

Nomer 4 (Full Konfig)

IP STATIS & DHCP

R GEDUNG UTAMA

Interface + Router-on-a-Stick

enable

conf t

interface g0/0

no ip address

no shutdown

interface g0/0.10

encapsulation dot1Q 10

ip address 172.16.4.1 255.255.255.128

description SDM

interface g0/0.20

encapsulation dot1Q 20

ip address 172.16.2.1 255.255.254.0

description KURIKULUM

interface g0/0.30

encapsulation dot1Q 30

ip address 172.16.4.129 255.255.255.192

description SARPRAS

interface g0/0.40

encapsulation dot1Q 40

ip address 172.16.4.193 255.255.255.224

description PEMBINAAN

interface g0/0.50

encapsulation dot1Q 50

ip address 172.16.4.225 255.255.255.240

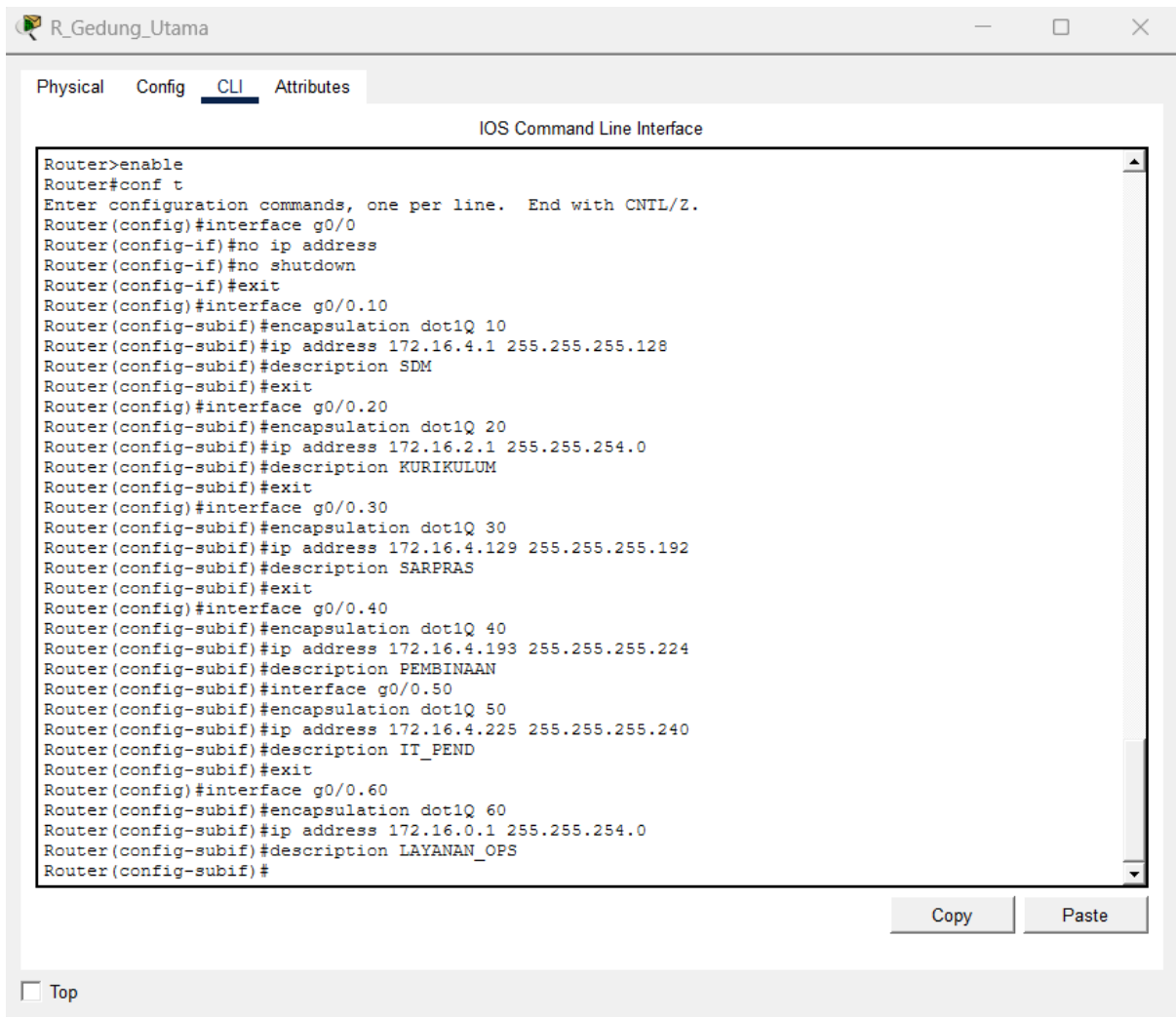
description IT_PEND

interface g0/0.60

encapsulation dot1Q 60

ip address 172.16.0.1 255.255.254.0

description LAYANAN OPS



```
Router>enable
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface g0/0
Router(config-if)#no ip address
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#interface g0/0.10
Router(config-subif)#encapsulation dot1Q 10
Router(config-subif)#ip address 172.16.4.1 255.255.255.128
Router(config-subif)#description SDM
Router(config-subif)#exit
Router(config)#interface g0/0.20
Router(config-subif)#encapsulation dot1Q 20
Router(config-subif)#ip address 172.16.2.1 255.255.254.0
Router(config-subif)#description KURIKULUM
Router(config-subif)#exit
Router(config)#interface g0/0.30
Router(config-subif)#encapsulation dot1Q 30
Router(config-subif)#ip address 172.16.4.129 255.255.255.192
Router(config-subif)#description SARPRAS
Router(config-subif)#exit
Router(config)#interface g0/0.40
Router(config-subif)#encapsulation dot1Q 40
Router(config-subif)#ip address 172.16.4.193 255.255.255.224
Router(config-subif)#description PEMBINAAN
Router(config-subif)#interface g0/0.50
Router(config-subif)#encapsulation dot1Q 50
Router(config-subif)#ip address 172.16.4.225 255.255.255.240
Router(config-subif)#description IT_PEND
Router(config-subif)#exit
Router(config)#interface g0/0.60
Router(config-subif)#encapsulation dot1Q 60
Router(config-subif)#ip address 172.16.0.1 255.255.254.0
Router(config-subif)#description LAYANAN OPS
Router(config-subif)#
```

Link ke ARA Tech

interface s0/3/0

ip address 192.168.0.2 255.255.255.252

no shutdown

```
Router(config)#interface s0/3/0
Router(config-if)#ip address 192.168.0.2 255.255.255.252
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#
```

DHCP SERVER – GEDUNG UTAMA

```
ip dhcp excluded-address 172.16.4.1 172.16.4.10
ip dhcp excluded-address 172.16.2.1 172.16.2.10
ip dhcp excluded-address 172.16.4.129 172.16.4.138
ip dhcp excluded-address 172.16.4.193 172.16.4.200
ip dhcp excluded-address 172.16.4.225 172.16.4.228
ip dhcp excluded-address 172.16.0.1 172.16.0.10
```

```
ip dhcp pool SDM
network 172.16.4.0 255.255.255.128
default-router 172.16.4.1
```

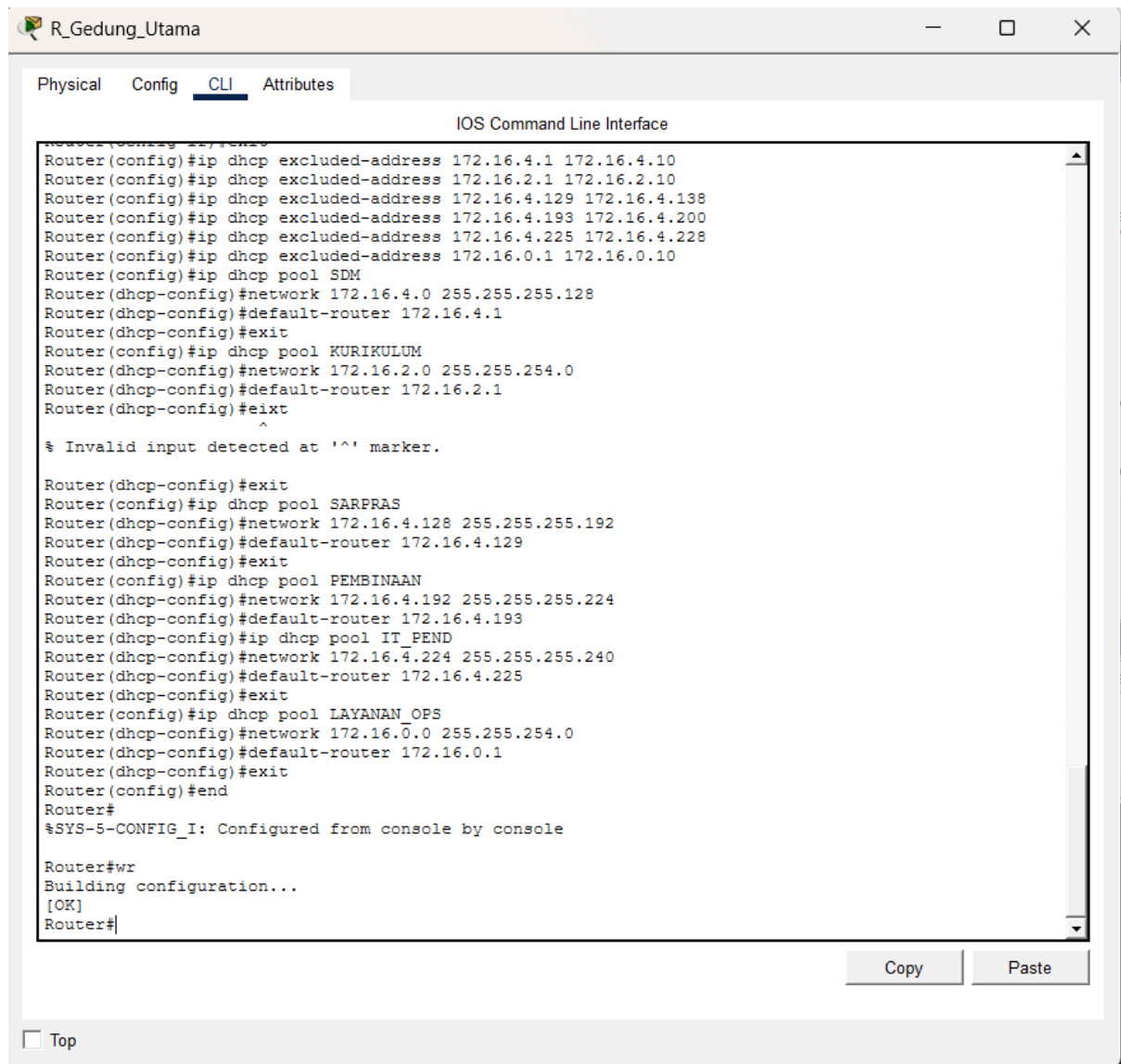
```
ip dhcp pool KURIKULUM
network 172.16.2.0 255.255.254.0
default-router 172.16.2.1
```

```
ip dhcp pool SARPRAS
network 172.16.4.128 255.255.255.192
default-router 172.16.4.129
```

```
ip dhcp pool PEMBINAAN
network 172.16.4.192 255.255.255.224
default-router 172.16.4.193
```

```
ip dhcp pool IT_PEND
network 172.16.4.224 255.255.255.240
default-router 172.16.4.225
```

```
ip dhcp pool LAYANAN_OPS
network 172.16.0.0 255.255.254.0
default-router 172.16.0.1
```



R ARA TECH

Interface VLAN Lantai

```
interface g0/0
no ip address
no shutdown
```

```
interface g0/0.100
encapsulation dot1Q 100
ip address 10.0.0.1 255.255.255.128
description LANTAI_1
```

```
interface g0/0.200
encapsulation dot1Q 200
ip address 10.0.0.129 255.255.255.128
description LANTAI_2
```

```
interface g0/0.300
encapsulation dot1Q 300
ip address 10.0.1.1 255.255.255.128
description LANTAI_3
```

```
interface g0/0.400
encapsulation dot1Q 400
ip address 10.0.1.129 255.255.255.128
description LANTAI_4
```

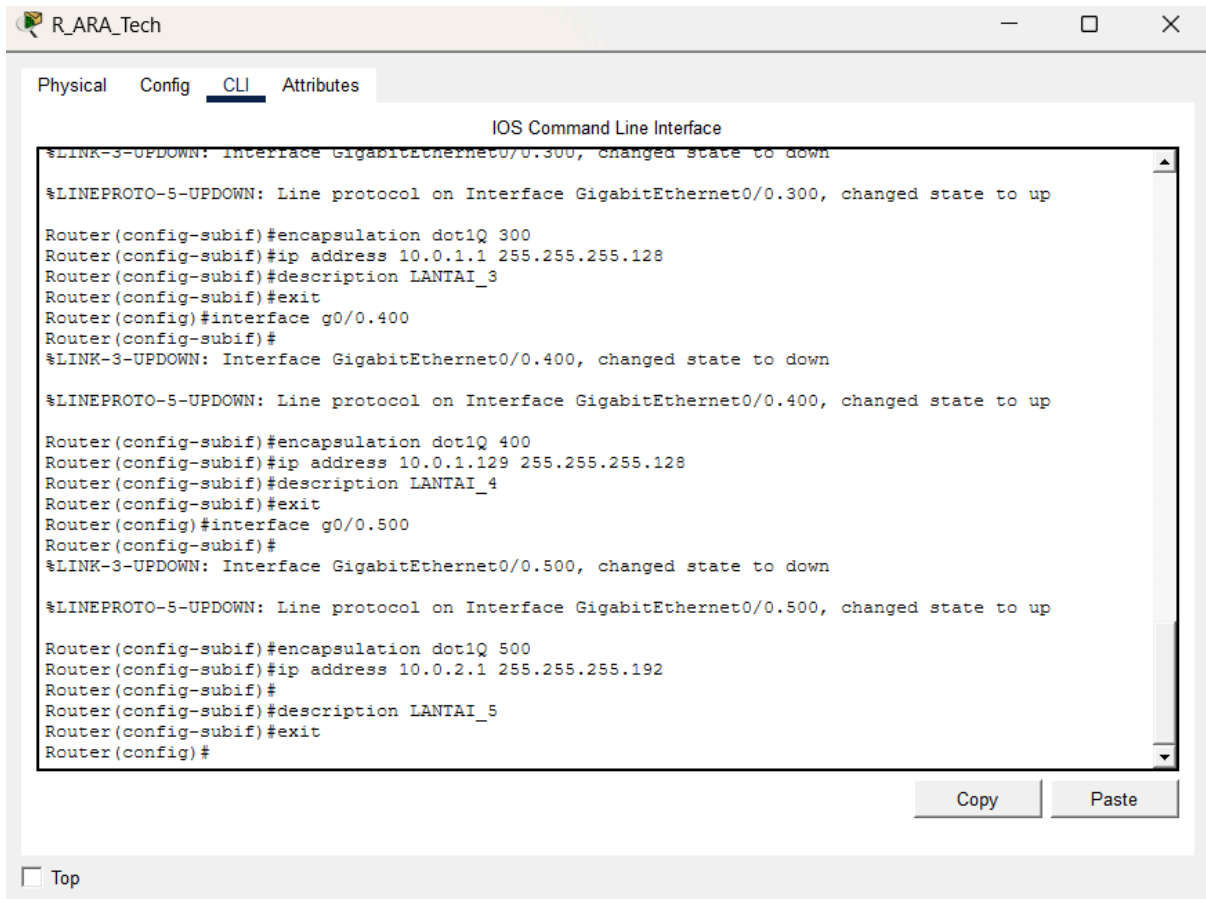
```
interface g0/0.500
encapsulation dot1Q 500
ip address 10.0.2.1 255.255.255.192
description LANTAI_5
```

```
Router>enable
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface g0/0
Router(config-if)#no ip address
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up

Router(config-if)#interface g0/0.100
Router(config-subif)#
%LINK-3-UPDOWN: Interface GigabitEthernet0/0.100, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0.100, changed state to up
encapsulation dot1Q 100
Router(config-subif)#ip address 10.0.0.1 255.255.255.128
Router(config-subif)#description LANTAI_1
Router(config-subif)#exit
Router(config)#interface g0/0.200
Router(config-subif)#
%LINK-3-UPDOWN: Interface GigabitEthernet0/0.200, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0.200, changed state to up

Router(config-subif)#encapsulation dot1Q 200
Router(config-subif)#ip address 10.0.0.129 255.255.255.128
Router(config-subif)#description LANTAI_2
Router(config-subif)#exit
Router(config)#interface g0/0.300
Router(config-subif)#
%LINK-3-UPDOWN: Interface GigabitEthernet0/0.300, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0.300, changed state to up
```



Link Antar Gedung

```
interface s0/3/0
ip address 192.168.0.1 255.255.255.252
no shutdown
```

```
interface s0/3/1
ip address 192.168.1.1 255.255.255.252
no shutdown
```

```
Router(config)#interface s0/3/0
Router(config-if)#ip address 192.168.0.1 255.255.255.252
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface Serial0/3/0, changed state to up

Router(config-if)#exit
Router(config)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/3/0, changed state to up
interface s0/3/1
Router(config-if)#ip address 192.168.1.1 255.255.255.252
Router(config-if)#no shutdown

%LINK-5-CHANGED: Interface Serial0/3/1, changed state to down
Router(config-if)#exit
Router(config)#
```

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☐ Top

DHCP SERVER – ARA TECH

```
ip dhcp excluded-address 10.0.0.1 10.0.0.10
ip dhcp excluded-address 10.0.0.129 10.0.0.138
ip dhcp excluded-address 10.0.1.1 10.0.1.10
ip dhcp excluded-address 10.0.1.129 10.0.1.138
ip dhcp excluded-address 10.0.2.1 10.0.2.10
```

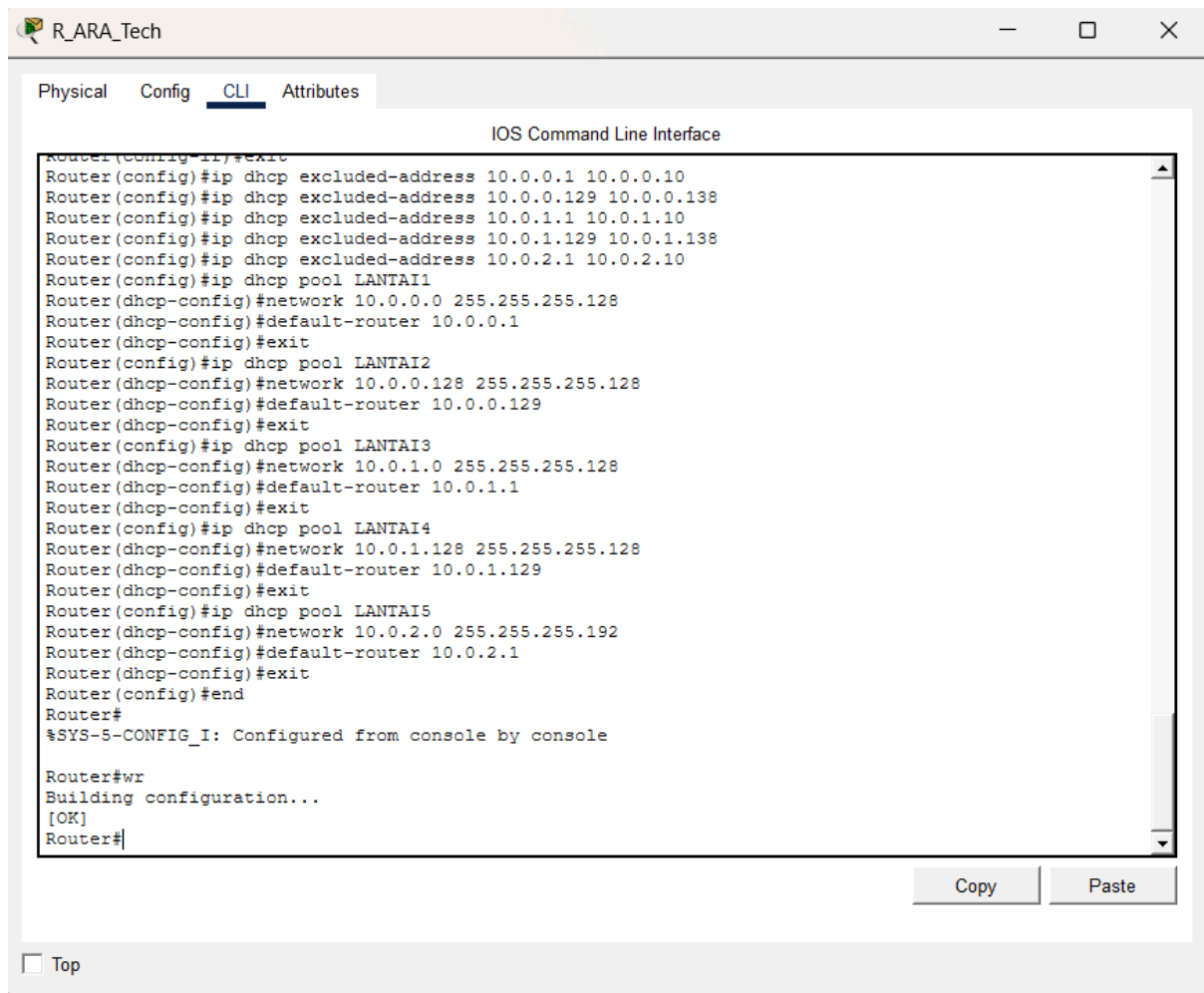
```
ip dhcp pool LANTAI1
network 10.0.0.0 255.255.255.128
default-router 10.0.0.1
```

```
ip dhcp pool LANTAI2
network 10.0.0.128 255.255.255.128
default-router 10.0.0.129
```

```
ip dhcp pool LANTAI3
network 10.0.1.0 255.255.255.128
default-router 10.0.1.1
```

```
ip dhcp pool LANTAI4
network 10.0.1.128 255.255.255.128
default-router 10.0.1.129
```

```
ip dhcp pool LANTAI5
network 10.0.2.0 255.255.255.192
default-router 10.0.2.1
```

R KANTOR CABANG

```
interface g0/0
no ip address
no shutdown
```

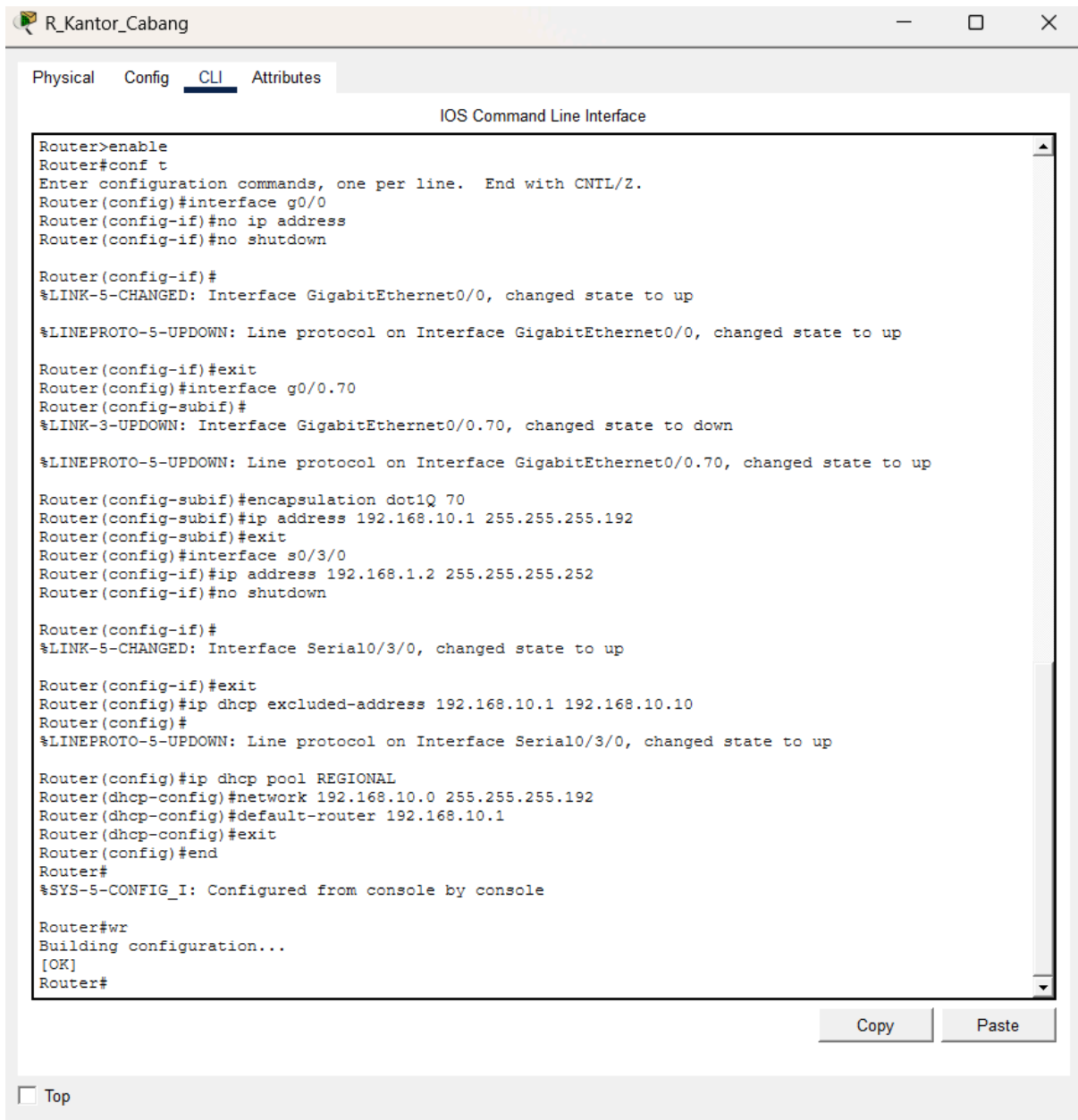
```
interface g0/0.70
encapsulation dot1Q 70
ip address 192.168.10.1 255.255.255.192
```

```
interface s0/3/0
ip address 192.168.1.2 255.255.255.252
no shutdown
```

```
ip dhcp excluded-address 192.168.10.1 192.168.10.10
```

```
ip dhcp pool REGIONAL
network 192.168.10.0 255.255.255.192
```

default-router 192.168.10.1



```
Router>enable
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface g0/0
Router(config-if)#no ip address
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up

Router(config-if)#exit
Router(config)#interface g0/0.70
Router(config-subif)#
%LINK-3-UPDOWN: Interface GigabitEthernet0/0.70, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0.70, changed state to up

Router(config-subif)#encapsulation dot1Q 70
Router(config-subif)#ip address 192.168.10.1 255.255.255.192
Router(config-subif)#exit
Router(config)#interface s0/3/0
Router(config-if)#ip address 192.168.1.2 255.255.255.252
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface Serial0/3/0, changed state to up

Router(config-if)#exit
Router(config)#ip dhcp excluded-address 192.168.10.1 192.168.10.10
Router(config)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/3/0, changed state to up

Router(config)#ip dhcp pool REGIONAL
Router(dhcp-config)#network 192.168.10.0 255.255.255.192
Router(dhcp-config)#default-router 192.168.10.1
Router(dhcp-config)#exit
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#wr
Building configuration...
[OK]
Router#
```

SWITCH DISTRIBUSI UTAMA

enable

conf t

vlan 10

name SDM

vlan 20

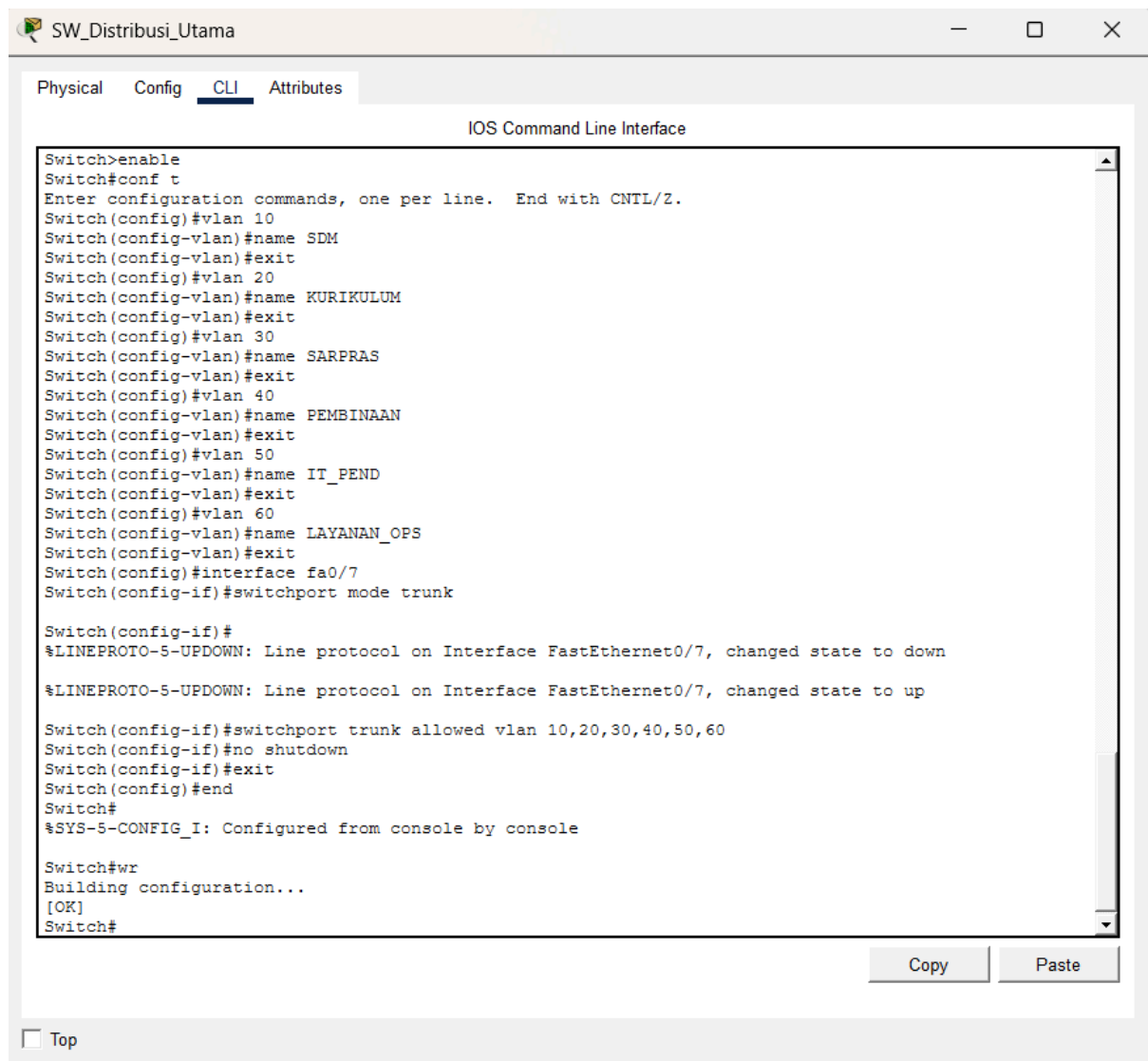
name KURIKULUM

vlan 30

```
name SARPRAS
vlan 40
name PEMBINAAN
vlan 50
name IT_PEND
vlan 60
name LAYANAN_OPS

interface fa0/7
switchport mode trunk
switchport trunk allowed vlan 10,20,30,40,50,60
no shutdown

end
wr
```



SW_Distribusi_Utama

Physical Config **CLI** Attributes

IOS Command Line Interface

```
Switch>enable
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#vlan 10
Switch(config-vlan)#name SDM
Switch(config-vlan)#exit
Switch(config)#vlan 20
Switch(config-vlan)#name KURIKULUM
Switch(config-vlan)#exit
Switch(config)#vlan 30
Switch(config-vlan)#name SARPRAS
Switch(config-vlan)#exit
Switch(config)#vlan 40
Switch(config-vlan)#name PEMBINAAN
Switch(config-vlan)#exit
Switch(config)#vlan 50
Switch(config-vlan)#name IT_PEND
Switch(config-vlan)#exit
Switch(config)#vlan 60
Switch(config-vlan)#name LAYANAN_OPS
Switch(config-vlan)#exit
Switch(config)#interface fa0/7
Switch(config-if)#switchport mode trunk

Switch(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/7, changed state to down

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/7, changed state to up

Switch(config-if)#switchport trunk allowed vlan 10,20,30,40,50,60
Switch(config-if)#no shutdown
Switch(config-if)#exit
Switch(config)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#wr
Building configuration...
[OK]
Switch#
```

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☐ Top

SWITCH SDM

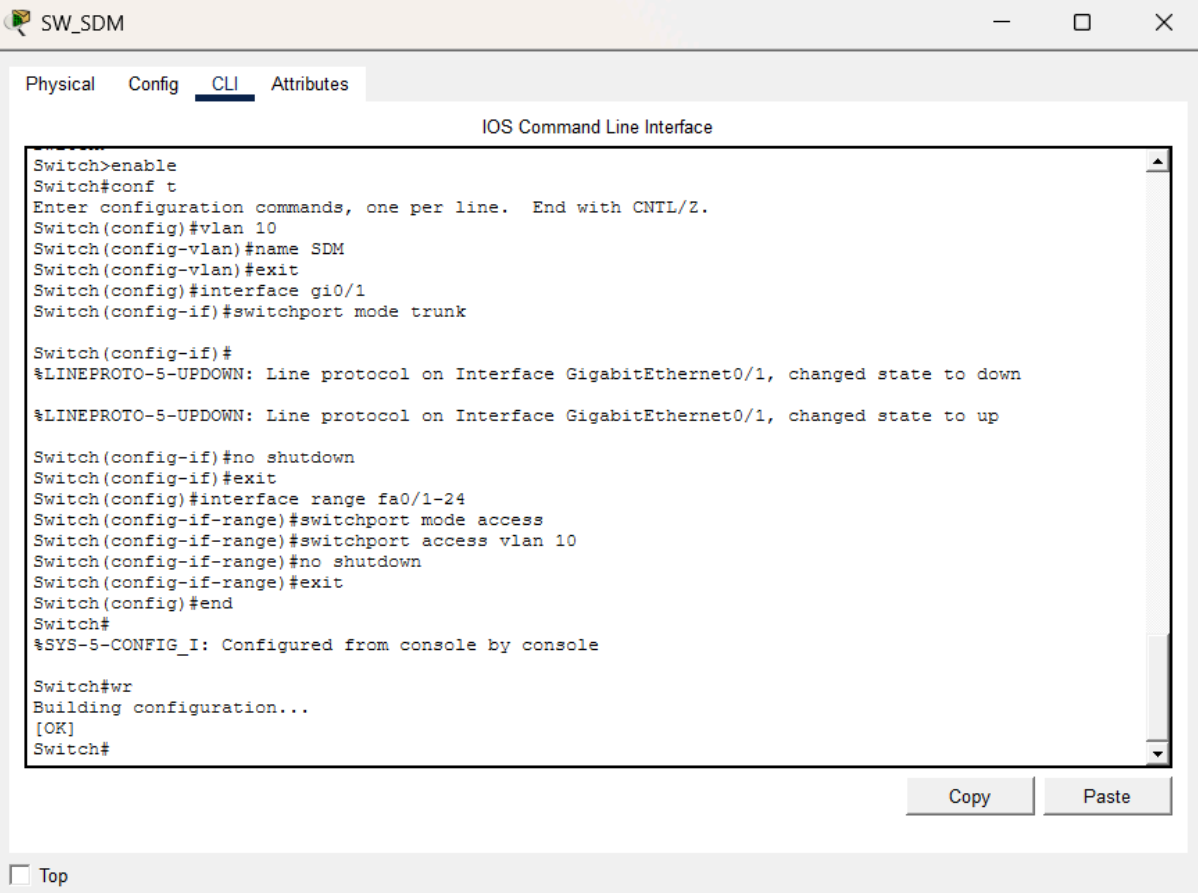
conf t

vlan 10
name SDM

interface gi0/1
switchport mode trunk
no shutdown

interface range fa0/1-24
switchport mode access
switchport access vlan 10
no shutdown

end
wr



The screenshot shows a window titled "SW_SDM" with a tabbed interface. The "CLI" tab is active, displaying the "IOS Command Line Interface". The terminal shows the following sequence of commands and outputs:

```
Switch>enable
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#vlan 10
Switch(config-vlan)#name SDM
Switch(config-vlan)#exit
Switch(config)#interface gi0/1
Switch(config-if)#switchport mode trunk

Switch(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up

Switch(config-if)#no shutdown
Switch(config-if)#exit
Switch(config)#interface range fa0/1-24
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 10
Switch(config-if-range)#no shutdown
Switch(config-if-range)#exit
Switch(config)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#wr
Building configuration...
[OK]
Switch#
```

At the bottom right of the terminal window, there are "Copy" and "Paste" buttons. Below the terminal window, there is a checkbox labeled "Top".

SWITCH KURIKULUM

conf t

vlan 20

name KURIKULUM

interface gi0/1

switchport mode trunk

interface range fa0/1-24

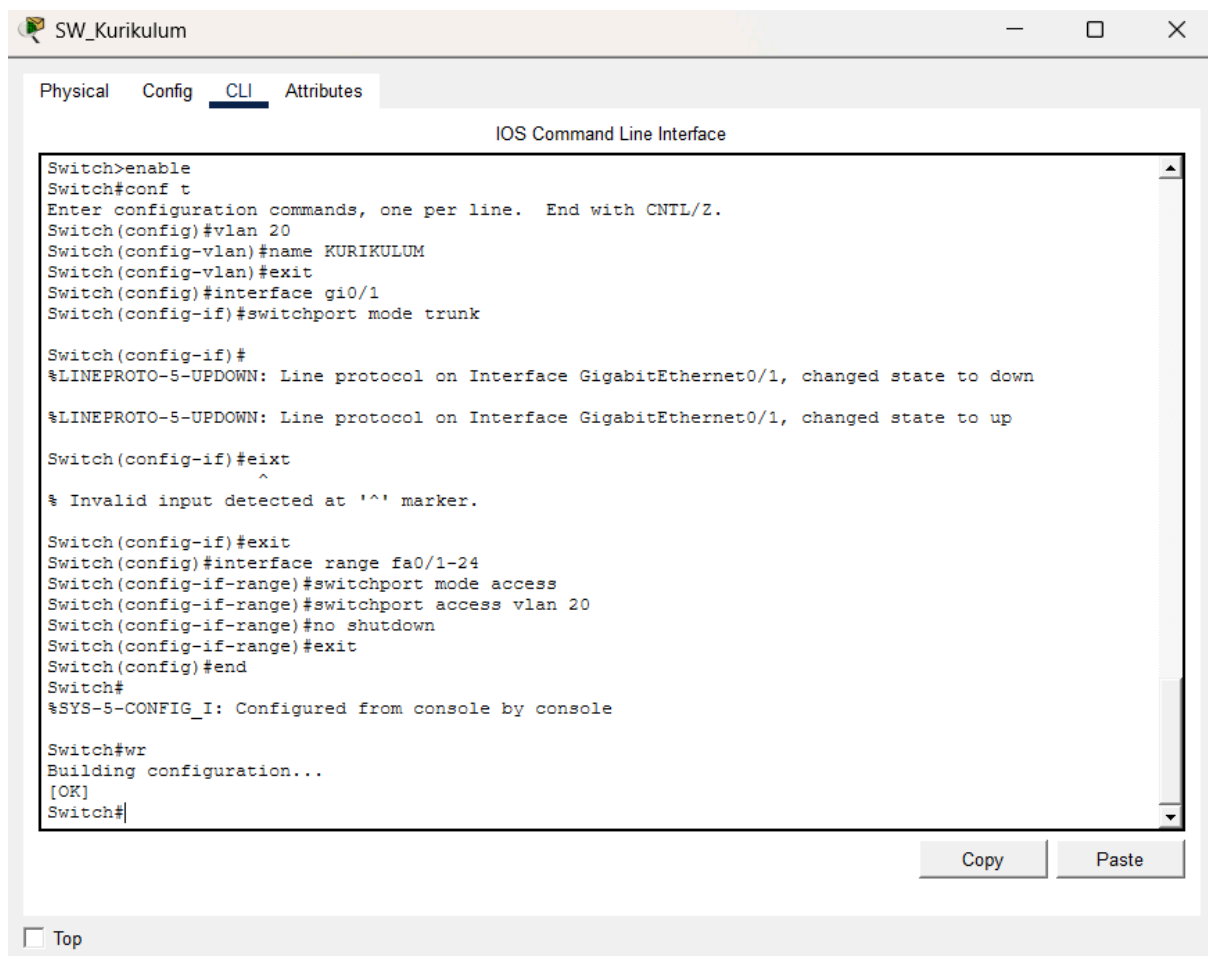
switchport mode access

switchport access vlan 20

no shutdown

end

wr



SWITCH SARPRAS

conf t

vlan 30

name SARPRAS

interface gi0/1

switchport mode trunk

interface range fa0/1-24

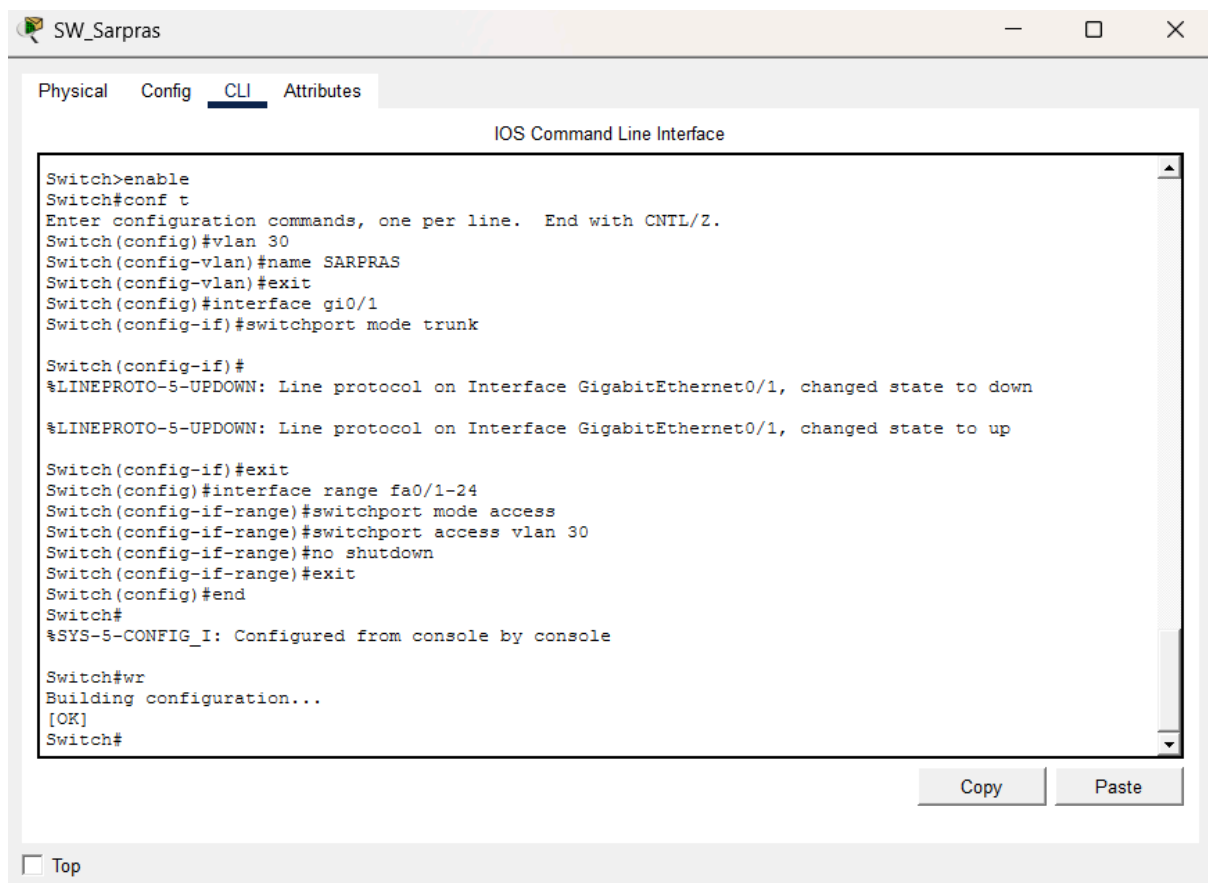
switchport mode access

switchport access vlan 30

no shutdown

end

wr



SWITCH PEMBINAAN

```
conf t
```

```
vlan 40
```

```
name PEMBINAAN
```

```
interface gi0/1
```

```
switchport mode trunk
```

```
interface range fa0/1-24
```

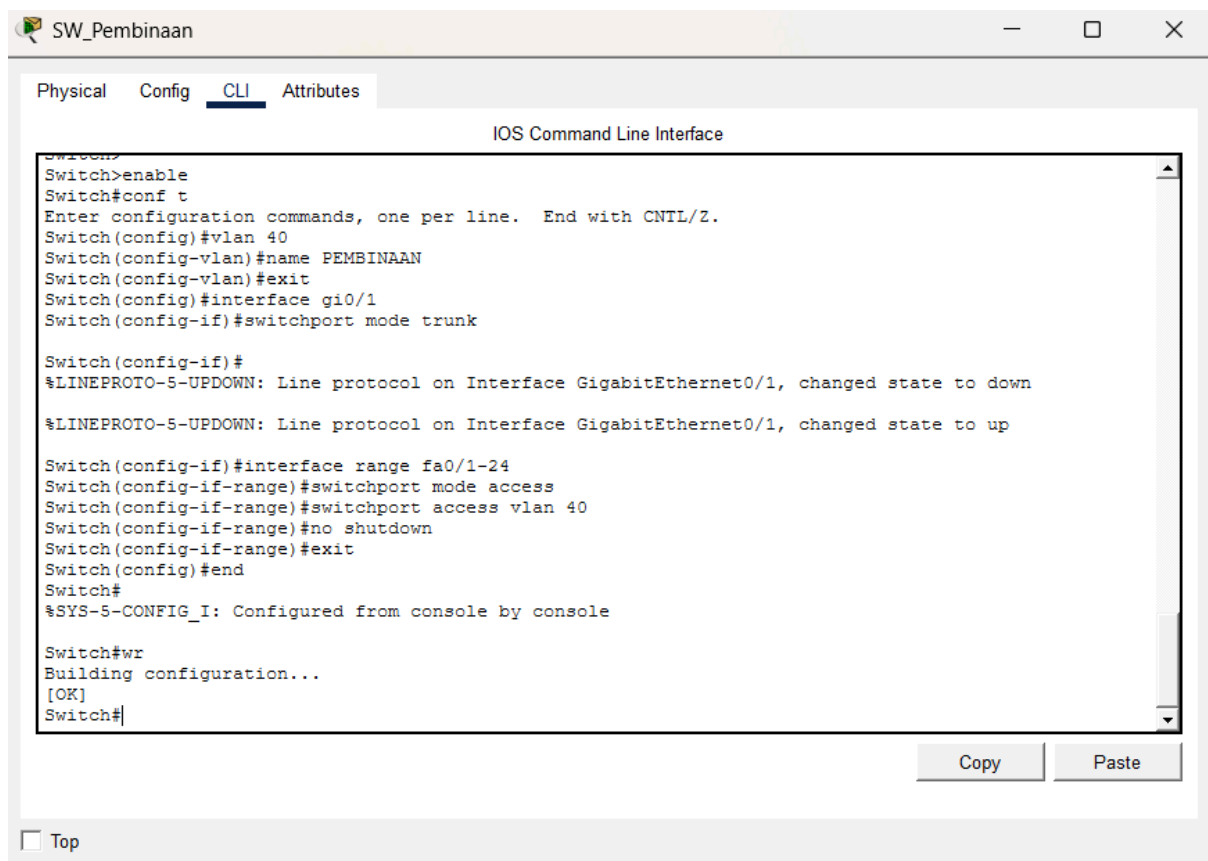
```
switchport mode access
```

```
switchport access vlan 40
```

```
no shutdown
```

```
end
```

```
wr
```



SWITCH IT_PEND

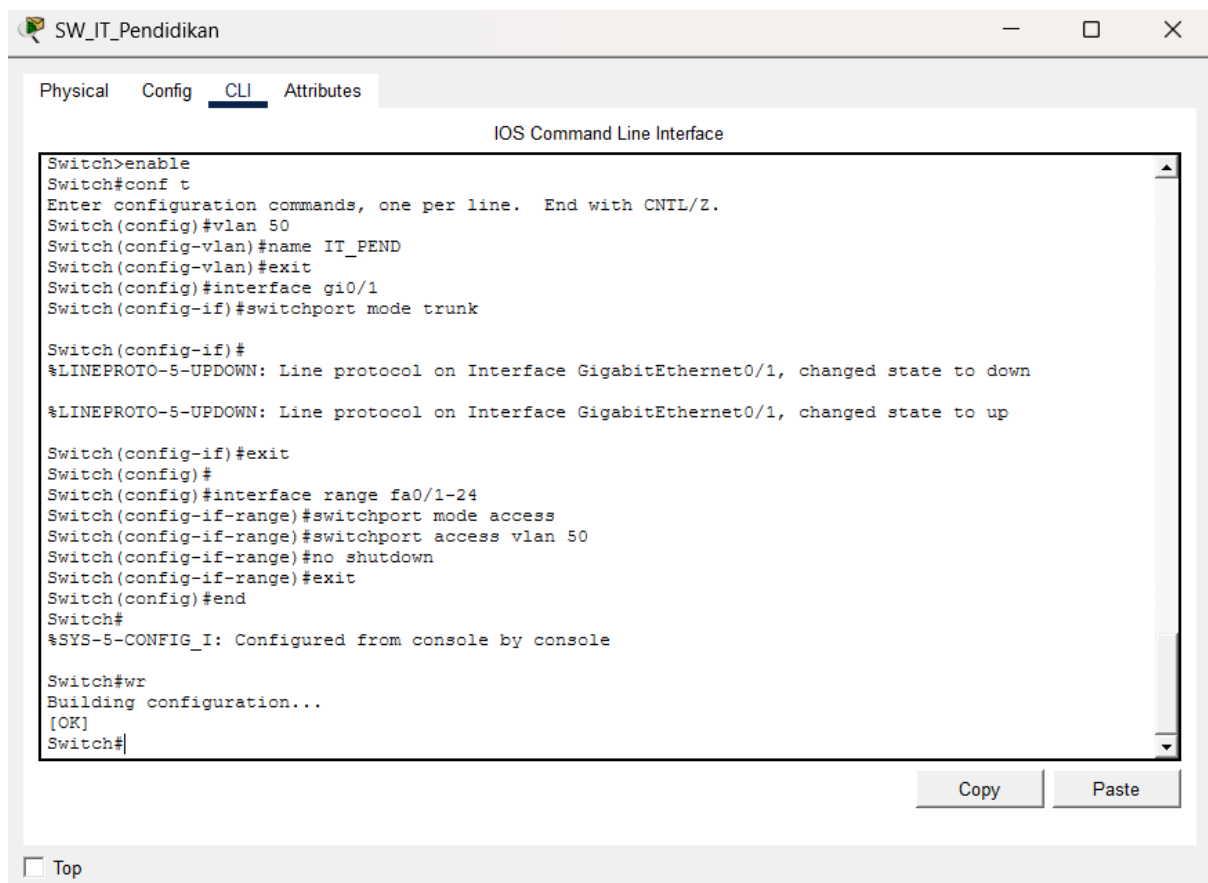
```
conf t
```

```
vlan 50
name IT_PEND
```

```
interface gi0/1
switchport mode trunk
```

```
interface range fa0/1-24
switchport mode access
switchport access vlan 50
no shutdown
```

```
end
wr
```



SWITCH LAYANAN OPS

```
conf t
```

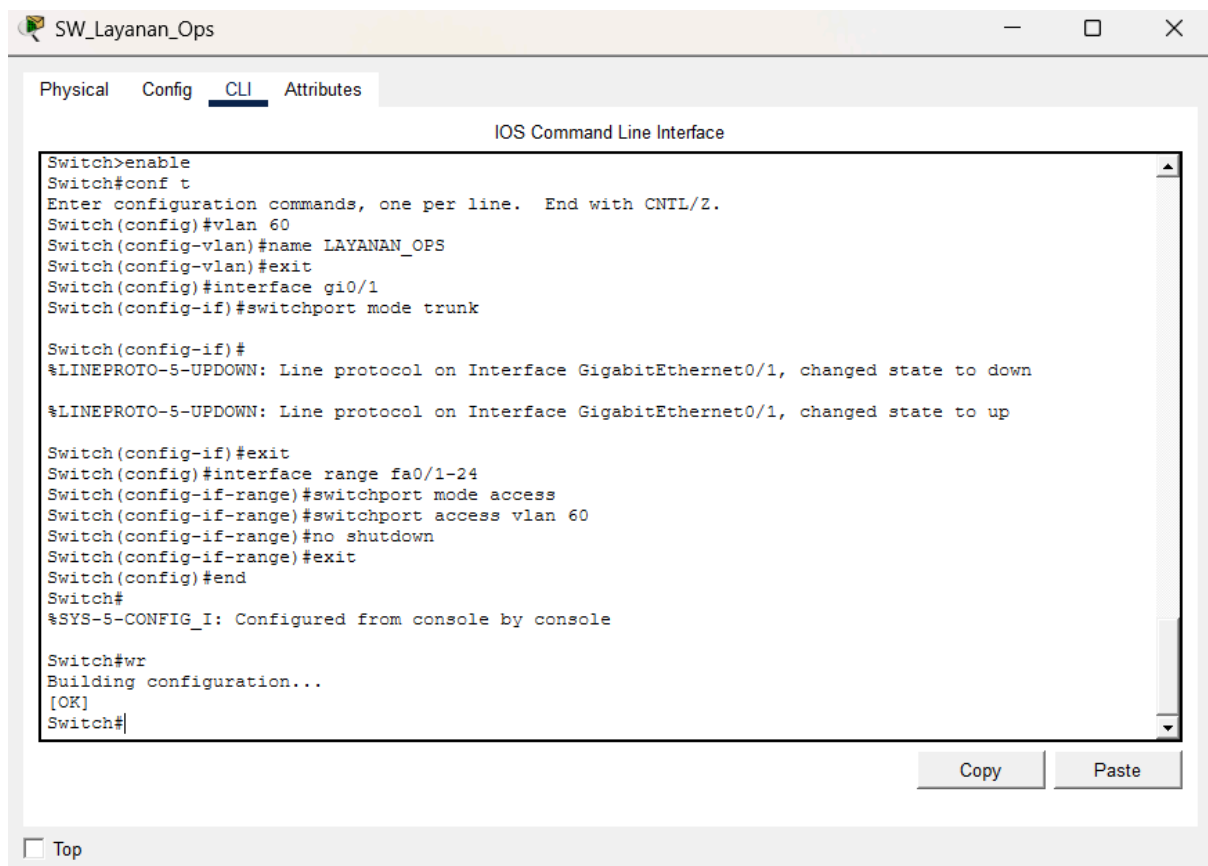


```
vlan 60
name LAYANAN_OPS

interface gi0/1
switchport mode trunk

interface range fa0/1-24
switchport mode access
switchport access vlan 60
no shutdown

end
wr
```



SWITCH CORE ARA TECH

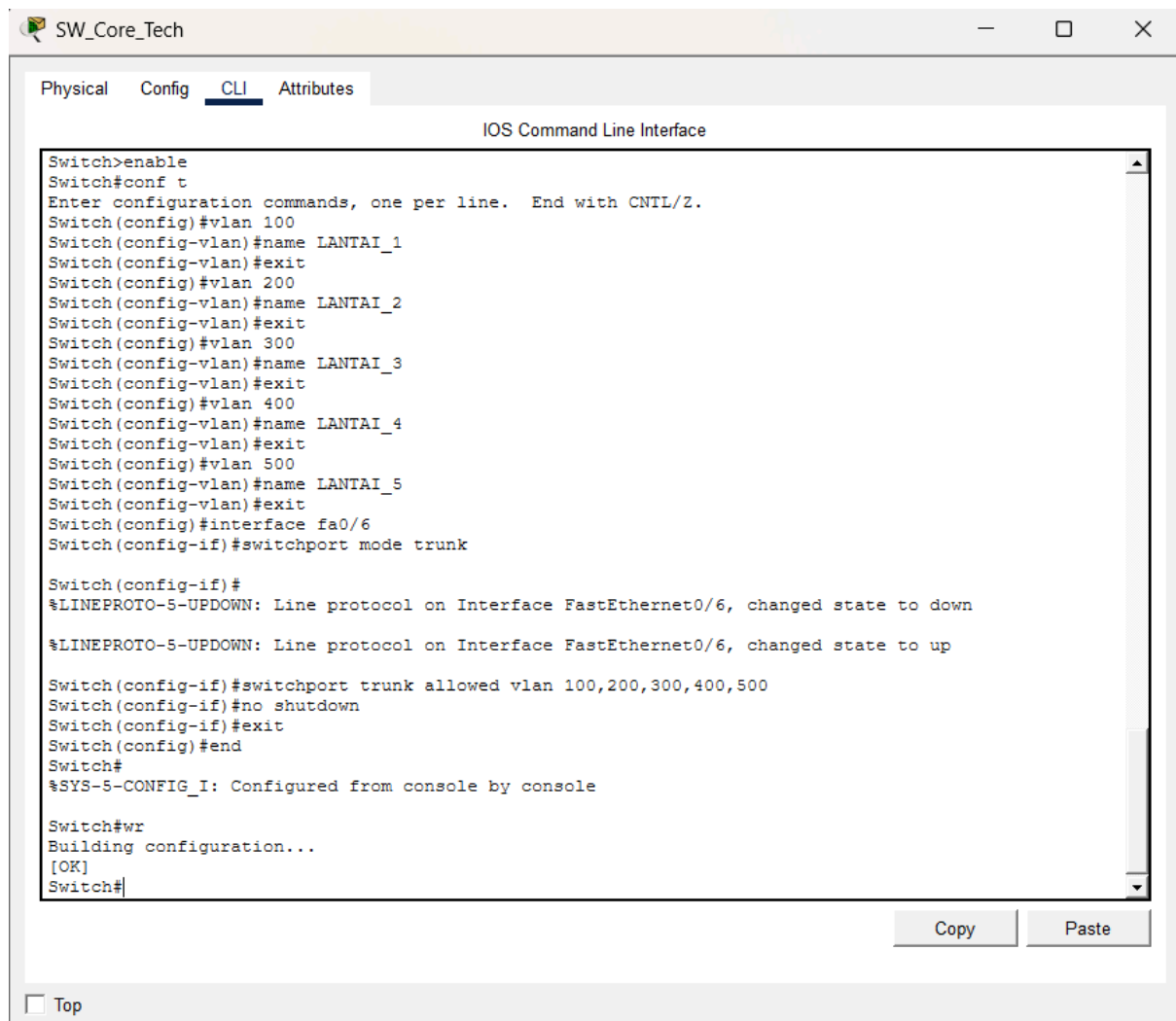
```
enable
conf t

vlan 100
name LANTAI_1
```

```
vlan 200
name LANTAI_2
vlan 300
name LANTAI_3
vlan 400
name LANTAI_4
vlan 500
name LANTAI_5

interface fa0/6
switchport mode trunk
switchport trunk allowed vlan 100,200,300,400,500
no shutdown

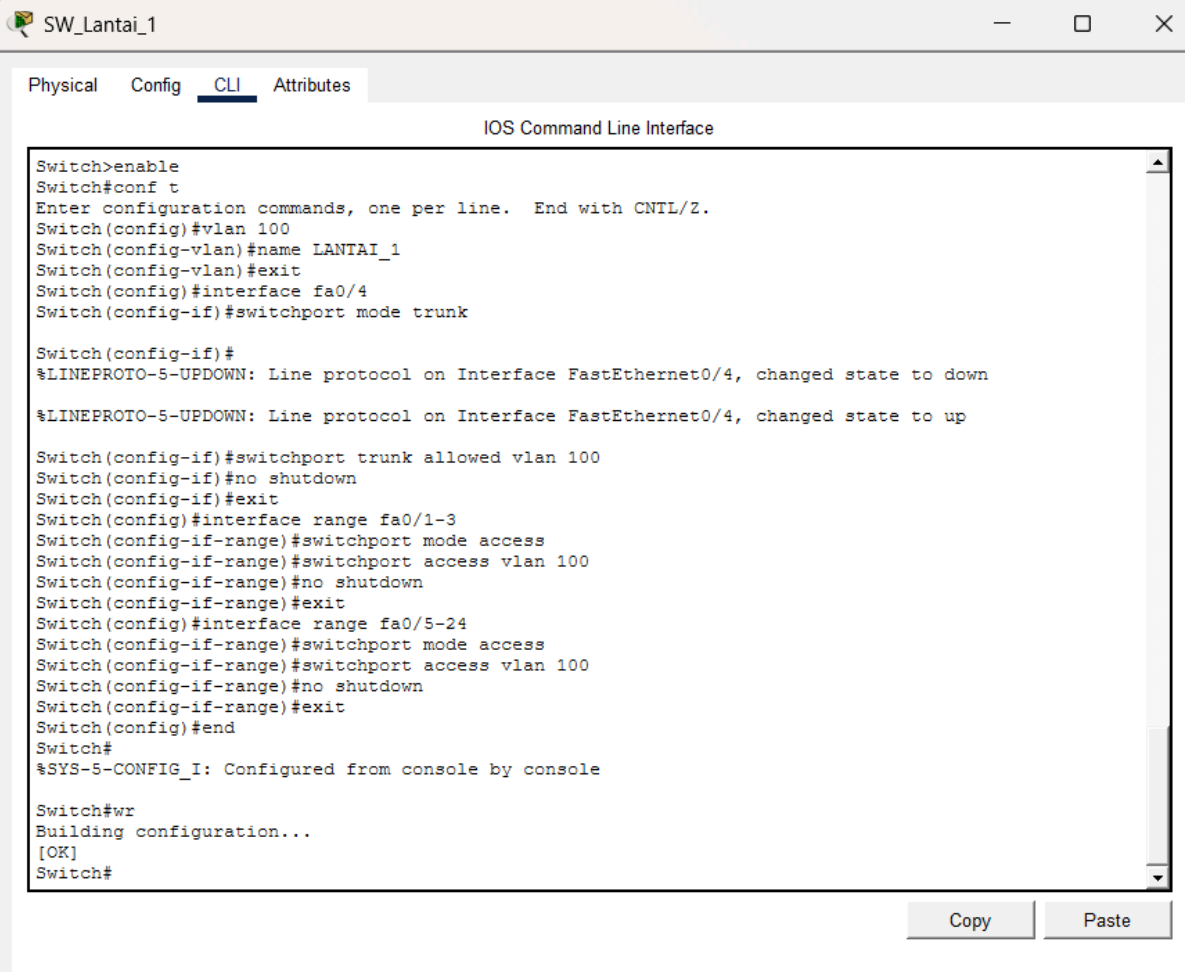
end
wr
```



SWITCH LANTAI 1

```
conf t
vlan 100
name LANTAI_1

interface fa0/4
switchport mode trunk
switchport trunk allowed vlan 100
no shutdown
interface range fa0/1-3
switchport mode access
switchport access vlan 100
no shutdown
interface range fa0/5-24
switchport mode access
switchport access vlan 100
no shutdown
end
wr
```



```
SW_Lantai_1
Physical Config CLI Attributes
IOS Command Line Interface

Switch>enable
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#vlan 100
Switch(config-vlan)#name LANTAI_1
Switch(config-vlan)#exit
Switch(config)#interface fa0/4
Switch(config-if)#switchport mode trunk

Switch(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/4, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/4, changed state to up

Switch(config-if)#switchport trunk allowed vlan 100
Switch(config-if)#no shutdown
Switch(config-if)#exit
Switch(config)#interface range fa0/1-3
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 100
Switch(config-if-range)#no shutdown
Switch(config-if-range)#exit
Switch(config)#interface range fa0/5-24
Switch(config-if-range)#switchport mode access
Switch(config-if-range)#switchport access vlan 100
Switch(config-if-range)#no shutdown
Switch(config-if-range)#exit
Switch(config)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#wr
Building configuration...
[OK]
Switch#
```

☐ Top

SWITCH LANTAI 2

conf t

vlan 200

name LANTAI_2

interface fa0/4

switchport mode trunk

switchport trunk allowed vlan 200

no shutdown

interface range fa0/1-3

switchport mode access

switchport access vlan 200

no shutdown

interface range fa0/5-24

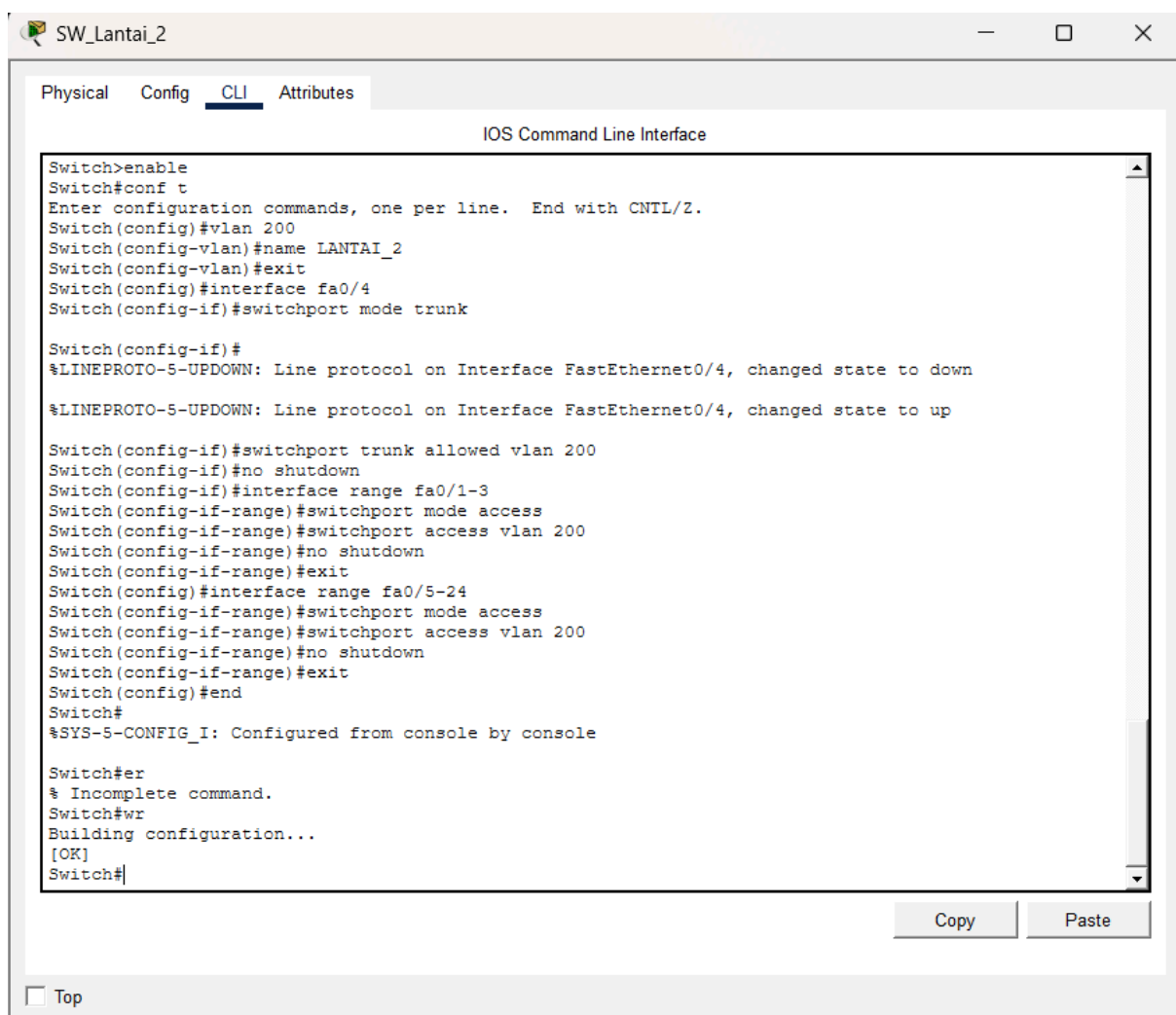
switchport mode access

switchport access vlan 200

no shutdown

end

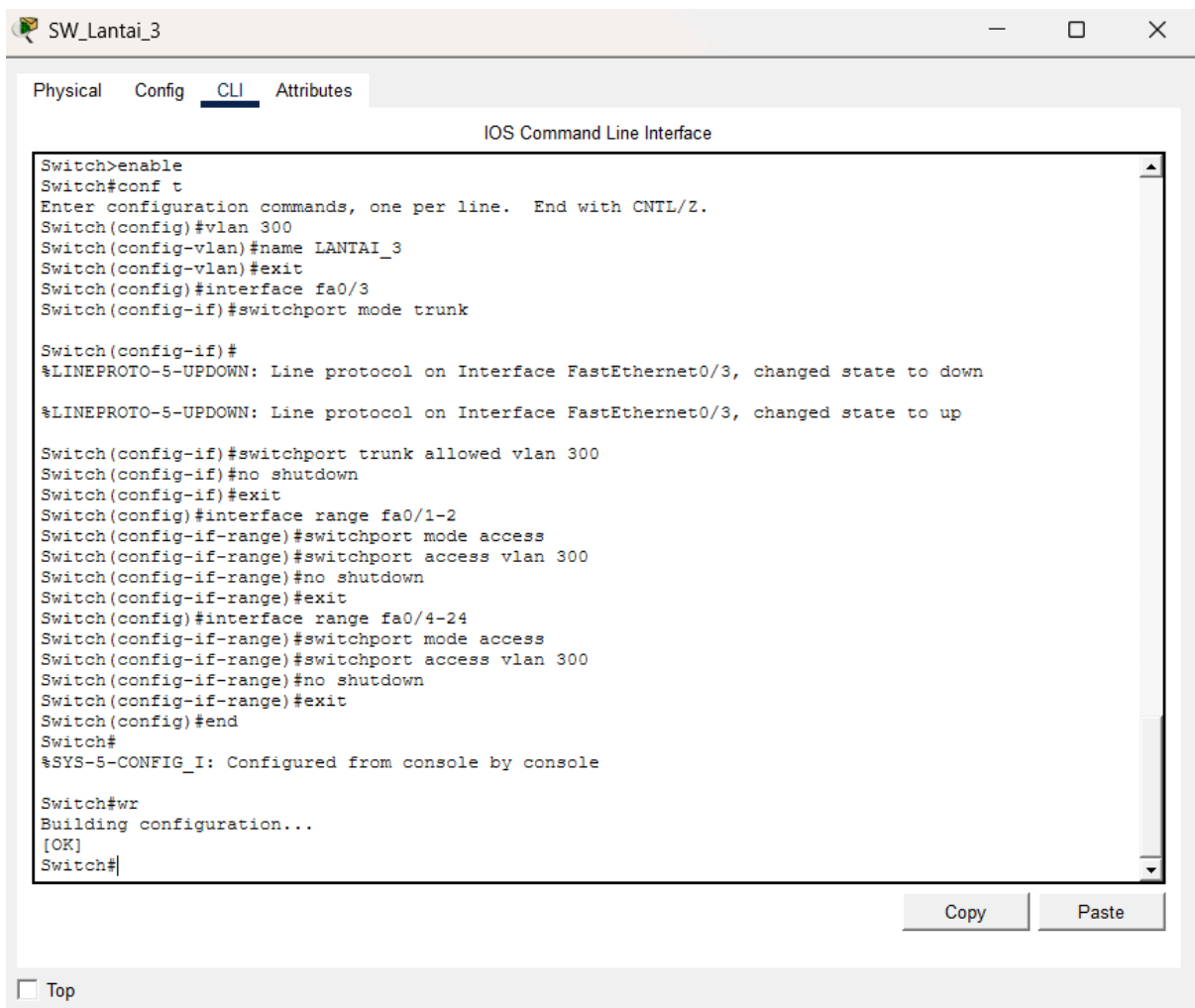
wr



SWITCH LANTAI 3

```
conf t
vlan 300
name LANTAI_3

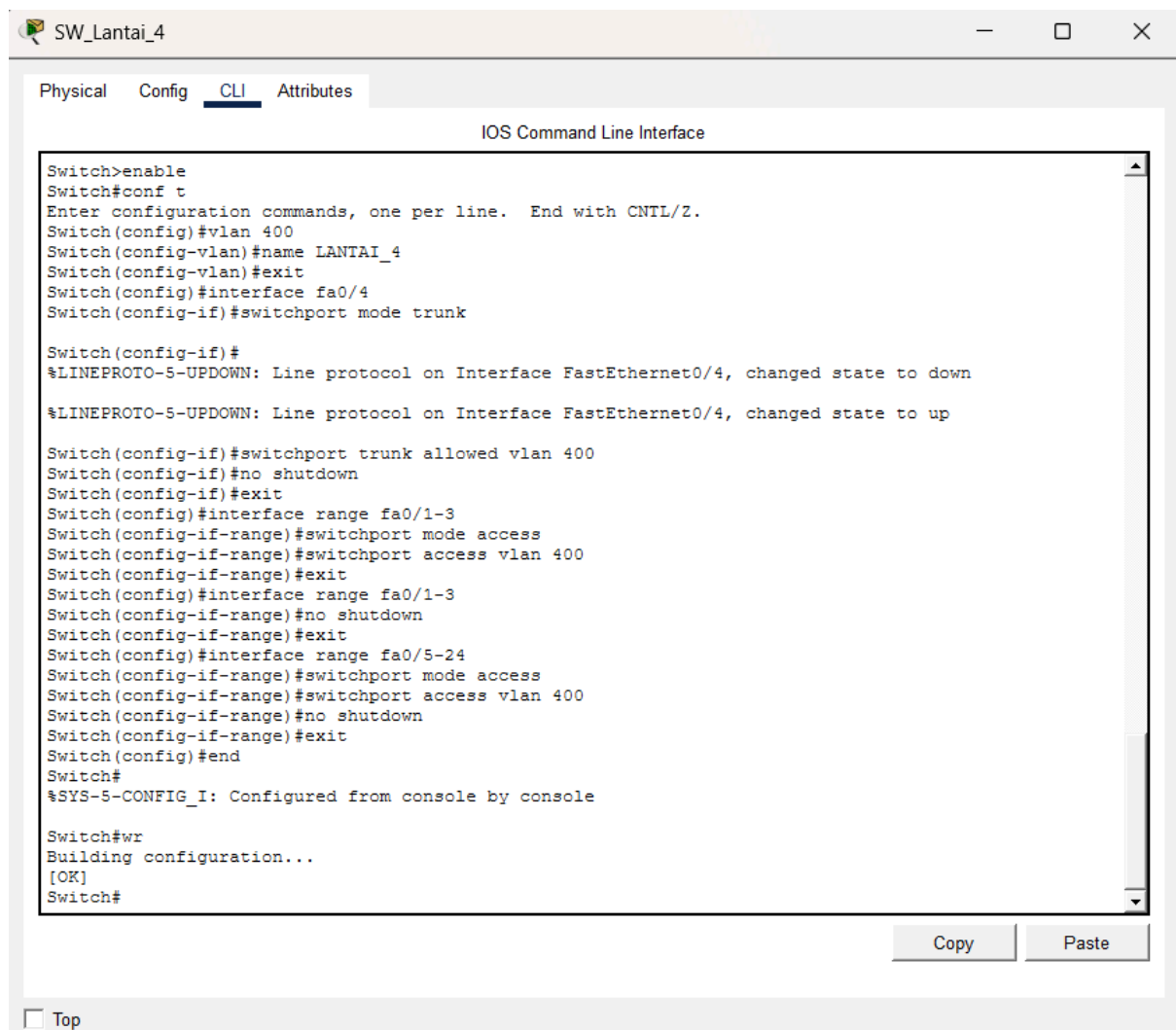
interface fa0/3
switchport mode trunk
switchport trunk allowed vlan 300
no shutdown
interface range fa0/1-2
switchport mode access
switchport access vlan 300
no shutdown
interface range fa0/4-24
switchport mode access
switchport access vlan 300
no shutdown
end
wr
```



SWITCH LANTAI 4

```
conf t
vlan 400
name LANTAI_4
```

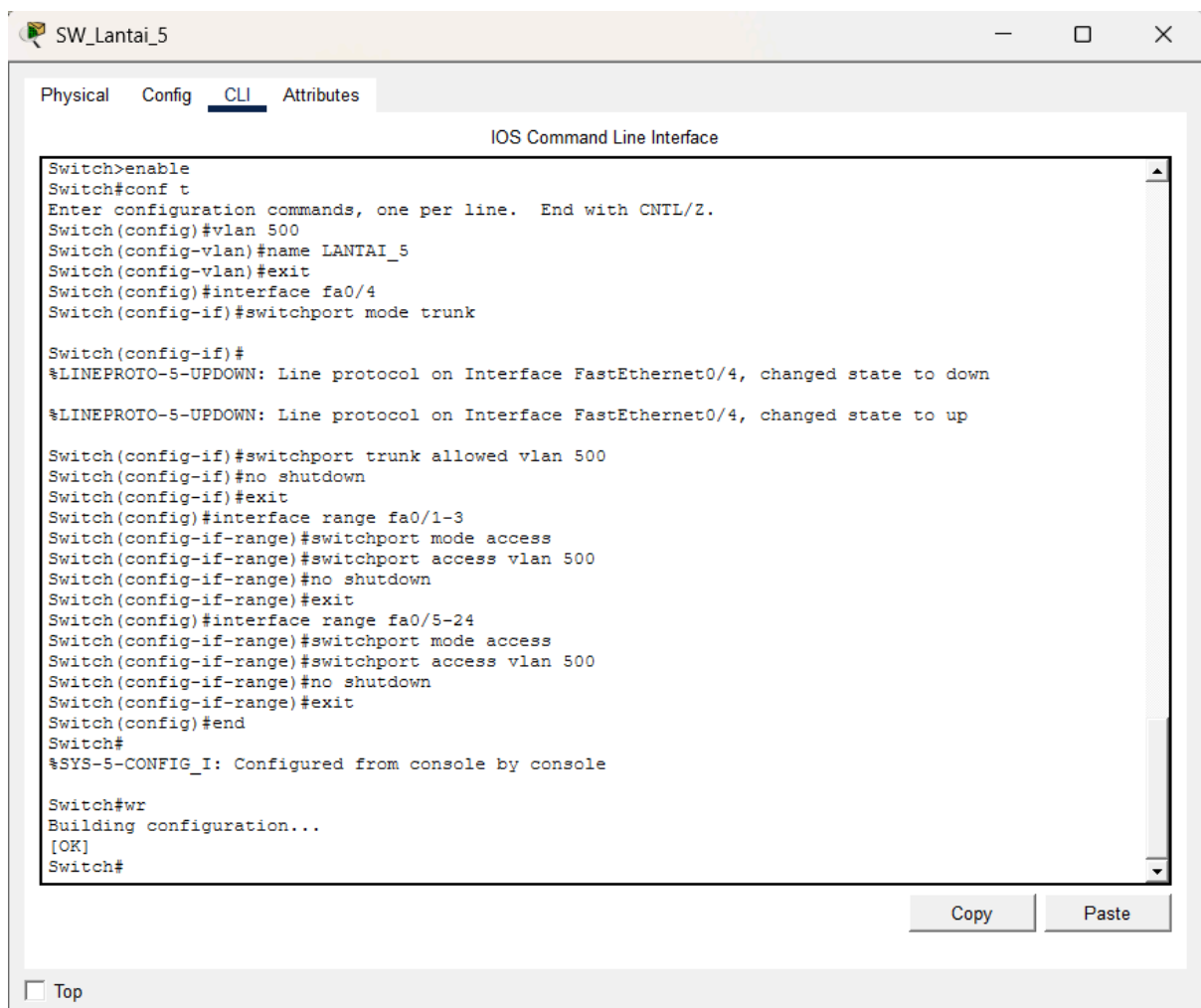
```
interface fa0/4
switchport mode trunk
switchport trunk allowed vlan 400
no shutdown
interface range fa0/1-3
switchport mode access
switchport access vlan 400
no shutdown
interface range fa0/5-24
switchport mode access
switchport access vlan 400
no shutdown
end
wr
```



SWITCH LANTAI 5

```
conf t
vlan 500
name LANTAI_5

interface fa0/4
switchport mode trunk
switchport trunk allowed vlan 500
no shutdown
interface range fa0/1-3
switchport mode access
switchport access vlan 500
no shutdown
interface range fa0/5-24
switchport mode access
switchport access vlan 500
no shutdown
end
wr
```



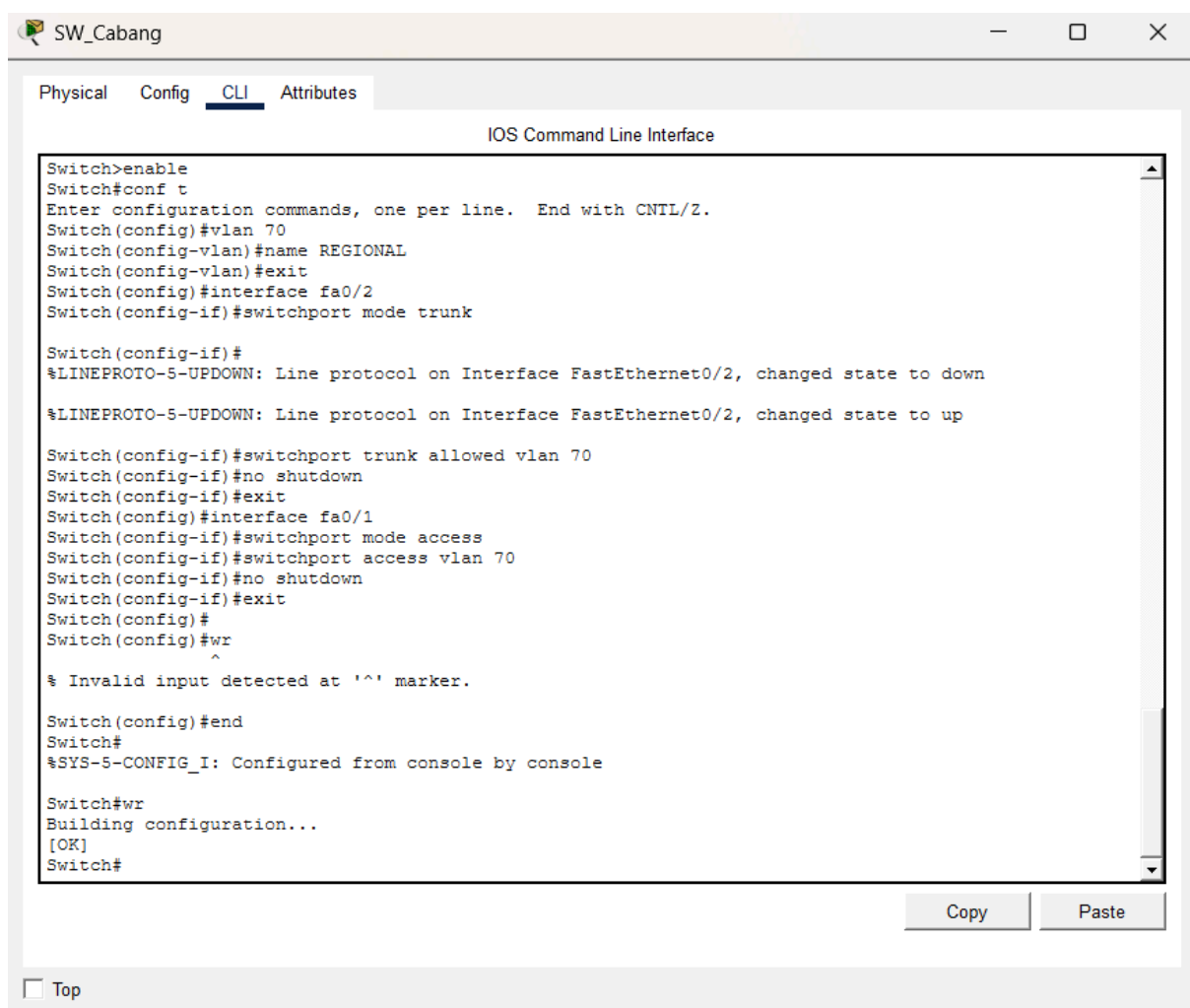
SWITCH KANTOR CABANG

```
enable
conf t
vlan 70
name REGIONAL
```

```
interface fa0/2
switchport mode trunk
switchport trunk allowed vlan 70
no shutdown
```

```
interface fa0/1
switchport mode access
switchport access vlan 70
no shutdown
```

```
end
wr
```

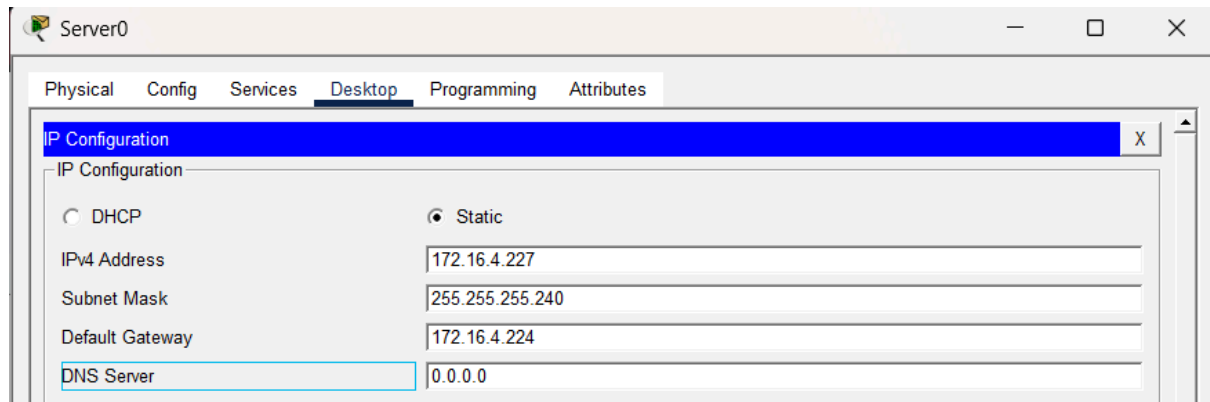


SERVER0 IT_PEND

172.16.4.227

255.255.255.240

172.16.4.224

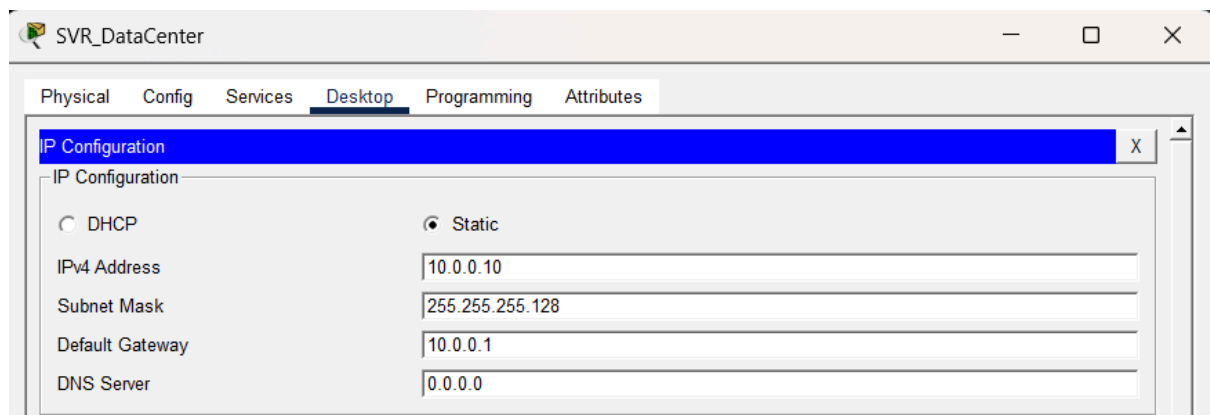


SERVER DATCEN

10.0.0.10

255.255.255.128

10.0.0.1

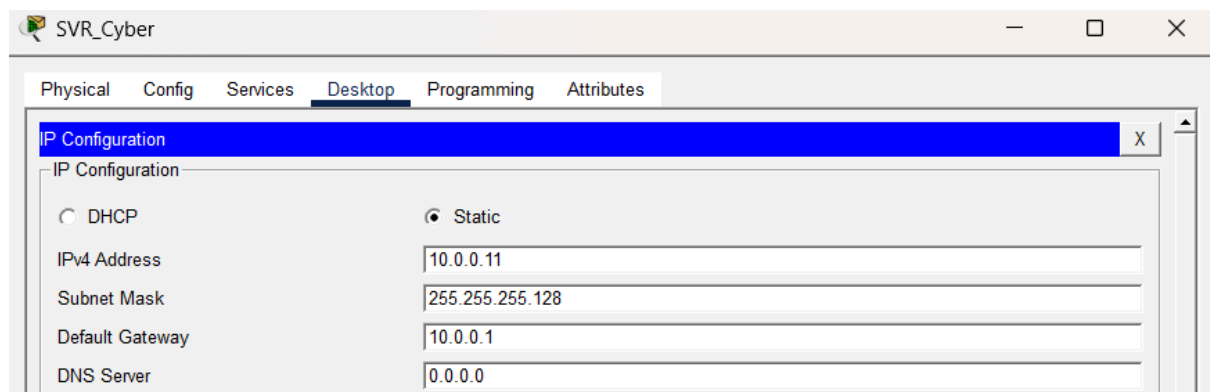


SERVER CYBER

10.0.0.11

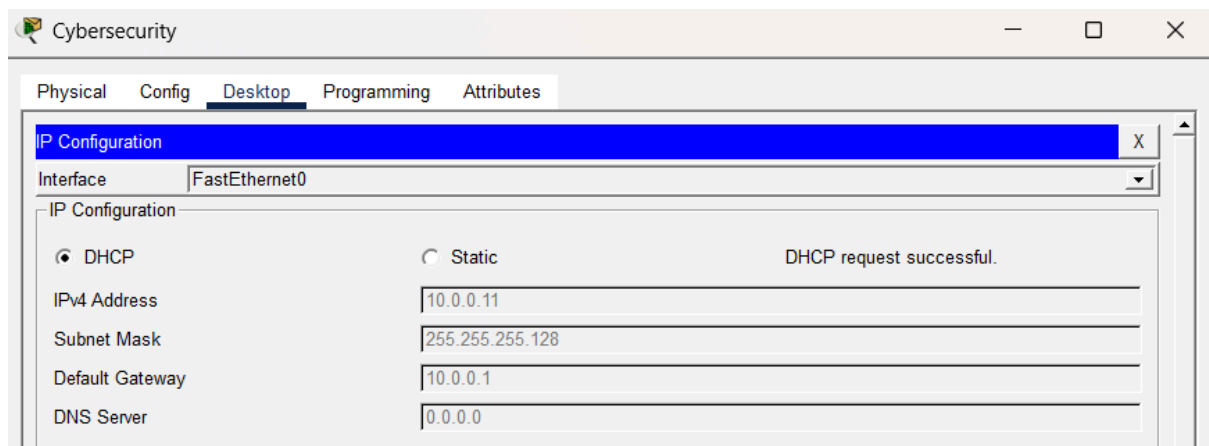
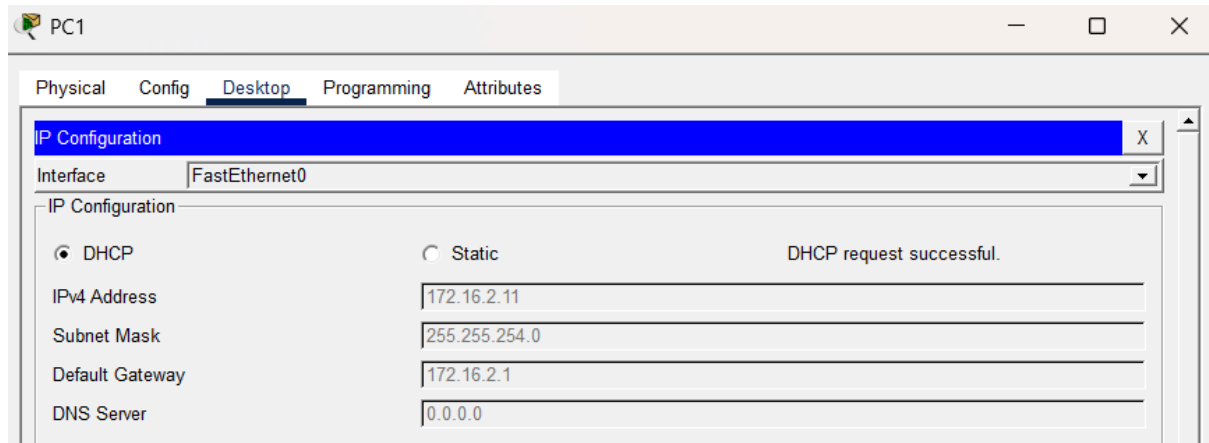
255.255.255.128

10.0.0.1



ALL PC

ke desktop > ganti ip dari statuc ke dhcp, contoh berhasil:



Contoh ping

Gedung Utama

PC0 SDM > Router (Default Gateway)

```
C:\>ipconfig

FastEthernet0 Connection:(default port)

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: FE80::207:ECFF:FE82:73B0
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 172.16.4.11
    Subnet Mask . . . . .: 255.255.255.128
    Default Gateway . . . . .: ::
                                   172.16.4.1

Bluetooth Connection:

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: ::
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 0.0.0.0
    Subnet Mask . . . . .: 0.0.0.0
    Default Gateway . . . . .: ::
                                   0.0.0.0
```

```
C:\>ping 172.16.4.1

Pinging 172.16.4.1 with 32 bytes of data:

Reply from 172.16.4.1: bytes=32 time<1ms TTL=255
Reply from 172.16.4.1: bytes=32 time<1ms TTL=255
Reply from 172.16.4.1: bytes=32 time<1ms TTL=255
Reply from 172.16.4.1: bytes=32 time=96ms TTL=255

Ping statistics for 172.16.4.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 96ms, Average = 24ms
```

PC0 SDM > PC5 LAYANAN OPS

```
C:\>ping 172.16.0.11

Pinging 172.16.0.11 with 32 bytes of data:

Request timed out.
Reply from 172.16.0.11: bytes=32 time<1ms TTL=127
Reply from 172.16.0.11: bytes=32 time<1ms TTL=127
Reply from 172.16.0.11: bytes=32 time<1ms TTL=127

Ping statistics for 172.16.0.11:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>|
```

ARA

PC Server Room > Router (Default Gateway)

```
C:\>ipconfig

FastEthernet0 Connection:(default port)

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: FE80::20D:BDFF:FECB:2496
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 10.0.0.12
    Subnet Mask . . . . .: 255.255.255.128
    Default Gateway . . . . .: ::
                                   10.0.0.1

Bluetooth Connection:

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: ::
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 0.0.0.0
    Subnet Mask . . . . .: 0.0.0.0
    Default Gateway . . . . .: ::
                                   0.0.0.0
```

```
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=11ms 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 = 11ms, Average = 2ms
```

PC Legal > PC Marketing

```
C:\>ping 10.0.0.139

Pinging 10.0.0.139 with 32 bytes of data:

Request timed out.
Reply from 10.0.0.139: bytes=32 time<1ms TTL=127
Reply from 10.0.0.139: bytes=32 time=14ms TTL=127
Reply from 10.0.0.139: bytes=32 time<1ms TTL=127

Ping statistics for 10.0.0.139:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 14ms, Average = 4ms

C:\>
```

Cabang

PC Regional > Router (Default Gateway)

```
C:\>ipconfig

FastEthernet0 Connection:(default port)

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: FE80::290:CFF:FE5C:2AA9
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 192.168.10.11
    Subnet Mask . . . . .: 255.255.255.192
    Default Gateway . . . . .: ::
                                   192.168.10.1

Bluetooth Connection:

    Connection-specific DNS Suffix...:
    Link-local IPv6 Address . . . . .: ::
    IPv6 Address . . . . .: ::
    IPv4 Address . . . . .: 0.0.0.0
    Subnet Mask . . . . .: 0.0.0.0
    Default Gateway . . . . .: ::
                                   0.0.0.0
```

```
C:\>ping 192.168.10.1

Pinging 192.168.10.1 with 32 bytes of data:

Reply from 192.168.10.1: bytes=32 time<1ms TTL=255
Reply from 192.168.10.1: bytes=32 time<1ms TTL=255
Reply from 192.168.10.1: bytes=32 time<1ms TTL=255
Reply from 192.168.10.1: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.10.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Nomer 5 (StatRoute & OSPF)

STATIS ROUTING & OSPF

ROUTING STATIS (LANTAI ARA TECH)

R ARA TECH

```
ip route 0.0.0.0 0.0.0.0 192.168.0.2
```

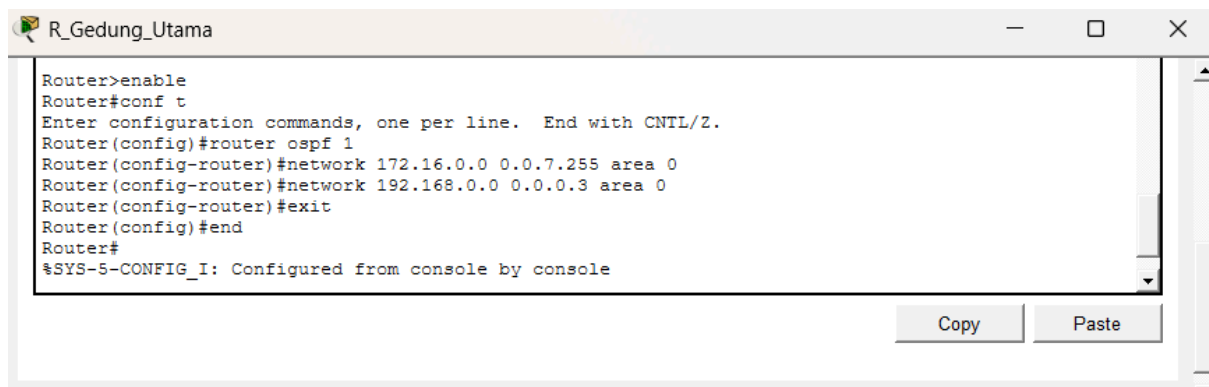
```
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#ip route 0.0.0.0 0.0.0.0 192.168.0.2
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#wr
Building configuration...
[OK]
Router#
```

OSPF ANTAR GEDUNG & CABANG

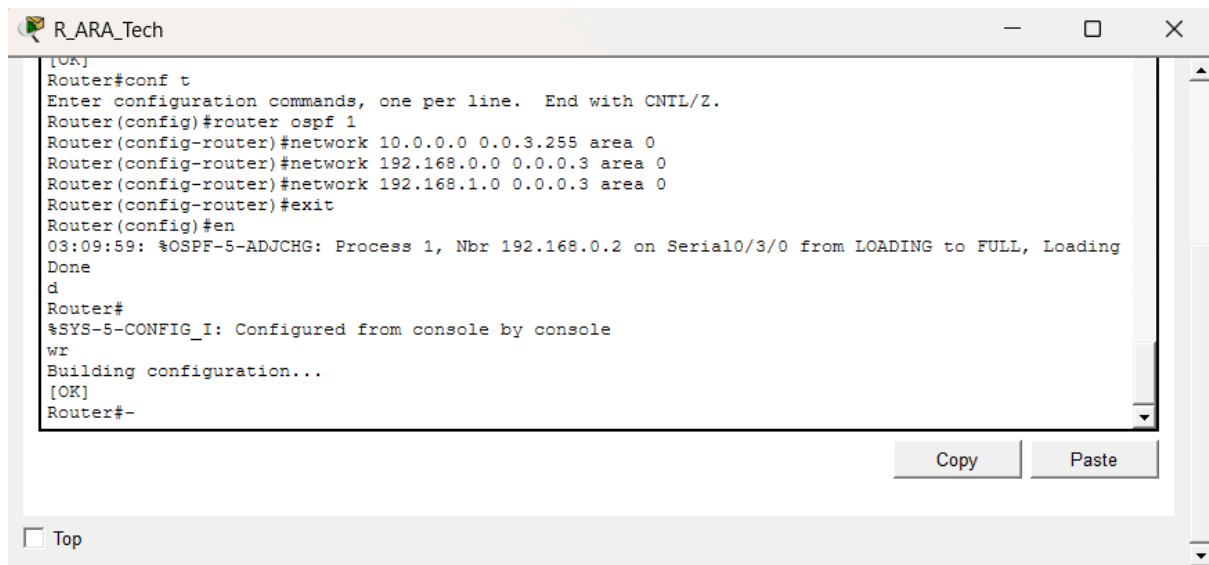
R GEDUNG UTAMA

```
router ospf 1
network 172.16.0.0 0.0.7.255 area 0
network 192.168.0.0 0.0.0.3 area 0
```



R ARA TECH

```
router ospf 1
network 10.0.0.0 0.0.3.255 area 0
network 192.168.0.0 0.0.0.3 area 0
network 192.168.1.0 0.0.0.3 area 0
```



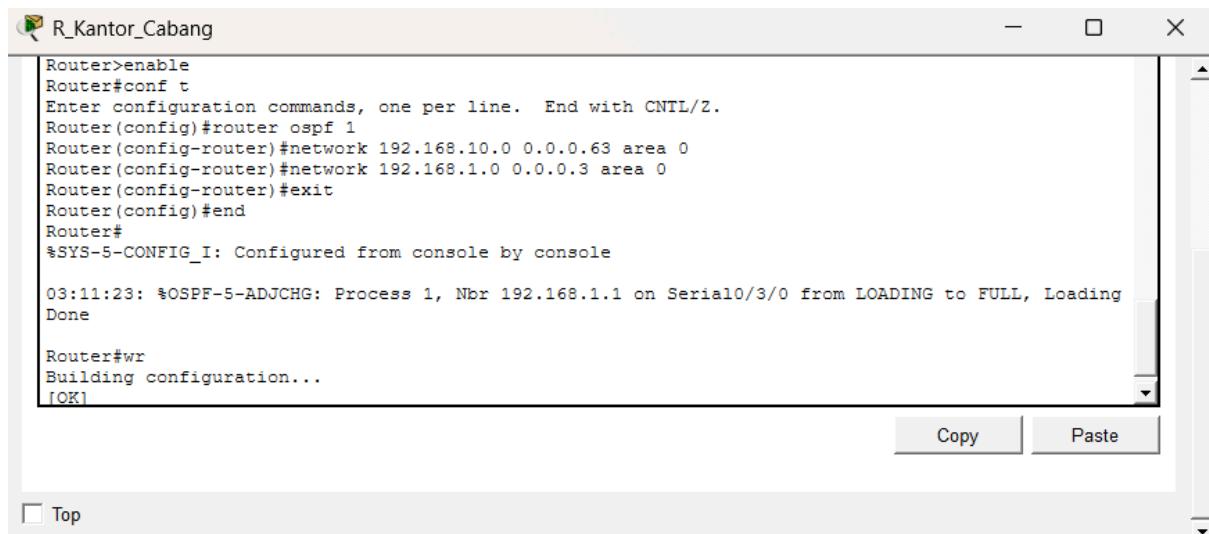
```
[OK]
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router ospf 1
Router(config-router)#network 10.0.0.0 0.0.3.255 area 0
Router(config-router)#network 192.168.0.0 0.0.0.3 area 0
Router(config-router)#network 192.168.1.0 0.0.0.3 area 0
Router(config-router)#exit
Router(config)#en
03:09:59: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.0.2 on Serial0/3/0 from LOADING to FULL, Loading
Done
d
Router#
%SYS-5-CONFIG_I: Configured from console by console
wr
Building configuration...
[OK]
Router#-
```

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☐ Top

R CABANG

```
router ospf 1
network 192.168.10.0 0.0.0.63 area 0
network 192.168.1.0 0.0.0.3 area 0
```



```
Router>enable
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router ospf 1
Router(config-router)#network 192.168.10.0 0.0.0.63 area 0
Router(config-router)#network 192.168.1.0 0.0.0.3 area 0
Router(config-router)#exit
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console

03:11:23: %OSPF-5-ADJCHG: Process 1, Nbr 192.168.1.1 on Serial0/3/0 from LOADING to FULL, Loading
Done

Router#wr
Building configuration...
[OK]
```

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☐ Top

Contoh Testing

PC > PC VLAN LAIN

PC Pembinaan (Gedung Utama) > PC Keuangan (ARA)

```
C:\>ping 10.0.1.139

Pinging 10.0.1.139 with 32 bytes of data:

Request timed out.
Reply from 10.0.1.139: bytes=32 time=9ms TTL=126
Reply from 10.0.1.139: bytes=32 time=1ms TTL=126
Reply from 10.0.1.139: bytes=32 time=13ms TTL=126

Ping statistics for 10.0.1.139:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 13ms, Average = 7ms

C:\>
```

PC Pendidikan (Gedung Utama) > PC Regional Office (Cabang)

```
C:\>ping 192.168.10.11

Pinging 192.168.10.11 with 32 bytes of data:

Reply from 192.168.10.11: bytes=32 time=4ms TTL=125
Reply from 192.168.10.11: bytes=32 time=3ms TTL=125
Reply from 192.168.10.11: bytes=32 time=2ms TTL=125
Reply from 192.168.10.11: bytes=32 time=3ms TTL=125

Ping statistics for 192.168.10.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 4ms, Average = 3ms
```

PC Auditorium (ARA) > PC Sarpras (Gedung Utama)

```
C:\>ping 172.16.4.139

Pinging 172.16.4.139 with 32 bytes of data:

Request timed out.
Reply from 172.16.4.139: bytes=32 time=2ms TTL=126
Reply from 172.16.4.139: bytes=32 time=1ms TTL=126
Reply from 172.16.4.139: bytes=32 time=2ms TTL=126

Ping statistics for 172.16.4.139:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 2ms, Average = 1ms
```

PC > ROUTER GEDUNG LAIN

PC Kurikulum (Gedung Utama) > Router ARA Tech

```
C:\>ping 192.168.0.1

Pinging 192.168.0.1 with 32 bytes of data:

Reply from 192.168.0.1: bytes=32 time=1ms TTL=254
Reply from 192.168.0.1: bytes=32 time=1ms TTL=254
Reply from 192.168.0.1: bytes=32 time=1ms TTL=254
Reply from 192.168.0.1: bytes=32 time=1ms TTL=254

Ping statistics for 192.168.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 1ms, Average = 1ms
```

PC Rnd (ARA) > Router Gedung Utama

```
C:\>ping 192.168.0.2

Pinging 192.168.0.2 with 32 bytes of data:

Reply from 192.168.0.2: bytes=32 time=1ms TTL=254
Reply from 192.168.0.2: bytes=32 time=1ms TTL=254
Reply from 192.168.0.2: bytes=32 time=18ms TTL=254
Reply from 192.168.0.2: bytes=32 time=1ms TTL=254

Ping statistics for 192.168.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 18ms, Average = 5ms
```

PC Sales (ARA) > Router Gedung Cabang

```
C:\>ping 192.168.1.2

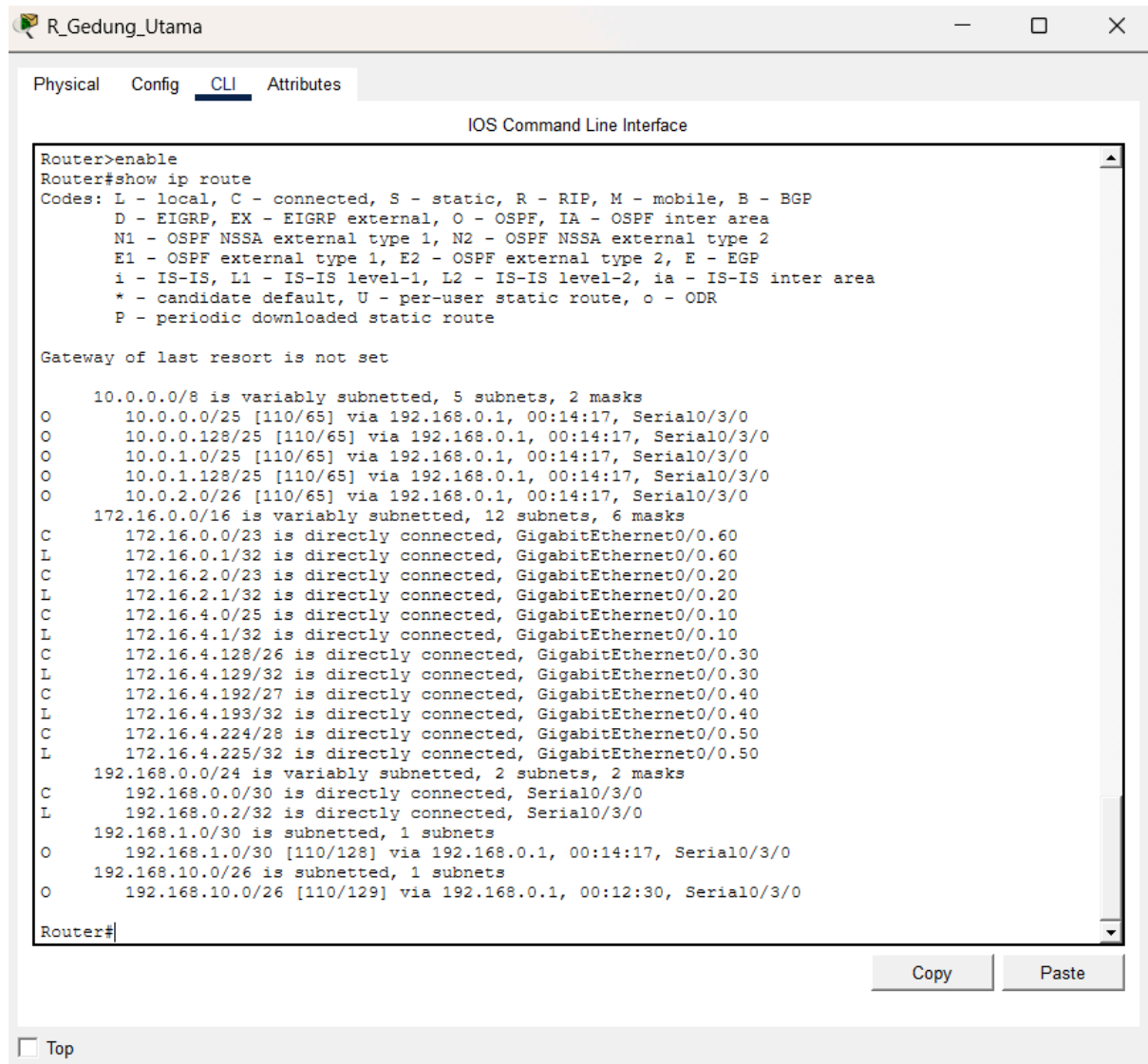
Pinging 192.168.1.2 with 32 bytes of data:

Reply from 192.168.1.2: bytes=32 time=1ms TTL=254
Reply from 192.168.1.2: bytes=32 time=20ms TTL=254
Reply from 192.168.1.2: bytes=32 time=3ms TTL=254
Reply from 192.168.1.2: bytes=32 time=1ms TTL=254

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 20ms, Average = 6ms
```

CEK ROUTING TABLE

R Gedung Utama



```
Router>enable
Router#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route


Gateway of last resort is not set

 10.0.0.0/8 is variably subnetted, 5 subnets, 2 masks
O   10.0.0.0/25 [110/65] via 192.168.0.1, 00:14:17, Serial0/3/0
O   10.0.0.128/25 [110/65] via 192.168.0.1, 00:14:17, Serial0/3/0
O   10.0.1.0/25 [110/65] via 192.168.0.1, 00:14:17, Serial0/3/0
O   10.0.1.128/25 [110/65] via 192.168.0.1, 00:14:17, Serial0/3/0
O   10.0.2.0/26 [110/65] via 192.168.0.1, 00:14:17, Serial0/3/0
 172.16.0.0/16 is variably subnetted, 12 subnets, 6 masks
C   172.16.0.0/23 is directly connected, GigabitEthernet0/0.60
L   172.16.0.1/32 is directly connected, GigabitEthernet0/0.60
C   172.16.2.0/23 is directly connected, GigabitEthernet0/0.20
L   172.16.2.1/32 is directly connected, GigabitEthernet0/0.20
C   172.16.4.0/25 is directly connected, GigabitEthernet0/0.10
L   172.16.4.1/32 is directly connected, GigabitEthernet0/0.10
C   172.16.4.128/26 is directly connected, GigabitEthernet0/0.30
L   172.16.4.129/32 is directly connected, GigabitEthernet0/0.30
C   172.16.4.192/27 is directly connected, GigabitEthernet0/0.40
L   172.16.4.193/32 is directly connected, GigabitEthernet0/0.40
C   172.16.4.224/28 is directly connected, GigabitEthernet0/0.50
L   172.16.4.225/32 is directly connected, GigabitEthernet0/0.50
 192.168.0.0/24 is variably subnetted, 2 subnets, 2 masks
C   192.168.0.0/30 is directly connected, Serial0/3/0
L   192.168.0.2/32 is directly connected, Serial0/3/0
 192.168.1.0/30 is subnetted, 1 subnets
O   192.168.1.0/30 [110/128] via 192.168.0.1, 00:14:17, Serial0/3/0
 192.168.10.0/26 is subnetted, 1 subnets
O   192.168.10.0/26 [110/129] via 192.168.0.1, 00:12:30, Serial0/3/0

Router#
```

Hasil OSPF nya yang O depan route, itu dapet dari router lain

R ARA

 R_ARA_Tech

Physical Config **CLI** Attributes

IOS Command Line Interface

```
Router>enable
Router#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
        D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
        N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
        E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
        i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
        * - candidate default, U - per-user static route, o - ODR
        P - periodic downloaded static route

Gateway of last resort is 192.168.0.2 to network 0.0.0.0

    10.0.0.0/8 is variably subnetted, 10 subnets, 3 masks
C       10.0.0.0/25 is directly connected, GigabitEthernet0/0.100
L       10.0.0.1/32 is directly connected, GigabitEthernet0/0.100
C       10.0.0.128/25 is directly connected, GigabitEthernet0/0.200
L       10.0.0.129/32 is directly connected, GigabitEthernet0/0.200
C       10.0.1.0/25 is directly connected, GigabitEthernet0/0.300
L       10.0.1.1/32 is directly connected, GigabitEthernet0/0.300
C       10.0.1.128/25 is directly connected, GigabitEthernet0/0.400
L       10.0.1.129/32 is directly connected, GigabitEthernet0/0.400
C       10.0.2.0/26 is directly connected, GigabitEthernet0/0.500
L       10.0.2.1/32 is directly connected, GigabitEthernet0/0.500
    172.16.0.0/16 is variably subnetted, 6 subnets, 5 masks
O       172.16.0.0/23 [110/65] via 192.168.0.2, 00:18:49, Serial0/3/0
O       172.16.2.0/23 [110/65] via 192.168.0.2, 00:18:49, Serial0/3/0
O       172.16.4.0/25 [110/65] via 192.168.0.2, 00:18:49, Serial0/3/0
O       172.16.4.128/26 [110/65] via 192.168.0.2, 00:18:49, Serial0/3/0
O       172.16.4.192/27 [110/65] via 192.168.0.2, 00:18:49, Serial0/3/0
O       172.16.4.224/28 [110/65] via 192.168.0.2, 00:18:49, Serial0/3/0
    192.168.0.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.0.0/30 is directly connected, Serial0/3/0
L       192.168.0.1/32 is directly connected, Serial0/3/0
    192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.1.0/30 is directly connected, Serial0/3/1
L       192.168.1.1/32 is directly connected, Serial0/3/1
    192.168.10.0/26 is subnetted, 1 subnets
O       192.168.10.0/26 [110/65] via 192.168.1.2, 00:17:12, Serial0/3/1
S*    0.0.0.0/0 [1/0] via 192.168.0.2

Router#
```

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R CABANG

R_Kantor_Cabang

Physical Config **CLI** Attributes

IOS Command Line Interface

```
Router>enable
Router#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

 10.0.0.0/8 is variably subnetted, 5 subnets, 2 masks
O   10.0.0.0/25 [110/65] via 192.168.1.1, 00:19:08, Serial0/3/0
O   10.0.0.128/25 [110/65] via 192.168.1.1, 00:19:08, Serial0/3/0
O   10.0.1.0/25 [110/65] via 192.168.1.1, 00:19:08, Serial0/3/0
O   10.0.1.128/25 [110/65] via 192.168.1.1, 00:19:08, Serial0/3/0
O   10.0.2.0/26 [110/65] via 192.168.1.1, 00:19:08, Serial0/3/0
 172.16.0.0/16 is variably subnetted, 6 subnets, 5 masks
O   172.16.0.0/23 [110/129] via 192.168.1.1, 00:19:08, Serial0/3/0
O   172.16.2.0/23 [110/129] via 192.168.1.1, 00:19:08, Serial0/3/0
O   172.16.4.0/25 [110/129] via 192.168.1.1, 00:19:08, Serial0/3/0
O   172.16.4.128/26 [110/129] via 192.168.1.1, 00:19:08, Serial0/3/0
O   172.16.4.192/27 [110/129] via 192.168.1.1, 00:19:08, Serial0/3/0
O   172.16.4.224/28 [110/129] via 192.168.1.1, 00:19:08, Serial0/3/0
 192.168.0.0/30 is subnetted, 1 subnets
O   192.168.0.0/30 [110/128] via 192.168.1.1, 00:19:08, Serial0/3/0
 192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C   192.168.1.0/30 is directly connected, Serial0/3/0
L   192.168.1.2/32 is directly connected, Serial0/3/0
 192.168.10.0/24 is variably subnetted, 2 subnets, 2 masks
C   192.168.10.0/26 is directly connected, GigabitEthernet0/0.70
L   192.168.10.1/32 is directly connected, GigabitEthernet0/0.70

Router#
```

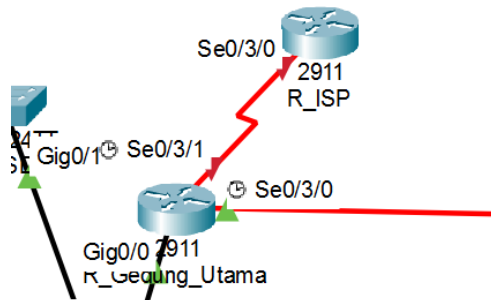
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Nomer 6 (NAT)

NAT OVERLOAD (PAT) + INTERNET ACCESS

Konfigurasi ISP



R ISP

conf t

interface s0/3/0

ip address 203.0.113.2 255.255.255.252

no shutdown

interface loopback0

ip address 8.8.8.8 255.255.255.255

ip route 172.16.0.0 255.255.248.0 203.0.113.1

ip route 10.0.0.0 255.255.252.0 203.0.113.1

ip route 192.168.10.0 255.255.255.192 203.0.113.1

```
R_ISP
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface s0/3/0
Router(config-if)#ip address 203.0.113.2 255.255.255.252
Router(config-if)#no shutdown
Router(config-if)#exit
Router(config)#interface loopback0
Router(config-if)#ip address 8.8.8.8 255.255.255.255
Router(config-if)#exit
Router(config)#ip route 172.16.0.0 255.255.248.0 203.0.113.1
Router(config)#ip route 10.0.0.0 255.255.252.0 203.0.113.1
Router(config)#ip route 192.168.10.0 255.255.255.192 203.0.113.1
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#wr
Building configuration...
[OK]
Router#
```

Konfigurasi NAT

ROUTER GEDUNG UTAMA

conf t

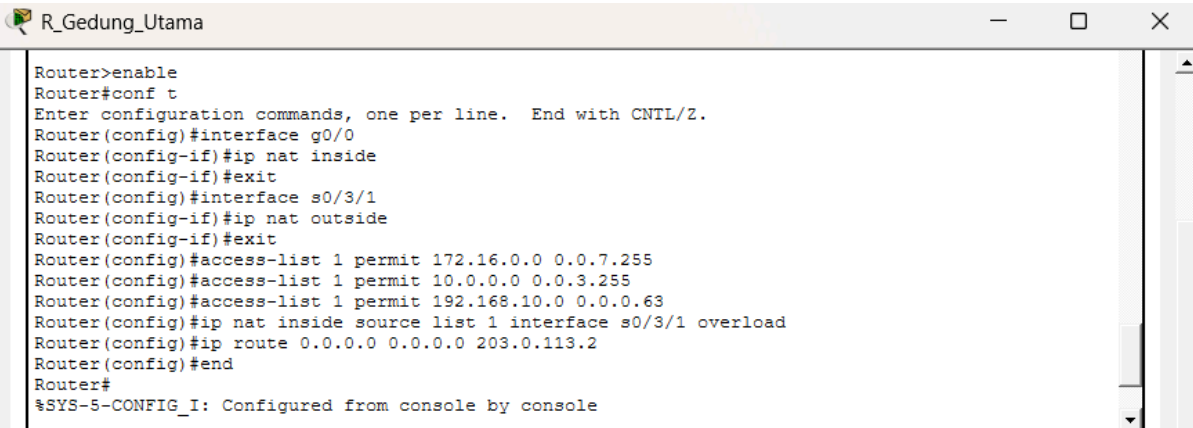
interface g0/0
ip nat inside

interface s0/3/1
ip nat outside

access-list 1 permit 172.16.0.0 0.0.7.255
access-list 1 permit 10.0.0.0 0.0.3.255
access-list 1 permit 192.168.10.0 0.0.0.63

ip nat inside source list 1 interface s0/3/1 overload

ip route 0.0.0.0 0.0.0.0 203.0.113.2



```
Router>enable
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface g0/0
Router(config-if)#ip nat inside
Router(config-if)#exit
Router(config)#interface s0/3/1
Router(config-if)#ip nat outside
Router(config-if)#exit
Router(config)#access-list 1 permit 172.16.0.0 0.0.7.255
Router(config)#access-list 1 permit 10.0.0.0 0.0.3.255
Router(config)#access-list 1 permit 192.168.10.0 0.0.0.63
Router(config)#ip nat inside source list 1 interface s0/3/1 overload
Router(config)#ip route 0.0.0.0 0.0.0.0 203.0.113.2
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console
```

conf t

interface g0/0.10
ip nat inside

interface g0/0.20
ip nat inside

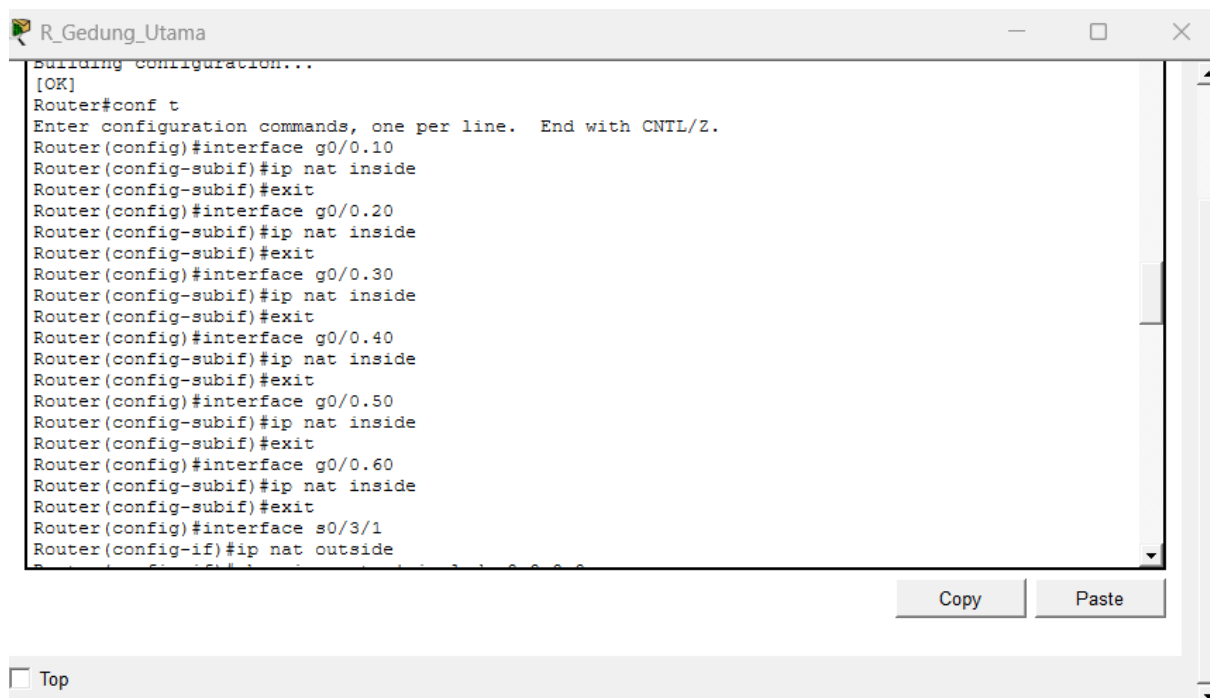
interface g0/0.30
ip nat inside


```
interface g0/0.40
ip nat inside
```

```
interface g0/0.50
ip nat inside
```

```
interface g0/0.60
ip nat inside
```

```
interface s0/3/1
ip nat outside
```

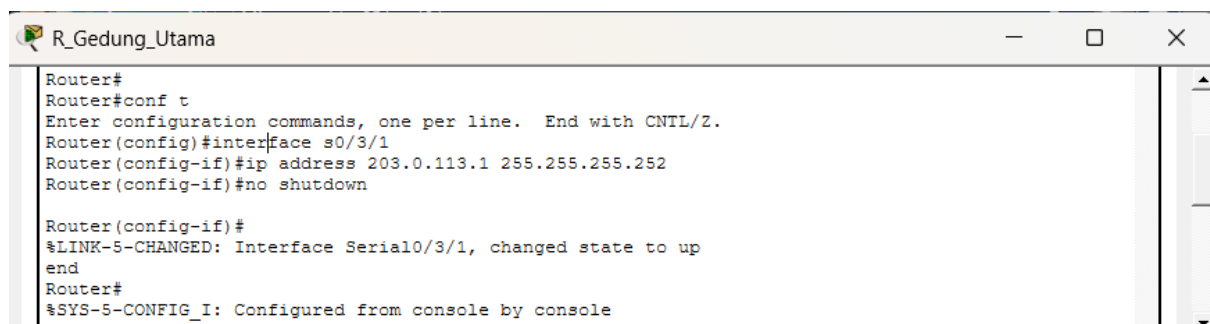


```
R_Gedung_Utama
Building configuration...
[OK]
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface g0/0.10
Router(config-subif)#ip nat inside
Router(config-subif)#exit
Router(config)#interface g0/0.20
Router(config-subif)#ip nat inside
Router(config-subif)#exit
Router(config)#interface g0/0.30
Router(config-subif)#ip nat inside
Router(config-subif)#exit
Router(config)#interface g0/0.40
Router(config-subif)#ip nat inside
Router(config-subif)#exit
Router(config)#interface g0/0.50
Router(config-subif)#ip nat inside
Router(config-subif)#exit
Router(config)#interface g0/0.60
Router(config-subif)#ip nat inside
Router(config-subif)#exit
Router(config)#interface s0/3/1
Router(config-if)#ip nat outside
```

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☐ Top

```
interface s0/3/1
ip address 203.0.113.1 255.255.255.252
no shutdown
```

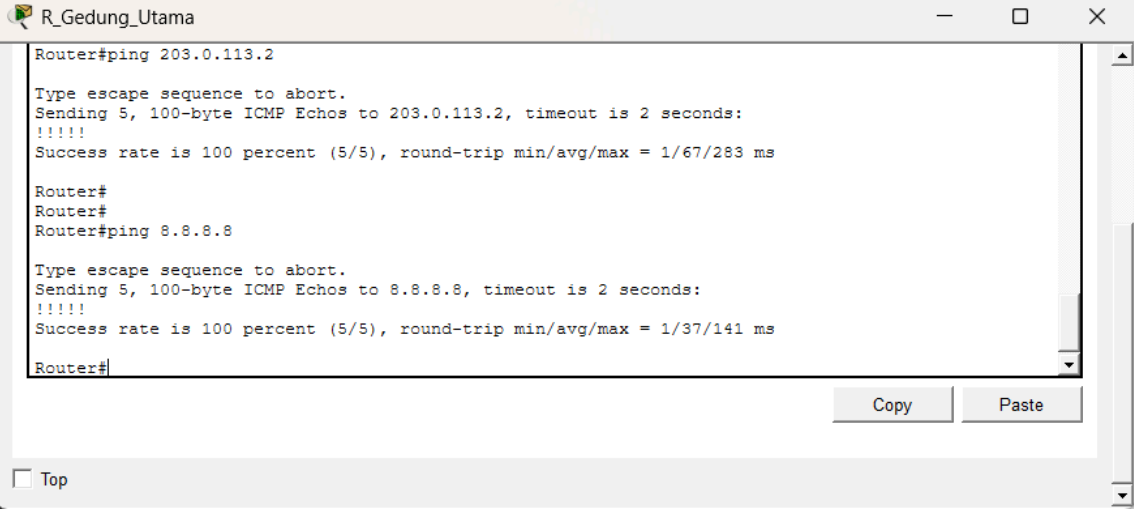


```
R_Gedung_Utama
Router#
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#interface s0/3/1
Router(config-if)#ip address 203.0.113.1 255.255.255.252
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface Serial0/3/1, changed state to up
end
Router#
%SYS-5-CONFIG_I: Configured from console by console
```

Testing Internet

Router > Internet



```
Router#ping 203.0.113.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 203.0.113.2, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/67/283 ms

Router#
Router#
Router#ping 8.8.8.8
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 8.8.8.8, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/37/141 ms

Router#
```

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☐ Top

PC > Internet

PC SDM (Gedung Utama)

```
C:\>ping 8.8.8.8

Pinging 8.8.8.8 with 32 bytes of data:

Reply from 8.8.8.8: bytes=32 time=1ms TTL=254
Reply from 8.8.8.8: bytes=32 time=2ms TTL=254
Reply from 8.8.8.8: bytes=32 time=1ms TTL=254
Reply from 8.8.8.8: bytes=32 time=1ms TTL=254

Ping statistics for 8.8.8.8:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 2ms, Average = 1ms
```

PC CustService (ARA)

```
C:\>ping 8.8.8.8

Pinging 8.8.8.8 with 32 bytes of data:

Reply from 8.8.8.8: bytes=32 time=12ms TTL=253
Reply from 8.8.8.8: bytes=32 time=2ms TTL=253
Reply from 8.8.8.8: bytes=32 time=2ms TTL=253
Reply from 8.8.8.8: bytes=32 time=2ms TTL=253

Ping statistics for 8.8.8.8:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 12ms, Average = 4ms
```

Bukti PAT

```
Router#show ip nat translations
Pro  Inside global      Inside local      Outside local      Outside global
icmp 203.0.113.1:21    172.16.4.11:21    8.8.8.8:21         8.8.8.8:21
icmp 203.0.113.1:22    172.16.4.11:22    8.8.8.8:22         8.8.8.8:22
icmp 203.0.113.1:23    172.16.4.11:23    8.8.8.8:23         8.8.8.8:23
```

Nomer 7 (GRE Tunnel)

GRE Tunnel

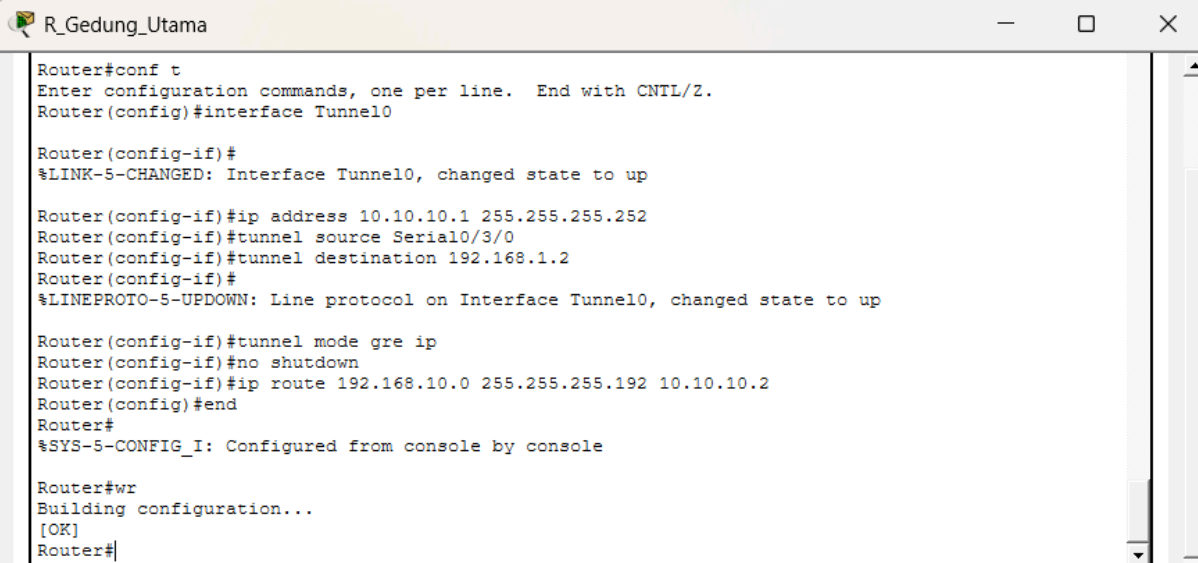
ROUTER GEDUNG UTAMA

conf t

```
interface Tunnel0
ip address 10.10.10.1 255.255.255.252
tunnel source Serial0/3/0
tunnel destination 192.168.1.2
tunnel mode gre ip
no shutdown
```

Route Lewat Tunnel

```
ip route 192.168.10.0 255.255.255.192 10.10.10.2
```



```
R_Gedung_Utama
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface Tunnel0

Router(config-if)#
%LINK-5-CHANGED: Interface Tunnel0, changed state to up

Router(config-if)#ip address 10.10.10.1 255.255.255.252
Router(config-if)#tunnel source Serial0/3/0
Router(config-if)#tunnel destination 192.168.1.2
Router(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Tunnel0, changed state to up

Router(config-if)#tunnel mode gre ip
Router(config-if)#no shutdown
Router(config-if)#ip route 192.168.10.0 255.255.255.192 10.10.10.2
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#wr
Building configuration...
[OK]
Router#
```

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ROUTER GEDUNG CABANG

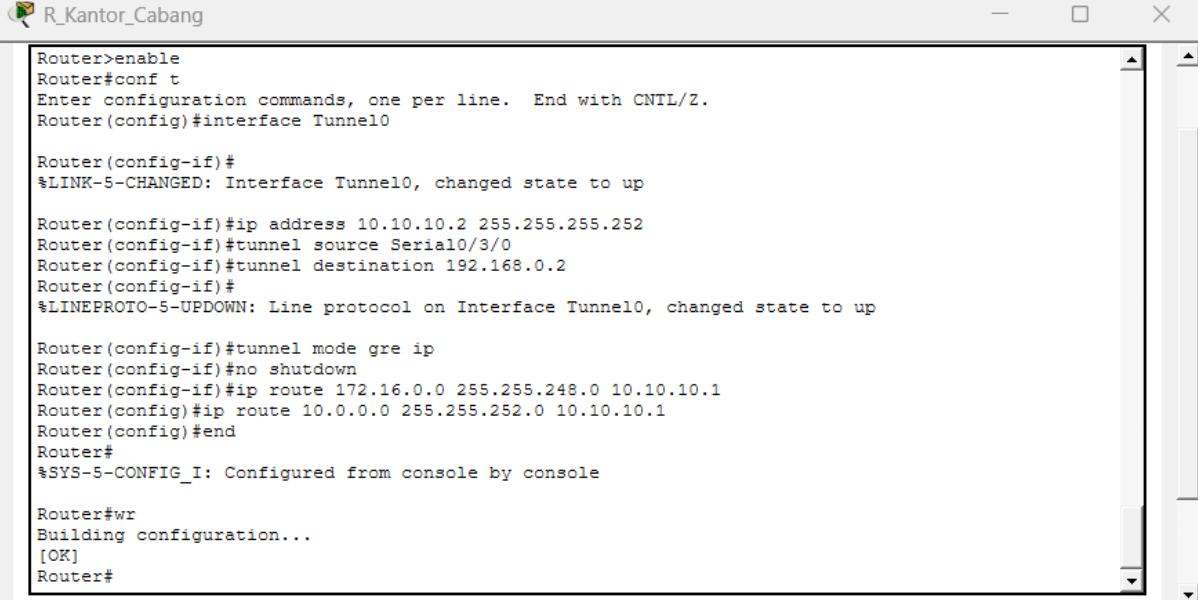
conf t

```
interface Tunnel0
ip address 10.10.10.2 255.255.255.252
tunnel source Serial0/3/0
tunnel destination 192.168.0.2
tunnel mode gre ip
no shutdown
```

Route Lewat Tunnel

ip route 172.16.0.0 255.255.248.0 10.10.10.1

ip route 10.0.0.0 255.255.252.0 10.10.10.1



```
Router>enable
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface Tunnel0

Router(config-if)#
%LINK-5-CHANGED: Interface Tunnel0, changed state to up

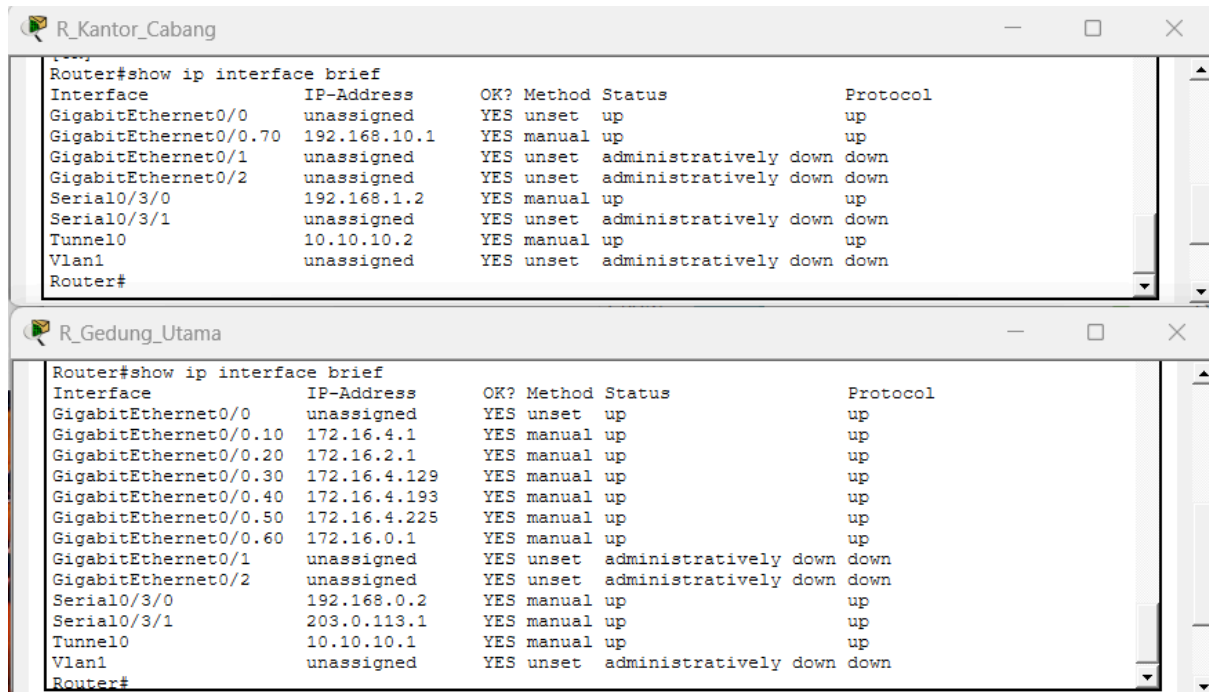
Router(config-if)#ip address 10.10.10.2 255.255.255.252
Router(config-if)#tunnel source Serial0/3/0
Router(config-if)#tunnel destination 192.168.0.2
Router(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Tunnel0, changed state to up

Router(config-if)#tunnel mode gre ip
Router(config-if)#no shutdown
Router(config-if)#ip route 172.16.0.0 255.255.248.0 10.10.10.1
Router(config)#ip route 10.0.0.0 255.255.252.0 10.10.10.1
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#wr
Building configuration...
[OK]
Router#
```

Testing GRE

Cek Status Tunnel



The image shows two screenshots of Cisco IOS command-line interfaces. The top screenshot is from a router named 'R_Kantor_Cabang' and the bottom screenshot is from a router named 'R_Gedung_Utama'. Both screenshots show the output of the 'show ip interface brief' command, which displays a table of interfaces, their IP addresses, and their status.

R_Kantor_Cabang

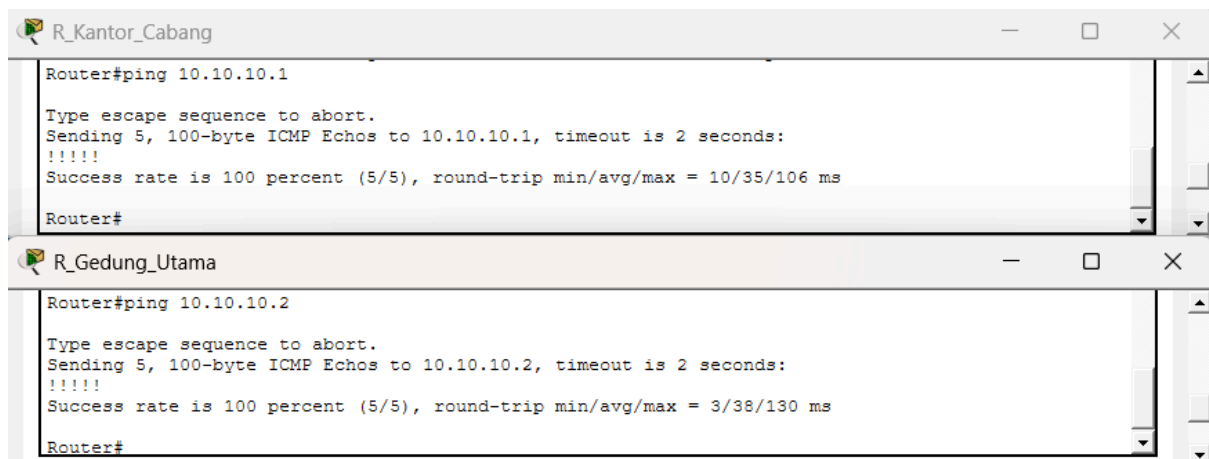
Interface	IP-Address	OK?	Method	Status	Protocol
GigabitEthernet0/0	unassigned	YES	unset	up	up
GigabitEthernet0/0.70	192.168.10.1	YES	manual	up	up
GigabitEthernet0/1	unassigned	YES	unset	administratively down	down
GigabitEthernet0/2	unassigned	YES	unset	administratively down	down
Serial0/3/0	192.168.1.2	YES	manual	up	up
Serial0/3/1	unassigned	YES	unset	administratively down	down
Tunnel0	10.10.10.2	YES	manual	up	up
Vlan1	unassigned	YES	unset	administratively down	down

R_Gedung_Utama

Interface	IP-Address	OK?	Method	Status	Protocol
GigabitEthernet0/0	unassigned	YES	unset	up	up
GigabitEthernet0/0.10	172.16.4.1	YES	manual	up	up
GigabitEthernet0/0.20	172.16.2.1	YES	manual	up	up
GigabitEthernet0/0.30	172.16.4.129	YES	manual	up	up
GigabitEthernet0/0.40	172.16.4.193	YES	manual	up	up
GigabitEthernet0/0.50	172.16.4.225	YES	manual	up	up
GigabitEthernet0/0.60	172.16.0.1	YES	manual	up	up
GigabitEthernet0/1	unassigned	YES	unset	administratively down	down
GigabitEthernet0/2	unassigned	YES	unset	administratively down	down
Serial0/3/0	192.168.0.2	YES	manual	up	up
Serial0/3/1	203.0.113.1	YES	manual	up	up
Tunnel0	10.10.10.1	YES	manual	up	up
Vlan1	unassigned	YES	unset	administratively down	down

Di keduanya si Tunnel0 udah yes manual up

Ping Antar Tunnel



The image shows two screenshots of Cisco IOS command-line interfaces. The top screenshot is from a router named 'R_Kantor_Cabang' and the bottom screenshot is from a router named 'R_Gedung_Utama'. Both screenshots show the output of the 'ping' command, which displays the success rate and round-trip time of the ping.

R_Kantor_Cabang

```
Router#ping 10.10.10.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.10.10.1, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 10/35/106 ms
Router#
```

R_Gedung_Utama

```
Router#ping 10.10.10.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.10.10.2, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 3/38/130 ms
Router#
```

Ping Antar PC Tunnel

PC SDM (Gedung Utama) > PC Regional (Cabang)

```
C:\>ping 192.168.10.11

Pinging 192.168.10.11 with 32 bytes of data:

Reply from 192.168.10.11: bytes=32 time=12ms TTL=126
Reply from 192.168.10.11: bytes=32 time=2ms TTL=126
Reply from 192.168.10.11: bytes=32 time=2ms TTL=126
Reply from 192.168.10.11: bytes=32 time=3ms TTL=126

Ping statistics for 192.168.10.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 12ms, Average = 4ms
```

PC Regional (Cabang) > PC SDM (Gedung Utama)

```
C:\>ping 172.16.4.11

Pinging 172.16.4.11 with 32 bytes of data:

Reply from 172.16.4.11: bytes=32 time=2ms TTL=126
Reply from 172.16.4.11: bytes=32 time=2ms TTL=126
Reply from 172.16.4.11: bytes=32 time=3ms TTL=126
Reply from 172.16.4.11: bytes=32 time=11ms TTL=126

Ping statistics for 172.16.4.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 11ms, Average = 4ms
```

Tambahan notes:

“Walaupun OSPF telah digunakan antar gedung, GRE Tunnel tetap dikonfigurasi untuk mensimulasikan koneksi virtual point-to-point yang aman antara Gedung Utama dan Kantor Cabang.”