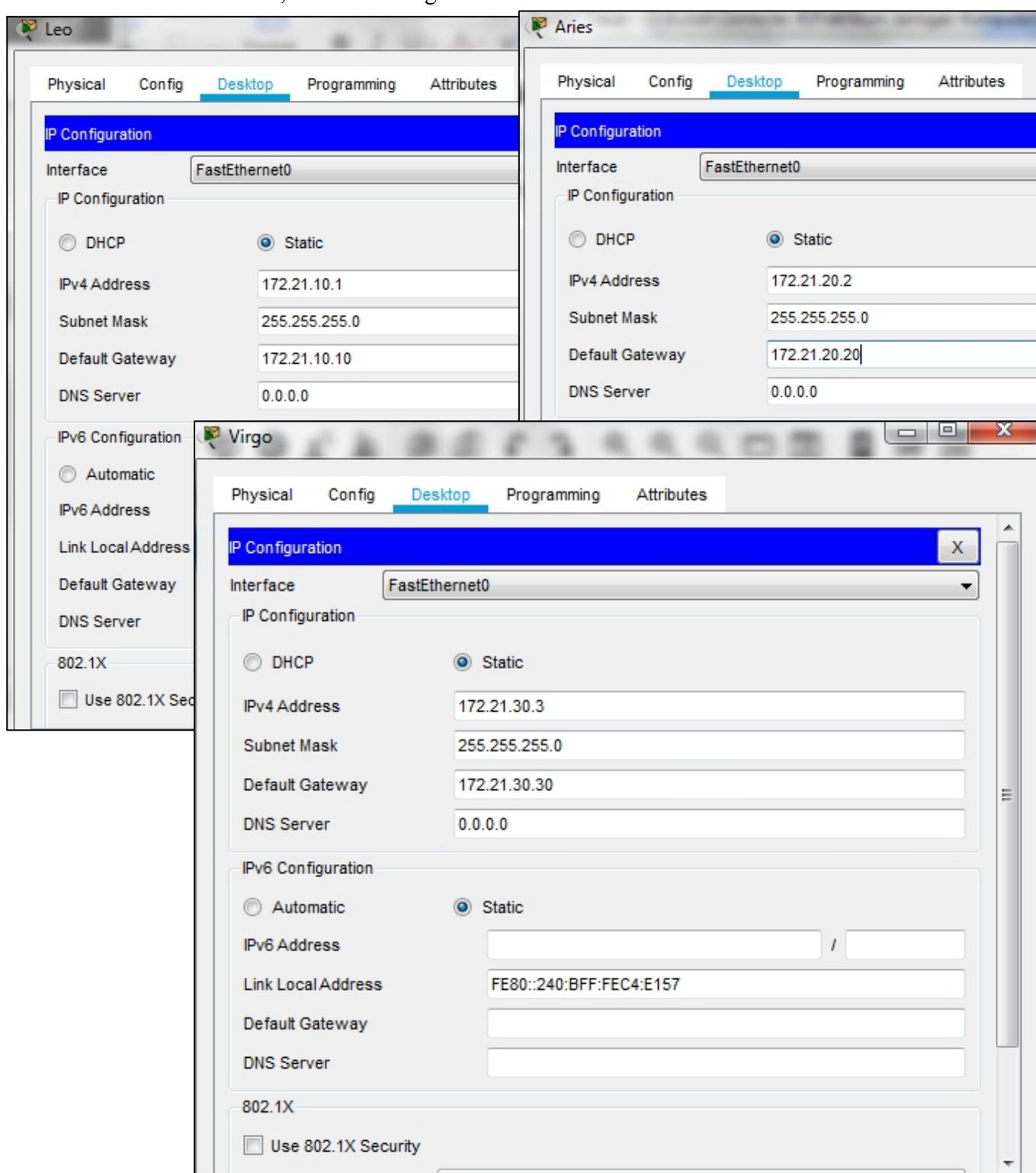
### b. Router Puma.

Router>en  
Router#conf terminal  
Enter configuration commands, one per line. End with CNTL/Z.  
Router#int fa0/0  
Router(config-if)#ip address 172.21.20.20 255.255.255.0  
Router(config-if)#no shutdown  
Router(config-if)#  
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up  
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up  
Router(config-if)#int se2/0  
Router(config-if)#ip address 172.21.1.2 255.255.255.0  
Router(config-if)#no shutdown  
Router(config-if)#  
%LINK-5-CHANGED: Interface Serial2/0, changed state to up  
Router(config-if)#  
%LINK-5-CHANGED: Interface Serial2/0, changed state to up  
Router(config-if)#int se3/0  
Router(config-if)#clock rate 2000000  
Router(config-if)#ip address 172.21.3.2 255.255.255.0  
Router(config-if)#no shutdown  
Router(config-if)#  
%LINK-5-CHANGED: Interface Serial3/0, changed state to down  
Router(config-if)#[br/>Ctrl+F6 to exit CLI focus

### c. Router Tiger.

Router>en  
Router#conf terminal  
Enter configuration commands, one per line. End with CNTL/Z.  
Router#int fa0/0  
Router(config-if)#ip address 172.21.30.30 255.255.255.0  
Router(config-if)#no shutdown  
Router(config-if)#  
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up  
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up  
Router(config-if)#int se2/0  
Router(config-if)#ip address 172.21.2.3 255.255.255.0  
Router(config-if)#no shutdown  
Router(config-if)#  
%LINK-5-CHANGED: Interface Serial2/0, changed state to up  
Router(config-if)#int se3/0  
Router(config-if)#  
%LINK-5-CHANGED: Interface Serial3/0, changed state to up  
Router(config-if)#clock rate 2000000  
This command applies only to DCE interfaces  
Router(config-if)#clock rate 2000000  
This command applies only to DCE interfaces  
Router(config-if)#ip address 172.21.3.3 255.255.255.0  
Router(config-if)#no shutdown  
Router(config-if)#  
%LINK-5-CHANGED: Interface Serial3/0, changed state to up  
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up

2. Konfigurasi IP pada setiap PC.  
a. PC Leo, Aries dan Virgo.



3. Melakukan Ping.

a. Ping dari PC Leo ke Router Eagle (172.21.1.1).

```
Packet Tracer PC Command Line 1.0
C:\>ping 172.21.1.1

Pinging 172.21.1.1 with 32 bytes of data:

Reply from 172.21.1.1: bytes=32 time=36ms TTL=255
Reply from 172.21.1.1: bytes=32 time<1ms TTL=255
Reply from 172.21.1.1: bytes=32 time<1ms TTL=255
Reply from 172.21.1.1: bytes=32 time<1ms TTL=255

Ping statistics for 172.21.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 36ms, Average = 9ms

C:\>
```

b. Ping dari PC Aries ke Router Puma (172.21.1.2).

```
Packet Tracer PC Command Line 1.0
C:\>ping 172.21.1.2

Pinging 172.21.1.2 with 32 bytes of data:

Reply from 172.21.1.2: bytes=32 time<1ms TTL=255

Ping statistics for 172.21.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

c. Ping dari PC Virgo ke Router Tiger (172.21.3.3).

Virgo

Physical Config Desktop Programming Attributes

Command Prompt X

```
Packet Tracer PC Command Line 1.0
C:\>ping 172.21.3.3

Pinging 172.21.3.3 with 32 bytes of data:

Reply from 172.21.3.3: bytes=32 time<1ms TTL=255

Ping statistics for 172.21.3.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

d. Ping dari Router Eagle Ke Router Puma (172.21.1.2).

Eagle

Physical Config CLI Attributes

IOS Command Line Interface

```
Router>enable
Router#ping 172.21.1.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.21.1.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/5/9 ms
```

e. Ping dari Router Eagle Ke Router Tiger (172.21.2.3).

Eagle

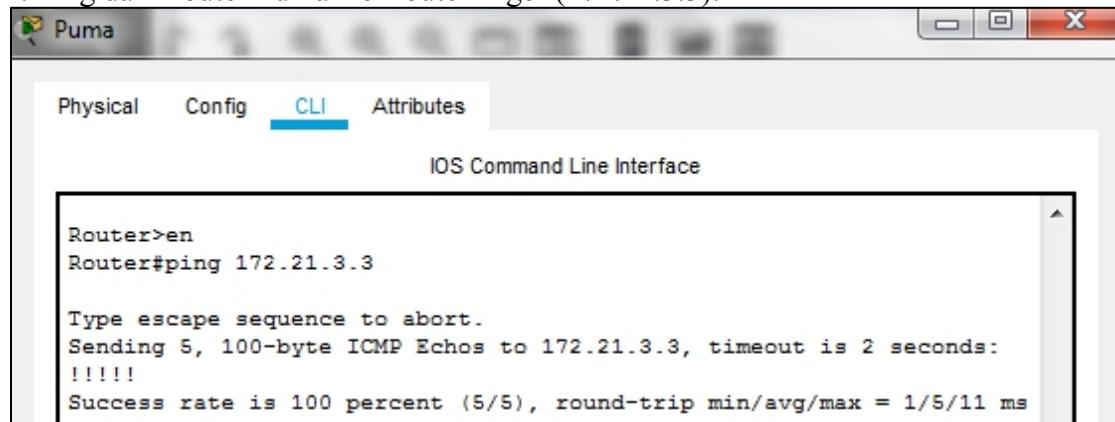
Physical Config CLI Attributes

IOS Command Line Interface

```
Router#en
Router#ping 172.21.2.3

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.21.2.3, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/6/8 ms
```

f. Ping dari Router Puma Ke Router Tiger (172.21.3.3).



Puma

Physical Config **CLI** Attributes

IOS Command Line Interface

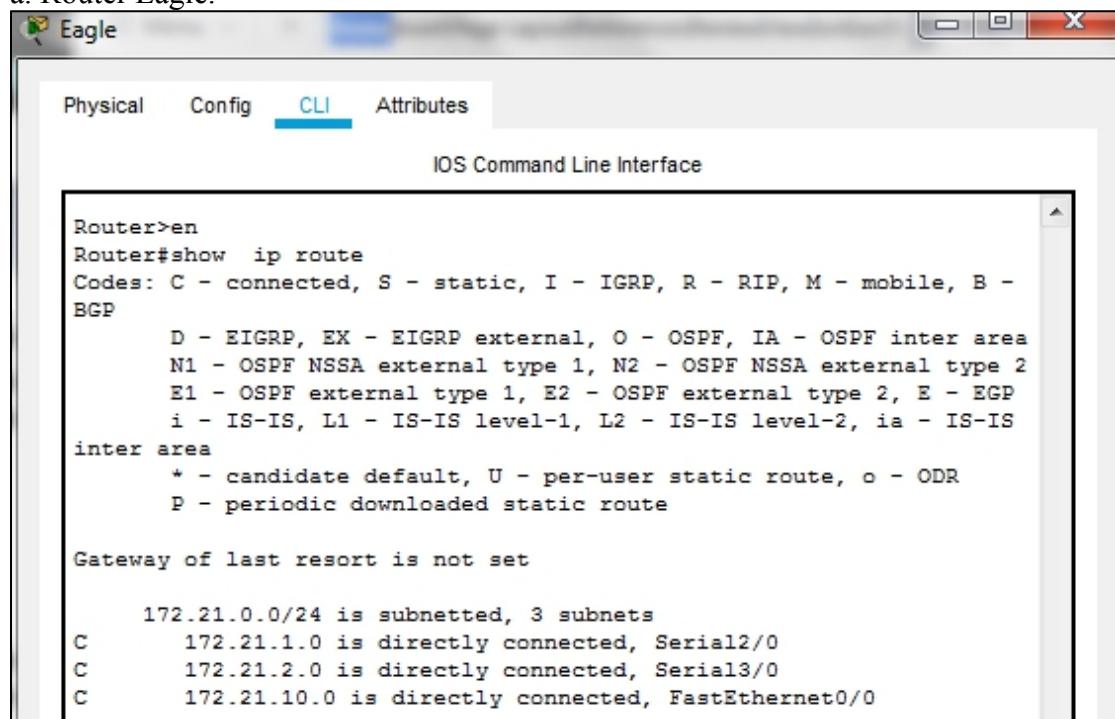
```
Router>en
Router#ping 172.21.3.3

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.21.3.3, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/5/11 ms
```

### Tugas 7A: Capture hasil tampilan router.

4. Melihat Route Table.

a. Router Eagle.



Eagle

Physical Config **CLI** Attributes

IOS Command Line Interface

```
Router>en
Router#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B -
BGP
      D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
      N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
      E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
      i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS
inter area
      * - candidate default, U - per-user static route, o - ODR
      P - periodic downloaded static route

Gateway of last resort is not set

      172.21.0.0/24 is subnetted, 3 subnets
C        172.21.1.0 is directly connected, Serial2/0
C        172.21.2.0 is directly connected, Serial3/0
C        172.21.10.0 is directly connected, FastEthernet0/0
```

b. Router Puma.

The screenshot shows the Cisco Network Simulator window titled "Puma". The "CLI" tab is selected. The terminal window displays the output of the "show ip route" command. The output includes route codes, gateway information, and three directly connected routes via Serial2/0, Serial3/0, and FastEthernet0/0.

```
Router>en
Router#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B -
BGP
      D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
      N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
      E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
      i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS
inter area
      * - candidate default, U - per-user static route, o - ODR
      P - periodic downloaded static route

Gateway of last resort is not set

172.21.0.0/24 is subnetted, 3 subnets
C        172.21.1.0 is directly connected, Serial2/0
C        172.21.3.0 is directly connected, Serial3/0
C        172.21.20.0 is directly connected, FastEthernet0/0
```

c. Router Tiger.

The screenshot shows the Cisco Network Simulator window titled "Tiger". The "CLI" tab is selected. The terminal window displays the output of the "show ip route" command. The output is identical to Router Puma, showing route codes, gateway information, and three directly connected routes via Serial2/0, Serial3/0, and FastEthernet0/0.

```
Router>en
Router#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B -
BGP
      D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
      N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
      E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
      i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS
inter area
      * - candidate default, U - per-user static route, o - ODR
      P - periodic downloaded static route

Gateway of last resort is not set

172.21.0.0/24 is subnetted, 3 subnets
C        172.21.2.0 is directly connected, Serial2/0
C        172.21.3.0 is directly connected, Serial3/0
C        172.21.30.0 is directly connected, FastEthernet0/0
```

5. Melakukan ping dari Router Eagle ke alamat Interface Router Puma (172.21.20.20).

The screenshot shows a Windows application window titled "Eagle". Inside, there's a tab bar with "Physical", "Config", "CLI" (which is selected), and "Attributes". Below the tabs is a title "IOS Command Line Interface". The main area contains the following text:

```
Router con0 is now available

Press RETURN to get started.

Router>en
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#
```

At the bottom left is the note "Ctrl+F6 to exit CLI focus". At the bottom right are "Copy" and "Paste" buttons.

**Tugas 8A :** Dari hasil Ping diatas belum mendapatkan tanggapan dari Fa0/0, perlu dirouting ulang pada router Eagle maupun router Puma, yang akan dilakukan pada langkah selanjutnya.

## 6. Melakukan Trace dari PC Leo ke PC Aries.

```
Leo
Physical Config Desktop Programming Attributes

Command Prompt
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 36ms, Average = 9ms
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  *          0 ms      0 ms      172.21.10.10
  3  *          0 ms      *         Request timed out.
  4  0 ms      *          0 ms      172.21.10.10
  5  *          0 ms      *         Request timed out.
  6  0 ms      *          0 ms      172.21.10.10
  7  *          0 ms      *         Request timed out.
  8  0 ms      *          0 ms      172.21.10.10
  9  *          0 ms      *         Request timed out.
 10  0 ms      *          0 ms      172.21.10.10
 11  *          0 ms      *         Request timed out.
 12  *          0 ms      *         Request timed out.
 13  *          0 ms      *         Request timed out.
 14  0 ms      *          0 ms      172.21.10.10
 15  *          0 ms      *         Request timed out.
 16  *          0 ms      *         Request timed out.
 17  *          0 ms      *         Request timed out.
 18  0 ms      *          0 ms      172.21.10.10
 19  *          0 ms      *         Request timed out.
 20  0 ms      *          21 ms     172.21.10.10
 21  *          0 ms      *         Request timed out.
 22  *          0 ms      *         Request timed out.
 23  *          0 ms      *         Request timed out.
 24  0 ms      *          0 ms      172.21.10.10
 25  *          0 ms      *         Request timed out.
 26  0 ms      *          0 ms      172.21.10.10
 27  *          0 ms      *         Request timed out.
 28  0 ms      *          0 ms      172.21.10.10
 29  *          0 ms      *         Request timed out.
 30  0 ms      *          0 ms      172.21.10.10

Trace complete.
C:\>
```

**Tugas 9A :** Dari Trace diatas dapat disimpulkan jika PC Leo dengan PC Aries **belum terhubung**, perlu dilakukan Routing pada Router Eagle.

## 7. Melakukan Trace PC Leo ke IP Address Interface FastEthernet0/0 pada Router Eagle (172.21.1.1).

```
Leo
Physical Config Desktop Programming Attributes

Command Prompt
C:\>tracert 172.21.1.1

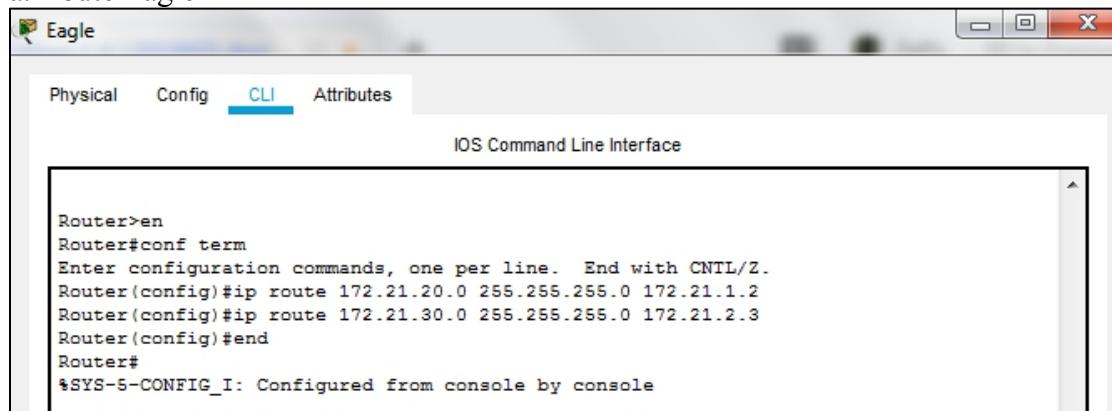
Tracing route to 172.21.1.1 over a maximum of 30 hops:
  1  0 ms      0 ms      0 ms      172.21.1.1

Trace complete.
C:\>
```

**Tugas 10A :** Dari Trace diatas dapat disimpulkan jika PC Leo dengan Router Eagle **terhubung**, ditandai dengan tidak mendapatkan “*Request timed out*”.

8. Menambahkan Route Table pada setiap Router.

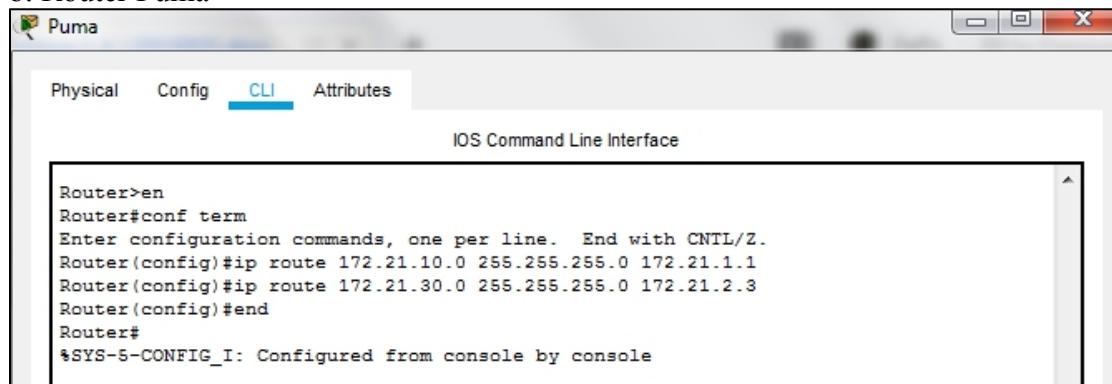
a. Route Eagle



Eagle window showing the CLI tab with the following configuration commands:

```
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)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console
```

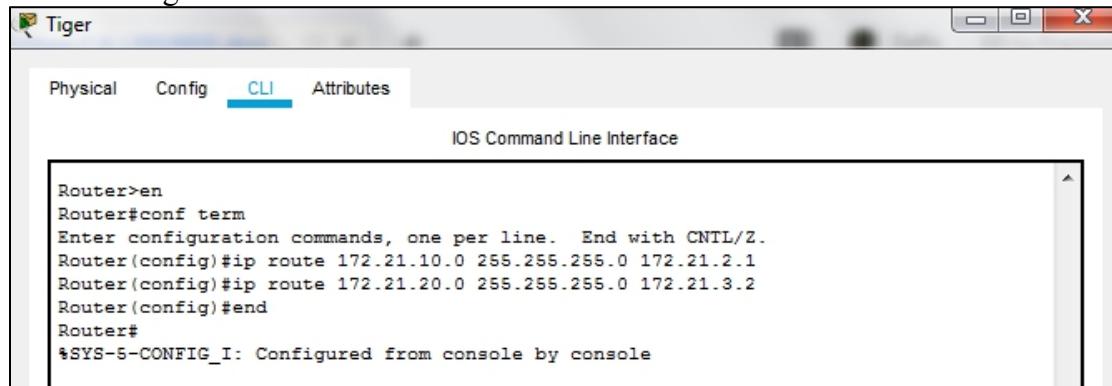
b. Router Puma



Puma window showing the CLI tab with the following configuration commands:

```
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 172.21.30.0 255.255.255.0 172.21.2.3
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console
```

c. Router Tiger



Tiger window showing the CLI tab with the following configuration commands:

```
Router>en
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip route 172.21.10.0 255.255.255.0 172.21.2.1
Router(config)#ip route 172.21.20.0 255.255.255.0 172.21.3.2
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console
```

**Tugas 11A : Langkah route table (static routing) Puma dan Eagle:**

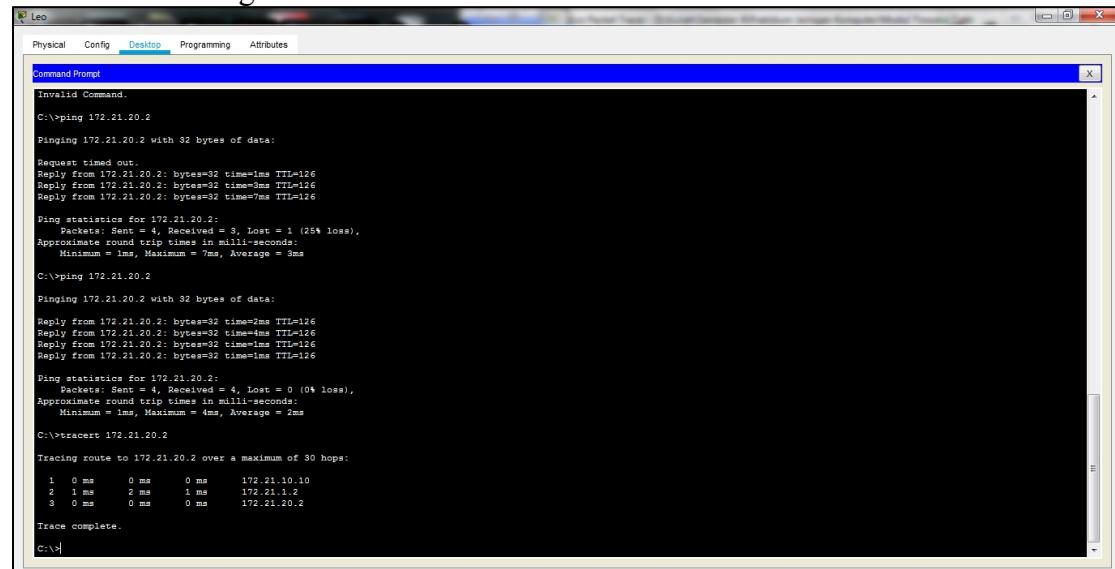
- ketik enable/en
- ketik configure terminal/conf term
- ip route <network-destination> <subnet-mask network-destination> <next-hop ip-address>
- ip route <network-destination> <subnet-mask network-destination> <exit-interface>
- end (untuk mengakhiri)

**Contoh:****Eagle**

```
ip route 172.21.20.0 255.255.255.0 172.21.1.2  
ip route 172.21.30.0 255.255.255.0 172.21.2.3
```

**Puma**

```
ip route 172.21.10.0 255.255.255.0 172.21.1.1  
ip route 172.21.30.0 255.255.255.0 172.21.2.3
```

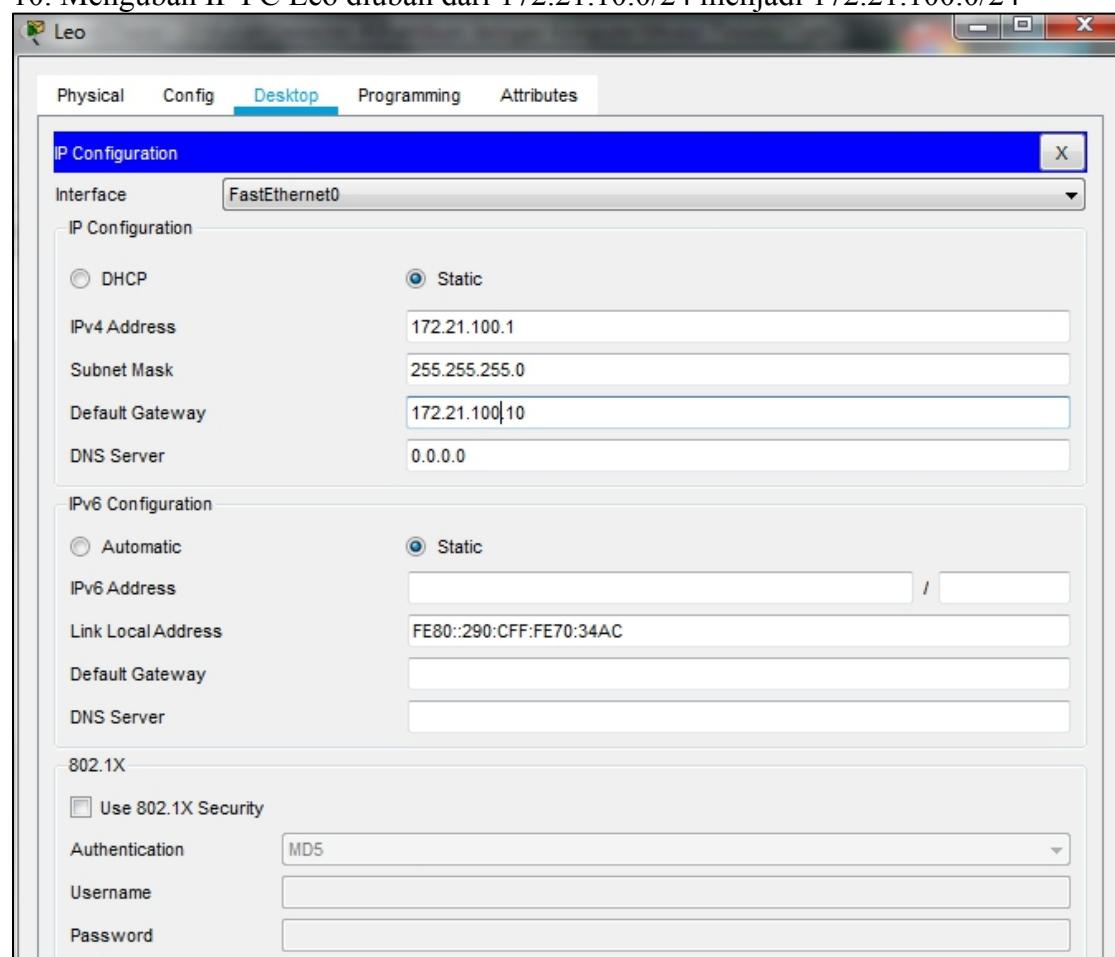
**9. Melakukan Ping dan Tracer dari PC Leo ke PC Aries.**

```
Leo  
Physical Config Desktop Programming Attributes  
Command Prompt  
Invalid Command.  
C:\>ping 172.21.20.2  
Pinging 172.21.20.2 with 32 bytes of data:  
Request timed out.  
Reply from 172.21.20.2: bytes=32 time=1ms TTL=126  
Reply from 172.21.20.2: bytes=32 time=3ms TTL=126  
Reply from 172.21.20.2: bytes=32 time=7ms TTL=126  
  
Ping statistics for 172.21.20.2:  
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),  
    Approximate round trip times in milli-seconds:  
        Minimum = 1ms, Maximum = 7ms, Average = 3ms  
  
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=2ms TTL=126  
Reply from 172.21.20.2: bytes=32 time=1ms TTL=126  
Reply from 172.21.20.2: bytes=32 time=3ms 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 = 4ms, Average = 2ms  
  
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  172.21.1.2  
  3  0 ms      0 ms      0 ms  172.21.20.2  
  
Trace complete.  
C:\>
```

**Tugas 12A:** Dari ping diatas dapat PC Leo mendapatkan tanggapan dari PC Aries dan saat melakukan trace dari PC Leo ke PC Aries juga mendapatkan tanggapan, karena sudah mengkonfigurasi setiap route table yang dilakukan pada langkah diatas.

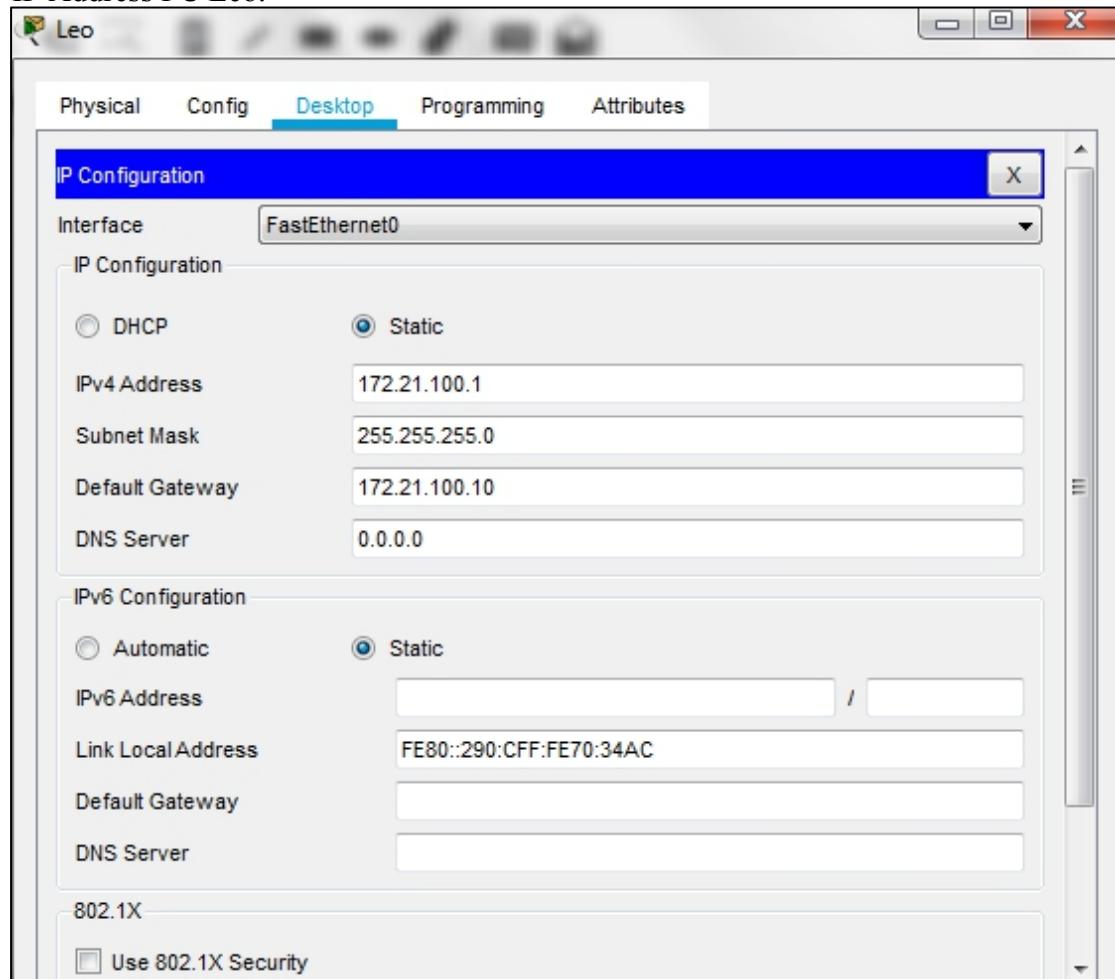
**Tugas 12B:**

10. Mengubah IP PC Leo diubah dari 172.21.10.0/24 menjadi 172.21.100.0/24

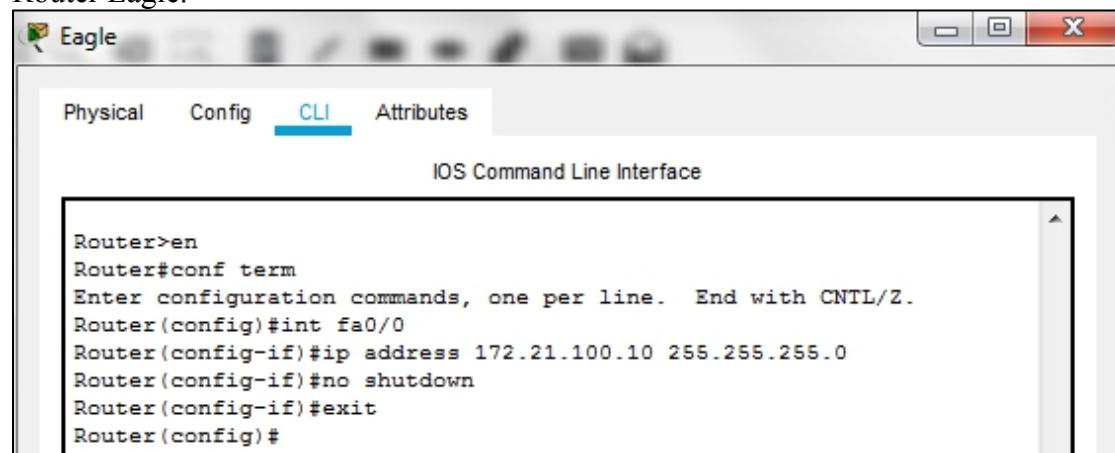


Ubah Konfigurasi IP Address serta Default Gateway Pada PC Leo dan FastEthernet0/0 pada Router Eagle.

➤ IP Address PC Leo.



➤ Router Eagle.



Routing ulang pada Router Puma dan Router Tiger.

➤ Router Puma.

```
Router>en
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip route 172.21.100.0 255.255.255.0 172.21.1.1
Router(config)#no shutdown
^
* Invalid input detected at '^' marker.

Router(config)#end
Router#
*SYS-5-CONFIG_I: Configured from console by console

Router#
```

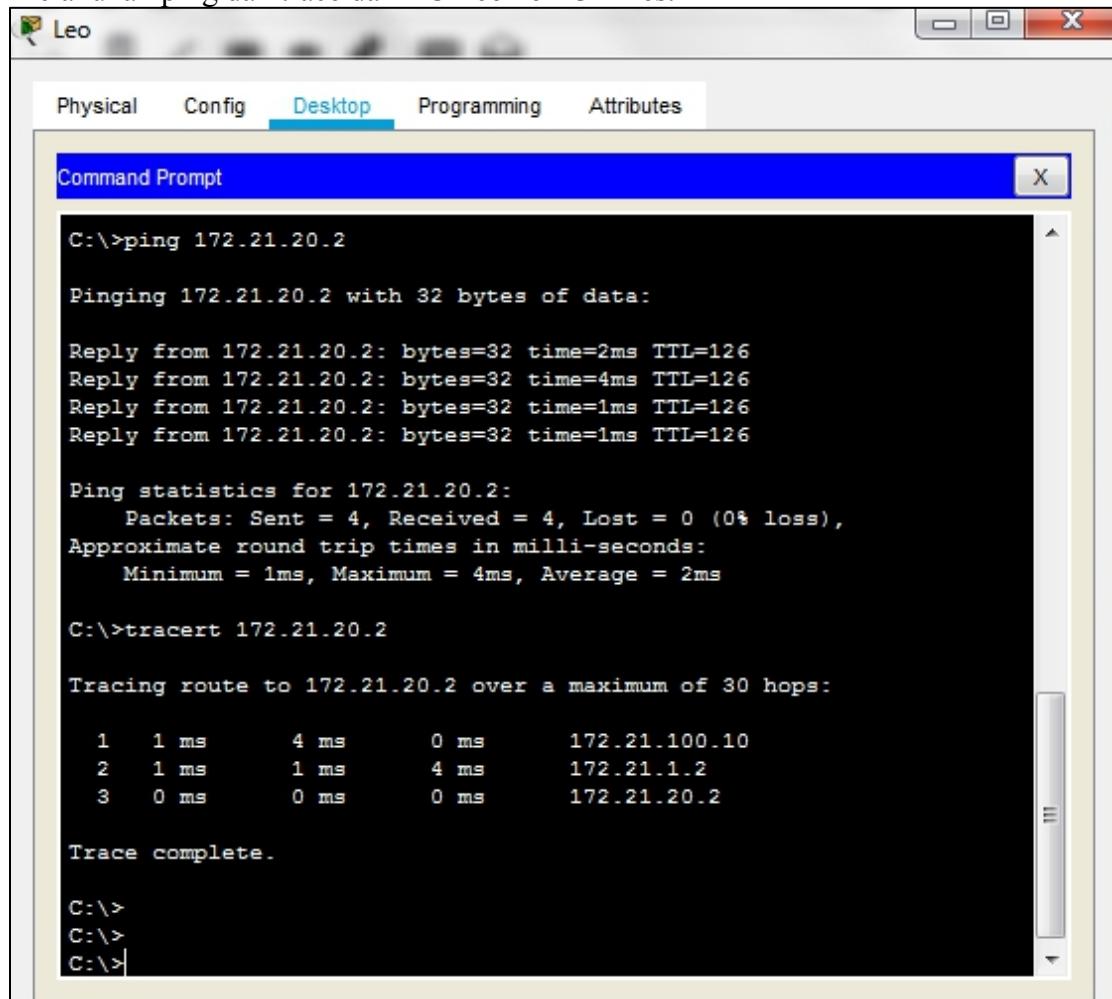
➤ Router Tiger.

```
Router>en
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip route 172.21.100.0 255.255.255.0 172.21.2.1
Router(config)#end
Router#
*SYS-5-CONFIG_I: Configured from console by console

Router#
```

- Langkah-langkah tersebut dilakukan agar router satu dengan yang lainnya dapat terhubung, karena pada PC Leo dilakukan perubahan pada Ip Address, maka router lain juga harus dirouting ulang sesuai Ip Address dari PC Leo.

Melakukan ping dan trace dari PC Leo ke PC Aries.



The screenshot shows a Windows Command Prompt window titled "Command Prompt". The window is part of a software interface with tabs for "Physical", "Config", "Desktop" (which is selected), "Programming", and "Attributes".

```
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=2ms TTL=126
Reply from 172.21.20.2: bytes=32 time=4ms 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 = 4ms, Average = 2ms

C:\>tracert 172.21.20.2

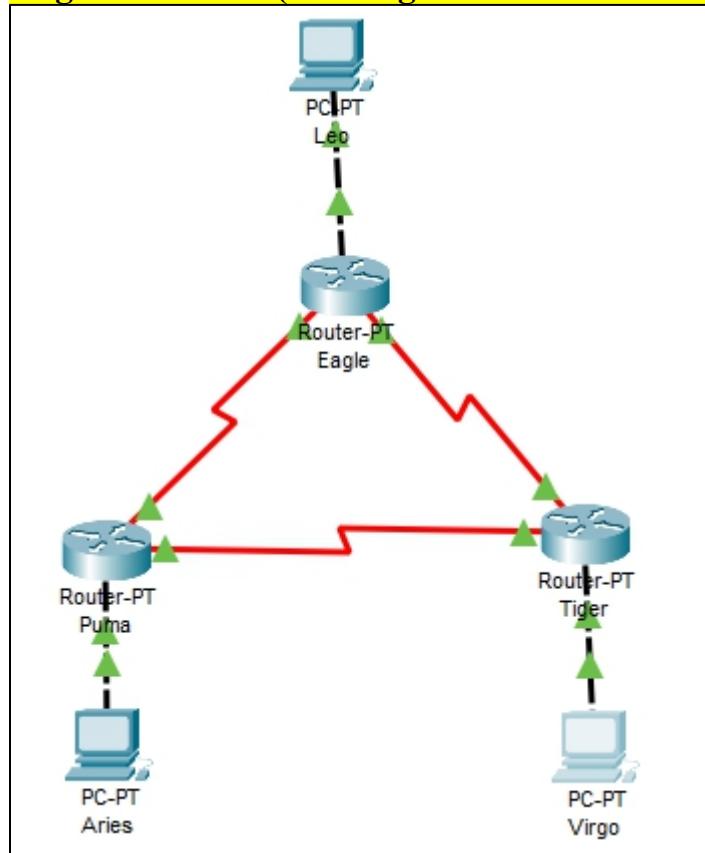
Tracing route to 172.21.20.2 over a maximum of 30 hops:

  1  1 ms        4 ms        0 ms      172.21.100.10
  2  1 ms        1 ms        4 ms      172.21.1.2
  3  0 ms        0 ms        0 ms      172.21.20.2

Trace complete.

C:\>
C:\>
C:\>|
```

## Kegiatan 2. RIP (Routing Information Protocol)



1. Konfigurasi routing RIP pada router Eagle.

The screenshot shows a terminal window titled "Eagle". The tab bar includes "Physical", "Config", "CLI" (which is selected), and "Attributes". The main area is labeled "IOS Command Line Interface". The configuration commands entered are:

```
Router>en
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
```

## 2. Melihat konfigurasi routing RIP.

The image contains two separate windows of the Cisco IOS CLI interface, both titled "IOS Command Line Interface".

**Top Window (Router#show running-config):**

```
Router#show running-config
Building configuration...
Current configuration : 872 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
!
!
!
!
!
```

**Bottom Window (Interface Configuration):**

```
interface FastEthernet0/0
 ip address 172.21.100.10 255.255.255.0
 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
!
interface Serial3/0
 ip address 172.21.2.1 255.255.255.0
 clock rate 200000
!
interface FastEthernet4/0
 no ip address
 shutdown
!
interface FastEthernet5/0
 no ip address
 shutdown
!
router rip
 network 172.21.0.0
!
ip classless
ip route 172.21.20.0 255.255.255.0 172.21.1.2
ip route 172.21.30.0 255.255.255.0 172.21.2.3
!
ip flow-export version 9
!
!
```

**Tugas 4A:** Nomor alamat jaringan route rip adalah 172.21.0.0

**Tugas 4B:** Kenapa tidak didaftarkan? Karena pada saat proses routing RIP hanya network 172.21.0.0 saja yang didaftarkan, untuk e0, s0, dan s1 tidak didaftarkan.

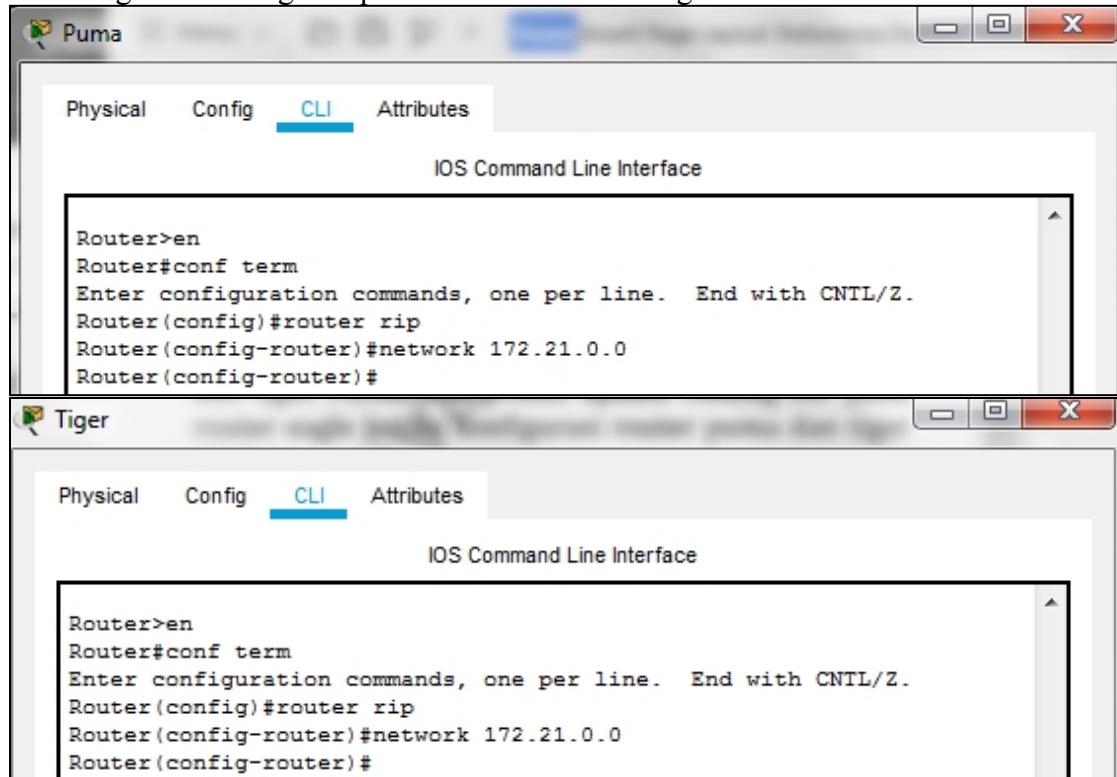
3. Melakukan perintah “debug ip rip” pada router Eagle.

```
Router>en
Router#debug ip rip
RIP protocol debugging is on
Router#RIP: sending v1 update to 255.255.255.255 via FastEthernet0/0
(172.21.100.10)
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 Serial3/0 (172.21.2.1)
RIP: build update entries
    network 172.21.1.0 metric 1
    network 172.21.100.0 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 172.21.100.0 metric 1
RIP: sending v1 update to 255.255.255.255 via FastEthernet0/0
(172.21.100.10)
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 Serial3/0 (172.21.2.1)
RIP: build update entries
    network 172.21.1.0 metric 1
    network 172.21.100.0 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 172.21.100.0 metric 1
RIP: sending v1 update to 255.255.255.255 via FastEthernet0/0
(172.21.100.10)
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 Serial3/0 (172.21.2.1)
RIP: build update entries
    network 172.21.1.0 metric 1
    network 172.21.100.0 metric 1
```

Ctrl+F6 to exit CLI focus      Copy      Paste

**Tugas 5A:** Update dari sent dan received melalui interface router ditampilkan di terminal. Jika network tidak berubah, informasi debug akan terus berulang setiap saat. Di atas router mengirim pembaharuan v1, pada Ethernet0 interface RIP dikirim sebagai broadcast ke alamat multicast sehingga router meng“advertising” ke alamat 255.255.255.255. Pada output di atas, router mengklaim dapat menjangkau 3 network.

4. Konfigurasi routing RIP pada router Puma dan Tiger.

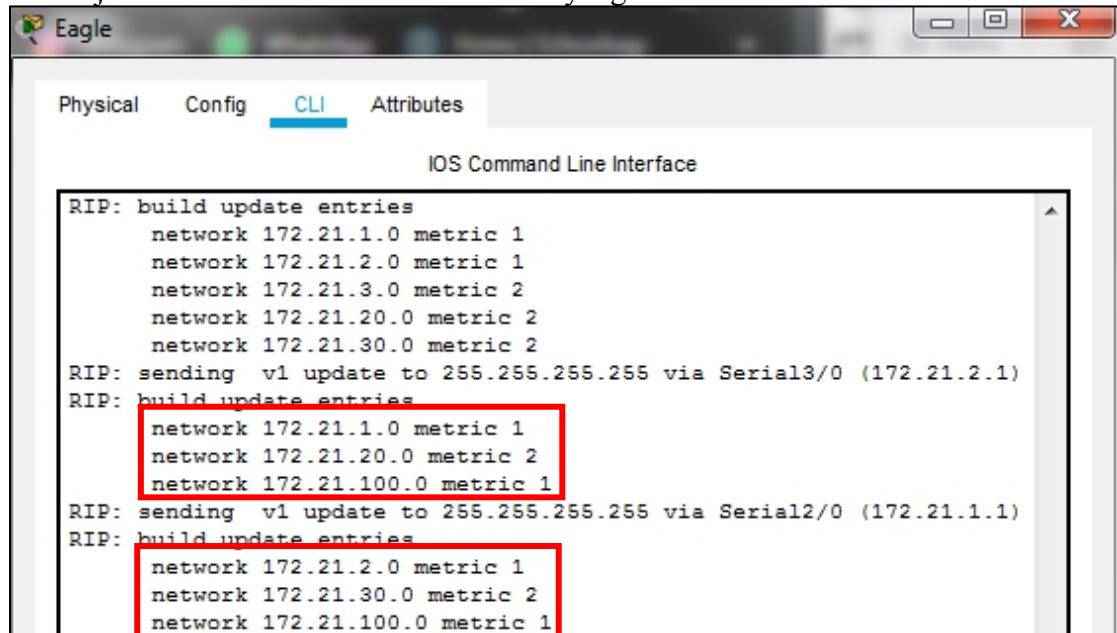


The image shows two separate windows, each titled with a router name (Puma and Tiger) and displaying an 'IOS Command Line Interface'. Both windows have tabs for Physical, Config, CLI (which is selected), and Attributes. The CLI panes show the following configuration commands being entered:

```
Router>en
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)#
Router>en
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)#

```

Setelah dilakukan RIP routing pada Puma dan Tiger, ada update dari Eagle yang menunjukan bahwa ada tambahan network yang di kirim ke 255.255.255.255



The image shows a window titled 'Eagle' with an 'IOS Command Line Interface'. It has tabs for Physical, Config, CLI (selected), and Attributes. The CLI pane displays the following RIP update log:

```
RIP: build update entries
    network 172.21.1.0 metric 1
    network 172.21.2.0 metric 1
    network 172.21.3.0 metric 2
    network 172.21.20.0 metric 2
    network 172.21.30.0 metric 2
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 172.21.20.0 metric 2
    network 172.21.100.0 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 172.21.30.0 metric 2
    network 172.21.100.0 metric 1

```

Specific lines in the log are highlighted with red boxes: 'network 172.21.100.0 metric 1' under the first update and 'network 172.21.100.0 metric 1' under the second update.

**Tugas 6A:** Langkah konfigurasi RIP pada Puma dan Tiger:

- enable/en
- configure terminal/conf term
- router rip
- network 172.21.0.0

### Tugas 6B:

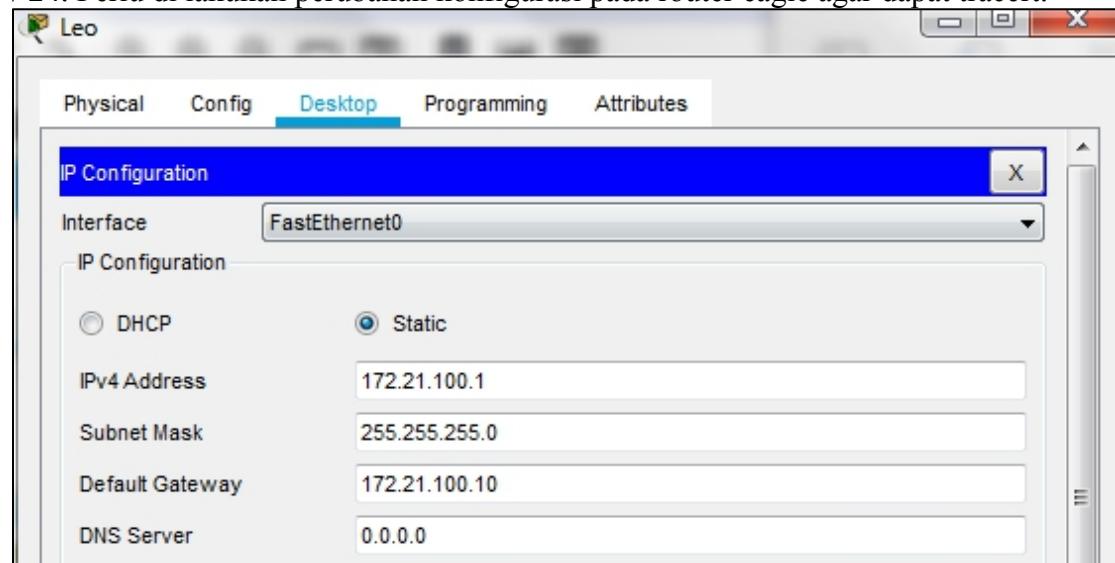
```
RIP: sending v1 update to 255.255.255.255 via Serial3/0 (172.21.2.1)
RIP: build update entries
    network 172.21.1.0 metric 1
    network 172.21.20.0 metric 2
    network 172.21.100.0 metric 1
RIP: sending v1 update to 255.255.255.255 via Serial2/0 (172.21.1.1)
RIP: build update entries
    network 172.21.2.0 metric 1
    network 172.21.30.0 metric 2
    network 172.21.100.0 metric 1
```

Pada saat routing RIP dilakukan pada Puma dan Tiger,maka akan terjadi:

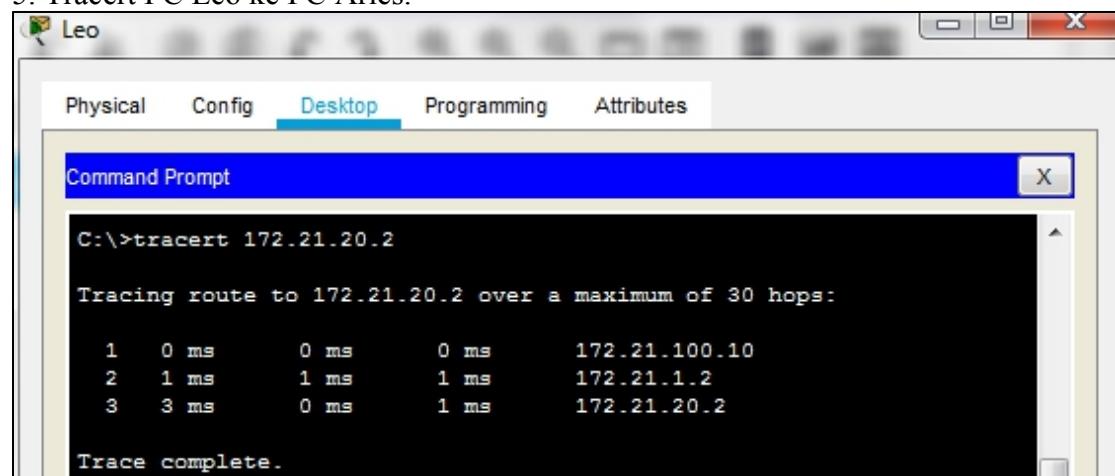
- a. Version1/v1 mengirimkan update ke 255.255.255.255 via Serial3/0 (172.21.2.1) yang dimana akan mengupdate network 172.21.20.0 (milik Tiger).
- b. Version1/v1 mengirimkan update ke 255.255.255.255 via Serial2/0 (172.21.1.1) Yang dimana akan mengupdate network 172.21.30.0 (milik Puma).

### Tugas 6C:

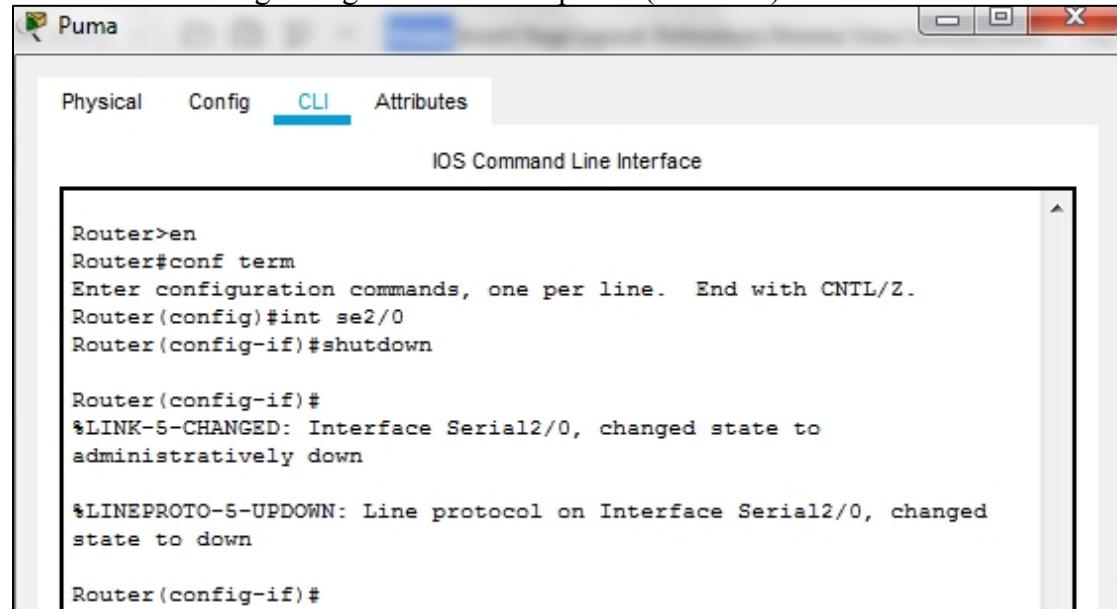
Alamat jaringan pada segmen Leo di ubah dari 172.21.10.0 / 24 menjadi 172.21.100.0 / 24. Perlu di lakukan perubahan konfigurasi pada router eagle agar dapat tracert.



5. Tracert PC Leo ke PC Aries.



## 6. Membuat hubungan Eagle dan Puma terputus. (Serial2/0)



Puma

Physical Config **CLI** Attributes

IOS Command Line Interface

```
Router>en
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int se2/0
Router(config-if)#shutdown

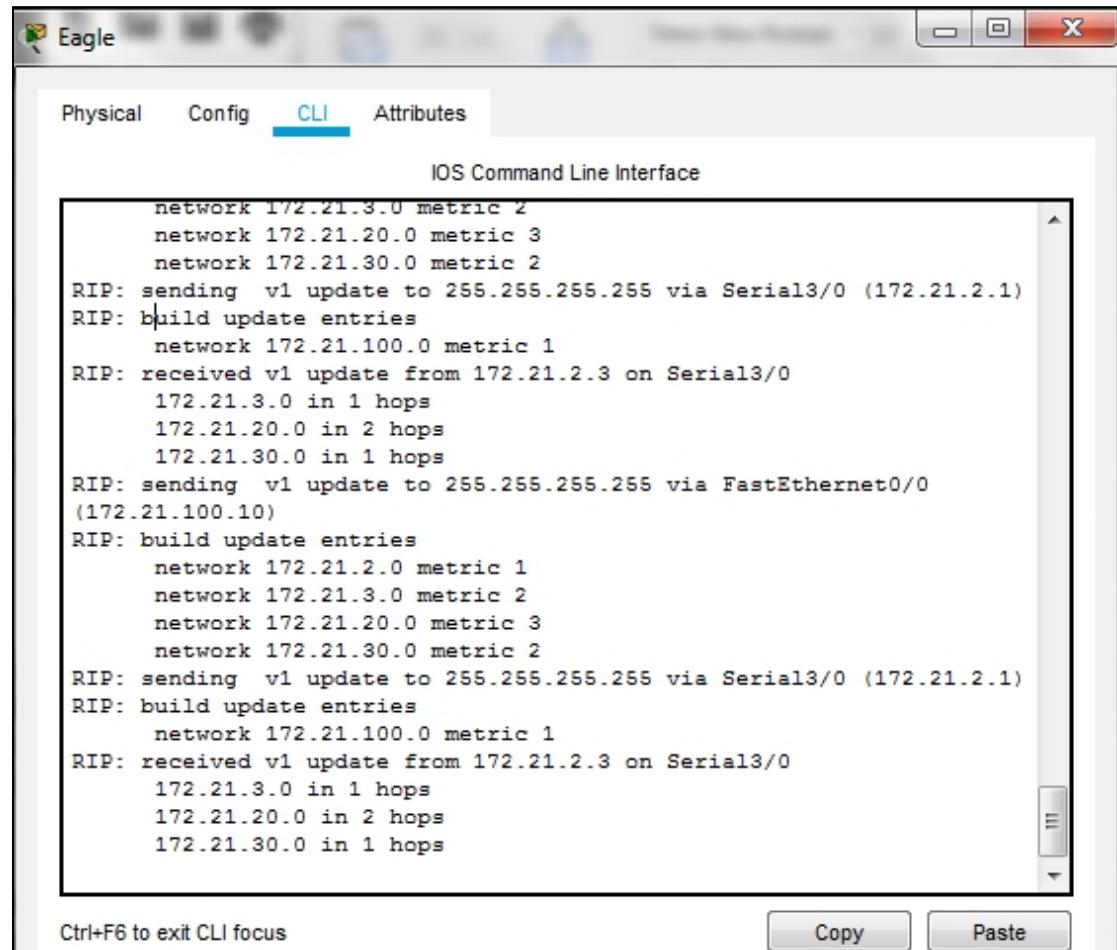
Router(config-if)#
*LINK-5-CHANGED: Interface Serial2/0, changed state to
administratively down

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

Router(config-if)#

```

**Tugas 8A:** Proses update yang terjadi yaitu pada router Eagle sudah tidak lagi menerima update dari Serial2/0 (172.21.1.1), hanya menerima update dari Serial3/0 saja. Dan untuk hops sendiri juga sudah tidak menerima update dari Serial2/0 hanya menerima Serial3/0.



Eagle

Physical Config **CLI** Attributes

IOS Command Line Interface

```
network 172.21.3.0 metric 2
network 172.21.20.0 metric 3
network 172.21.30.0 metric 2
RIP: sending v1 update to 255.255.255.255 via Serial3/0 (172.21.2.1)
RIP: build update entries
    network 172.21.100.0 metric 1
RIP: received v1 update from 172.21.2.3 on Serial3/0
    172.21.3.0 in 1 hops
    172.21.20.0 in 2 hops
    172.21.30.0 in 1 hops
RIP: sending v1 update to 255.255.255.255 via FastEthernet0/0
(172.21.100.10)
RIP: build update entries
    network 172.21.2.0 metric 1
    network 172.21.3.0 metric 2
    network 172.21.20.0 metric 3
    network 172.21.30.0 metric 2
RIP: sending v1 update to 255.255.255.255 via Serial3/0 (172.21.2.1)
RIP: build update entries
    network 172.21.100.0 metric 1
RIP: received v1 update from 172.21.2.3 on Serial3/0
    172.21.3.0 in 1 hops
    172.21.20.0 in 2 hops
    172.21.30.0 in 1 hops

```

Ctrl+F6 to exit CLI focus      **Copy**      **Paste**

7. Trace PC Leo ke PC Aries (setelah shutdown).

The screenshot shows a Windows Command Prompt window titled "Leo". The tab bar at the top includes "Physical", "Config", "Desktop" (which is selected), "Programming", and "Attributes". The command "tracert 172.21.20.2" is entered, and the output shows the path from the local machine to the destination host:

```
C:\>tracert 172.21.20.2

Tracing route to 172.21.20.2 over a maximum of 30 hops:

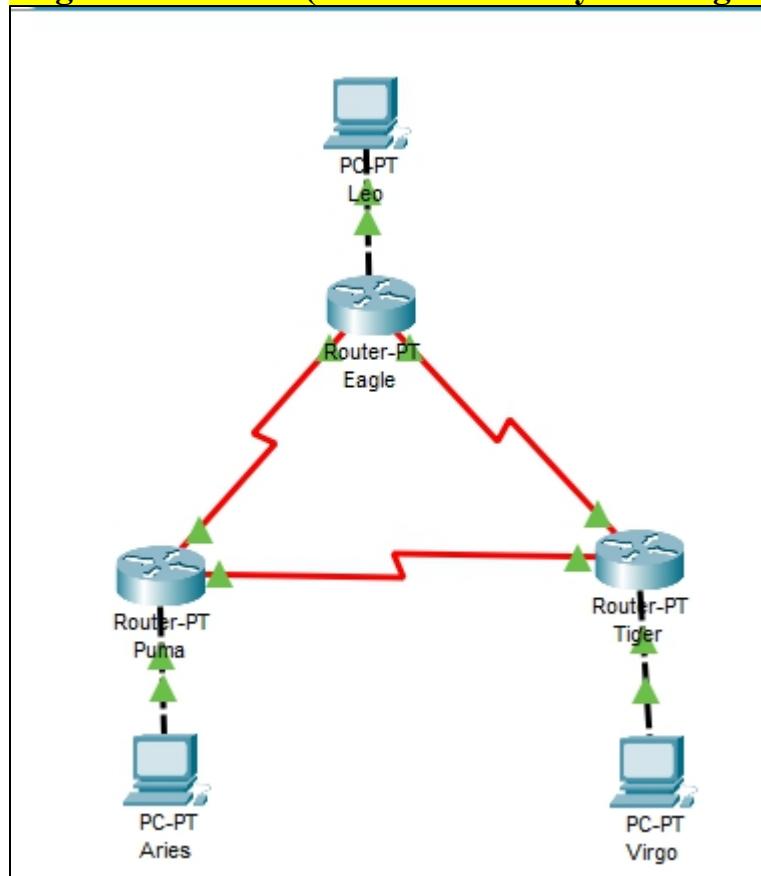
 1  1 ms      0 ms      0 ms      172.21.100.10
 2  0 ms      4 ms      1 ms      172.21.2.3
 3  3 ms      1 ms      5 ms      172.21.3.2
 4  2 ms      1 ms      1 ms      172.21.20.2

Trace complete.
```

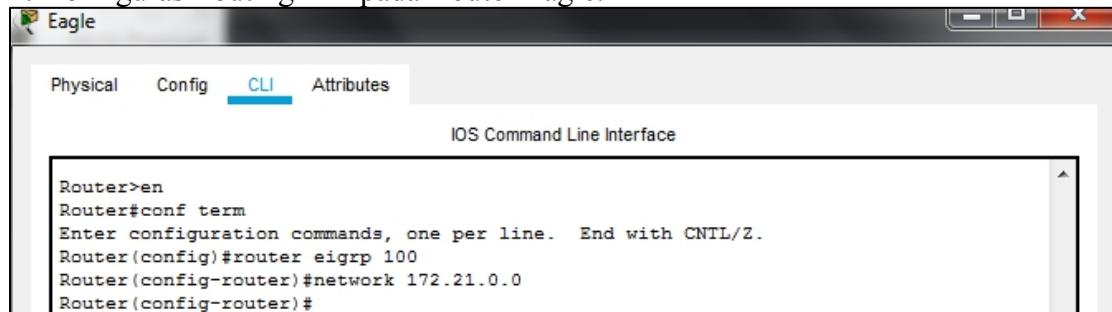
**Tugas 9A:**

Ya, dari foto diatas, hasilnya berbeda dari langkah sebelumnya, pada langkah sebelumnya menampilkan Serial2/0 yaitu 172.21.1.2 dan setelah melakukan shutdown pada Serial2/0, maka yang tampil adalah Serial3/0 172.21.3.2(Puma) dan Serial2/0 172.21.2.3 (Tiger).

**Kegiatan 3. IGRP (Interior Gateway Routing Protocol)**



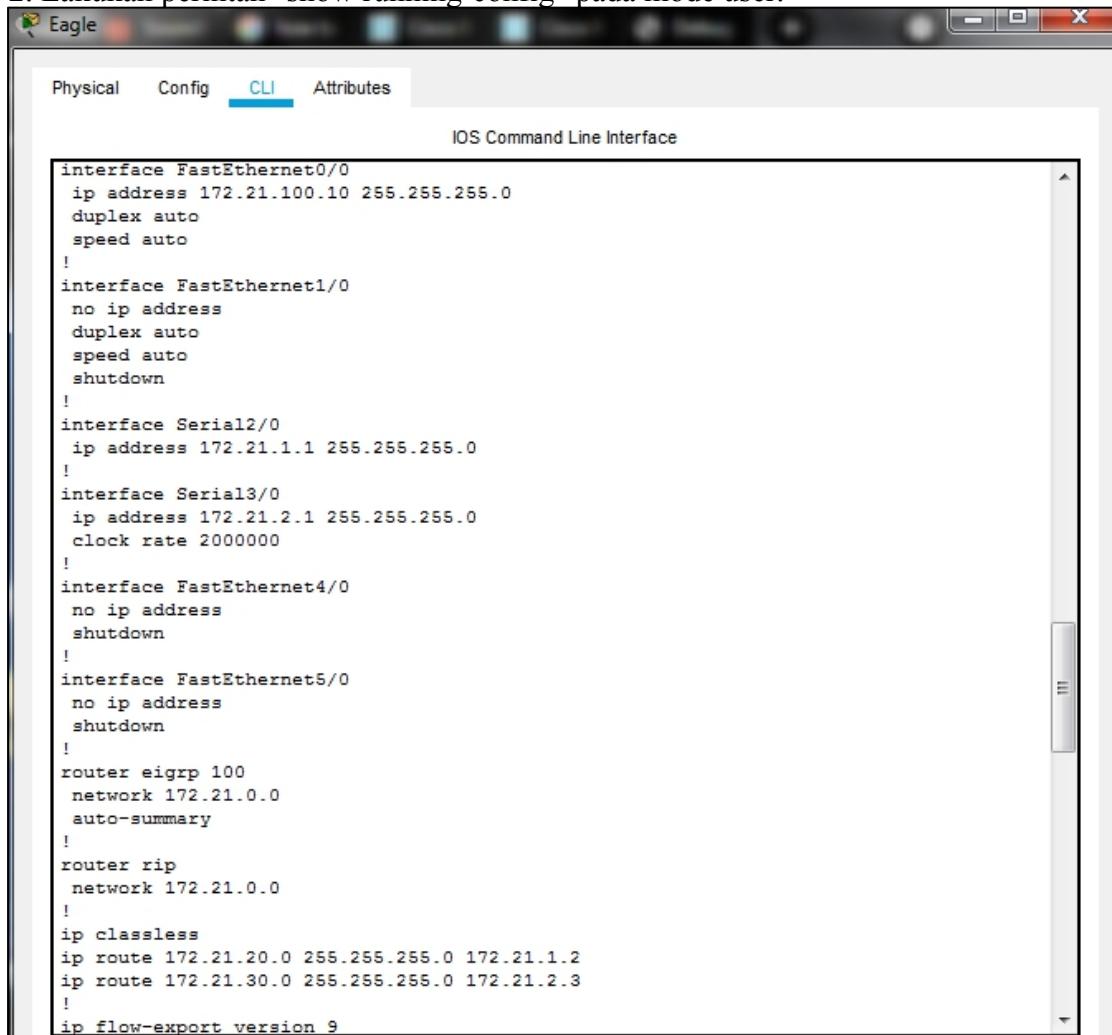
1. Konfigurasi routing RIP pada Router Eagle.



```
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)#

```

2. Lakukan perintah "show running-config" pada mode user.



```
interface FastEthernet0/0
 ip address 172.21.100.10 255.255.255.0
 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
!
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 eigrp 100
 network 172.21.0.0
 auto-summary
!
router rip
 network 172.21.0.0
!
ip classless
 ip route 172.21.20.0 255.255.255.0 172.21.1.2
 ip route 172.21.30.0 255.255.255.0 172.21.2.3
!
ip flow-export version 9

```

**Tugas 4A:** Alamat jaringan yang terkonfigurasi routing IGRP adalah 172.21.0.0

3. Melakukan proses transaksi routing IGRP pada router Eagle.  
Karena “debug ip eigrp transaction” tidak bisa, maka menggunakan “debug eigrp packets”.

```
Router#debug eigrp packets
EIGRP Packets debugging is on
(UPDATE, REQUEST, QUERY, REPLY, HELLO, ACK )
Router#
EIGRP: Sending HELLO on FastEthernet0/0
AS 100, Flags 0x0, Seq 1/0 idbQ 0/0 iidbQ un/rely 0/0

EIGRP: Sending HELLO on Serial2/0
AS 100, Flags 0x0, Seq 1/0 idbQ 0/0 iidbQ un/rely 0/0

EIGRP: Sending HELLO on Serial3/0
AS 100, Flags 0x0, Seq 1/0 idbQ 0/0 iidbQ un/rely 0/0

EIGRP: Sending HELLO on FastEthernet0/0
AS 100, Flags 0x0, Seq 1/0 idbQ 0/0 iidbQ un/rely 0/0

EIGRP: Sending HELLO on Serial2/0
AS 100, Flags 0x0, Seq 1/0 idbQ 0/0 iidbQ un/rely 0/0

EIGRP: Sending HELLO on Serial3/0
AS 100, Flags 0x0, Seq 1/0 idbQ 0/0 iidbQ un/rely 0/0

EIGRP: Sending HELLO on FastEthernet0/0
AS 100, Flags 0x0, Seq 1/0 idbQ 0/0 iidbQ un/rely 0/0
```

**Tugas 5A:** Output menampilkan transmisi dan penerimaan paket EIGRP, jenis paket ini berupa hello, update, request, query, atau reply. *Squence* dan *acknowledgment* yang digunakan oleh transaksi algoritma EIGRP ditampilkan di *output*. Jika memungkinkan “*network-layer address*” dari *neighboring* juga akan disertakan.

4. Melakukan konfigurasi routing EIGRP pada router Puma dan 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 172.21.1.1 (Serial2/0) is
up: new adjacency

Router(config-router)#end
Router#
```

Tiger

Physical Config CLI Attributes

IOS Command Line Interface

```
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

Router(config-router)#end
Router#
```

Melihat proses transaksi routing EIGRP pada router Puma dan Tiger.

Puma

Physical Config CLI Attributes

IOS Command Line Interface

```
EIGRP: Received HELLO on Serial2/0 nbr 172.21.1.1
      AS 100, Flags 0x0, Seq 9/0 idbQ 0/0

EIGRP: Sending HELLO on Serial3/0
      AS 100, Flags 0x0, Seq 9/0 idbQ 0/0 iidbQ un/rely 0/0

EIGRP: Received HELLO on Serial3/0 nbr 172.21.3.3
      AS 100, Flags 0x0, Seq 11/0 idbQ 0/0

EIGRP: Sending HELLO on FastEthernet0/0
      AS 100, Flags 0x0, Seq 9/0 idbQ 0/0 iidbQ un/rely 0/0

EIGRP: Sending HELLO on Serial2/0
      AS 100, Flags 0x0, Seq 9/0 idbQ 0/0 iidbQ un/rely 0/0

EIGRP: Sending HELLO on Serial3/0
      AS 100, Flags 0x0, Seq 9/0 idbQ 0/0 iidbQ un/rely 0/0

EIGRP: Received HELLO on Serial2/0 nbr 172.21.1.1
      AS 100, Flags 0x0, Seq 9/0 idbQ 0/0

EIGRP: Received HELLO on Serial3/0 nbr 172.21.3.3
      AS 100, Flags 0x0, Seq 11/0 idbQ 0/0
```

```
EIGRP: Sending HELLO on Serial2/0
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

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: Sending HELLO on Serial2/0
AS 100, Flags 0x0, Seq 11/0 idbQ 0/0 iidbQ un/rely 0/0

EIGRP: Sending HELLO on FastEthernet0/0
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
```

**Tugas 7A:** Langkah konfigurasi IGRP/EIGRP:

- enable
- configure terminal
- router eigrp 100
- network 172.21.0.0
- end

**Tugas 7B:**

```
EIGRP: Received HELLO on Serial3/0 nbr 172.21.2.3
AS 100, Flags 0x0, Seq 11/0 idbQ 0/0

EIGRP: Received HELLO on Serial2/0 nbr 172.21.1.2
AS 100, Flags 0x0, Seq 9/0 idbQ 0/0
```

Setelah melakukan routing IGRP pada router Puma dan Tiger, router Eagle menerima update dari Serial2/0 172.21.1.2 (Puma) dan Serial3/0 172.21.2.3 (Tiger), yang berupa "Hello" dengan nilai eigrp = 100.

**Tugas 7C:** Jika alamat segmen Leo diubah ke 172.21.100.0/24, perlu dilakukan perubahan konfigurasi pada setiap router, karena pada PC Leo dilakukan perubahan pada alamat jaringan pada segmen, maka router lain juga harus dirouting ulang sesuai alamat jaringan pada segmen dari PC Leo.

5. Trace 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  82 ms      0 ms      0 ms      172.21.100.10
 2  3 ms       2 ms      1 ms      172.21.1.2
 3  *          0 ms      6 ms      172.21.20.2

Trace complete.
```

6. Memutus hubungan router Eagle dan Puma.

IOS Command Line Interface

```
Router>en
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 172.21.1.2 (Serial2/0) is
down: interface down

Router(config-if)#

```

**Tugas 9A:**

```
AS 100, Flags 0x0, Seq 16/0 idbQ 0/0 iidbQ un/rely 0/0
EIGRP: Received HELLO on Serial3/0 nbr 172.21.2.3
AS 100, Flags 0x0, Seq 16/0 idbQ 0/0

EIGRP: Sending HELLO on FastEthernet0/0
AS 100, Flags 0x0, Seq 16/0 idbQ 0/0 iidbQ un/rely 0/0

EIGRP: Sending HELLO on Serial3/0
AS 100, Flags 0x0, Seq 16/0 idbQ 0/0 iidbQ un/rely 0/0

EIGRP: Received HELLO on Serial3/0 nbr 172.21.2.3
AS 100, Flags 0x0, Seq 16/0 idbQ 0/0
```

Setelah melakukan shutdown Serial2/0, router Eagle tidak menerima update dari Serial2/0 172.21.1.2 (Puma) , hanya menerima update dari Serial3/0 172/21/2/3 (Tiger).

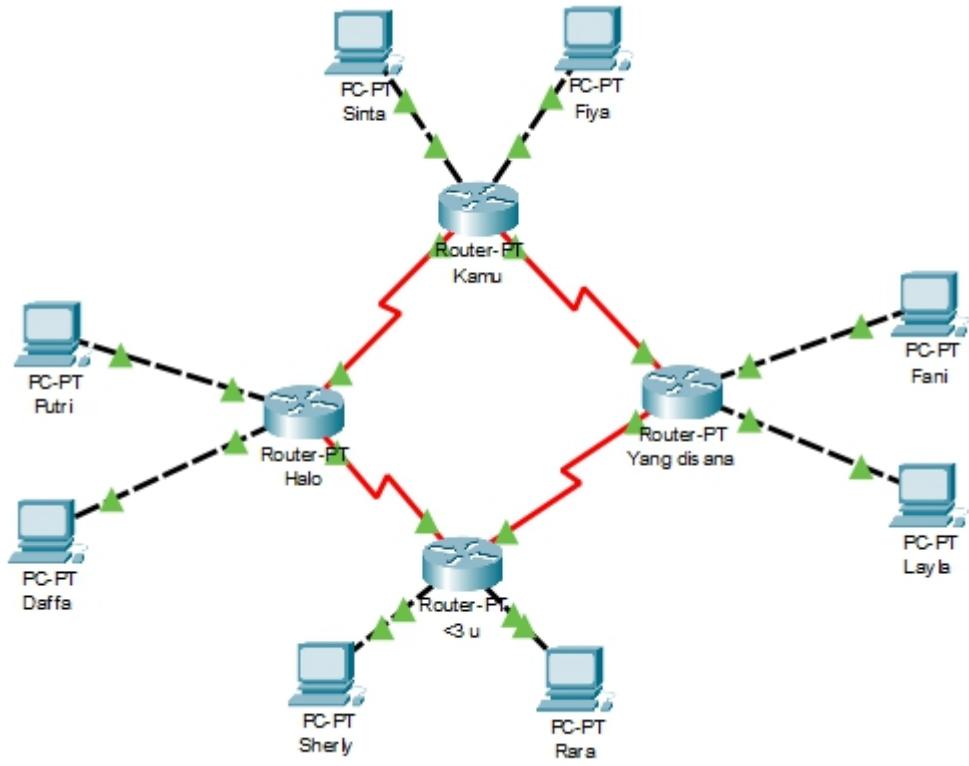
## 7. Trace PC Leo ke PC Aries (Setelah hubungan terputus).

1	0 ms	0 ms	0 ms	172.21.100.10
2	0 ms	1 ms	1 ms	172.21.2.3
3	1 ms	1 ms	2 ms	172.21.3.2
4	2 ms	0 ms	0 ms	172.21.20.2

Trace complete.

**Tugas 10A:** Ya, berbeda dari langkah sebelumnya, Saat melakukan trace, Leo sudah tidak menerima tanggapan dari Serial2/0 172.21.1.2(Puma), karena sudah shutdown. Leo hanya menerima Serial2/0 172.21.2.3(Tiger) dan Serial3/0 172.21.3.2 (Puma).

## TUGAS



1. Melakukan konfigurasi pada semua router.

➤ Router Halo dan kamu.

<pre> Router#conf term Enter configuration commands, one per line. End with CNTL/Z. Router(config)#int f0/0 Router(config-if)#ip address 172.21.30.30 255.255.255.0 Router(config-if)#no shutdown  Router(config-if)# *LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up *LINETRPTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up  Router(config-if)# int f1/0 Router(config-if)#ip address 172.21.40.40 255.255.255.0 Router(config-if)#no shutdown  Router(config-if)# *LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up *LINETRPTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up  Router(config-if)# int se2/0 Router(config-if)#clock rate 2000000 This command applies only to DCE interfaces Router(config-if)#ip address 172.21.1.2 255.255.255.0 Router(config-if)#no shutdown  Router(config-if)# *LINK-5-CHANGED: Interface Serial2/0, changed state to up Router(config-if)# int se3/0 Router(config-if)# *LINETRPTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up  Router(config-if)# clock rate 2000000 Router(config-if)# ip address 172.21.3.1 255.255.255.0 Router(config-if)# no shutdown  *LINK-5-CHANGED: Interface Serial3/0, changed state to down Router(config-if)# </pre>	<pre> Router&gt;en Router#conf term Enter configuration commands, one per line. End with CNTL/Z. Router(config)# int f0/0 Router(config-if)# ip address 172.21.10.10 255.255.255.0 Router(config-if)# no shutdown  Router(config-if)# *LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up *LINETRPTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up  Router(config-if)# int f1/0 Router(config-if)# ip address 172.21.20.20 255.255.255.0 Router(config-if)# no shutdown  Router(config-if)# *LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up *LINETRPTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up  Router(config-if)# exit Router(config)# int se2/0 Router(config-if)# clock rate 2000000 Router(config-if)# ip address 172.21.1.1 255.255.255.0 Router(config-if)# no shutdown  *LINK-5-CHANGED: Interface Serial2/0, changed state to down Router(config-if)# int se3/0 Router(config-if)# clock rate 2000000 Router(config-if)# ip address 172.21.2.1 255.255.255.0 Router(config-if)# no shutdown  *LINK-5-CHANGED: Interface Serial3/0, changed state to down Router(config-if)# \$SYN-6-CONFIG_I: Configured from console by console </pre>
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➤ Router Yang disana dan <3 u.

```

Router>en
Router>conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int fa0/0
Router(config-if)#ip address 172.21.50.50 255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#
*LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

*LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#int fa1/0
Router(config-if)#ip address 172.21.60.60 255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#
*LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up

*LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up

Router(config-if)#exit
Router(config)#clock rate 2000000
This command applies only to DCE interfaces
Router(config-if)#ip address 172.21.4.1 255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#
*LINK-5-CHANGED: Interface Serial2/0, changed state to up

Router(config-if)#int se3/
*LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up
Router(config-if)#ip address 172.21.3.2 255.255.255.0
Router(config-if)#no shutdown

Ctrl+F6 to exit CLI focus      Copy      Paste

```

```

Router>en
Router>conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int fa1/0
Router(config-if)#ip address 172.21.70.70 255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#
*LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

*LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#int fa1/0
Router(config-if)#ip address 172.21.80.80 255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#
*LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up

*LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up

Router(config-if)#int se3/
*LINK-5-CHANGED: Interface Serial2/0, changed state to up

Router(config-if)#int se3/
*LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

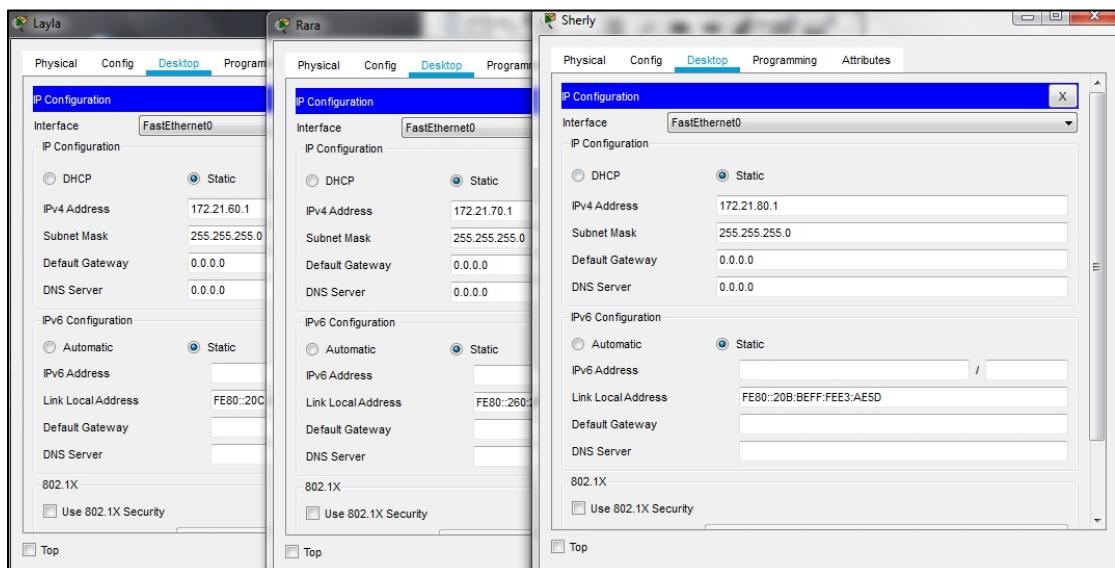
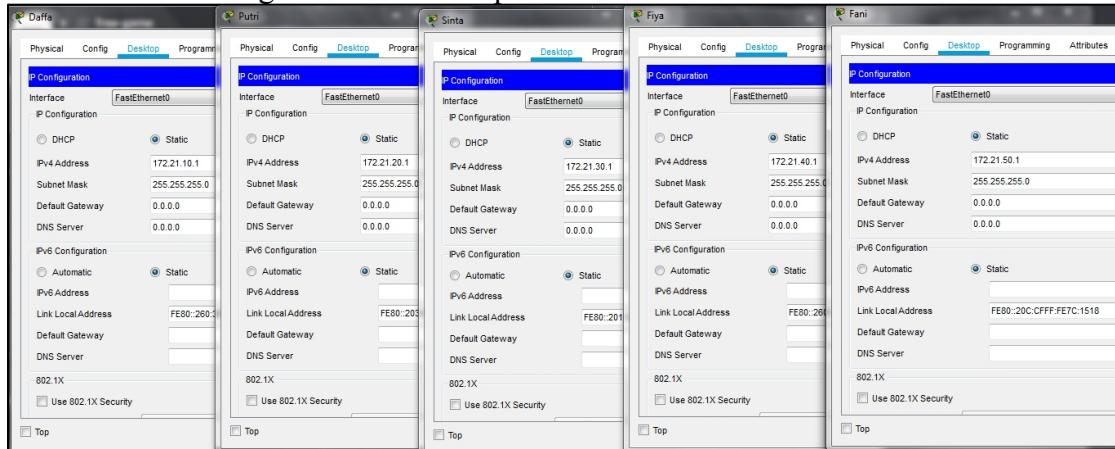
$ Invalid input detected at `'' marker.

Router(config-if)#int se3/0
Router(config-if)#ip address 172.21.2.2 255.255.255.0
Router(config-if)#no shutdown

Ctrl+F6 to exit CLI focus      Copy      Paste

```

## 2. Melakukan konfigurasi IP Address pada semua PC



### 3. Melakukan routing pada router.

The image displays four separate windows, each showing a Cisco IOS Command Line Interface (CLI) session. Each window has tabs for Physical, Config, CLI (which is selected), and Attributes. The windows are titled 'Halo', 'Kamu', 'Yang disana', and '<3 u'. Each window shows a series of configuration commands being entered, followed by a 'Building configuration...' message and a '[OK]' confirmation. In the 'Yang disana' window, there is an error message: '\*Invalid next hop address (it's this router)'. The configuration commands involve setting up multiple static routes with various subnet masks and next-hop addresses.

```
Router>en
Router#write
Building configuration...
[OK]
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip route 172.21.30.0 255.255.255.0 172.21.1.2
Router(config)#ip route 172.21.40.0 255.255.255.0 172.21.1.2
Router(config)#ip route 172.21.50.0 255.255.255.0 172.21.1.2
Router(config)#ip route 172.21.60.0 255.255.255.0 172.21.1.2
Router(config)#ip route 172.21.70.0 255.255.255.0 172.21.1.2
Router(config)#ip route 172.21.80.0 255.255.255.0 172.21.1.2
Router(config)#
Router>en
Router#write
Building configuration...
[OK]
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 172.21.20.0 255.255.255.0 172.21.1.1
Router(config)#ip route 172.21.30.0 255.255.255.0 172.21.3.2
Router(config)#ip route 172.21.40.0 255.255.255.0 172.21.3.2
Router(config)#ip route 172.21.50.0 255.255.255.0 172.21.3.2
Router(config)#ip route 172.21.60.0 255.255.255.0 172.21.3.2
Router(config)#ip route 172.21.70.0 255.255.255.0 172.21.3.2
Router(config)#
Router>en
Router#write
Building configuration...
[OK]
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip route 172.21.10.0 255.255.255.0 172.21.4.2
Router(config)#ip route 172.21.20.0 255.255.255.0 172.21.4.2
Router(config)#ip route 172.21.30.0 255.255.255.0 172.21.3.1
Router(config)#ip route 172.21.40.0 255.255.255.0 172.21.3.1
Router(config)#ip route 172.21.50.0 255.255.255.0 172.21.4.1
*Invalid next hop address (it's this router)
Router(config)#ip route 172.21.70.0 255.255.255.0 172.21.4.2
Router(config)#ip route 172.21.80.0 255.255.255.0 172.21.4.2
Router(config)#
Router>en
Router#write
Building configuration...
[OK]
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 172.21.20.0 255.255.255.0 172.21.2.1
Router(config)#ip route 172.21.30.0 255.255.255.0 172.21.2.1
Router(config)#ip route 172.21.40.0 255.255.255.0 172.21.2.1
Router(config)#ip route 172.21.50.0 255.255.255.0 172.21.4.1
Router(config)#ip route 172.21.60.0 255.255.255.0 172.21.4.1
Router(config)#

```

#### 4. Konfigurasi RIP

The image shows four separate windows, each representing a different router configuration. Each window has a title bar, a tab bar with 'Physical', 'Config', 'CLI' (which is selected), and 'Attributes' tabs, and a text area labeled 'IOS Command Line Interface'. All four windows display identical configuration commands:

```
Router>en
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)#exit
Router(config)#
```

## 5. Konfigurasi IGRP

The image displays four separate windows, each representing a different router (Halo, Kamu, Yang disana, and <3 u>) running the Cisco IOS Command Line Interface (CLI). Each window shows the configuration command for enabling IGRP and specifying a network.

**Halo:**

```
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 172.21.1.2 (Serial2/0) is up: new adjacency
Router(config-router)#exit
Router(config)#

```

**Kamu:**

```
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)#
Router(config)#

```

**Yang disana:**

```
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)#
Router(config)#

```

**<3 u>:**

```
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)#
Router(config)#

```