

# **LAPORAN PRAKTIKUM JARINGAN KOMPUTER**

## **MODUL 11**

### **“PERANCANGAN JARINGAN LABORATORIUM SEDERHANA MENGGUNAKAN PACKET TRACER”**



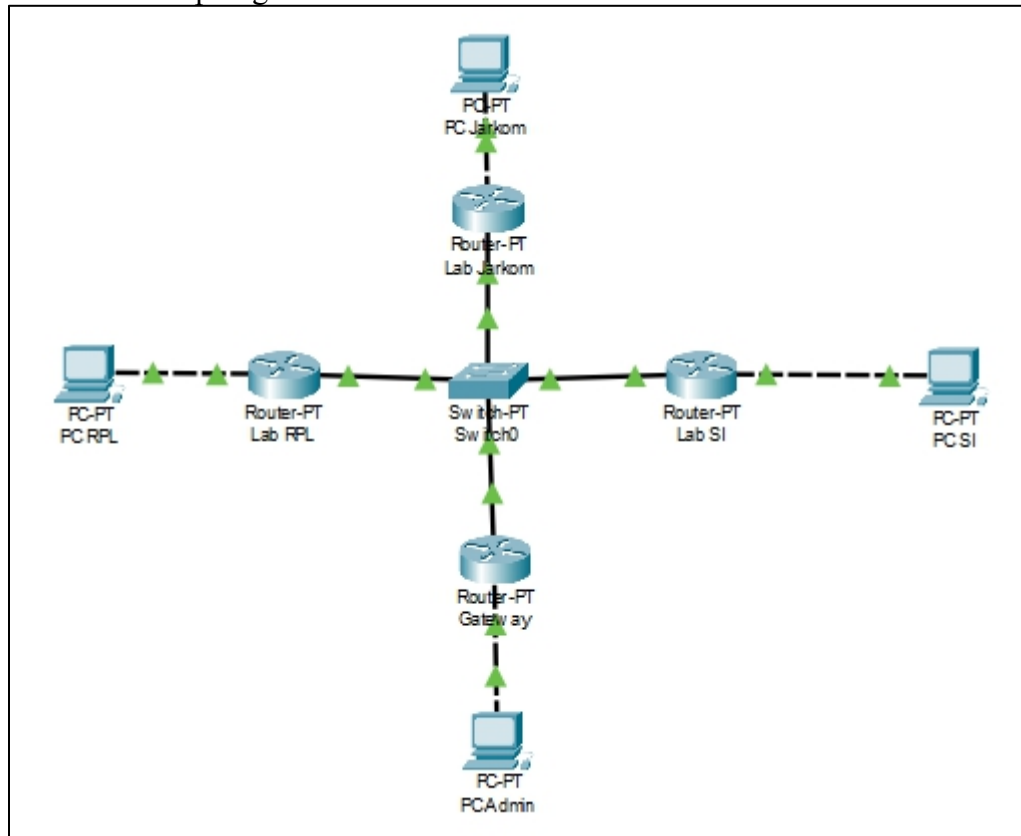
**Oleh:**

**NAMA : Daffa Putra Alwansyah**  
**NIM : L200190031**  
**KELAS : A**  
**PRODI : INFORMATIKA**

**Fakultas Komunikasi dan Informatika Universitas  
Muhammadiyah Surakarta**

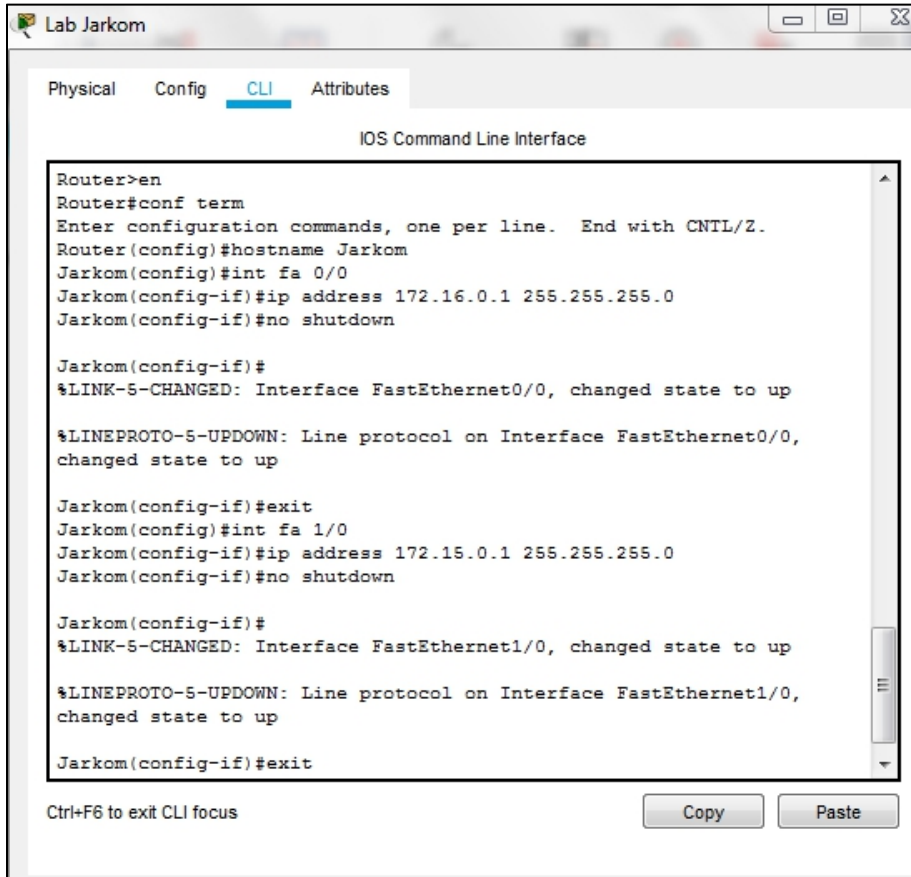
## D. Kegiatan Praktikum

### 1. Membuat topologi



## 2. Konfigurasi Router

### a. Router Lab Jarkom



The screenshot shows a window titled "Lab Jarkom" with tabs for Physical, Config, CLI, and Attributes. The CLI tab is active, displaying the "IOS Command Line Interface". The terminal output shows the following commands and responses:

```
Router>en
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname Jarkom
Jarkom(config)#int fa 0/0
Jarkom(config-if)#ip address 172.16.0.1 255.255.255.0
Jarkom(config-if)#no shutdown

Jarkom(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

Jarkom(config-if)#exit
Jarkom(config)#int fa 1/0
Jarkom(config-if)#ip address 172.15.0.1 255.255.255.0
Jarkom(config-if)#no shutdown

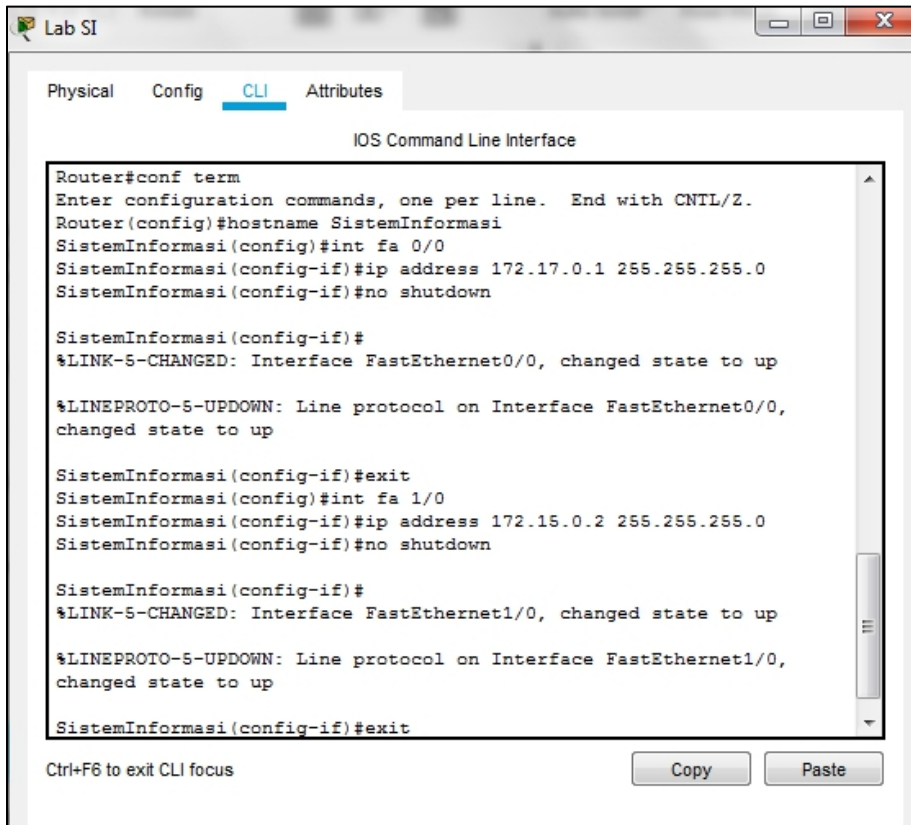
Jarkom(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up

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

Jarkom(config-if)#exit
```

At the bottom, there is a prompt "Ctrl+F6 to exit CLI focus" and two buttons: "Copy" and "Paste".

### b. Router Lab SI



The screenshot shows a window titled "Lab SI" with tabs for Physical, Config, CLI, and Attributes. The CLI tab is active, displaying the "IOS Command Line Interface". The terminal output shows the following commands and responses:

```
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname SistemInformasi
SistemInformasi(config)#int fa 0/0
SistemInformasi(config-if)#ip address 172.17.0.1 255.255.255.0
SistemInformasi(config-if)#no shutdown

SistemInformasi(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

SistemInformasi(config-if)#exit
SistemInformasi(config)#int fa 1/0
SistemInformasi(config-if)#ip address 172.15.0.2 255.255.255.0
SistemInformasi(config-if)#no shutdown

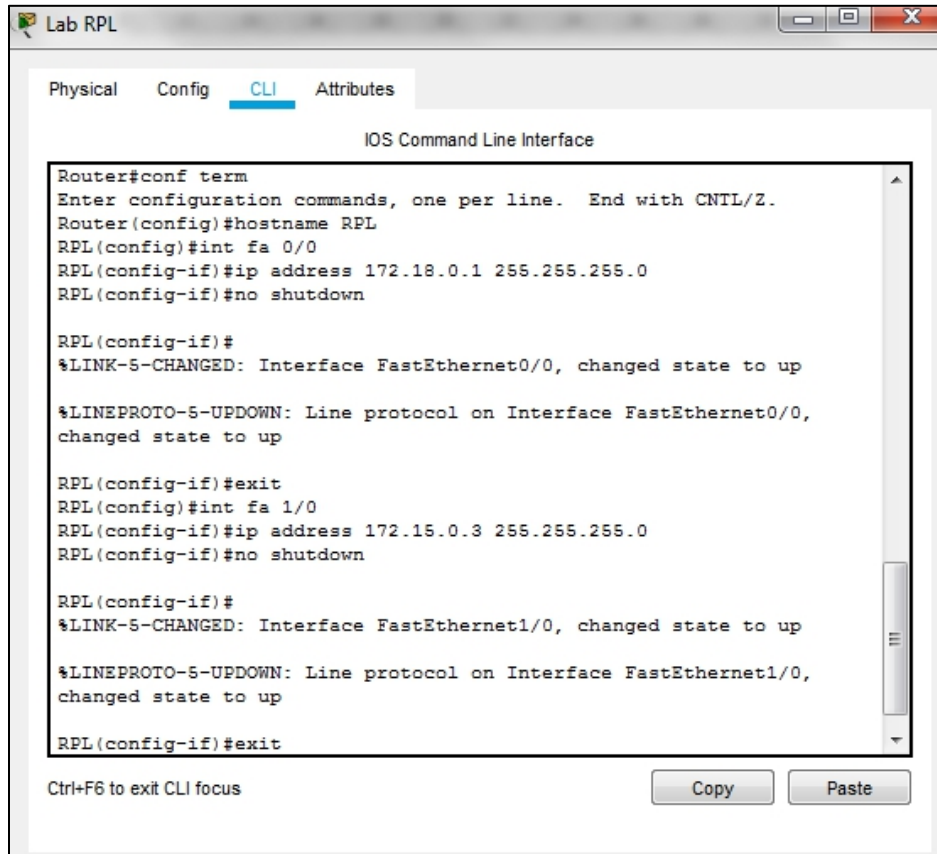
SistemInformasi(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up

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

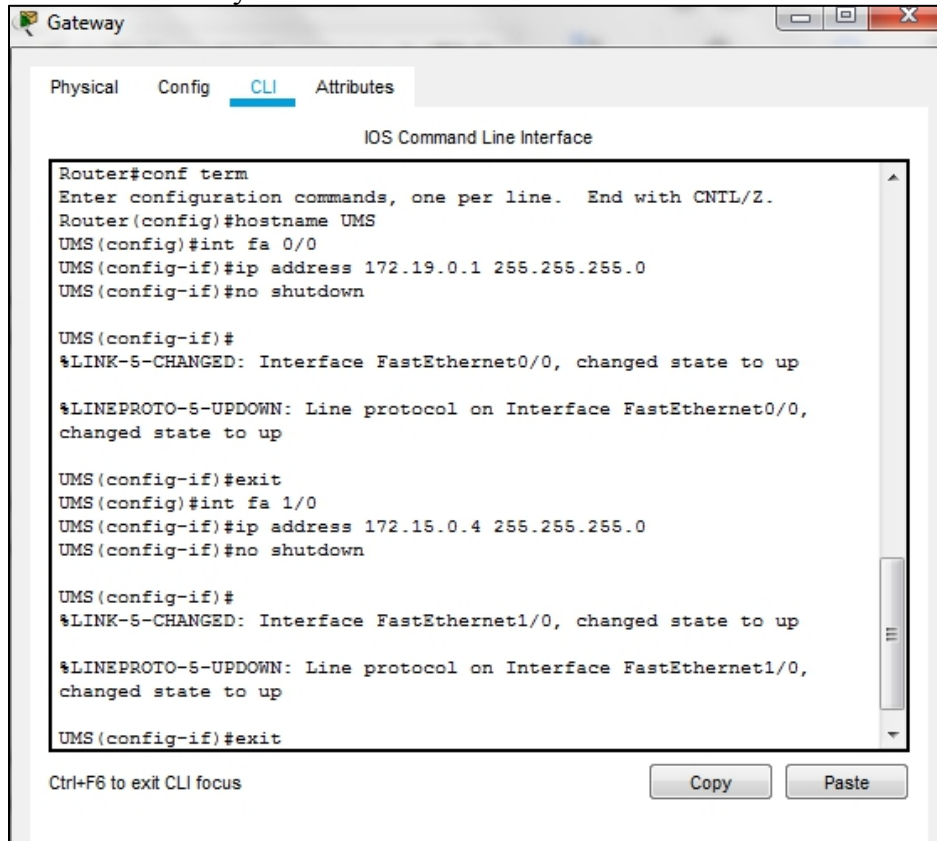
SistemInformasi(config-if)#exit
```

At the bottom, there is a prompt "Ctrl+F6 to exit CLI focus" and two buttons: "Copy" and "Paste".

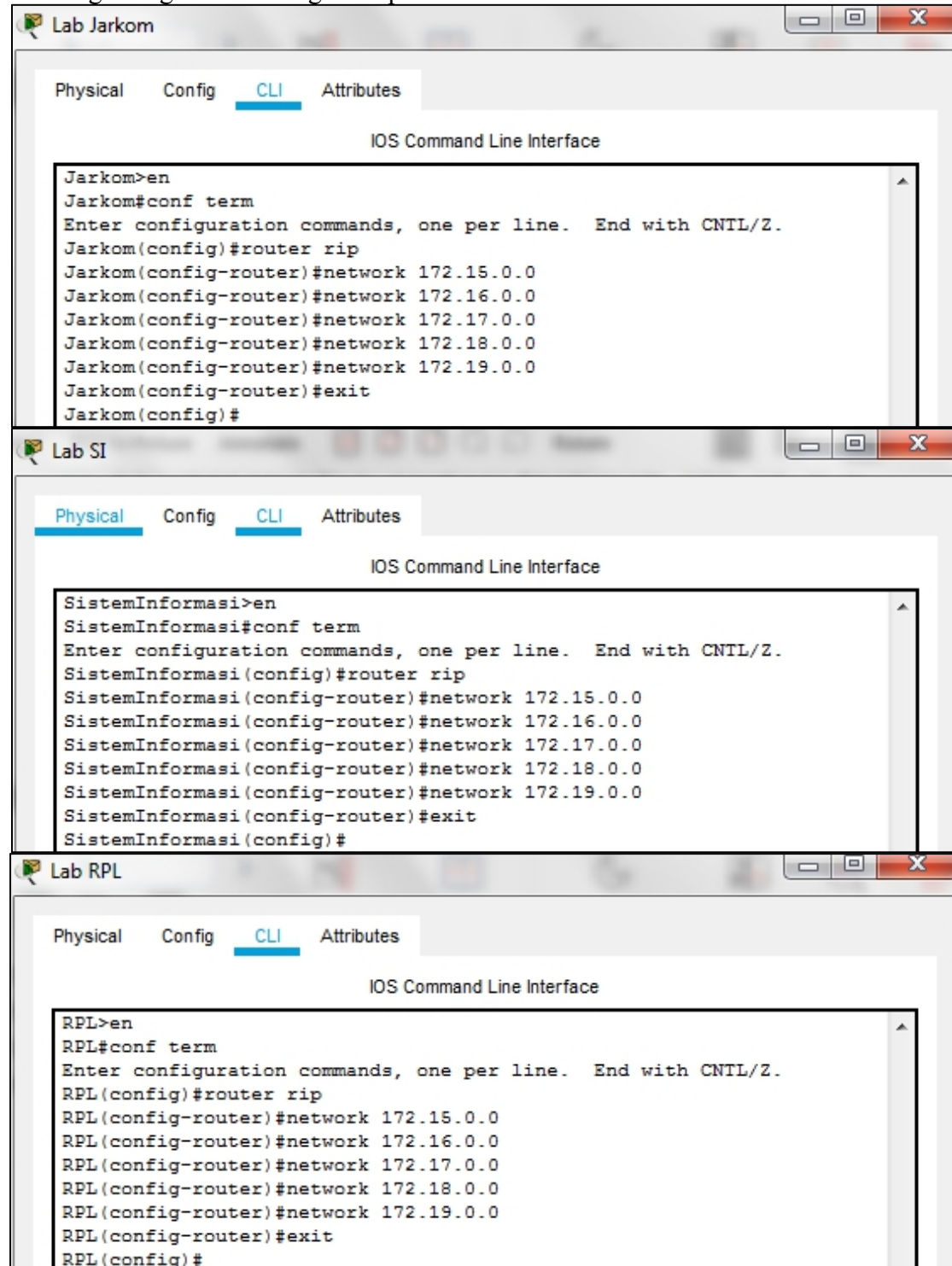
### c. Router Lab RPL

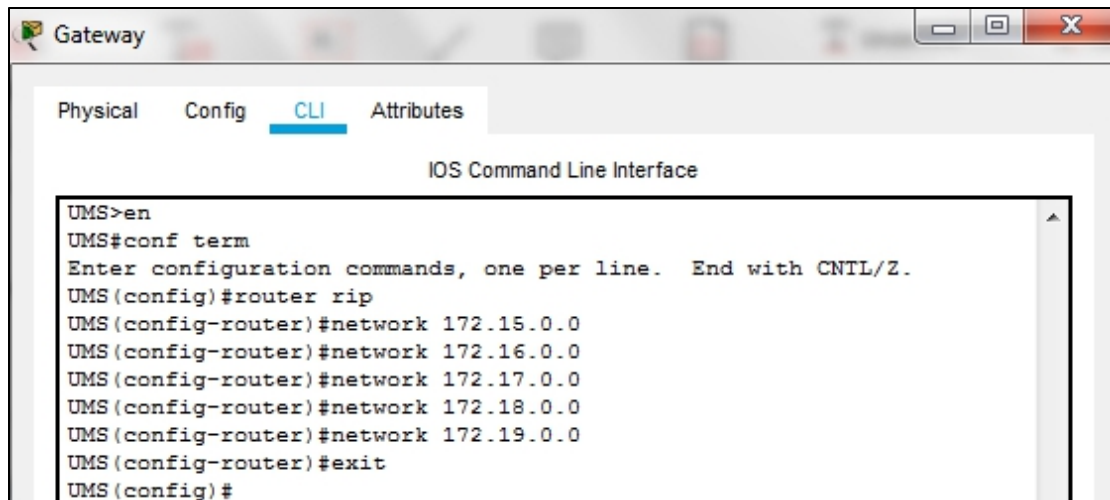


### d. Router Gateway

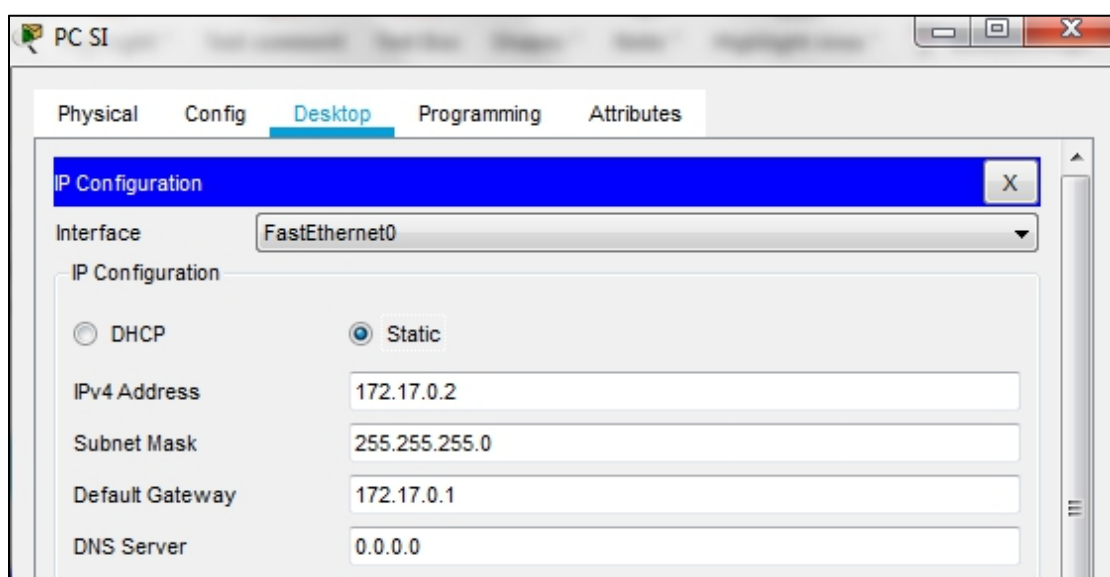
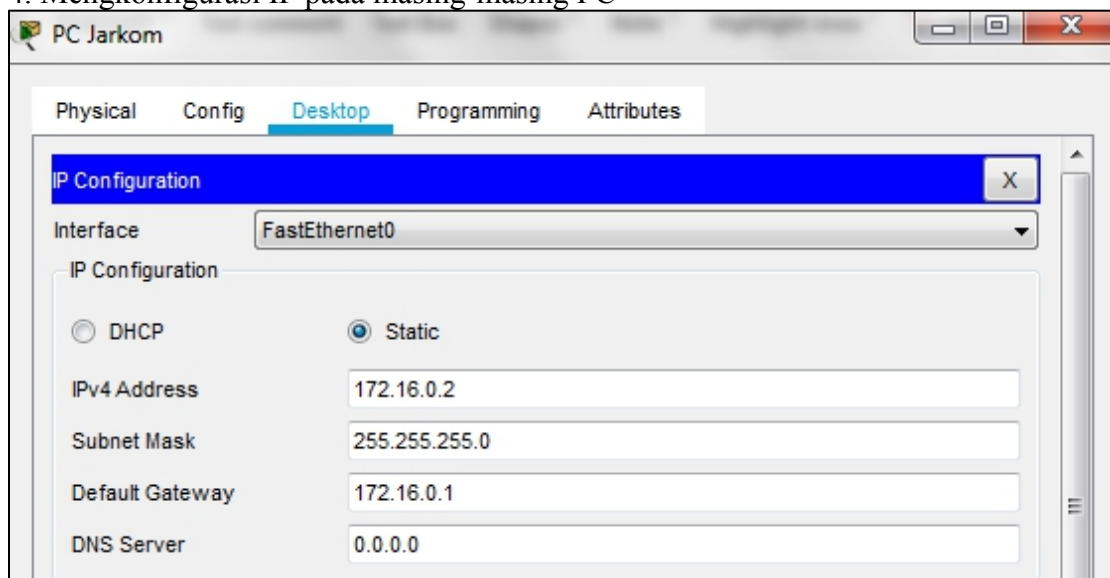


### 3. Mengkonfigurasi Routing table pada 4 Router





#### 4. Mengkonfigurasi IP pada masing-masing PC





PC RPL

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 172.18.0.2

Subnet Mask 255.255.255.0

Default Gateway 172.18.0.1

DNS Server 0.0.0.0

PC Admin

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address 172.19.0.2

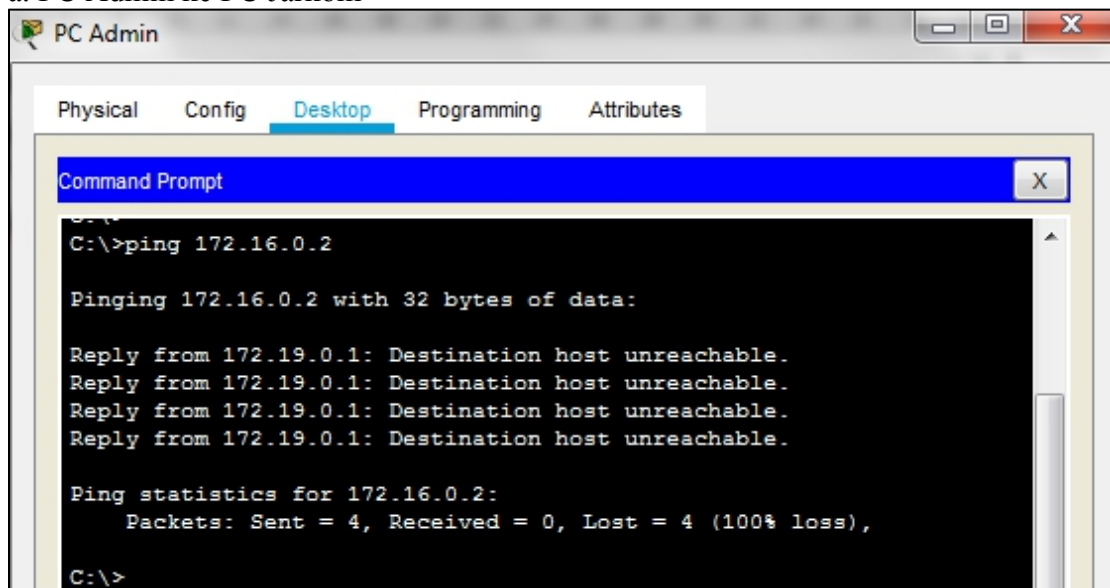
Subnet Mask 255.255.255.0

Default Gateway 172.19.0.1

DNS Server 0.0.0.0

5. Melakukan ping dari PC Admin ke semua PC

a. PC Admin ke PC Jarkom



The screenshot shows a window titled "PC Admin" with tabs for Physical, Config, Desktop, Programming, and Attributes. The "Desktop" tab is active, displaying a "Command Prompt" window. The command prompt shows the execution of the command "C:\>ping 172.16.0.2". The output indicates that the destination host is unreachable, with a 100% loss of packets.

```
C:\>ping 172.16.0.2

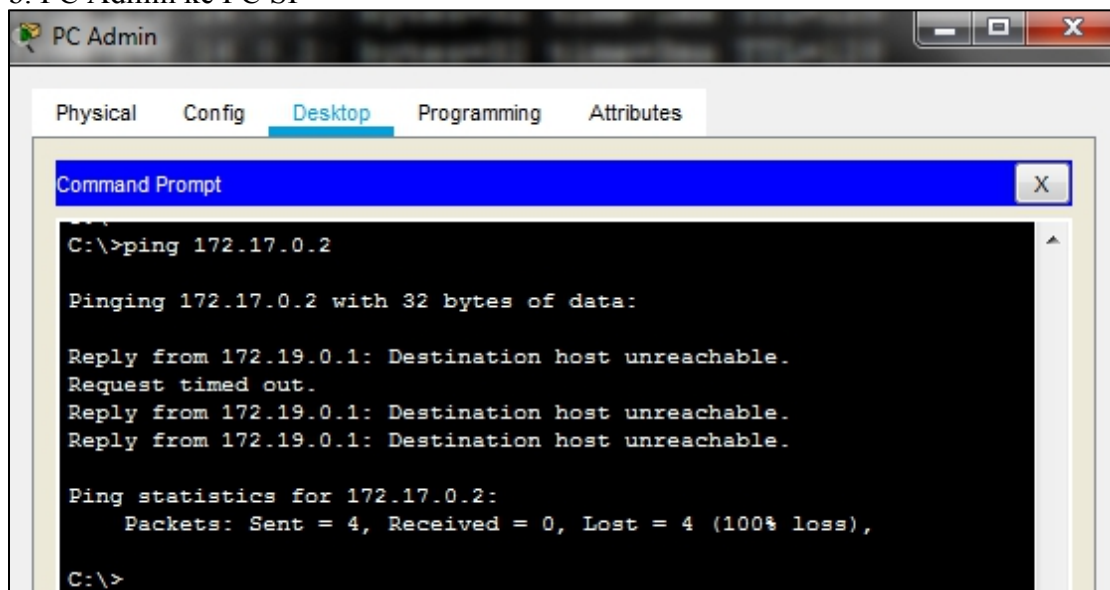
Pinging 172.16.0.2 with 32 bytes of data:

Reply from 172.19.0.1: Destination host unreachable.
Reply from 172.19.0.1: Destination host unreachable.
Reply from 172.19.0.1: Destination host unreachable.
Reply from 172.19.0.1: Destination host unreachable.

Ping statistics for 172.16.0.2:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>
```

b. PC Admin ke PC SI



The screenshot shows a window titled "PC Admin" with tabs for Physical, Config, Desktop, Programming, and Attributes. The "Desktop" tab is active, displaying a "Command Prompt" window. The command prompt shows the execution of the command "C:\>ping 172.17.0.2". The output indicates that the destination host is unreachable, with a 100% loss of packets.

```
C:\>ping 172.17.0.2

Pinging 172.17.0.2 with 32 bytes of data:

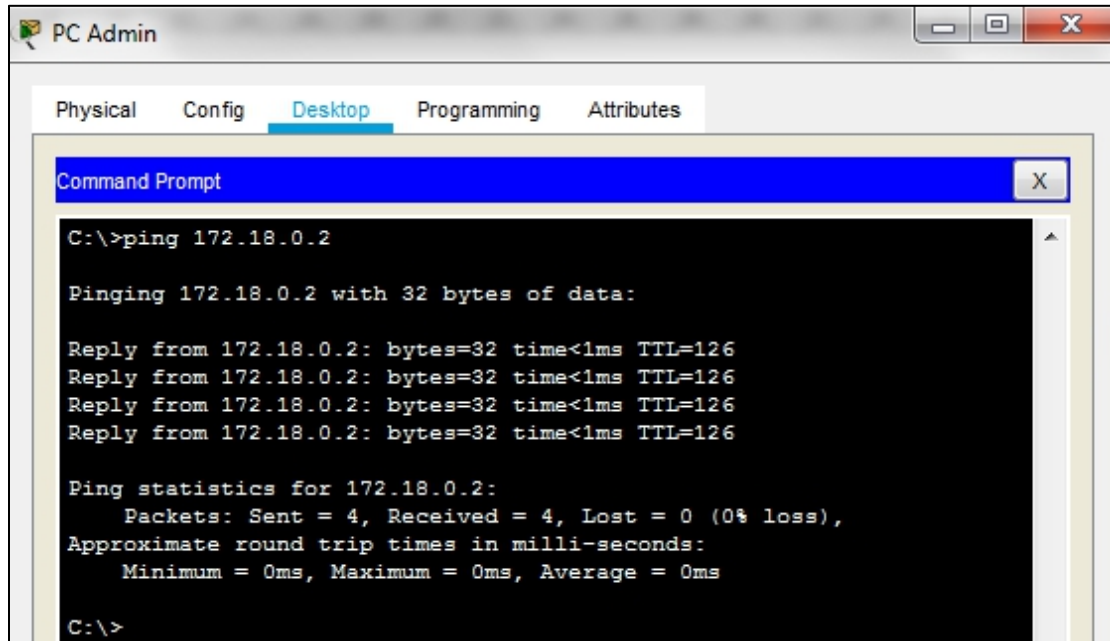
Reply from 172.19.0.1: Destination host unreachable.
Request timed out.
Reply from 172.19.0.1: Destination host unreachable.
Reply from 172.19.0.1: Destination host unreachable.

Ping statistics for 172.17.0.2:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>
```



c. PC Admin ke PC RPL

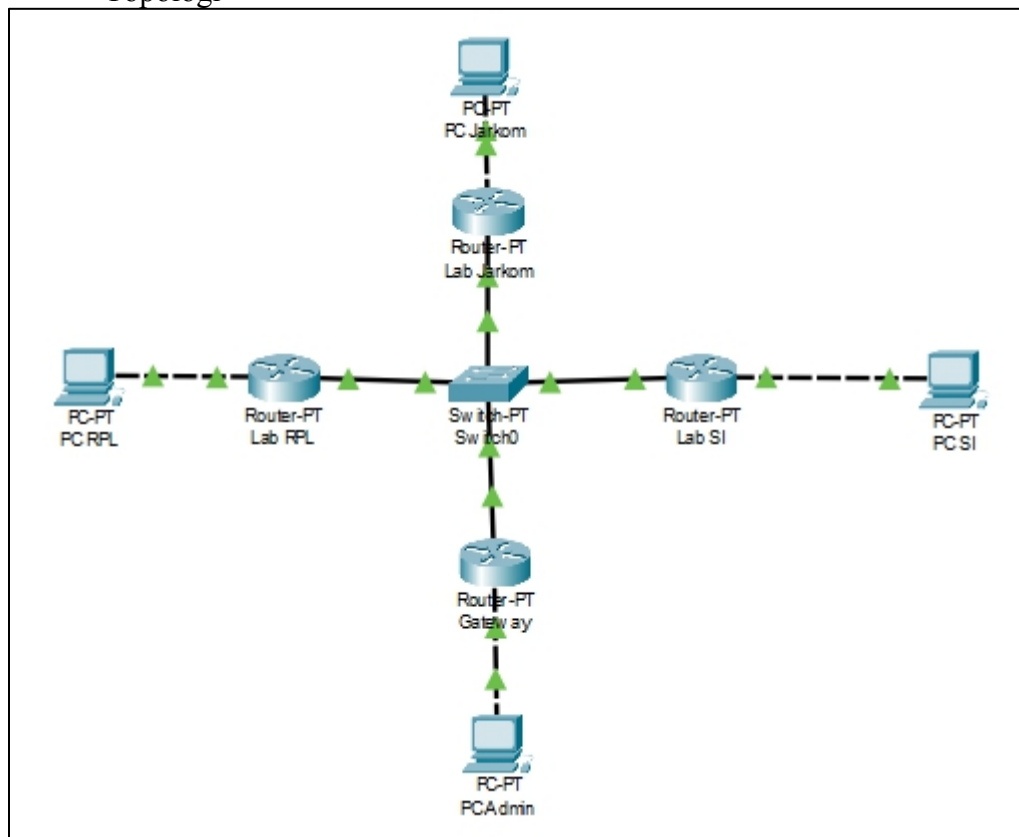


## Tugas

1. Membuat topologi jaringan menggunakan routing statis.

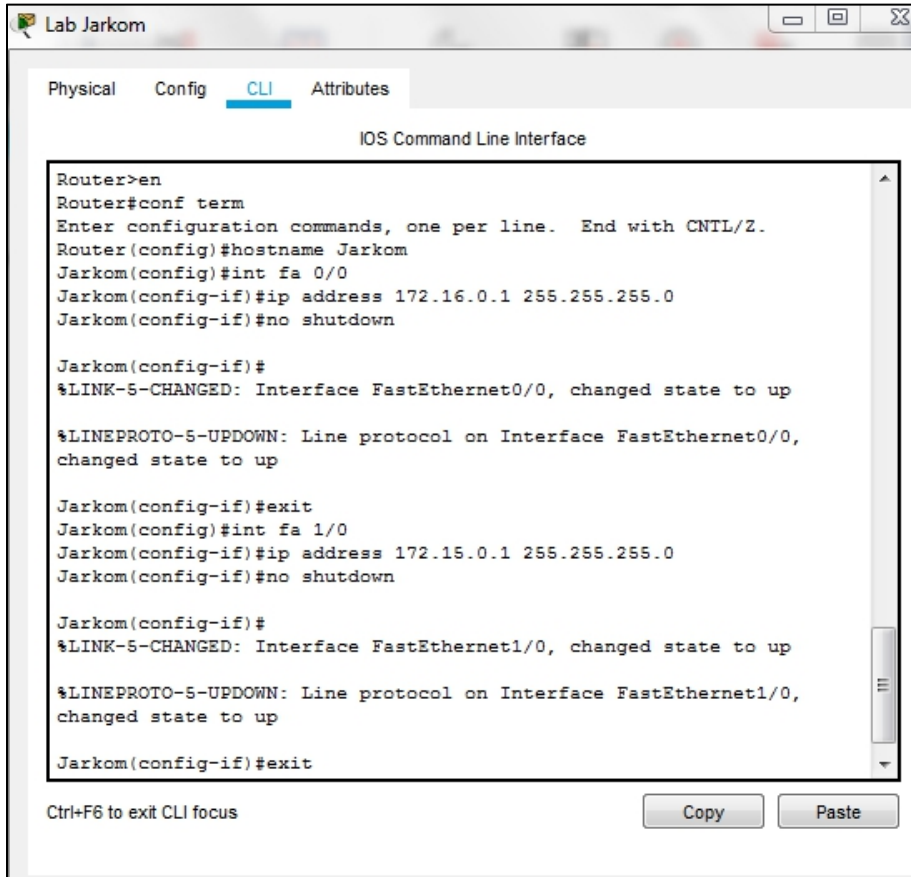
a. Membuat routing statis dari soal nomor 1.

- Topologi



## 2. Konfigurasi Router

### a. Router Lab Jarkom



The screenshot shows a window titled "Lab Jarkom" with tabs for Physical, Config, CLI, and Attributes. The CLI tab is active, displaying the "IOS Command Line Interface". The terminal output shows the following commands and responses:

```
Router>en
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname Jarkom
Jarkom(config)#int fa 0/0
Jarkom(config-if)#ip address 172.16.0.1 255.255.255.0
Jarkom(config-if)#no shutdown

Jarkom(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

Jarkom(config-if)#exit
Jarkom(config)#int fa 1/0
Jarkom(config-if)#ip address 172.15.0.1 255.255.255.0
Jarkom(config-if)#no shutdown

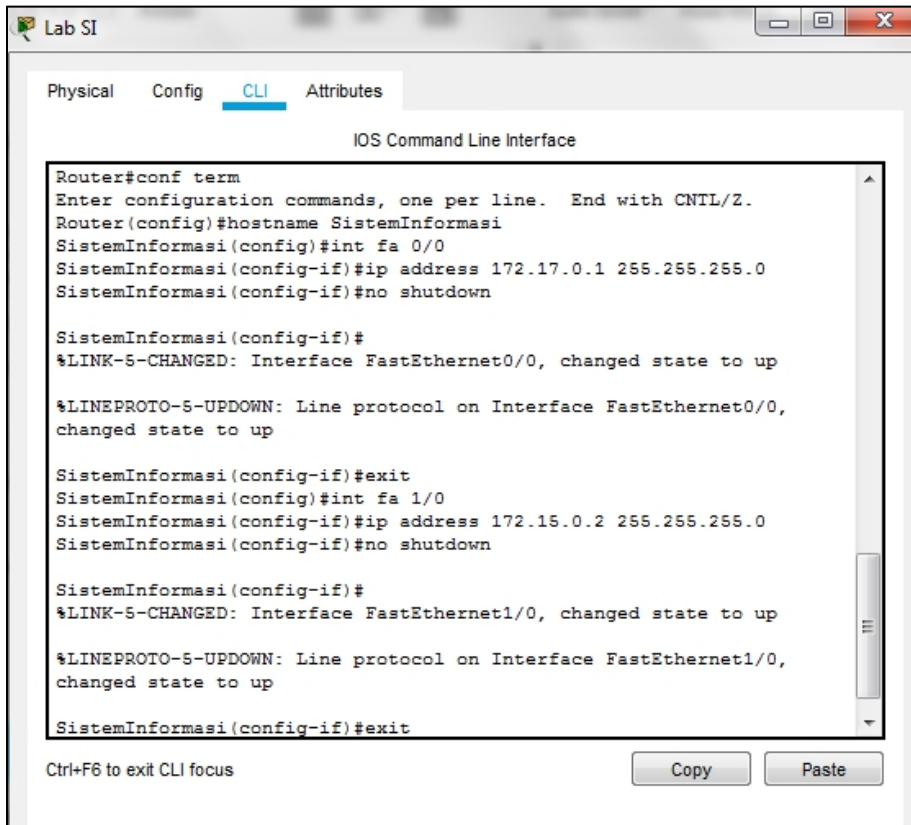
Jarkom(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up

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

Jarkom(config-if)#exit
```

At the bottom, there is a prompt "Ctrl+F6 to exit CLI focus" and two buttons: "Copy" and "Paste".

### b. Router Lab SI



The screenshot shows a window titled "Lab SI" with tabs for Physical, Config, CLI, and Attributes. The CLI tab is active, displaying the "IOS Command Line Interface". The terminal output shows the following commands and responses:

```
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname SistemInformasi
SistemInformasi(config)#int fa 0/0
SistemInformasi(config-if)#ip address 172.17.0.1 255.255.255.0
SistemInformasi(config-if)#no shutdown

SistemInformasi(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

SistemInformasi(config-if)#exit
SistemInformasi(config)#int fa 1/0
SistemInformasi(config-if)#ip address 172.15.0.2 255.255.255.0
SistemInformasi(config-if)#no shutdown

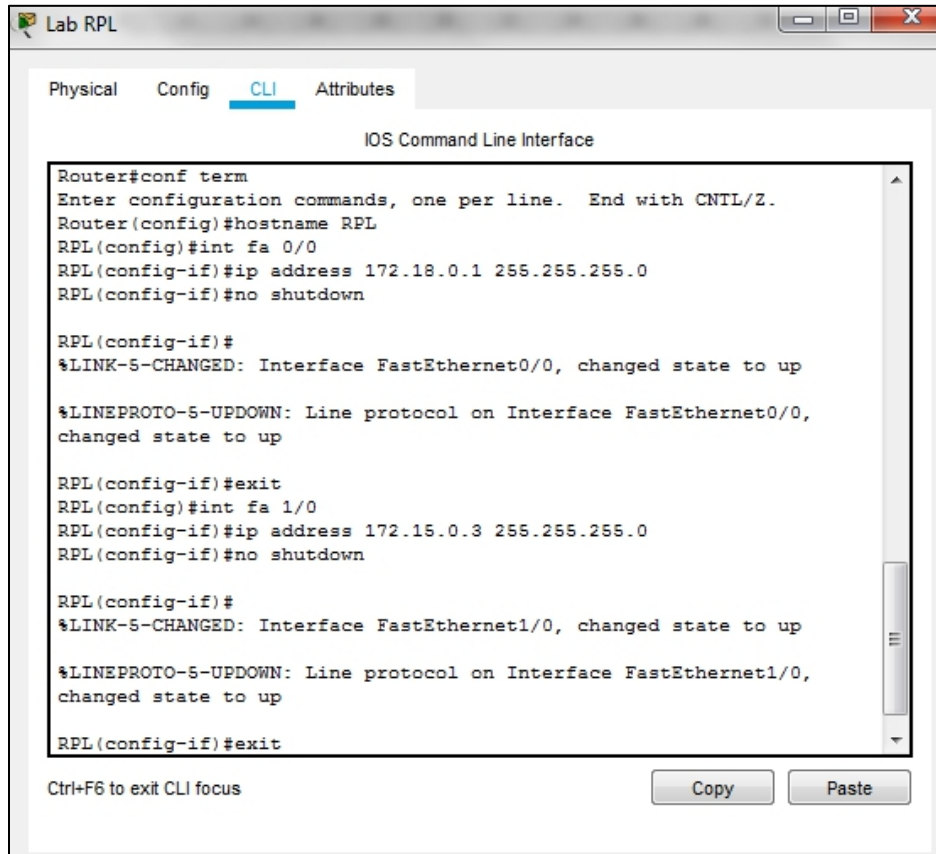
SistemInformasi(config-if)#
%LINK-5-CHANGED: Interface FastEthernet1/0, changed state to up

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

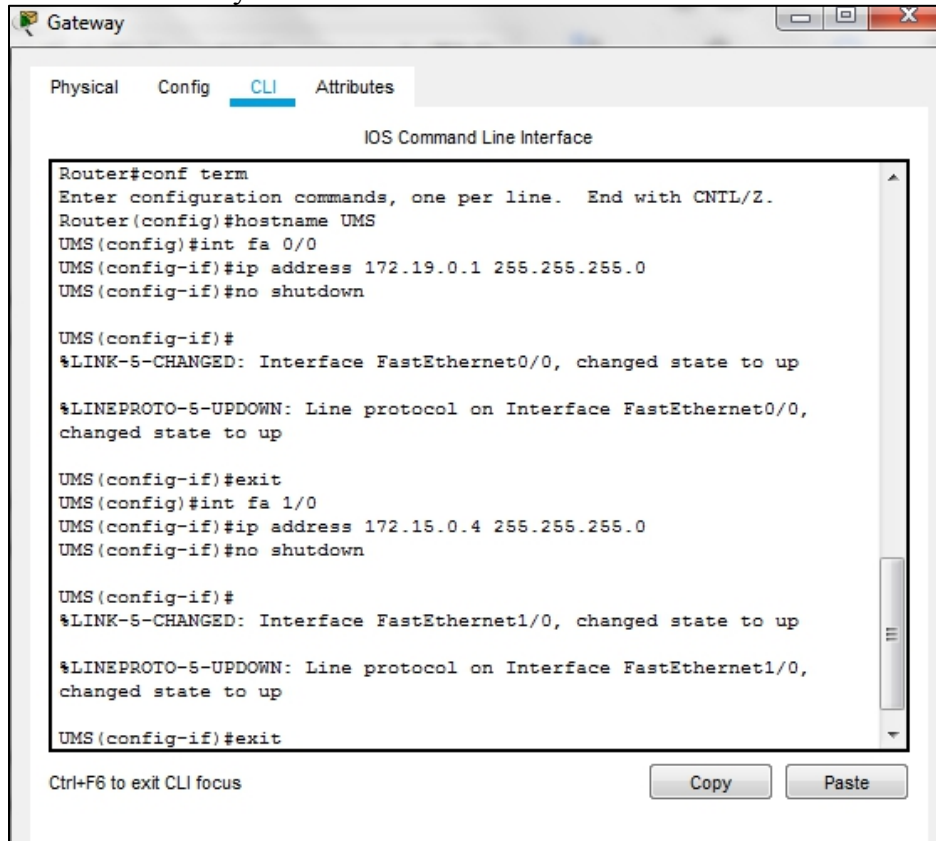
SistemInformasi(config-if)#exit
```

At the bottom, there is a prompt "Ctrl+F6 to exit CLI focus" and two buttons: "Copy" and "Paste".

### c. Router Lab RPL



### d. Router Gateway



### 3. Mengkonfigurasi IP pada masing-masing PC

The image displays two screenshots of the Packet Tracer configuration interface, specifically the 'Desktop' tab for two different PCs: PC Jarkom and PC SI. Both windows show the 'IP Configuration' section, where the 'Interface' is set to 'FastEthernet0'. The configuration is set to 'Static' IP. For PC Jarkom, the IPv4 Address is 172.16.0.2, Subnet Mask is 255.255.255.0, Default Gateway is 172.16.0.1, and DNS Server is 0.0.0.0. For PC SI, the IPv4 Address is 172.17.0.2, Subnet Mask is 255.255.255.0, Default Gateway is 172.17.0.1, and DNS Server is 0.0.0.0.

**PC Jarkom**

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface: FastEthernet0

IP Configuration

☐ DHCP ☒ Static

IPv4 Address: 172.16.0.2

Subnet Mask: 255.255.255.0

Default Gateway: 172.16.0.1

DNS Server: 0.0.0.0

**PC SI**

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface: FastEthernet0

IP Configuration

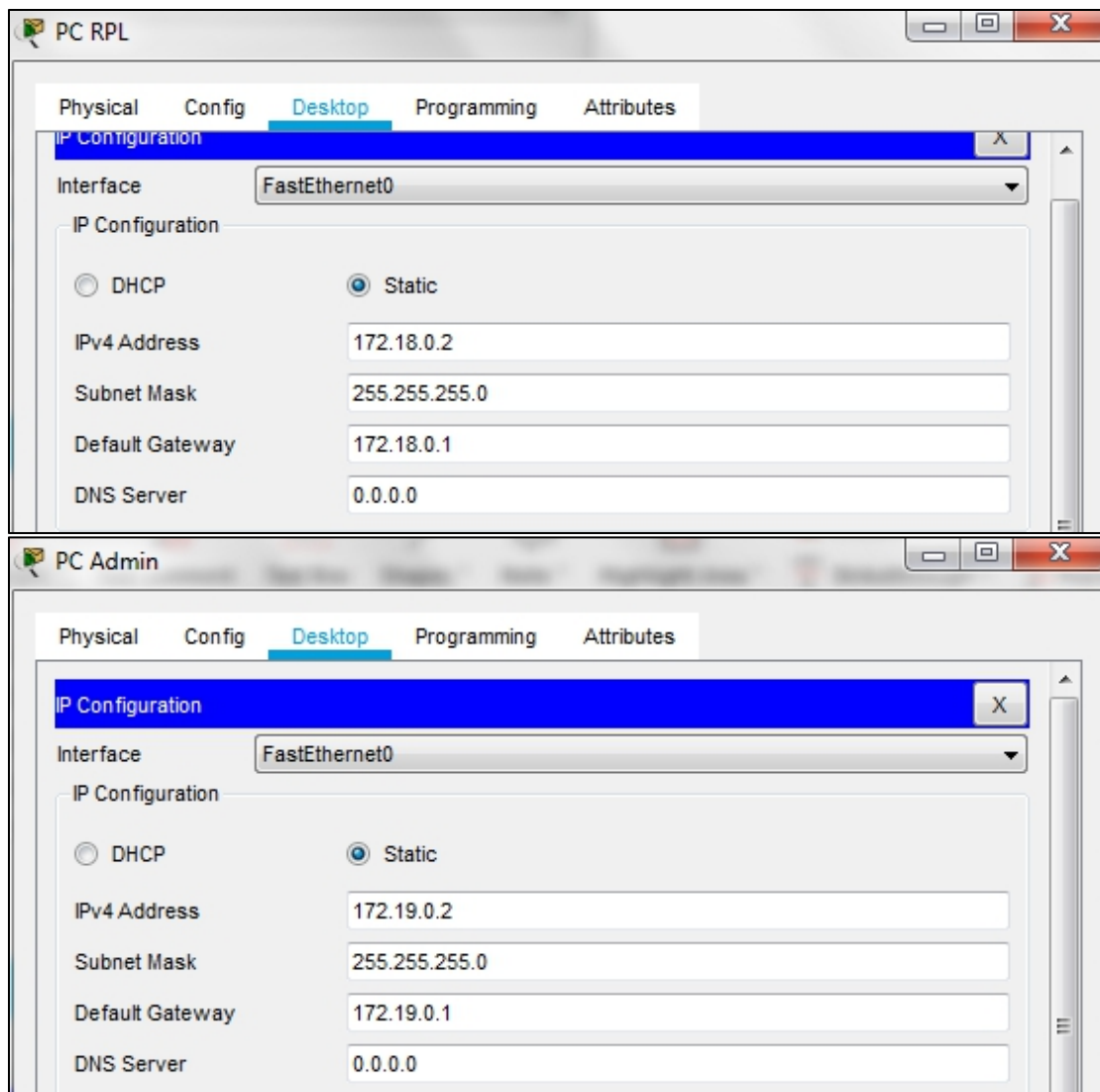
☐ DHCP ☒ Static

IPv4 Address: 172.17.0.2

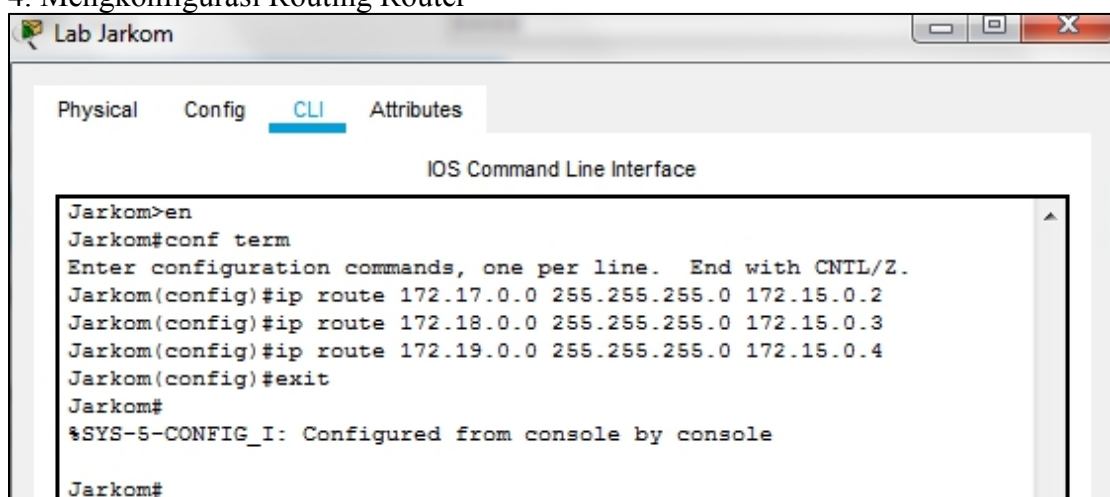
Subnet Mask: 255.255.255.0

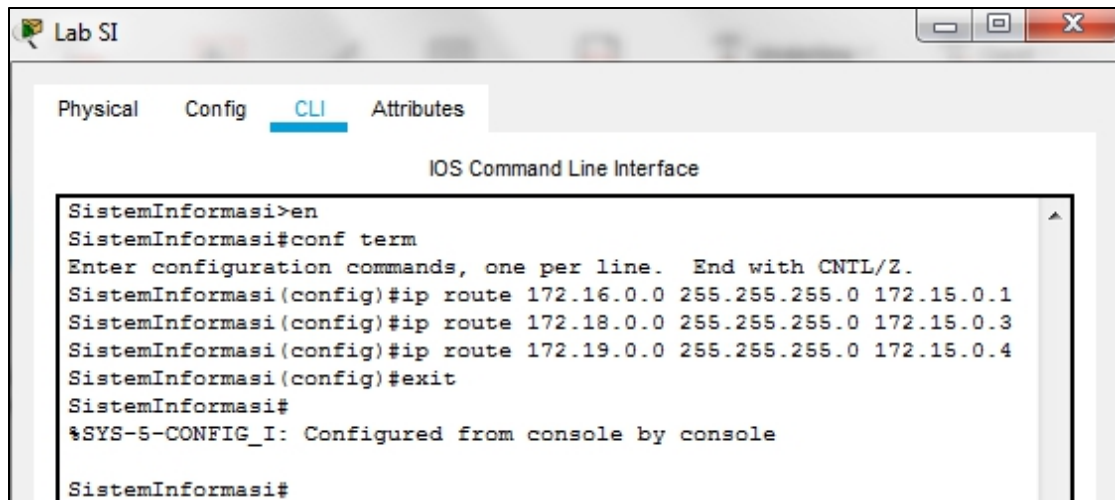
Default Gateway: 172.17.0.1

DNS Server: 0.0.0.0



#### 4. Mengkonfigurasi Routing Router



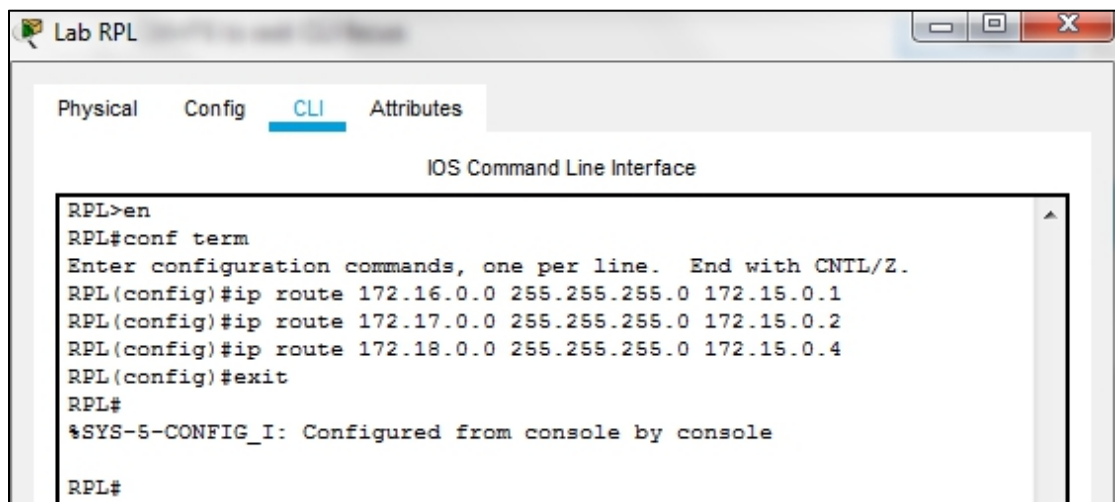


Lab SI

Physical Config CLI Attributes

IOS Command Line Interface

```
SistemInformasi>en
SistemInformasi#conf term
Enter configuration commands, one per line. End with CNTL/Z.
SistemInformasi(config)#ip route 172.16.0.0 255.255.255.0 172.15.0.1
SistemInformasi(config)#ip route 172.18.0.0 255.255.255.0 172.15.0.3
SistemInformasi(config)#ip route 172.19.0.0 255.255.255.0 172.15.0.4
SistemInformasi(config)#exit
SistemInformasi#
%SYS-5-CONFIG_I: Configured from console by console
SistemInformasi#
```

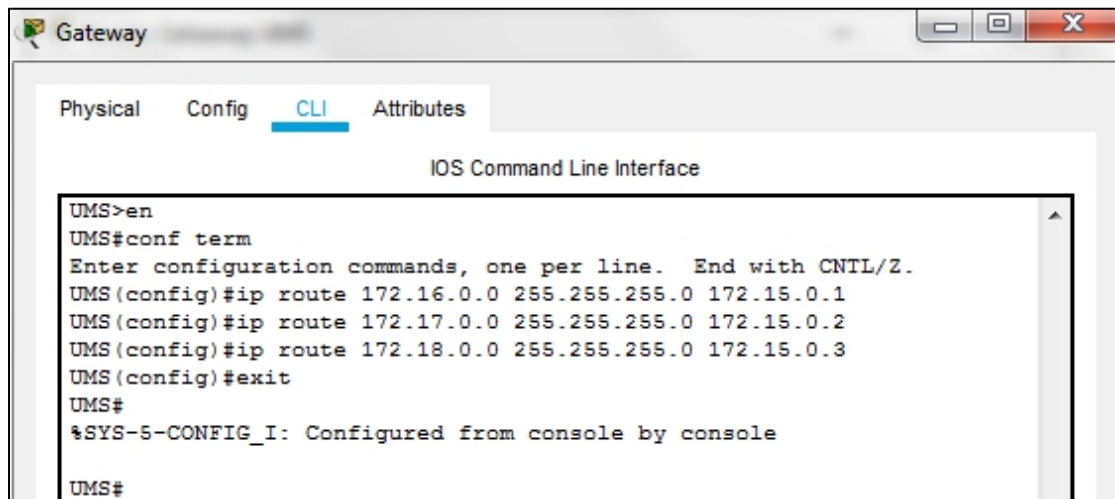


Lab RPL

Physical Config CLI Attributes

IOS Command Line Interface

```
RPL>en
RPL#conf term
Enter configuration commands, one per line. End with CNTL/Z.
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 172.18.0.0 255.255.255.0 172.15.0.4
RPL(config)#exit
RPL#
%SYS-5-CONFIG_I: Configured from console by console
RPL#
```



Gateway

Physical Config CLI Attributes

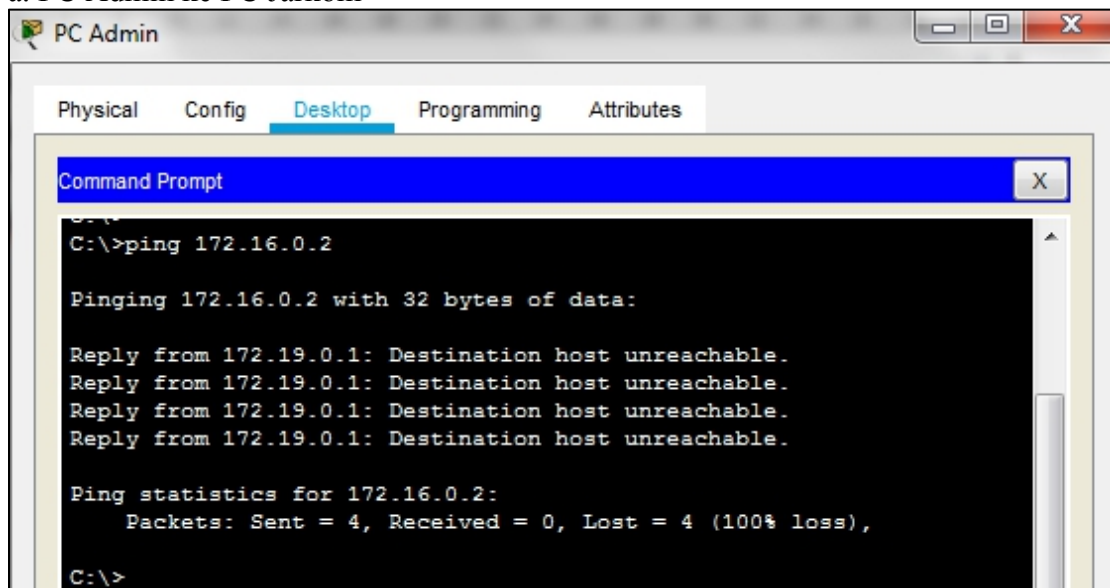
IOS Command Line Interface

```
UMS>en
UMS#conf term
Enter configuration commands, one per line. End with CNTL/Z.
UMS(config)#ip route 172.16.0.0 255.255.255.0 172.15.0.1
UMS(config)#ip route 172.17.0.0 255.255.255.0 172.15.0.2
UMS(config)#ip route 172.18.0.0 255.255.255.0 172.15.0.3
UMS(config)#exit
UMS#
%SYS-5-CONFIG_I: Configured from console by console
UMS#
```



5. Menguji konektivitas antar PC klien.

a. PC Admin ke PC Jarkom



The screenshot shows the 'PC Admin' window with the 'Desktop' tab selected. A 'Command Prompt' window is open, displaying the command 'C:\>ping 172.16.0.2'. The output shows four failed replies from 172.19.0.1, indicating a 100% loss of packets.

```
C:\>ping 172.16.0.2

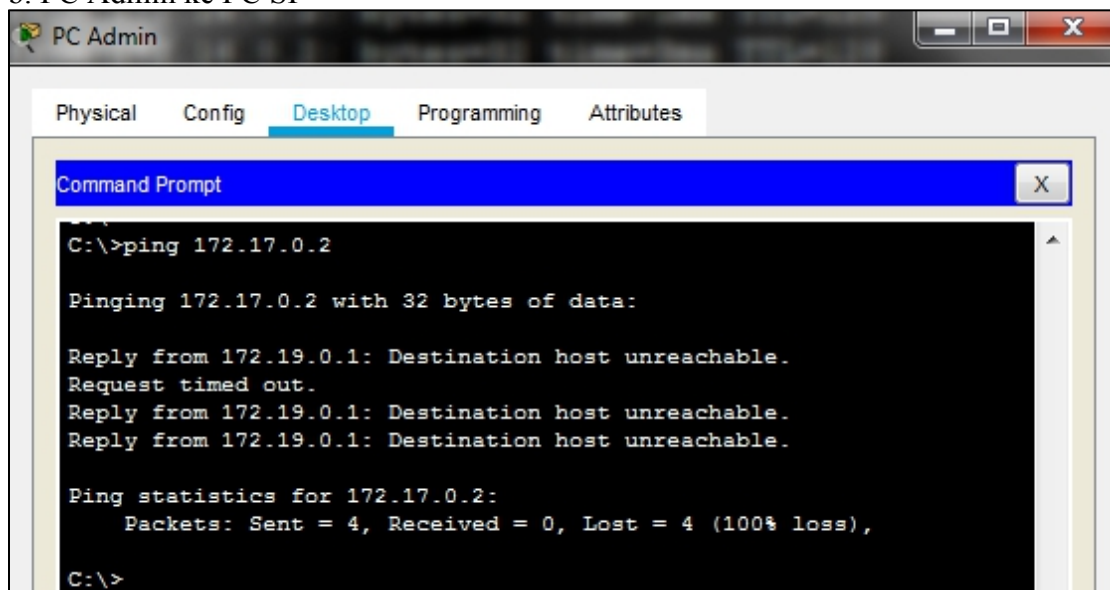
Pinging 172.16.0.2 with 32 bytes of data:

Reply from 172.19.0.1: Destination host unreachable.
Reply from 172.19.0.1: Destination host unreachable.
Reply from 172.19.0.1: Destination host unreachable.
Reply from 172.19.0.1: Destination host unreachable.

Ping statistics for 172.16.0.2:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>
```

b. PC Admin ke PC SI



The screenshot shows the 'PC Admin' window with the 'Desktop' tab selected. A 'Command Prompt' window is open, displaying the command 'C:\>ping 172.17.0.2'. The output shows four failed replies from 172.19.0.1, indicating a 100% loss of packets.

```
C:\>ping 172.17.0.2

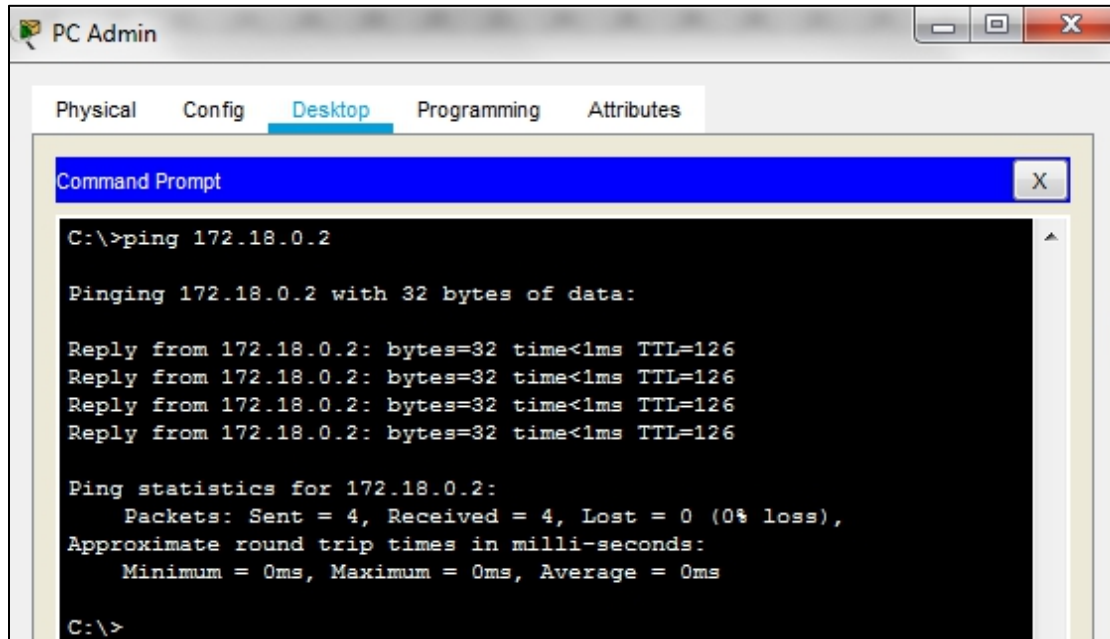
Pinging 172.17.0.2 with 32 bytes of data:

Reply from 172.19.0.1: Destination host unreachable.
Request timed out.
Reply from 172.19.0.1: Destination host unreachable.
Reply from 172.19.0.1: Destination host unreachable.

Ping statistics for 172.17.0.2:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>
```

c. PC Admin ke PC RPL



```
PC Admin
Physical Config Desktop Programming Attributes

Command Prompt

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

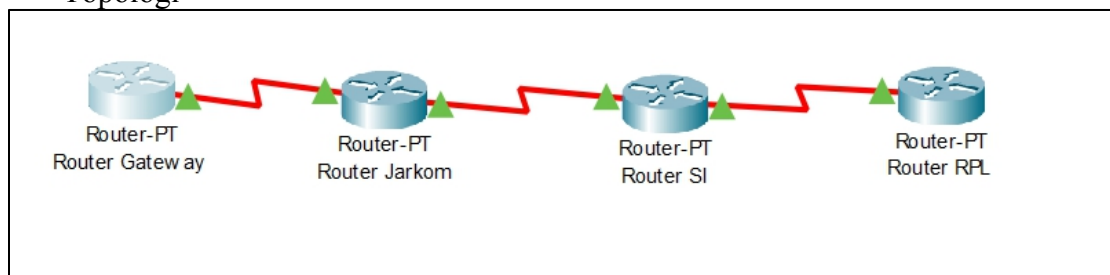
Ping statistics for 172.18.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

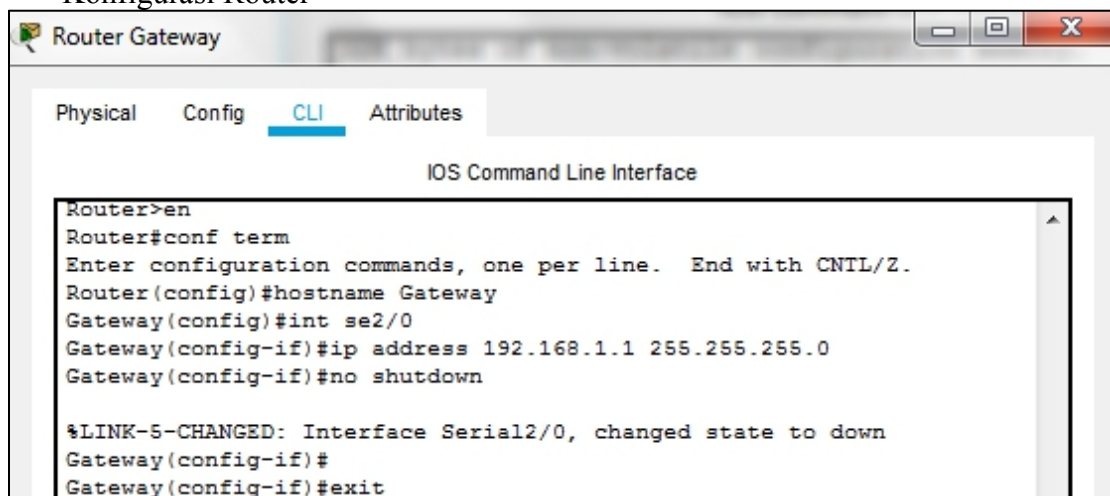
2. Membuat topologi jaringan BUS untuk membangun sebuah laboratorium komputer yang terdiri dari 3 router (jarkom, rpl, SI) dan berpusat pada 1 router gateway, dengan metode routing :

a. Statis

==>Topologi



==>Konfigurasi Router

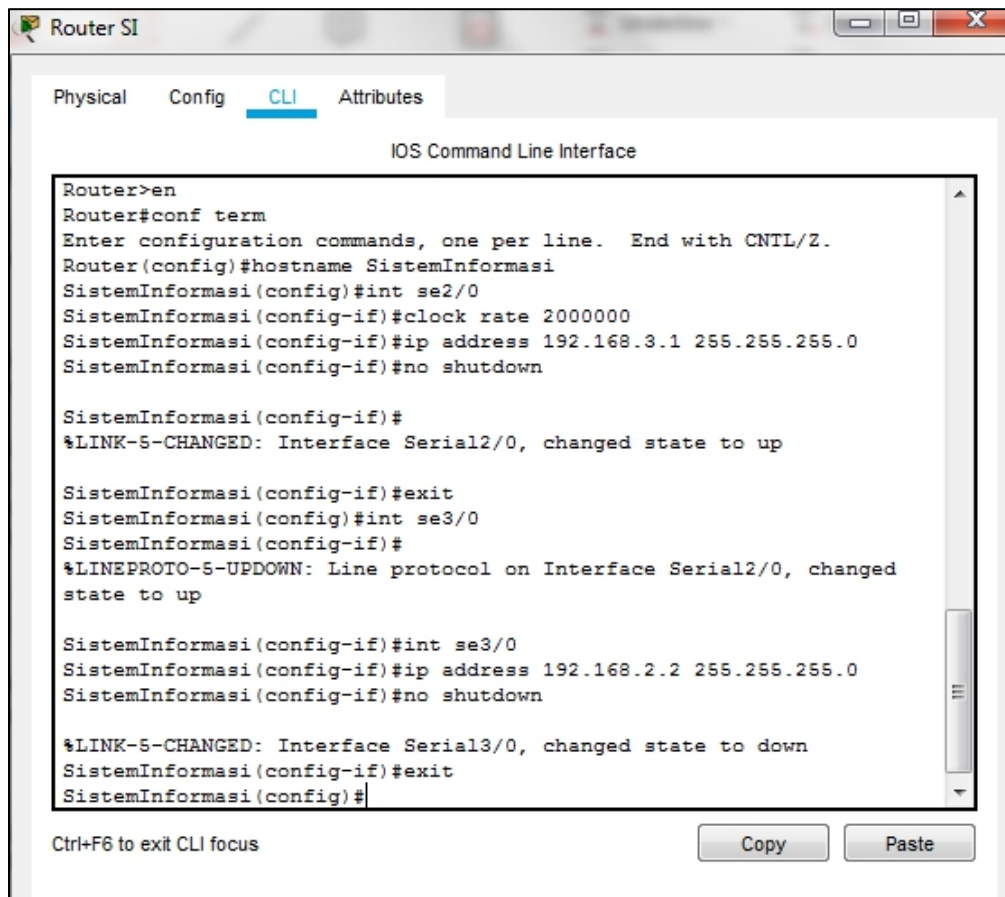
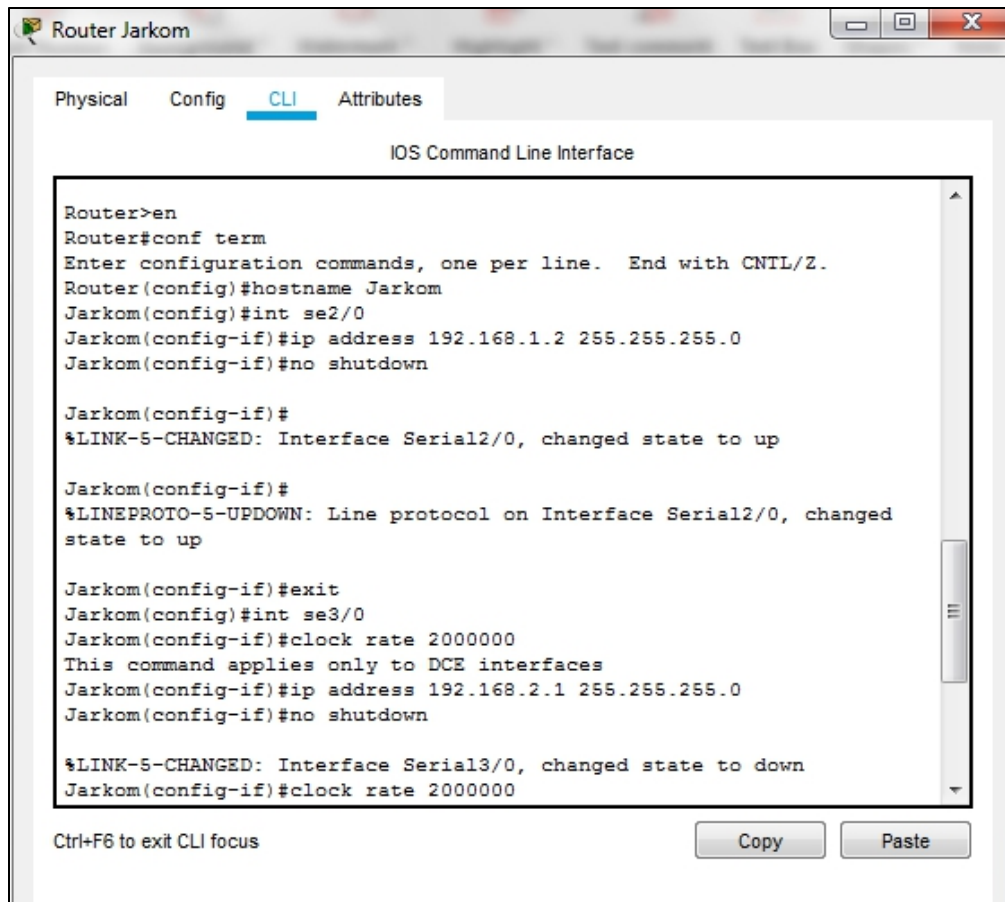


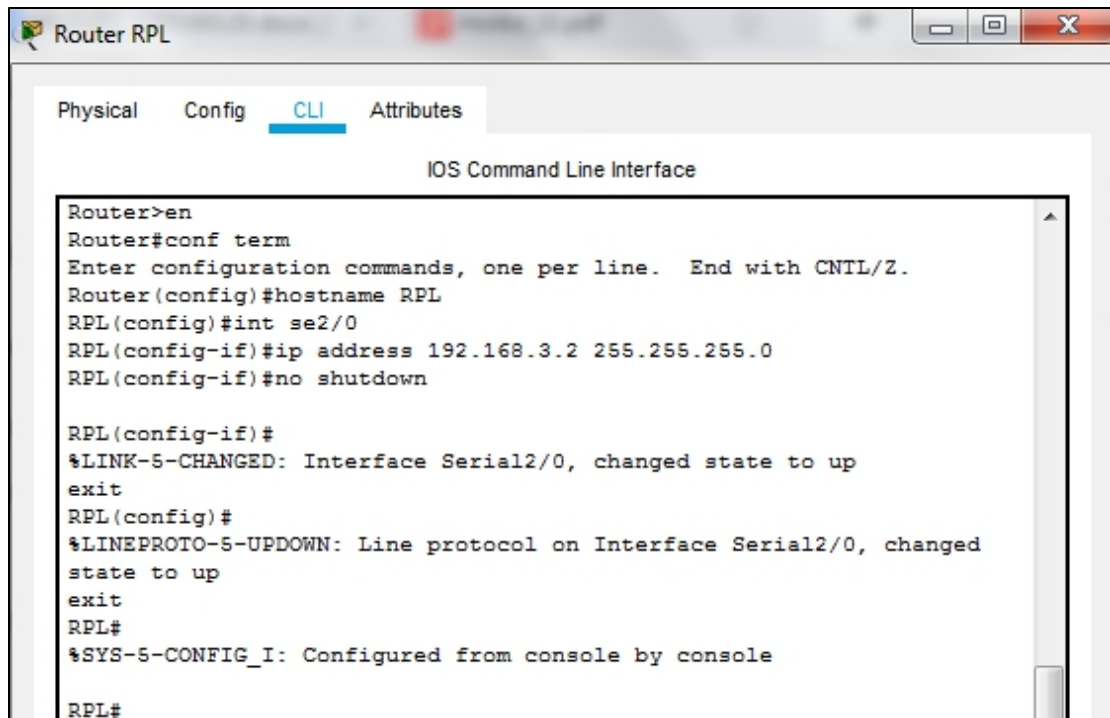
```
Router Gateway
Physical Config CLI Attributes

IOS Command Line Interface

Router>en
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname Gateway
Gateway(config)#int se2/0
Gateway(config-if)#ip address 192.168.1.1 255.255.255.0
Gateway(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial2/0, changed state to down
Gateway(config-if)#
Gateway(config-if)#exit
```





Router RPL

Physical Config CLI Attributes

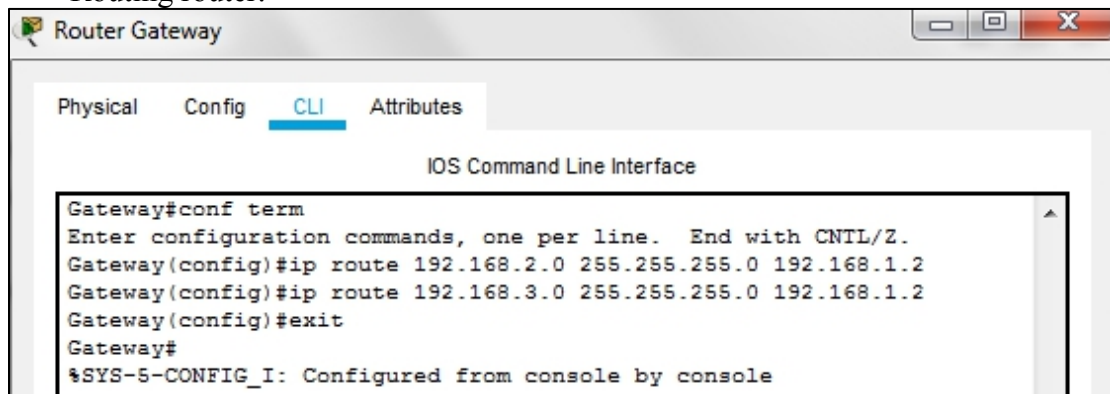
IOS Command Line Interface

```
Router>en
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname RPL
RPL(config)#int se2/0
RPL(config-if)#ip address 192.168.3.2 255.255.255.0
RPL(config-if)#no shutdown

RPL(config-if)#
%LINK-5-CHANGED: Interface Serial2/0, changed state to up
exit
RPL(config)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial2/0, changed
state to up
exit
RPL#
%SYS-5-CONFIG_I: Configured from console by console

RPL#
```

==> Routing router.

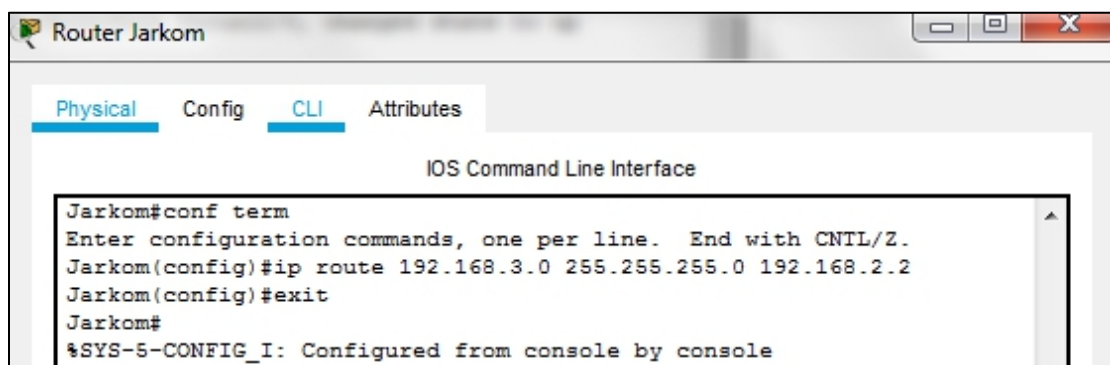


Router Gateway

Physical Config CLI Attributes

IOS Command Line Interface

```
Gateway#conf term
Enter configuration commands, one per line. End with CNTL/Z.
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
```

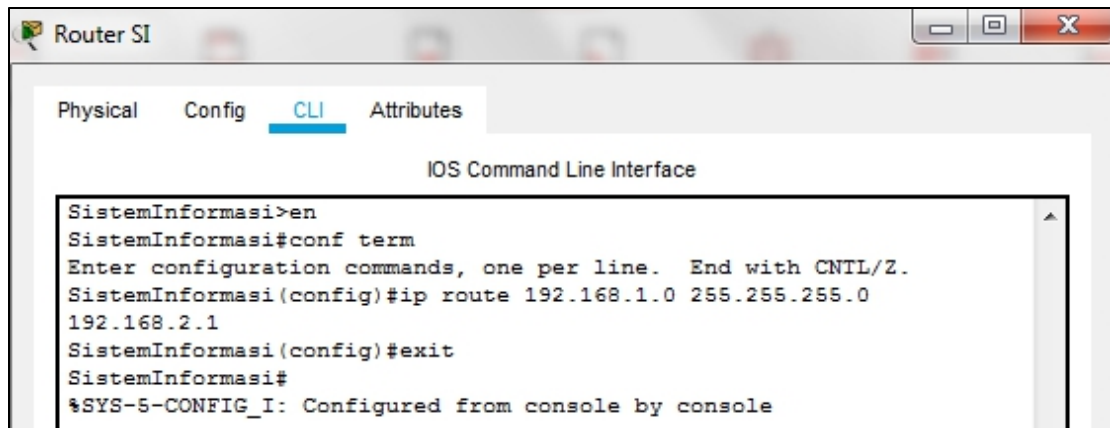


Router Jarkom

Physical Config CLI Attributes

IOS Command Line Interface

```
Jarkom#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Jarkom(config)#ip route 192.168.3.0 255.255.255.0 192.168.2.2
Jarkom(config)#exit
Jarkom#
%SYS-5-CONFIG_I: Configured from console by console
```

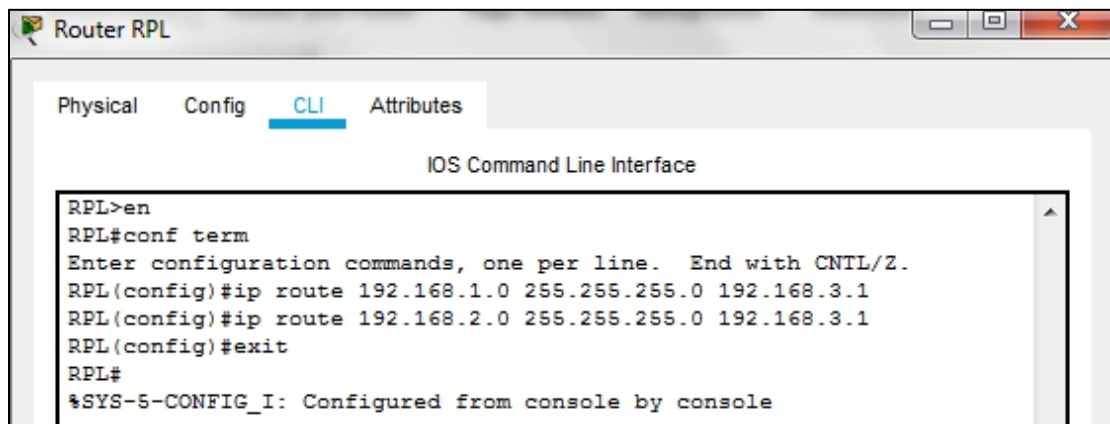


Router SI

Physical Config CLI Attributes

IOS Command Line Interface

```
SistemInformasi>en
SistemInformasi#conf term
Enter configuration commands, one per line. End with CNTL/Z.
SistemInformasi(config)#ip route 192.168.1.0 255.255.255.0
192.168.2.1
SistemInformasi(config)#exit
SistemInformasi#
%SYS-5-CONFIG_I: Configured from console by console
```



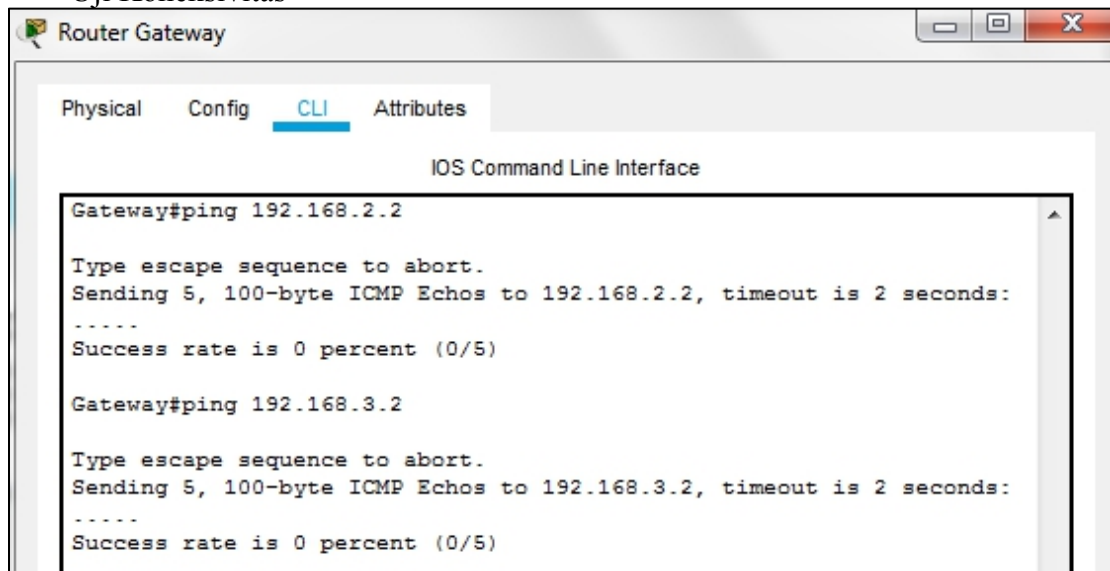
Router RPL

Physical Config CLI Attributes

IOS Command Line Interface

```
RPL>en
RPL#conf term
Enter configuration commands, one per line. End with CNTL/Z.
RPL(config)#ip route 192.168.1.0 255.255.255.0 192.168.3.1
RPL(config)#ip route 192.168.2.0 255.255.255.0 192.168.3.1
RPL(config)#exit
RPL#
%SYS-5-CONFIG_I: Configured from console by console
```

==> Uji Konektivitas



Router Gateway

Physical Config CLI Attributes

IOS Command Line Interface

```
Gateway#ping 192.168.2.2

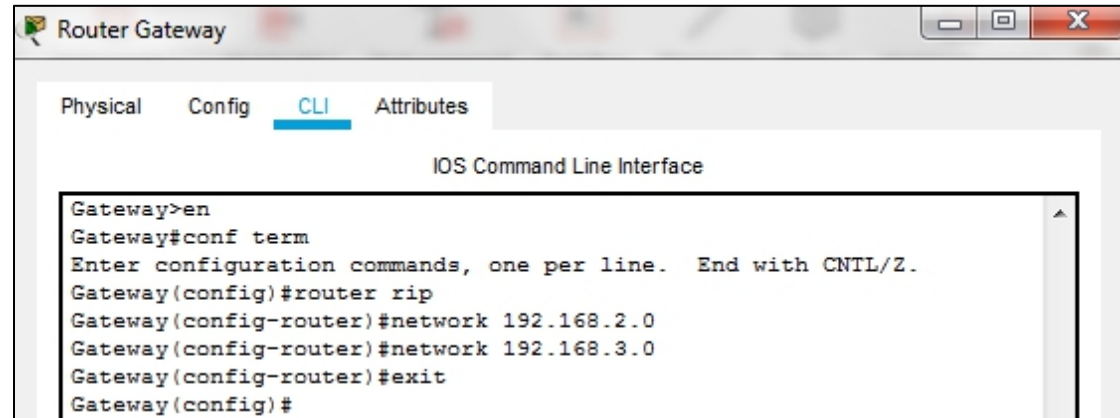
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.2.2, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5)

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 0 percent (0/5)
```

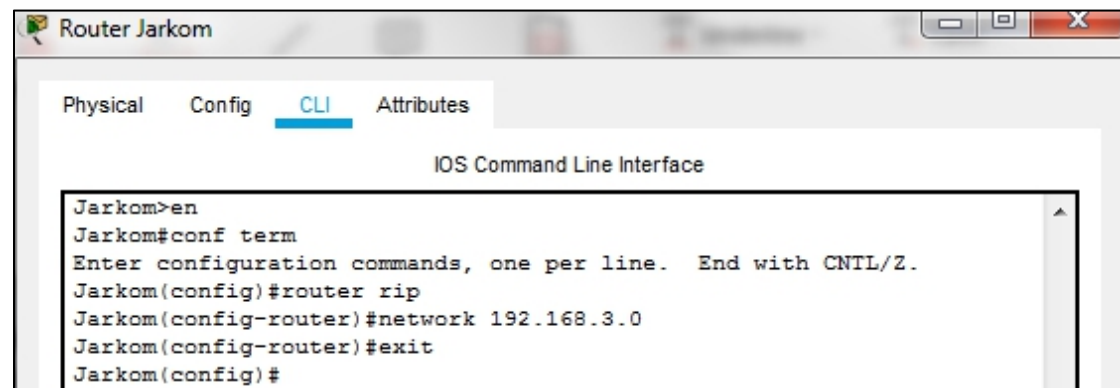


b. Dinamis



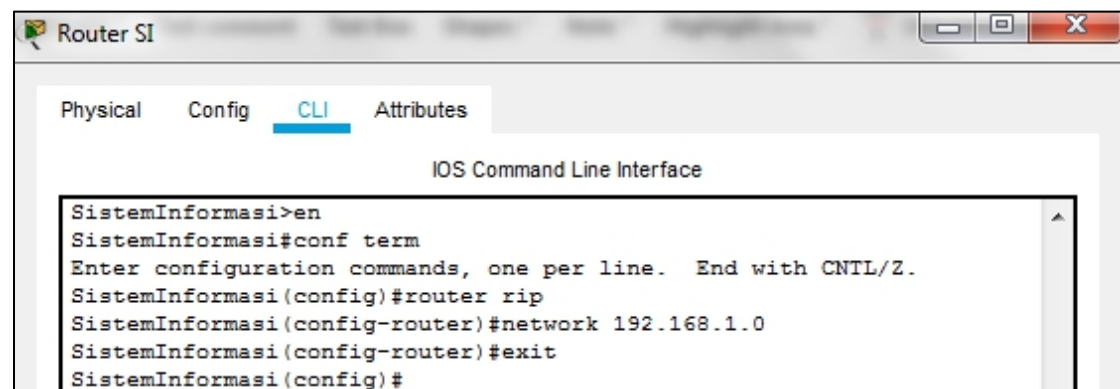
The screenshot shows the CLI window for 'Router Gateway'. The 'CLI' tab is selected. The command history shows the following sequence: 'en' to enter global configuration mode, 'conf term' to enter configuration terminal mode, 'router rip' to start the RIP process, 'network 192.168.2.0' and 'network 192.168.3.0' to advertise the respective networks, and 'exit' to return to configuration mode.

```
Gateway>en
Gateway#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Gateway(config)#router rip
Gateway(config-router)#network 192.168.2.0
Gateway(config-router)#network 192.168.3.0
Gateway(config-router)#exit
Gateway(config)#
```



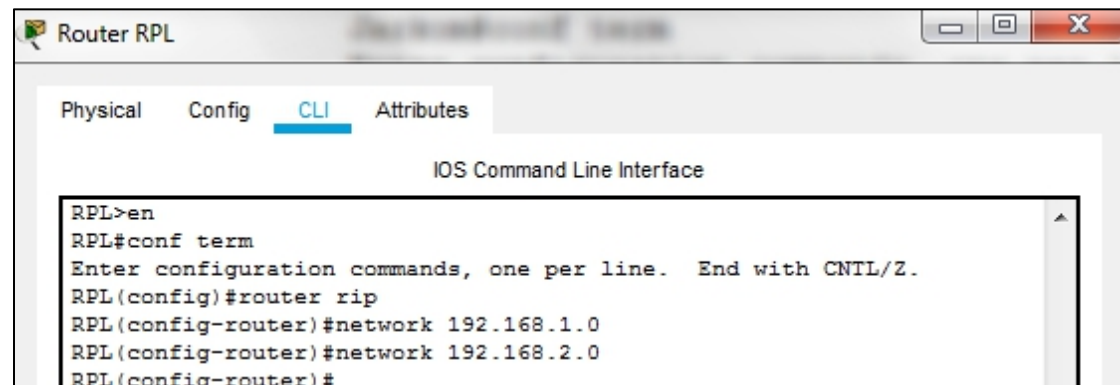
The screenshot shows the CLI window for 'Router Jarkom'. The 'CLI' tab is selected. The command history shows: 'en', 'conf term', 'router rip', 'network 192.168.3.0', and 'exit'.

```
Jarkom>en
Jarkom#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Jarkom(config)#router rip
Jarkom(config-router)#network 192.168.3.0
Jarkom(config-router)#exit
Jarkom(config)#
```



The screenshot shows the CLI window for 'Router SI'. The 'CLI' tab is selected. The command history shows: 'en', 'conf term', 'router rip', 'network 192.168.1.0', and 'exit'.

```
SistemInformasi>en
SistemInformasi#conf term
Enter configuration commands, one per line. End with CNTL/Z.
SistemInformasi(config)#router rip
SistemInformasi(config-router)#network 192.168.1.0
SistemInformasi(config-router)#exit
SistemInformasi(config)#
```

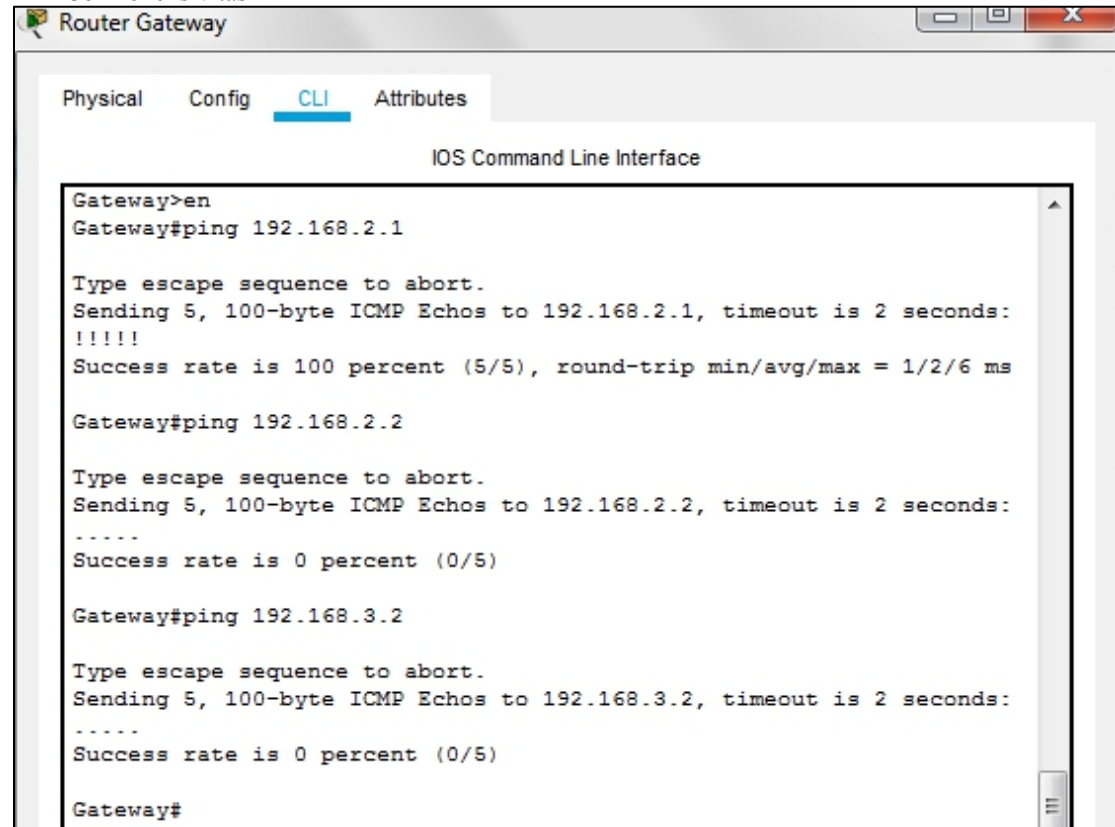


The screenshot shows the CLI window for 'Router RPL'. The 'CLI' tab is selected. The command history shows: 'en', 'conf term', 'router rip', 'network 192.168.1.0', and 'network 192.168.2.0'.

```
RPL>en
RPL#conf term
Enter configuration commands, one per line. End with CNTL/Z.
RPL(config)#router rip
RPL(config-router)#network 192.168.1.0
RPL(config-router)#network 192.168.2.0
RPL(config-router)#
```



=> Cek koneksivitas



```
Router Gateway
Physical  Config  CLI  Attributes
IOS Command Line Interface
Gateway>en
Gateway#ping 192.168.2.1

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.2.1, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/6 ms

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 0 percent (0/5)

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 0 percent (0/5)

Gateway#
```