Digital Laboratory

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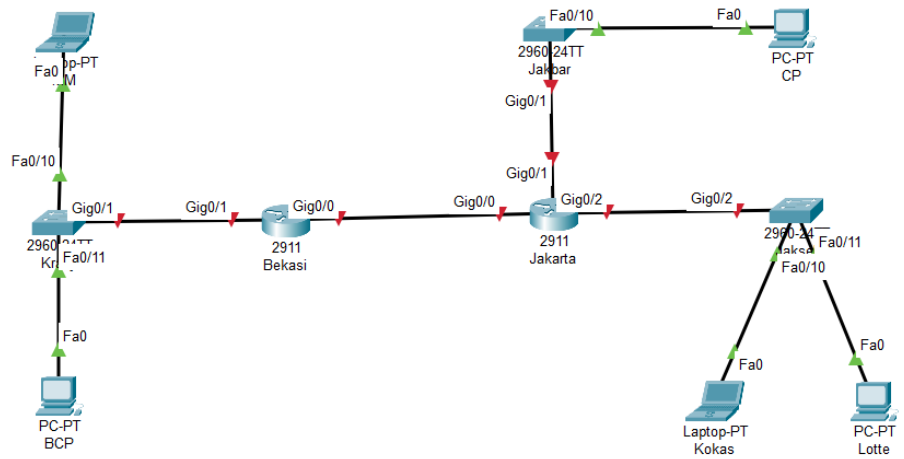
Jawaban

1. Topologi



2. subnetting terhadap jaringan utama, sehingga menjadi beberapa jaringan sesuai dengan kebutuhan masing-masing wilayah

Nama LAN/Subnet	Network Address	Subnet Mask	First Usable Address	Last Usable Adress	Broadcast Address
Jakbar	172.16.1.0	255.255.255.128	172.16.1.1	172.16.1.126	172.16.1.127
Jaksel	172.16.0.0	255.255.255.0	172.16.0.1	172.16.0.255	172.16.0.255
Kranji	172.16.1.128	25 5.255.255.192	172.16.1.129	172.16.1.190	172.16.1.191
Bekasi - Jakarta	172.16.1.192	255.255.255.252	172.16.1.193	172.16.1.193	172.16.1.195

3. Jaksel → /24 = 2^8 – 2 = 254 Host
   Jakbar → /25 = 2^7 – 2 = 126 Host
   Kranji → /26 = 2^6 – 2 = 62 Host
   Bekasi – Jakarta → /30 = 2^2 – 2 = 2 Host
   Jaksel 254 – 200 = 54 IP Address tidak terpakai

Jakbar 126 – 120 = 6 IP Address tidak terpakai
Kranji 62 – 60 = 2 IP Address tidak terpakai
Bekasi- Jakarta 2-2 = 0 IP Address tidak terpakai

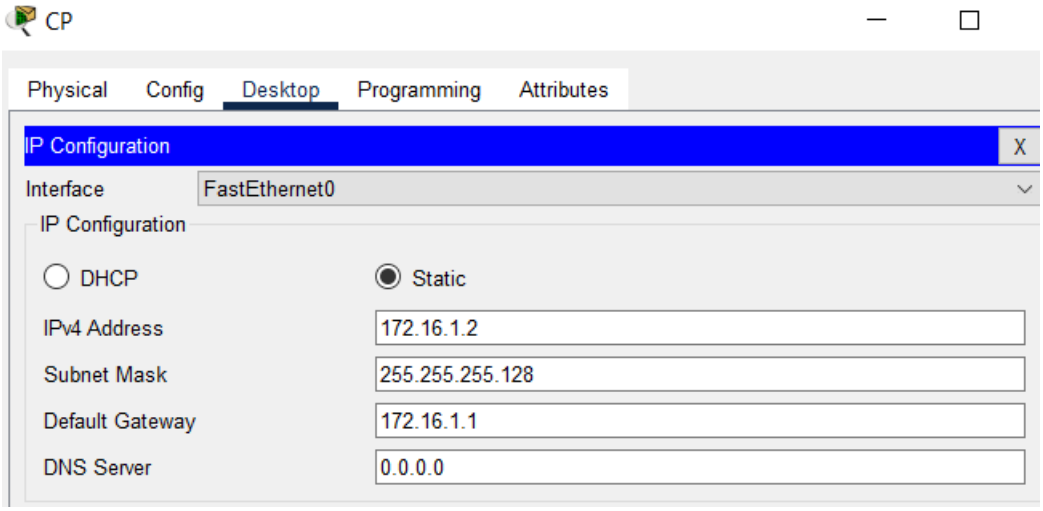
4. IP Address

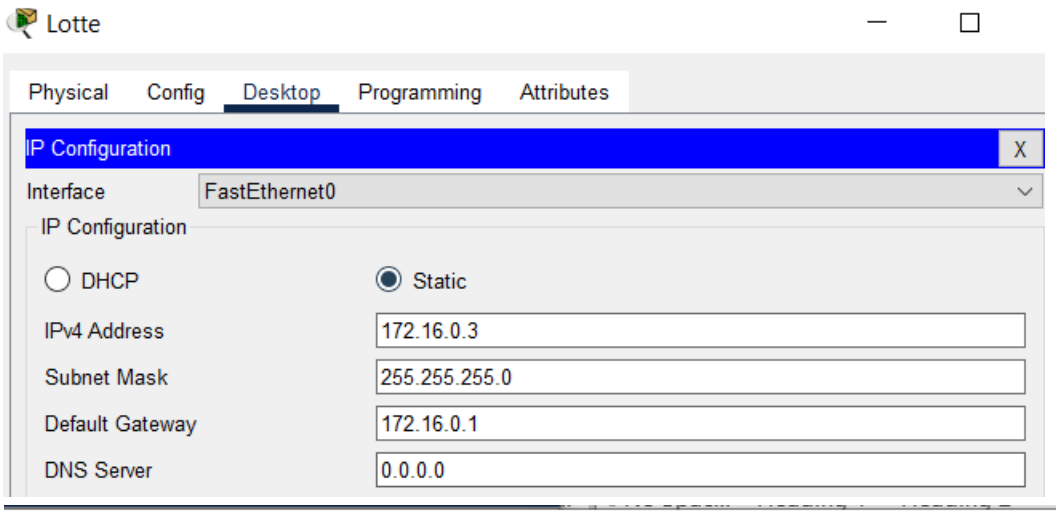
Device	Interface	IP Address	Subnet Mask	Default Gateway
Jakarta	G0/0	172.16.1.194	255.255.255.252	
	G0/1	172.16.1.1	255.255.255.128	
	G0/2	172.16.0.1	255.255.255.0	
Bekasi	G0/0	172.16.1.193	255.255.255.252	
	G0/1	172.16.1.129	255.255.255.192	
PC CP	NIC	172.16.1.2	255.255.255.128	172.16.1.1
PC Kokas	NIC	172.16.0.2	255.255.255.0	172.16.0.1
PC Lotte	NIC	172.16.0.3	255.255.255.0	172.16.0.1
PC MM	NIC	172.16.1.130	255.255.255.192	172.16.1.129
PC BCP	NIC	172.16.1.131	255.255.255.192	172.16.1.129

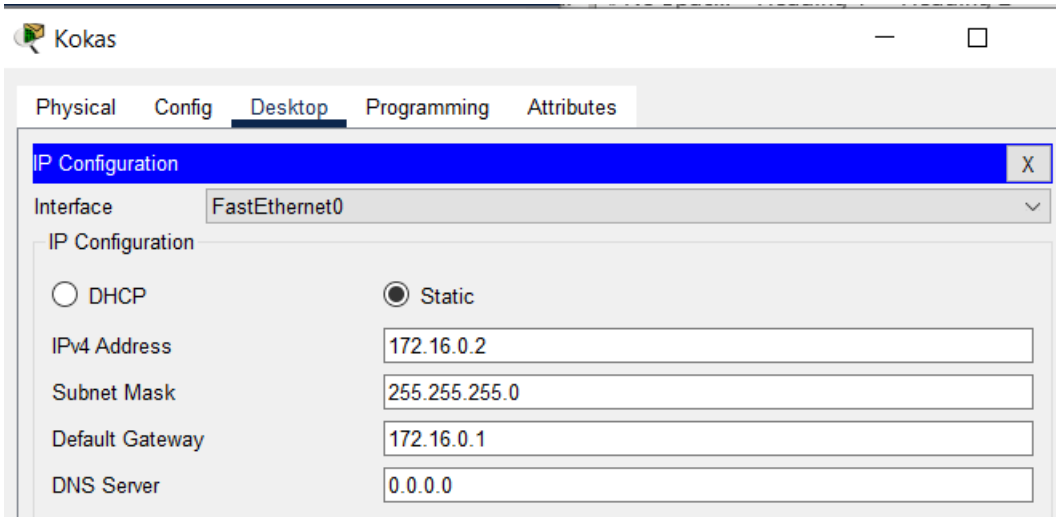
5.

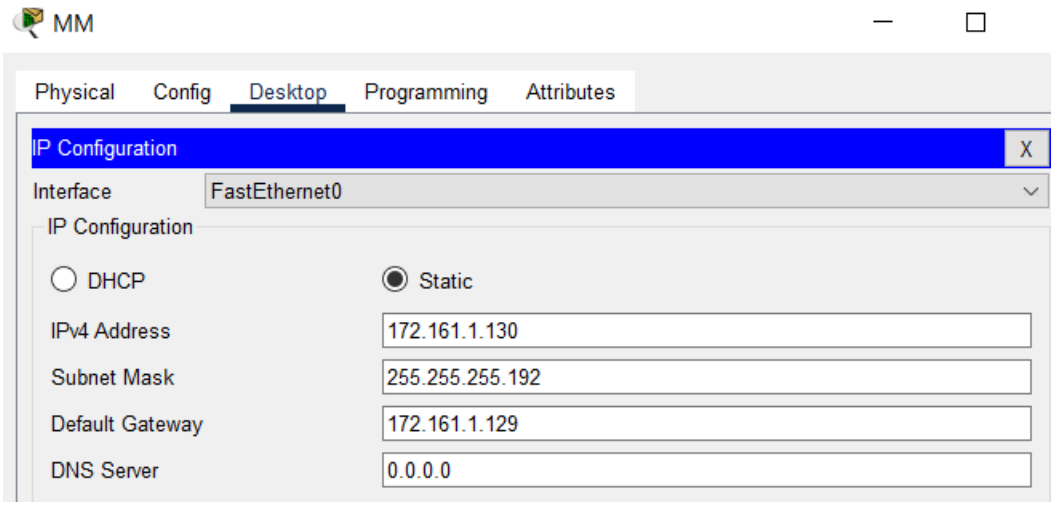
```
Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname Jakarta
Jakarta(config)#int g0/0
Jakarta(config-if)#ip add 172.161.1.194
Jakarta(config-if)#ip add 172.161.1.194 255.255.255.252
Jakarta(config-if)#no shut

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

Jakarta(config-if)#exit
Jakarta(config)#int g0/1
Jakarta(config-if)#ip add 172.16.1.1 255.255.255.128
Jakarta(config-if)#no shut

Jakarta(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up

Jakarta(config-if)#exit
Jakarta(config)#int g0/2
Jakarta(config-if)#172.16.0.1 255.255.255.0
                   ^
% Invalid input detected at '^' marker.

Jakarta(config-if)#ip add 172.16.0.1 255.255.255.0
Jakarta(config-if)#no shut

Jakarta(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/2, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/2, changed state to up

Jakarta(config-if)#
```

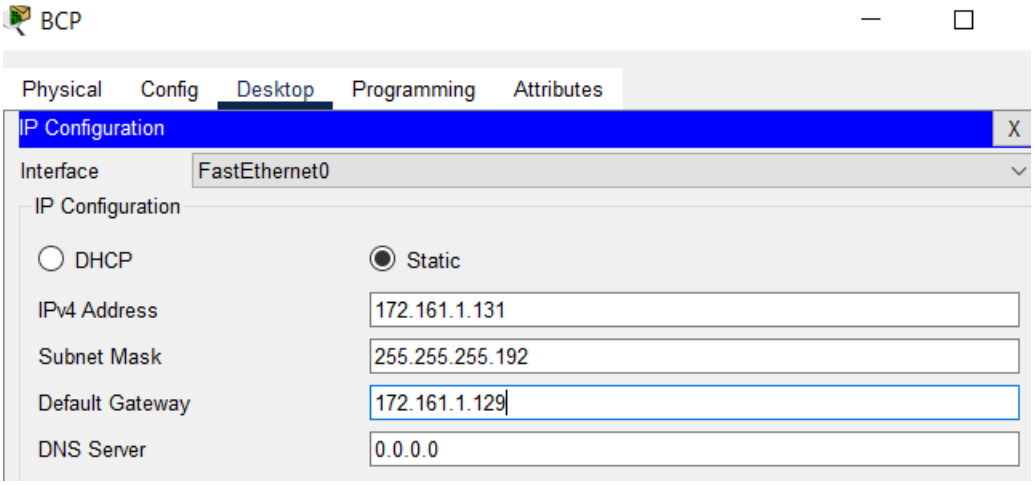
```
Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname Bekasi
Bekasi(config)#
Bekasi(config)#int g0/0
Bekasi(config-if)#ip add 172.161.1.193 255.255.255.252
Bekasi(config-if)#no shut

Bekasi(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

Bekasi(config-if)#int g0/1
Bekasi(config-if)#ip add 172.161.1.129 255.255.255.192
Bekasi(config-if)#no shut

Bekasi(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up

Bekasi(config-if)#
```




Lotte
Physical
Config
Desktop
Programming
Attributes
IP Configuration
X
Interface
FastEthernet0
IP Configuration
DHCP
Static
IPv4 Address
172.16.0.3
Subnet Mask
255.255.255.0
Default Gateway
172.16.0.1
DNS Server
0.0.0.0

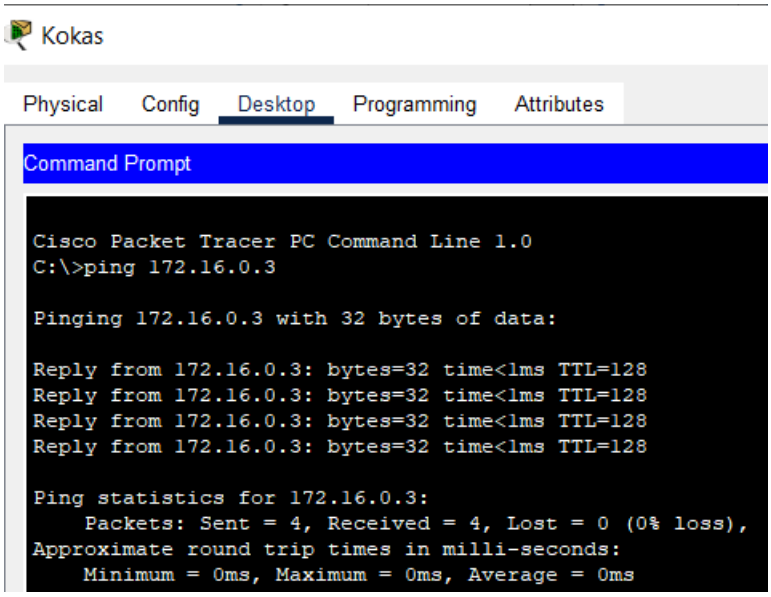

Kokas
Physical
Config
Desktop
Programming
Attributes
IP Configuration
X
Interface
FastEthernet0
IP Configuration
DHCP
Static
IPv4 Address
172.16.0.2
Subnet Mask
255.255.255.0
Default Gateway
172.16.0.1
DNS Server
0.0.0.0


MM
Physical
Config
Desktop
Programming
Attributes
IP Configuration
X
Interface
FastEthernet0
IP Configuration
DHCP
Static
IPv4 Address
172.161.1.130
Subnet Mask
255.255.255.192
Default Gateway
172.161.1.129
DNS Server
0.0.0.0

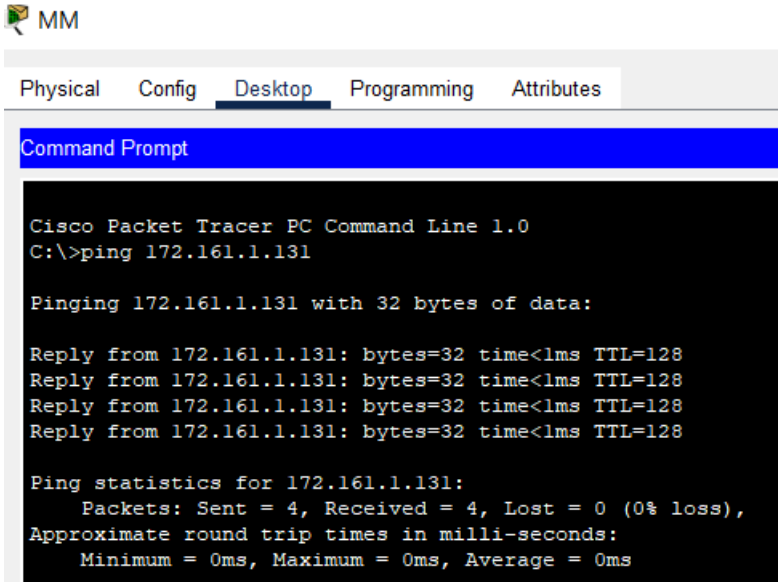

BCP
Physical
Config
Desktop
Programming
Attributes
IP Configuration
X
Interface
FastEthernet0
IP Configuration
DHCP
Static
IPv4 Address
172.161.1.131
Subnet Mask
255.255.255.192
Default Gateway
172.161.1.129
DNS Server
0.0.0.0

6. Tes Ping

Dari Kokas ke Lotte



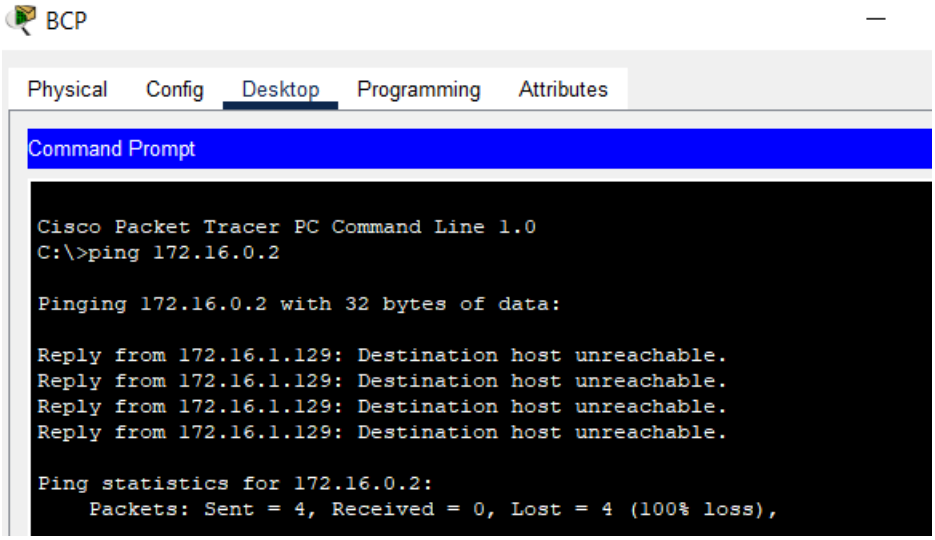
Dari MM ke BCP



Dari CP ke MM

```
C:\>ping 172.16.1.130

Pinging 172.16.1.130 with 32 bytes of data:

Reply from 172.16.1.1: Destination host unreachable.
Reply from 172.16.1.1: Destination host unreachable.
Reply from 172.16.1.1: Destination host unreachable.
Reply from 172.16.1.1: Destination host unreachable.

Ping statistics for 172.16.1.130:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

Dari BCP ke Kokas



- Untuk percobaan Kokas ke Lotte berhasil dengan IP Address asal 172.16.0.2 Ke IP Address 172.16.0.3, message dikirim melewati switch yang masih dalam satu subnet yaitu 255.255.255.0
- Untuk percobaan MM ke Kokas berhasil dengan IP Address asal 172.16.1.130 Ke IP Address 172.16.1.131, message dikirim melewati switch yang masih dalam satu subnet yaitu 255.255.255.192
- Untuk percobaan CP ke MM gagal dengan IP Address asal 172.16.1.2 Ke IP Address 172.16.1.130 dengan subnet 255.255.255.128 dan 255.255.255.192, message dikirim melewati switch lalu router jakarta dengan IP Address 172.16.1.194 dilanjutkan ke router bekasi dengan IP Address 172.16.1.193 dengan subnet 255.255.255.252
- Untuk percobaan BCP ke Kokas gagal dengan IP Address asal 172.16.1.131Ke IP Address 172.16.0.2 dengan subnet 255.255.255.192 dan 255.255.255.0 , message

dikirim melewati switch lalu router bekasi dengan IP Address 172.16.1.193 dilanjutkan ke router jakarta dengan IP Address 172.16.1.194 dengan subnet 255.255.255.252

7. Hasil percobaan ping berhasil saat message dikirim dalam subnet yang sama namun ketika dikirim dengan subnet yang berbeda mengalami kegagalan hal ini kemungkinan dikarenakan kesalahan dalam routing tables dan konfigurasi IP Address yang menyebabkan kedua router antara router Jakarta dan Bekasi tidak dapat berkomunikasi.