

Tugas Praktikum Jarkom

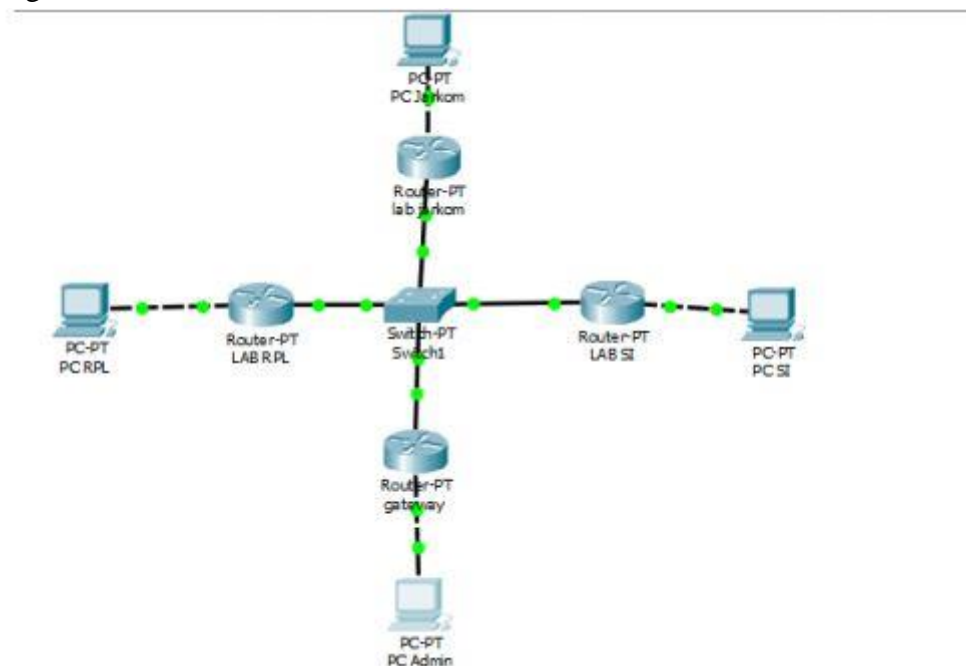
Modul 11

Perancangan Jaringan Laboratorium Sederhana Menggunakan Packet Tracer

- Buatlah topologi jaringan serupa dengan Gambar 10.1, namun metode routing yang digunakan adalah routing statis.

Jawab :

1. Topologi



2. Konfigurasi Router Jarkom

```
Router>en
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int fa /0
      ^
% Invalid input detected at '^' marker.

Router(config)#int fa 0/0
Router(config-if)#ip address 172.16.0.1 255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

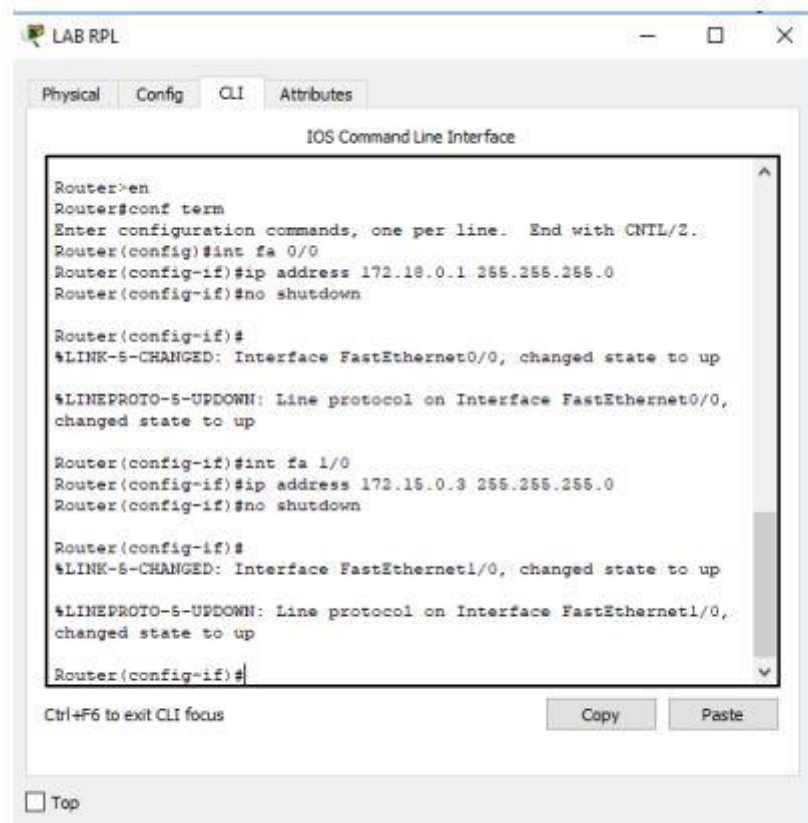
Router(config-if)#int fa 1/0
Router(config-if)#ip address 172.16.0.1 255.255.255.0
Router(config-if)#no shutdown

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

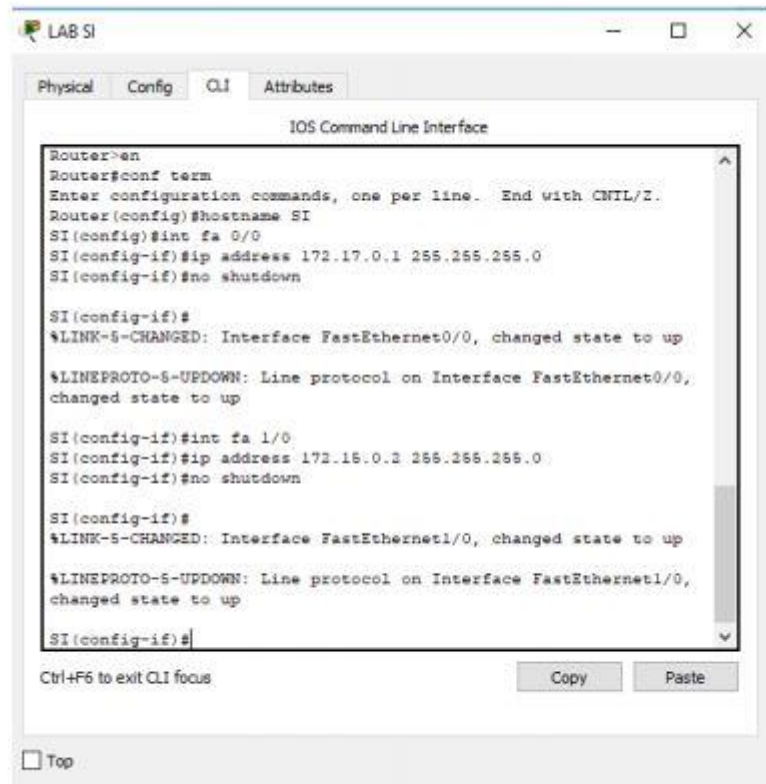
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/0, changed state to up

Router(config-if)#ex
Router(config)#hostname jarkom
jarkom(config)#
```

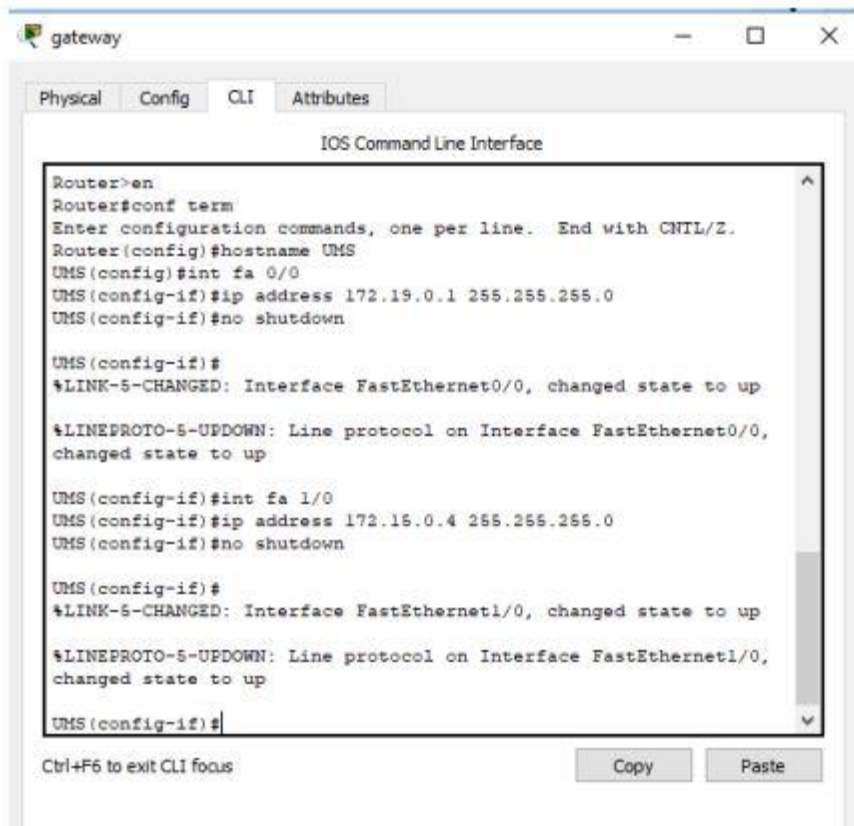
3. Konfigurasi Router RPL



4. Konfigurasi Router SI



5. Konfigurasi Router Gateway



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6. Konfigurasi PC Jarkom

The screenshot shows the 'PC Jarkom' configuration window with the 'Config' tab selected. The 'IP Configuration' section is active, showing the following settings:

Field	Value
IP Configuration	<input checked="" type="radio"/> Static
IP Address	172.16.0.2
Subnet Mask	255.255.255.0
Default Gateway	172.16.0.1
DNS Server	0.0.0.0

The 'IPv6 Configuration' section is also visible, showing the following settings:

Field	Value
IPv6 Configuration	<input type="radio"/> DHCP <input type="radio"/> Auto Config <input checked="" type="radio"/> Static
IPv6 Address	
Link Local Address	FE80::201:42FF:FE75:9C91
IPv6 Gateway	
IPv6 DNS Server	

At the bottom left, there is a 'Top' button.

7. Konfigurasi PC RPL

The screenshot shows the 'PC RPL' configuration window with the 'Config' tab selected. The 'IP Configuration' section is active, showing the following settings:

Field	Value
IP Configuration	<input checked="" type="radio"/> 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

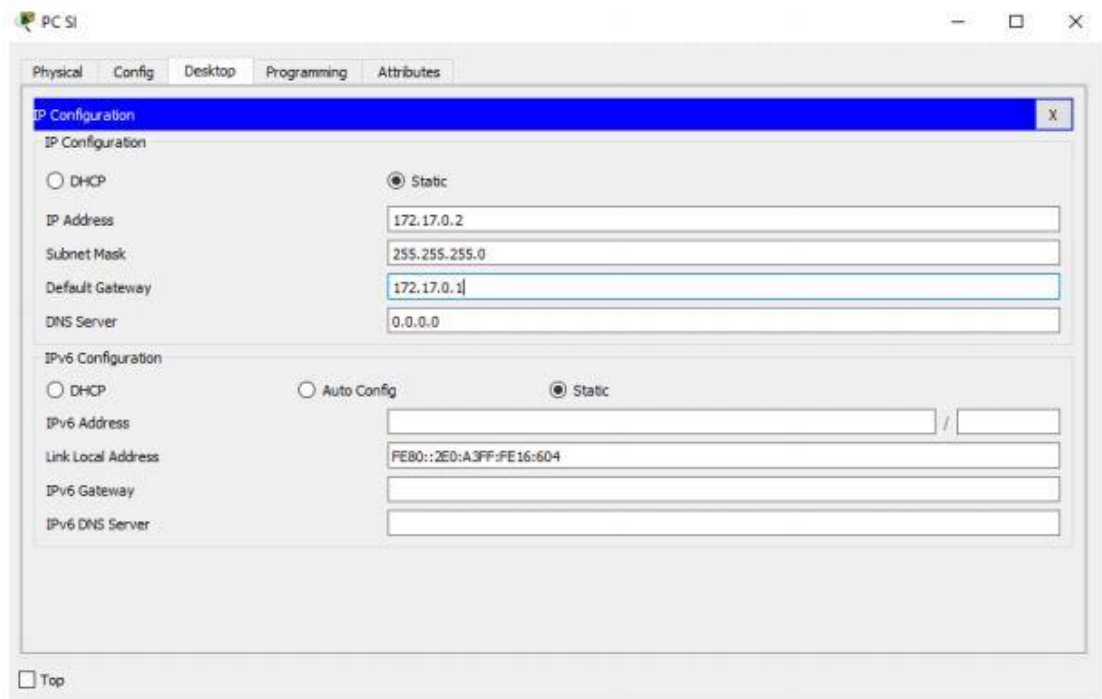
The 'IPv6 Configuration' section is also visible, showing the following settings:

Field	Value
IPv6 Configuration	<input type="radio"/> DHCP <input type="radio"/> Auto Config <input checked="" type="radio"/> Static
IPv6 Address	
Link Local Address	FE80::200:0FF:FE91:AA72
IPv6 Gateway	
IPv6 DNS Server	

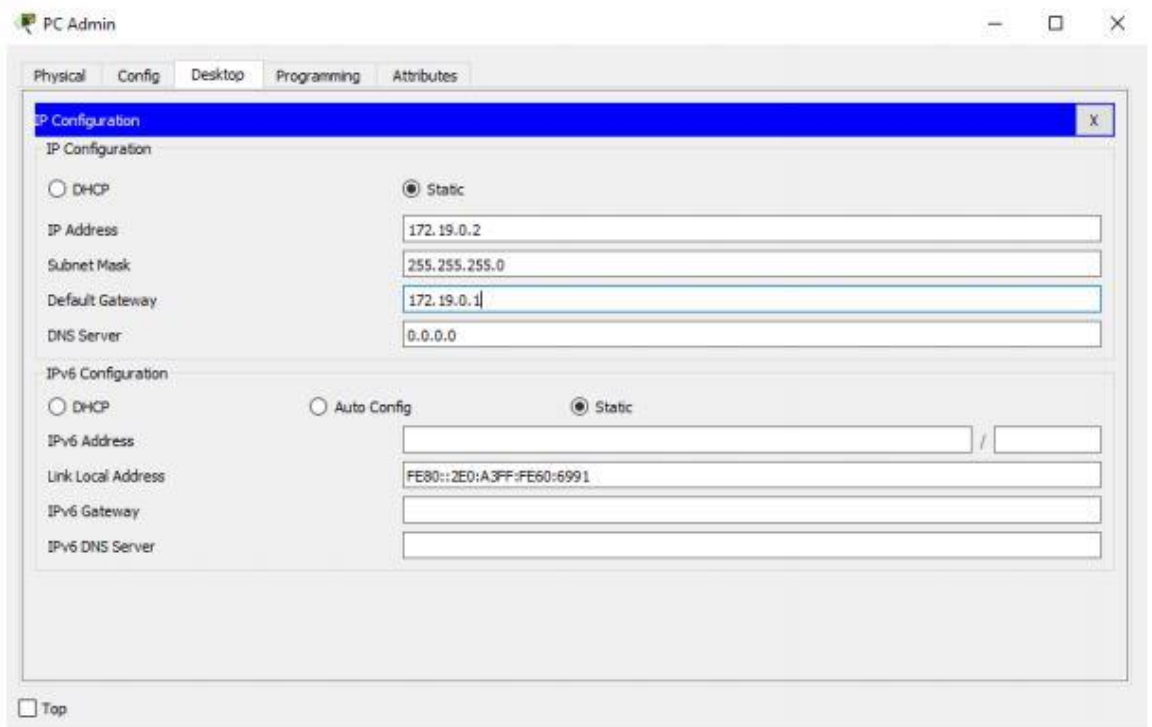
At the bottom left, there is a 'Top' button.

8. Konfigurasi PC SI

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9. Konfigurasi PC Admin



10. Routing Router Jarkom

```
jarkom>en
jarkom#conf term
Enter configuration commands, one per line. End with CNTL/Z.
jarkom(config)#ip route 172.18.0.0 255.255.255.0 172.15.0.3
jarkom(config)#ip route 172.17.0.0 255.255.255.0 172.15.0.2
jarkom(config)#ip route 172.19.0.0 255.255.255.0 172.15.0.4
jarkom(config)#
```

11. Routing Router RPL

```

RPL(config)#ip route 172.16.0.0 255.255.255.0 172.15.0.1
RPL(config)#ip route 172.17.0.0 255.255.255.0 172.15.0.2
RPL(config)#ip route 172.19.0.0 255.255.255.0 172.15.0.4
RPL(config)#
```

12. Routing Router SI

```
SI>en
SI#conf term
Enter configuration commands, one per line. End with CNTL/Z.
SI(config)#ip route 172.16.0.0 255.255.255.0 172.15.0.1
SI(config)#ip route 172.18.0.0 255.255.255.0 172.15.0.3
SI(config)#ip route 172.19.0.0 255.255.255.0 172.15.0.4
SI(config)#
```

13. Routing Router Gateway

```
UMS(config)#ip route 172.16.0.0 255.255.255.0 172.15.0.1
UMS(config)#ip route 172.18.0.0 255.255.255.0 172.15.0.3
UMS(config)#ip route 172.17.0.0 255.255.255.0 172.15.0.2
UMS(config)#
```

14. Melakukan uji koneksi(ping)

```
PC ADMIN
Physical Config Desktop Programming Attributes
Command Prompt

Pinging 172.16.0.2 with 32 bytes of data:
Reply from 172.16.0.2: bytes=32 time<1ms TTL=126
Reply from 172.16.0.2: bytes=32 time=10ms TTL=126
Reply from 172.16.0.2: bytes=32 time=16ms TTL=126
Reply from 172.16.0.2: bytes=32 time=11ms 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 = 0ms, Maximum = 16ms, Average = 9ms

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=1ms TTL=126
Reply from 172.17.0.2: bytes=32 time<1ms TTL=126
Reply from 172.17.0.2: bytes=32 time=4ms TTL=126
Reply from 172.17.0.2: bytes=32 time=12ms 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 = 0ms, Maximum = 12ms, Average = 4ms

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<1ms TTL=126
Reply from 172.18.0.2: bytes=32 time=12ms TTL=126
Reply from 172.18.0.2: bytes=32 time=12ms TTL=126
Reply from 172.18.0.2: bytes=32 time=11ms 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 = 8ms
```

- Buatlah topologi jaringan BUS untuk membangun sebuah laboratorium komputer yang terdiri dari 3 router(jarkom,rpl,si) dan berpusat pada 1 router gateway dengan metode routing :
 - a. Statis
 - b. Dinamis

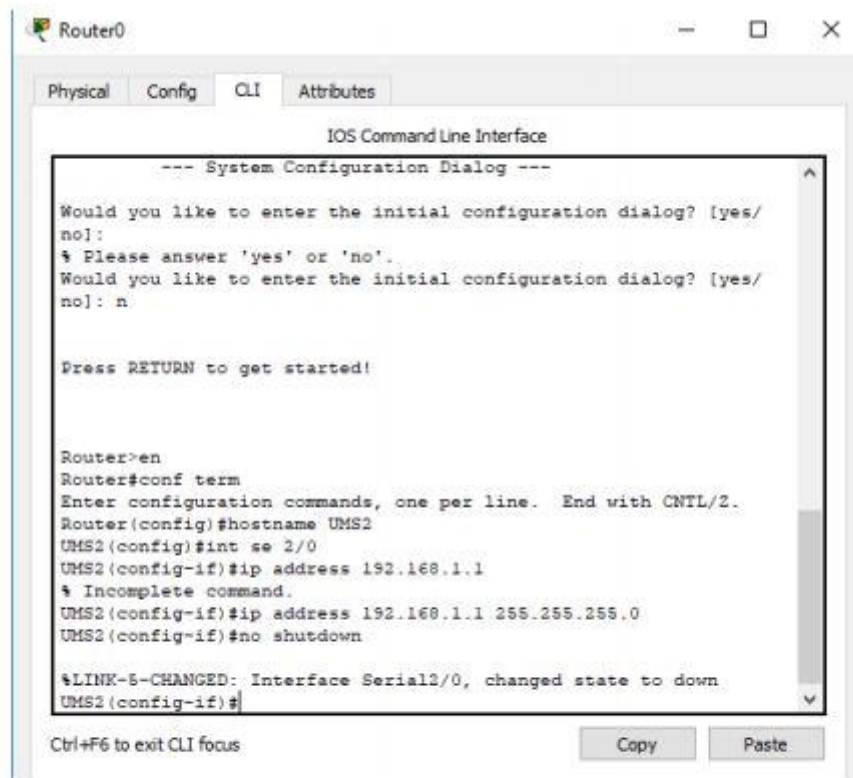
Jawab :

1. Topologi

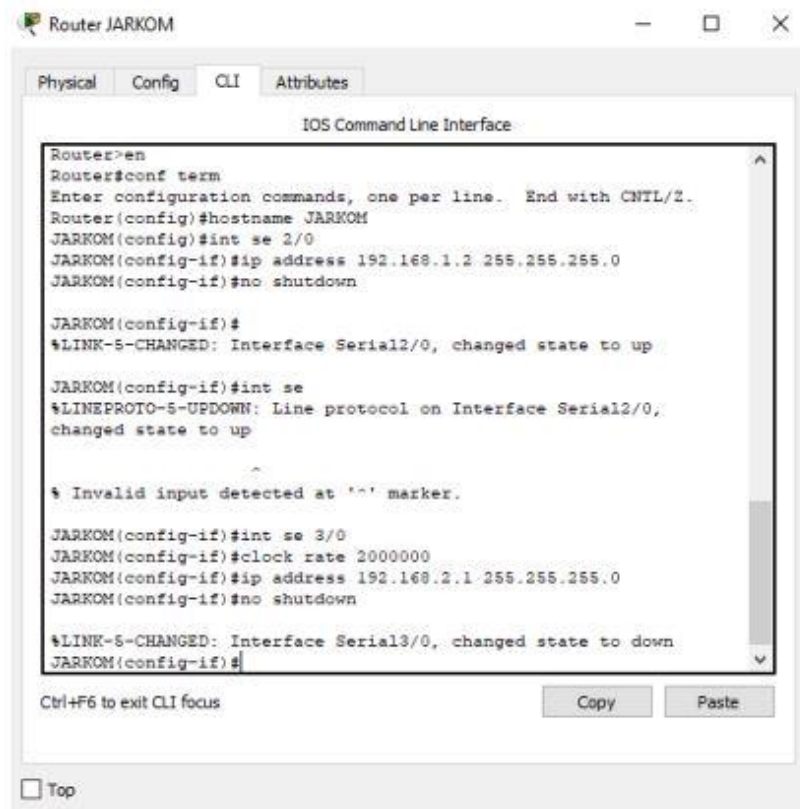


2. Konfigurasi Router UMS2

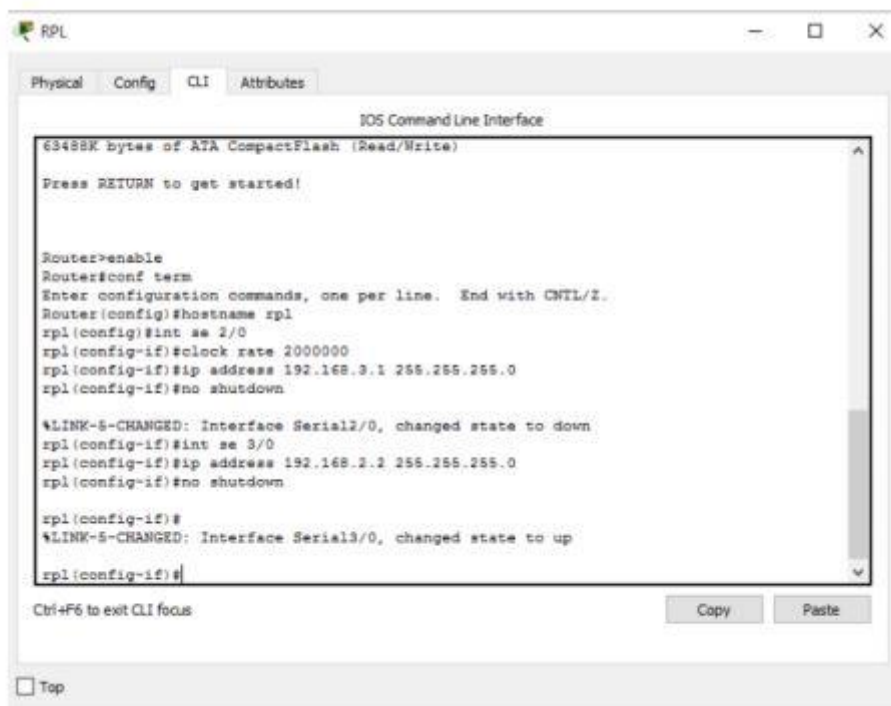
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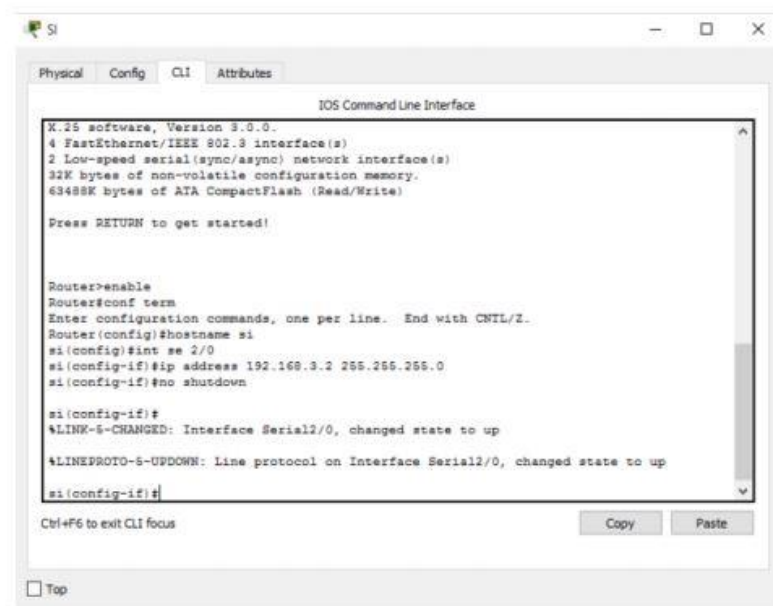
3. Konfigurasi Router Jarkom



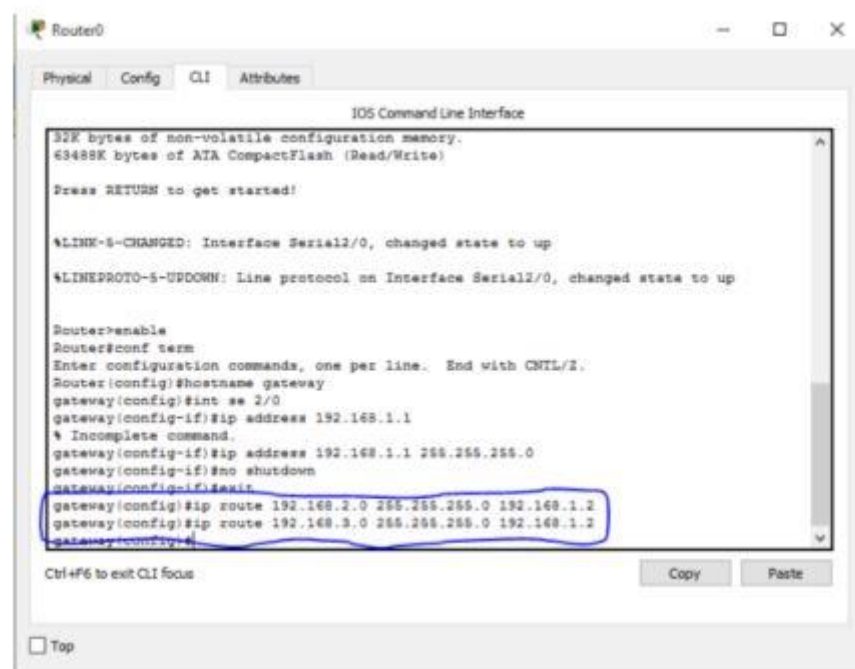
4. Konfigurasi Router RPL



5. Konfigurasi Router SI

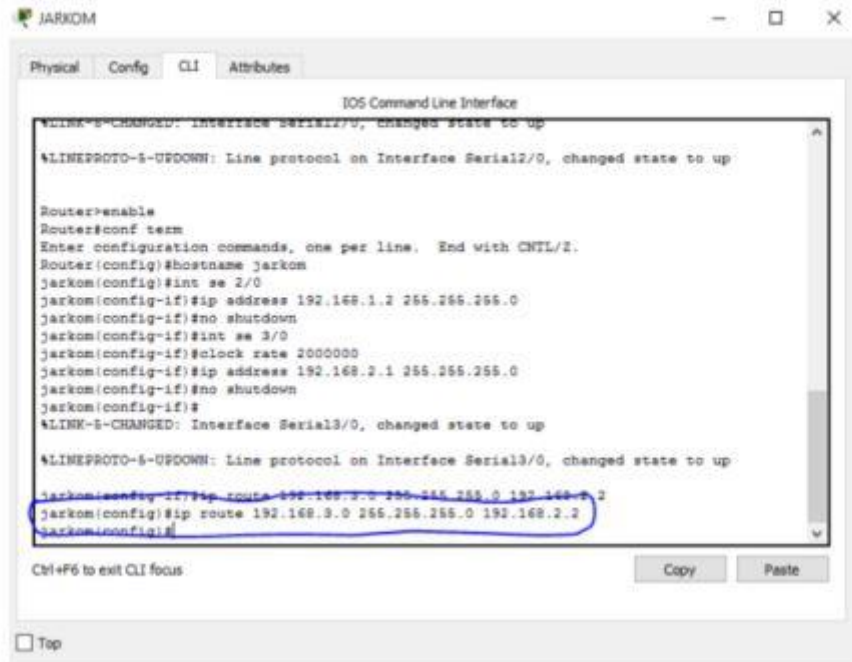


6. Routing Router UMS2



7. Routing Router Jarkom

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The screenshot shows the JARKOM router's CLI interface. The user has entered several commands to configure the router. The configuration includes enabling the router, setting the hostname to 'jarkom', and configuring two serial interfaces. The first serial interface (Serial2/0) is configured with IP address 192.168.1.2 and a clock rate of 2000000. The second serial interface (Serial3/0) is configured with IP address 192.168.2.1 and a clock rate of 2000000. The configuration is saved, and the router is ready for use. The CLI prompt is 'jarkom(config)#'.

```
JARKOM

Physical Config CLI Attributes

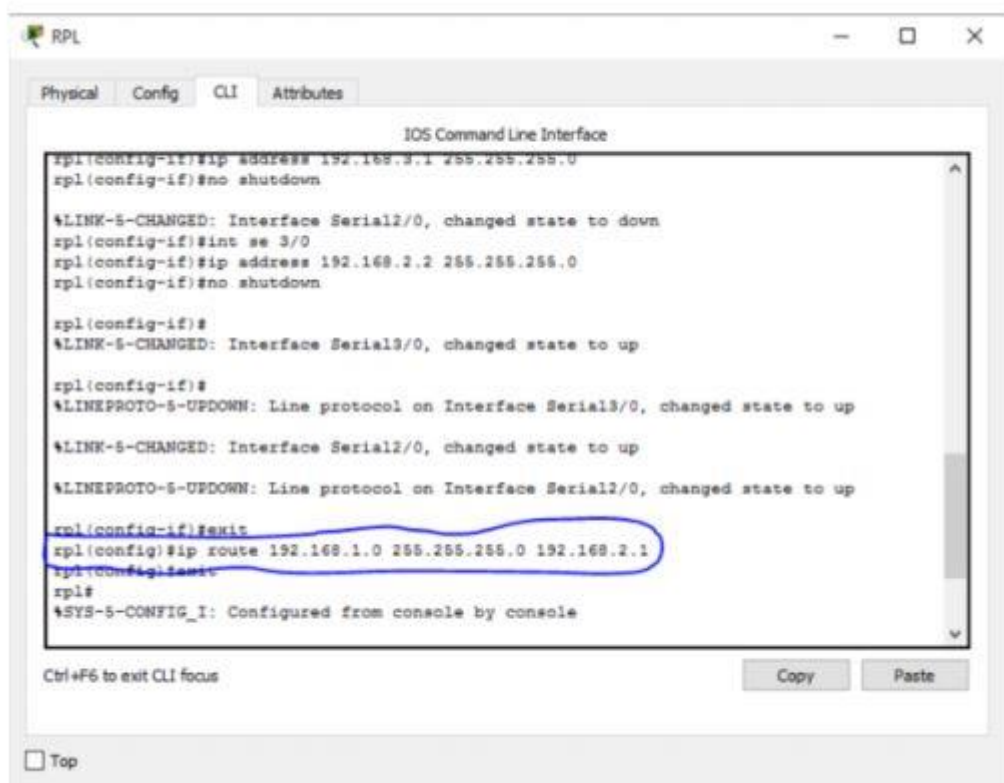
IOS Command Line Interface

%LINK-5-CHANGED: Interface Serial2/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

Router>enable
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname jarkom
jarkom(config)#int se 2/0
jarkom(config-if)#ip address 192.168.1.2 255.255.255.0
jarkom(config-if)#no shutdown
jarkom(config-if)#int se 3/0
jarkom(config-if)#clock rate 2000000
jarkom(config-if)#ip address 192.168.2.1 255.255.255.0
jarkom(config-if)#no shutdown
jarkom(config-if)#
%LINK-5-CHANGED: Interface Serial3/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up

jarkom(config-if)#ip route 192.168.3.0 255.255.255.0 192.168.2.2
jarkom(config)#
jarkom#
```

8. Routing Router RPL



The screenshot shows the RPL router's CLI interface. The user has entered several commands to configure the router. The configuration includes setting the IP address for the first serial interface (Serial2/0) to 192.168.3.1 and the second serial interface (Serial3/0) to 192.168.2.2. The configuration is saved, and the router is ready for use. The CLI prompt is 'rpl(config)#'.

```
RPL

Physical Config CLI Attributes

IOS Command Line Interface

rpl(config-if)#ip address 192.168.3.1 255.255.255.0
rpl(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial2/0, changed state to down
rpl(config-if)#int se 3/0
rpl(config-if)#ip address 192.168.2.2 255.255.255.0
rpl(config-if)#no shutdown

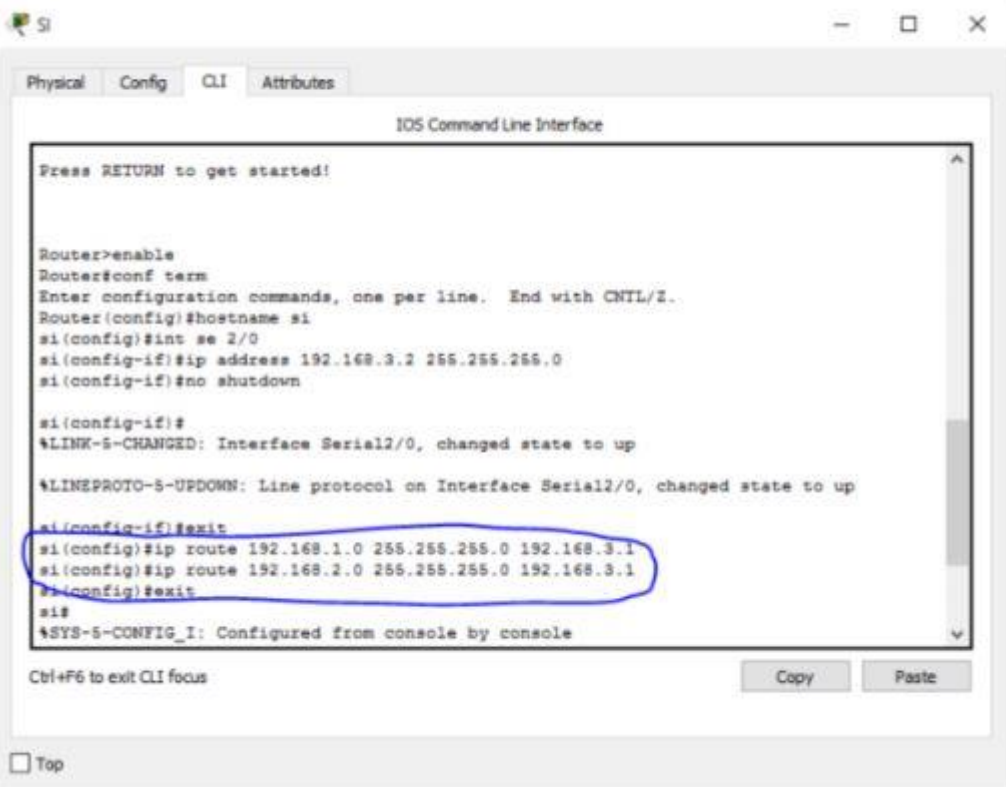
rpl(config-if)#
%LINK-5-CHANGED: Interface Serial3/0, changed state to up

rpl(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial3/0, changed state to up

%LINK-5-CHANGED: Interface Serial2/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

rpl(config-if)#exit
rpl(config)#ip route 192.168.1.0 255.255.255.0 192.168.2.1
rpl(config)#exit
rpl#
%SYS-5-CONFIG_I: Configured from console by console
```

9. Routing Router SI



The screenshot shows the CLI of a router named 's1'. The user has entered the following commands: `Router>enable`, `Router#conf term`, `Router(config)#hostname s1`, `s1(config)#int se 2/0`, `s1(config-if)#ip address 192.168.3.2 255.255.255.0`, and `s1(config-if)#no shutdown`. The router has responded with `%LINK-5-CHANGED: Interface Serial2/0, changed state to up` and `%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up`. The user has then entered `s1(config-if)#exit`, `s1(config)#ip route 192.168.1.0 255.255.255.0 192.168.3.1`, `s1(config)#ip route 192.168.2.0 255.255.255.0 192.168.3.1`, and `s1(config)#exit`. The router has responded with `%SYS-5-CONFIG_I: Configured from console by console`. The user has then entered `s1#`. The CLI prompt is now `s1#`. The user has also entered `Ctrl+F6` to exit CLI focus. The window has a 'Copy' button and a 'Paste' button.

```
Press RETURN to get started!

Router>enable
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname s1
s1(config)#int se 2/0
s1(config-if)#ip address 192.168.3.2 255.255.255.0
s1(config-if)#no shutdown

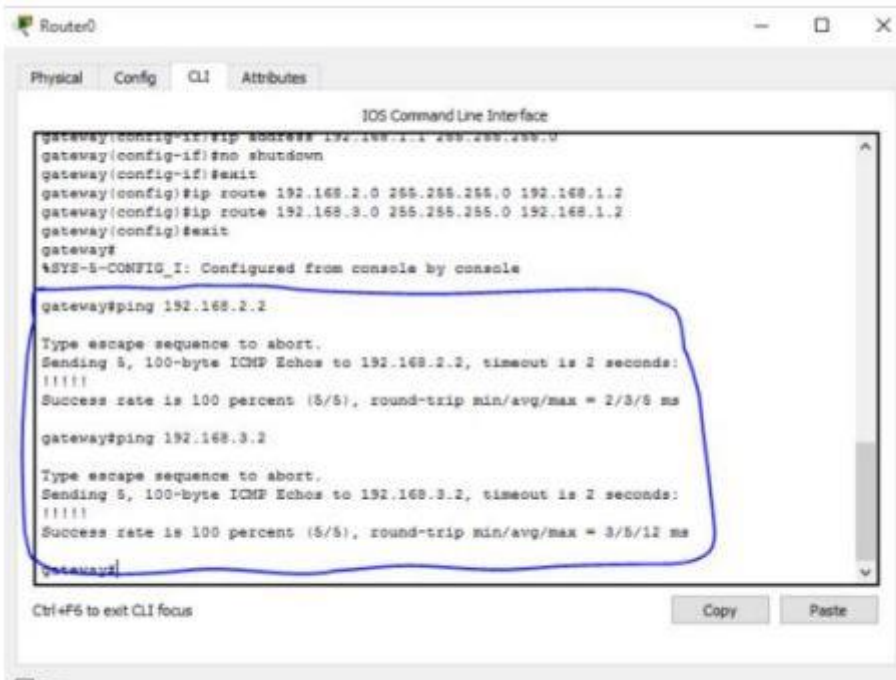
s1(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed state to up

s1(config-if)#exit
s1(config)#ip route 192.168.1.0 255.255.255.0 192.168.3.1
s1(config)#ip route 192.168.2.0 255.255.255.0 192.168.3.1
s1(config)#exit
s1#
%SYS-5-CONFIG_I: Configured from console by console

Ctrl+F6 to exit CLI focus
```

10. Melakukan uji koneksi(ping)



The screenshot shows the CLI of a router named 'Router0'. The user has entered the following commands: `gateway(config-if)#ip address 192.168.1.1 255.255.255.0`, `gateway(config-if)#no shutdown`, `gateway(config-if)#exit`, `gateway(config)#ip route 192.168.2.0 255.255.255.0 192.168.1.2`, `gateway(config)#ip route 192.168.3.0 255.255.255.0 192.168.1.2`, and `gateway(config)#exit`. The router has responded with `%SYS-5-CONFIG_I: Configured from console by console`. The user has then entered `gateway#`. The router has responded with `%SYS-5-CONFIG_I: Configured from console by console`. The user has then entered `gateway#ping 192.168.2.2`. The router has responded with `Type escape sequence to abort.`, `Sending 5, 100-byte ICMP Echos to 192.168.2.2, timeout is 2 seconds:`, `!!!!`, and `Success rate is 100 percent (5/5), round-trip min/avg/max = 2/3/6 ms`. The user has then entered `gateway#ping 192.168.3.2`. The router has responded with `Type escape sequence to abort.`, `Sending 5, 100-byte ICMP Echos to 192.168.3.2, timeout is 2 seconds:`, `!!!!`, and `Success rate is 100 percent (5/5), round-trip min/avg/max = 3/5/12 ms`. The user has then entered `gateway#`. The CLI prompt is now `gateway#`. The user has also entered `Ctrl+F6` to exit CLI focus. The window has a 'Copy' button and a 'Paste' button.

```
gateway(config-if)#ip address 192.168.1.1 255.255.255.0
gateway(config-if)#no shutdown
gateway(config-if)#exit
gateway(config)#ip route 192.168.2.0 255.255.255.0 192.168.1.2
gateway(config)#ip route 192.168.3.0 255.255.255.0 192.168.1.2
gateway(config)#exit
gateway#
%SYS-5-CONFIG_I: Configured from console by console

gateway#ping 192.168.2.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.2.2, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 2/3/6 ms

gateway#ping 192.168.3.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.3.2, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 3/5/12 ms

gateway#
```

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