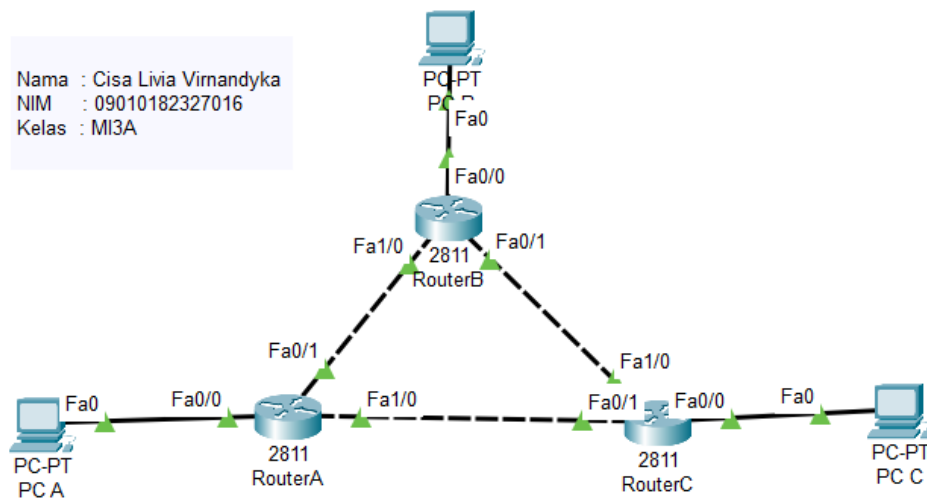


TUGAS EIGRP DYNAMIC ROUTING

Nama : Cisa Livia Virnandyka
NIM : 09010182327016
Kelas : MI3A
MK : Praktikum Jaringan Komputer

ASSIGNMENT:

SS Topologi Routing EIGRP, sekaligus berikan Nama, NIM, dan Kelas pada pojok kiri Topologi Kalian (Place Note).

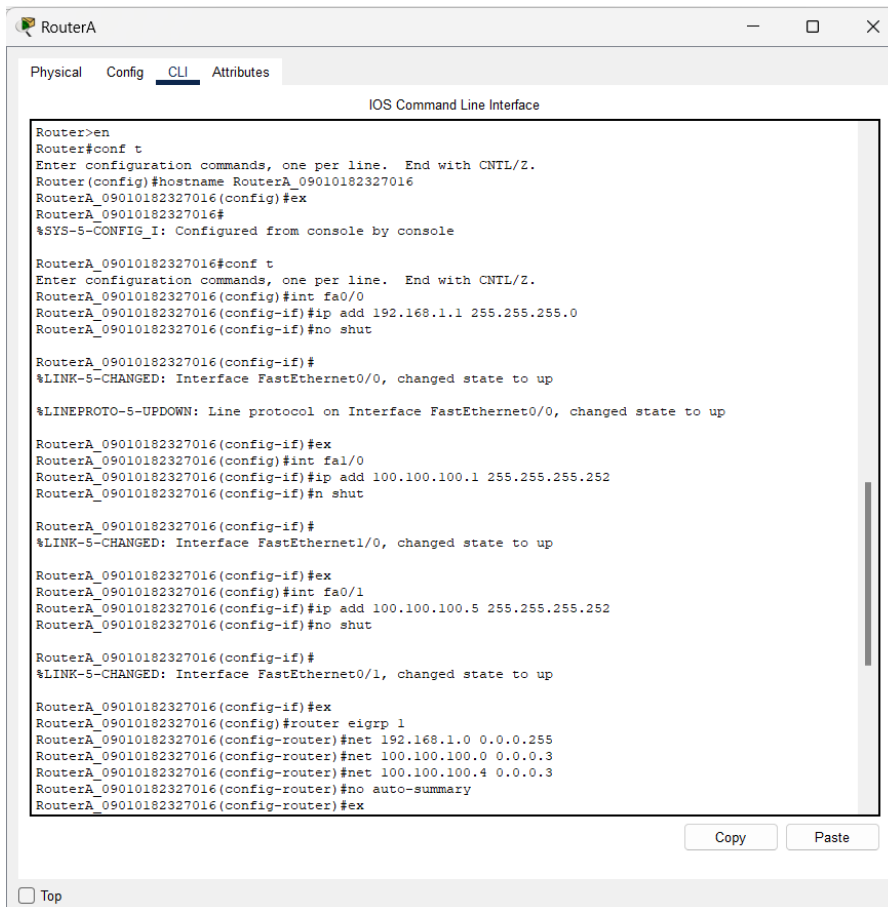


Dengan IP Address di PC

No	Nama Device	Alamat	Netmask	Gateway
1	PCA	192.168.1.10	255.255.255.0	192.168.1.1
2	PCB	192.168.2.10	255.255.255.0	192.168.2.1
3	PCC	192.168.3.10	255.255.255.0	192.168.3.1

SS hasil konfigurasi perintah *#show ip route eigrp* dari setiap router.

1. RouterA

A screenshot of a Cisco IOS Command Line Interface window titled "RouterA". The window has tabs for "Physical", "Config", "CLI", and "Attributes", with "CLI" selected. The terminal shows a sequence of configuration commands: enabling configuration mode, setting the hostname to "RouterA_09010182327016", and configuring three interfaces (fa0/0, fa0/1, and fa0/24) with IP addresses and no shutdown. It also shows EIGRP configuration with a single network. Status messages for link changes are visible. At the bottom, there are "Copy" and "Paste" buttons and a "Top" link.

```
Router>en
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname RouterA_09010182327016
RouterA_09010182327016(config)#ex
RouterA_09010182327016#
%SYS-5-CONFIG_I: Configured from console by console

RouterA_09010182327016#conf t
Enter configuration commands, one per line. End with CNTL/Z.
RouterA_09010182327016(config)#int fa0/0
RouterA_09010182327016(config-if)#ip add 192.168.1.1 255.255.255.0
RouterA_09010182327016(config-if)#no shut

RouterA_09010182327016(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

RouterA_09010182327016(config-if)#ex
RouterA_09010182327016(config)#int fa0/0
RouterA_09010182327016(config-if)#ip add 100.100.100.1 255.255.255.252
RouterA_09010182327016(config-if)#n shut

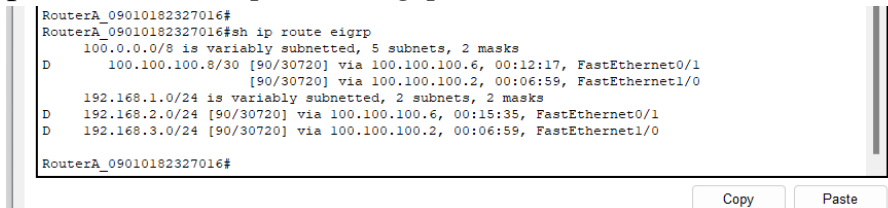
RouterA_09010182327016(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up

RouterA_09010182327016(config-if)#ex
RouterA_09010182327016(config)#int fa0/1
RouterA_09010182327016(config-if)#ip add 100.100.100.5 255.255.255.252
RouterA_09010182327016(config-if)#no shut

RouterA_09010182327016(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up

RouterA_09010182327016(config-if)#ex
RouterA_09010182327016(config)#router eigrp 1
RouterA_09010182327016(config-router)#net 192.168.1.0 0.0.0.255
RouterA_09010182327016(config-router)#net 100.100.100.0 0.0.0.3
RouterA_09010182327016(config-router)#net 100.100.100.4 0.0.0.3
RouterA_09010182327016(config-router)#no auto-summary
RouterA_09010182327016(config-router)#ex
```

perintah *#show ip route eigrp*

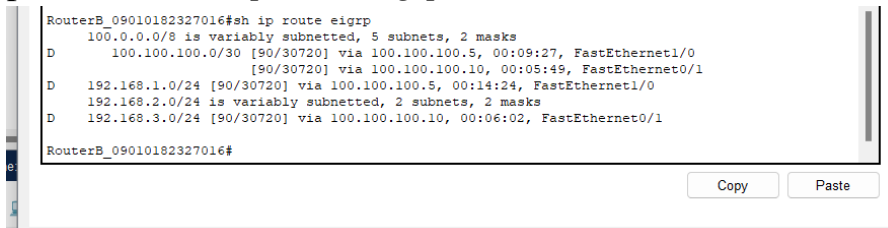
A screenshot of the RouterA CLI showing the output of the "show ip route eigrp" command. The output lists three EIGRP routes: 100.0.0.0/8, 192.168.1.0/24, and 192.168.2.0/24, each with its source interface and uptime. At the bottom, there are "Copy" and "Paste" buttons.

```
RouterA_09010182327016#
RouterA_09010182327016#sh ip route eigrp
 100.0.0.0/8 is variably subnetted, 5 subnets, 2 masks
D   100.100.100.8/30 [90/30720] via 100.100.100.6, 00:12:17, FastEthernet0/1
    [90/30720] via 100.100.100.2, 00:06:59, FastEthernet1/0
 192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
D   192.168.2.0/24 [90/30720] via 100.100.100.6, 00:15:35, FastEthernet0/1
D   192.168.3.0/24 [90/30720] via 100.100.100.2, 00:06:59, FastEthernet1/0

RouterA_09010182327016#
```

2. RouterB

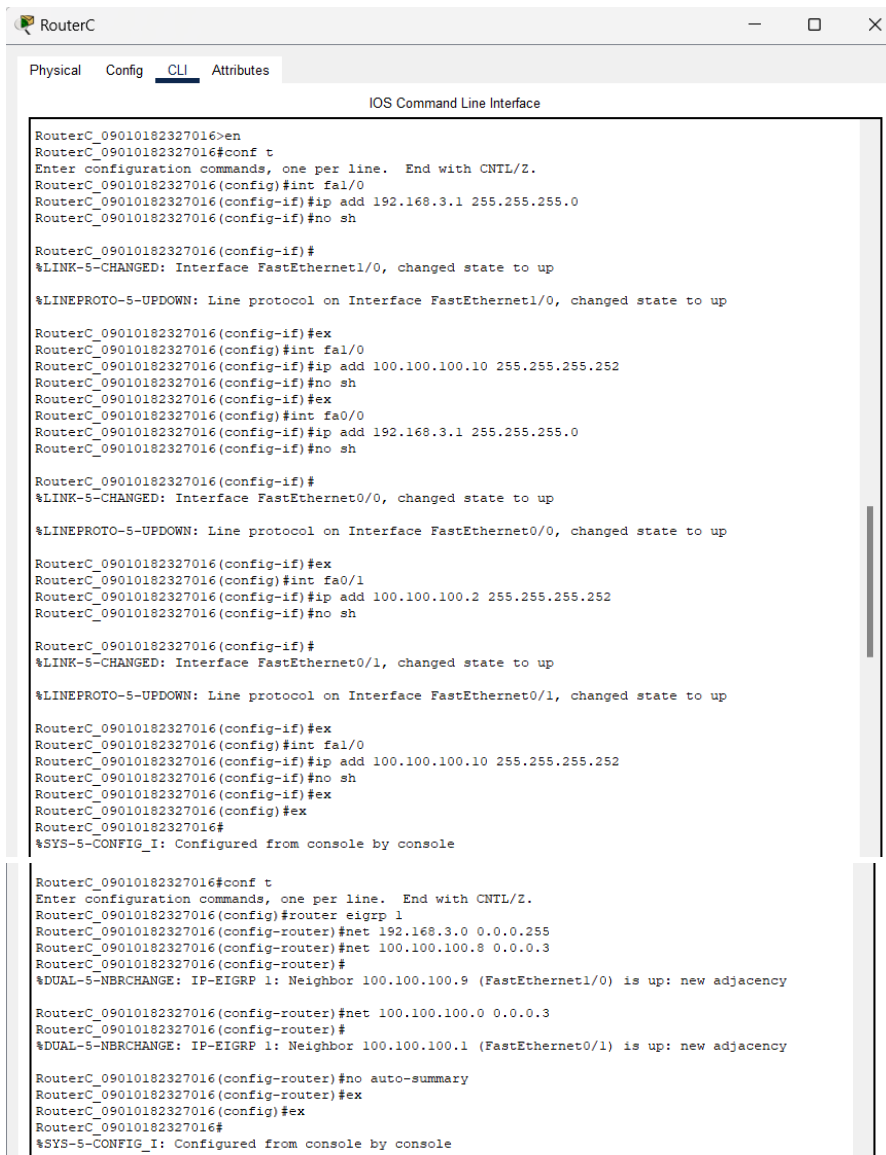
perintah *#show ip route eigrp*

A screenshot of the RouterB CLI showing the output of the "show ip route eigrp" command. The output lists three EIGRP routes: 100.0.0.0/8, 192.168.1.0/24, and 192.168.2.0/24, each with its source interface and uptime. At the bottom, there are "Copy" and "Paste" buttons.

```
RouterB_09010182327016#sh ip route eigrp
 100.0.0.0/8 is variably subnetted, 5 subnets, 2 masks
D   100.100.100.0/30 [90/30720] via 100.100.100.5, 00:09:27, FastEthernet1/0
    [90/30720] via 100.100.100.10, 00:05:49, FastEthernet0/1
 192.168.1.0/24 [90/30720] via 100.100.100.5, 00:14:24, FastEthernet1/0
D   192.168.2.0/24 is variably subnetted, 2 subnets, 2 masks
D   192.168.3.0/24 [90/30720] via 100.100.100.10, 00:06:02, FastEthernet0/1

RouterB_09010182327016#
```

3. RouterC



```
RouterC_09010182327016>en
RouterC_09010182327016#conf t
Enter configuration commands, one per line. End with CNTL/Z.
RouterC_09010182327016(config)#int fa1/0
RouterC_09010182327016(config-if)#ip add 192.168.3.1 255.255.255.0
RouterC_09010182327016(config-if)#no sh

RouterC_09010182327016(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

RouterC_09010182327016(config-if)#ex
RouterC_09010182327016(config)#int fa1/0
RouterC_09010182327016(config-if)#ip add 100.100.100.10 255.255.255.252
RouterC_09010182327016(config-if)#no sh
RouterC_09010182327016(config-if)#ex
RouterC_09010182327016(config)#int fa0/0
RouterC_09010182327016(config-if)#ip add 192.168.3.1 255.255.255.0
RouterC_09010182327016(config-if)#no sh

RouterC_09010182327016(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

RouterC_09010182327016(config-if)#ex
RouterC_09010182327016(config)#int fa0/1
RouterC_09010182327016(config-if)#ip add 100.100.100.2 255.255.255.252
RouterC_09010182327016(config-if)#no sh

RouterC_09010182327016(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

RouterC_09010182327016(config-if)#ex
RouterC_09010182327016(config)#int fa0/0
RouterC_09010182327016(config-if)#ip add 100.100.100.10 255.255.255.252
RouterC_09010182327016(config-if)#no sh
RouterC_09010182327016(config-if)#ex
RouterC_09010182327016(config)#ex
RouterC_09010182327016#
%SYS-5-CONFIG_I: Configured from console by console

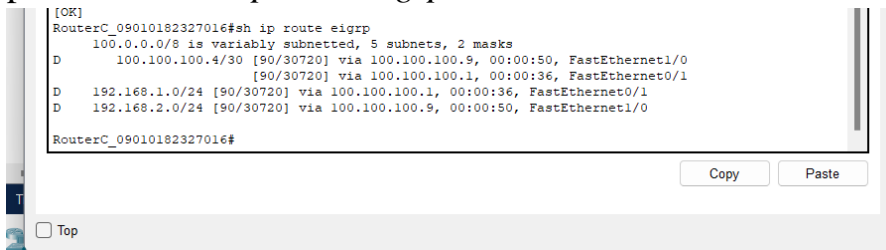
RouterC_09010182327016#conf t
Enter configuration commands, one per line. End with CNTL/Z.
RouterC_09010182327016(config)#router eigrp 1
RouterC_09010182327016(config-router)#net 192.168.3.0 0.0.0.255
RouterC_09010182327016(config-router)#net 100.100.100.8 0.0.0.3
RouterC_09010182327016(config-router)#
%DUAL-5-NBRCHANGE: IP-EIGRP 1: Neighbor 100.100.100.9 (FastEthernet1/0) is up: new adjacency

RouterC_09010182327016(config-router)#net 100.100.100.0 0.0.0.3
RouterC_09010182327016(config-router)#
%DUAL-5-NBRCHANGE: IP-EIGRP 1: Neighbor 100.100.100.1 (FastEthernet0/1) is up: new adjacency

RouterC_09010182327016(config-router)#no auto-summary
RouterC_09010182327016(config-router)#ex
RouterC_09010182327016(config)#ex
RouterC_09010182327016#
%SYS-5-CONFIG_I: Configured from console by console
```

4.

perintah *#show ip route eigrp*

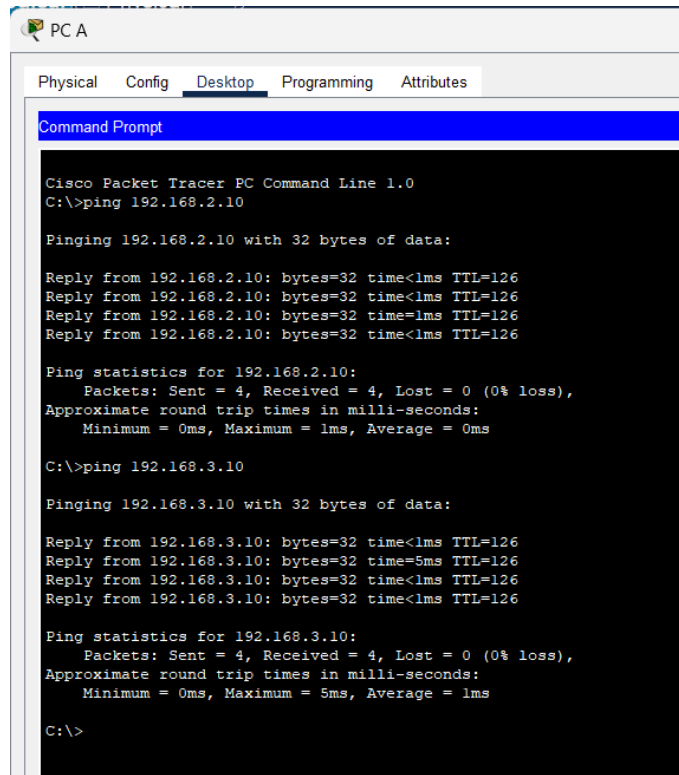


```
[OK]
RouterC_09010182327016#sh ip route eigrp
  100.0.0.0/8 is variably subnetted, 5 subnets, 2 masks
D    100.100.100.4/30 [90/30720] via 100.100.100.9, 00:00:50, FastEthernet1/0
      [90/30720] via 100.100.100.1, 00:00:36, FastEthernet0/1
D    192.168.1.0/24 [90/30720] via 100.100.100.1, 00:00:36, FastEthernet0/1
D    192.168.2.0/24 [90/30720] via 100.100.100.9, 00:00:50, FastEthernet1/0

RouterC_09010182327016#
```

Tes Hasil PING

➤ PC A



The screenshot shows the Command Prompt window for PC A in Cisco Packet Tracer. The window has tabs for Physical, Config, Desktop (selected), Programming, and Attributes. The Command Prompt title bar is highlighted in blue. The text inside the Command Prompt is as follows:

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.2.10

Pinging 192.168.2.10 with 32 bytes of data:

Reply from 192.168.2.10: bytes=32 time<1ms TTL=126
Reply from 192.168.2.10: bytes=32 time<1ms TTL=126
Reply from 192.168.2.10: bytes=32 time=1ms TTL=126
Reply from 192.168.2.10: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.2.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 192.168.3.10

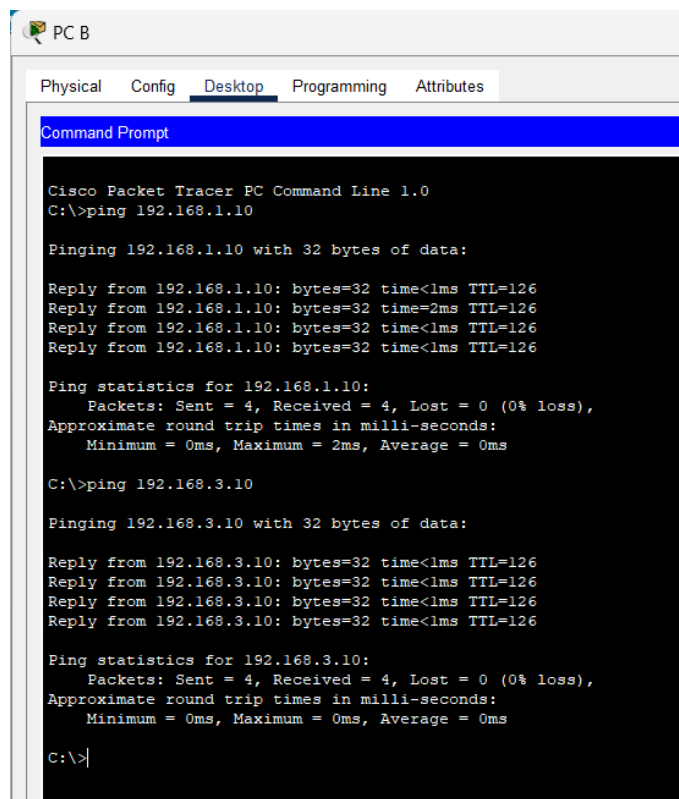
Pinging 192.168.3.10 with 32 bytes of data:

Reply from 192.168.3.10: bytes=32 time<1ms TTL=126
Reply from 192.168.3.10: bytes=32 time=5ms TTL=126
Reply from 192.168.3.10: bytes=32 time<1ms TTL=126
Reply from 192.168.3.10: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.3.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 5ms, Average = 1ms

C:\>
```

➤ PC B



The screenshot shows the Command Prompt window for PC B in Cisco Packet Tracer. The window has tabs for Physical, Config, Desktop (selected), Programming, and Attributes. The Command Prompt title bar is highlighted in blue. The text inside the Command Prompt is as follows:

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.10

Pinging 192.168.1.10 with 32 bytes of data:

Reply from 192.168.1.10: bytes=32 time<1ms TTL=126
Reply from 192.168.1.10: bytes=32 time=2ms TTL=126
Reply from 192.168.1.10: bytes=32 time<1ms TTL=126
Reply from 192.168.1.10: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 2ms, Average = 0ms

C:\>ping 192.168.3.10

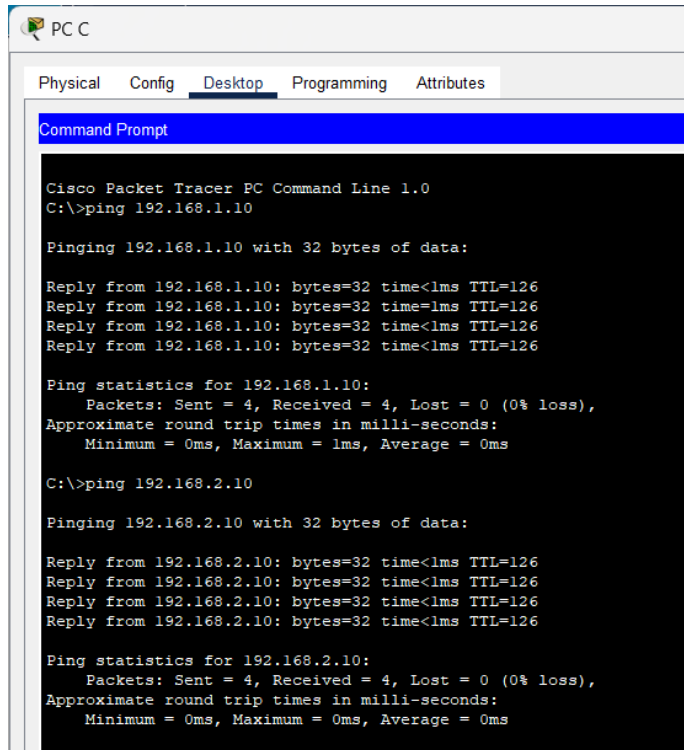
Pinging 192.168.3.10 with 32 bytes of data:

Reply from 192.168.3.10: bytes=32 time<1ms TTL=126
Reply from 192.168.3.10: bytes=32 time<1ms TTL=126
Reply from 192.168.3.10: bytes=32 time<1ms TTL=126
Reply from 192.168.3.10: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.3.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>|
```

➤ PC C



```

PC C
Physical Config Desktop Programming Attributes
Command Prompt

Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.10

Pinging 192.168.1.10 with 32 bytes of data:

Reply from 192.168.1.10: bytes=32 time<1ms TTL=126
Reply from 192.168.1.10: bytes=32 time<1ms TTL=126
Reply from 192.168.1.10: bytes=32 time<1ms TTL=126
Reply from 192.168.1.10: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 192.168.2.10

Pinging 192.168.2.10 with 32 bytes of data:

Reply from 192.168.2.10: bytes=32 time<1ms TTL=126
Reply from 192.168.2.10: bytes=32 time<1ms TTL=126
Reply from 192.168.2.10: bytes=32 time<1ms TTL=126
Reply from 192.168.2.10: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.2.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
  
```

Tabel hasil PING

No	Sumber	Tujuan	Hasil	
			Ya	Tidak
1	PCA	PCB	Ya	-
		PCC	Ya	-

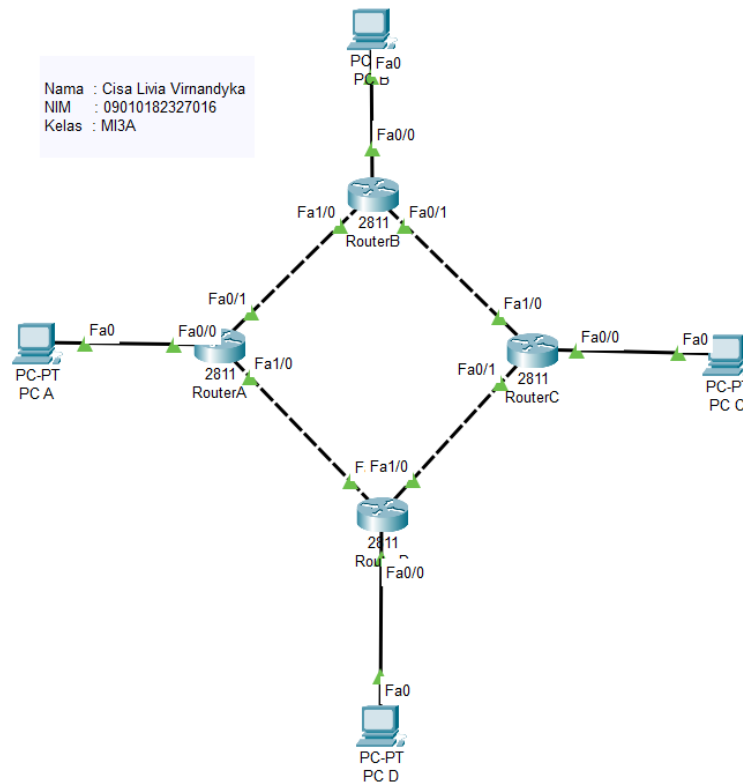
2	PCB	PCA	Ya	-
		PCC	Ya	-

3	PCC	PCA	Ya	-
		PCB	Ya	-

Penambahan RouterD dan PCD:

Putuskan koneksi pada RouterA ke RouterC, lalu tambahkan satu Router (RouterD) dan PC (PCD), dimana RouterD terhubung ke RouterA dan RouterC. Konfigurasi Router dengan protokol EIGRP pada RouterD, dan konfigurasi IP pada PCD. Lakukanlah konfigurasi seperti tahap 3, buktikan jika PCD dapat melakukan PING dan traceroute ke PC lainnya.

Topologi



perintah *#show ip route eigrp*

```
RouterD_09010182327016#sh ip route eigrp
 100.0.0.0/8 is variably subnetted, 6 subnets, 2 masks
D    100.100.100.4/30 [90/30720] via 100.100.100.1, 00:03:07, FastEthernet0/1
D    100.100.100.8/30 [90/33280] via 100.100.100.1, 00:03:07, FastEthernet0/1
D    192.168.1.0/24 [90/30720] via 100.100.100.1, 00:03:07, FastEthernet0/1
D    192.168.2.0/24 [90/33280] via 100.100.100.1, 00:03:07, FastEthernet0/1
D    192.168.3.0/24 [90/35840] via 100.100.100.1, 00:03:07, FastEthernet0/1

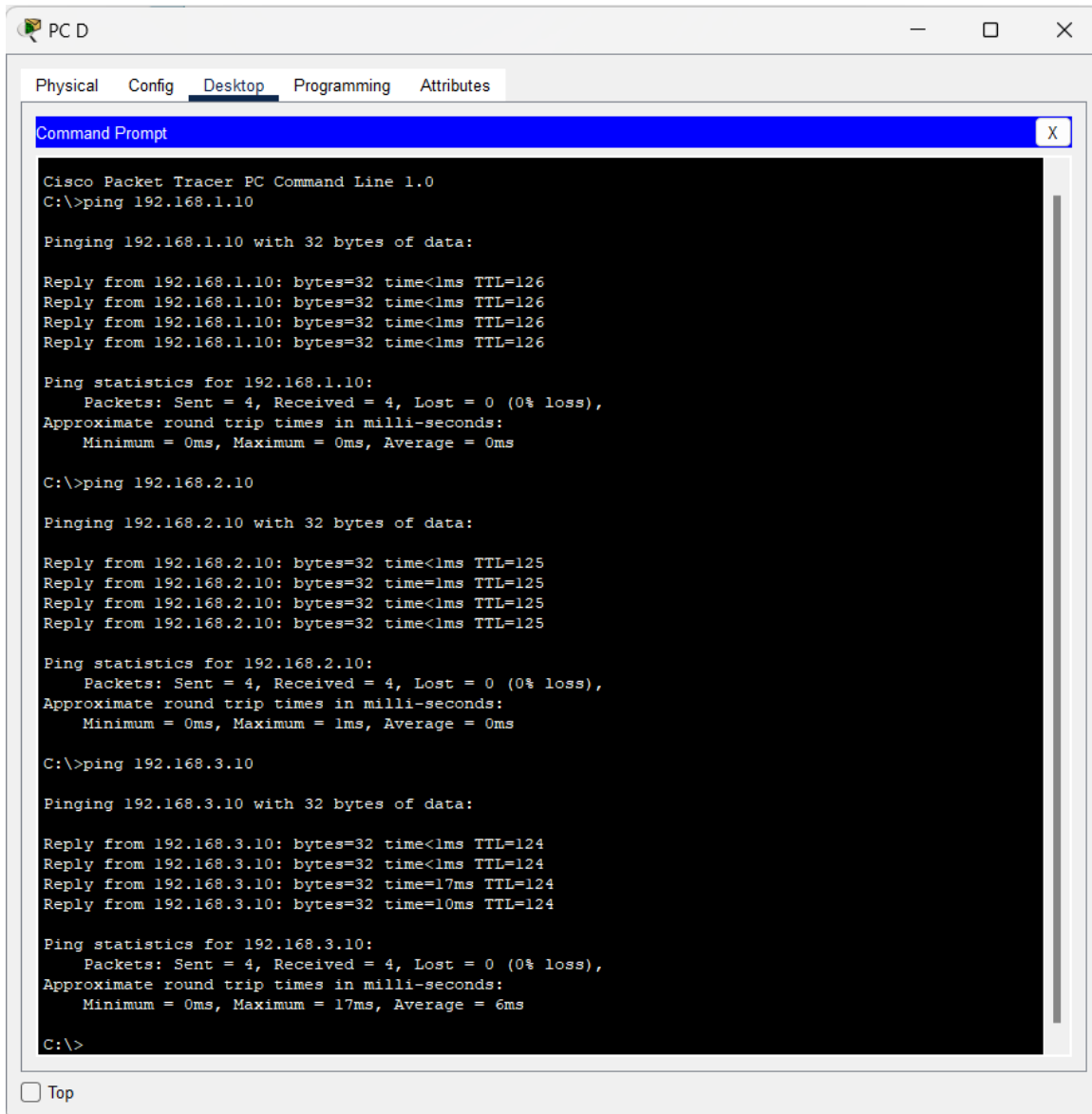
RouterD_09010182327016#
```

Copy

Paste

☐ Top

Tes PING dan traceroute dari PC4 ke PC lain



The screenshot shows a Cisco Packet Tracer PC Command Line window for PC D. The window has tabs for Physical, Config, Desktop, Programming, and Attributes. The Desktop tab is active, displaying a Command Prompt window. The Command Prompt shows the results of three ping tests performed from PC D to other PCs in the network.

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.10

Pinging 192.168.1.10 with 32 bytes of data:

Reply from 192.168.1.10: bytes=32 time<1ms TTL=126
Reply from 192.168.1.10: bytes=32 time<1ms TTL=126
Reply from 192.168.1.10: bytes=32 time<1ms TTL=126
Reply from 192.168.1.10: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.1.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.2.10

Pinging 192.168.2.10 with 32 bytes of data:

Reply from 192.168.2.10: bytes=32 time<1ms TTL=125
Reply from 192.168.2.10: bytes=32 time=1ms TTL=125
Reply from 192.168.2.10: bytes=32 time<1ms TTL=125
Reply from 192.168.2.10: bytes=32 time<1ms TTL=125

Ping statistics for 192.168.2.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 192.168.3.10

Pinging 192.168.3.10 with 32 bytes of data:

Reply from 192.168.3.10: bytes=32 time<1ms TTL=124
Reply from 192.168.3.10: bytes=32 time<1ms TTL=124
Reply from 192.168.3.10: bytes=32 time=17ms TTL=124
Reply from 192.168.3.10: bytes=32 time=10ms TTL=124

Ping statistics for 192.168.3.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 17ms, Average = 6ms

C:\>
```

☐ Top

Hasil Praktikum EIGRP

Pada praktikum ini, konfigurasi **EIGRP (Enhanced Interior Gateway Routing Protocol)** diterapkan untuk membangun jalur dinamis antar-router di jaringan. Setiap router dikonfigurasi untuk mengenali dan berbagi informasi tentang jaringan yang terhubung dengannya. Protokol EIGRP memungkinkan tiap router untuk menemukan rute optimal secara otomatis.

Setelah konfigurasi selesai:

1. Setiap Router dapat berbagi informasi jaringan menggunakan EIGRP, sehingga terbentuk jalur dinamis di seluruh jaringan.
2. Setelah memutuskan koneksi antara RouterA dan RouterC, RouterD dan PCD ditambahkan. Dengan konfigurasi EIGRP, RouterD langsung terhubung ke seluruh jaringan tanpa perlu penyesuaian pada router lain.
3. PING dan Traceroute yang dilakukan dari PCD ke PCA, PCB, dan PCC menunjukkan bahwa PCD bisa mencapai seluruh perangkat lain di jaringan, menandakan bahwa EIGRP telah berfungsi dengan benar.

Analisis Praktikum

EIGRP memberikan kemudahan dalam mengatur jalur antar-router tanpa konfigurasi manual yang kompleks. Ketika RouterD ditambahkan, protokol ini secara otomatis memperbarui tabel routing di setiap router, sehingga PCD langsung memiliki akses ke seluruh jaringan tanpa tambahan konfigurasi di router lain. Ini menunjukkan keunggulan EIGRP dalam jaringan besar yang memerlukan penyesuaian rute dinamis.

Kesimpulan

Praktikum ini berhasil menunjukkan bahwa EIGRP adalah protokol routing yang efektif dan efisien untuk jaringan dinamis. EIGRP memungkinkan jaringan untuk beradaptasi dengan perubahan topologi dan tetap menjaga konektivitas di seluruh perangkat. Penggunaan EIGRP memberikan keuntungan dalam hal efisiensi pemilihan jalur, pengurangan waktu pemulihan saat terjadi kegagalan, dan kemudahan dalam manajemen jaringan. Kesuksesan dari pengujian PING dan Traceroute di seluruh jaringan membuktikan bahwa EIGRP dapat diandalkan untuk memenuhi kebutuhan routing pada jaringan yang memiliki kompleksitas menengah hingga tinggi.