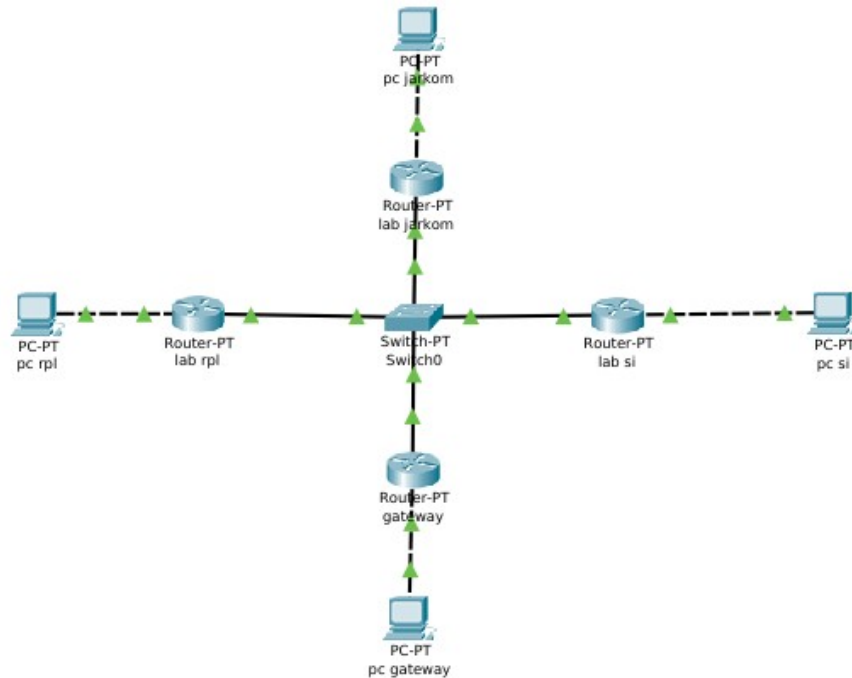


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Kegiatan Praktikum

1. Studi kasus tentang perancangan jaringan laboratorium sederhana.



Struktur topologi terdiri dari 1 Switch, 4 Router, dan 4 PC pada masing-masing lab.

2. Konfigurasi semua router yang ada.
 - a) Konfigurasi Router lab jarkom

lab jarkom

Physical **Config** CLI Attributes

GLOBAL

- Settings
- Algorithm Settings
- ROUTING**
- Static
- RIP
- INTERFACE**
- FastEthernet0/0
- FastEthernet1/0
- Serial2/0
- Serial3/0
- FastEthernet4/0

FastEthernet0/0

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0001.4207.47EB

IP Configuration

IP Address 172.15.0.1

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Equivalent IOS Commands

```
Router(config)#interface FastEthernet1/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#
```

☐ Top

lab jarkom

Physical **Config** CLI Attributes

| | |
|------------------------|--|
| GLOBAL | FastEthernet1/0 |
| Settings | Port Status <input checked="" type="checkbox"/> On |
| Algorithm Settings | Bandwidth <input checked="" type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps <input checked="" type="checkbox"/> Auto |
| ROUTING | Duplex <input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex <input checked="" type="checkbox"/> Auto |
| Static | MAC Address 00D0.FF99.CAC9 |
| RIP | IP Configuration |
| INTERFACE | IP Address 172.16.0.1 |
| FastEthernet0/0 | Subnet Mask 255.255.255.0 |
| FastEthernet1/0 | |
| Serial2/0 | Tx Ring Limit 10 |
| Serial3/0 | |
| FastEthernet4/0 | |

Equivalent IOS Commands

```
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet1/0
Router(config-if)#
```

☐ Top

b) Konfigurasi Router lab si

lab si

Physical **Config** CLI Attributes

| | |
|--------------------|--|
| GLOBAL | FastEthernet0/0 |
| Settings | Port Status <input checked="" type="checkbox"/> On |
| Algorithm Settings | Bandwidth <input checked="" type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps <input checked="" type="checkbox"/> Auto |
| ROUTING | Duplex <input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex <input checked="" type="checkbox"/> Auto |
| Static | MAC Address 0001.C963.399B |
| RIP | IP Configuration |
| INTERFACE | IP Address 172.15.0.2 |
| FastEthernet0/0 | Subnet Mask 255.255.255.0 |
| FastEthernet1/0 | |
| Serial2/0 | Tx Ring Limit 10 |
| Serial3/0 | |
| FastEthernet4/0 | |

Equivalent IOS Commands

```
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
```

☐ Top

lab si

Physical **Config** CLI Attributes

| | |
|--------------------|--|
| GLOBAL | FastEthernet1/0 |
| Settings | Port Status <input checked="" type="checkbox"/> On |
| Algorithm Settings | Bandwidth <input checked="" type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps <input checked="" type="checkbox"/> Auto |
| ROUTING | Duplex <input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex <input checked="" type="checkbox"/> Auto |
| Static | MAC Address 0060.5CDB.4A02 |
| RIP | IP Configuration |
| INTERFACE | IP Address 172.17.0.1 |
| FastEthernet0/0 | Subnet Mask 255.255.255.0 |
| FastEthernet1/0 | Tx Ring Limit 10 |
| Serial2/0 | |
| Serial3/0 | |
| FastEthernet4/0 | |

Equivalent IOS Commands

```
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet1/0
Router(config-if)#
```

☐ Top

c) Konfigurasi Router lab rpl

lab rpl

Physical **Config** CLI Attributes

| | |
|--------------------|--|
| GLOBAL | FastEthernet0/0 |
| Settings | Port Status <input checked="" type="checkbox"/> On |
| Algorithm Settings | Bandwidth <input checked="" type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps <input checked="" type="checkbox"/> Auto |
| ROUTING | Duplex <input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex <input checked="" type="checkbox"/> Auto |
| Static | MAC Address 0030.A394.3B05 |
| RIP | IP Configuration |
| INTERFACE | IP Address 172.15.0.3 |
| FastEthernet0/0 | Subnet Mask 255.255.255.0 |
| FastEthernet1/0 | Tx Ring Limit 10 |
| Serial2/0 | |
| Serial3/0 | |
| FastEthernet4/0 | |

Equivalent IOS Commands

```
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
```

☐ Top

lab rpl

Physical **Config** CLI Attributes

| | |
|------------------------|--|
| GLOBAL | FastEthernet1/0 |
| Settings | Port Status <input checked="" type="checkbox"/> On |
| Algorithm Settings | Bandwidth <input checked="" type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps <input checked="" type="checkbox"/> Auto |
| ROUTING | Duplex <input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex <input checked="" type="checkbox"/> Auto |
| Static | MAC Address 00D0.97A3.793E |
| RIP | IP Configuration |
| INTERFACE | IP Address 172.18.0.1 |
| FastEthernet0/0 | Subnet Mask 255.255.255.0 |
| FastEthernet1/0 | Tx Ring Limit 10 |
| Serial2/0 | |
| Serial3/0 | |
| FastEthernet4/0 | |

Equivalent IOS Commands

```
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet1/0
Router(config-if)#
```

☐ Top

d) Konfigurasi router gateway

gateway

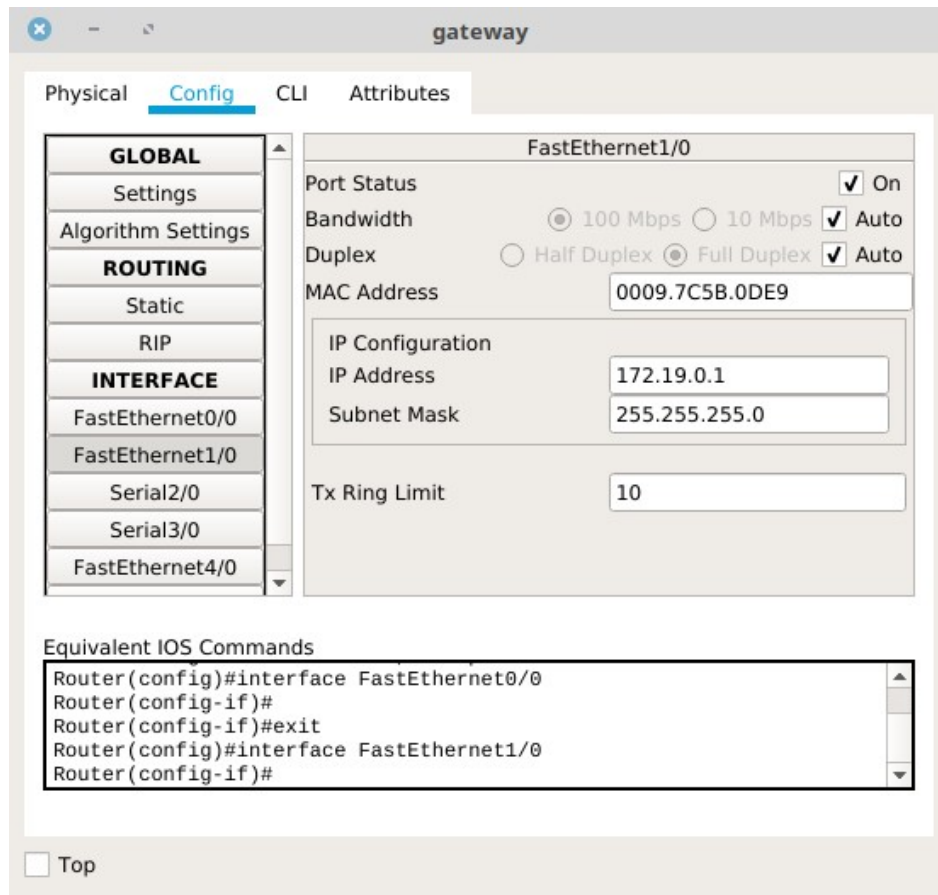
Physical **Config** CLI Attributes

| | |
|--------------------|--|
| GLOBAL | FastEthernet0/0 |
| Settings | Port Status <input checked="" type="checkbox"/> On |
| Algorithm Settings | Bandwidth <input checked="" type="radio"/> 100 Mbps <input type="radio"/> 10 Mbps <input checked="" type="checkbox"/> Auto |
| ROUTING | Duplex <input type="radio"/> Half Duplex <input checked="" type="radio"/> Full Duplex <input checked="" type="checkbox"/> Auto |
| Static | MAC Address 000A.F3AB.DE28 |
| RIP | IP Configuration |
| INTERFACE | IP Address 172.15.0.4 |
| FastEthernet0/0 | Subnet Mask 255.255.255.0 |
| FastEthernet1/0 | Tx Ring Limit 10 |
| Serial2/0 | |
| Serial3/0 | |
| FastEthernet4/0 | |

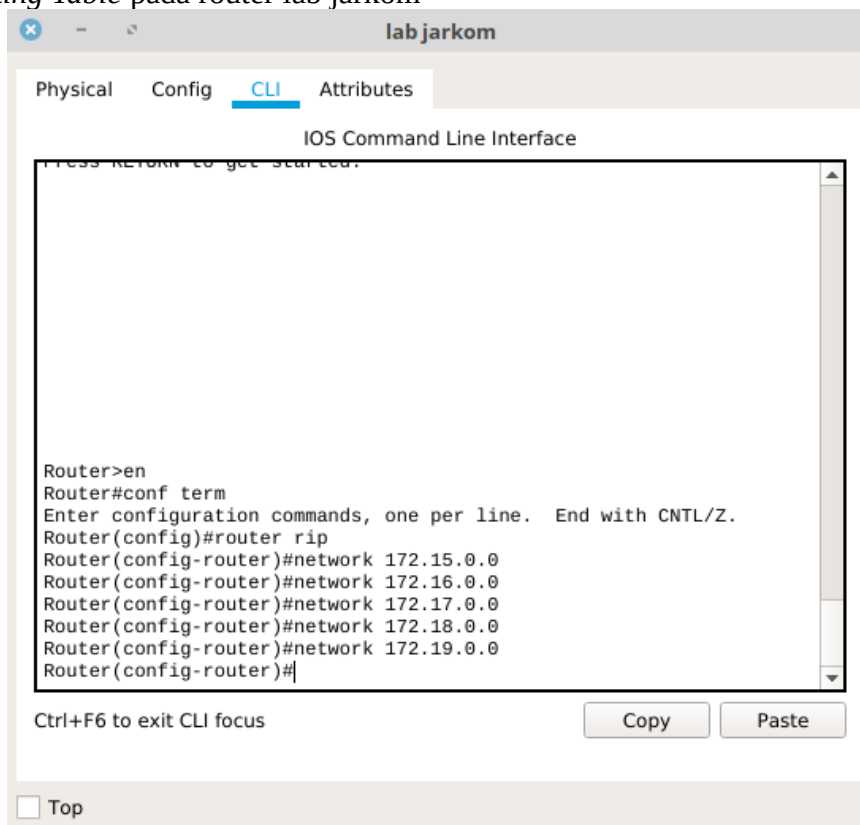
Equivalent IOS Commands

```
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
```

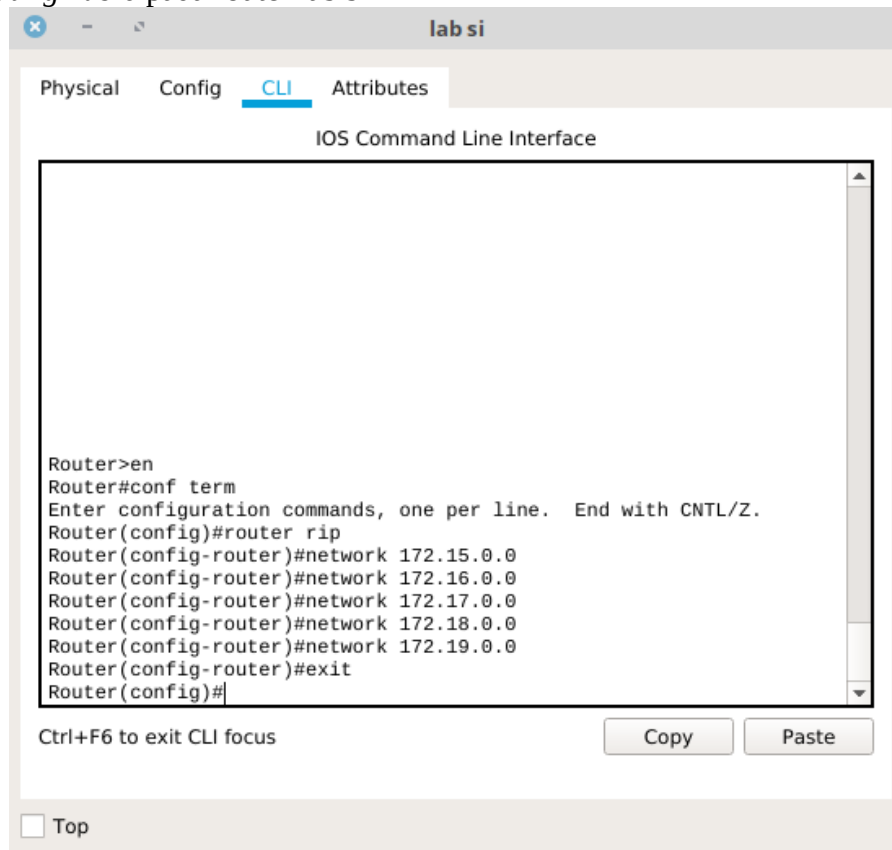
☐ Top



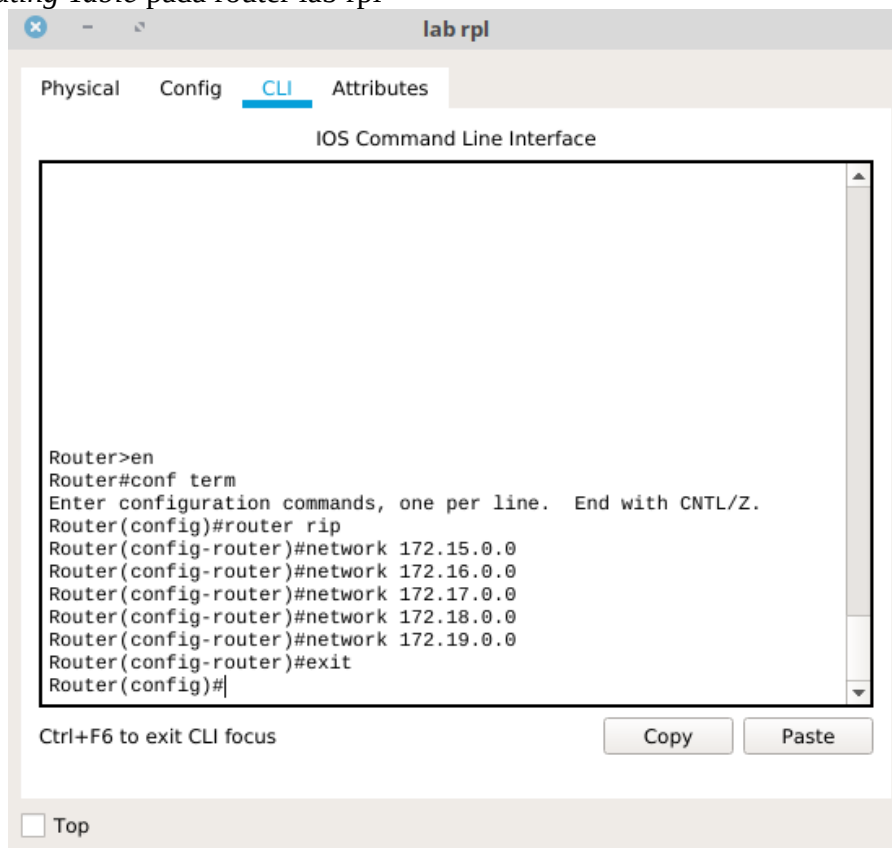
3. Konfigurasi Routing Table pada masing-masing router
Menggunakan metode Routing Dinamis yaitu *RIP Routing*.
a) *Routing Table* pada router lab jarkom



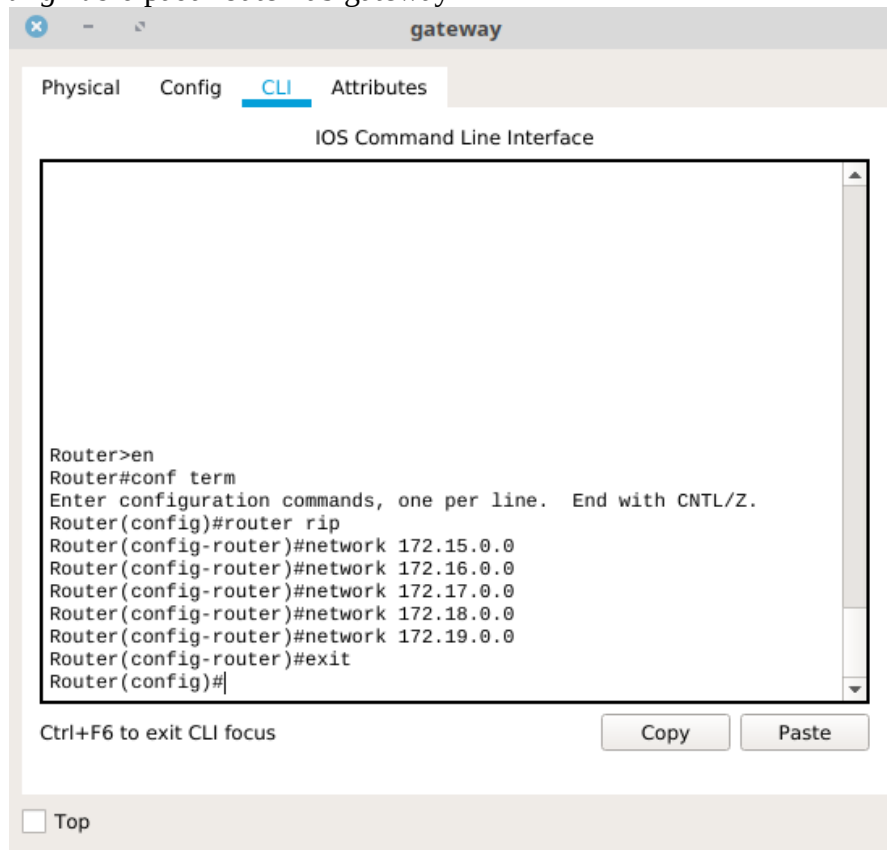
b) *Routing Table* pada router lab si



c) *Routing Table* pada router lab rpl

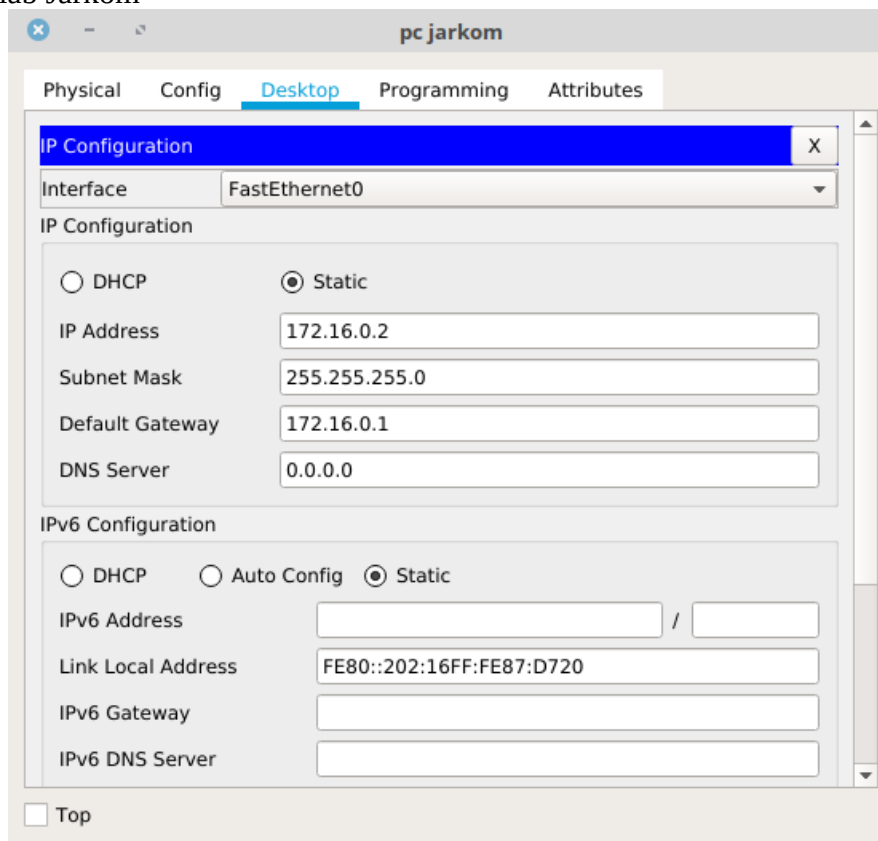


d) *Routing Table* pada router lab gateway



4. Selanjutnya ialah mengkonfigurasi IP Address pada masing-masing PC.

a) PC lab Jarkom



b) PC lab SI

The screenshot shows the 'pc si' configuration window with the 'Desktop' tab selected. The 'IP Configuration' section is active, showing settings for the 'FastEthernet0' interface. The 'Static' radio button is selected under 'IP Configuration'. The fields are filled with: IP Address: 172.17.0.2, Subnet Mask: 255.255.255.0, Default Gateway: 172.17.0.1, and DNS Server: 0.0.0.0. The 'IPv6 Configuration' section is also visible, with 'Static' selected and a Link Local Address of FE80::290:21FF:FE7A:8EAC.

pc si

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IP Address 172.17.0.2

Subnet Mask 255.255.255.0

Default Gateway 172.17.0.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address /

Link Local Address FE80::290:21FF:FE7A:8EAC

IPv6 Gateway

IPv6 DNS Server

☐ Top

c) PC lab RPL

The screenshot shows the 'pc rpl' configuration window with the 'Desktop' tab selected. The 'IP Configuration' section is active, showing settings for the 'FastEthernet0' interface. The 'Static' radio button is selected under 'IP Configuration'. The fields are filled with: IP Address: 172.18.0.2, Subnet Mask: 255.255.255.0, Default Gateway: 172.18.0.1, and DNS Server: 0.0.0.0. The 'IPv6 Configuration' section is also visible, with 'Static' selected and a Link Local Address of FE80::201:97FF:FEE5:B101.

pc rpl

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IP Address 172.18.0.2

Subnet Mask 255.255.255.0

Default Gateway 172.18.0.1

DNS Server 0.0.0.0

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address /

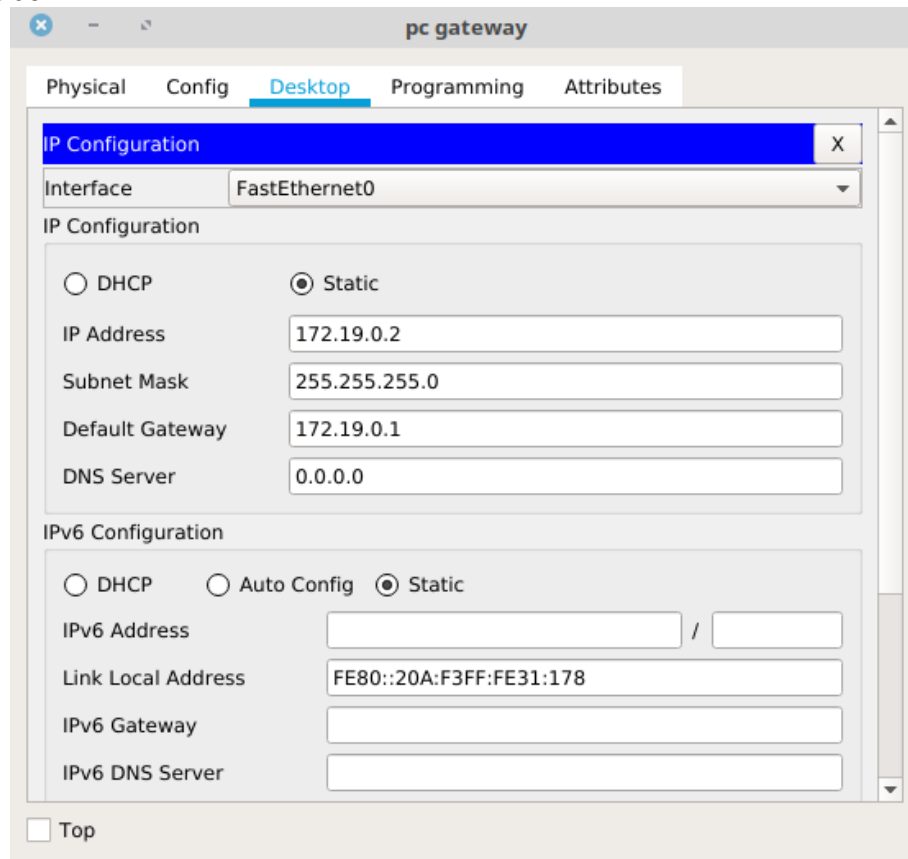
Link Local Address FE80::201:97FF:FEE5:B101

IPv6 Gateway

IPv6 DNS Server

☐ Top

d) PC admin



5. Setelah konfigurasi selesai, pengujian *ping* untuk test koneksi. *Ping* dilakukan dari PC Admin

a) ping ke PC Jarkom

```
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=14ms TTL=126
Reply from 172.16.0.2: bytes=32 time=13ms TTL=126
Reply from 172.16.0.2: bytes=32 time=21ms TTL=126
Reply from 172.16.0.2: bytes=32 time=12ms TTL=126

Ping statistics for 172.16.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 12ms, Maximum = 21ms, Average = 15ms

C:\>
```

b) ping ke PC SI

```
C:\>ping 172.17.0.2

Pinging 172.17.0.2 with 32 bytes of data:

Reply from 172.17.0.2: bytes=32 time=2ms TTL=126
Reply from 172.17.0.2: bytes=32 time=12ms TTL=126
Reply from 172.17.0.2: bytes=32 time=13ms TTL=126
Reply from 172.17.0.2: bytes=32 time=14ms TTL=126

Ping statistics for 172.17.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 14ms, Average = 10ms

C:\>
```

c) ping ke PC RPL

```
C:\>ping 172.18.0.2

Pinging 172.18.0.2 with 32 bytes of data:

Reply from 172.18.0.2: bytes=32 time=3ms TTL=126
Reply from 172.18.0.2: bytes=32 time=4ms TTL=126
Reply from 172.18.0.2: bytes=32 time<1ms TTL=126
Reply from 172.18.0.2: bytes=32 time=12ms TTL=126

Ping statistics for 172.18.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 12ms, Average = 4ms

C:\>
```

Dari pengujian ke PC masing-masing lab dari pc admin hasilnya sukses. Metode Routing Table yang digunakan ialah RIP (Routing Dinamis).