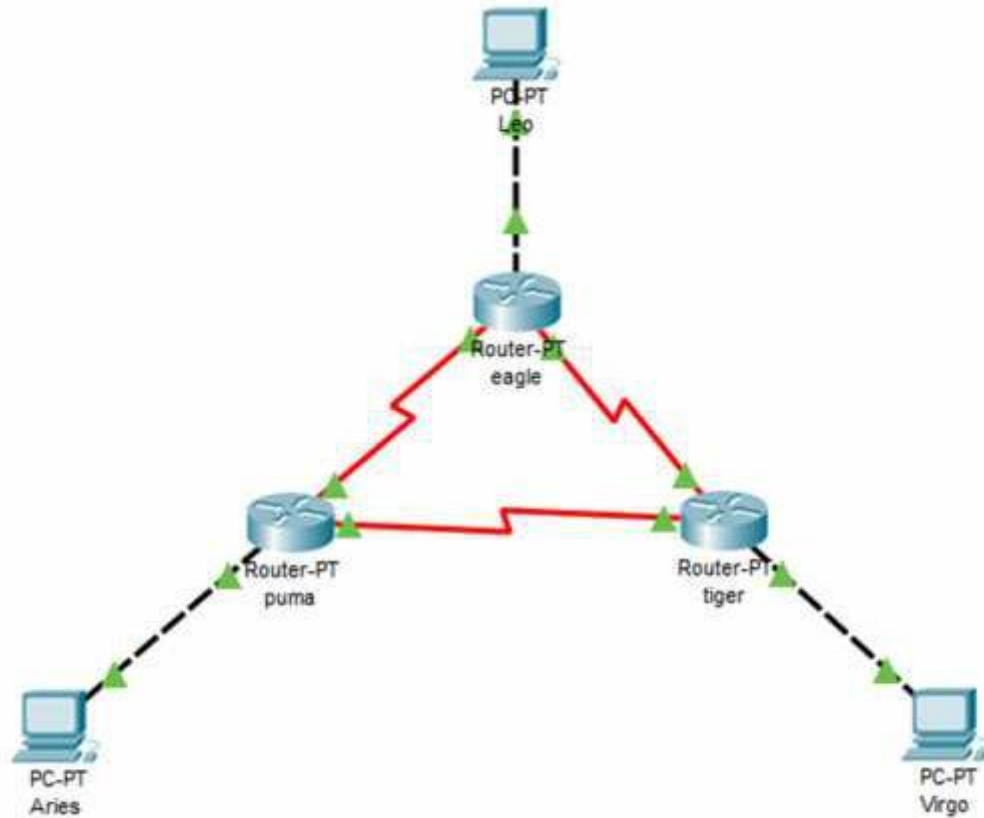


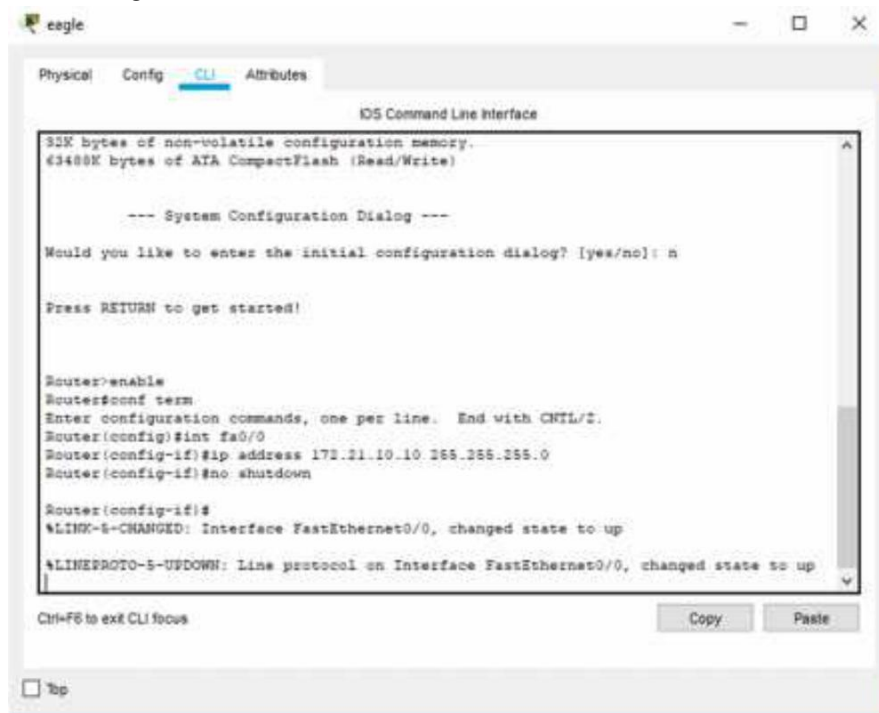
Laporan Praktikum Jaringan Komputer

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Kelas : C
Modul : 7 (Kegiatan 1 – Static Routing)

Kegiatan 1. Topologi 1 (Static Routing)



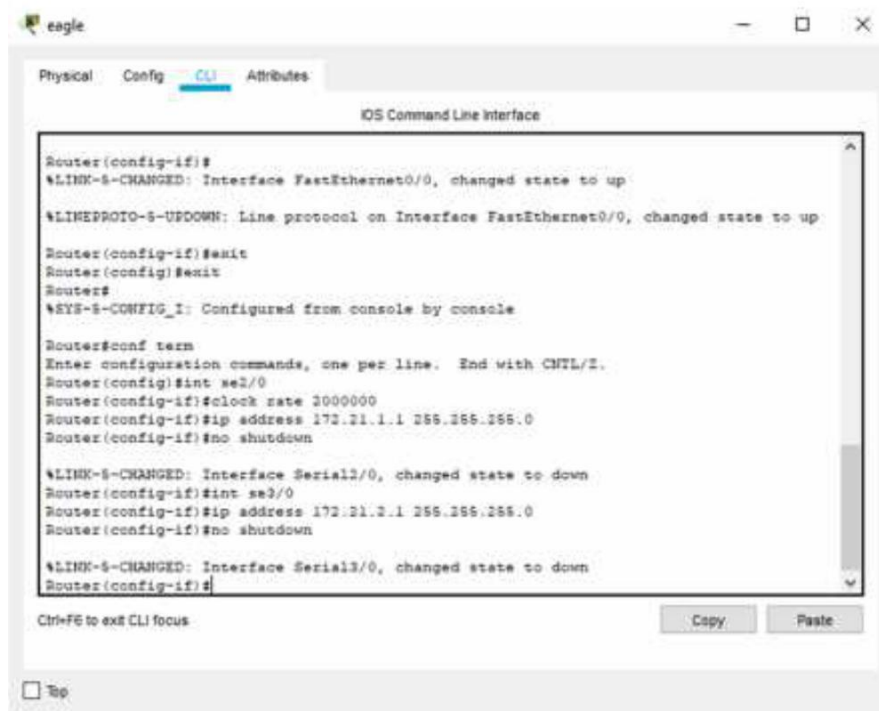
1. Konfigurasi masing-masing Interface pada tiap Router dengan IP Address.
 - a. Router Eagle



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

Router(config-if)#
%LINK-3-CHANGED: Interface FastEthernet0/0, changed state to up
%LINEPROTO-3-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

Router(config-if)#
```



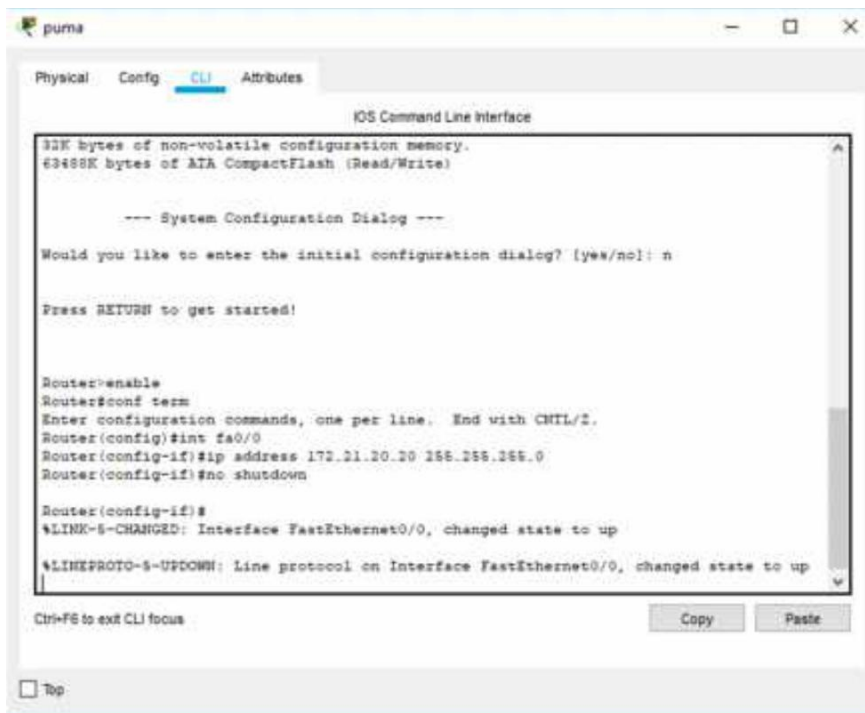
```
Router(config-if)#
%LINK-3-CHANGED: Interface FastEthernet0/0, changed state to up
%LINEPROTO-3-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
Router(config-if)#exit
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int se2/0
Router(config-if)#clock rate 1000000
Router(config-if)#ip address 172.21.1.1 255.255.255.0
Router(config-if)#no shutdown

%LINK-3-CHANGED: Interface Serial2/0, changed state to down
Router(config-if)#int se3/0
Router(config-if)#ip address 172.21.2.1 255.255.255.0
Router(config-if)#no shutdown

%LINK-3-CHANGED: Interface Serial3/0, changed state to down
Router(config-if)#
```

b. Router Puma



The screenshot shows the Puma router's CLI interface. The window title is 'puma'. The tabs are 'Physical', 'Config', 'CLI' (selected), and 'Attributes'. The main area is titled 'IOS Command Line Interface'. It displays the following text:

```
32K bytes of non-volatile configuration memory.
63488K bytes of ATA CompactFlash (Read/Write)

--- System Configuration Dialog ---

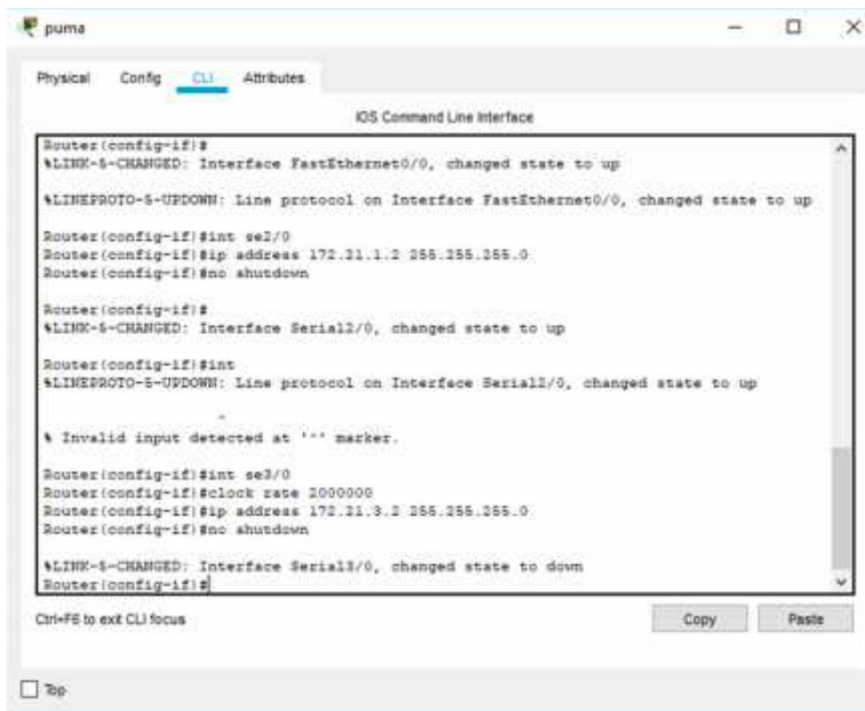
Would you like to enter the initial configuration dialog? [yes/no]: n

Press RETURN to get started!

Router>enable
Router#conf term
Enter configuration commands, one per line. End with CTRL/Z.
Router(config)#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-3-CHANGED: Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
```

At the bottom, there is a 'Ctrl+F5 to exit CLI focus' prompt and 'Copy' and 'Paste' buttons. A 'Top' button is also visible at the bottom left.



The screenshot shows the Puma router's CLI interface with the following text:

```
Router(config-if)#
%LINK-3-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-3-CHANGED: Interface Serial2/0, changed state to up

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

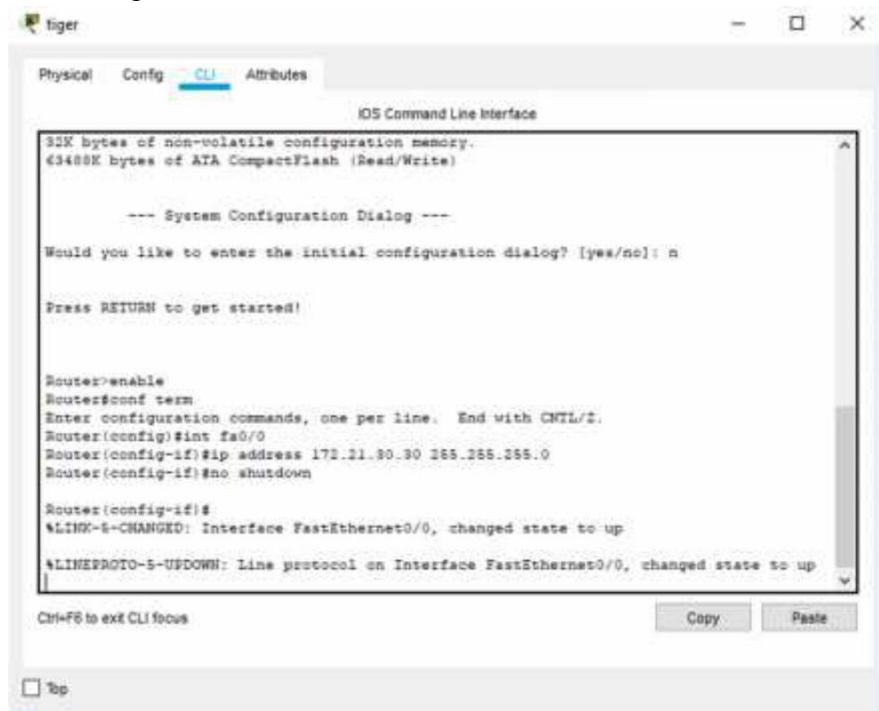
% Invalid input detected at '^' marker.

Router(config-if)#int se3/0
Router(config-if)#clock rate 2000000
Router(config-if)#ip address 172.21.3.2 255.255.255.0
Router(config-if)#no shutdown

%LINK-3-CHANGED: Interface Serial3/0, changed state to down
Router(config-if)#
```

Similar to the first screenshot, it includes a 'Ctrl+F5 to exit CLI focus' prompt and 'Copy' and 'Paste' buttons at the bottom, and a 'Top' button at the bottom left.

c. Router Tiger



The screenshot shows the 'tiger' application window with the 'CLI' tab selected. The terminal displays the following text:

```
IOS Command Line Interface

32K bytes of non-volatile configuration memory.
63488K bytes of ATA CompactFlash (Read/Write)

--- System Configuration Dialog ---

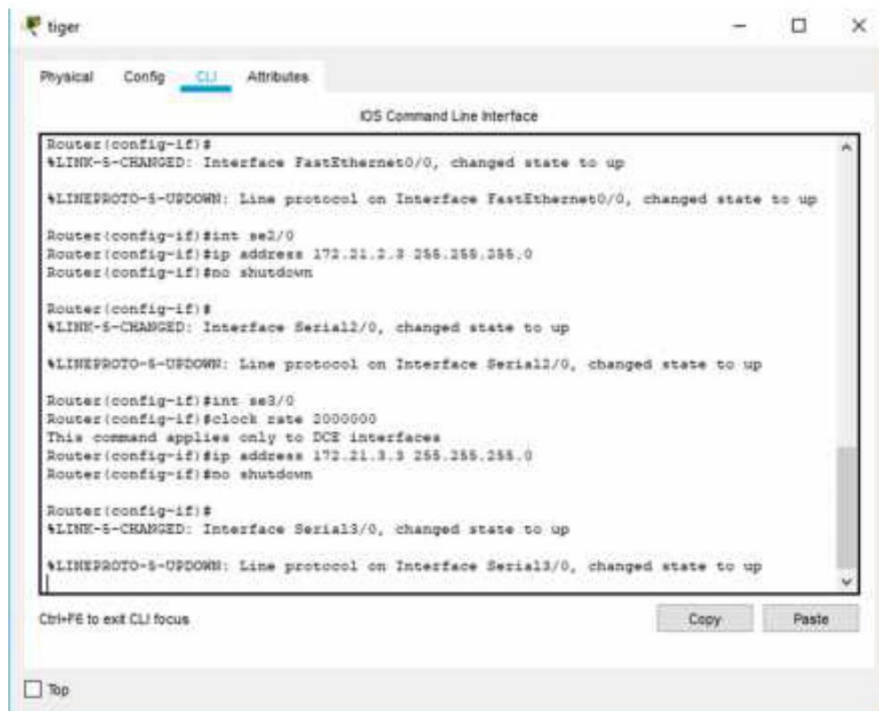
Would you like to enter the initial configuration dialog? [yes/no]: n

Press RETURN to get started!

Router>enable
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int fa0/0
Router(config-if)#ip address 172.21.30.30 255.255.255.0
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
```

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



The screenshot shows the 'tiger' application window with the 'CLI' tab selected. The terminal displays the following text:

```
IOS Command Line Interface

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 172.21.2.2 255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router(config-if)#int se3/0
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
```

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

2. Konfigurasi IP Address pada setiap PC.
 - a. PC Leo

The screenshot shows the configuration window for a PC named 'Leo'. The 'Desktop' tab is selected. Under the 'P-Configurable' section, the 'Interface' is set to 'FastEthernet0'. In the 'IP Configuration' section, the 'Static' radio button is selected. The IP Address is 172.21.10.1, Subnet Mask is 255.255.255.0, Default Gateway is 0.0.0.0, and DNS Server is 0.0.0.0. In the 'IPv6 Configuration' section, the 'Static' radio button is selected. The IPv6 Address is empty, Link Local Address is FE80::290:CFF:FE60:ADBE, IPv6 Gateway is empty, and IPv6 DNS Server is empty. The '802.1X' section has 'Use 802.1X Security' unchecked. A 'Top' button is at the bottom left.

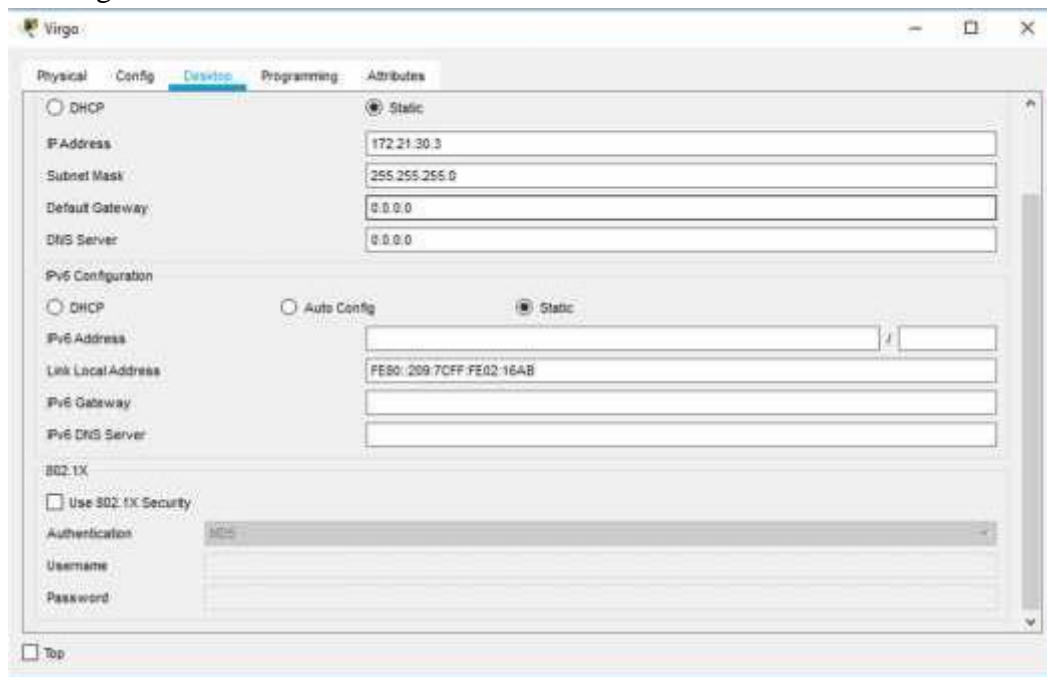
Field	Value
Interface	FastEthernet0
IP Configuration	Static
IP Address	172.21.10.1
Subnet Mask	255.255.255.0
Default Gateway	0.0.0.0
DNS Server	0.0.0.0
IPv6 Configuration	Static
IPv6 Address	
Link Local Address	FE80::290:CFF:FE60:ADBE
IPv6 Gateway	
IPv6 DNS Server	
802.1X	Use 802.1X Security (unchecked)

- b. PC Aries

The screenshot shows the configuration window for a PC named 'Aries'. The 'Desktop' tab is selected. Under the 'P-Configuration' section, the 'Interface' is set to 'FastEthernet0'. In the 'IP Configuration' section, the 'Static' radio button is selected. The IP Address is 172.21.20.2, Subnet Mask is 255.255.255.0, Default Gateway is 0.0.0.0, and DNS Server is 0.0.0.0. In the 'IPv6 Configuration' section, the 'Static' radio button is selected. The IPv6 Address is empty, Link Local Address is FE80::2E0:F7FF:FE3B:5C1B, IPv6 Gateway is empty, and IPv6 DNS Server is empty. The '802.1X' section has 'Use 802.1X Security' unchecked. A 'Top' button is at the bottom left.

Field	Value
Interface	FastEthernet0
IP Configuration	Static
IP Address	172.21.20.2
Subnet Mask	255.255.255.0
Default Gateway	0.0.0.0
DNS Server	0.0.0.0
IPv6 Configuration	Static
IPv6 Address	
Link Local Address	FE80::2E0:F7FF:FE3B:5C1B
IPv6 Gateway	
IPv6 DNS Server	
802.1X	Use 802.1X Security (unchecked)

c. PC Virgo



3. Uji konfigurasi telah sesuai (proses *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=67ms 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 = 67ms, Average = 16ms

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

```
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 = 0ms, Average = 0ms

C:\>
```

- d. *Ping* dari router eagle ke router puma (172.21.1.2)

```
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 = 1/2/5 ms

Router#
```

- e. *Ping* dari Router Eagle ke Router Tiger (172.21.2.3)

```
Router>enable
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 = 1/2/5 ms

Router#
```


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

```
Router>enable
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 = 1/1/4 ms

Router#
```

4. Show Route Table pada masing-masing Router

a. Router Eagle

```
Router>enable
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

Router#
```

b. Router Puma

```
Router>enable
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

Router#
```

c. Router Tiger

```
Router>enable
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

Router#
```


5. Proses *ping* dari Router Eagle ke alamat Interface Router Puma.

```
Router>enable
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#
```

6. Proses *tracert* 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  1 ms    0 ms    0 ms    172.21.10.10
  1  0 ms    *        0 ms    172.21.10.10
  2  *        0 ms    *        Request timed out.
  3  0 ms    *        0 ms    172.21.10.10
  4  *        0 ms    *        Request timed out.
  5  0 ms    *        0 ms    172.21.10.10
  6  *        0 ms    *        Request timed out.
  7  0 ms
Control-C
^C
C:\>
C:\>
```

7. Proses *tracert* dari PC Leo ke interface Router Eagle.

```
C:\>tracert 172.21.1.1

Tracing route to 172.21.1.1 over a maximum of 30 hops:

  0  1 ms    0 ms    0 ms    172.21.1.1

Trace complete.
```

8. Menambahkan Route Table pada setiap Router. a. Router Eagle

```
Router>enable
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 172.21.30.0 255.255.255.0 172.21.3.3
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console
```

b. Router Puma

```
Router>enable
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

```
Router>enable
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
```

9. Melakukan Ping dan Tracer dari PC Leo ke PC 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=4ms TTL=126
Reply from 172.21.20.2: bytes=32 time=14ms 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

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 = 14ms, Average = 5ms

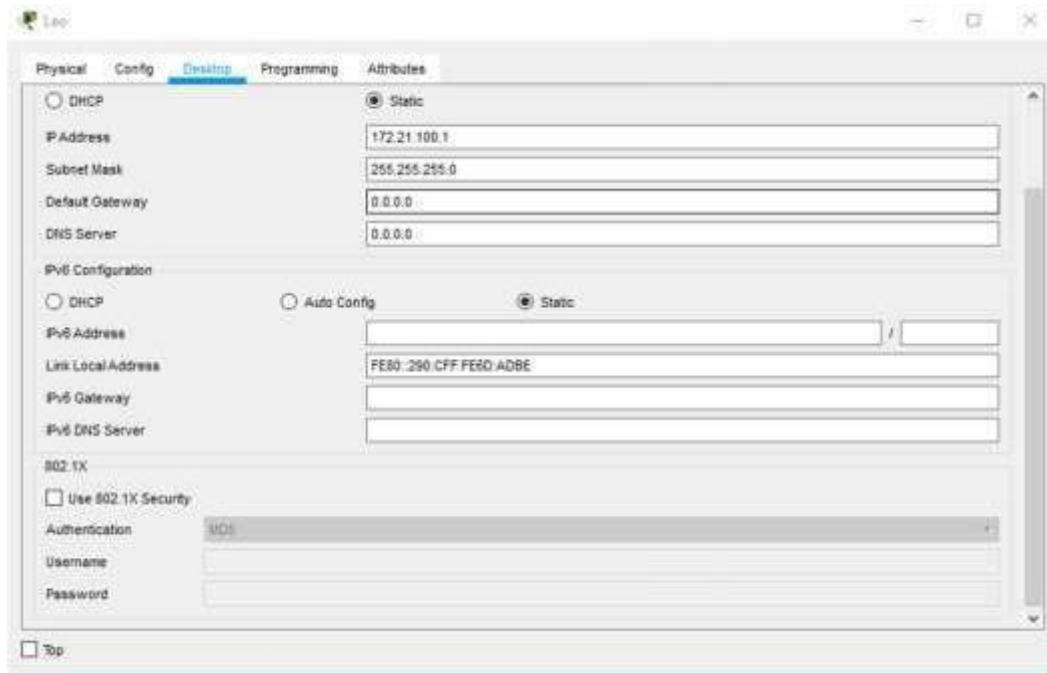
C:\>tracert 172.21.20.2

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

Trace complete.
```

10. Mengubah IP PC leo diubah menjadi 172.21.100.0/24



- Mengubah Konfigurasi IP pada Router Eagle.

```
Router>enable
Router#config term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int fa0/0
Router(config-if)#ip address 172.21.100.0 255.255.255.0
Bad mask /24 for address 172.21.100.0
Router(config-if)#no shutdown
Router(config-if)#
Router(config-if)#int fa0/0
Router(config-if)#ip address 172.21.100.10 255.255.255.0
Router(config-if)#no shutdown
Router(config-if)#
```

- Menambah Konfigurasi Router Puma.

```
Router>enable
Router#config 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)#ip route 172.21.100.0 255.255.255.0 172.21.1.1
Router(config)#
```

- Menambah Konfigurasi Router Tiger.

```
Router>enable
Router#config 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
```

- Melakukan Ping dan Trace dari PC Aries ke PC Leo.

```
C:\>ping 172.21.100.1

Pinging 172.21.100.1 with 32 bytes of data:

Reply from 172.21.100.1: bytes=32 time=4ms TTL=126
Reply from 172.21.100.1: bytes=32 time=2ms TTL=126
Reply from 172.21.100.1: bytes=32 time=4ms TTL=126
Reply from 172.21.100.1: bytes=32 time=1ms TTL=126

Ping statistics for 172.21.100.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 4ms, Average = 2ms

C:\>tracert 172.21.100.1

Tracing route to 172.21.100.1 over a maximum of 30 hops:

  0  0 ms    0 ms    0 ms    172.21.20.20
  1  1 ms    0 ms    2 ms    172.21.1.1
  2  1 ms    1 ms    3 ms    172.21.100.1

Trace complete.
```

- Melakukan Ping dan Trace dari PC Virgo ke PC Leo.

```
C:\>ping 172.21.100.1

Pinging 172.21.100.1 with 32 bytes of data:

Reply from 172.21.100.1: bytes=32 time=2ms TTL=126
Reply from 172.21.100.1: bytes=32 time=3ms TTL=126
Reply from 172.21.100.1: bytes=32 time=1ms TTL=126
Reply from 172.21.100.1: bytes=32 time=1ms TTL=126

Ping statistics for 172.21.100.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 3ms, Average = 1ms

C:\>tracert 172.21.100.1

Tracing route to 172.21.100.1 over a maximum of 30 hops:

  0  1 ms    0 ms    0 ms    172.21.30.30
  1  0 ms    3 ms    1 ms    172.21.3.2
  2  2 ms    1 ms    2 ms    172.21.2.1
  3  2 ms    2 ms    1 ms    172.21.100.1

Trace complete.
```