Nama : Nugroho Prihananto
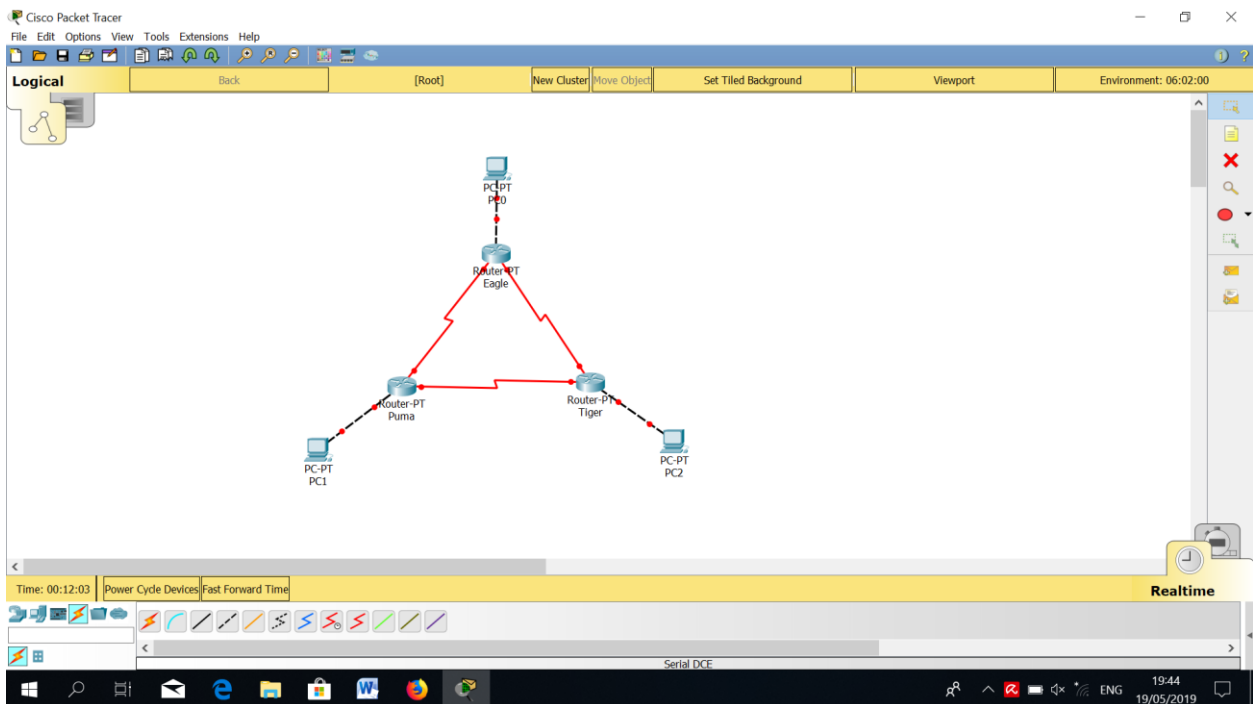
NIM   : L200170186

Kelas : D

MODUL 7

Kegiatan 1.Topologi 1 (Static Routing)

1. Buat topologi
2. Beri nama masing- masing router dengan eagle(router 1),puma (router 2), dan tiger (router 3).

3. Konfigurasi masing – masing interface pada tiap router dengan alamat ip
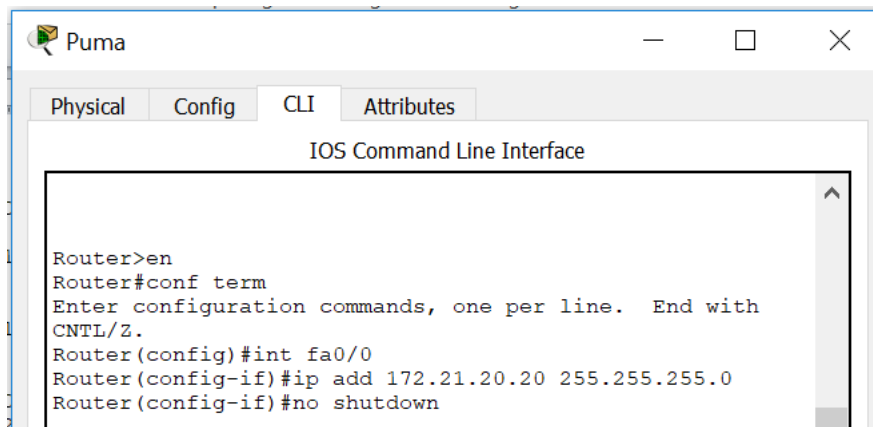   -   Eagle (Ethernet 0) = 172.21.10.10/24

- Eagle (serial 0) = 172.21.1.1/24 & eagle (serial 1) = 172.21.2.1/24

```
Router(config-if)#int se2/0
Router(config-if)#clock rate 2000000
This command applies only to DCE interfaces
Router(config-if)#ip add 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 add 172.21.2.1 255.255.255.0
Router(config-if)#no shutdown
```

- Puma (Ethernet 0) = 172.21.20.20/24

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 fa0/0
Router(config-if)#ip add 172.21.20.20 255.255.255.0
Router(config-if)#no shutdown
```

- Puma (serial 0) = 172.21.1.2/24 & eagle (serial 1) = 172.21.3.2/24

```
Router(config-if)#int se2/0
Router(config-if)#ip add 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)#in
%LINEPROTO-5-UPDOWN: Line protocol on Interface
Serial2/0, changed state to up
% Ambiguous command: "i"
Router(config)#int se3/0
Router(config-if)#clock rate 2000000
Router(config-if)#ip add 172.21.3.2 255.255.255.0
Router(config-if)#no shutdown
```
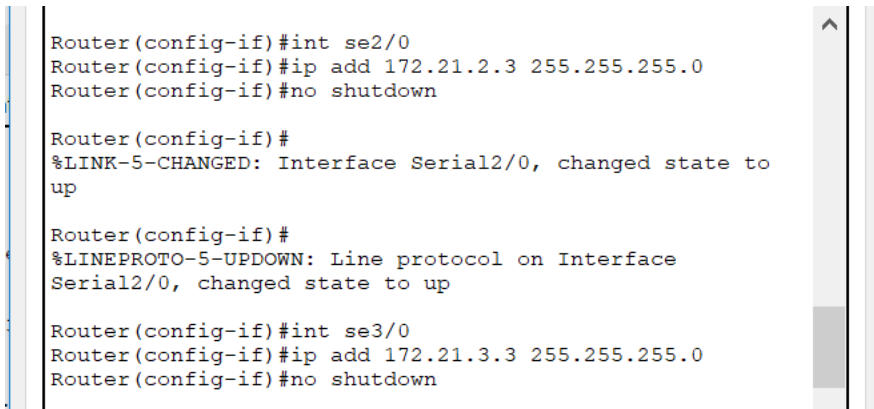
- Tiger (Ethernet 0) = 172.21.30.30/24

```
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)#int fa0/0
Router(config-if)#ip add 172.21.30.30 255.255.255.0
Router(config-if)#no shutdown
```
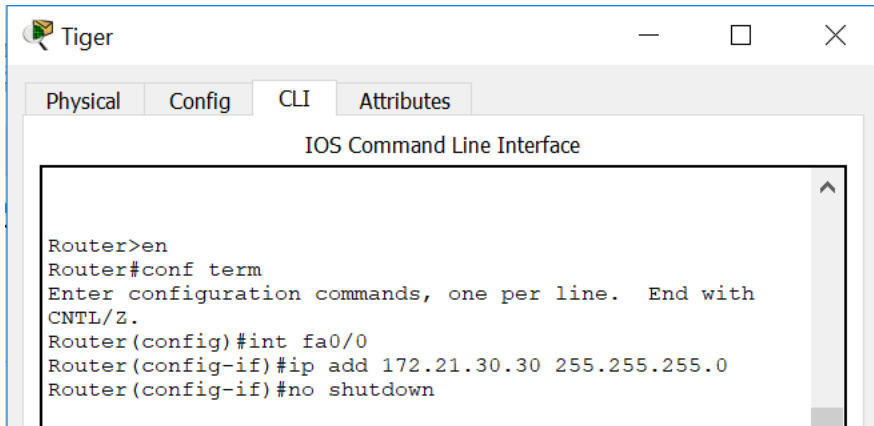
- Tiger (serial 0) = 172.21.2.3/24 & tiger (serial 1) = 172.21.3.3/24

```
Router(config-if)#int se2/0
Router(config-if)#ip add 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)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface
Serial2/0, changed state to up

Router(config-if)#int se3/0
Router(config-if)#ip add 172.21.3.3 255.255.255.0
Router(config-if)#no shutdown
```

4. Konfigurasi masing – masing pc dengan nama dan alamat IP.
   - Leo (pc 1) = 172.21.10.1/24 dan default gateway (ipconfig /dg) 172.21.10.10

- Aries (pc 2) = 172.21.20.2/24 dan default gateway (ipconfig /dg) 172.21.20.20

- Virgo (pc 3) = 172.21.30.3/24 dan default gateway (ipconfig /dg) 172.21.30.30
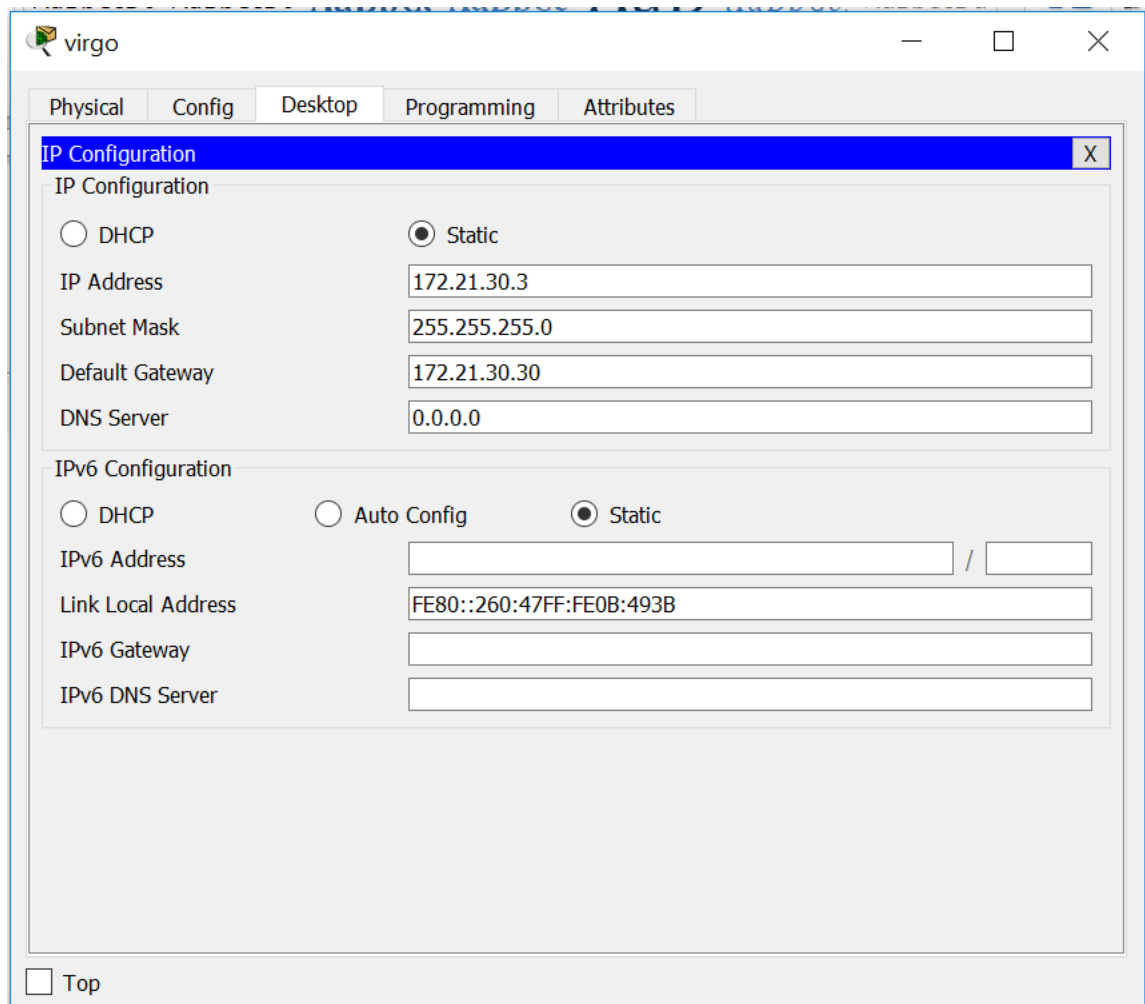
5. Langkah pengujian untuk memastikan kesesuaian konfigurasi.
   - Lakukan ping dari PC leo ke router eagle(172.21.1.1)

- Lakukan ping dari PC aries ke router puma(172.21.1.2)
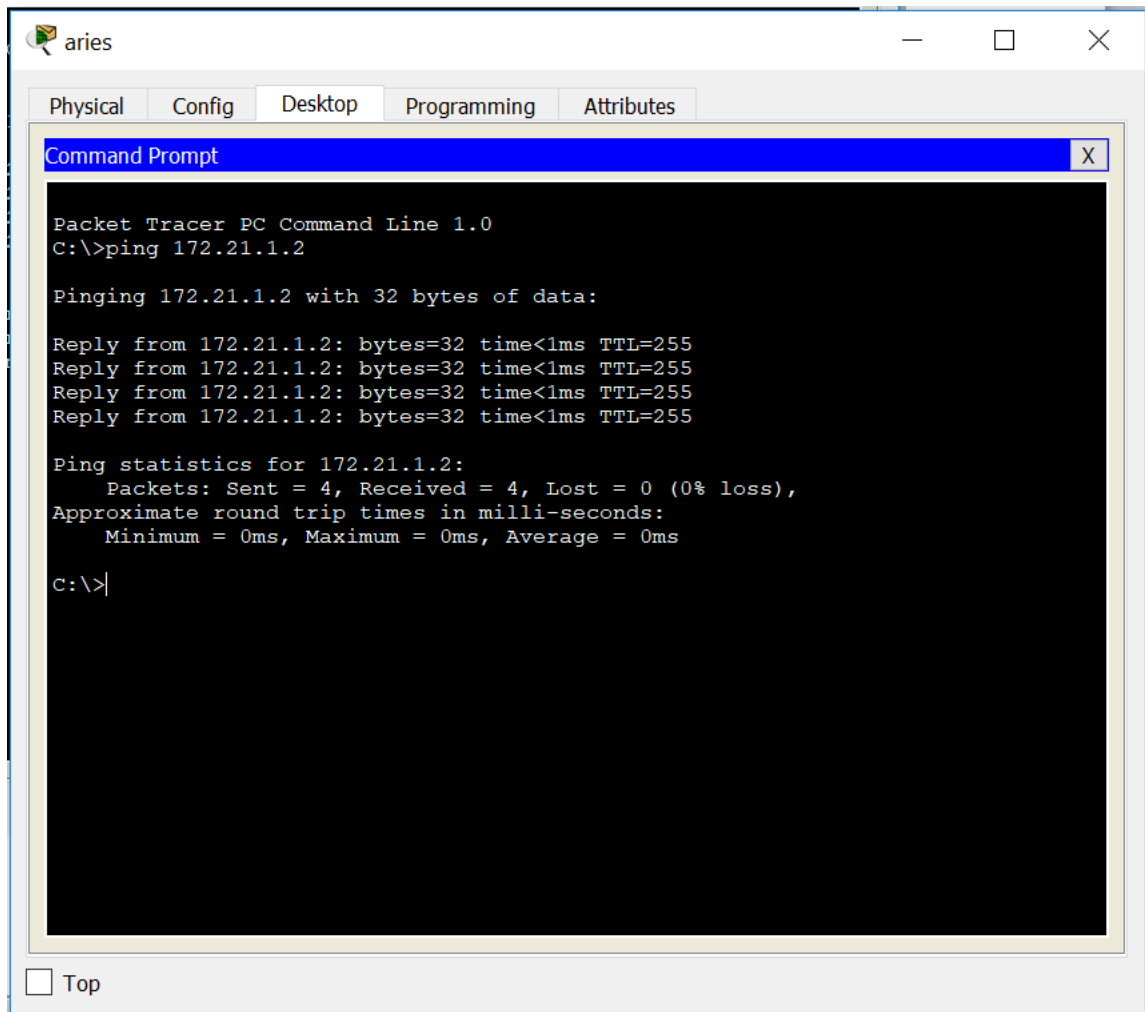
- Lakukan ping dari PC virgo ke router tiger(172.21.3.3)

```
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
  Reply from 172.21.3.3: bytes=32 time<1ms TTL=255
  Reply from 172.21.3.3: bytes=32 time<1ms TTL=255
  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 = 1ms, Average = 0ms

  C:\>

☐ Top
```

- Lakukan ping dari router eagle ke router puma(172.21.1.2)

```
Router>en
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 = 1/1/3 ms

Router#
```
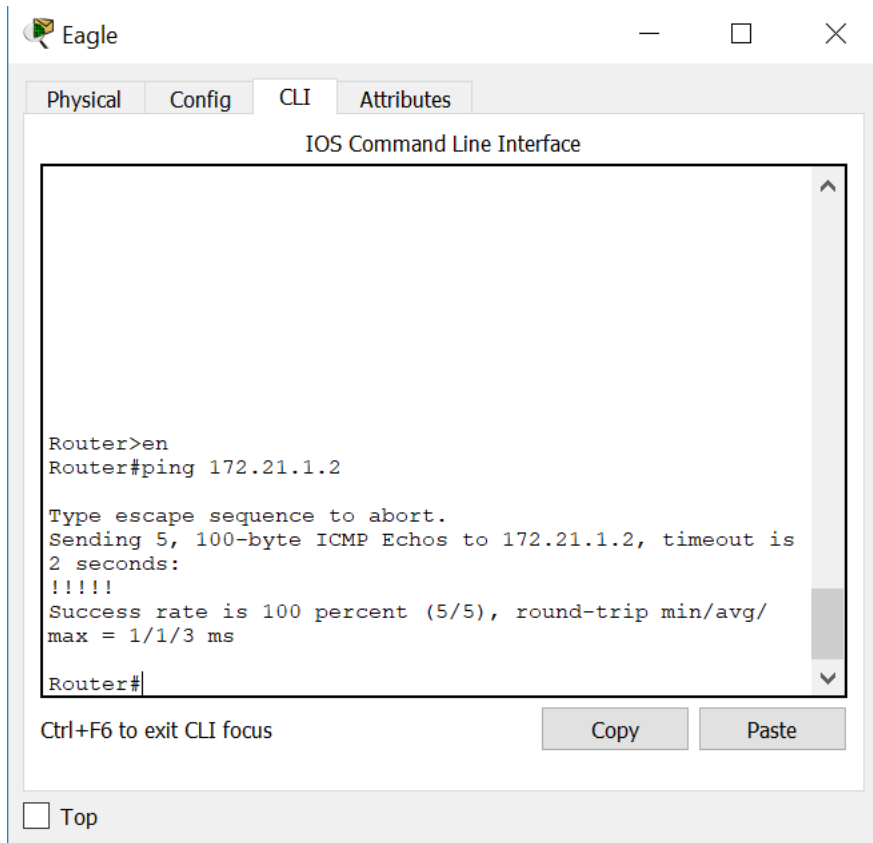
- Lakukan ping dari router eagle ke router tiger(172.21.2.3)

```
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 = 1/2/4 ms

Router#
```
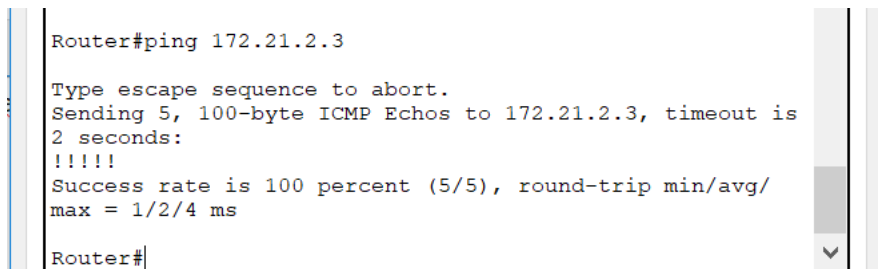
- Lakukan ping dari router puma ke router tiger(172.21.3.3)

```
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 = 1/1/5 ms

  Router#

Ctrl+F6 to exit CLI focus              Copy         Paste

□ Top
```
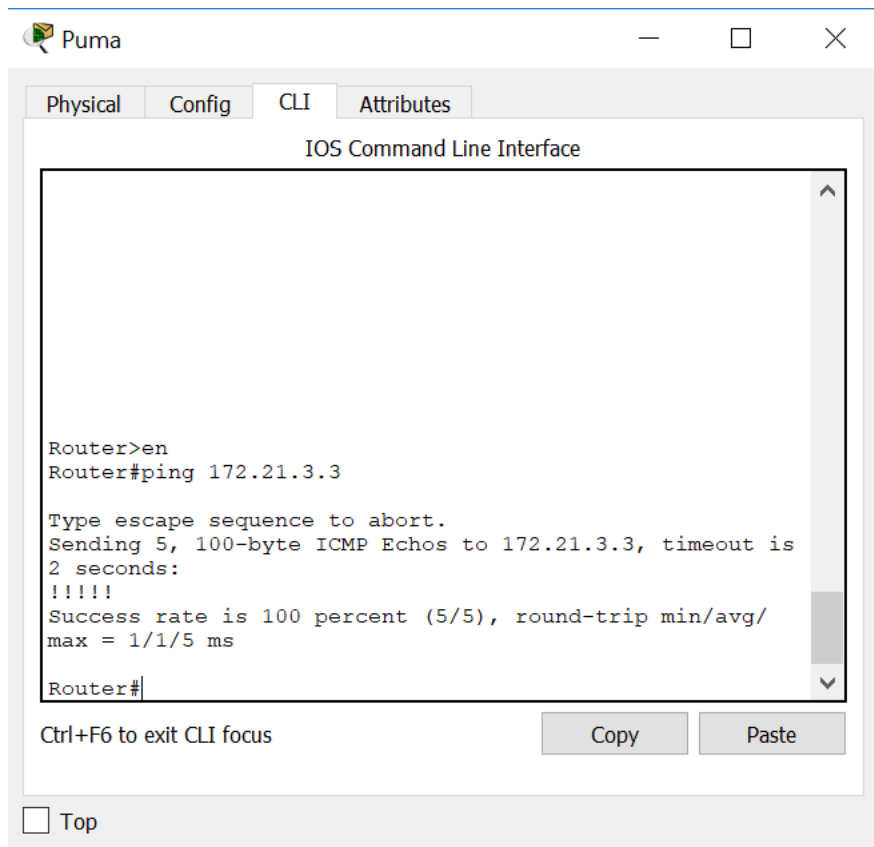
6. Simpan konfigurasi device yang telah dilakukan

modul-7

7. Pada mode user atau mode privileged, lihat route table pada masing – masing router.
   Tugas 7A:
   - Router eagle

Eagle — □ ✕

Physical | Config | CLI | Attributes

IOS Command Line Interface

```
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
```

Ctrl+F6 to exit CLI focus   Copy   Paste

☐ Top

- Router puma

Physical | Config | CLI | Attributes

IOS Command Line Interface

```
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
```

Ctrl+F6 to exit CLI focus   Copy   Paste

☐ Top

- Router tiger

Tiger

— □ ✕

| 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       172.21.2.0 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
```

Ctrl+F6 to exit CLI focus   Copy   Paste

☐ Top

8. Dari router eagle lakukan ping ke alamat interface e0 router puma(172.21.20.20)
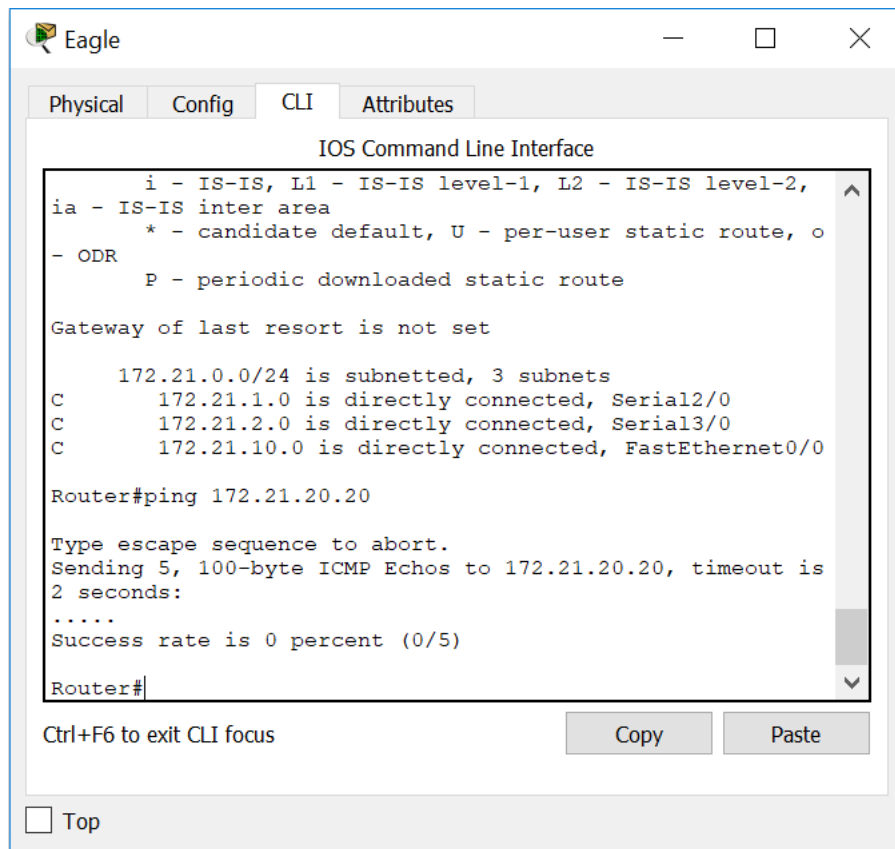
9. Dari pc leo lakukan trace ke pc aries

Physical   Config   Desktop   Programming   Attributes

Command Prompt   X

```
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 46ms, Average = 11ms

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    *          1 ms       *           Request timed out.
 10    0 ms       *          0 ms        172.21.10.10
 11    *          0 ms       *           Request timed out.
 12    0 ms       *          0 ms        172.21.10.10
 13    *          0 ms       *           Request timed out.
 14    0 ms       *          0 ms        172.21.10.10
 15    *          0 ms       *           Request timed out.
 16    0 ms       *          0 ms        172.21.10.10
 17    *          0 ms       *           Request timed out.
 18    0 ms       *          0 ms        172.21.10.10
 19    *          0 ms       *           Request timed out.
 20    0 ms       *          0 ms        172.21.10.10
 21    *          0 ms       *           Request timed out.
 22    0 ms       *          0 ms        172.21.10.10
 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:\>
```
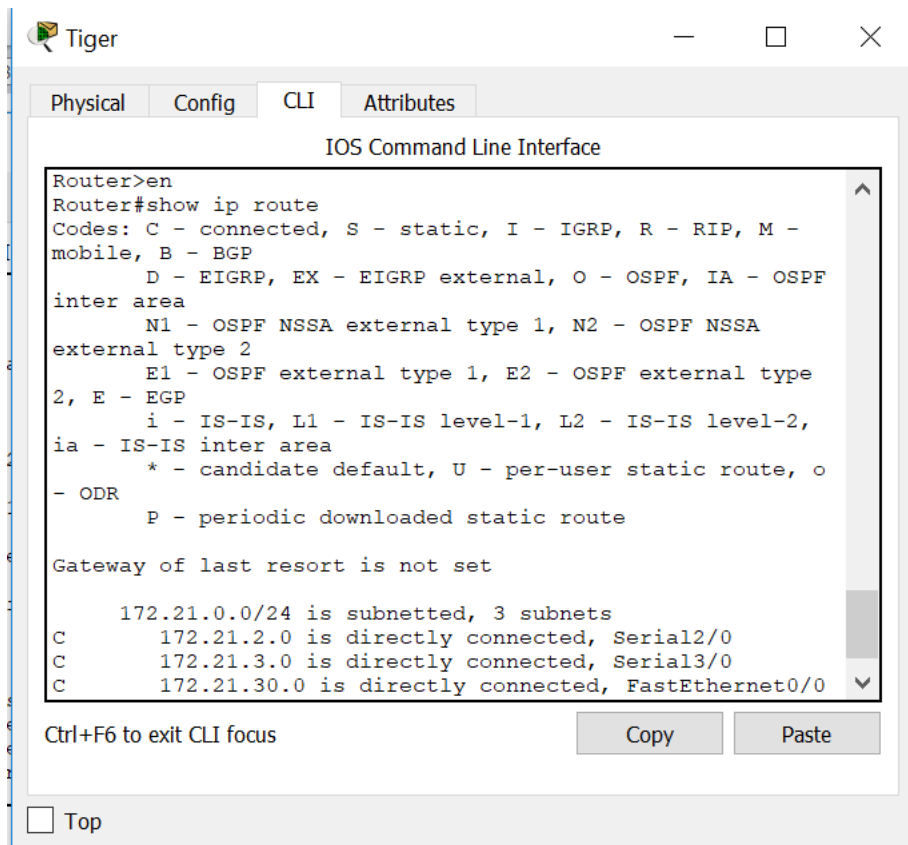
☐ Top

10. Dari pc leo lakukan trace 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:\>
```
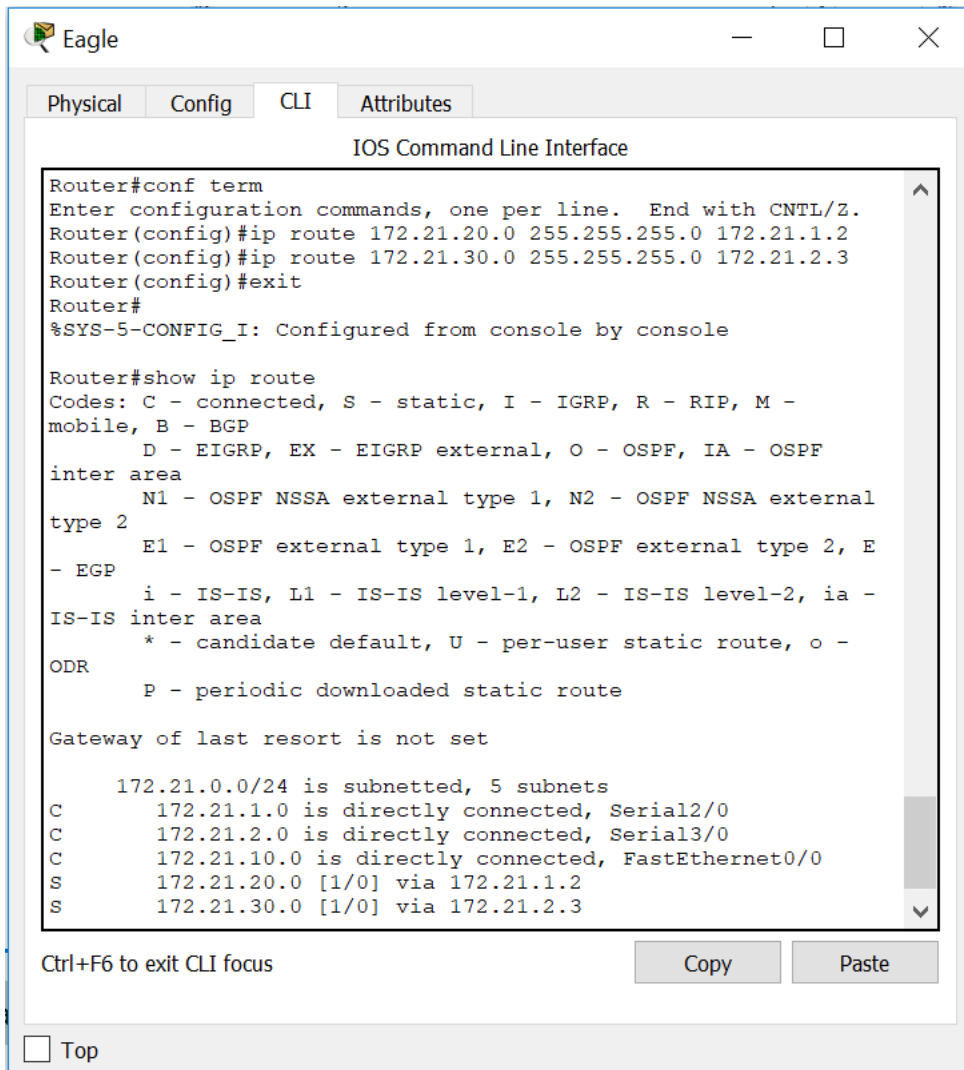
11. Pada mode user atau mode privileged, tambahkan route table pada masing – masing router untuk setiap alamat jaringan yang tidak terhubung secara langsung dengan interface router.
    - Eagle

Eagle

Physical | Config | CLI | Attributes

IOS Command Line Interface

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

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, 5 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
S       172.21.20.0 [1/0] via 172.21.1.2
S       172.21.30.0 [1/0] via 172.21.2.3
```

Ctrl+F6 to exit CLI focus   Copy   Paste

☐ Top

- Puma

Puma — □ ✕

Physical | Config | CLI | Attributes

IOS Command Line Interface

```
%SYS-5-CONFIG_I: Configured from console by console

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

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, 5 subnets
C       172.21.1.0 is directly connected, Serial2/0
C       172.21.3.0 is directly connected, Serial3/0
S       172.21.10.0 [1/0] via 172.21.1.1
C       172.21.20.0 is directly connected, FastEthernet0/0
S       172.21.30.0 [1/0] via 172.21.3.3

Router#
```
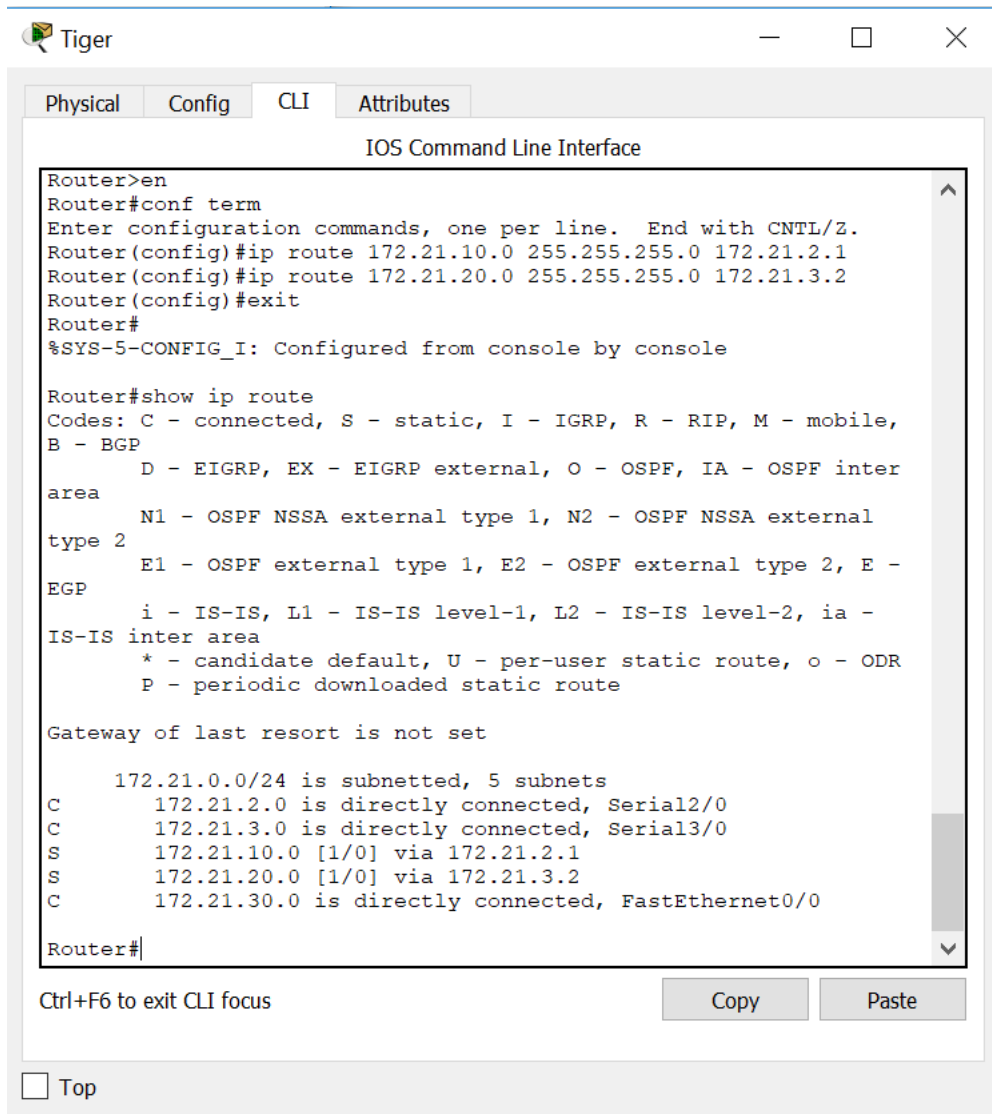
Ctrl+F6 to exit CLI focus   Copy   Paste

☐ Top

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

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, 5 subnets
C       172.21.2.0 is directly connected, Serial2/0
C       172.21.3.0 is directly connected, Serial3/0
S       172.21.10.0 [1/0] via 172.21.2.1
S       172.21.20.0 [1/0] via 172.21.3.2
C       172.21.30.0 is directly connected, FastEthernet0/0

Router#
```

Ctrl+F6 to exit CLI focus   Copy   Paste

☐ Top

12. Dari pc leo lakukan ping ke pc aries, dan lakukan pula trace dari pc leo ke aries

```
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=6ms TTL=126
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=11ms 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 = 11ms, Average = 5ms

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       1 ms       4 ms        172.21.1.2
  3    1 ms       3 ms       1 ms        172.21.20.2

Trace complete.
```
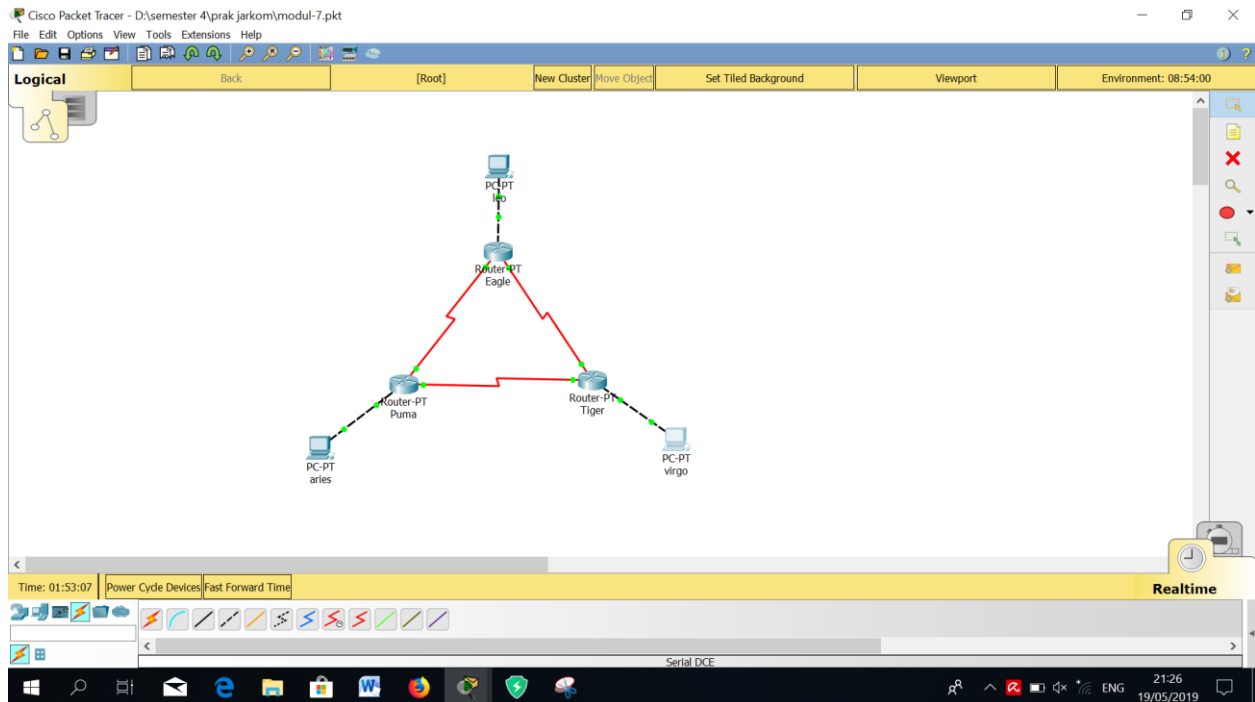
Kegiatan 2.RIP (Routing Information Protocol)

1. Dari packet tracer, buka (load) topologi NetMap yang dipakai di kegiatan 1

2. Load konfigurasi seluruh device yang disimpan pada langkah 6 kegiatan 1
3. Pada mode configuration, konfigurasi routing RIP pada router eagle.

```
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)#
```

4. Lihat konfigurasi routing rip yang telah dibuat dengan perintah "show running-config"pada mode user. Perhatikan konfigurasi pada bagian "router rip"

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

Current configuration : 869 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
!
!
!
!
!
!
!
!
!
```

```
!
!
!
!
!
!
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
!
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 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
!
!
!
!
```

```
!
!
!
line con 0
!
line aux 0
!
line vty 0 4
 login
!
!
!
end
```

5. Lihat proses update routing RIP pada router eagle dengan perintah "debug ip rip" pada mode user.
    Tunggu beberapa saat untuk melihat proses terjadi.

```
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
```

6. Lakukan konfigurasi routing rip pada router puma dan tiger. Perhatikan proses update routing rip pada router eagle ketika konfigurasi router puma dan tiger dilakukan.

    - konfigurasi routing rip puma

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

Router#show running-config
Building configuration...

Current configuration : 889 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
!
!
!
!
!
!
!
!
!
!
!
!
```

```
!
!
!
!
interface FastEthernet0/0
 ip address 172.21.20.20 255.255.255.0
 duplex auto
 speed auto
!
interface FastEthernet1/0
 no ip address
 duplex auto
 speed auto
 shutdown
!
interface Serial2/0
 ip address 172.21.1.2 255.255.255.0
 clock rate 2000000
!
interface Serial3/0
 ip address 172.21.3.2 255.255.255.0
 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 route 172.21.10.0 255.255.255.0 172.21.1.1
ip route 172.21.30.0 255.255.255.0 172.21.3.3
!
ip flow-export version 9
!
!
!
!
!
!
line con 0
!
line aux 0
!
line vty 0 4
 login
!
!
!
end
```

- konfiguarasi routing rip tiger

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

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

Current configuration : 849 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
!
!
!
!
!
!
!
!
!
!
```

```
!
!
interface FastEthernet0/0
 ip address 172.21.30.30 255.255.255.0
 duplex auto
 speed auto
!
interface FastEthernet1/0
 no ip address
 duplex auto
 speed auto
 shutdown
!
interface Serial2/0
 ip address 172.21.2.3 255.255.255.0
!
interface Serial3/0
 ip address 172.21.3.3 255.255.255.0
!
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 172.21.10.0 255.255.255.0 172.21.2.1
ip route 172.21.20.0 255.255.255.0 172.21.3.2
!
ip flow-export version 9
!
!
!
!
!
!
!
line con 0
 !
line aux 0
 !
line vty 0 4
  login
 !
 !
 !
end
```

- update routing rip pada router eagle

```
RIP: received v1 update from 172.21.1.2 on Serial2/0
        172.21.3.0 in 1 hops
        172.21.20.0 in 1 hops
        172.21.30.0 in 2 hops
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
(172.21.10.10)
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 Serial2/0
(172.21.1.1)
RIP: build update entries
        network 172.21.2.0 metric 1
        network 172.21.10.0 metric 1
        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 172.21.10.0 metric 1
        network 172.21.20.0 metric 2
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: received v1 update from 172.21.1.2 on Serial2/0
        172.21.3.0 in 1 hops
        172.21.20.0 in 1 hops
        172.21.30.0 in 2 hops
RIP: sending  v1 update to 255.255.255.255 via FastEthernet0/0
(172.21.10.10)
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    1 ms      0 ms      0 ms      172.21.10.10
  2    1 ms      0 ms      1 ms      172.21.1.2
  3    3 ms      0 ms      0 ms      172.21.20.2

Trace complete.
```

8. Buah hubungan antara router eagle dan puma terputus dan perhatikan proses update routing rip terjadi.
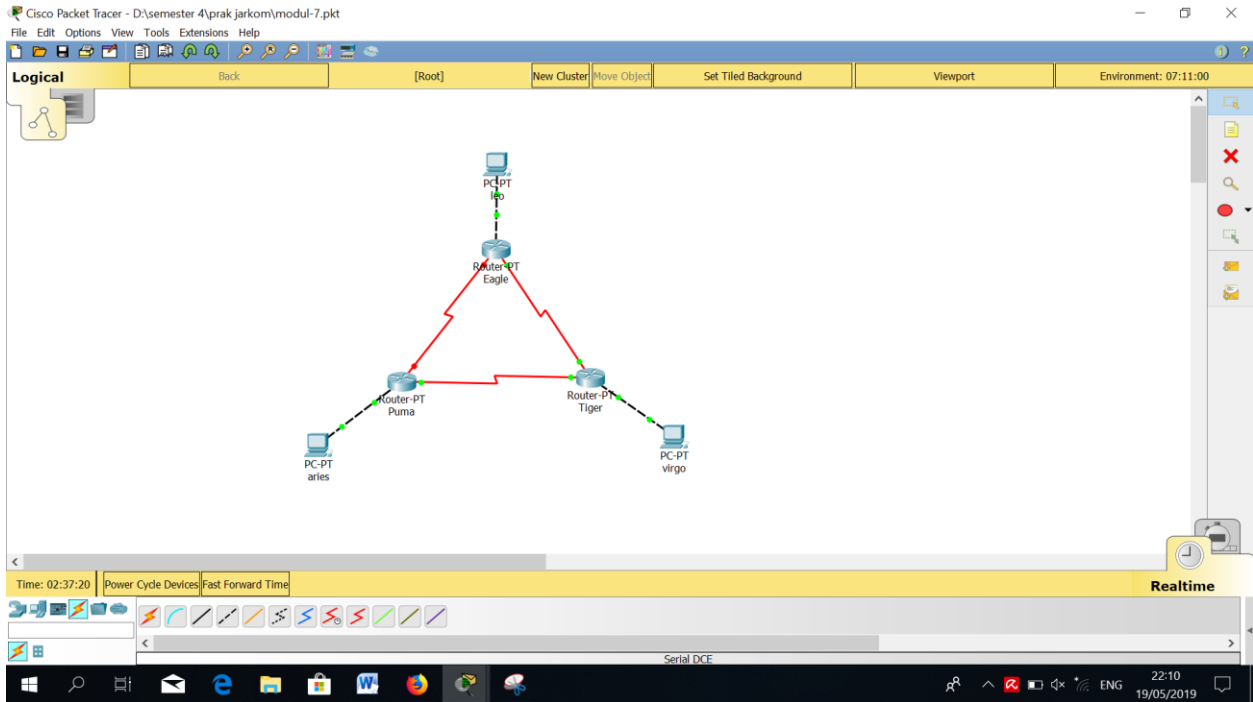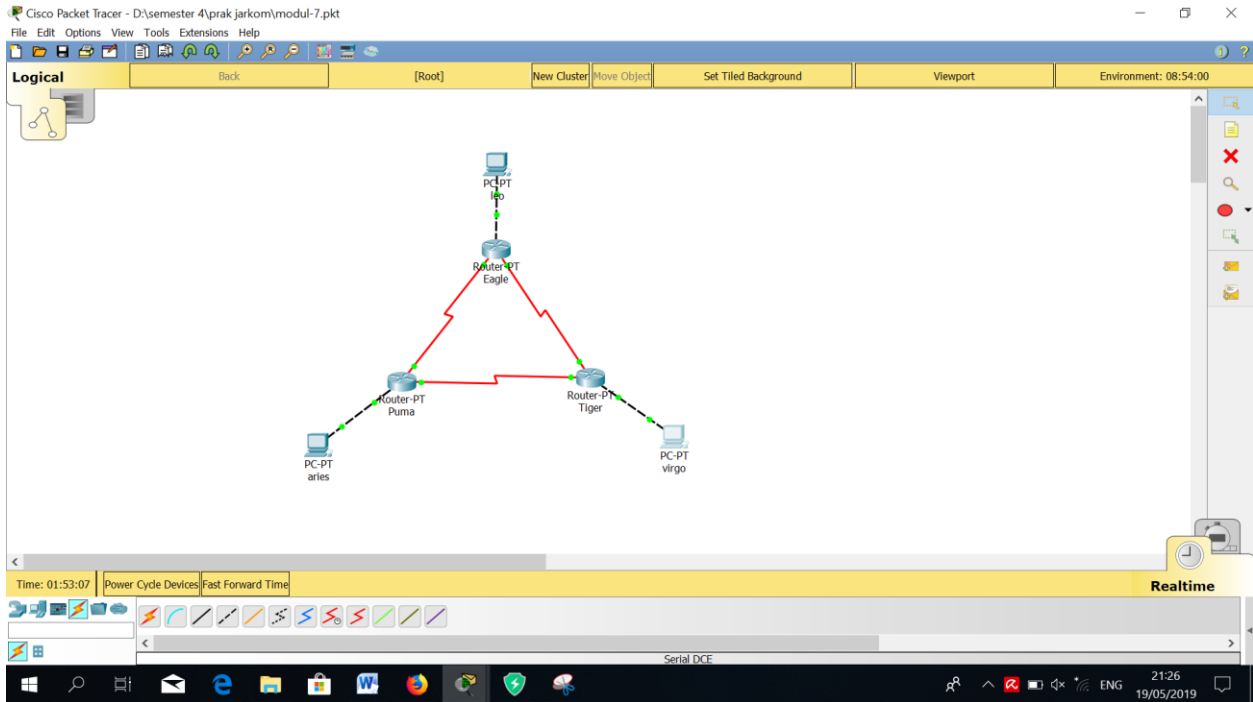
```
Router>en
Router#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int se2/0
Router(config-if)#shutdown

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
```

9. Dari pc leo lakukan trace ke pc aries

Kegiatan 3.IGRP (Interior Gateway Routing Protocol)

1. Dari packet tracer, buka (load) topologi NetMap yang dipakai di kegiatan 1

2. Load konfigurasi seluruh device yang disimpan pada langkah 6 kegiatan 1

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

```
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)#
```

4. Lihat konfigurasi routing igrp yang telah dibuat dengan perintah "show running-config" pada mode user.perhatikan konfigurasi pada bagian "router rip"

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

Current configuration : 922 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
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
interface FastEthernet0/0
 ip address 172.21.10.10 255.255.255.0
 duplex auto
 speed 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
 !
 !
 !
 !
 !
 !
 !
line con 0
```

```
 !
line aux 0
 !
line vty 0 4
 login
 !
 !
 !
end
```

5. Lihat proses transaksi routing IGRP pada router eagle dengan perintah"debug eigrp packts" pada mode user.tunggu beberapa saat untuk melihat informasi transaksi routing IGRP yang terjadi.

```
Router#debug eigrp packets
EIGRP Packets debugging is on
    (UPDATE, REQUEST, QUERY, REPLY, HELLO, ACK )
Router#
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
```

6. Lihat proses transaksi routing IGRP pada router eagle dengan perintah"debug eigrp packets" pada mode user.tunggu beberapa saat untuk melihat informasi transaksi routing IGRP yang terjadi.
7. Lakukan konfigurasi routing IGRP pada router puma dan tiger
   - Konfigurasi routing IGRP 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

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

Router#show running-config
Building configuration...

Current configuration : 942 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
!
!
!
!
!
!
!
```

```
!
interface FastEthernet0/0
 ip address 172.21.20.20 255.255.255.0
 duplex auto
 speed auto
!
interface FastEthernet1/0
 no ip address
 duplex auto
 speed auto
 shutdown
!
interface Serial2/0
 ip address 172.21.1.2 255.255.255.0
 clock rate 2000000
!
interface Serial3/0
 ip address 172.21.3.2 255.255.255.0
 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 172.21.10.0 255.255.255.0 172.21.1.1
ip route 172.21.30.0 255.255.255.0 172.21.3.3
!
ip flow-export version 9
!
!
!
```

```
!
!
!
line con 0
!
line aux 0
!
line vty 0 4
 login
!
!
!
end
```

- Konfigurasi routing IGRP 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

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

Router#show running-config
Building configuration...

Current configuration : 902 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
!
!
!
!
```

```
!
interface FastEthernet0/0
 ip address 172.21.30.30 255.255.255.0
 duplex auto
 speed auto
!
interface FastEthernet1/0
 no ip address
 duplex auto
 speed auto
 shutdown
!
interface Serial2/0
 ip address 172.21.2.3 255.255.255.0
!
interface Serial3/0
 ip address 172.21.3.3 255.255.255.0
!
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 172.21.10.0 255.255.255.0 172.21.2.1
ip route 172.21.20.0 255.255.255.0 172.21.3.2
!
ip flow-export version 9
!
!
!
!
!
```

```
!
!
line con 0
!
line aux 0
!
line vty 0 4
 login
!
!
!
end
```

- Update routing IGRP pada router eagle

```
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 172.21.1.2
   AS 100, Flags 0x0, Seq 9/0 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: 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 172.21.2.3
   AS 100, Flags 0x0, Seq 11/0 idbQ 0/0
```
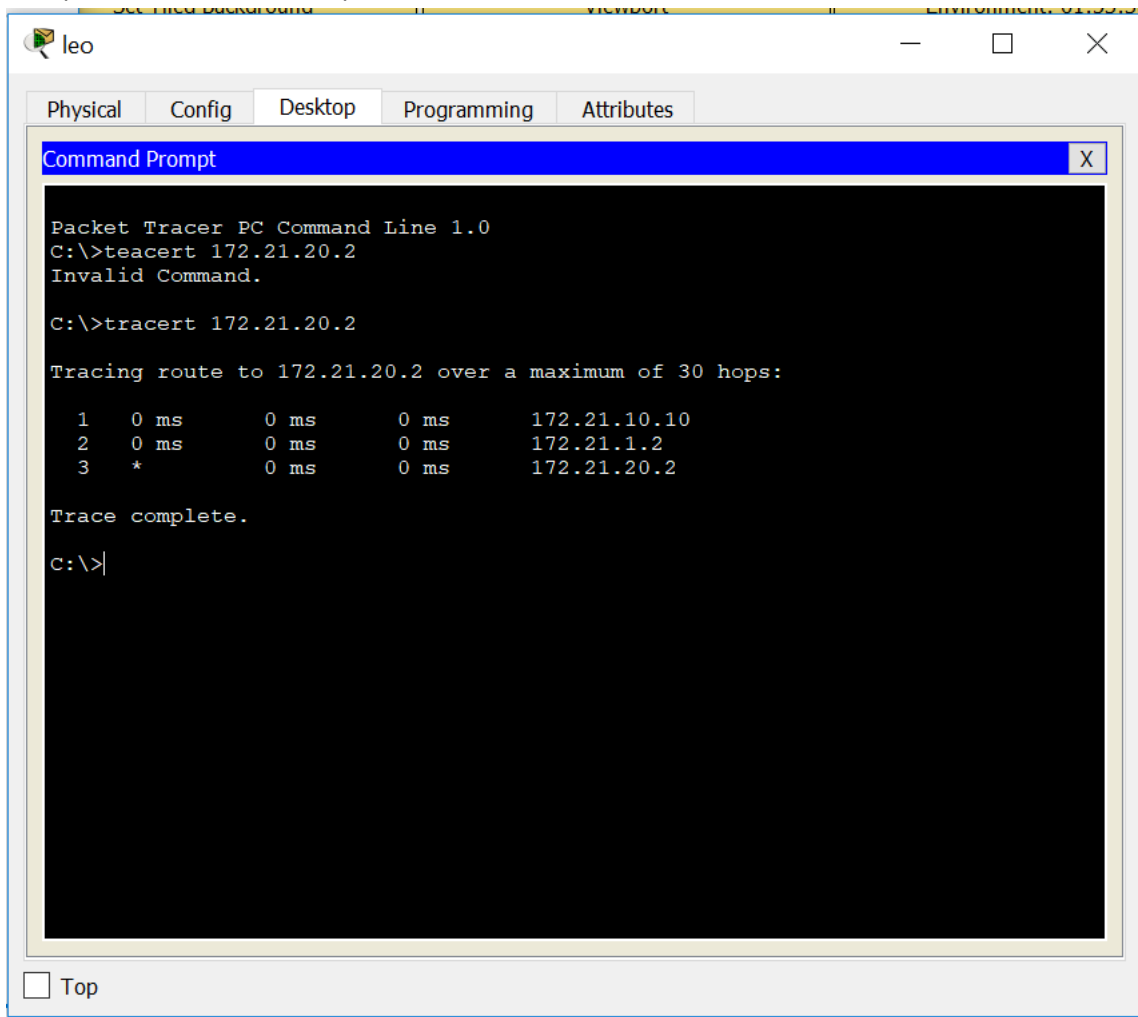
8. Dari pc leo lakukan trace ke pc aries

9. Buat hubungan antara router eagle dan puma terputus

```
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 172.21.1.1
(Serial2/0) is down: interface down
```

```
EIGRP: Sending HELLO on FastEthernet0/0
  AS 100, Flags 0x0, Seq 18/0 idbQ 0/0 iidbQ un/rely 0/0

EIGRP: Sending HELLO on Serial3/0
  AS 100, Flags 0x0, Seq 18/0 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 Serial3/0
  AS 100, Flags 0x0, Seq 18/0 idbQ 0/0 iidbQ un/rely 0/0

EIGRP: Sending HELLO on FastEthernet0/0
  AS 100, Flags 0x0, Seq 18/0 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 Serial3/0
  AS 100, Flags 0x0, Seq 18/0 idbQ 0/0 iidbQ un/rely 0/0

EIGRP: Sending HELLO on FastEthernet0/0
  AS 100, Flags 0x0, Seq 18/0 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
```

10. 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    1 ms      0 ms      0 ms      172.21.10.10
  2    7 ms      2 ms      3 ms      172.21.2.3
  3    1 ms      2 ms      1 ms      172.21.3.2
  4    0 ms      1 ms      1 ms      172.21.20.2

Trace complete.

C:\>
```