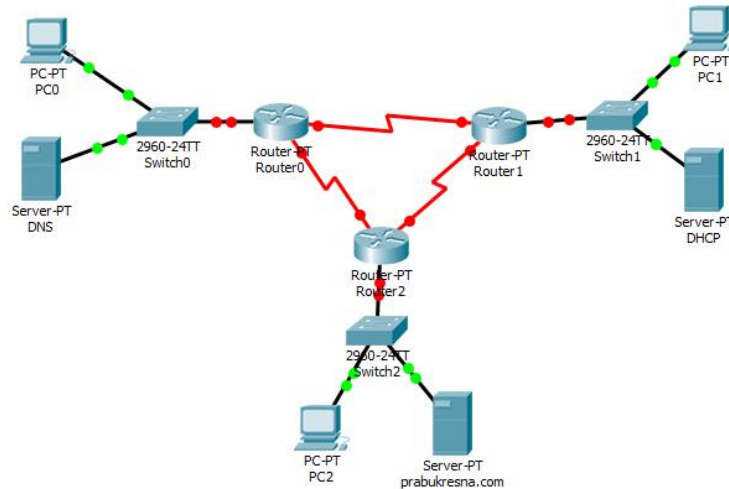


Nama : Roni Ardianzah  
Nim : L200170073  
Kelas : B

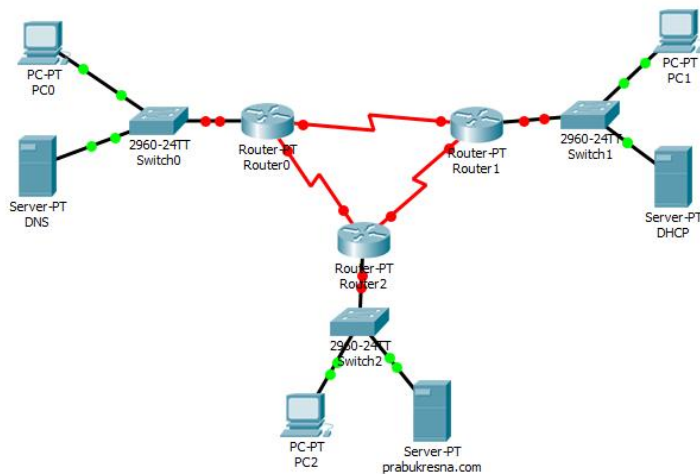
### UJIAN AKHIR SEMESTER JARINGAN KOMPUTER



SOAL :

1. Buat Topologi Seperti Diatas
2. Konfigurasi IP terhadap Router 0,1,2 PC 0,1,2 dan Server 0,1,2
3. Konfigurasi Routing Dinamis
4. Konfigurasi Routing Statis
5. Batasi Hanya 2 PC yang dapat mengakses Webserver

JAWAB :



- **Router 0**  
Fast Ethernet 0/0 : 192.168.10.1  
Serial 2/0 : 10.10.10.1  
Serial 3/0 : 30.30.30.1

Router0

Physical Config CLI Attributes

**GLOBAL**

Settings

Algorithm Settings

**ROUTING**

Static

RIP

**INTERFACE**

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

**FastEthernet0/0**

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 00E0.A3BD.4B55

IP Configuration

IP Address 192.168.10.1

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Equivalent IOS Commands

```
%SYS-5-CONFIG_I: Configured from console by console
no shutdown
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#ip address 192.168.10.1 255.255.255.0
Router(config-if)#ip address 192.168.10.1 255.255.255.0
Router(config-if)#
```

☐ Top

Router0

Physical Config CLI Attributes

**GLOBAL**

Settings

Algorithm Settings

**ROUTING**

Static

RIP

**INTERFACE**

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

**Serial2/0**

Port Status ☒ On

Duplex ☒ Full Duplex

Clock Rate 2000000

IP Configuration

IP Address 10.10.10.1

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Equivalent IOS Commands

```
Router(config-if)#ip address 192.168.10.1 255.255.255.0
Router(config-if)#ip address 192.168.10.1 255.255.255.0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial2/0
Router(config-if)#ip address 10.10.10.1 255.0.0.0
Router(config-if)#ip address 10.10.10.1 255.255.255.0
Router(config-if)#
```

☐ Top

Router0

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

Serial3/0

Port Status

☒ On

Duplex

☐ Full Duplex

Clock Rate

1200

IP Configuration

IP Address

30.30.30.1

Subnet Mask

255.255.255.0

Tx Ring Limit

10

Equivalent IOS Commands

Router(config-if)#ip address 10.10.10.1 255.255.255.0

Router(config-if)#

Router(config-if)#exit

Router(config)#interface Serial3/0

Router(config-if)#no shutdown

Router(config-if)#ip address 30.30.30.1 255.0.0.0

Router(config-if)#ip address 30.30.30.1 255.255.255.0

Router(config-if)#

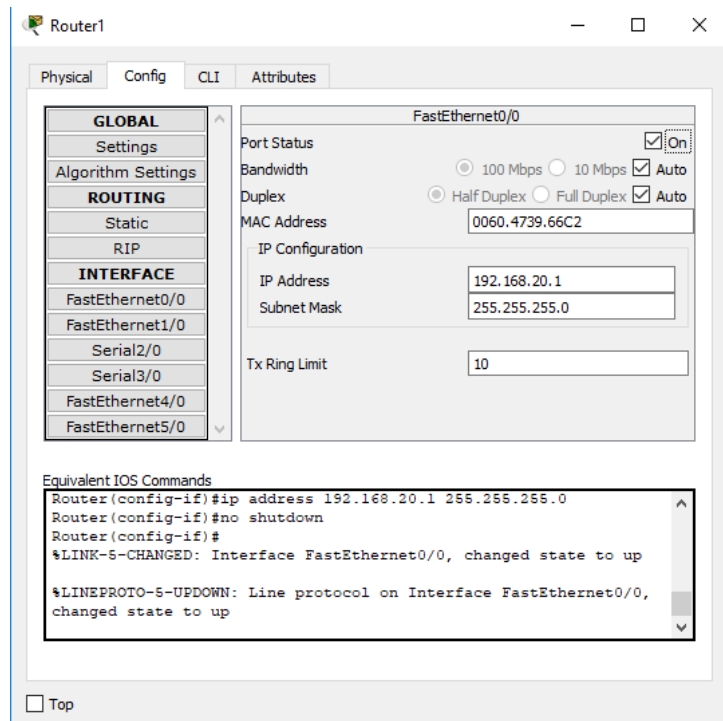
☐ Top

- **Router 1**

Fast Ethernet 0/0 : 192.168.20.1

Serial 2/0 : 20.20.20.2

Serial 3/0 : 30.30.30.2



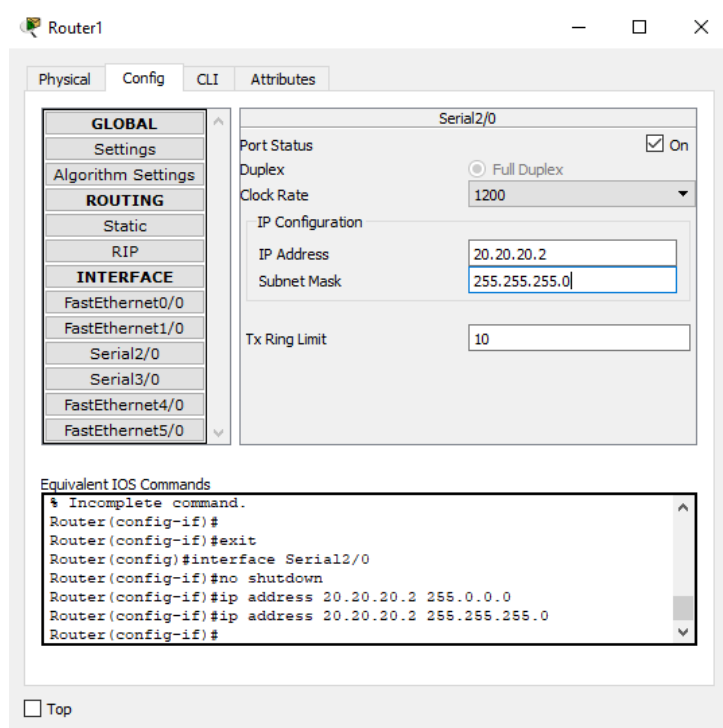
The screenshot shows the Router1 configuration window with the 'Config' tab selected. The left sidebar shows the 'INTERFACE' section with 'FastEthernet0/0' selected. The main configuration area for 'FastEthernet0/0' is displayed, showing the following settings:

- Port Status: ☒ On
- Bandwidth: ☒ 100 Mbps ☐ 10 Mbps ☒ Auto
- Duplex: ☒ Half Duplex ☐ Full Duplex ☒ Auto
- MAC Address: 0060.4739.66C2
- IP Configuration:
  - IP Address: 192.168.20.1
  - Subnet Mask: 255.255.255.0
- Tx Ring Limit: 10

Below the configuration area, the 'Equivalent IOS Commands' section shows the following commands:

```
Router(config-if)#ip address 192.168.20.1 255.255.255.0
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
```

A 'Top' button is located at the bottom left of the window.



The screenshot shows the Router1 configuration window with the 'Config' tab selected. The left sidebar shows the 'INTERFACE' section with 'Serial2/0' selected. The main configuration area for 'Serial2/0' is displayed, showing the following settings:

- Port Status: ☒ On
- Duplex: ☒ Full Duplex
- Clock Rate: 1200
- IP Configuration:
  - IP Address: 20.20.20.2
  - Subnet Mask: 255.255.255.0
- Tx Ring Limit: 10

Below the configuration area, the 'Equivalent IOS Commands' section shows the following commands:

```
* Incomplete command.
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial2/0
Router(config-if)#no shutdown
Router(config-if)#ip address 20.20.20.2 255.0.0.0
Router(config-if)#ip address 20.20.20.2 255.255.255.0
Router(config-if)#
```

A 'Top' button is located at the bottom left of the window.

Router1

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

Serial3/0

Port Status

☒ On

Duplex

☐ Full Duplex

Clock Rate

1200

IP Configuration

IP Address

30.30.30.2

Subnet Mask

255.255.255.0

Tx Ring Limit

10

Equivalent IOS Commands

Router(config-if)#

%LINK-S-CHANGED: Interface Serial3/0, changed state to up

ip address 30.30.30.2 255.0.0.0

Router(config-if)#ip address 30.30.30.2 255.255.255.0

Router(config-if)#

%LINEPROTO-S-UPDOWN: Line protocol on Interface Serial3/0,

changed state to up

☐ Top

- **Router 2**

Fast Ethernet 0/0 : 192.168.30.1

Serial 2/0 : 10.10.10.2

Serial 3/0 : 20.20.20.1

The screenshot shows the 'Router2' configuration window with the 'Config' tab selected. The left sidebar shows a tree view with 'INTERFACE' expanded and 'FastEthernet0/0' selected. The main panel displays the configuration for 'FastEthernet0/0'. The 'Port Status' is 'On'. 'Bandwidth' is set to '100 Mbps'. 'Duplex' is set to 'Full Duplex'. 'MAC Address' is '0060.5CD5.9265'. 'IP Configuration' shows 'IP Address' as '192.168.30.1' and 'Subnet Mask' as '255.255.255.0'. 'Tx Ring Limit' is '10'. Below the configuration fields, the 'Equivalent IOS Commands' section shows the following commands:

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

A 'Top' button is located at the bottom left of the window.

The screenshot shows the 'Router2' configuration window with the 'Config' tab selected. The left sidebar shows a tree view with 'INTERFACE' expanded and 'Serial2/0' selected. The main panel displays the configuration for 'Serial2/0'. The 'Port Status' is 'On'. 'Duplex' is set to 'Full Duplex'. 'Clock Rate' is '1200'. 'IP Configuration' shows 'IP Address' as '10.10.10.2' and 'Subnet Mask' as '255.255.255.0'. 'Tx Ring Limit' is '10'. Below the configuration fields, the 'Equivalent IOS Commands' section shows the following commands:

```
Router(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
ip address 10.10.10.2 255.0.0.0
Router(config-if)#ip address 10.10.10.2 255.255.255.0
Router(config-if)#
```

A 'Top' button is located at the bottom left of the window.

Router2

Physical Config CLI Attributes

**GLOBAL**

Settings

Algorithm Settings

**ROUTING**

Static

RIP

**INTERFACE**

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

Serial3/0

Port Status ☒ On

Duplex ☒ Full Duplex

Clock Rate 2000000

IP Configuration

IP Address 20.20.20.1

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Equivalent IOS Commands

```
Router(config-if)#ip access-group 10 in
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial2/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface Serial3/0
Router(config-if)#
```

☐ Top

Kemudian Kita akan lakukan konfigurasi DHCP pada Server

- Server DNS

IP Configuration

☐ DHCP ☒ Static

IP Address 192.168.10.2

Subnet Mask 255.255.255.0

Default Gateway 192.168.10.1

DNS Server 0.0.0.0

DNS

Physical

Config

Services

Desktop

Programming

Attributes

SERVICES

HTTP

DHCP

DHCPv6

TFTP

DNS

SYSLOG

AAA

NTP

EMAIL

FTP

IoT

VM Management

DNS

DNS Service

On

Off

Resource Records

Name

prabukresna.com

Type

A Record

Address

192.168.30.2

Add

Save

Remove

No.	Name	Type	Detail
0	prabukresna.com	A Record	192.168.30.2

DNS Cache

Top

- Server prabukresna.com

HTTP

On

Off

HTTPS

On

Off

File Manager

	File Name	Edit	Delete
1	copyrights.html	(edit)	(delete)
2	cscoptlogo177x111.jpg		(delete)
3	helloworld.html	(edit)	(delete)
4	image.html	(edit)	(delete)
5	index.html	(edit)	(delete)



File Name:

```

<html>
<center><font size='+2' color='blue'>NDOROWATI PRABU KRESNA</font></center>
<hr>Welcome to Cisco Packet Tracer. Opening doors to new opportunities. Mind Wide Open.
<p>Quick Links:
<br><a href='helloworld.html'>A small page</a>
<br><a href='copyrights.html'>Copyrights</a>
<br><a href='image.html'>Image page</a>
<br><a href='cscoptlogo177x111.jpg'>Image</a>
</html>

```

- Server DHCP

DHCP

---

Interface

FastEthernet0

Service ☒ On ☐ Off

Pool Name

serverPool

Default Gateway

192.168.10.1

DNS Server

192.168.10.2

Start IP Address :

192

168

10

3

Subnet Mask:

255

255

255

0

Maximum Number of Users :

253

TFTP Server:

0.0.0.0

WLC Address:

0.0.0.0

Add

Save

Remove

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
serverPool	192.168.10.1	192.168.10.2	192.168.10.3	255.255.255.0	253	0.0.0.0	0.0.0.0

## DHCP

Interface: FastEthernet0 Service: ☒ On ☐ Off

Pool Name:

Default Gateway:

DNS Server:

Start IP Address :

Subnet Mask:

Maximum Number of Users :

TFTP Server:

WLC Address:

Add Save Remove

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
serverPool	192.168.30.1	192.168.10.2	192.168.30.3	255.255.255.0	253	0.0.0.0	0.0.0.0

## DHCP

Interface: FastEthernet0 Service: ☒ On ☐ Off

Pool Name:

Default Gateway:

DNS Server:

Start IP Address :

Subnet Mask:

Maximum Number of Users :

TFTP Server:

WLC Address:

Add Save Remove

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
serverPool	192.168.20.1	192.168.10.2	192.168.20.3	255.255.255.0	253	0.0.0.0	0.0.0.0

Kemudian apa Bila telah terkonfigurasi otomatis PC akan mendapatkan IP

PC0

Physical Config Desktop Programming Attributes

IP Configuration

IP Configuration

☒ DHCP ☐ Static

IP Address 192.168.10.3

Subnet Mask 255.255.255.0

Default Gateway 192.168.10.1

DNS Server 192.168.10.2

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address /

Link Local Address FE80::202:4AFF:FE2E:9531

IPv6 Gateway

IPv6 DNS Server

Top

PC1

Physical Config Desktop Programming Attributes

IP Configuration

IP Configuration

☒ DHCP ☐ Static

IP Address 192.168.20.3

Subnet Mask 255.255.255.0

Default Gateway 192.168.20.1

DNS Server 192.168.10.2

IPv6 Configuration

☐ DHCP ☐ Auto Config ☒ Static

IPv6 Address /

Link Local Address FE80::2E0:F9FF:FE85:81B9

IPv6 Gateway

IPv6 DNS Server

Top

PC2

Physical

Config

Desktop

Programming

Attributes

IP Configuration

X

IP Configuration

☒ DHCP

☐ Static

IP Address

192.168.30.3

Subnet Mask

255.255.255.0

Default Gateway

192.168.30.1

DNS Server

192.168.10.2

IPv6 Configuration

☐ DHCP

☐ Auto Config

☒ Static

IPv6 Address

/

Link Local Address

FE80::202:17FF:FE1D:21CB

IPv6 Gateway

IPv6 DNS Server

☐ Top

Kemudian agar PC bisa terhubung beda jaringan kita akan mencoba konfigurasi **routing DINAMIS** pada **Router 0,1,2** dengan seperti dibawah ini

RIP Routing

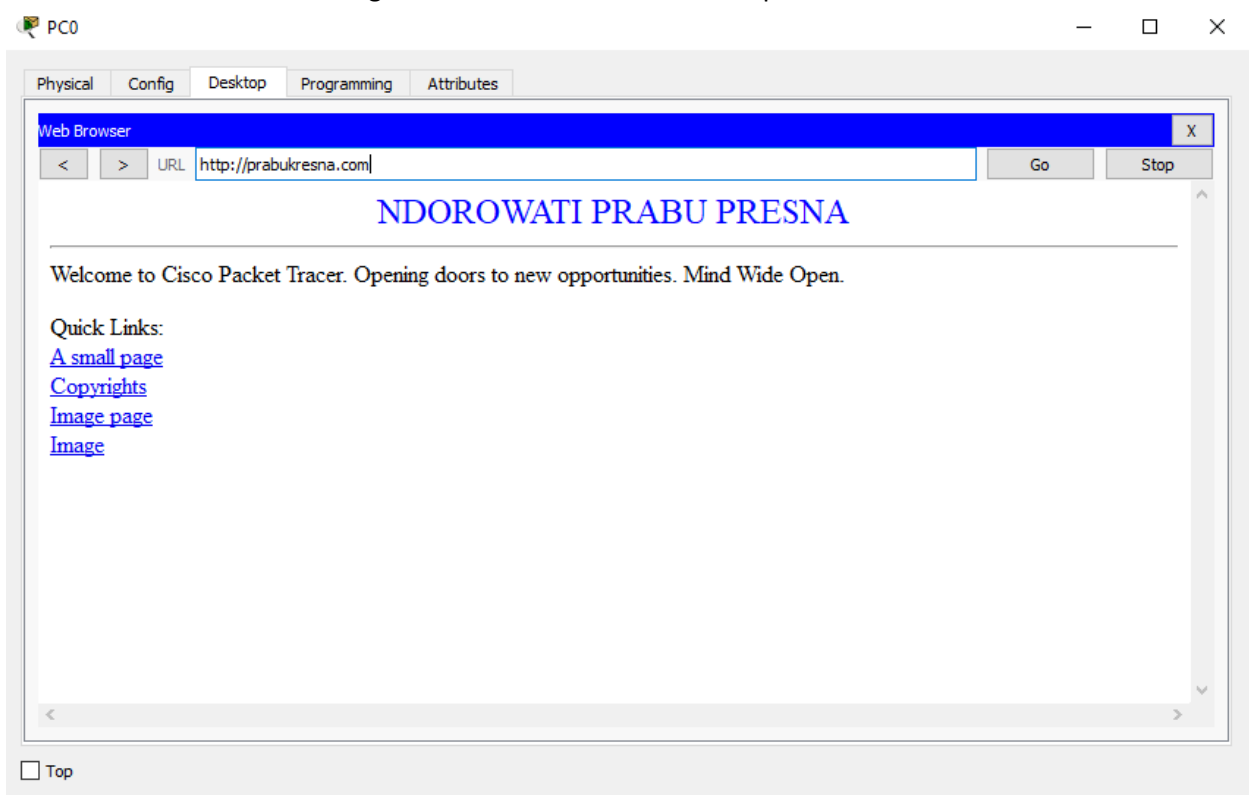
Network

Network Address
10.0.0.0
20.0.0.0
30.0.0.0
192.168.10.0
192.168.20.0
192.168.30.0

Add

Remove

Kemudian kita tes koneksi dengan **PING** dan **MENGAkses WEB** prabukresna.com dari PC :



```
C:\>ping prabukresna.com

Pinging 192.168.30.2 with 32 bytes of data:

Reply from 192.168.30.2: bytes=32 time=1ms TTL=126
Reply from 192.168.30.2: bytes=32 time=1ms TTL=126
Reply from 192.168.30.2: bytes=32 time=2ms TTL=126
Reply from 192.168.30.2: bytes=32 time=1ms TTL=126

Ping statistics for 192.168.30.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 2ms, Average = 1ms
```

Kemudian agar PC bisa terhubung beda jaringan kita akan mencoba konfigurasi **routing STATIS**, konfigurasi sebelumnya dihapus pada Router 0,1,2 dengan seperti dibawah ini

- **ROUTER 0**

The screenshot shows the configuration window for Router0. The 'CLI' tab is selected. On the left, a tree view shows the configuration hierarchy: GLOBAL, Settings, Algorithm Settings, ROUTING, Static, RIP, INTERFACE, and several interfaces. The 'Static' option under ROUTING is selected. The main area is titled 'Static Routes' and contains three input fields: 'Network', 'Mask', and 'Next Hop'. Below these is an 'Add' button. A list of configured static routes is shown below the 'Add' button, with two entries: '192.168.30.0/24 via 10.10.10.2' and '192.168.20.0/24 via 30.30.30.2'. A 'Remove' button is at the bottom right of the list. At the bottom of the window, there is a section for 'Equivalent IOS Commands' showing a list of commands: 'Router(config-if)#exit', 'Router(config)#interface Serial3/0', 'Router(config-if)#', 'Router(config-if)#exit', 'Router(config)#', and 'Router(config)#'. A 'Top' button is located at the bottom left of the window.

Router0

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

Static Routes

Network

Mask

Next Hop

Add

Network Address

192.168.30.0/24 via 10.10.10.2

192.168.20.0/24 via 30.30.30.2

Remove

Equivalent IOS Commands

```
Router(config-if)#exit
Router(config)#interface Serial3/0
Router(config-if)#
Router(config-if)#exit
Router(config)#
Router(config)#
```

☐ Top

- **ROUTER 1**

Router1

Physical

Config

CLI

Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

Static Routes

Network

Mask

Next Hop

Add

Network Address

192.168.10.0/24 via 30.30.30.1

192.168.30.0/24 via 20.20.20.1

Remove

Equivalent IOS Commands

Router(config-if)#

Router(config-if)#exit

Router(config)#

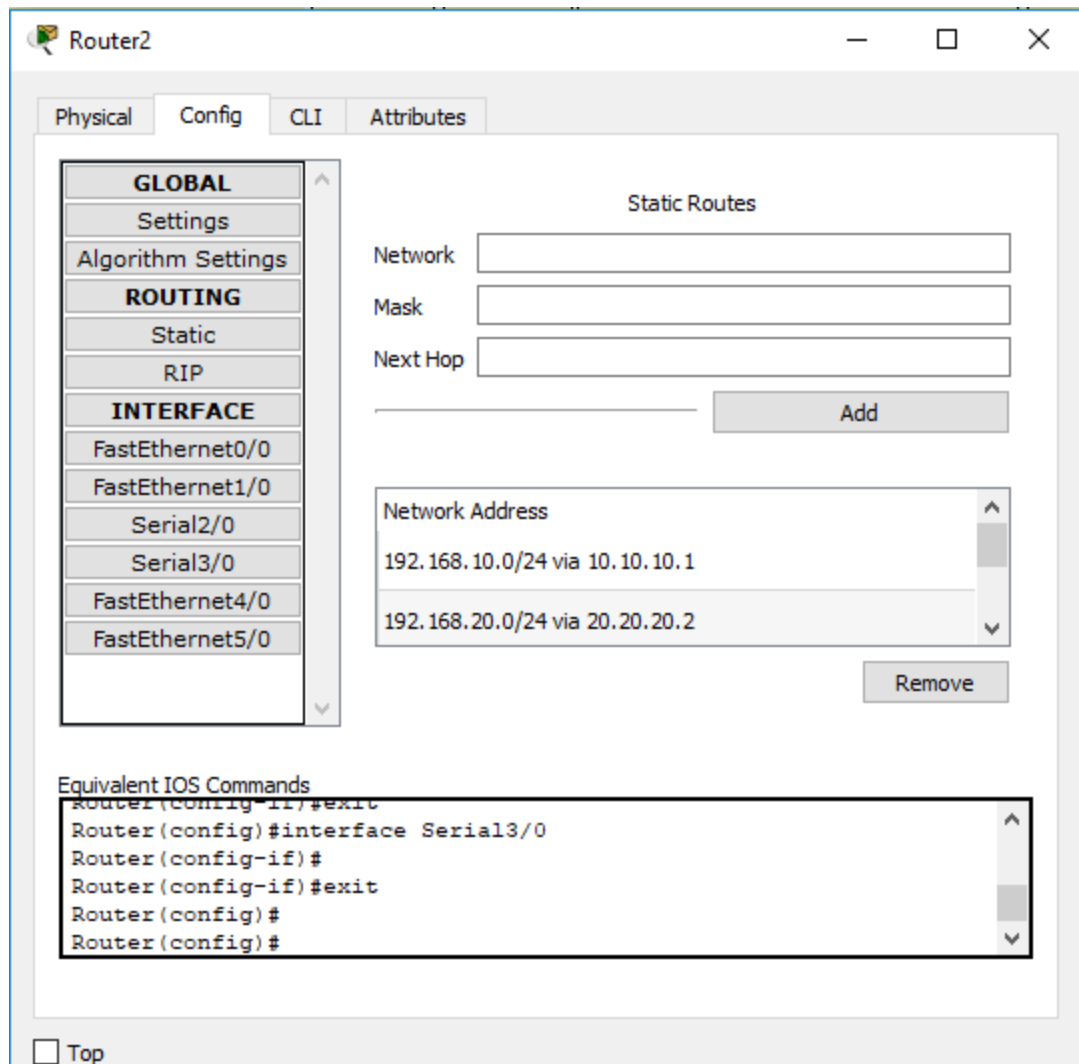
Router(config)#

Router(config)#

Router(config)#

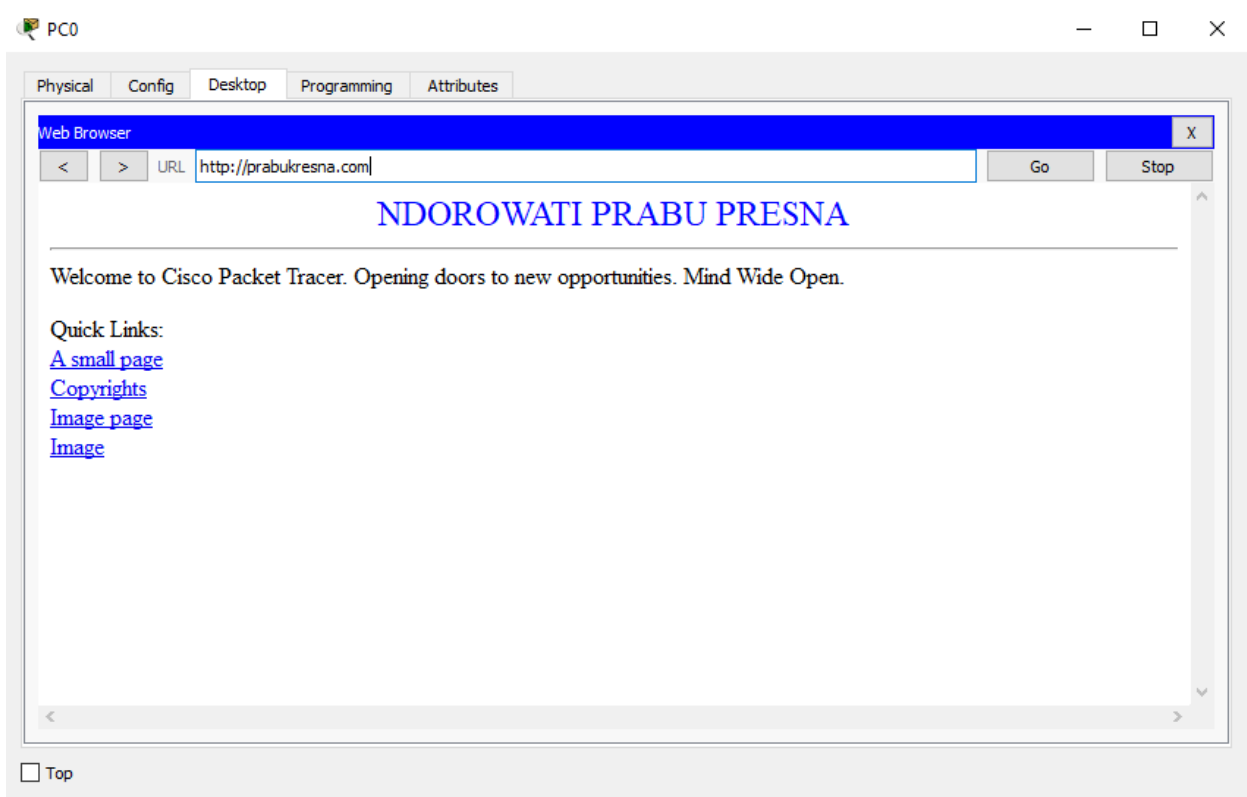
☐ Top

- ROUTER 2



Kemudian kita tes koneksi dengan **PING** dan **MENGAKSES WEB** prabukresna.com dari PC :





```
C:\>ping prabukresna.com

Pinging 192.168.30.2 with 32 bytes of data:

Reply from 192.168.30.2: bytes=32 time=1ms TTL=126
Reply from 192.168.30.2: bytes=32 time=1ms TTL=126
Reply from 192.168.30.2: bytes=32 time=2ms TTL=126
Reply from 192.168.30.2: bytes=32 time=1ms TTL=126

Ping statistics for 192.168.30.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 2ms, Average = 1ms
```

Setelah itu kita akan mencoba memblock koneksi host 192.168.10.3 dan 192.168.20.3, maka komputer yang dapat mengakses server prabukresna.com adalah SERVER DNS, SERVER DHCP, SERVER PRABUKRESNA.COM dan PC-2

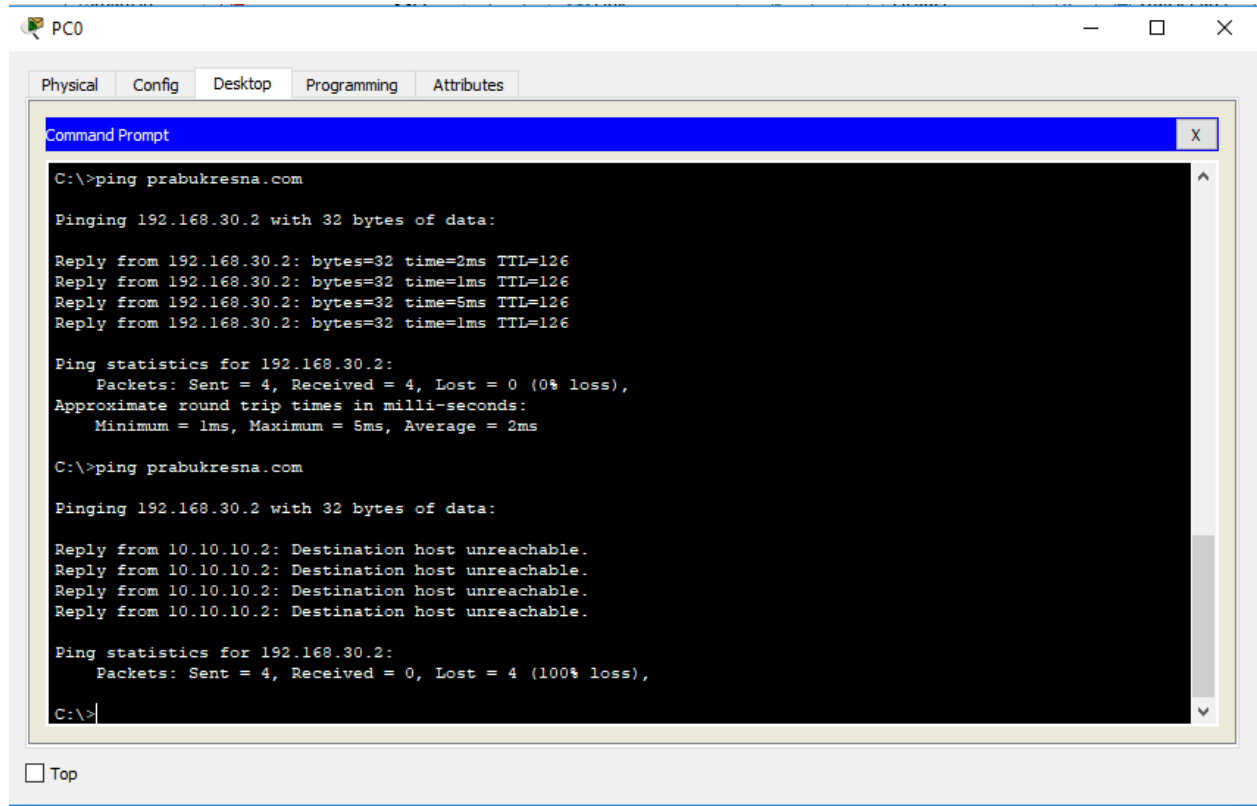
Pada ROUTER 2:

```
Router(config)#access-list 10 deny host 192.168.10.3
Router(config)#access-list 10 deny host 192.168.20.3
Router(config)#access-list 10 permit any
```

```
Router(config)#int
Router(config)#interface fa
Router(config)#interface fastEthernet 0/0
Router(config-if)#ip a
Router(config-if)#ip acc
Router(config-if)#ip access-group 10 out
Router(config-if)#
```

Kemudian Kita Uji coba dari PC 0

- PC 0



- Akses prabukresna.com dari SERVER DNS

