

Laporan Praktikum 3
Konsep Jaringan



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A. TUGAS PENDAHULUAN

1. Apa yang dimaksud routing ?

Jawab : Routing adalah proses mengirimkan data dari satu titik ke titik lain dalam jaringan komputer. Ini melibatkan pengambilan keputusan tentang rute terbaik yang harus diambil oleh paket data untuk mencapai tujuannya.

2. Apa kelemahan static routing ? Bagaimana melakukan konfigurasi static routing di Linux pada 2 jaringan? (baik menambahkan rute dan mengurangi route)

Jawab : Kelemahan Static Routing:

- Tidak elastis: Rute harus diatur manual, yang menjadi tidak praktis dalam jaringan yang kompleks atau berubah.
- Tidak toleran terhadap kegagalan: Jika salah satu rute gagal, tidak ada pemulihan otomatis.
- Peningkatan kerumitan: Dalam jaringan besar, mengatur rute statis untuk semua tujuan menjadi sulit dikelola.

Untuk menambahkan route :

```
ilhamoe@ilhamoe:~$ sudo ip route add 127.0.0.1 via 127.0.0.0
ilhamoe@ilhamoe:~$ ip route
default via 192.168.134.108 dev wlo1 proto dhcp metric 600
127.0.0.1 via 127.0.0.0 dev lo
169.254.0.0/16 dev wlo1 scope link metric 1000
192.168.134.0/24 dev wlo1 proto kernel scope link src 192.168.134.174 metric 600
```

Untuk mengurangi route :

```
ilhamoe@ilhamoe:~$ sudo ip route del 127.0.0.1
ilhamoe@ilhamoe:~$ ip route
default via 192.168.134.108 dev wlo1 proto dhcp metric 600
169.254.0.0/16 dev wlo1 scope link metric 1000
192.168.134.0/24 dev wlo1 proto kernel scope link src 192.168.134.174 metric 600
```

3. Apa yang disebut default gateway ? Bagaimana melakukan setting default gateway di Linux?

Jawab : Default Gateway adalah router yang digunakan untuk mengirimkan semua lalu lintas yang tidak memiliki rute spesifik ke tujuan lain.

```

ilhamoe@ilhamoe:~$ sudo ip route add default via 127.0.0.0
ilhamoe@ilhamoe:~$ ip route
default via 127.0.0.0 dev lo
default via 192.168.134.108 dev wlo1 proto dhcp metric 600
169.254.0.0/16 dev wlo1 scope link metric 1000
192.168.134.0/24 dev wlo1 proto kernel scope link src 192.168.134.174 metric 600
ilhamoe@ilhamoe:~$ sudo ip route del default
ilhamoe@ilhamoe:~$ ip route
default via 192.168.134.108 dev wlo1 proto dhcp metric 600
169.254.0.0/16 dev wlo1 scope link metric 1000
192.168.134.0/24 dev wlo1 proto kernel scope link src 192.168.134.174 metric 600

```

4. Apa yang disebut routing table? Apa fungsinya? Bagaimana melihat routing table di linux ? Apa hasilnya !

Jawab : Routing Table adalah tabel yang digunakan oleh router atau komputer untuk menentukan rute yang harus diambil oleh paket data. Routing table dapat dilihat di Linux dengan perintah `ip route show` atau `route -n`. Hasilnya akan menampilkan daftar rute dengan tujuan, gateway, dan metrik.

```

ilhamoe@ilhamoe:~$ route -n
Kernel IP routing table
Destination      Gateway         Genmask         Flags Metric Ref    Use Iface
0.0.0.0          192.168.134.108 0.0.0.0         UG        600    0      0 wlo1
169.254.0.0      0.0.0.0         255.255.0.0     U         1000   0      0 wlo1
192.168.134.0    0.0.0.0         255.255.255.0   U         600    0      0 wlo1

```

5. Apa yang menjadi metric dari routing ?

Jawab : Metric Routing adalah angka yang digunakan untuk menilai kualitas atau jarak rute yang tersedia. Biasanya, semakin rendah metriknya, semakin disukai rute tersebut.

6. Apa yang disebut sebagai IP aliasing ?

Jawab : IP Aliasing adalah teknik yang memungkinkan satu antarmuka jaringan untuk memiliki beberapa alamat IP. Ini berguna dalam beberapa situasi, seperti hosting beberapa situs web pada satu server dengan alamat IP yang berbeda.

7. Apa yang disebut ip_forwarding ? Apa fungsinya ? Bagaimana melakukannya di linux?

Jawab : IP Forwarding adalah kemampuan perangkat untuk meneruskan paket data antara dua jaringan atau antara dua antarmuka pada perangkat yang sama. Fungsi utama dari `ip_forwarding` adalah sebagai berikut:

- **Routing Data:** IP forwarding adalah proses yang memungkinkan router untuk meneruskan data (pakets) dari satu jaringan ke jaringan lainnya. Ini adalah inti dari apa yang membuat jaringan IP bersifat internetworking, di mana data dapat mengalir dari satu jaringan ke jaringan lain melalui router.
- **Pengambilan Keputusan:** Router menggunakan tabel routing untuk mengambil keputusan tentang rute terbaik untuk mengirim paket. Tabel routing ini berisi informasi tentang jaringan tujuan, gateway, dan antarmuka keluar yang harus digunakan.
- **Memahami Jaringan:** Dalam proses forwarding, router juga memahami topologi jaringan. Ini memungkinkan router untuk menentukan apakah paket harus diteruskan ke jaringan lokal atau dikirim ke jaringan eksternal.

- **Menghubungkan Subnet:** IP forwarding memungkinkan router untuk menghubungkan subnet atau jaringan yang berbeda, sehingga lalu lintas dapat mengalir antara mereka. Ini adalah bagian penting dari fungsi router dalam jaringan.

Anda dapat mengaktifkan atau menonaktifkan IP forwarding di Linux dengan mengatur nilai menjadi 1 (aktif) atau 0 (nonaktif).

```
ilhamoe@ilhamoe:~$ sudo sysctl -w net.ipv4.ip_forward=1
net.ipv4.ip_forward = 1
ilhamoe@ilhamoe:~$ sudo sysctl -w net.ipv4.ip_forward=0
net.ipv4.ip_forward = 0
```

8. Apa yang disebut sebagai router mikrotik?

Jawab : Router MikroTik adalah perangkat keras (hardware) atau perangkat lunak (software) yang dikembangkan oleh perusahaan MikroTik. Perangkat ini difungsikan sebagai router, firewall, switch, dan berbagai fungsi jaringan lainnya. Router MikroTik sering digunakan dalam berbagai jenis jaringan, mulai dari jaringan rumah tangga hingga jaringan perusahaan dan ISP (Internet Service Provider).

9. Bagaimana cara menambah IP address pada router mikrotik ?

Jawab : Untuk menambahkan IP address pada router MikroTik, Anda dapat menggunakan terminal dengan perintah seperti berikut:

```
ilhamoe@ilhamoe:~$ ip link show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN mode DEFAULT group default qlen 1000
   link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
2: wlo1: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc noqueue state UP mode DORMANT group default qlen 1000
   link/ether 30:03:c8:97:0d:0f brd ff:ff:ff:ff:ff:ff
   altname wlp1s0
ilhamoe@ilhamoe:~$ sudo ip address add 192.168.1.1/24 dev wlo1
ilhamoe@ilhamoe:~$ ip route
default via 127.0.0.0 dev lo
default via 192.168.100.119 dev wlo1 proto dhcp metric 600
169.254.0.0/16 dev wlo1 scope link metric 1000
192.168.1.0/24 dev wlo1 proto kernel scope link src 192.168.1.1
192.168.100.0/24 dev wlo1 proto kernel scope link src 192.168.100.174 metric 600
```

10. Apa guna traceroute atau tracert? Bagaimana cara melakukan tracert. Beri gambar dan beri contoh perintahnya.

Jawab : Traceroute (Unix/Linux) atau Tracert (Windows) adalah alat untuk melacak rute paket melalui jaringan. Ini digunakan untuk mengetahui jalur yang diikuti paket data dari titik awal ke tujuan dan menunjukkan hop yang dilewati oleh paket. Contoh perintah traceroute di Linux adalah:

```

ilhamoe@ilhamoe:~$ traceroute www.google.com
traceroute to www.google.com (74.125.68.103), 30 hops max, 60 byte packets
 1  _gateway (192.168.134.108)  6.620 ms  6.595 ms  9.861 ms
 2  * * *
 3  10.31.252.193 (10.31.252.193)  64.352 ms  116.506 ms  64.315 ms
 4  * * *
 5  114-4-16-218.resources.indosat.com (114.4.16.218)  57.554 ms  109.918 ms  109.904 ms
 6  114-0-112-49.resources.indosat.com (114.0.112.49)  38.978 ms  28.410 ms  28.380 ms
 7  114-0-116-21.resources.indosat.com (114.0.116.21)  46.865 ms  48.014 ms  47.974 ms
 8  114-0-116-21.resources.indosat.com (114.0.116.21)  57.051 ms  58.666 ms  58.632 ms
 9  72.14.205.94 (72.14.205.94)  51.971 ms  69.748 ms  64.975 ms
10  * * *
11  142.251.241.0 (142.251.241.0)  74.893 ms  72.14.232.100 (72.14.232.100)  72.697 ms  209.85.244.156 (209.85.244.156)  60.568 ms
12  108.170.240.172 (108.170.240.172)  72.652 ms  108.170.240.241 (108.170.240.241)  72.638 ms  74.125.242.35 (74.125.242.35)  60.750 ms
13  142.251.230.147 (142.251.230.147)  64.785 ms  68.083 ms  216.239.40.197 (216.239.40.197)  60.280 ms
14  142.251.230.238 (142.251.230.238)  59.646 ms  74.125.252.211 (74.125.252.211)  48.035 ms  142.251.230.156 (142.251.230.156)  65.646 ms
15  108.170.234.59 (108.170.234.59)  59.863 ms  216.239.35.171 (216.239.35.171)  53.616 ms  108.170.233.49 (108.170.233.49)  60.330 ms
16  * * *
17  * * *
18  * * *
19  * * *
20  * * *
21  * * *
22  * * *
23  * * *
24  * * *
25  sc-in-f103.1e100.net (74.125.68.103)  100.883 ms * *
ilhamoe@ilhamoe:~$ nslookup google.com
Server:      127.0.0.53
Address:     127.0.0.53#53

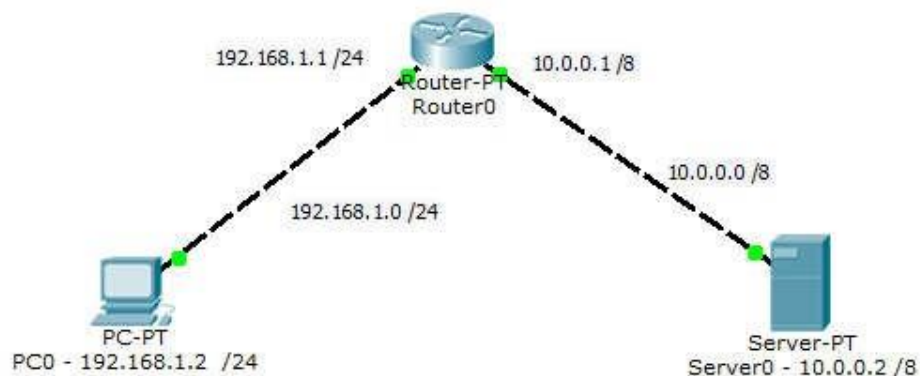
Non-authoritative answer:
Name:   google.com
Address: 142.251.12.101
Name:   google.com
Address: 142.251.12.138
Name:   google.com
Address: 142.251.12.139
Name:   google.com
Address: 142.251.12.113
Name:   google.com
Address: 142.251.12.100
Name:   google.com
Address: 142.251.12.102
Name:   google.com
Address: 2404:6800:4003:c11::8a
Name:   google.com
Address: 2404:6800:4003:c11::65
Name:   google.com
Address: 2404:6800:4003:c11::8b
Name:   google.com
Address: 2404:6800:4003:c11::64

```

B. PERCOBAAN

Buatlah konfigurasi routing statis menggunakan Packet Tracer sesuai dengan diagram-diaagram berikut ini :

11. Diagram no 1 : Satu router menghubungkan 2 network



PC0 - 192.168.1.2 /24

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.1.2

Subnet Mask 255.255.255.0

Default Gateway 192.168.1.1

DNS Server 0.0.0.0

Server0 - 10.0.0.2 /8

Physical Config Services **Desktop** Programming Attributes

IP Configuration X

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 10.0.0.2

Subnet Mask 255.0.0.0

Default Gateway 10.0.0.1

DNS Server 0.0.0.0

Router0

Physical **Config** CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

Static Routes

Network 192.168.1.0

Mask 255.255.255.0

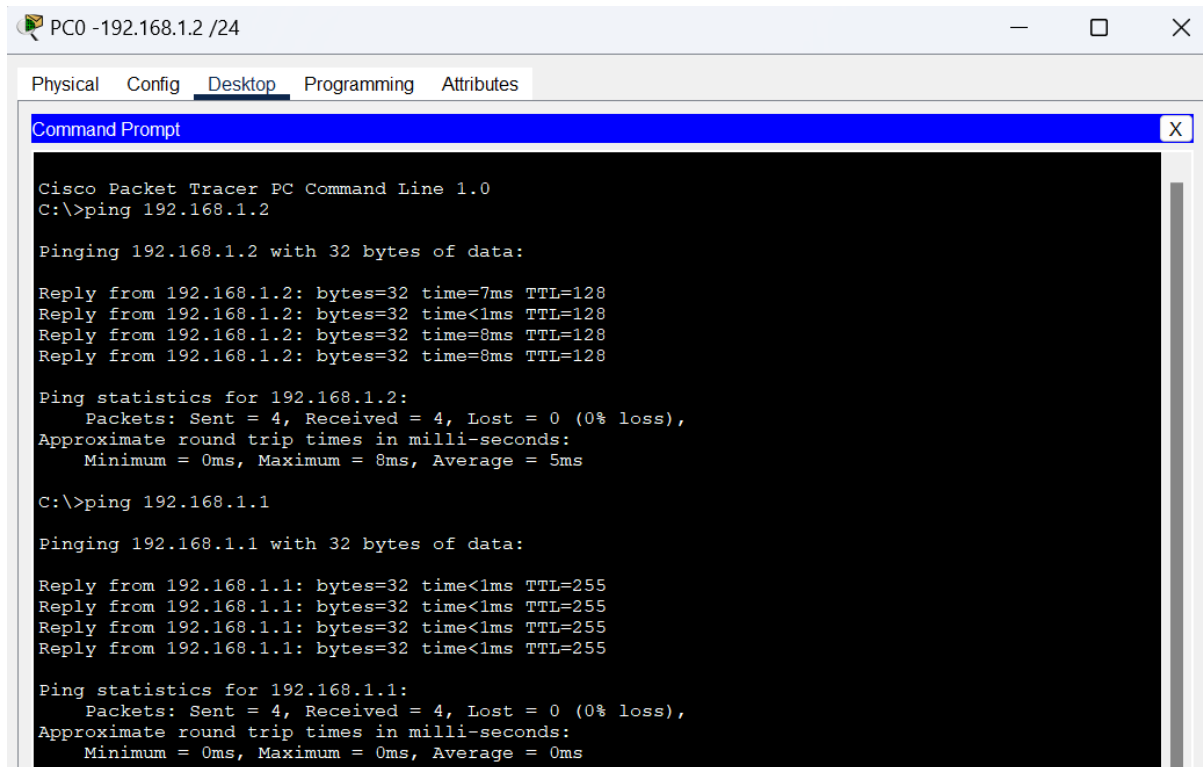
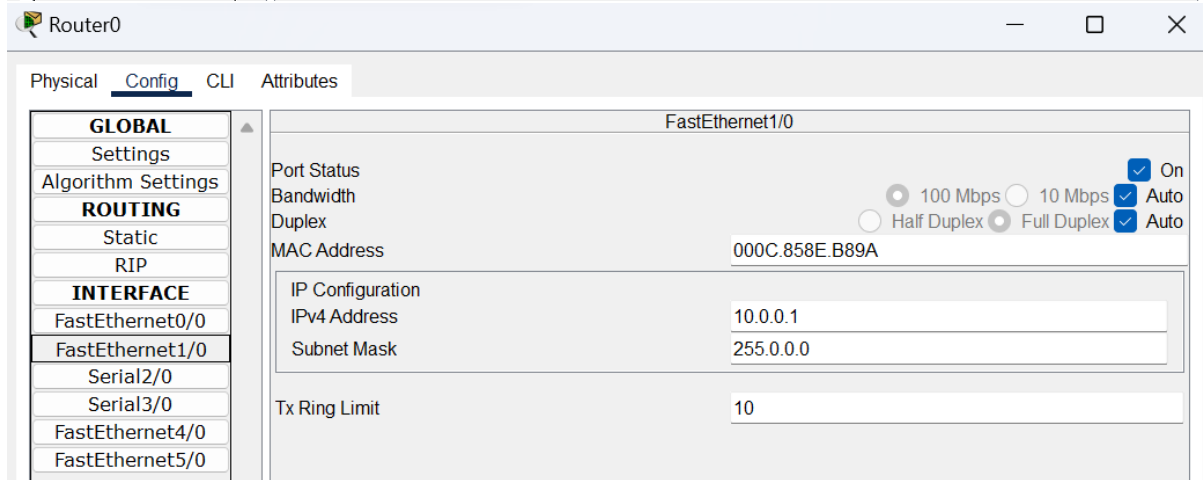
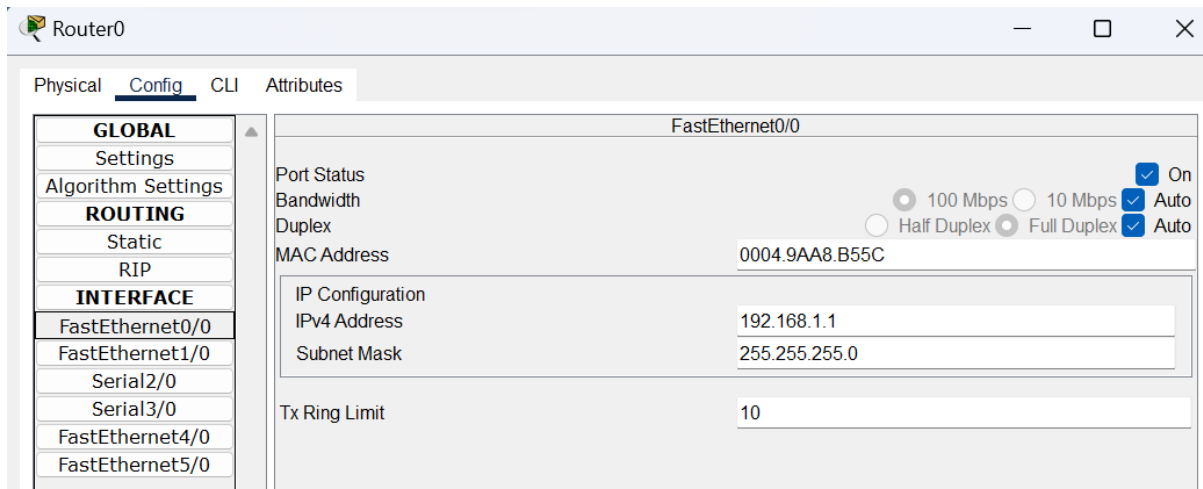
Next Hop 10.0.0.0

Add

Network Address

192.168.1.0/24 via 10.0.0.0

Remove



```
Pinging 10.0.0.1 with 32 bytes of data:

Reply from 10.0.0.1: bytes=32 time<1ms TTL=255
Reply from 10.0.0.1: bytes=32 time<1ms TTL=255
Reply from 10.0.0.1: bytes=32 time<1ms TTL=255
Reply from 10.0.0.1: bytes=32 time<1ms TTL=255

Ping statistics for 10.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

PC0 -192.168.1.2 /24

Physical Config Desktop Programming Attributes

Command Prompt

```
C:\>ping 10.0.0.2

Pinging 10.0.0.2 with 32 bytes of data:

Reply from 10.0.0.2: bytes=32 time<1ms TTL=127
Reply from 10.0.0.2: bytes=32 time<1ms TTL=127
Reply from 10.0.0.2: bytes=32 time<1ms TTL=127
Reply from 10.0.0.2: bytes=32 time<1ms TTL=127

Ping statistics for 10.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

PC0 -192.168.1.2 /24

Physical Config Desktop Programming Attributes

Web Browser

< > URL

Go

Stop

Cisco Packet Tracer

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```
Cisco Packet Tracer SERVER Command Line 1.0
C:\>ping 10.0.0.2

Pinging 10.0.0.2 with 32 bytes of data:

Reply from 10.0.0.2: bytes=32 time=8ms TTL=128
Reply from 10.0.0.2: bytes=32 time=8ms TTL=128
Reply from 10.0.0.2: bytes=32 time<1ms TTL=128
Reply from 10.0.0.2: bytes=32 time=8ms TTL=128

Ping statistics for 10.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 8ms, Average = 6ms

C:\>ping 10.0.0.1

Pinging 10.0.0.1 with 32 bytes of data:

Reply from 10.0.0.1: bytes=32 time<1ms TTL=255
Reply from 10.0.0.1: bytes=32 time<1ms TTL=255
Reply from 10.0.0.1: bytes=32 time<1ms TTL=255
Reply from 10.0.0.1: bytes=32 time<1ms TTL=255

Ping statistics for 10.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

```
C:\>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.1.2

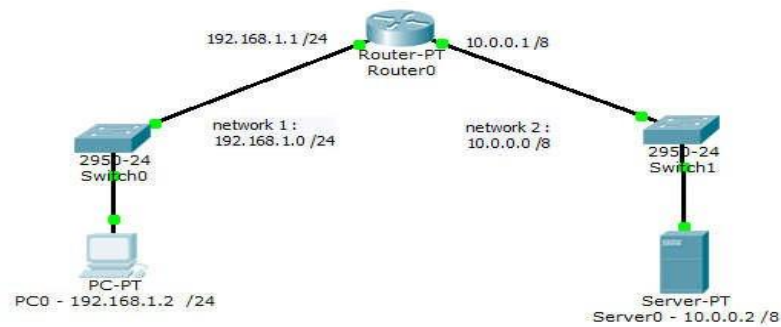
Pinging 192.168.1.2 with 32 bytes of data:

Reply from 192.168.1.2: bytes=32 time<1ms TTL=127
Reply from 192.168.1.2: bytes=32 time<1ms TTL=127
Reply from 192.168.1.2: bytes=32 time<1ms TTL=127
Reply from 192.168.1.2: bytes=32 time<1ms TTL=127

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Dari percobaan diagram 1 di atas, untuk mengkonfigurasi routing static antara pc dan server. Kita bisa menambahkan network id (192.168.1.0) ke next hop (10.0.0.0) yang merupakan network selanjutnya. Setelah itu pc baru bisa mengping dan server mengirimkan reply , begitu sebaliknya.

12. Sama dengan no 1 dengan penambahan switch dan penggantian jenis kabel.



PC0 - 192.168.1.2 /24

Physical Config **Desktop** Programming Attributes

IP Configuration [X]

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.1.2

Subnet Mask 255.255.255.0

Default Gateway 192.168.1.1

DNS Server 0.0.0.0

Server0 - 10.0.0.2 /8

Physical Config Services **Desktop** Programming Attributes

IP Configuration [X]

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 10.0.0.2

Subnet Mask 255.0.0.0

Default Gateway 10.0.0.1

DNS Server 0.0.0.0

Router0

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

Static Routes

Network192.168.1.0

Mask255.255.255.0

Next Hop10.0.0.0

Add

Network Address

192.168.1.0/24 via 10.0.0.0

Remove

Router0

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

FastEthernet0/0

Port Status

Bandwidth

Duplex

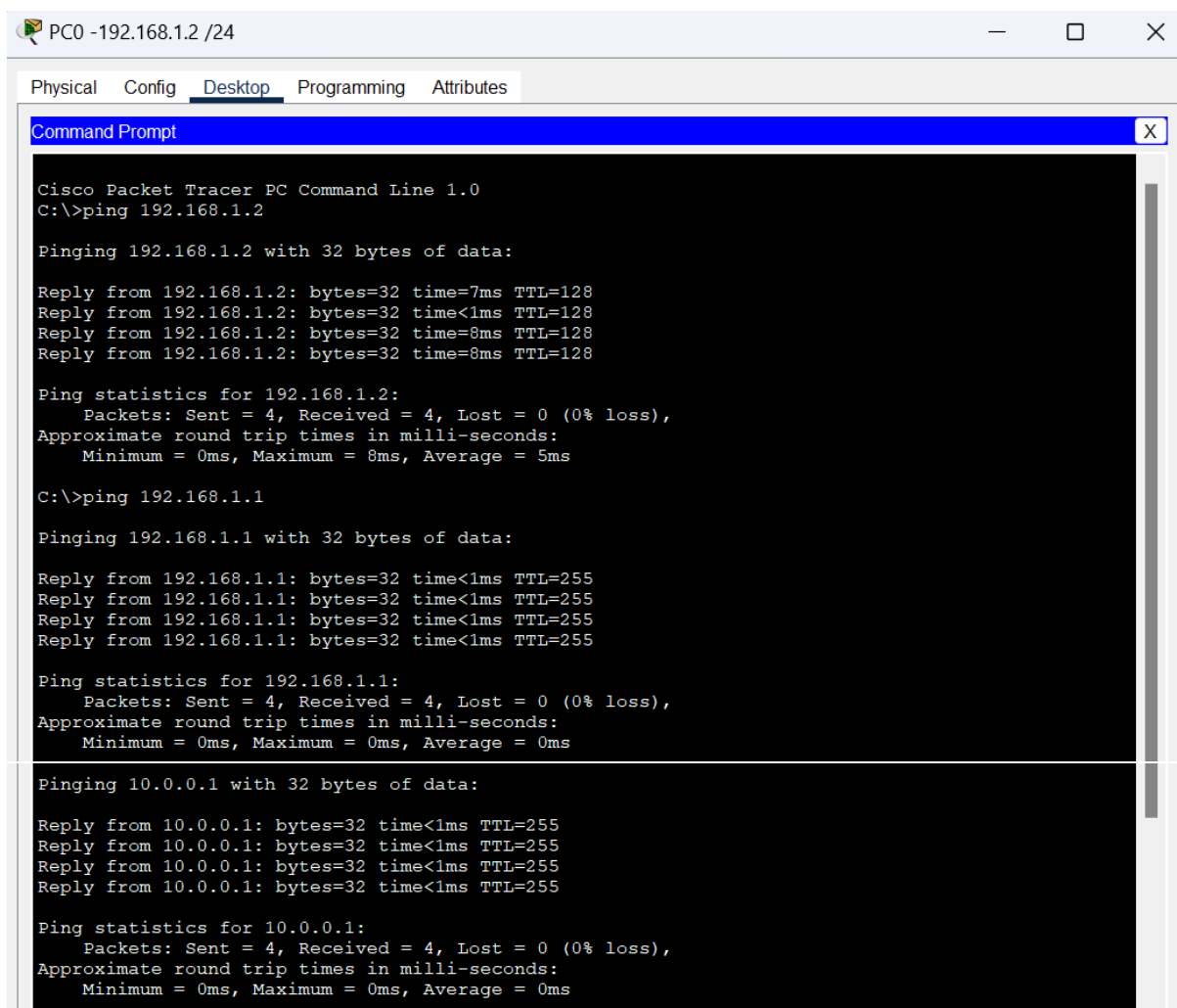
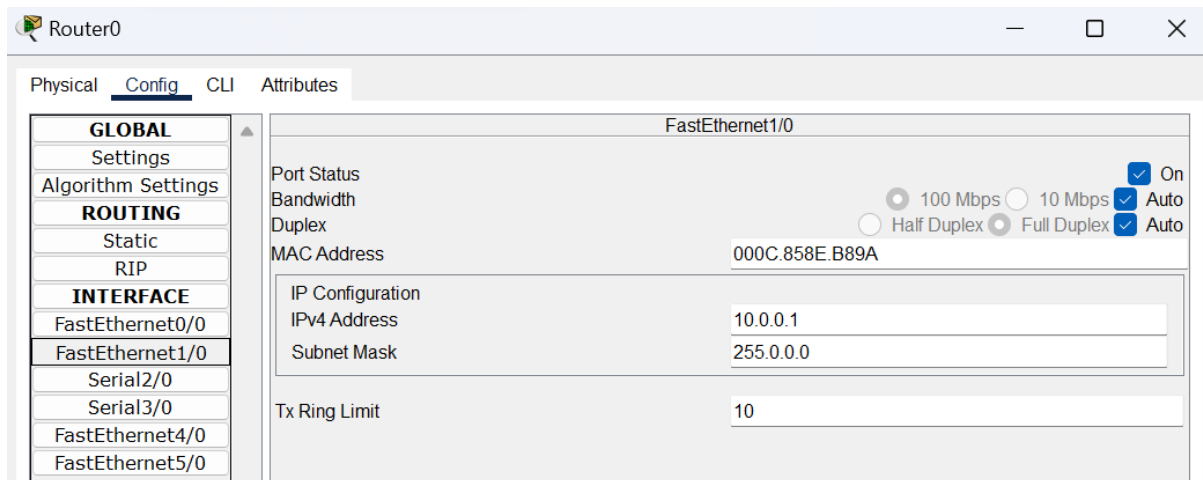
MAC Address0004.9AA8.B55C

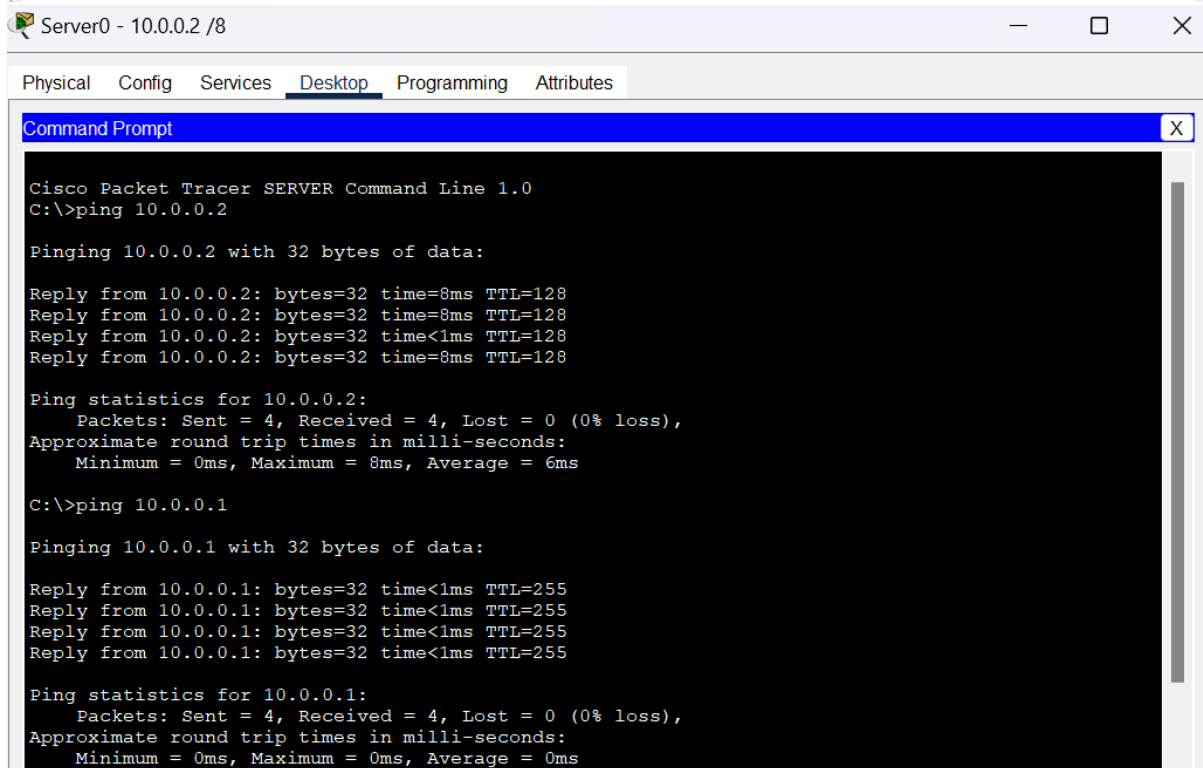
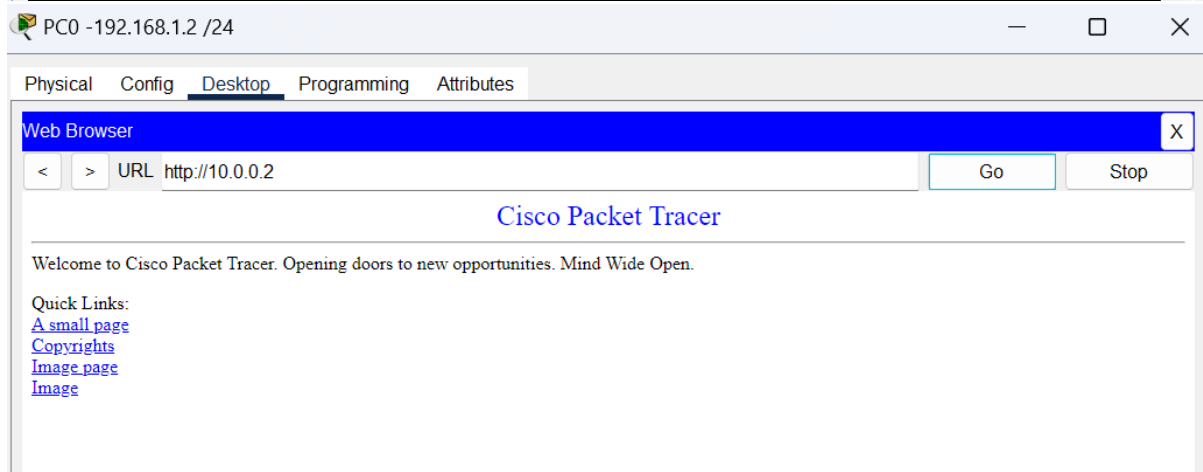
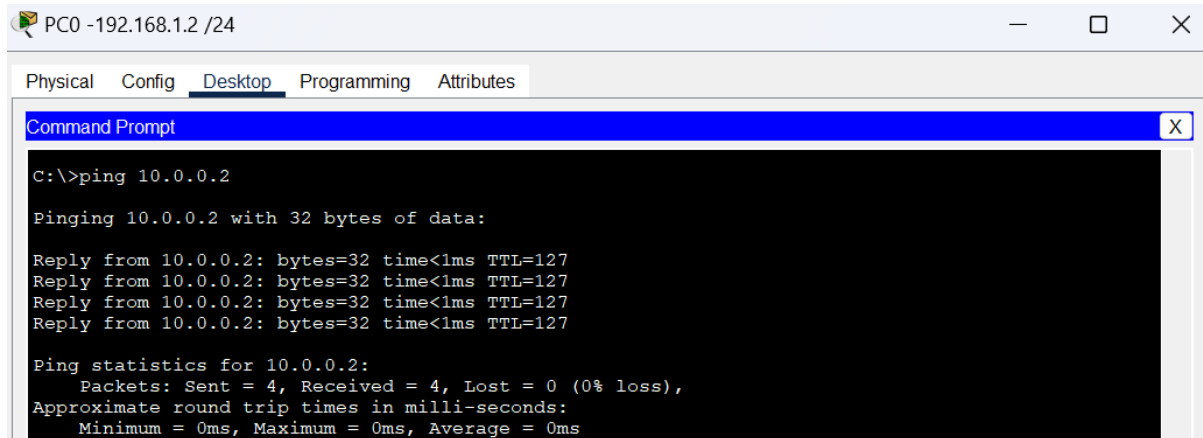
IP Configuration

IPv4 Address192.168.1.1

Subnet Mask255.255.255.0

Tx Ring Limit10

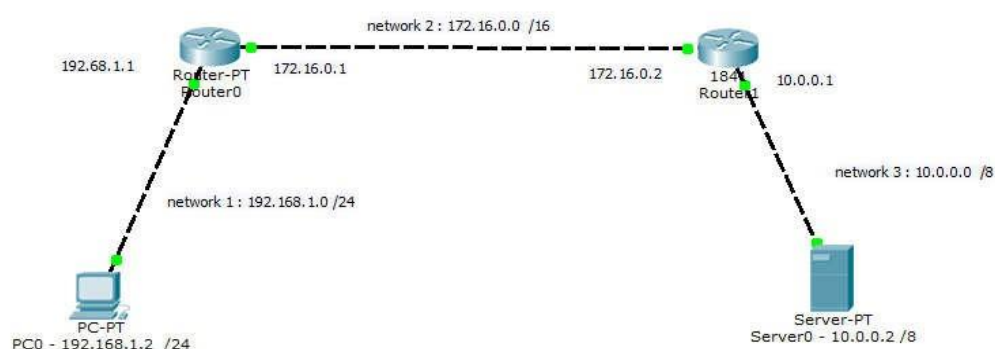




```
Server0 - 10.0.0.2 /8
Physical Config Services Desktop Programming Attributes
Command Prompt
C:\>ping 192.168.1.1
Pinging 192.168.1.1 with 32 bytes of data:
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
C:\>ping 192.168.1.2
Pinging 192.168.1.2 with 32 bytes of data:
Reply from 192.168.1.2: bytes=32 time<1ms TTL=127
Reply from 192.168.1.2: bytes=32 time<1ms TTL=127
Reply from 192.168.1.2: bytes=32 time<1ms TTL=127
Reply from 192.168.1.2: bytes=32 time<1ms TTL=127
Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Pada percobaan diagram 2 diatas, sama dengan percobaan nomor 1, hanya saja pc dan server dihubungkan dengan switch. Untuk hasil dari percobaannya sama, yaitu pc bisa mengping ke sever dan server bisa me-reply atau menanggapi paket yg dikirimkan oleh pc, begitu pula sebaliknya.

13. Diagram 3 : 2 router menggunakan 3 network



PC0 - 192.168.1.2 /24

Physical Config **Desktop** Programming Attributes

IP Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 192.168.1.2

Subnet Mask 255.255.255.0

Default Gateway 192.168.1.1

DNS Server 0.0.0.0

Server0 - 10.0.0.2 /8

Physical Config **Services** **Desktop** Programming Attributes

IP Configuration

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 10.0.0.2

Subnet Mask 255.0.0.0

Default Gateway 10.0.0.1

DNS Server 0.0.0.0

Router0

Physical **Config** CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

FastEthernet0/0

Port Status

Bandwidth

Duplex

MAC Address 0001.630E.E60D

IP Configuration

IPv4 Address 172.16.0.1

Subnet Mask 255.255.0.0

Tx Ring Limit 10

Router0

Physical **Config** CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

FastEthernet1/0

Port Status

Bandwidth

Duplex

MAC Address 0090.2B32.B69E

IP Configuration

IPv4 Address 192.168.1.1

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Router0

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

Static Routes

Network

172.16.0.0

Mask

255.255.0.0

Next Hop

172.16.0.2

Add

Network Address

192.168.1.0/24 via 172.16.0.2

10.0.0.0/8 via 172.16.0.2

172.16.0.0/16 via 172.16.0.2

Router1

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

FastEthernet0/0

Port Status

Bandwidth

Duplex

MAC Address

0010.1186.A301

IP Configuration

IPv4 Address

172.16.0.2

Subnet Mask

255.255.0.0

Tx Ring Limit

10

Router1

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

FastEthernet0/1

Port Status

Bandwidth

Duplex

MAC Address

0010.1186.A302

IP Configuration

IPv4 Address

10.0.0.1

Subnet Mask

255.0.0.0

Tx Ring Limit

10

Router1

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

SWITCHING

VLAN Database

INTERFACE

FastEthernet0/0

FastEthernet0/1

Static Routes

Network

Mask

Next Hop

Add

Network Address

192.168.1.0/24 via 172.16.0.1

10.0.0.0/8 via 172.16.0.1

172.16.0.0/16 via 172.16.0.1

PC0 - 192.168.1.2 /24

PhysicalConfigDesktopProgrammingAttributes

Command Prompt

C:\>ping 192.168.1.2

Pinging 192.168.1.2 with 32 bytes of data:

Reply from 192.168.1.2: bytes=32 time=6ms TTL=128

Reply from 192.168.1.2: bytes=32 time=2ms TTL=128

Reply from 192.168.1.2: bytes=32 time<1ms TTL=128

Reply from 192.168.1.2: bytes=32 time=2ms TTL=128

Ping statistics for 192.168.1.2:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

Approximate round trip times in milli-seconds:

Minimum = 0ms, Maximum = 6ms, Average = 2ms

C:\>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time<1ms TTL=255

Reply from 192.168.1.1: bytes=32 time<1ms TTL=255

Reply from 192.168.1.1: bytes=32 time<1ms TTL=255

Reply from 192.168.1.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.1.1:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

Approximate round trip times in milli-seconds:

Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.1.0

Pinging 192.168.1.0 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time<1ms TTL=255

Reply from 192.168.1.1: bytes=32 time<1ms TTL=255

Reply from 192.168.1.1: bytes=32 time<1ms TTL=255

Reply from 192.168.1.1: bytes=32 time=11ms TTL=255

Ping statistics for 192.168.1.0:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

Approximate round trip times in milli-seconds:

Minimum = 0ms, Maximum = 11ms, Average = 2ms

PC0 - 192.168.1.2 /24

Physical Config Desktop Programming Attributes

Command Prompt

```
C:\>ping 172.16.0.0

Pinging 172.16.0.0 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255

Ping statistics for 172.16.0.0:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 172.16.0.1

Pinging 172.16.0.1 with 32 bytes of data:

Reply from 172.16.0.1: bytes=32 time<1ms TTL=255
Reply from 172.16.0.1: bytes=32 time<1ms TTL=255
Reply from 172.16.0.1: bytes=32 time=12ms TTL=255
Reply from 172.16.0.1: bytes=32 time<1ms TTL=255

Ping statistics for 172.16.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 12ms, Average = 3ms

C:\>ping 172.16.0.2

Pinging 172.16.0.2 with 32 bytes of data:

Reply from 172.16.0.2: bytes=32 time<1ms TTL=254
Reply from 172.16.0.2: bytes=32 time<1ms TTL=254
Reply from 172.16.0.2: bytes=32 time<1ms TTL=254
Reply from 172.16.0.2: bytes=32 time<1ms TTL=254

Ping statistics for 172.16.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

PC0 - 192.168.1.2 /24

Physical Config Desktop Programming Attributes

Command Prompt

```
C:\>ping 10.0.0.0

Pinging 10.0.0.0 with 32 bytes of data:

Reply from 172.16.0.2: bytes=32 time<1ms TTL=254
Reply from 172.16.0.2: bytes=32 time<1ms TTL=254
Reply from 172.16.0.2: bytes=32 time<1ms TTL=254
Reply from 172.16.0.2: bytes=32 time<1ms TTL=254

Ping statistics for 10.0.0.0:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 10.0.0.1

Pinging 10.0.0.1 with 32 bytes of data:

Reply from 10.0.0.1: bytes=32 time<1ms TTL=254
Reply from 10.0.0.1: bytes=32 time<1ms TTL=254
Reply from 10.0.0.1: bytes=32 time<1ms TTL=254
Reply from 10.0.0.1: bytes=32 time<1ms TTL=254

Ping statistics for 10.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 10.0.0.2

Pinging 10.0.0.2 with 32 bytes of data:

Reply from 10.0.0.2: bytes=32 time<1ms TTL=126
Reply from 10.0.0.2: bytes=32 time<1ms TTL=126
Reply from 10.0.0.2: bytes=32 time<1ms TTL=126
Reply from 10.0.0.2: bytes=32 time<1ms TTL=126

Ping statistics for 10.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Server0 10.0.0.2 /8

Physical Config Services Desktop Programming Attributes

Command Prompt

```
Cisco Packet Tracer SERVER Command Line 1.0
C:\>ping 10.0.0.2

Pinging 10.0.0.2 with 32 bytes of data:

Reply from 10.0.0.2: bytes=32 time=5ms TTL=128
Reply from 10.0.0.2: bytes=32 time=2ms TTL=128
Reply from 10.0.0.2: bytes=32 time=29ms TTL=128
Reply from 10.0.0.2: bytes=32 time=9ms TTL=128

Ping statistics for 10.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 29ms, Average = 11ms

C:\>ping 10.0.0.1

Pinging 10.0.0.1 with 32 bytes of data:

Reply from 10.0.0.1: bytes=32 time<1ms TTL=255
Reply from 10.0.0.1: bytes=32 time=2ms TTL=255
Reply from 10.0.0.1: bytes=32 time<1ms TTL=255
Reply from 10.0.0.1: bytes=32 time=2ms TTL=255

Ping statistics for 10.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 2ms, Average = 1ms

C:\>ping 10.0.0.0

Pinging 10.0.0.0 with 32 bytes of data:

Reply from 10.0.0.1: bytes=32 time<1ms TTL=255
Reply from 10.0.0.1: bytes=32 time<1ms TTL=255
Reply from 10.0.0.1: bytes=32 time<1ms TTL=255
Reply from 10.0.0.1: bytes=32 time<1ms TTL=255

Ping statistics for 10.0.0.0:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Server0 10.0.0.2 /8

Physical Config Services Desktop Programming Attributes

Command Prompt

```
C:\>ping 172.16.0.0

Pinging 172.16.0.0 with 32 bytes of data:

Reply from 10.0.0.1: bytes=32 time<1ms TTL=255
Reply from 10.0.0.1: bytes=32 time<1ms TTL=255
Reply from 10.0.0.1: bytes=32 time<1ms TTL=255
Reply from 10.0.0.1: bytes=32 time<1ms TTL=255

Ping statistics for 172.16.0.0:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 172.16.0.1

Pinging 172.16.0.1 with 32 bytes of data:

Reply from 172.16.0.1: bytes=32 time=22ms TTL=254
Reply from 172.16.0.1: bytes=32 time<1ms TTL=254
Reply from 172.16.0.1: bytes=32 time<1ms TTL=254
Reply from 172.16.0.1: bytes=32 time<1ms TTL=254

Ping statistics for 172.16.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 22ms, Average = 5ms

C:\>ping 172.16.0.2

Pinging 172.16.0.2 with 32 bytes of data:

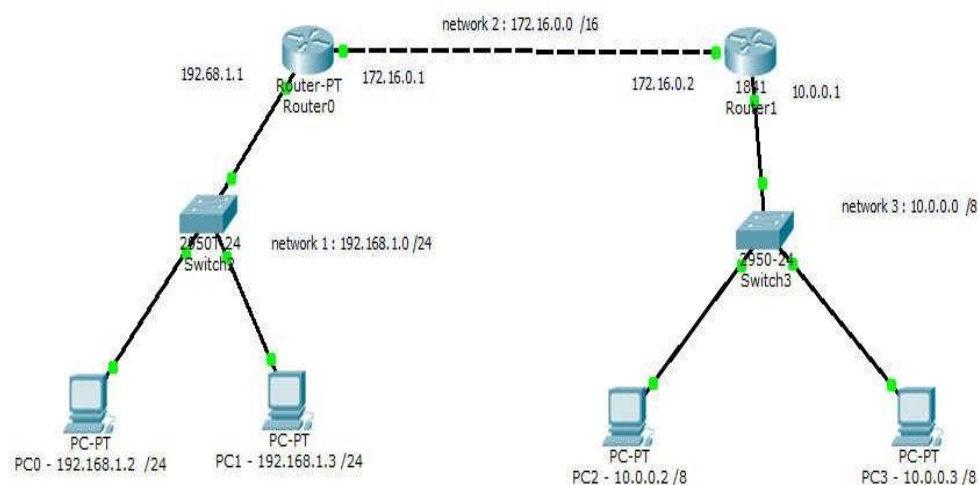
Reply from 172.16.0.2: bytes=32 time<1ms TTL=255
Reply from 172.16.0.2: bytes=32 time<1ms TTL=255
Reply from 172.16.0.2: bytes=32 time<1ms TTL=255
Reply from 172.16.0.2: bytes=32 time<1ms TTL=255

Ping statistics for 172.16.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

```
Server0 10.0.0.2 /8
Physical Config Services Desktop Programming Attributes
Command Prompt
C:\>ping 192.168.1.0
Pinging 192.168.1.0 with 32 bytes of data:
Reply from 172.16.0.1: bytes=32 time<1ms TTL=254
Reply from 172.16.0.1: bytes=32 time<1ms TTL=254
Reply from 172.16.0.1: bytes=32 time=10ms TTL=254
Reply from 172.16.0.1: bytes=32 time<1ms TTL=254
Ping statistics for 192.168.1.0:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 10ms, Average = 2ms
C:\>ping 192.168.1.1
Pinging 192.168.1.1 with 32 bytes of data:
Reply from 192.168.1.1: bytes=32 time<1ms TTL=254
Reply from 192.168.1.1: bytes=32 time<1ms TTL=254
Reply from 192.168.1.1: bytes=32 time=1ms TTL=254
Reply from 192.168.1.1: bytes=32 time<1ms TTL=254
Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\>ping 192.168.1.2
Pinging 192.168.1.2 with 32 bytes of data:
Reply from 192.168.1.2: bytes=32 time<1ms TTL=126
Reply from 192.168.1.2: bytes=32 time<1ms TTL=126
Reply from 192.168.1.2: bytes=32 time<1ms TTL=126
Reply from 192.168.1.2: bytes=32 time<1ms TTL=126
Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Pada percobaan diagram 3 di atas, terdapat konfigurasi router static dengan komponen 1 pc , 2 router, dan 1 server. Selain itu terdapat 3 network yang nantinya akan dihubungkan melalui kabel di router. Ketika konfigurasi sudah di setting seperti di atas, maka ping dari pc ke server akan berhasil. Begitu pula sebaliknya, dari server ke pc. Tak hanya itu, dari pc dan server sendiri bisa mengping network yang disetting pada router static tadi serta dapat meng ping arah dari kabel router.

14. Diagram 4 : 2 router menggunakan 3 network



PC0 - 192.168.1.2 / 24

PhysicalConfigDesktopProgrammingAttributes

IP ConfigurationX

InterfaceFastEthernet0

IP Configuration

☐ DHCP

☒ Static

IPv4 Address192.168.1.2

Subnet Mask255.255.255.0

Default Gateway192.168.1.1

DNS Server0.0.0.0

PC1 - 192.168.1.3 / 24

PhysicalConfigDesktopProgrammingAttributes

IP ConfigurationX

InterfaceFastEthernet0

IP Configuration

☐ DHCP

☒ Static

IPv4 Address192.168.1.3

Subnet Mask255.255.255.0

Default Gateway192.168.1.1

DNS Server0.0.0.0

PC2 - 10.0.0.2 / 8

PhysicalConfigDesktopProgrammingAttributes

IP ConfigurationX

InterfaceFastEthernet0

IP Configuration

☐ DHCP

☒ Static

IPv4 Address10.0.0.2

Subnet Mask255.0.0.0

Default Gateway10.0.0.1

DNS Server0.0.0.0

PC3 - 10.0.0.3 / 8

PhysicalConfigDesktopProgrammingAttributes

IP ConfigurationX

InterfaceFastEthernet0

IP Configuration

☐ DHCP

☒ Static

IPv4 Address10.0.0.3

Subnet Mask255.0.0.0

Default Gateway10.0.0.1

DNS Server0.0.0.0

Router0

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

FastEthernet0/0

Port Status

Bandwidth

Duplex

MAC Address

0001.9789.3E80

IP Configuration

IPv4 Address

172.16.0.1

Subnet Mask

255.255.0.0

Tx Ring Limit

10

Router0

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

FastEthernet1/0

Port Status

Bandwidth

Duplex

MAC Address

0005.5E98.8E66

IP Configuration

IPv4 Address

192.168.1.1

Subnet Mask

255.255.255.0

Tx Ring Limit

10

Router0

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

Static Routes

Network

Mask

Next Hop

Add

Network Address

192.168.1.0/24 via 172.16.0.2

10.0.0.0/8 via 172.16.0.2

172.16.0.0/16 via 172.16.0.2

Router1

Physical **Config** CLI Attributes

GLOBAL

- Settings
- Algorithm Settings
- ROUTING**
 - Static
 - RIP
- SWITCHING**
 - VLAN Database
- INTERFACE**
 - FastEthernet0/0
 - FastEthernet0/1

FastEthernet0/0

Port Status ☒ On

Bandwidth ☐ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0001.6352.7C01

IP Configuration

IPv4 Address 172.16.0.2

Subnet Mask 255.255.0.0

Tx Ring Limit 10

Router1

Physical **Config** CLI Attributes

GLOBAL

- Settings
- Algorithm Settings
- ROUTING**
 - Static
 - RIP
- SWITCHING**
 - VLAN Database
- INTERFACE**
 - FastEthernet0/0
 - FastEthernet0/1

FastEthernet0/1

Port Status ☒ On

Bandwidth ☐ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0001.6352.7C02

IP Configuration

IPv4 Address 10.0.0.1

Subnet Mask 255.0.0.0

Tx Ring Limit 10

PC0 - 192.168.1.2 / 24

Physical Config **Desktop** Programming Attributes

Command Prompt

```
C:\>ping 192.168.1.2

Pinging 192.168.1.2 with 32 bytes of data:

Reply from 192.168.1.2: bytes=32 time=4ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time=4ms TTL=128
Reply from 192.168.1.2: bytes=32 time=4ms TTL=128

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 4ms, Average = 3ms

C:\>ping 192.168.1.3

Pinging 192.168.1.3 with 32 bytes of data:

Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.1.0

Pinging 192.168.1.0 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.0:
    Packets: Sent = 4, Received = 8, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

PC0 - 192.168.1.2 / 24

Physical Config Desktop Programming Attributes

Command Prompt

```
C:\>ping 172.16.0.2

Pinging 172.16.0.2 with 32 bytes of data:

Reply from 172.16.0.2: bytes=32 time<1ms TTL=254
Reply from 172.16.0.2: bytes=32 time<1ms TTL=254
Reply from 172.16.0.2: bytes=32 time<1ms TTL=254
Reply from 172.16.0.2: bytes=32 time<1ms TTL=254

Ping statistics for 172.16.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 10.0.0.0

Pinging 10.0.0.0 with 32 bytes of data:

Reply from 172.16.0.2: bytes=32 time=11ms TTL=254
Reply from 172.16.0.2: bytes=32 time<1ms TTL=254
Reply from 172.16.0.2: bytes=32 time<1ms TTL=254
Reply from 172.16.0.2: bytes=32 time<1ms TTL=254

Ping statistics for 10.0.0.0:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 11ms, Average = 2ms

C:\>ping 10.0.0.1

Pinging 10.0.0.1 with 32 bytes of data:

Reply from 10.0.0.1: bytes=32 time<1ms TTL=254
Reply from 10.0.0.1: bytes=32 time<1ms TTL=254
Reply from 10.0.0.1: bytes=32 time=1ms TTL=254
Reply from 10.0.0.1: bytes=32 time<1ms TTL=254

Ping statistics for 10.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

PC0 - 192.168.1.2 / 24

Physical Config Desktop Programming Attributes

Command Prompt

```
C:\>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time=6ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 6ms, Average = 1ms

C:\>ping 172.16.0.0

Pinging 172.16.0.0 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255
Reply from 192.168.1.1: bytes=32 time<1ms TTL=255

Ping statistics for 172.16.0.0:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 172.16.0.1

Pinging 172.16.0.1 with 32 bytes of data:

Reply from 172.16.0.1: bytes=32 time<1ms TTL=255
Reply from 172.16.0.1: bytes=32 time<1ms TTL=255
Reply from 172.16.0.1: bytes=32 time<1ms TTL=255
Reply from 172.16.0.1: bytes=32 time<1ms TTL=255

Ping statistics for 172.16.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```



```
C:\>ping 10.0.0.2

Pinging 10.0.0.2 with 32 bytes of data:

Reply from 10.0.0.2: bytes=32 time<1ms TTL=126
Reply from 10.0.0.2: bytes=32 time<1ms TTL=126
Reply from 10.0.0.2: bytes=32 time<1ms TTL=126
Reply from 10.0.0.2: bytes=32 time<1ms TTL=126

Ping statistics for 10.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 10.0.0.3

Pinging 10.0.0.3 with 32 bytes of data:

Reply from 10.0.0.3: bytes=32 time=1ms TTL=126
Reply from 10.0.0.3: bytes=32 time<1ms TTL=126
Reply from 10.0.0.3: bytes=32 time<1ms TTL=126
Reply from 10.0.0.3: bytes=32 time<1ms TTL=126

Ping statistics for 10.0.0.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

PC2 - 10.0.0.2 /8

Physical Config Desktop Programming Attributes

Command Prompt

```
C:\>ping 10.0.0.2

Pinging 10.0.0.2 with 32 bytes of data:

Reply from 10.0.0.2: bytes=32 time=4ms TTL=128
Reply from 10.0.0.2: bytes=32 time<1ms TTL=128
Reply from 10.0.0.2: bytes=32 time=4ms TTL=128
Reply from 10.0.0.2: bytes=32 time=2ms TTL=128

Ping statistics for 10.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 4ms, Average = 2ms

C:\>ping 10.0.0.3

Pinging 10.0.0.3 with 32 bytes of data:

Reply from 10.0.0.3: bytes=32 time<1ms TTL=128
Reply from 10.0.0.3: bytes=32 time<1ms TTL=128
Reply from 10.0.0.3: bytes=32 time=6ms TTL=128
Reply from 10.0.0.3: bytes=32 time<1ms TTL=128

Ping statistics for 10.0.0.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 6ms, Average = 1ms

C:\>ping 10.0.0.0

Pinging 10.0.0.0 with 32 bytes of data:

Reply from 10.0.0.1: bytes=32 time<1ms TTL=255
Reply from 10.0.0.3: bytes=32 time<1ms TTL=128
Reply from 10.0.0.1: bytes=32 time<1ms TTL=255
Reply from 10.0.0.3: bytes=32 time<1ms TTL=128
Reply from 10.0.0.1: bytes=32 time<1ms TTL=255
Reply from 10.0.0.3: bytes=32 time<1ms TTL=128
Reply from 10.0.0.1: bytes=32 time<1ms TTL=255
Reply from 10.0.0.3: bytes=32 time<1ms TTL=128

Ping statistics for 10.0.0.0:
    Packets: Sent = 4, Received = 8, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 10.0.0.1

Pinging 10.0.0.1 with 32 bytes of data:

Reply from 10.0.0.1: bytes=32 time<1ms TTL=255
Reply from 10.0.0.1: bytes=32 time<1ms TTL=255
Reply from 10.0.0.1: bytes=32 time<1ms TTL=255
Reply from 10.0.0.1: bytes=32 time<1ms TTL=255

Ping statistics for 10.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

```
PC2 - 10.0.0.2 /8
Physical Config Desktop Programming Attributes
Command Prompt
C:\>ping 172.16.0.0

Pinging 172.16.0.0 with 32 bytes of data:

Reply from 10.0.0.1: bytes=32 time<1ms TTL=255
Reply from 10.0.0.1: bytes=32 time<1ms TTL=255
Reply from 10.0.0.1: bytes=32 time<1ms TTL=255
Reply from 10.0.0.1: bytes=32 time<1ms TTL=255

Ping statistics for 172.16.0.0:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 172.16.0.1

Pinging 172.16.0.1 with 32 bytes of data:

Reply from 172.16.0.1: bytes=32 time<1ms TTL=254
Reply from 172.16.0.1: bytes=32 time<1ms TTL=254
Reply from 172.16.0.1: bytes=32 time<1ms TTL=254
Reply from 172.16.0.1: bytes=32 time=8ms TTL=254

Ping statistics for 172.16.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 8ms, Average = 2ms

C:\>ping 172.16.0.2

Pinging 172.16.0.2 with 32 bytes of data:

Reply from 172.16.0.2: bytes=32 time<1ms TTL=255
Reply from 172.16.0.2: bytes=32 time<1ms TTL=255
Reply from 172.16.0.2: bytes=32 time<1ms TTL=255
Reply from 172.16.0.2: bytes=32 time<1ms TTL=255

Ping statistics for 172.16.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

```
PC2 - 10.0.0.2 /8
Physical Config Desktop Programming Attributes
Command Prompt
C:\>ping 192.168.1.0

Pinging 192.168.1.0 with 32 bytes of data:

Reply from 172.16.0.1: bytes=32 time<1ms TTL=254
Reply from 172.16.0.1: bytes=32 time<1ms TTL=254
Reply from 172.16.0.1: bytes=32 time<1ms TTL=254
Reply from 172.16.0.1: bytes=32 time<1ms TTL=254

Ping statistics for 192.168.1.0:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time<1ms TTL=254
Reply from 192.168.1.1: bytes=32 time<1ms TTL=254
Reply from 192.168.1.1: bytes=32 time<1ms TTL=254
Reply from 192.168.1.1: bytes=32 time<1ms TTL=254

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.1.2

Pinging 192.168.1.2 with 32 bytes of data:

Reply from 192.168.1.2: bytes=32 time<1ms TTL=126
Reply from 192.168.1.2: bytes=32 time<1ms TTL=126
Reply from 192.168.1.2: bytes=32 time=9ms TTL=126
Reply from 192.168.1.2: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 9ms, Average = 2ms

C:\>ping 192.168.1.3

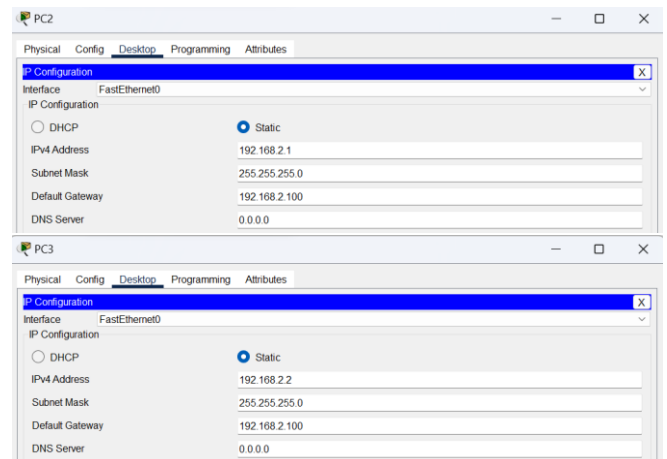
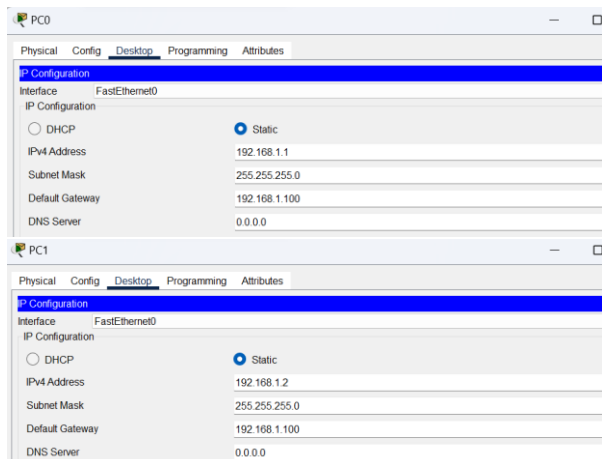
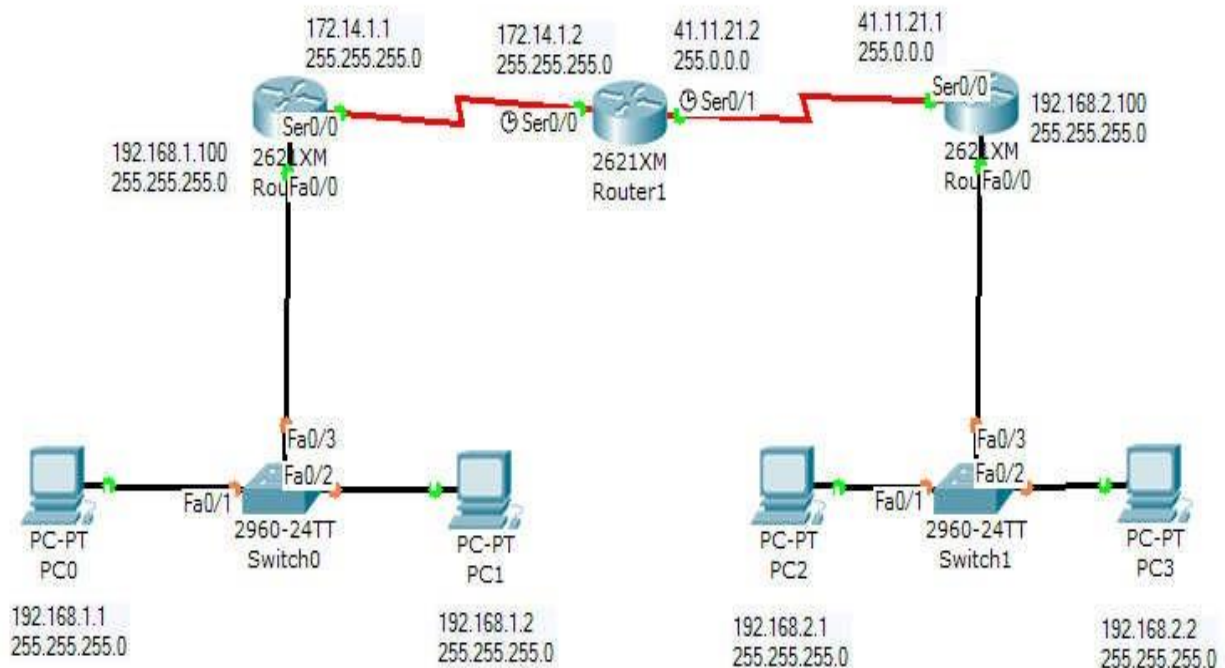
Pinging 192.168.1.3 with 32 bytes of data:

Reply from 192.168.1.3: bytes=32 time<1ms TTL=126
Reply from 192.168.1.3: bytes=32 time<1ms TTL=126
Reply from 192.168.1.3: bytes=32 time<1ms TTL=126
Reply from 192.168.1.3: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Pada percobaan diagram 4 di atas, terdapat konfigurasi router static dengan komponen 4 pc, 2 switch, dan 2 router. Ada 3 network yang nantinya akan di setting dalam router 0 dan router 1. Ketika topologi di setting sesuai dengan instruksi di atas, maka semua pc berhasil mengping dan me-reply antar pc. Selain itu juga, pc dapat meng-ping semua gateway serta ketiga network yang disetting.

15. Diagram no 5 : 3 router menghubungkan 4 network



Router0

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/0

FastEthernet0/0

Port Status

Bandwidth

Duplex

MAC Address

IP Configuration

IPv4 Address

Subnet Mask

Tx Ring Limit

0001 C9BE 8101

192.168.1.100

255.255.255.0

10

Router0

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/0

Serial0/0

Port Status

Duplex

Clock Rate

IP Configuration

IPv4 Address

Subnet Mask

Tx Ring Limit

Full Duplex

2000000

172.14.1.1

255.255.255.0

10

Router0

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/0

Static Routes

Network

Mask

Next Hop

Network Address

192.168.2.0

255.255.0.0

41.11.21.0

192.168.2.0/24 via 172.14.1.0

192.168.2.0/24 via 41.11.21.0

Router1

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/0

Serial0/0

Port Status

Duplex

Clock Rate

IP Configuration

IPv4 Address

Subnet Mask

Tx Ring Limit

Full Duplex

2000000

41.11.21.2

255.0.0.0

10

Router1

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/1

Serial0/1

Port Status

Duplex

Clock Rate

IP Configuration

IPv4 Address

Subnet Mask

Tx Ring Limit

Full Duplex

2000000

172.14.1.2

255.255.255.0

10

Router1

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/0

Serial0/1

Static Routes

Network

Mask

Next Hop

Network Address

192.168.1.0/24 via 172.14.1.0

192.168.1.0/24 via 41.11.21.0

192.168.2.0/24 via 172.14.1.0

192.168.2.0/24 via 41.11.21.0

Router2

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/0

FastEthernet0/0

Port Status

Bandwidth

Duplex

MAC Address

IP Configuration

IPv4 Address

Subnet Mask

Tx Ring Limit

On

100 Mbps

10 Mbps

Auto

0030 F22C 6001

192.168.2.100

255.255.255.0

10

Router2

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/0

Serial0/0

Port Status

Duplex

Clock Rate

IP Configuration

IPv4 Address

Subnet Mask

Tx Ring Limit

Full Duplex

2000000

41.11.21.1

255.0.0.0

10

Router2

PhysicalConfigCLIAttributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/0

Static Routes

Network

Mask

Next Hop

Network Address

192.168.1.0/24 via 172.14.1.0

192.168.1.0/24 via 41.11.21.0

PC0

Physical Config Desktop Programming Attributes

Command Prompt

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time<1ms TTL=128
Reply from 192.168.1.1: bytes=32 time=3ms TTL=128
Reply from 192.168.1.1: bytes=32 time=5ms TTL=128
Reply from 192.168.1.1: bytes=32 time=6ms TTL=128

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 6ms, Average = 3ms

C:\>ping 192.168.1.2

Pinging 192.168.1.2 with 32 bytes of data:

Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128
Reply from 192.168.1.2: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.1.100

Pinging 192.168.1.100 with 32 bytes of data:

Reply from 192.168.1.100: bytes=32 time<1ms TTL=255
Reply from 192.168.1.100: bytes=32 time<1ms TTL=255
Reply from 192.168.1.100: bytes=32 time<1ms TTL=255
Reply from 192.168.1.100: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.1.100:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

PC0

Physical Config Desktop Programming Attributes

Command Prompt

```
C:\>ping 192.168.2.100

Pinging 192.168.2.100 with 32 bytes of data:

Reply from 192.168.2.100: bytes=32 time=27ms TTL=253
Reply from 192.168.2.100: bytes=32 time=2ms TTL=253
Reply from 192.168.2.100: bytes=32 time=2ms TTL=253
Reply from 192.168.2.100: bytes=32 time=2ms TTL=253

Ping statistics for 192.168.2.100:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 27ms, Average = 8ms

C:\>ping 192.168.2.1

Pinging 192.168.2.1 with 32 bytes of data:

Reply from 192.168.2.1: bytes=32 time=25ms TTL=125
Reply from 192.168.2.1: bytes=32 time=27ms TTL=125
Reply from 192.168.2.1: bytes=32 time=2ms TTL=125
Reply from 192.168.2.1: bytes=32 time=20ms TTL=125

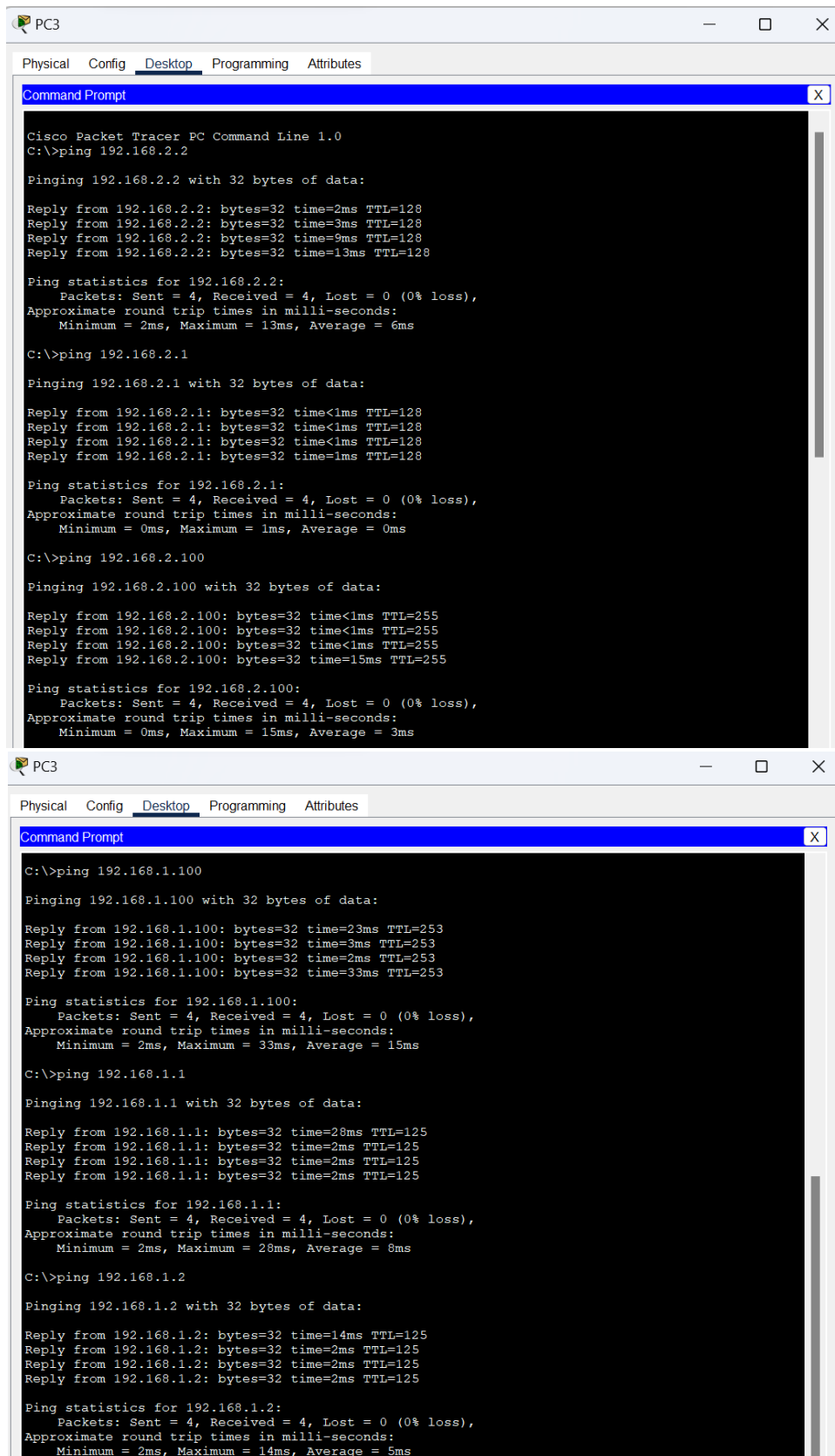
Ping statistics for 192.168.2.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 27ms, Average = 18ms

C:\>ping 192.168.2.2

Pinging 192.168.2.2 with 32 bytes of data:

Request timed out.
Reply from 192.168.2.2: bytes=32 time=3ms TTL=125
Reply from 192.168.2.2: bytes=32 time=2ms TTL=125
Reply from 192.168.2.2: bytes=32 time=2ms TTL=125

Ping statistics for 192.168.2.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 2ms, Maximum = 3ms, Average = 2ms
```



The image displays two screenshots of a Cisco Packet Tracer PC Command Prompt window. The window title is 'PC3' and it has tabs for 'Physical', 'Config', 'Desktop', 'Programming', and 'Attributes'. The 'Desktop' tab is active, showing a 'Command Prompt' window with the following text:

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.2.2

Pinging 192.168.2.2 with 32 bytes of data:

Reply from 192.168.2.2: bytes=32 time=2ms TTL=128
Reply from 192.168.2.2: bytes=32 time=3ms TTL=128
Reply from 192.168.2.2: bytes=32 time=9ms TTL=128
Reply from 192.168.2.2: bytes=32 time=13ms TTL=128

Ping statistics for 192.168.2.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 13ms, Average = 6ms

C:\>ping 192.168.2.1

Pinging 192.168.2.1 with 32 bytes of data:

Reply from 192.168.2.1: bytes=32 time<1ms TTL=128
Reply from 192.168.2.1: bytes=32 time<1ms TTL=128
Reply from 192.168.2.1: bytes=32 time<1ms TTL=128
Reply from 192.168.2.1: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.2.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 192.168.2.100

Pinging 192.168.2.100 with 32 bytes of data:

Reply from 192.168.2.100: bytes=32 time<1ms TTL=255
Reply from 192.168.2.100: bytes=32 time<1ms TTL=255
Reply from 192.168.2.100: bytes=32 time<1ms TTL=255
Reply from 192.168.2.100: bytes=32 time=15ms TTL=255

Ping statistics for 192.168.2.100:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 15ms, Average = 3ms
```

The second screenshot shows the same Command Prompt window with the following text:

```
C:\>ping 192.168.1.100

Pinging 192.168.1.100 with 32 bytes of data:

Reply from 192.168.1.100: bytes=32 time=23ms TTL=253
Reply from 192.168.1.100: bytes=32 time=3ms TTL=253
Reply from 192.168.1.100: bytes=32 time=2ms TTL=253
Reply from 192.168.1.100: bytes=32 time=33ms TTL=253

Ping statistics for 192.168.1.100:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 33ms, Average = 15ms

C:\>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time=28ms TTL=125
Reply from 192.168.1.1: bytes=32 time=2ms TTL=125
Reply from 192.168.1.1: bytes=32 time=2ms TTL=125
Reply from 192.168.1.1: bytes=32 time=2ms TTL=125

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 28ms, Average = 8ms

C:\>ping 192.168.1.2

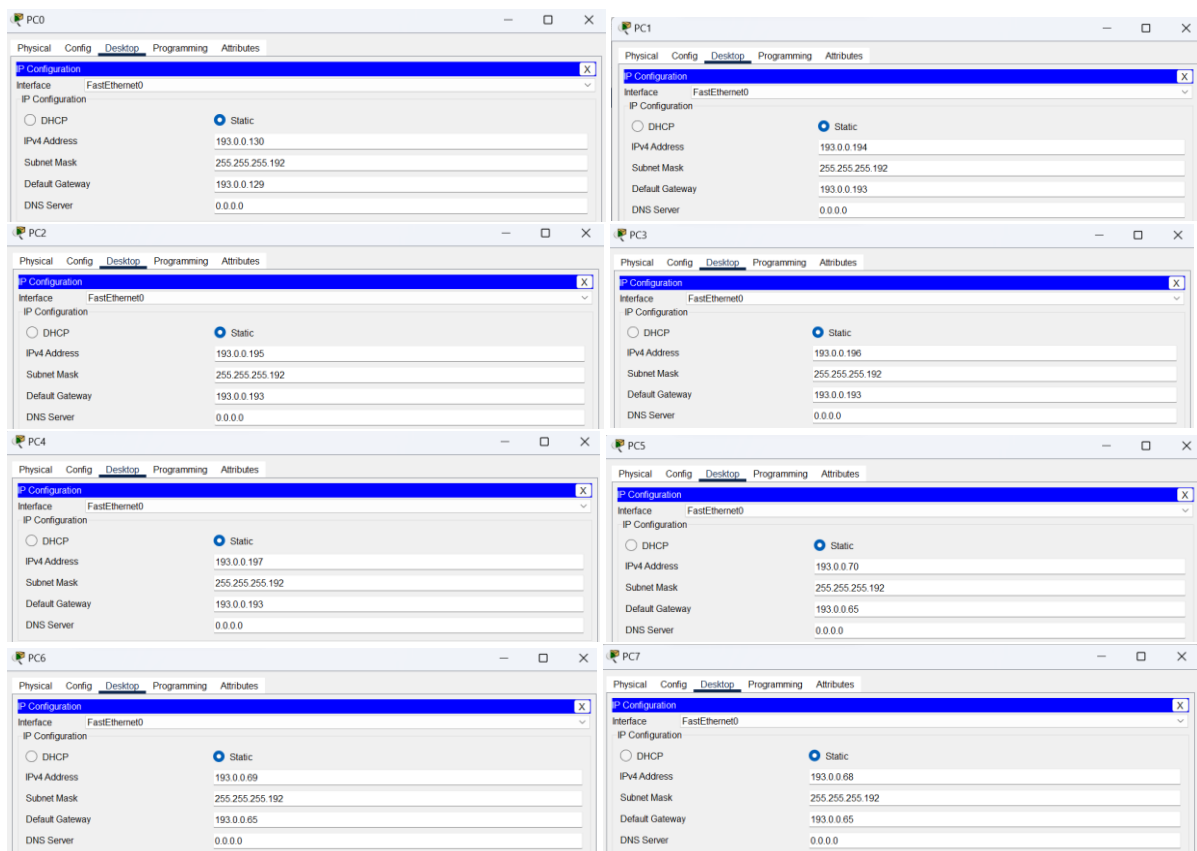
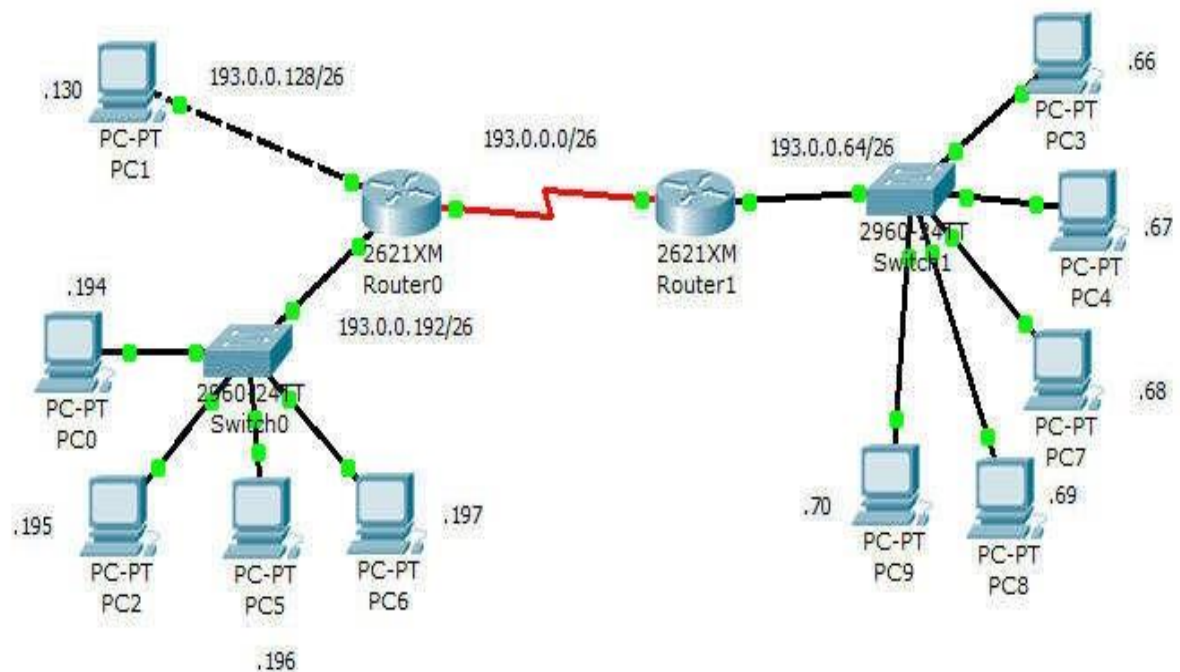
Pinging 192.168.1.2 with 32 bytes of data:

Reply from 192.168.1.2: bytes=32 time=14ms TTL=125
Reply from 192.168.1.2: bytes=32 time=2ms TTL=125
Reply from 192.168.1.2: bytes=32 time=2ms TTL=125
Reply from 192.168.1.2: bytes=32 time=2ms TTL=125

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 14ms, Average = 5ms
```

Pada percobaan diagram 5 di atas, terdapat konfigurasi 3 router menghubungkan 4 network dengan komponen 4 pc, 2 switch, dan 3 router. Selain itu terdapat 4 network yang disetting di ketiga router. Setelah berhasil mengikuti beberapa cara di atas, maka tiap pc bisa saling meng-ping dan reply.

16. Diagram no 6 : 2 router menghubungkan 4 network



PC8

Physical Config Desktop Programming Attributes

P Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 193.0.0.67

Subnet Mask 255.255.255.192

Default Gateway 193.0.0.65

DNS Server 0.0.0.0

PC9

Physical Config Desktop Programming Attributes

P Configuration

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 193.0.0.66

Subnet Mask 255.255.255.192

Default Gateway 193.0.0.65

DNS Server 0.0.0.0

Router0

Physical Config CLI Attributes

GLOBAL Settings

ROUTING Algorithm Settings

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/0

Port Status On

Bandwidth 100 Mbps

Duplex Full Duplex

MAC Address 0090.2B41.B501

IP Configuration

IPv4 Address 193.0.0.129

Subnet Mask 255.255.255.192

Tx Ring Limit 10

Router0

Physical Config CLI Attributes

GLOBAL Settings

ROUTING Algorithm Settings

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/0

Port Status On

Bandwidth 100 Mbps

Duplex Full Duplex

MAC Address 0090.2B41.B502

IP Configuration

IPv4 Address 193.0.0.193

Subnet Mask 255.255.255.192

Tx Ring Limit 10

Router0

Physical Config CLI Attributes

GLOBAL Settings

ROUTING Algorithm Settings

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/0

Port Status On

Duplex Full Duplex

Clock Rate 2000000

IP Configuration

IPv4 Address 193.0.0.1

Subnet Mask 255.255.255.192

Tx Ring Limit 10

Router0

Physical Config CLI Attributes

GLOBAL Settings

ROUTING Algorithm Settings

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/0

Static Routes

Network

Mask

Next Hop

Add

Network Address

193.0.0.64/26 via 193.0.0.0

Router1

Physical Config CLI Attributes

GLOBAL Settings

ROUTING Algorithm Settings

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/0

Port Status On

Bandwidth 100 Mbps

Duplex Full Duplex

MAC Address 000B.BE2D.2101

IP Configuration

IPv4 Address 193.0.0.65

Subnet Mask 255.255.255.192

Tx Ring Limit 10

Router1

Physical Config CLI Attributes

GLOBAL Settings

ROUTING Algorithm Settings

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/0

Port Status On

Duplex Full Duplex

Clock Rate 2000000

IP Configuration

IPv4 Address 193.0.0.2

Subnet Mask 255.255.255.192

Tx Ring Limit 10

Router1

Physical Config CLI Attributes

GLOBAL Settings

ROUTING Algorithm Settings

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet0/1

Serial0/0

Static Routes

Network

Mask

Next Hop

Add

Network Address

193.0.0.128/26 via 193.0.0.0

193.0.0.192/26 via 193.0.0.0


```
PCO
Physical Config Desktop Programming Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 193.0.0.130

Pinging 193.0.0.130 with 32 bytes of data:

Reply from 193.0.0.130: bytes=32 time=4ms TTL=128
Reply from 193.0.0.130: bytes=32 time=1ms TTL=128
Reply from 193.0.0.130: bytes=32 time=6ms TTL=128
Reply from 193.0.0.130: bytes=32 time=2ms TTL=128

Ping statistics for 193.0.0.130:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 6ms, Average = 3ms

C:\>ping 193.0.0.194

Pinging 193.0.0.194 with 32 bytes of data:

Reply from 193.0.0.194: bytes=32 time=1ms TTL=127
Reply from 193.0.0.194: bytes=32 time<1ms TTL=127
Reply from 193.0.0.194: bytes=32 time<1ms TTL=127
Reply from 193.0.0.194: bytes=32 time<1ms TTL=127

Ping statistics for 193.0.0.194:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 193.0.0.70

Pinging 193.0.0.70 with 32 bytes of data:

Reply from 193.0.0.70: bytes=32 time=17ms TTL=126
Reply from 193.0.0.70: bytes=32 time=3ms TTL=126
Reply from 193.0.0.70: bytes=32 time=3ms TTL=126
Reply from 193.0.0.70: bytes=32 time=1ms TTL=126

Ping statistics for 193.0.0.70:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 17ms, Average = 6ms
```

```
PCO
Physical Config Desktop Programming Attributes
Command Prompt
C:\>ping 193.0.0.128

Pinging 193.0.0.128 with 32 bytes of data:

Reply from 193.0.0.129: bytes=32 time=8ms TTL=255
Reply from 193.0.0.129: bytes=32 time=1ms TTL=255
Reply from 193.0.0.129: bytes=32 time<1ms TTL=255
Reply from 193.0.0.129: bytes=32 time<1ms TTL=255

Ping statistics for 193.0.0.128:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 8ms, Average = 2ms

C:\>ping 193.0.0.192

Pinging 193.0.0.192 with 32 bytes of data:

Reply from 193.0.0.129: bytes=32 time=6ms TTL=255
Reply from 193.0.0.129: bytes=32 time<1ms TTL=255
Reply from 193.0.0.129: bytes=32 time<1ms TTL=255
Reply from 193.0.0.129: bytes=32 time<1ms TTL=255

Ping statistics for 193.0.0.192:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 6ms, Average = 1ms

C:\>ping 193.0.0.64

Pinging 193.0.0.64 with 32 bytes of data:

Reply from 193.0.0.2: bytes=32 time=9ms TTL=254
Reply from 193.0.0.2: bytes=32 time=1ms TTL=254
Reply from 193.0.0.2: bytes=32 time=14ms TTL=254
Reply from 193.0.0.2: bytes=32 time=12ms TTL=254

Ping statistics for 193.0.0.64:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 14ms, Average = 9ms

C:\>ping 193.0.0.0

Pinging 193.0.0.0 with 32 bytes of data:

Reply from 193.0.0.129: bytes=32 time<1ms TTL=255
Reply from 193.0.0.129: bytes=32 time<1ms TTL=255
Reply from 193.0.0.129: bytes=32 time<1ms TTL=255
Reply from 193.0.0.129: bytes=32 time<1ms TTL=255

Ping statistics for 193.0.0.0:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

```
PC1
Physical Config Desktop Programming Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 193.0.0.194

Pinging 193.0.0.194 with 32 bytes of data:

Reply from 193.0.0.194: bytes=32 time=13ms TTL=128
Reply from 193.0.0.194: bytes=32 time=12ms TTL=128
Reply from 193.0.0.194: bytes=32 time=9ms TTL=128
Reply from 193.0.0.194: bytes=32 time=5ms TTL=128

Ping statistics for 193.0.0.194:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 5ms, Maximum = 13ms, Average = 9ms

C:\>ping 193.0.0.130

Pinging 193.0.0.130 with 32 bytes of data:

Reply from 193.0.0.130: bytes=32 time<1ms TTL=127
Reply from 193.0.0.130: bytes=32 time<1ms TTL=127
Reply from 193.0.0.130: bytes=32 time<1ms TTL=127
Reply from 193.0.0.130: bytes=32 time<1ms TTL=127

Ping statistics for 193.0.0.130:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 193.0.0.70

Pinging 193.0.0.70 with 32 bytes of data:

Reply from 193.0.0.70: bytes=32 time=1ms TTL=126
Reply from 193.0.0.70: bytes=32 time=2ms TTL=126
Reply from 193.0.0.70: bytes=32 time=15ms TTL=126
Reply from 193.0.0.70: bytes=32 time=2ms TTL=126

Ping statistics for 193.0.0.70:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 15ms, Average = 5ms
```

```
PC1
Physical Config Desktop Programming Attributes
Command Prompt
C:\>ping 193.0.0.128

Pinging 193.0.0.128 with 32 bytes of data:

Reply from 193.0.0.193: bytes=32 time<1ms TTL=255
Reply from 193.0.0.193: bytes=32 time<1ms TTL=255
Reply from 193.0.0.193: bytes=32 time<1ms TTL=255
Reply from 193.0.0.193: bytes=32 time<1ms TTL=255

Ping statistics for 193.0.0.128:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 193.0.0.192

Pinging 193.0.0.192 with 32 bytes of data:

Reply from 193.0.0.193: bytes=32 time<1ms TTL=255
Reply from 193.0.0.195: bytes=32 time<1ms TTL=128
Reply from 193.0.0.196: bytes=32 time=1ms TTL=128
Reply from 193.0.0.197: bytes=32 time<1ms TTL=128
Reply from 193.0.0.193: bytes=32 time<1ms TTL=255
Reply from 193.0.0.195: bytes=32 time<1ms TTL=128
Reply from 193.0.0.196: bytes=32 time<1ms TTL=128
Reply from 193.0.0.197: bytes=32 time<1ms TTL=128
Reply from 193.0.0.193: bytes=32 time<1ms TTL=255
Reply from 193.0.0.195: bytes=32 time<1ms TTL=128
Reply from 193.0.0.196: bytes=32 time<1ms TTL=128
Reply from 193.0.0.197: bytes=32 time<1ms TTL=128
Reply from 193.0.0.193: bytes=32 time<1ms TTL=255
Reply from 193.0.0.195: bytes=32 time<1ms TTL=128
Reply from 193.0.0.196: bytes=32 time<1ms TTL=128
Reply from 193.0.0.197: bytes=32 time<1ms TTL=128

Ping statistics for 193.0.0.192:
    Packets: Sent = 4, Received = 16, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 193.0.0.0

Pinging 193.0.0.0 with 32 bytes of data:

Reply from 193.0.0.193: bytes=32 time<1ms TTL=255
Reply from 193.0.0.193: bytes=32 time<1ms TTL=255
Reply from 193.0.0.193: bytes=32 time<1ms TTL=255
Reply from 193.0.0.193: bytes=32 time<1ms TTL=255

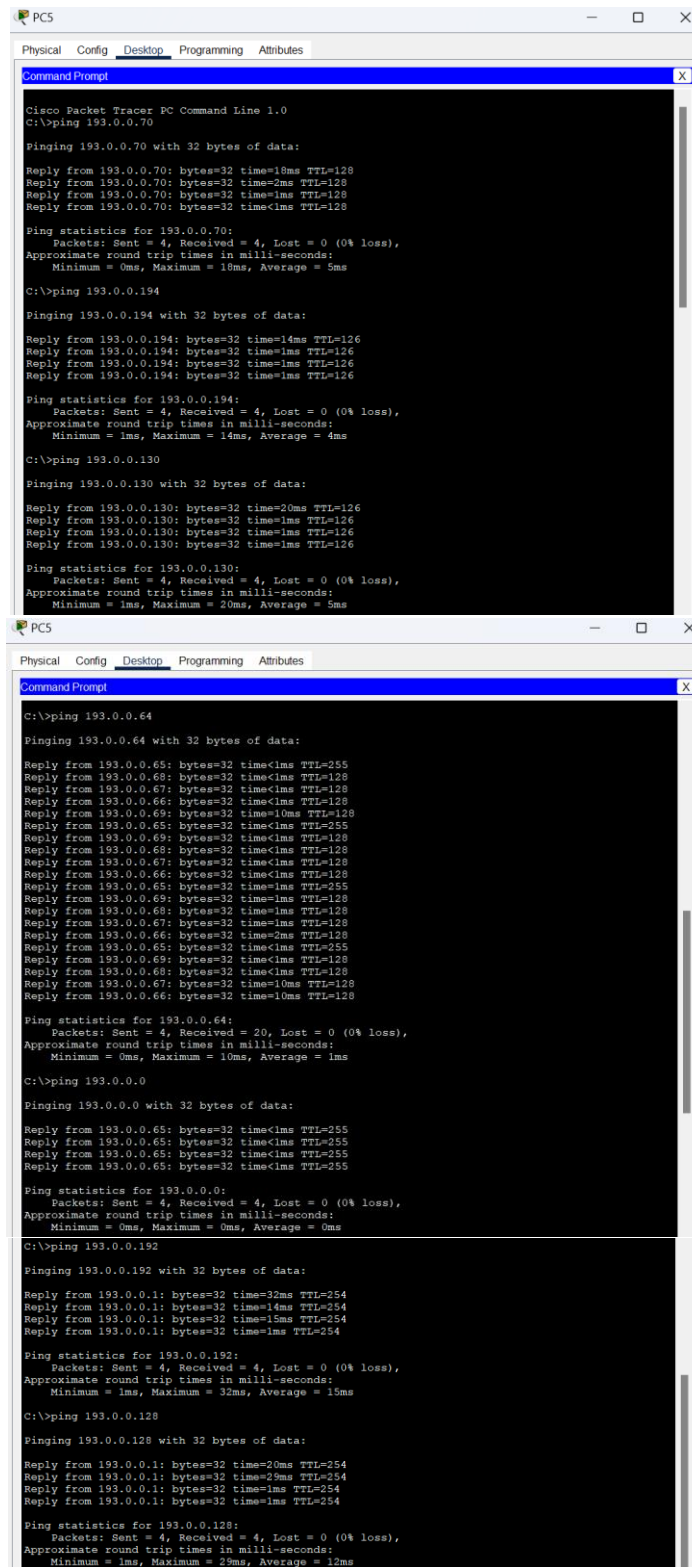
Ping statistics for 193.0.0.0:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 193.0.0.64

Pinging 193.0.0.64 with 32 bytes of data:

Reply from 193.0.0.2: bytes=32 time=22ms TTL=254
Reply from 193.0.0.2: bytes=32 time=1ms TTL=254
Reply from 193.0.0.2: bytes=32 time=21ms TTL=254
Reply from 193.0.0.2: bytes=32 time=1ms TTL=254

Ping statistics for 193.0.0.64:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 22ms, Average = 11ms
```



```
PC5
Physical Config Desktop Programming Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 193.0.0.70

Pinging 193.0.0.70 with 32 bytes of data:

Reply from 193.0.0.70: bytes=32 time=1ms TTL=128
Reply from 193.0.0.70: bytes=32 time=2ms TTL=128
Reply from 193.0.0.70: bytes=32 time=1ms TTL=128
Reply from 193.0.0.70: bytes=32 time<1ms TTL=128

Ping statistics for 193.0.0.70:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 18ms, Average = 5ms

C:\>ping 193.0.0.194

Pinging 193.0.0.194 with 32 bytes of data:

Reply from 193.0.0.194: bytes=32 time=14ms TTL=126
Reply from 193.0.0.194: bytes=32 time=1ms TTL=126
Reply from 193.0.0.194: bytes=32 time=1ms TTL=126
Reply from 193.0.0.194: bytes=32 time=1ms TTL=126

Ping statistics for 193.0.0.194:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 14ms, Average = 4ms

C:\>ping 193.0.0.130

Pinging 193.0.0.130 with 32 bytes of data:

Reply from 193.0.0.130: bytes=32 time=20ms TTL=126
Reply from 193.0.0.130: bytes=32 time=1ms TTL=126
Reply from 193.0.0.130: bytes=32 time=1ms TTL=126
Reply from 193.0.0.130: bytes=32 time=1ms TTL=126

Ping statistics for 193.0.0.130:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 20ms, Average = 5ms

C:\>ping 193.0.0.64

Pinging 193.0.0.64 with 32 bytes of data:

Reply from 193.0.0.65: bytes=32 time<1ms TTL=255
Reply from 193.0.0.66: bytes=32 time<1ms TTL=128
Reply from 193.0.0.67: bytes=32 time<1ms TTL=128
Reply from 193.0.0.66: bytes=32 time<1ms TTL=128
Reply from 193.0.0.69: bytes=32 time=10ms TTL=128
Reply from 193.0.0.65: bytes=32 time<1ms TTL=255
Reply from 193.0.0.69: bytes=32 time<1ms TTL=128
Reply from 193.0.0.68: bytes=32 time<1ms TTL=128
Reply from 193.0.0.67: bytes=32 time<1ms TTL=128
Reply from 193.0.0.66: bytes=32 time<1ms TTL=128
Reply from 193.0.0.65: bytes=32 time=1ms TTL=255
Reply from 193.0.0.69: bytes=32 time=1ms TTL=128
Reply from 193.0.0.68: bytes=32 time=1ms TTL=128
Reply from 193.0.0.67: bytes=32 time=2ms TTL=128
Reply from 193.0.0.66: bytes=32 time=2ms TTL=128
Reply from 193.0.0.65: bytes=32 time<1ms TTL=255
Reply from 193.0.0.69: bytes=32 time<1ms TTL=128
Reply from 193.0.0.68: bytes=32 time<1ms TTL=128
Reply from 193.0.0.67: bytes=32 time=10ms TTL=128
Reply from 193.0.0.66: bytes=32 time=10ms TTL=128

Ping statistics for 193.0.0.64:
    Packets: Sent = 4, Received = 20, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 10ms, Average = 1ms

C:\>ping 193.0.0.0

Pinging 193.0.0.0 with 32 bytes of data:

Reply from 193.0.0.65: bytes=32 time<1ms TTL=255
Reply from 193.0.0.65: bytes=32 time<1ms TTL=255
Reply from 193.0.0.65: bytes=32 time<1ms TTL=255
Reply from 193.0.0.65: bytes=32 time<1ms TTL=255

Ping statistics for 193.0.0.0:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 193.0.0.192

Pinging 193.0.0.192 with 32 bytes of data:

Reply from 193.0.0.1: bytes=32 time=32ms TTL=254
Reply from 193.0.0.1: bytes=32 time=14ms TTL=254
Reply from 193.0.0.1: bytes=32 time=13ms TTL=254
Reply from 193.0.0.1: bytes=32 time=1ms TTL=254

Ping statistics for 193.0.0.192:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 32ms, Average = 15ms

C:\>ping 193.0.0.128

Pinging 193.0.0.128 with 32 bytes of data:

Reply from 193.0.0.1: bytes=32 time=20ms TTL=254
Reply from 193.0.0.1: bytes=32 time=23ms TTL=254
Reply from 193.0.0.1: bytes=32 time=1ms TTL=254
Reply from 193.0.0.1: bytes=32 time=1ms TTL=254

Ping statistics for 193.0.0.128:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 23ms, Average = 12ms
```

Pada percobaan diagram 6 di atas, terdapat konfigurasi router static 2 router yang menghubungkan 4 network. Dengan konfigurasi komponen 5 pc, 2 switch, dan 2 router. Di diagram di atas terdapat 4 network yang nantinya akan disetting di kedua router. Dengan mengikuti semua langkah-langkah di atas, semua pc bisa saling berkomunikasi lewat jaringan yang disediakan lewat router static tadi.

KESIMPULAN

Pada praktikum kali ini, kita belajar tentang routing static yang bertujuan untuk menyelesaikan tugas pendahuluan dan tugas percobaan. Tugas pendahuluan merupakan teori dan tugas percobaan merupakan praktek yang mempelajari tentang router static ini.

Routing adalah suatu protokol yang digunakan untuk mendapatkan rute dari jaringan satu menuju jaringan yang lain. Routing dibagi menjadi dua, yaitu routing statis dan dinamis. Router adalah device jaringan yang bekerja pada network layer, yang berfungsi menerima paket, menempatkannya dalam queue (antrian) dan setelah itu mengirimkan pada link sesuai dengan tujuannya.

Tabel routing adalah struktur data yang digunakan oleh perangkat jaringan seperti router untuk menentukan rute terbaik untuk mengirim paket data dari satu jaringan ke jaringan lain. Tabel routing berisi daftar entri yang mengaitkan jaringan tujuan dengan gateway yang harus digunakan untuk mencapainya.

Routing statik adalah salah satu metode routing dimana administrator secara manual memasukkan rute-rete ke dalam table routing devais lewat konfigurasi file yang diloat ketika device dinyalakan. Karena dimasukkan secara manual oleh administrator, maka rute-rute ini tidak berubah setelah dikonfigurasi (kecuali admin mengubah rute tersebut). Karena itu metode routing ini disebut routing statis. Routing statis adalah bentuk paling sederhana dari routing.

Gateway adalah node di jaringan TCP/IP yang bekerja sebagai akses point ke jaringan lain. Default gateway adalah node pada jaringan computer yang digunakan ketika IP address tidak cocok pada rute-rute yang lain di table routing.

Dalam melakukan praktikum kali ini pastikan untuk menginstall kebutuhan software yang dibutuhkan agar praktikum dapat berjalan dengan lancar. Selain itu, cek dengan benar command atau syntax dan juga cek komponen yang dibutuhkan agar nantinya tidak terjadi error.