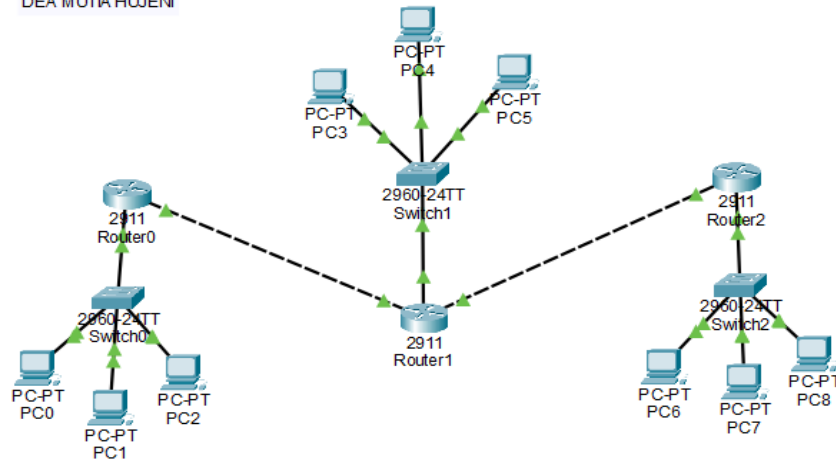


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 NIM : 09010182327001  
 KELAS : MI3A  
 PRAKTIKUM JARINGAN KOMPUTER\_DYNAMIC M12

DEA MUTIA HUJENI



## ROUTE 0

GigabitEthernet0/0	
Port Status	<input checked="" type="checkbox"/> On
Bandwidth	<input checked="" type="radio"/> 1000 Mbps <input type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps <input checked="" type="checkbox"/> Auto
Duplex	<input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex <input checked="" type="checkbox"/> Auto
MAC Address	000A.4172.8701
<div>IP Configuration</div> <div> <div>IPv4 Address</div> <div>192.168.2.1</div> </div> <div> <div>Subnet Mask</div> <div>255.255.255.0</div> </div>	
Tx Ring Limit	10

GigabitEthernet0/1	
Port Status	<input checked="" type="checkbox"/> On
Bandwidth	<input checked="" type="radio"/> 1000 Mbps <input type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps <input checked="" type="checkbox"/> Auto
Duplex	<input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex <input checked="" type="checkbox"/> Auto
MAC Address	000A.4172.8702
<div>IP Configuration</div> <div> <div>IPv4 Address</div> <div>10.10.10.1</div> </div> <div> <div>Subnet Mask</div> <div>255.255.255.252</div> </div>	
Tx Ring Limit	10

```

dea01>en
dea01#conf t
Enter configuration commands, one per line. End with CNTL/Z.
dea01(config)#router rip
dea01(config-router)#version 2
dea01(config-router)#network 192.168.2.0
dea01(config-router)#network 10.10.10.0
dea01(config-router)#exit
dea01(config)#exit
dea01#
%SYS-5-CONFIG_I: Configured from console by console
show ip route
Codes: L - local, C - connected, S - static, 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

10.0.0.0/8 is variably subnetted, 3 subnets, 2 masks
C    10.10.10.0/30 is directly connected, GigabitEthernet0/1
L    10.10.10.1/32 is directly connected, GigabitEthernet0/1
R    10.20.10.0/30 [120/1] via 10.10.10.2, 00:00:05, GigabitEthernet0/1
C    192.168.2.0/24 is variably subnetted, 2 subnets, 2 masks
C    192.168.2.0/24 is directly connected, GigabitEthernet0/0
L    192.168.2.1/32 is directly connected, GigabitEthernet0/0
R    192.168.20.0/24 [120/1] via 10.10.10.2, 00:00:05, GigabitEthernet0/1
R    192.168.40.0/24 [120/2] via 10.10.10.2, 00:00:05, GigabitEthernet0/1
  
```

## ROUTE 1

GigabitEthernet0/0	
Port Status	<input checked="" type="checkbox"/> On
Bandwidth	<input checked="" type="radio"/> 1000 Mbps <input type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps <input checked="" type="checkbox"/> Auto
Duplex	<input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex <input checked="" type="checkbox"/> Auto
MAC Address	00E0.F96E.A601
<div>IP Configuration</div> <div>IPv4 Address</div> <div>Subnet Mask</div>	
<div>192.168.20.1</div> <div>255.255.255.0</div>	
Tx Ring Limit	10
GigabitEthernet0/1	
Port Status	<input checked="" type="checkbox"/> On
Bandwidth	<input checked="" type="radio"/> 1000 Mbps <input type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps <input checked="" type="checkbox"/> Auto
Duplex	<input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex <input checked="" type="checkbox"/> Auto
MAC Address	00E0.F96E.A602
<div>IP Configuration</div> <div>IPv4 Address</div> <div>Subnet Mask</div>	
<div>10.10.10.2</div> <div>255.255.255.252</div>	
Tx Ring Limit	10
GigabitEthernet0/2	
Port Status	<input checked="" type="checkbox"/> On
Bandwidth	<input checked="" type="radio"/> 1000 Mbps <input type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps <input checked="" type="checkbox"/> Auto
Duplex	<input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex <input checked="" type="checkbox"/> Auto
MAC Address	00E0.F96E.A603
<div>IP Configuration</div> <div>IPv4 Address</div> <div>Subnet Mask</div>	
<div>10.20.10.1</div> <div>255.255.255.252</div>	
Tx Ring Limit	10

```

dea01>en
dea01#conf t
Enter configuration commands, one per line. End with CNTL/Z.
dea01(config)#router rip
dea01(config-router)#version 2
dea01(config-router)#network 192.168.40.0
dea01(config-router)#network 192.168.20.0
dea01(config-router)#network 10.10.10.0
dea01(config-router)#exit
dea01(config)#exit
dea01#
%SYS-5-CONFIG_I: Configured from console by console
show ip route
Codes: L - local, C - connected, S - static, 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

10.0.0.0/8 is variably subnetted, 4 subnets, 2 masks
C       10.10.10.0/30 is directly connected, GigabitEthernet0/1
L       10.10.10.2/32 is directly connected, GigabitEthernet0/1
C       10.20.10.0/30 is directly connected, GigabitEthernet0/2
L       10.20.10.1/32 is directly connected, GigabitEthernet0/2
R       192.168.2.0/24 [120/1] via 10.10.10.1, 00:00:29, GigabitEthernet0/1
R       192.168.20.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.20.0/24 is directly connected, GigabitEthernet0/0
L       192.168.20.1/32 is directly connected, GigabitEthernet0/0
R       192.168.40.0/24 [120/1] via 10.20.10.2, 00:00:21, GigabitEthernet0/2
  
```

## ROUTE 2

GigabitEthernet0/0	
Port Status	<input checked="" type="checkbox"/> On
Bandwidth	<input checked="" type="radio"/> 1000 Mbps <input type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps <input checked="" type="checkbox"/> Auto
Duplex	<input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex <input checked="" type="checkbox"/> Auto
MAC Address	000C.85C1.0301
<div>IP Configuration</div> <div>IPv4 Address</div> <div>Subnet Mask</div>	
<div>192.168.40.1</div> <div>255.255.255.0</div>	
Tx Ring Limit	10

GigabitEthernet0/2

Port Status

Bandwidth

1000 Mbps

100 Mbps

10 Mbps

Duplex

Half Duplex

Full Duplex

MAC Address

000C.85C1.0303

IP Configuration

IPv4 Address

10.20.10.2

Subnet Mask

255.255.255.252

Tx Ring Limit

10

```

dea01>en
dea01#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
dea01(config)#router rip
dea01(config-router)#version 2
dea01(config-router)#network 192.168.40.0
dea01(config-router)#network 10.20.10.0
dea01(config-router)#exit
dea01(config)#exit
dea01#
%SYS-5-CONFIG_I: Configured from console by console
show ip route
Codes: L - local, C - connected, S - static, 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

10.0.0.0/8 is variably subnetted, 3 subnets, 2 masks
R    10.10.10.0/30 [120/1] via 10.20.10.1, 00:00:25, GigabitEthernet0/2
C    10.20.10.0/30 is directly connected, GigabitEthernet0/2
L    10.20.10.2/32 is directly connected, GigabitEthernet0/2
R    192.168.2.0/24 [120/2] via 10.20.10.1, 00:00:25, GigabitEthernet0/2
R    192.168.20.0/24 [120/1] via 10.20.10.1, 00:00:25, GigabitEthernet0/2
R    192.168.40.0/24 is variably subnetted, 2 subnets, 2 masks
L    192.168.40.0/24 is directly connected, GigabitEthernet0/0
L    192.168.40.1/32 is directly connected, GigabitEthernet0/0

```

## TES KONEKSI ICMP

NO	SUMBER	TUJUAN	HASIL	
			YA	TIDAK
1	PC1	PC2	YA	-
		PC3	YA	-
		PC4	YA	-
		PC5	YA	-
		PC6	YA	-
		PC7	YA	-
		PC8	YA	-
		PC9	YA	-

NO	SUMBER	TUJUAN	HASIL	
			YA	TIDAK
2	PC4	PC1	YA	-
		PC2	YA	-
		PC3	YA	-
		PC5	YA	-
		PC6	YA	-
		PC7	YA	-
		PC8	YA	-
		PC9	YA	-

NO	SUMBER	TUJUAN	HASIL	
			YA	TIDAK
3	PC7	PC1	YA	-
		PC2	YA	-
		PC3	YA	-
		PC4	YA	-
		PC5	YA	-
		PC6	YA	-
		PC8	YA	-
		PC9	YA	-

PC1

Physical Config Desktop Programming Attributes

Command Prompt

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.20.11

Pinging 192.168.20.11 with 32 bytes of data:

Request timed out.
Reply from 192.168.20.11: bytes=32 time<1ms TTL=126
Reply from 192.168.20.11: bytes=32 time<1ms TTL=126
Reply from 192.168.20.11: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.20.11:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>192.168.20.11
Invalid Command.

C:\>ping 192.168.20.11

Pinging 192.168.20.11 with 32 bytes of data:

Reply from 192.168.20.11: bytes=32 time<1ms TTL=126
Reply from 192.168.20.11: bytes=32 time<1ms TTL=126
Reply from 192.168.20.11: bytes=32 time<1ms TTL=126
Reply from 192.168.20.11: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.20.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.40.10

Pinging 192.168.40.10 with 32 bytes of data:

Request timed out.
Reply from 192.168.40.10: bytes=32 time=1ms TTL=125
Reply from 192.168.40.10: bytes=32 time<1ms TTL=125
Reply from 192.168.40.10: bytes=32 time<1ms TTL=125

Ping statistics for 192.168.40.10:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>
```

☐ Top

PC7

Physical Config Desktop Programming Attributes

Command Prompt

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.2.12

Pinging 192.168.2.12 with 32 bytes of data:

Request timed out.
Reply from 192.168.2.12: bytes=32 time=43ms TTL=125
Reply from 192.168.2.12: bytes=32 time=1ms TTL=125
Reply from 192.168.2.12: bytes=32 time<1ms TTL=125

Ping statistics for 192.168.2.12:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 43ms, Average = 14ms

C:\>ping 192.168.40.12

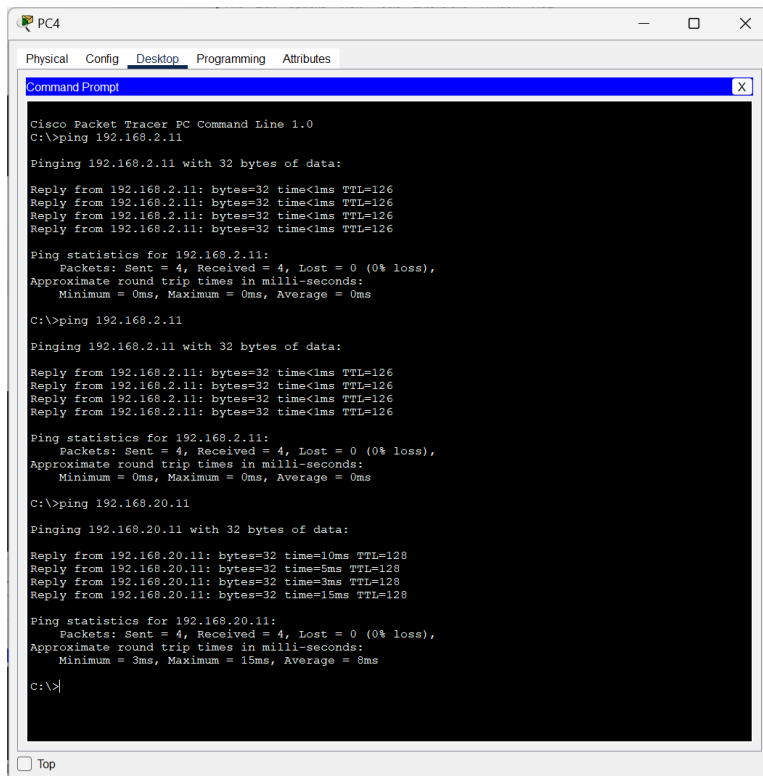
Pinging 192.168.40.12 with 32 bytes of data:

Reply from 192.168.40.12: bytes=32 time<1ms TTL=128
Reply from 192.168.40.12: bytes=32 time<1ms TTL=128
Reply from 192.168.40.12: bytes=32 time<1ms TTL=128
Reply from 192.168.40.12: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.40.12:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

☐ Top



```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.2.11

Pinging 192.168.2.11 with 32 bytes of data:

Reply from 192.168.2.11: bytes=32 time<1ms TTL=126
Reply from 192.168.2.11: bytes=32 time<1ms TTL=126
Reply from 192.168.2.11: bytes=32 time<1ms TTL=126
Reply from 192.168.2.11: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.2.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.2.11

Pinging 192.168.2.11 with 32 bytes of data:

Reply from 192.168.2.11: bytes=32 time<1ms TTL=126
Reply from 192.168.2.11: bytes=32 time<1ms TTL=126
Reply from 192.168.2.11: bytes=32 time<1ms TTL=126
Reply from 192.168.2.11: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.2.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.20.11

Pinging 192.168.20.11 with 32 bytes of data:

Reply from 192.168.20.11: bytes=32 time=10ms TTL=128
Reply from 192.168.20.11: bytes=32 time=5ms TTL=128
Reply from 192.168.20.11: bytes=32 time=3ms TTL=128
Reply from 192.168.20.11: bytes=32 time=15ms TTL=128

Ping statistics for 192.168.20.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 3ms, Maximum = 15ms, Average = 8ms

C:\>
```

## Hasil Praktikum :

1. Konfigurasi IP Address :
  - a. Router 0 :

Interface gigaEthernet0/0: IP 192.168.2.1 / Subnet Mask 255.255.255.0  
Interface gigaEthernet0/1: IP 10.10.10.1 / Subnet Mask 255.255.255.252
  - b. Router 1 :

Interface gigaEthernet0/0: IP 192.168.20.1 / Subnet Mask 255.255.255.0  
Interface gigaEthernet0/1: IP 10.10.10.2 / Subnet Mask 255.255.255.252  
Interface gigaEthernet0/2: IP 10.20.10.1 / Subnet Mask 255.255.255.252
  - c. Router 2 :

Interface gigaEthernet0/0: IP 192.168.40.1 / Subnet Mask 255.255.255.0  
Interface gigaEthernet0/2: IP 10.20.10.2 / Subnet Mask 255.255.255.252
2. Routing Dinamis :
  - a. Protokol Routing: RIP (Routing Information Protocol) diaktifkan pada ketiga router untuk mendistribusikan informasi rute secara otomatis.
  - b. Konfigurasi Protokol Routing :
    - Router 0 :

network 192.168.2.0  
network 10.10.10.0
    - Router 1 :

network 192.168.40.0  
network 192.168.20.0  
network 10.10.10.0
    - Router 2 :

network 192.168.40.0  
network 10.20.10.0

3. Tes Koneksi ping pada cmd PC :
  - a. Ping dari PC 1 ke PC 5 – Sukses
  - b. Ping dari PC 1 ke PC 7 – Sukses
  - c. Ping dari PC 4 ke PC 2 – Sukses
  - d. Ping dari PC 4 ke PC 8 - Sukses
  - e. Ping dari PC 7 ke PC 3 - Sukses
  - f. Ping dari PC 7 ke PC 9 – Sukses

#### Analisis :

1. **Keberhasilan Koneksi Antar-Router** : Berdasarkan hasil pengujian koneksi menggunakan protokol ICMP melalui perintah ping, semua koneksi antar-router tercatat berhasil tanpa adanya kehilangan paket. Hasil ini menunjukkan bahwa konfigurasi alamat IP dan protokol routing dinamis telah dilakukan dengan baik pada setiap router. Semua router mampu berkomunikasi satu sama lain, yang mengindikasikan bahwa tabel routing telah tersebar dengan baik melalui protokol RIP.
2. **Kinerja Protokol RIP** : Protokol RIP mengirimkan tabel routing ke router tetangga setiap 30 detik, sehingga setiap router memiliki informasi tentang semua subnet yang terhubung. Dalam percobaan ini, RIP mampu memberikan rute yang dibutuhkan untuk mengakses setiap jaringan pada ketiga router. Keunggulan utama RIP adalah kemudahan dalam konfigurasi dan kesesuaiannya untuk menangani topologi sederhana seperti yang digunakan dalam percobaan ini.
3. **Kecepatan Respons ICMP** : Waktu respons ping menunjukkan koneksi yang cukup cepat, yang mengindikasikan kondisi jaringan dalam keadaan optimal tanpa adanya gangguan fisik atau kesalahan konfigurasi. Ini juga menunjukkan tidak ada bottleneck pada router atau jaringan yang dapat memperlambat komunikasi antar-router.
4. **Potensi Pengembangan** : Meskipun RIP berjalan dengan baik pada percobaan ini, dalam jaringan yang lebih besar dan kompleks, RIP dapat menimbulkan peningkatan lalu lintas jaringan dan waktu konvergensi yang lebih lama. Pada jaringan yang lebih besar, protokol seperti OSPF atau EIGRP dapat menjadi pilihan yang lebih efisien.

#### Kesimpulan:

1. **Konfigurasi Alamat IP dan Routing Dinamis yang Akurat** : Konfigurasi IP dan routing dinamis yang dilakukan dengan benar memungkinkan komunikasi antar-router yang stabil. Pengaturan RIP sebagai protokol routing dinamis berhasil mendistribusikan informasi rute, sehingga setiap router dapat mengenali jaringan lainnya dengan baik.
2. **Verifikasi Konektivitas dengan Pengujian ICMP** : Pengujian koneksi dengan ICMP (ping) membuktikan bahwa koneksi antar-router berjalan optimal tanpa adanya packet loss, menandakan bahwa konektivitas dan tabel routing telah berfungsi dengan benar.
3. **Efektivitas Protokol RIP pada Jaringan Sederhana** : Protokol RIP efektif digunakan dalam jaringan sederhana seperti dalam percobaan ini. Namun, pada jaringan yang lebih kompleks, protokol lain yang lebih efisien bisa lebih sesuai.

Secara keseluruhan, percobaan ini menunjukkan bahwa dengan konfigurasi IP dan routing yang tepat, jaringan antar-router dapat beroperasi secara optimal dan mendukung komunikasi data yang stabil dan handal.