

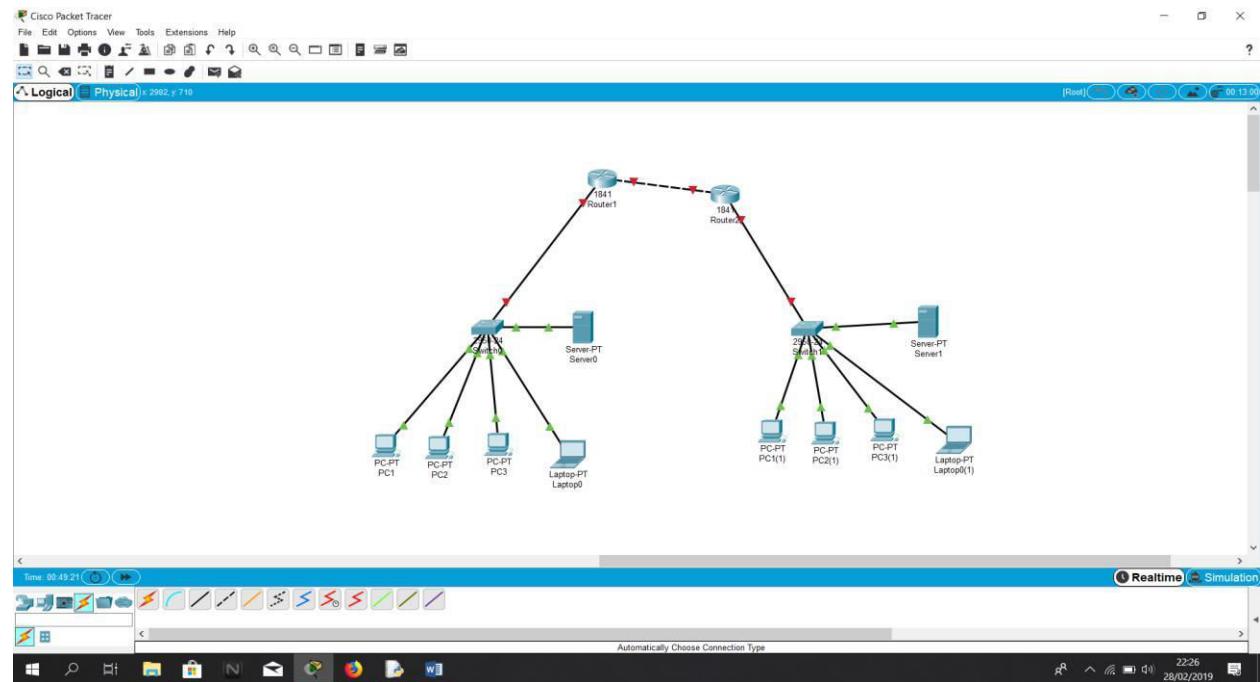
Nama : muhammad ihsan nuralam

Kelas : A

NIM : L200170008

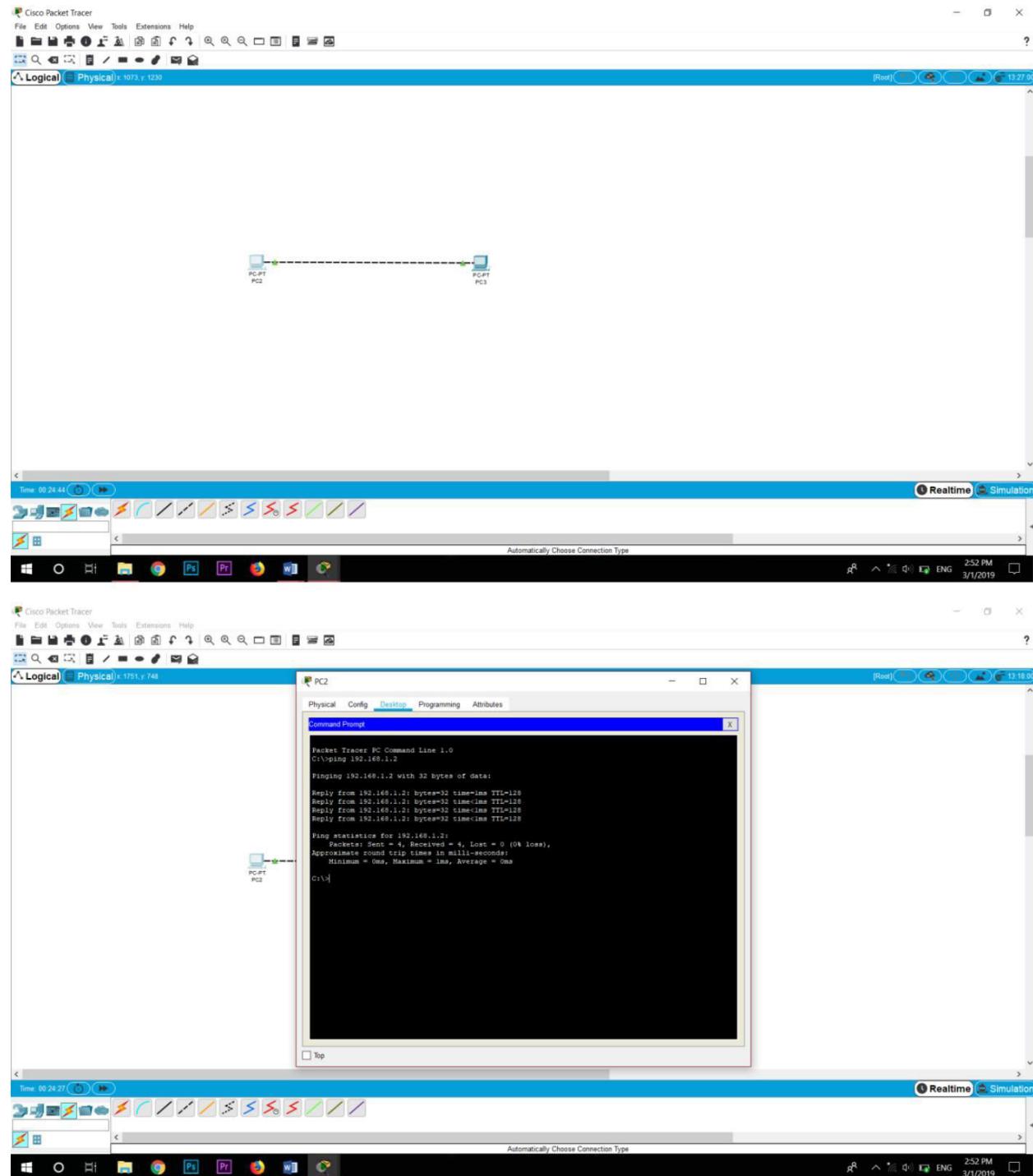
Modul 1

No. 1



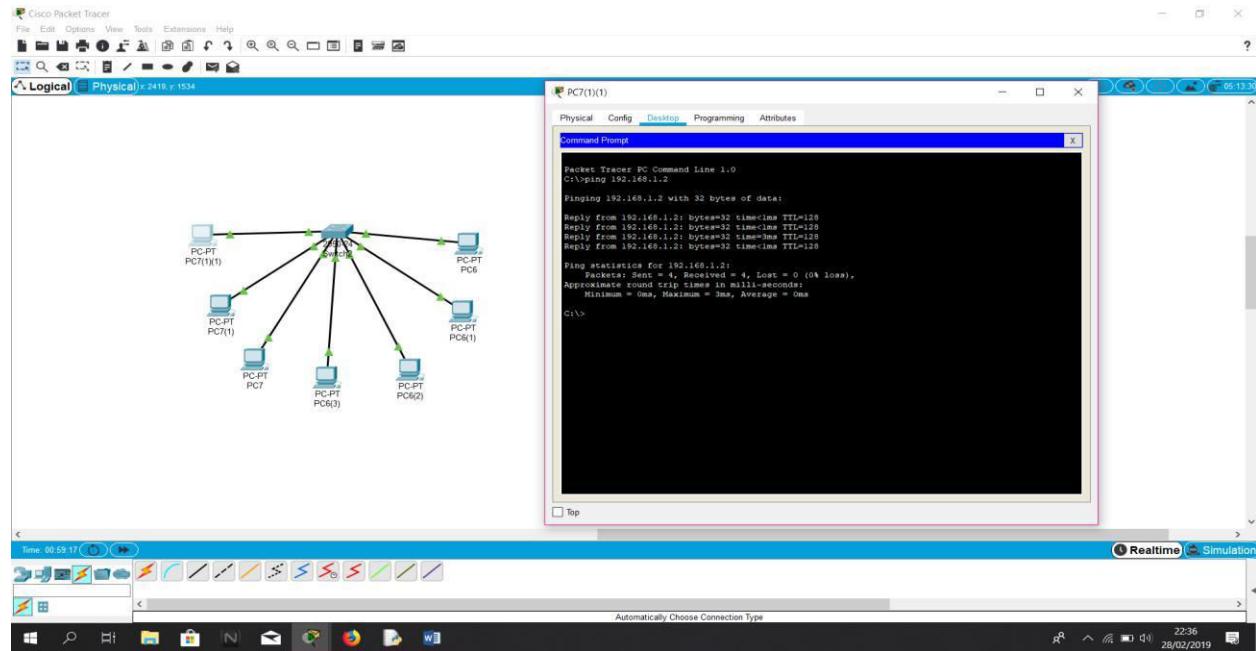
- Titik Hijau berarti tersambung
- Titik Kuning berarti menyambungkan
- Titik Merah berarti tidak tersambung

No. 2



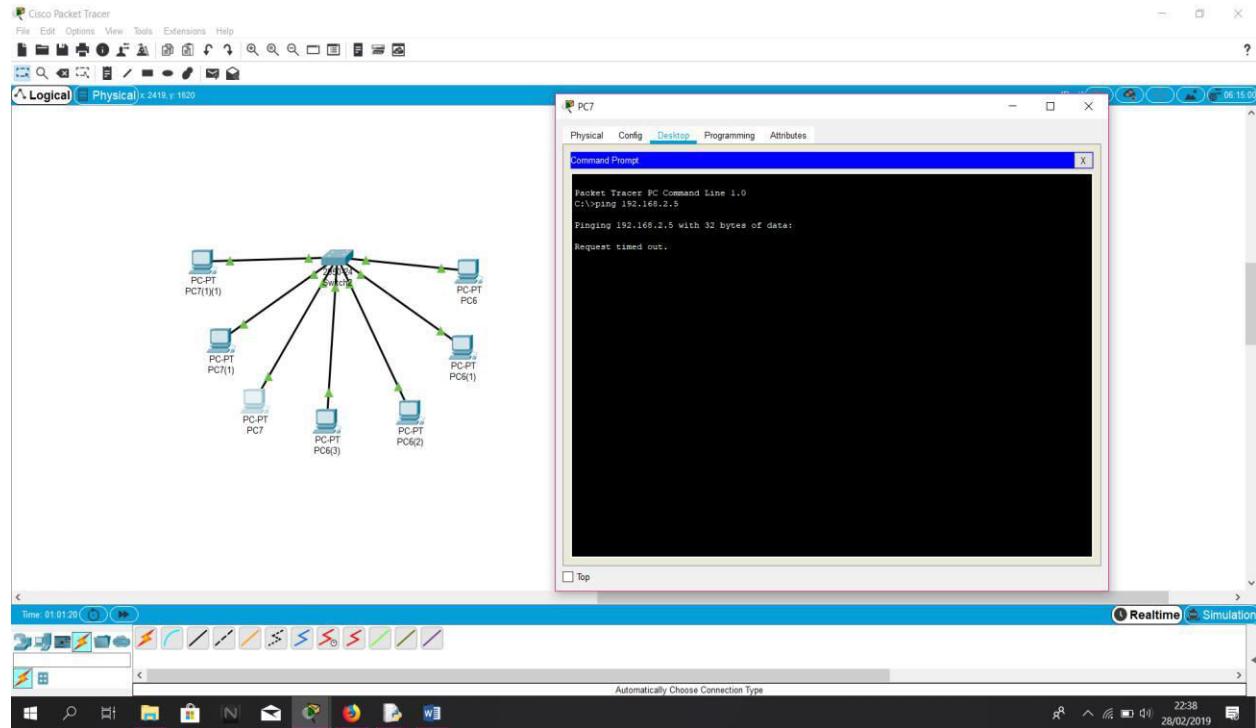
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A



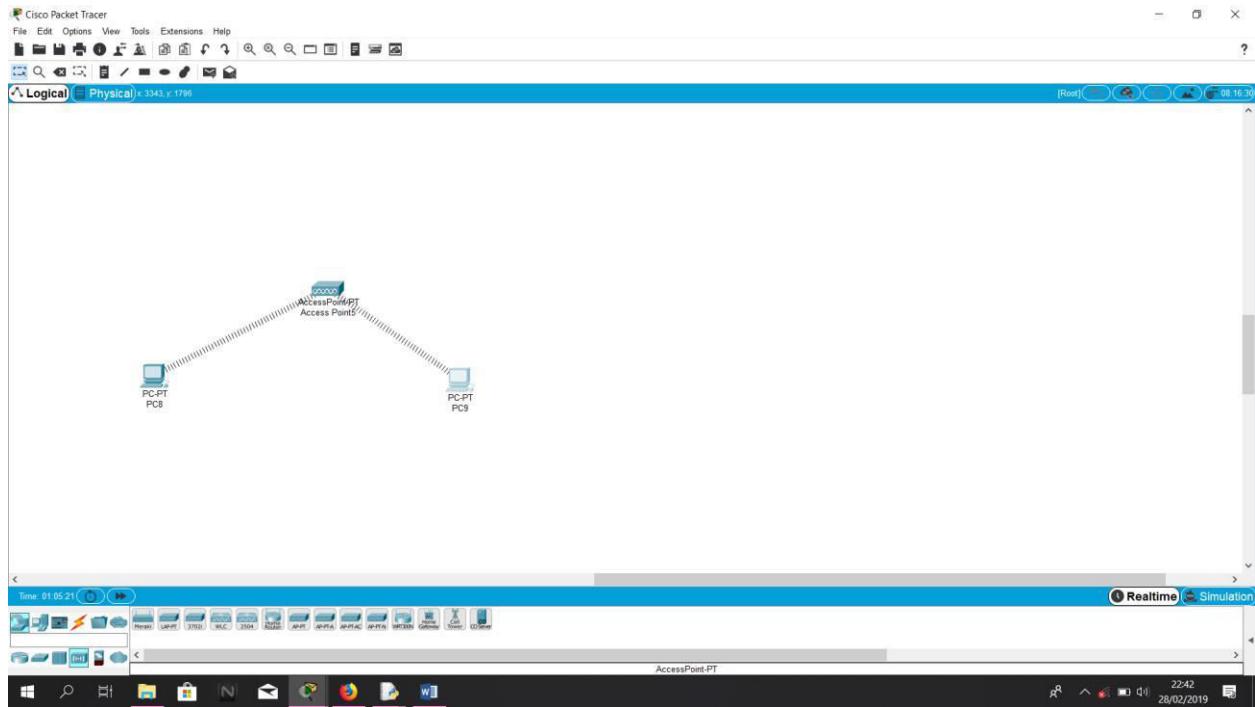
Dapat terhubung

B

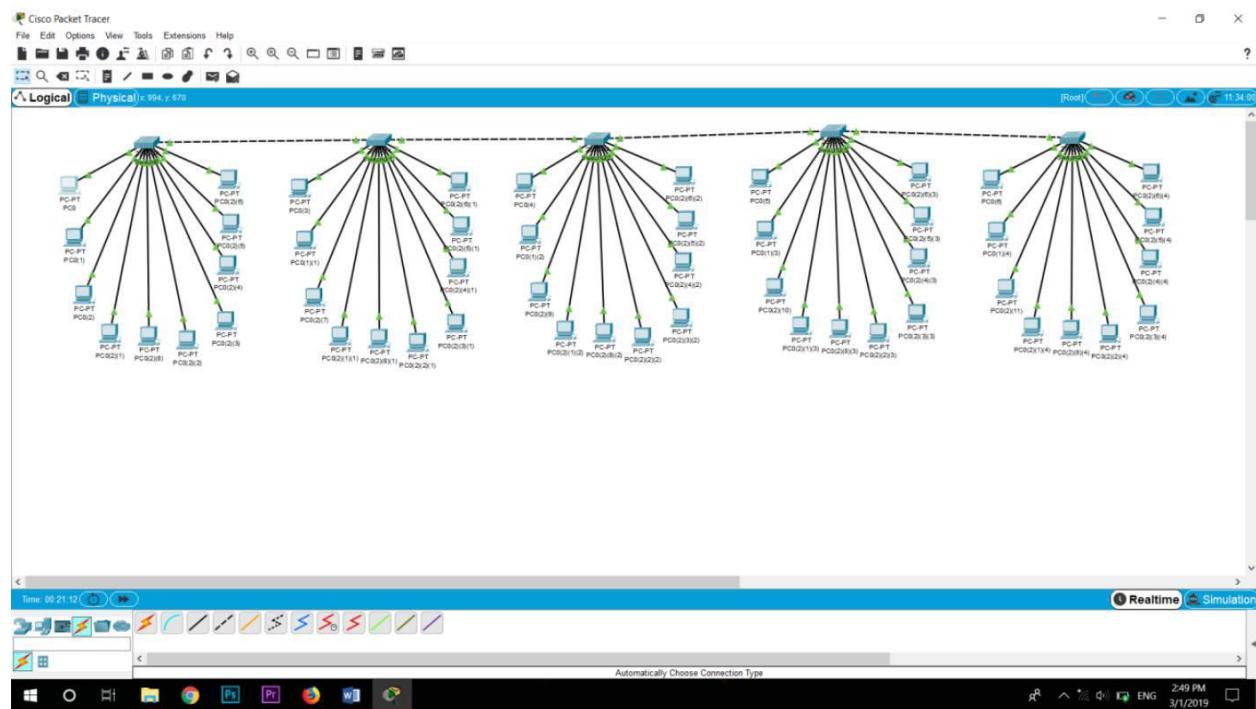
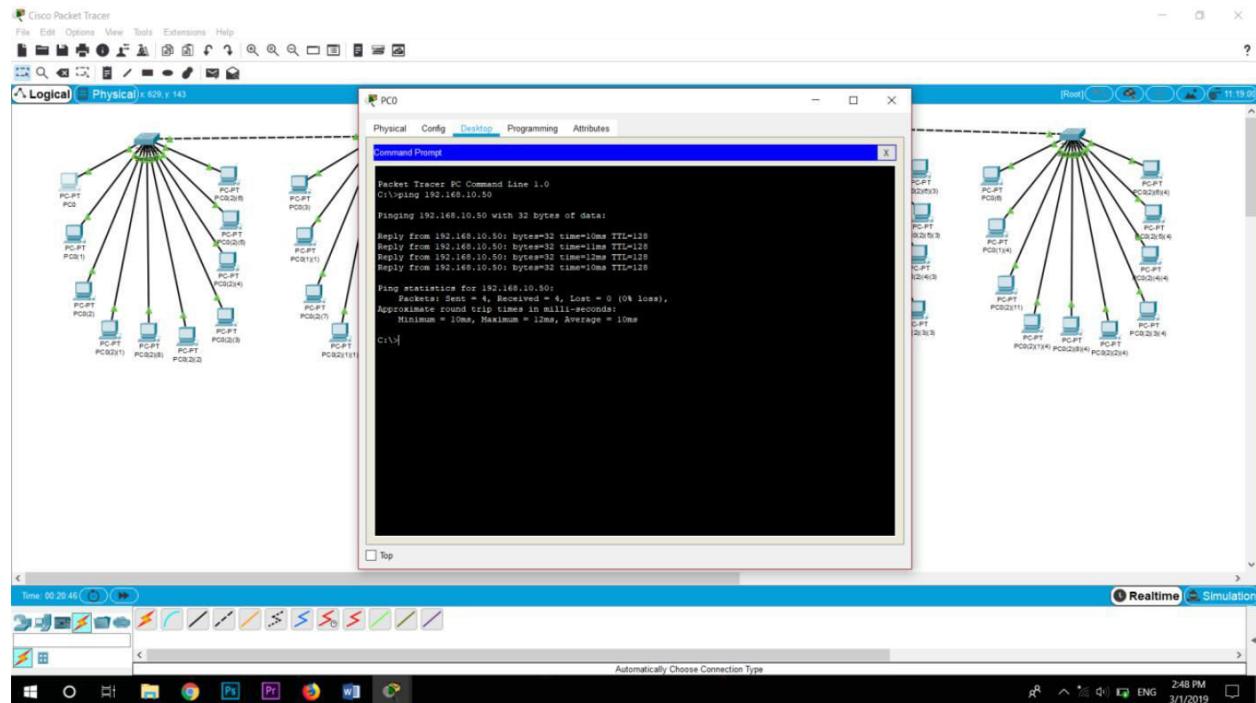


Tidak dapat terhubung

No. 4



Tugas



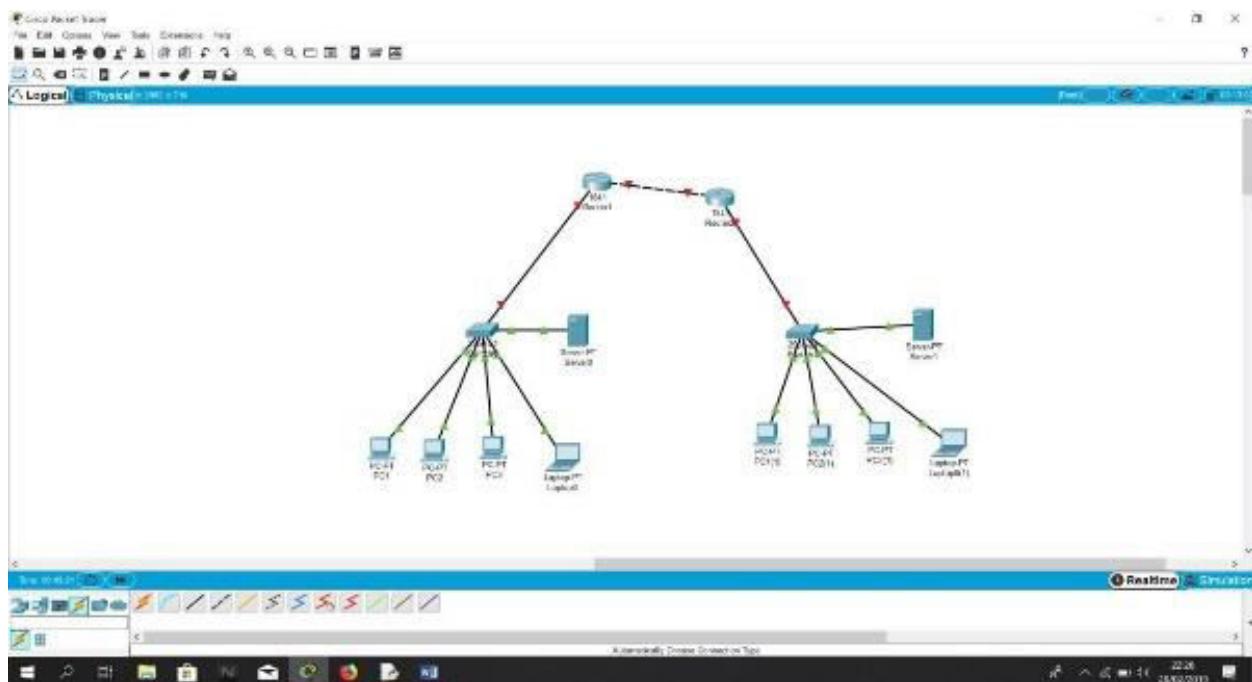
Nama : muhammad ihsan nuralam

Kelas : A

NIM : L200170008

Modul 2

No. 1

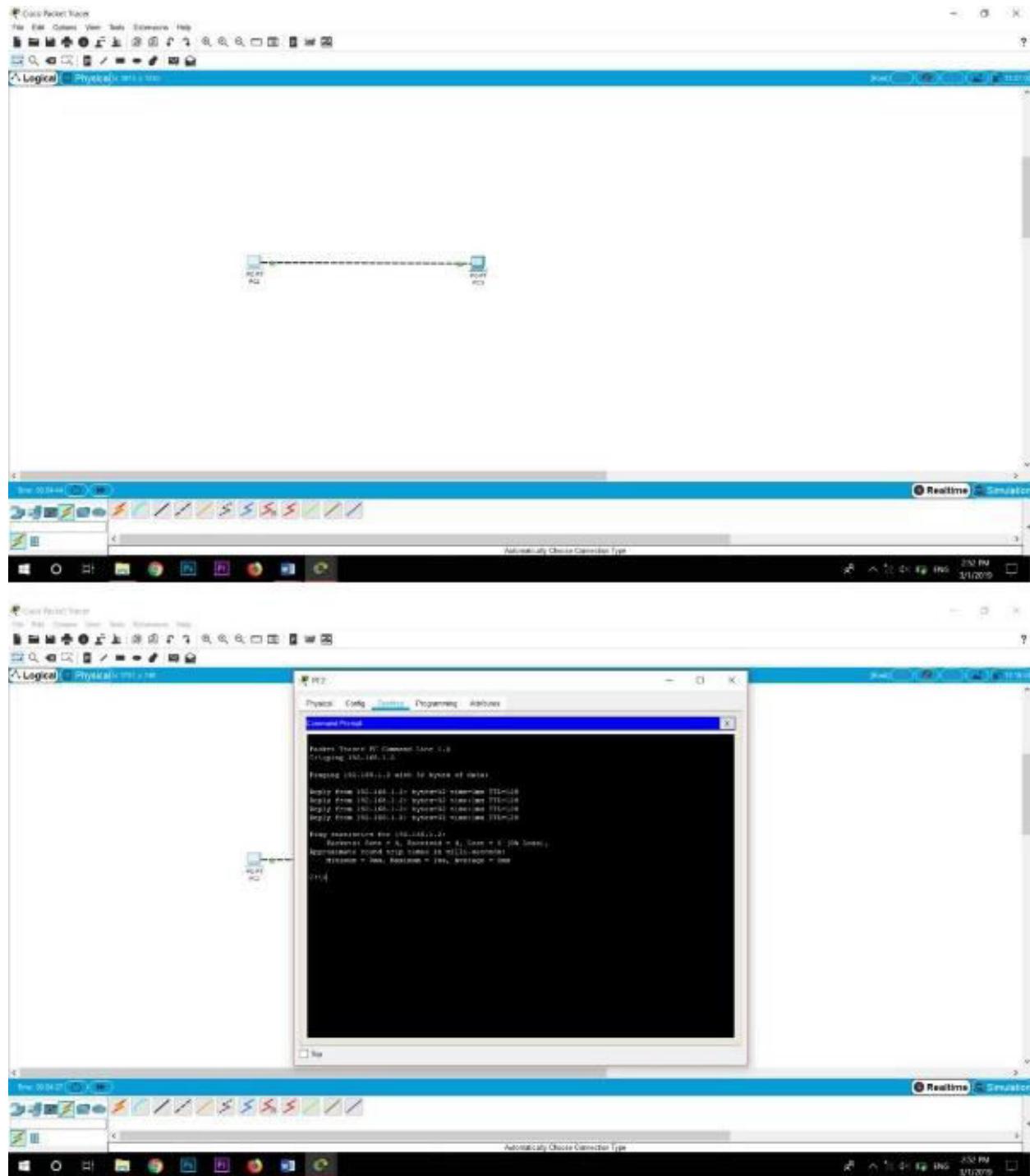


Titik Hijau berarti tersambung

Titik Kuning berarti menyambungkan

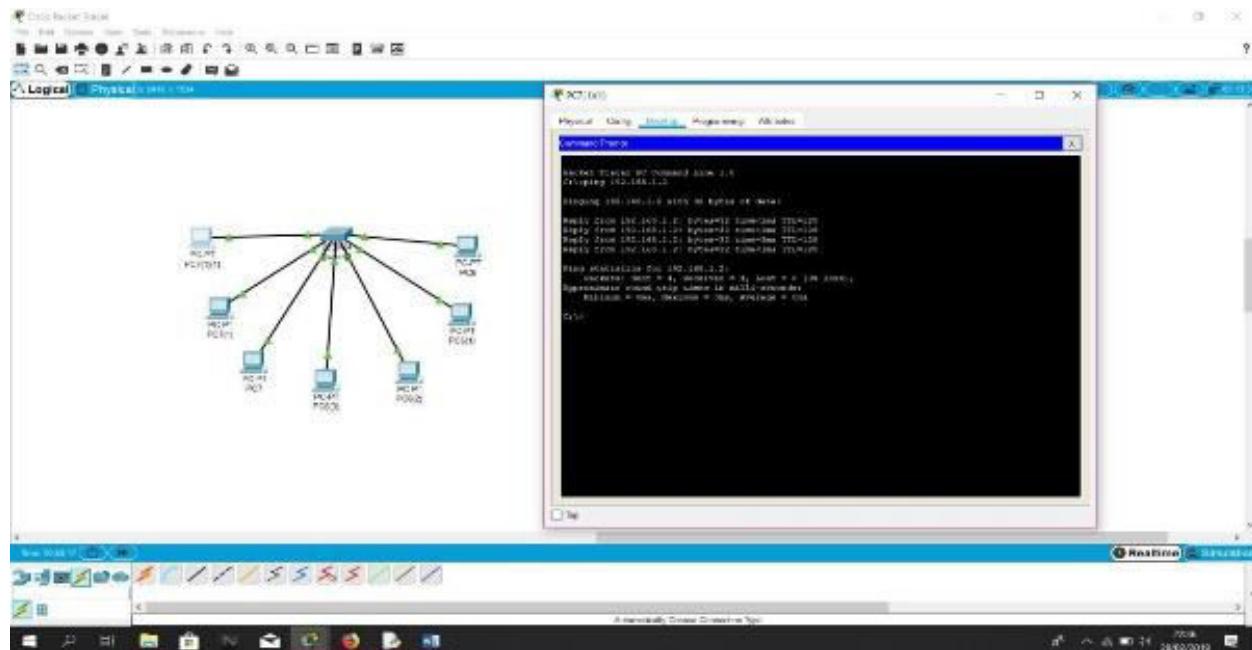
Titik Merah berarti tidak tersambung

No. 2



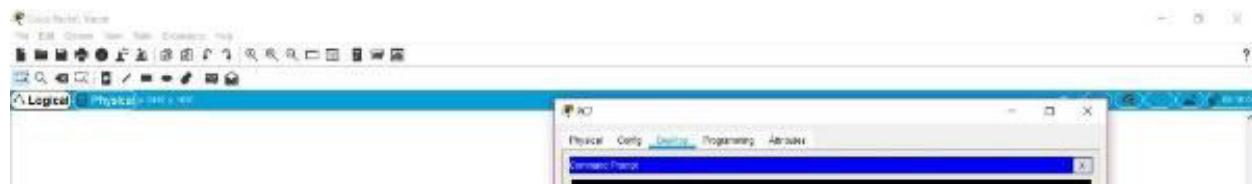
No. 3

A



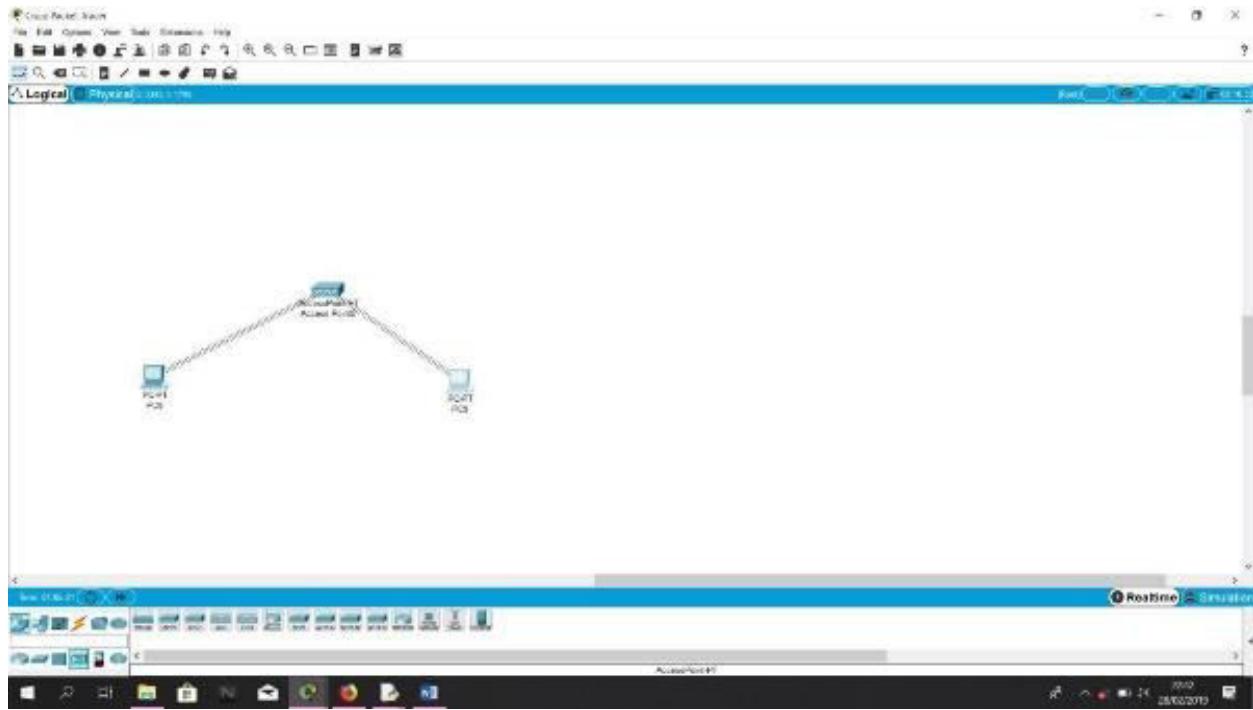
Dapat terhubung

B

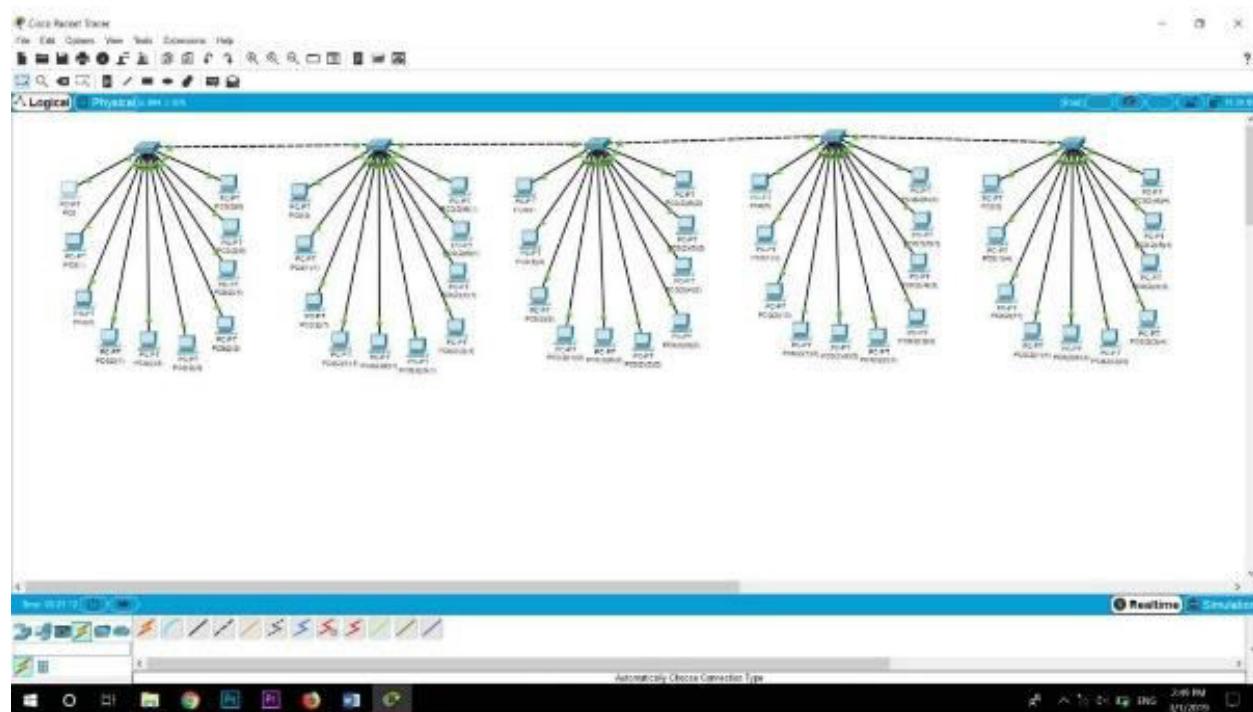
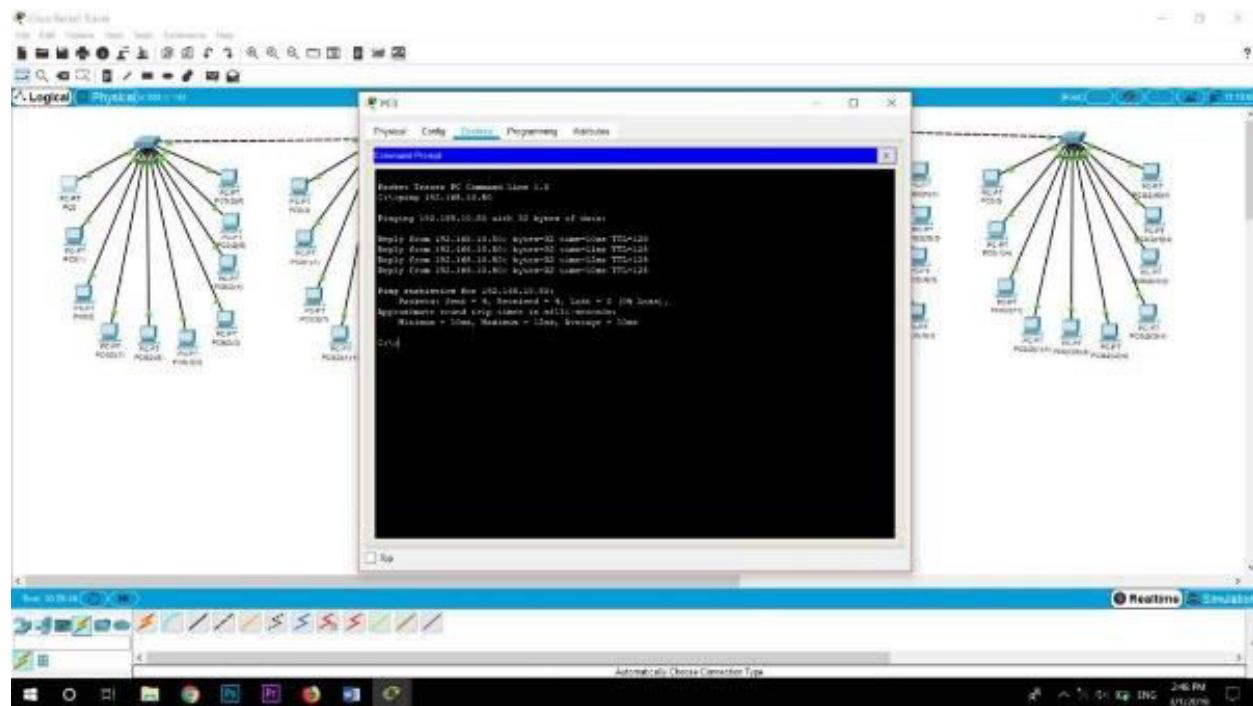


Tidak dapat terhubung

No. 4



Tugas



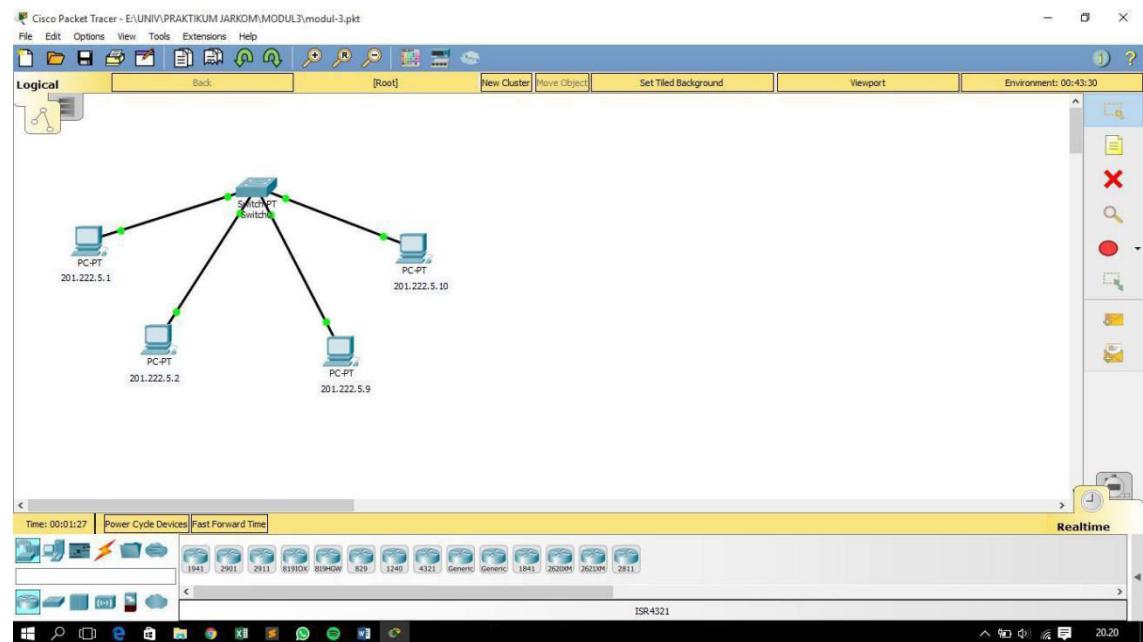
Nama : Muhammad ihsan nuralam

NIM : L200170008

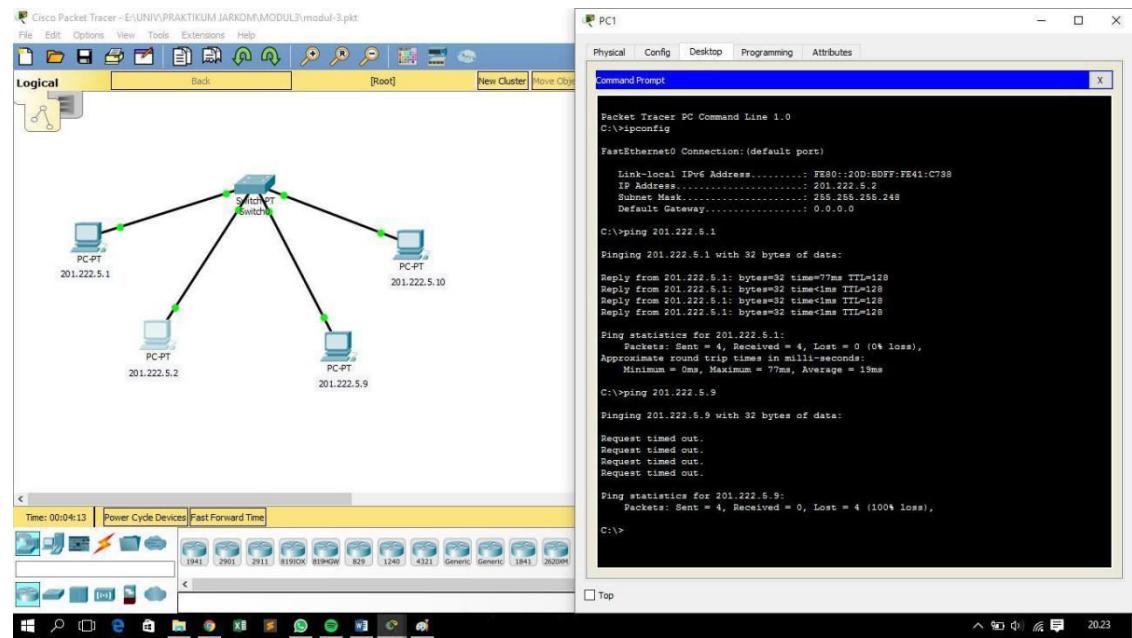
Kelas : a

Modul 3

1. Rancangan jaringan dengan pembagian IP dan subnetmasknya

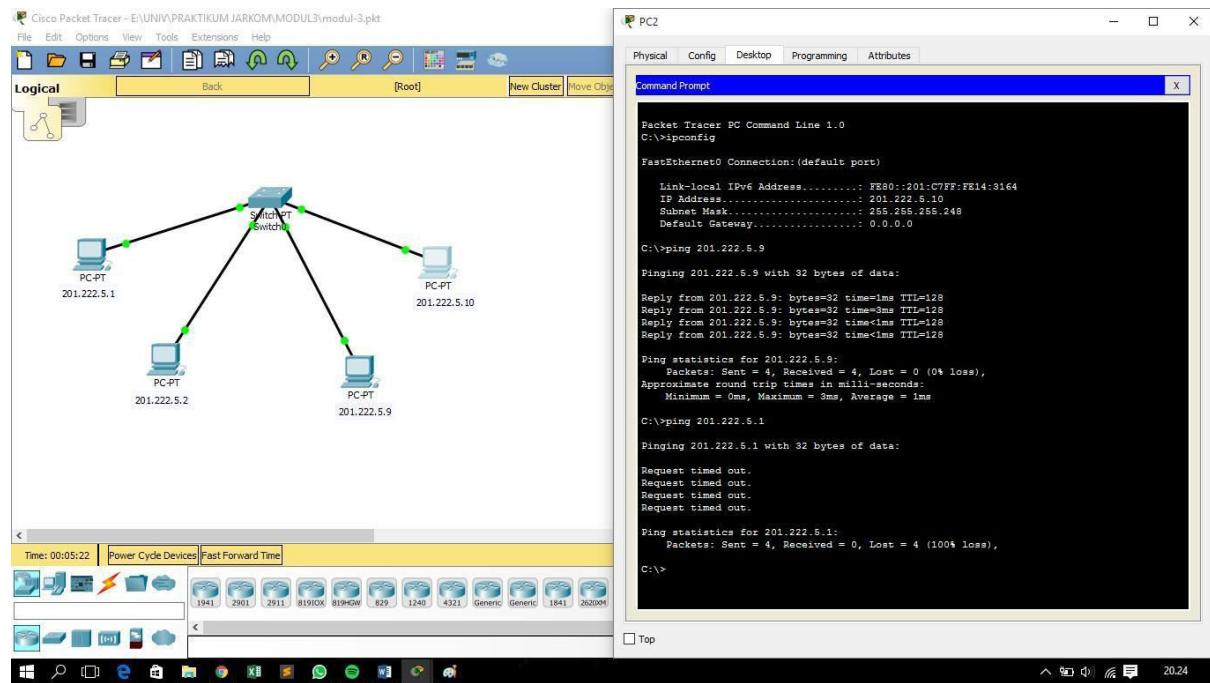


2. Melakukan ping dari PC yang memiliki IP 201.222.5.2 ke pc yang memiliki IP 201.222.5.1 dan IP 201.222.5.9. Dan saat ping ke PC yang ber IP 201.222.5.1 lancar tetapi saat ping ke PC yang ber IP 201.222.5.9 gagal karena berbeda jaringan atau kelompok subnet



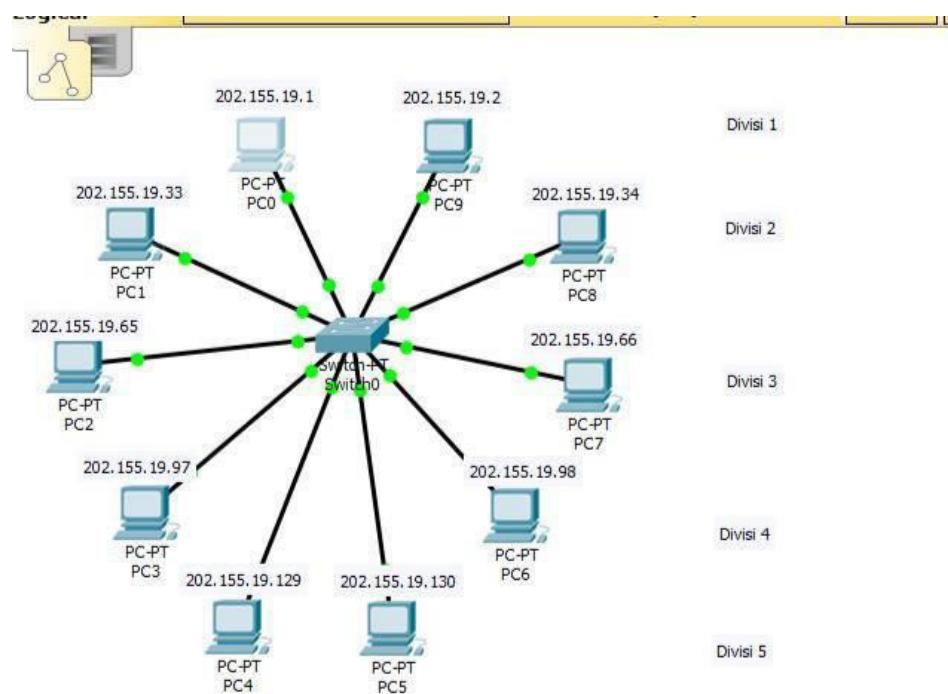
3. Melakukan ping dari PC yang memiliki IP 201.222.5.10 ke pc yang memiliki IP

201.222.5.9 dan IP 201.222.5.1. Dan saat ping ke PC yang ber IP 201.222.5.9 lancar tetapi saat ping ke PC yang ber IP 201.222.5.1 gagal karena berbeda jaringan atau kelompok subnet

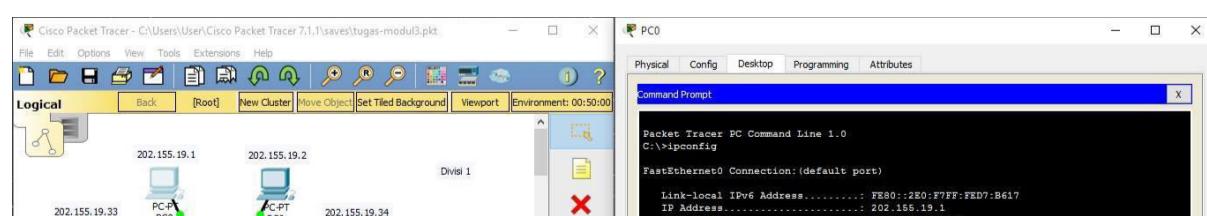


Tugas Modul 3

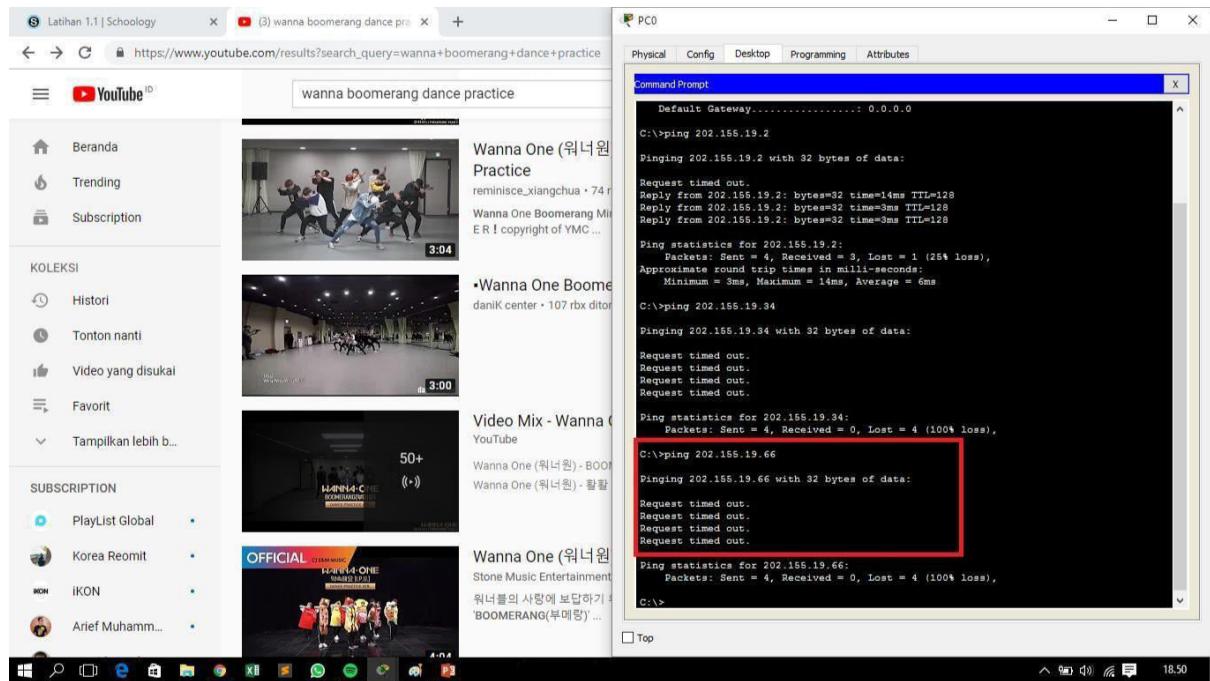
1. Rancangan jaringan



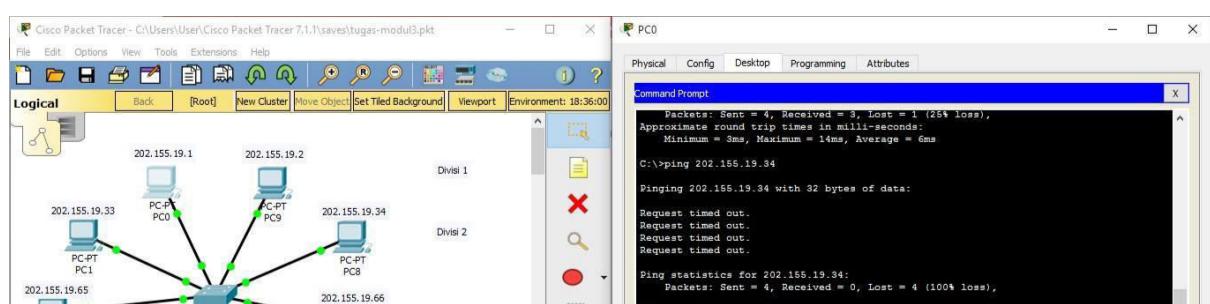
2. Melakukan ping. Dari pc di divisi 1 ke pc ke divisi 2



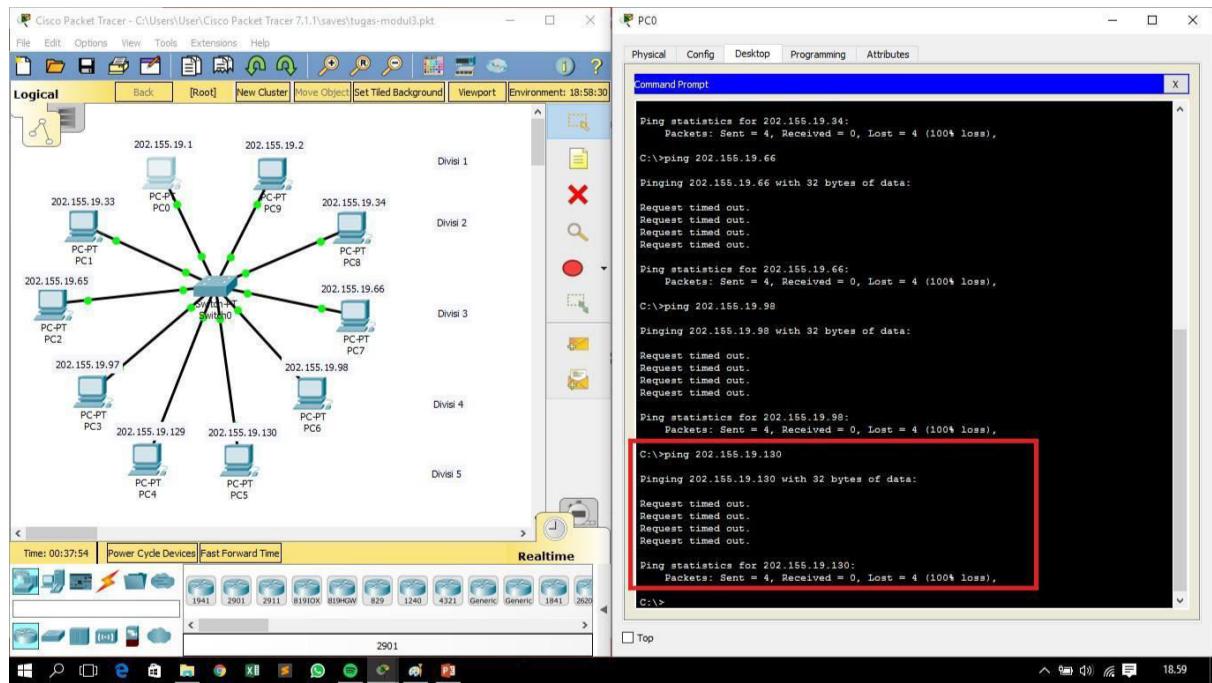
3. Melakukan ping. Dari pc di divisi 1 ke pc ke divisi 3



4. Melakukan ping. Dari pc di divisi 1 ke pc ke divisi 4



3. Melakukan ping. Dari pc di divisi 1 ke pc ke divisi 3



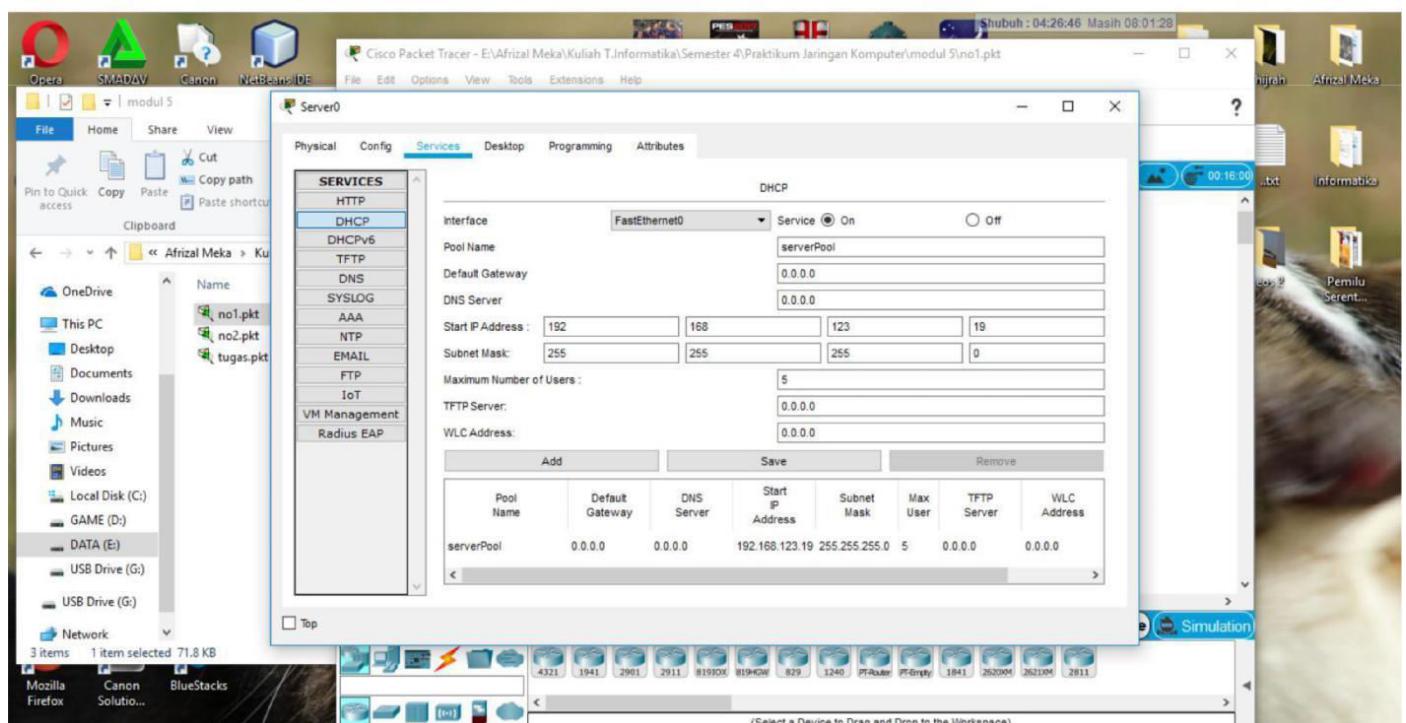
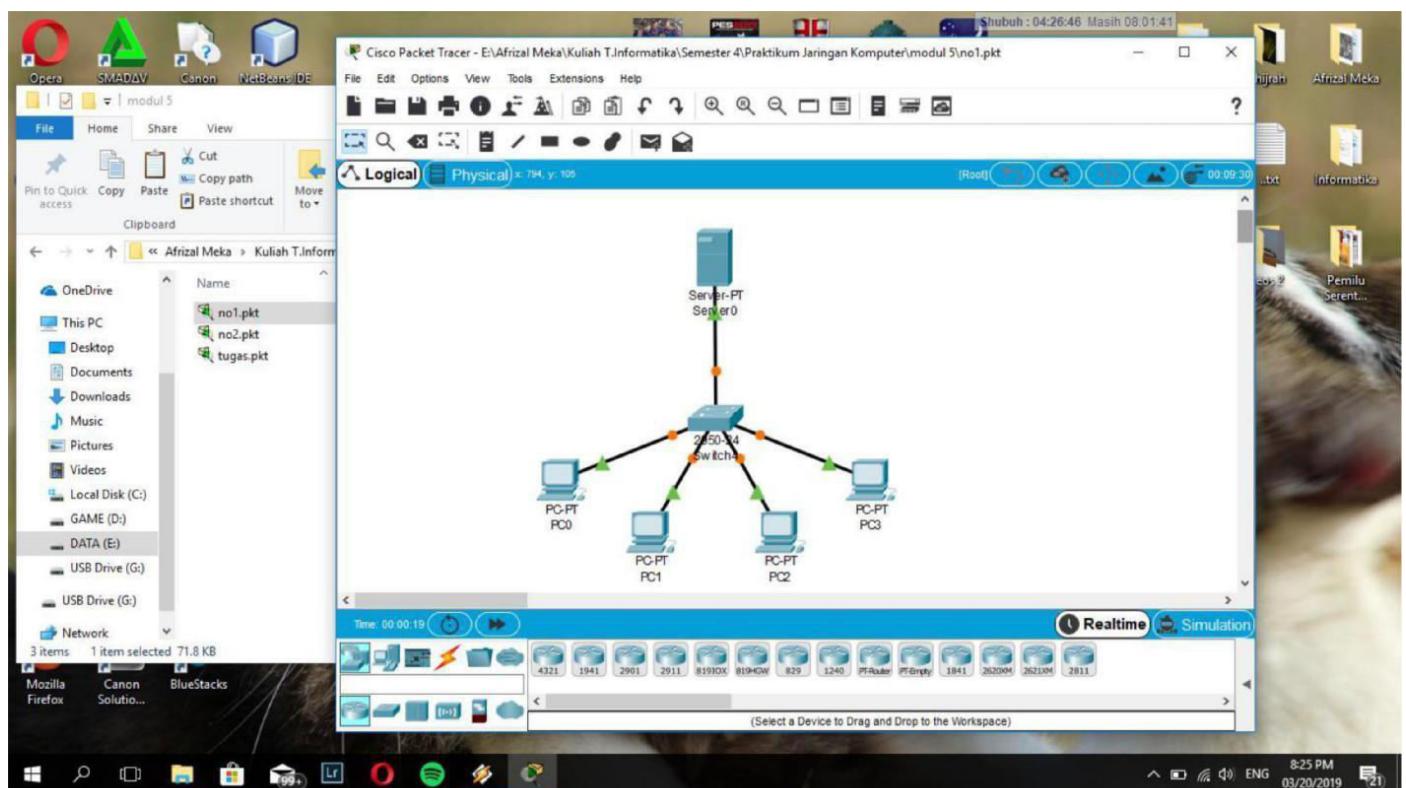
Nama : Muhammad ihsan nuralam

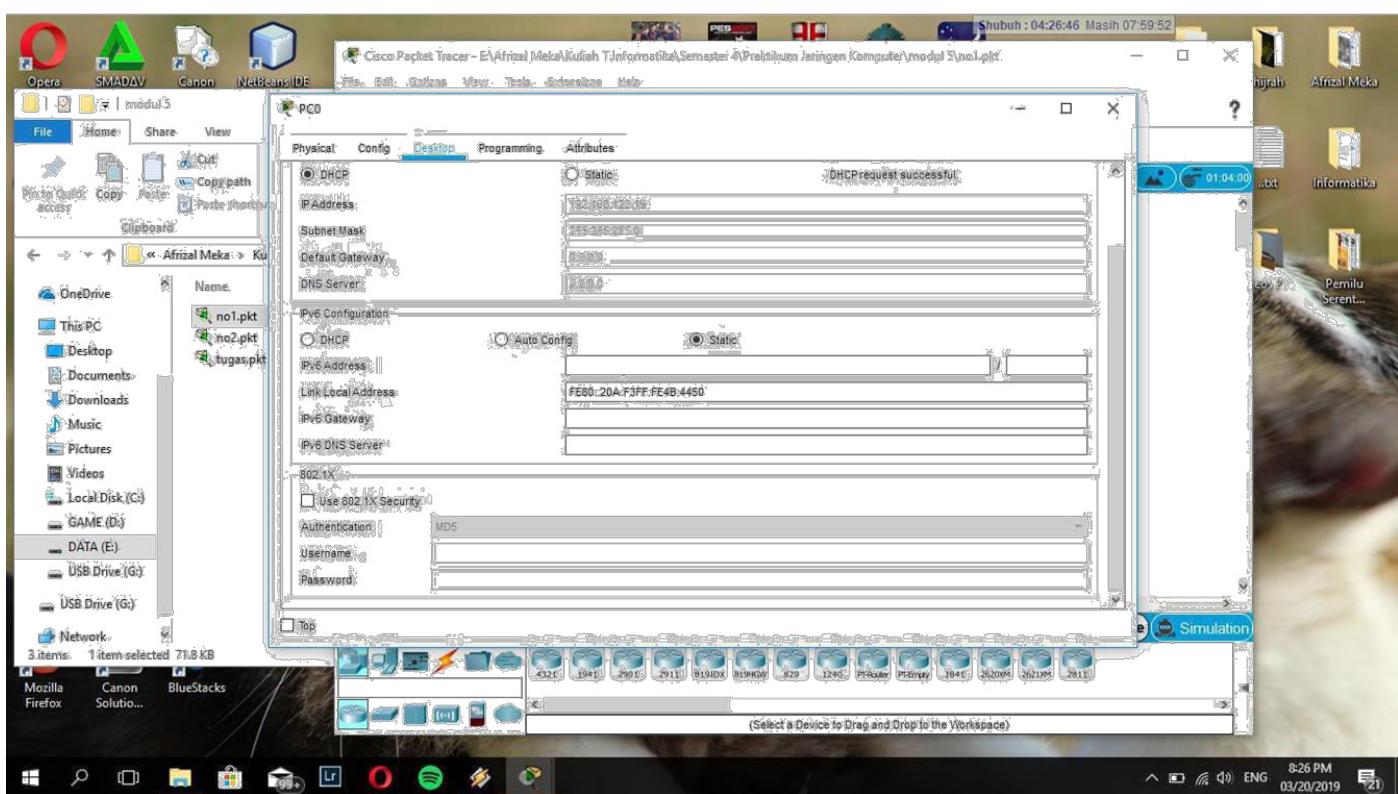
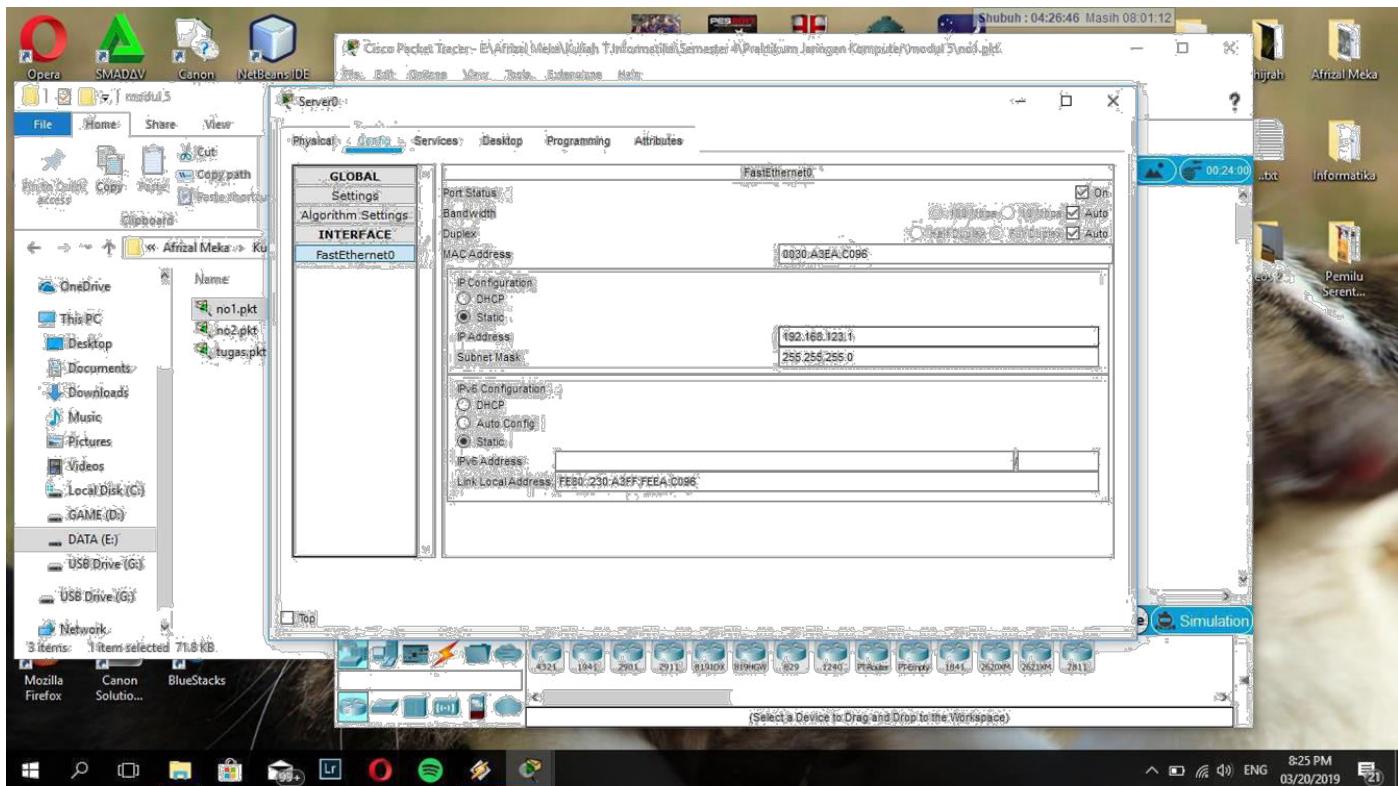
NIM : L200170008

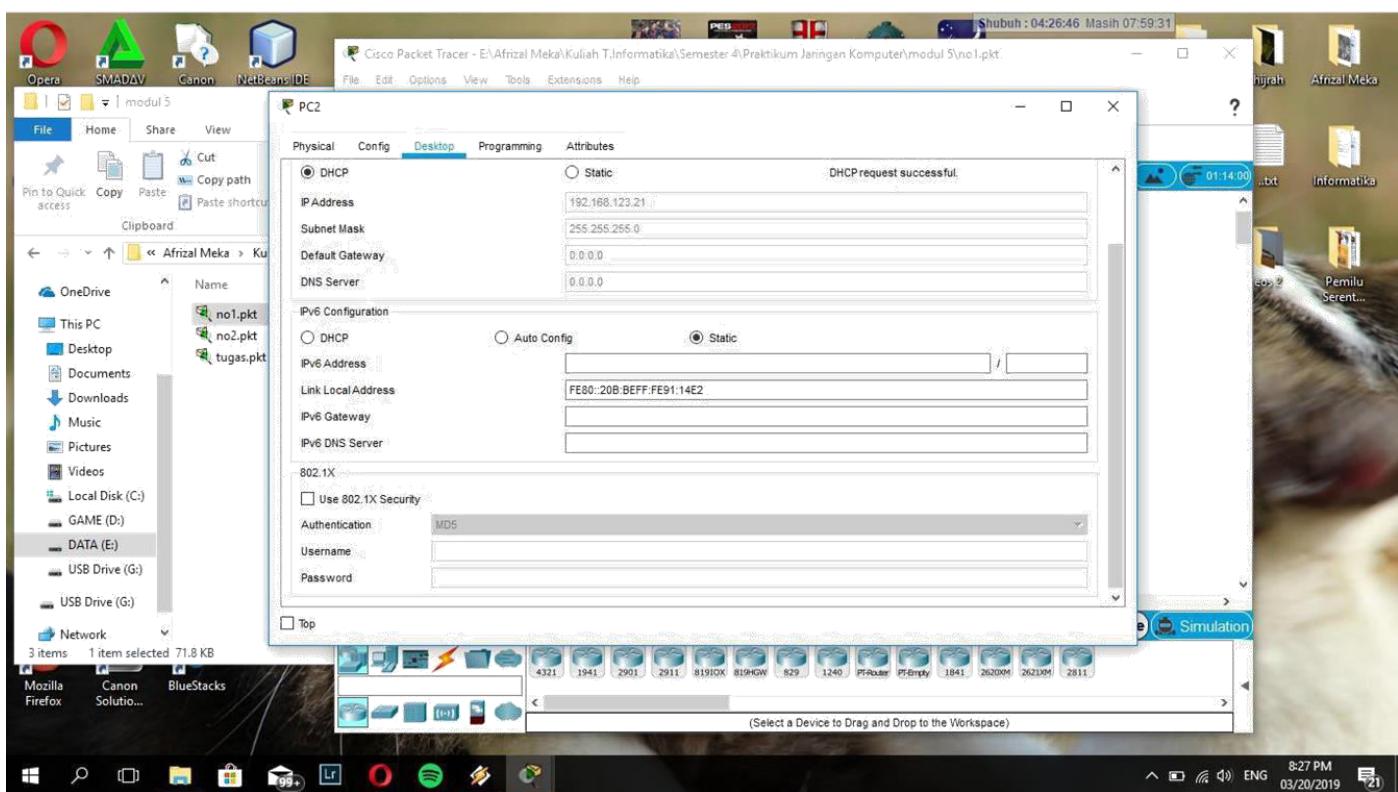
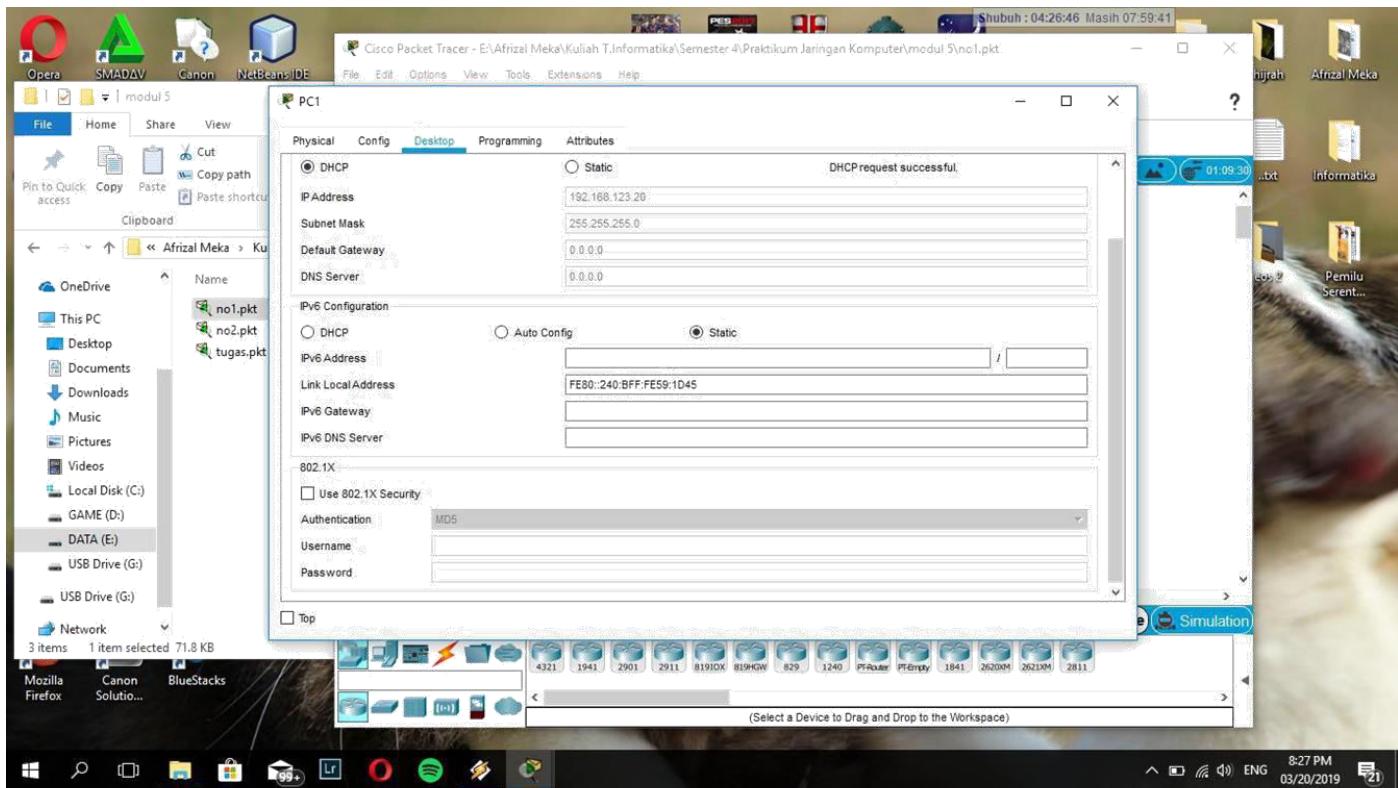
Kelas : A

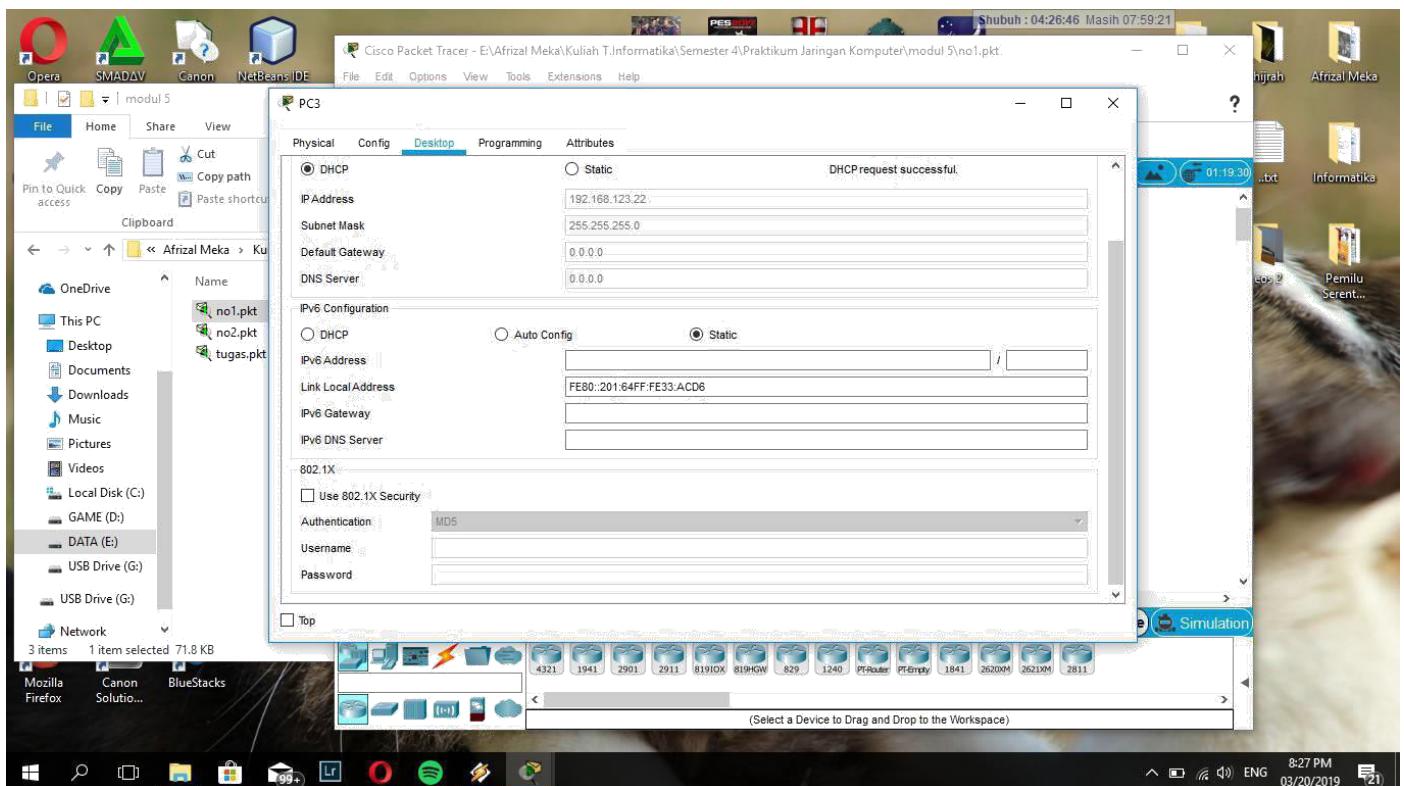
Kegiatan Praktikum

1.

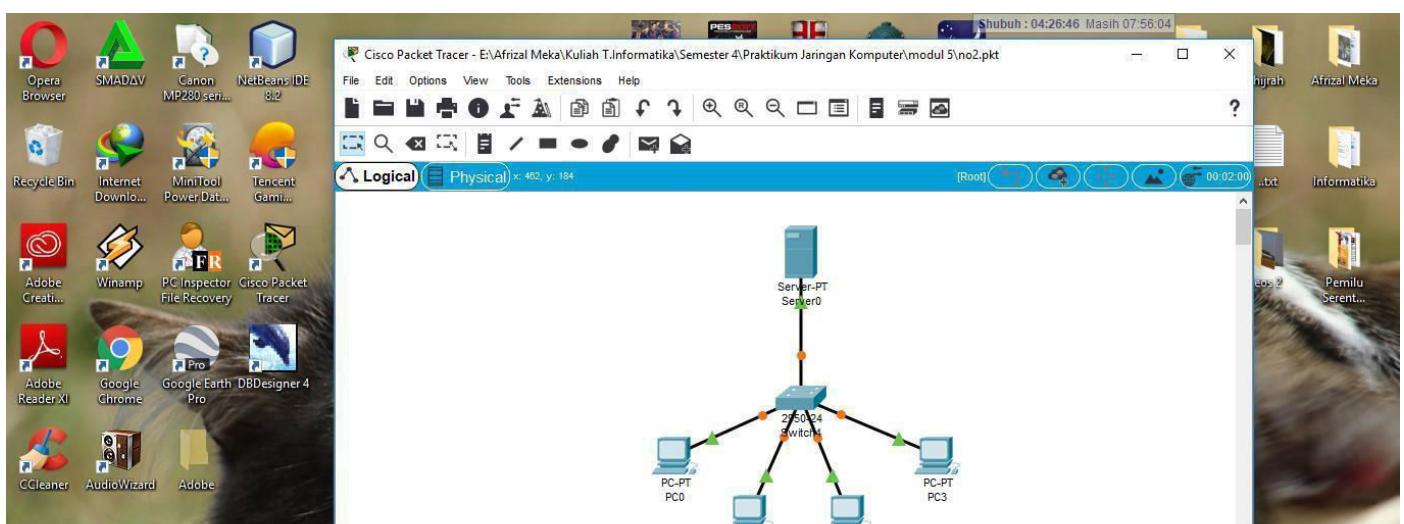


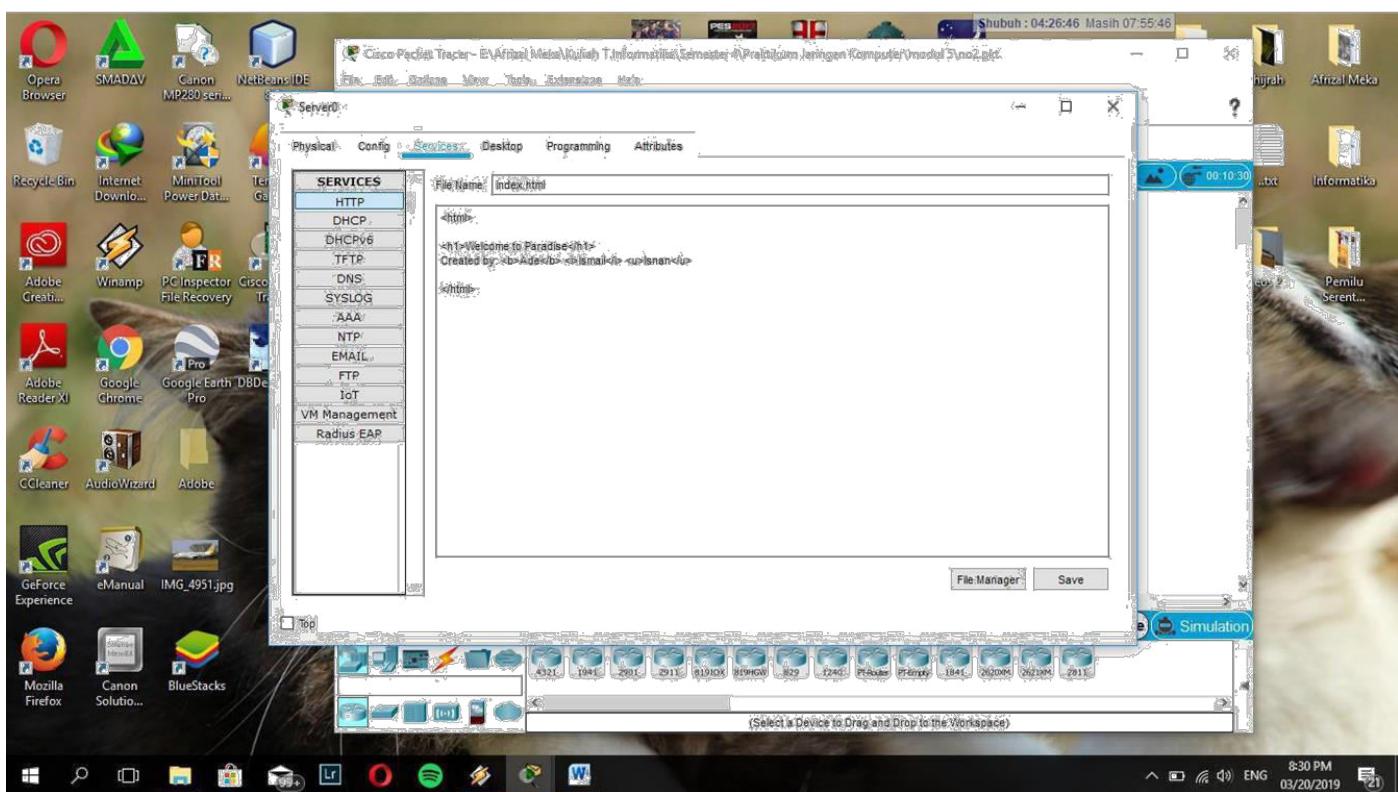
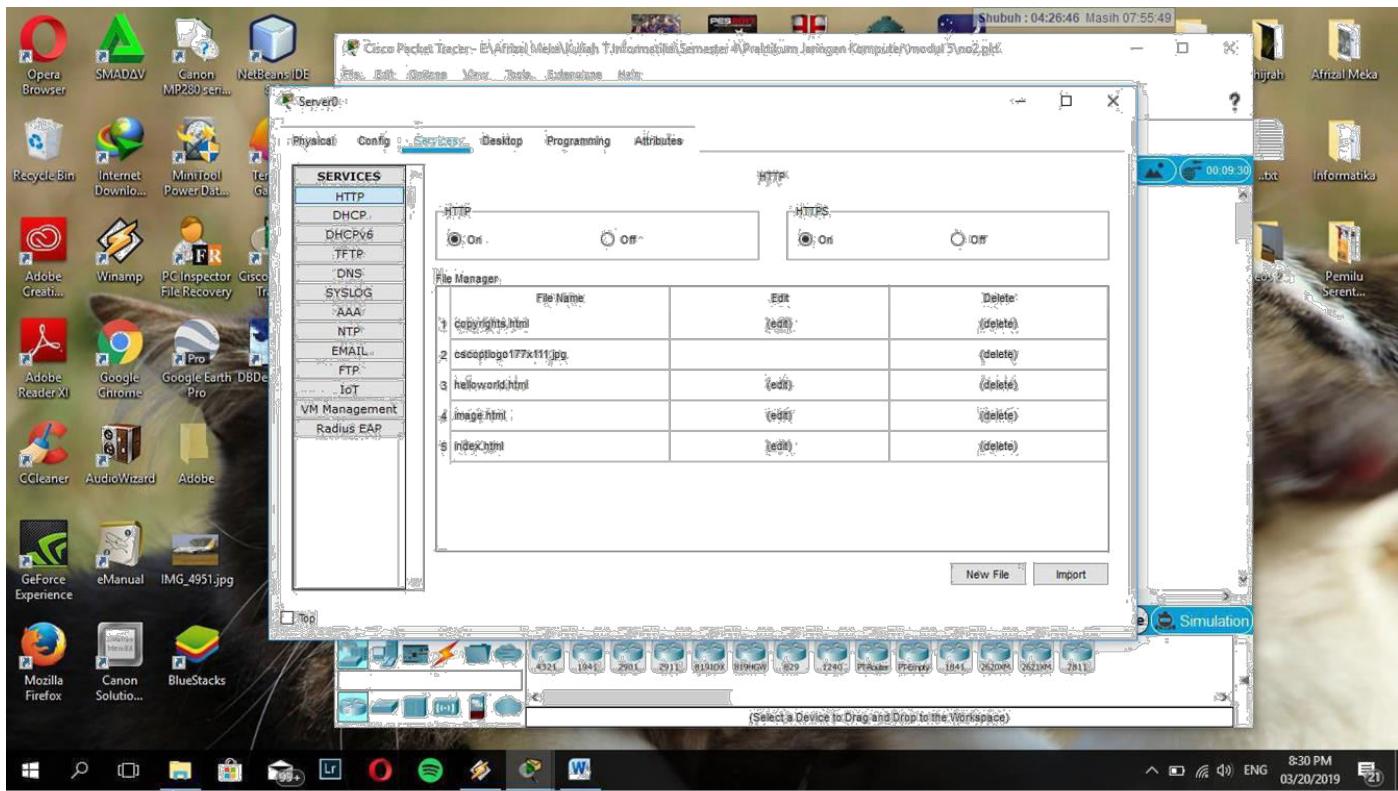


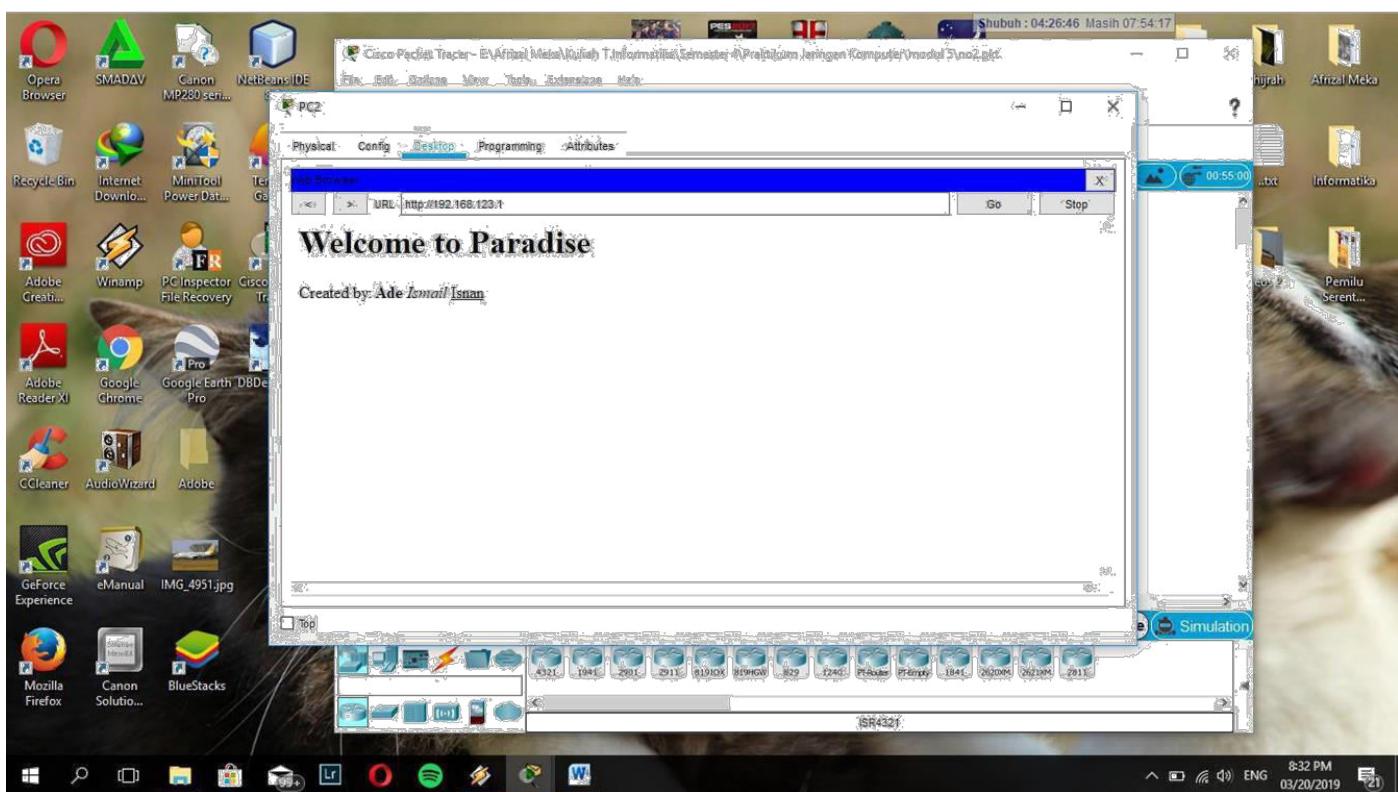
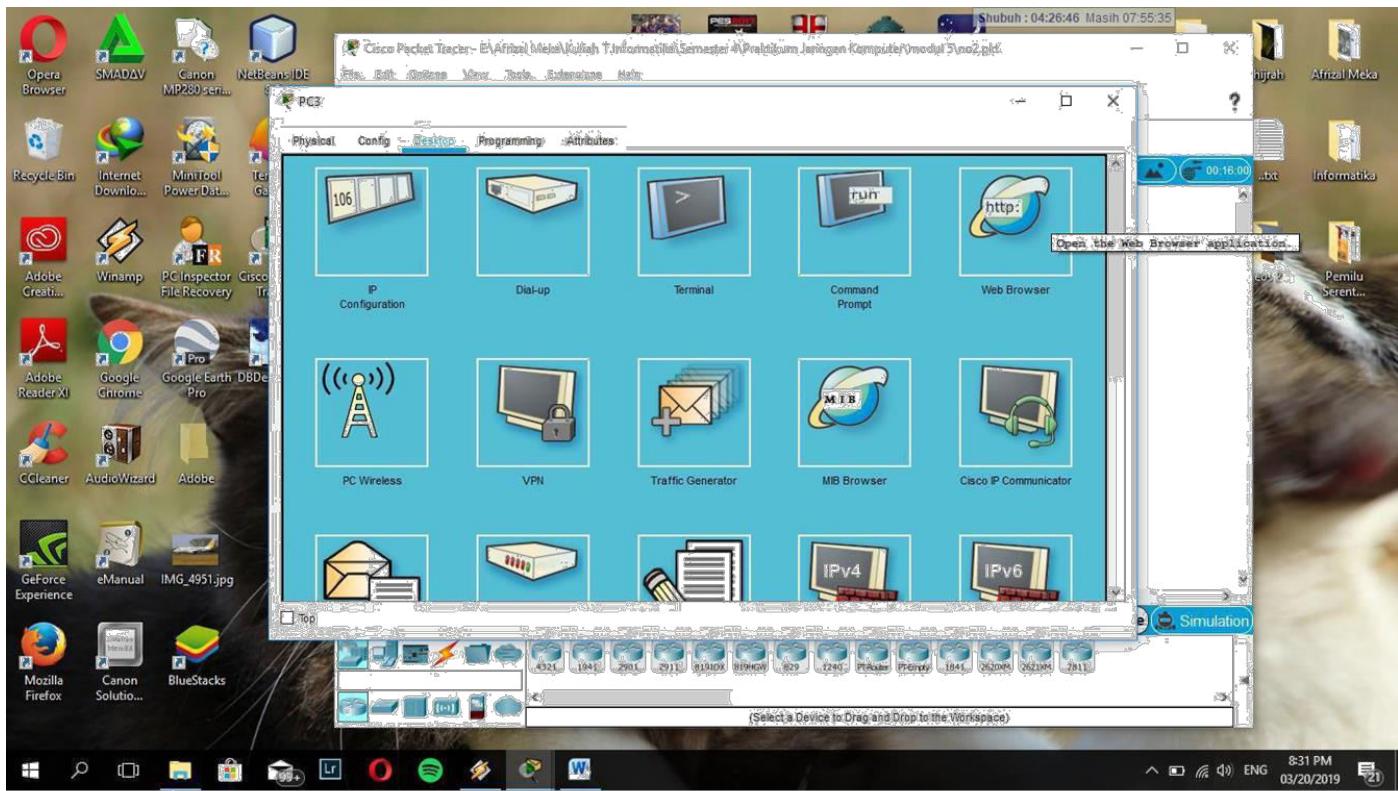




2.

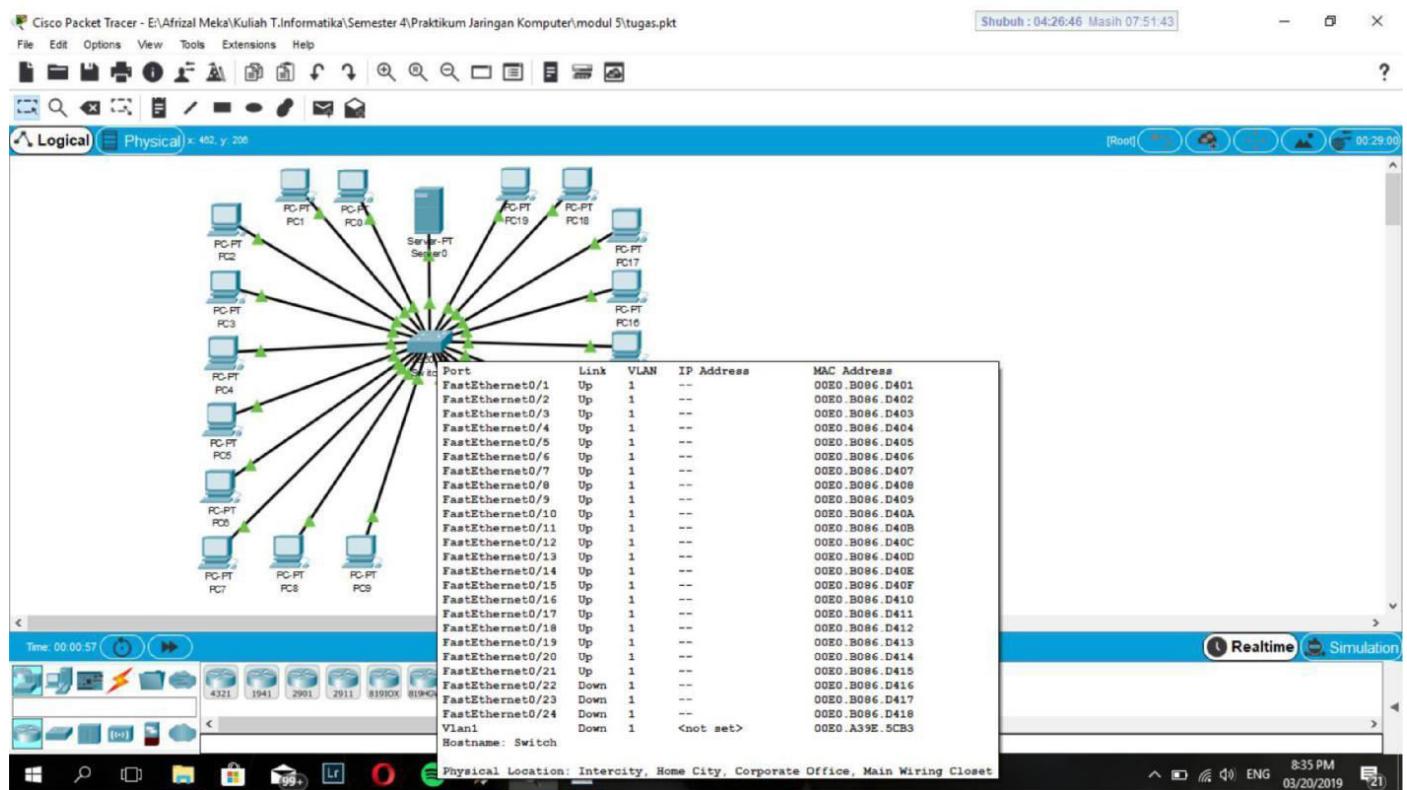
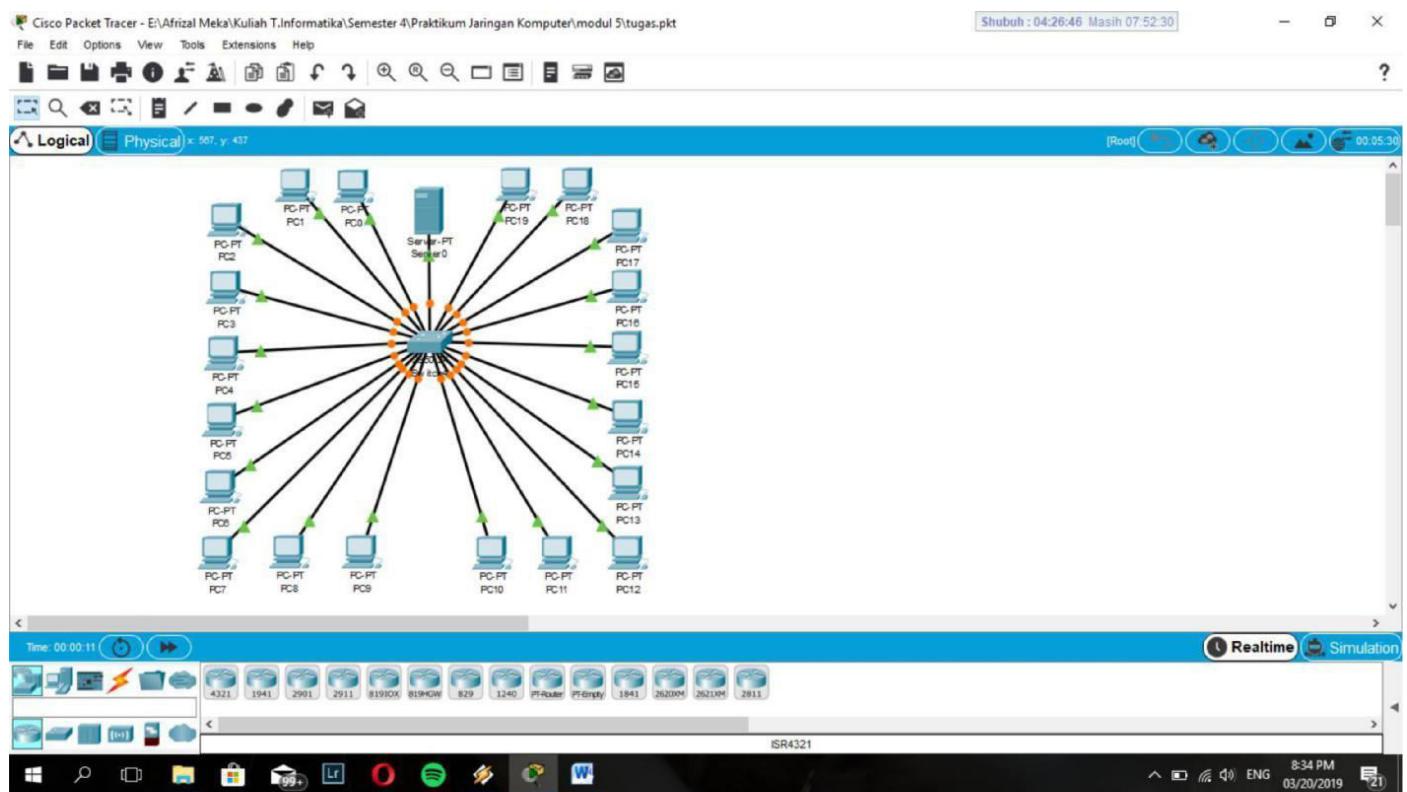


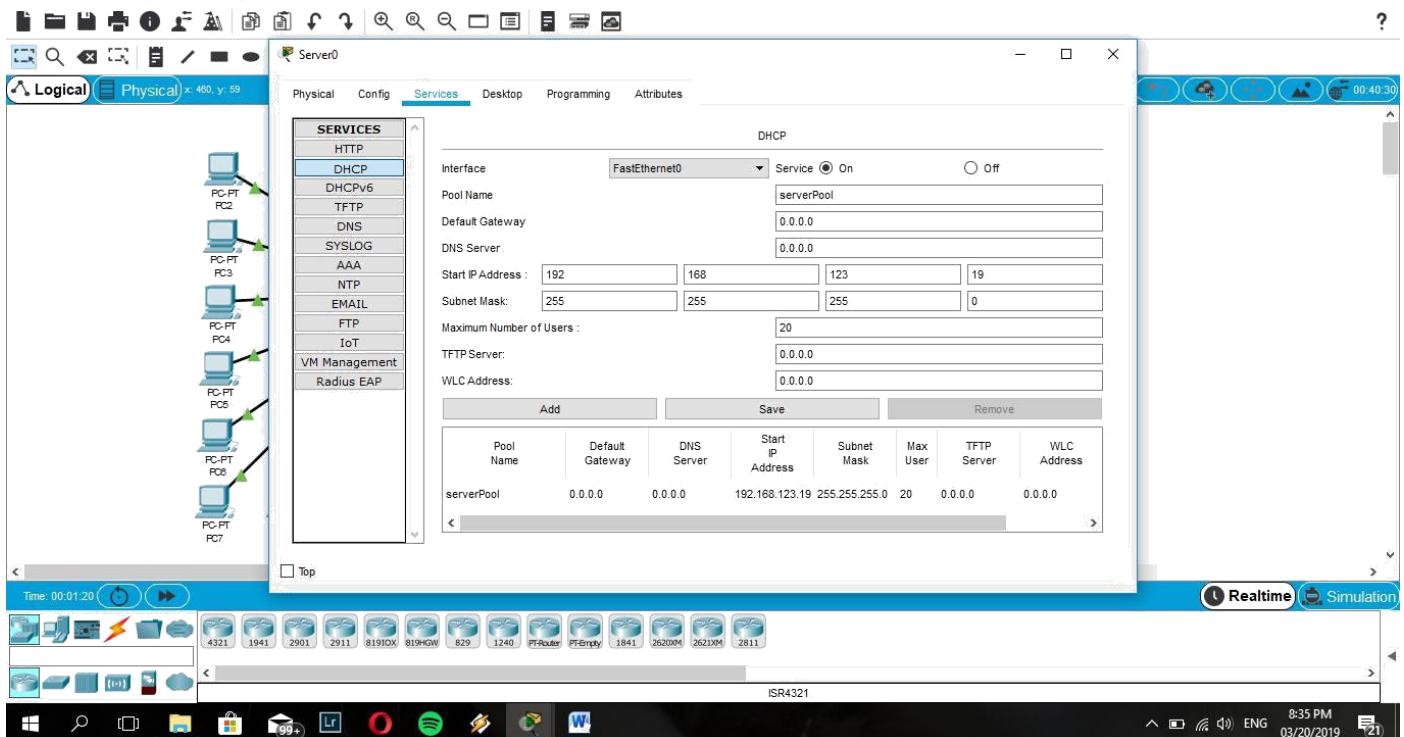




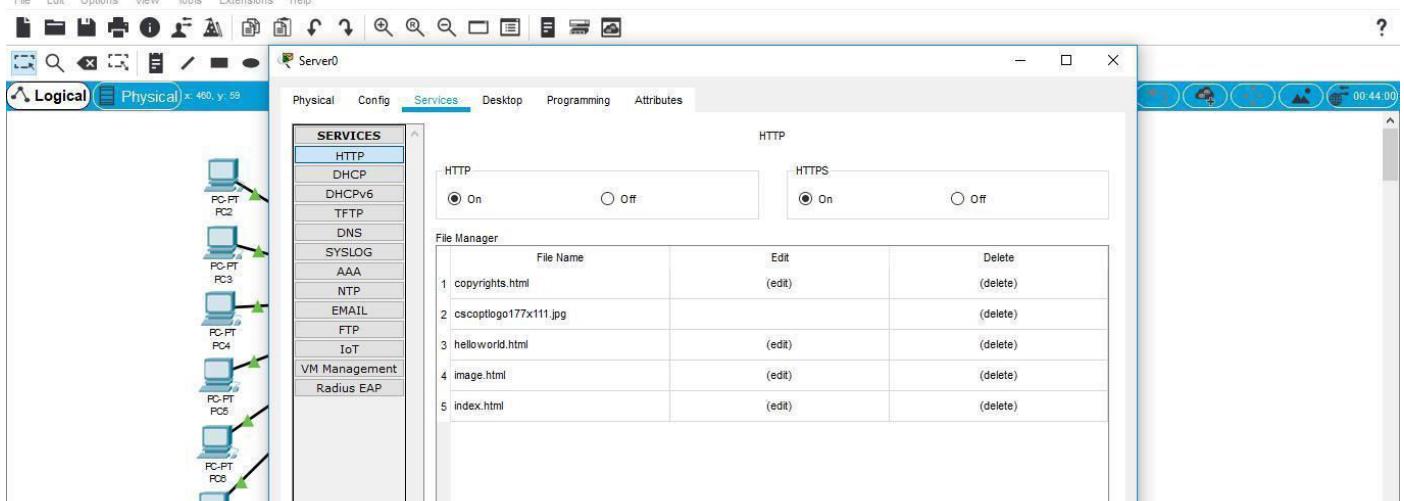
Tugas Modul 4

1.





2.



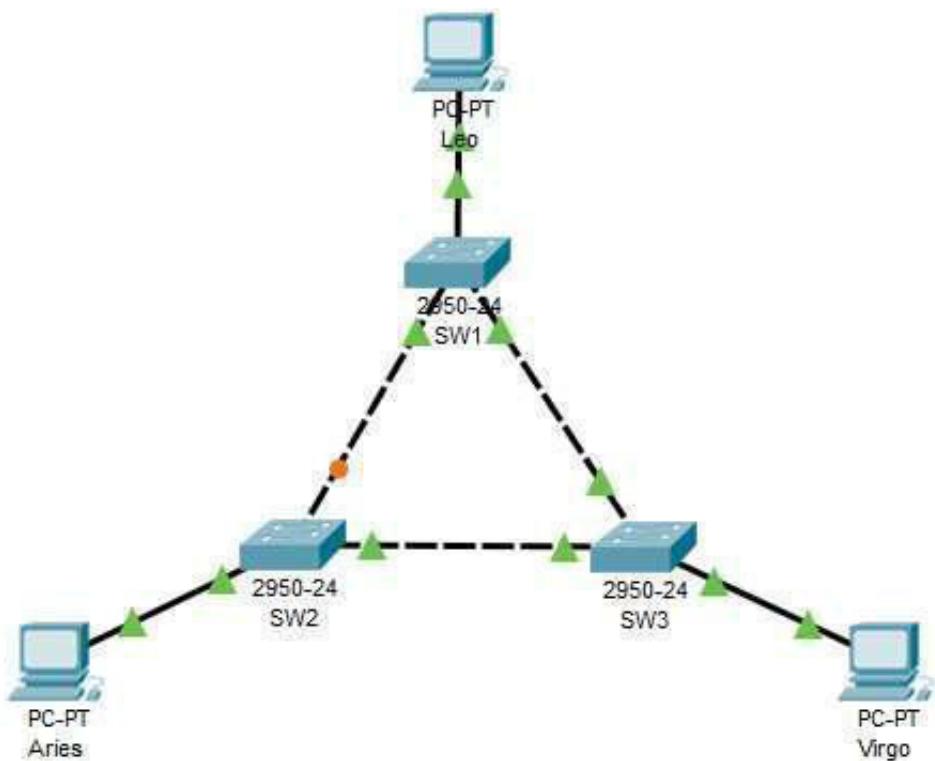
Nama : Muhammad ihsan nuralam

NIM : L200170008

Kelas : A

Kegiatan 1. Topologi 1

1. Menggunakan PACKET TRACER buat topologi berikut ini dengan menggunakan switch Catalyst 2950



Tugas 1A : Tulis langkah pembuatan topologi

1. Pilih Switch 2950 sebanyak 3 buah.
 2. Pilih PC sebanyak 3 buah.
 3. Gunakan kabel yang auto untuk mempermudah.
 4. Rangkai Rangkaian seperti gambar diatas.
-
2. Beri nama masing-masing switch dengan SW1, SW2 dan SW3

Tugas 2A : Tulis langkah pemberian nama switch mulai dari mode user

1. Klik Switch yang dipilih
 2. Klik Config
 3. Pada pilihan display name ganti dengan nama switch yang diinginkan
-
3. Konfigurasi masing-masing PC dengan alamat IP
- | | |
|-------|-----------------|
| Leo | = 172.21.1.1/24 |
| Aries | = 172.21.1.2/24 |
| Virgo | = 172.21.1.3/24 |
-
4. Pada mode user atau mode privileged, lihat status STP pada masing-masing switch. Langkah Pengoperasian

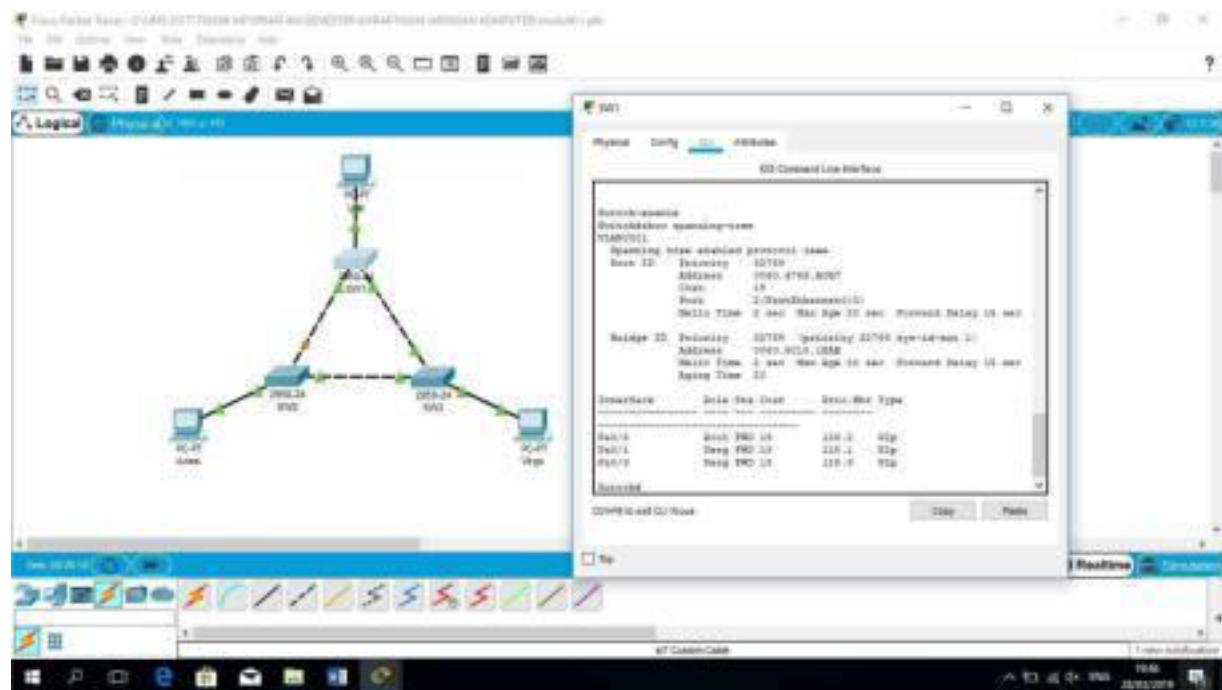
Tekan enter

Masuk mode privileged (optional)

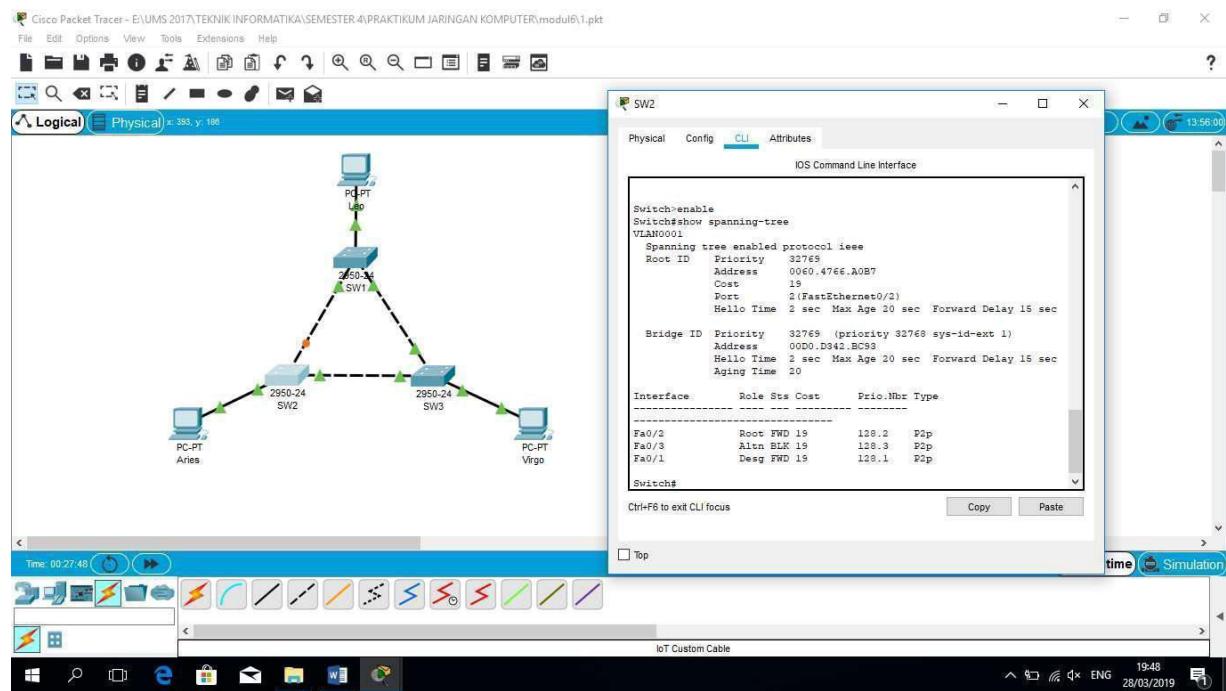
Ketik show spanning-tree

**Tugas 4A : Pada kondisi default, capture masing-masing
tampilan status STP switch (SW1, SW2 dan
SW3)**

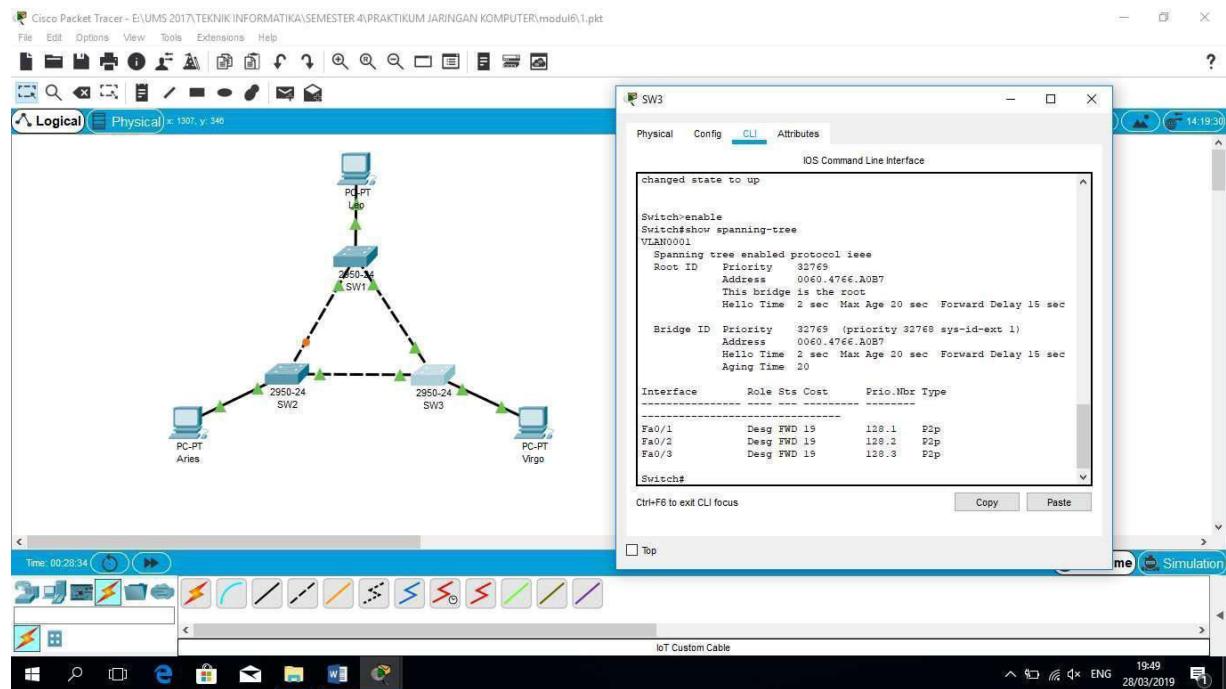
SW1



SW2



SW3



Tugas 4B : Untuk tiap-tiap switch, isikan table berikut:

SW1

No	Variabel	Nilai
1	Root ID	32769, 0060.4766.A0B7
2	Priority	32769
3	MAC Address	0060.4766.A0B7
4	Bridge ID	32769, 0060.4766.A0B7

**5 Cost(0/1;0/2;0/3) 0/1;Desg,FWD,19
0/2;Root,FWD,19
0/3;Desg,FWD,19**

6 Hello Time 2 sec

7 Max Age 20 sec

**8 Forward
Delay 15 sec**

SW2

No	Variabel	Nilai
1	Root ID	32769, 0060.4766.A0B7
2	Priority	32769
3	MAC Address	0060.4766.A0B7
4	Bridge ID	32769, 0060.4766.A0B7

Cost(0/1;0/2;0/ 0/1;Desg,FWD,19 0/2;Root,FWD,19
5 3) 0/3;Altn,BLK,19

6 Hello Time 2 sec

7 Max Age 20 sec

Forward
8 Delay 15 sec

SW3

--	--	--

No Variabel Nilai

1 Root ID 32769, 0060.4766.A0B7

2 Priority 32769

3 MAC Address 0060.4766.A0B7

4 Bridge ID 32769, 0060.4766.A0B7

5 Cost(0/1;0/2;0/3) 0/1;Desg,FWD,19
0/2;Desg,FWD,19
0/3;Desg,FWD,19

6 Hello Time 2 sec

7 Max Age 20 sec

8 Forward
Delay 15 sec

Tugas 4C : Pada Kondisi default, switch dan port mana saja yang:

Menjadi root bridge : SW3

Menjadi designated bridge : SW3

Menjadi root port : SW1(Fa0/2) dan SW2(Fa0/2)

Menjadi designated port : SW1(Fa0/1, Fa0/3), SW2(Fa0/1) dan SW3(Fa0/1, Fa0/2, Fa0/3)

Tugas 4D : Pada Kondisi default, switch dan port mana saja yang:

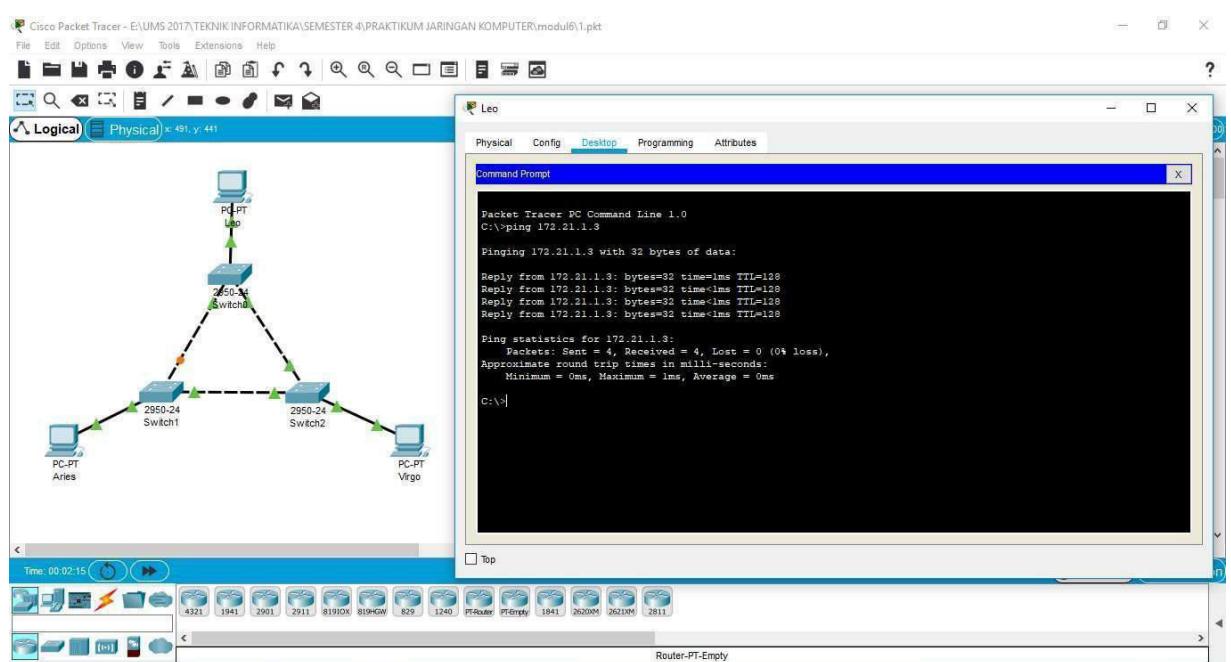
Berada pada keadaan forwarding : SW1(Fa0/1, Fa0/2, Fa0/3),

SW2(Fa0/1, Fa0/2) dan

SW3(Fa0/1, Fa0/2, Fa0/3)

Berada pada keadaan blocking : SW2(Fa0/3)

5. Dari PC Leo lakukan ping ke PC Virgo



**Tugas 5A : Tulis langkah untuk menyimpan
perintah ping Klik pada PC Leo**

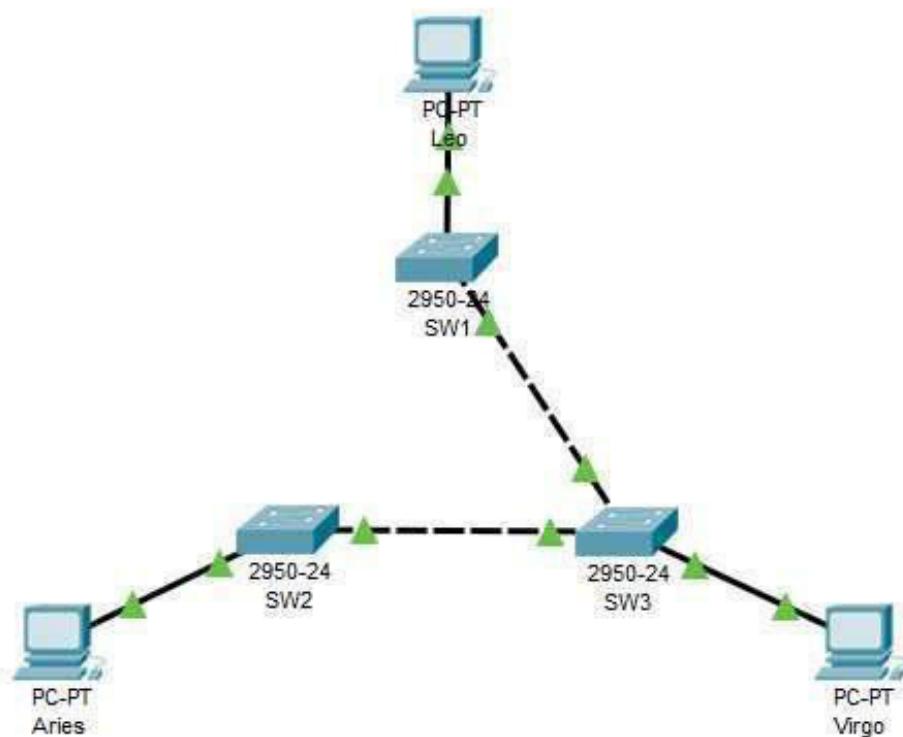
Klik Desktop

Klik Command Prompt

Klik Ping IP PC Virgo

Kegiatan 2. Topologi 2

1. Menggunakan PACKET TRACER buat topologi berikut ini dengan menggunakan switch Catalyst 2950



Tugas 1A : Tulis langkah pembuatan topologi

- 1. Pilih Switch 2950 sebanyak 3 buah.**
 - 2. Pilih PC sebanyak 3 buah.**
 - 3. Gunakan kabel yang auto untuk mempermudah.**
 - 4. Rangkai Rangkaian seperti gambar diatas.**
-
- 2. Beri nama masing-masing switch dengan SW1, SW2 dan SW3**

Tugas 2A : Tulis langkah pemberian nama switch mulai dari mode user

- 1. Klik Switch yang dipilih**
- 2. Klik Config**
- 3. Pada pilihan display name ganti dengan nama switch yang diinginkan**

3. Konfigurasi masing-masing PC dengan alamat IP

Leo = 172.21.1.1/24

Aries = 172.21.1.2/24

Virgo = 172.21.1.3/24

4. Pada mode user atau mode privileged, lihat status STP pada masing-masing switch. Langkah Pengoperasian

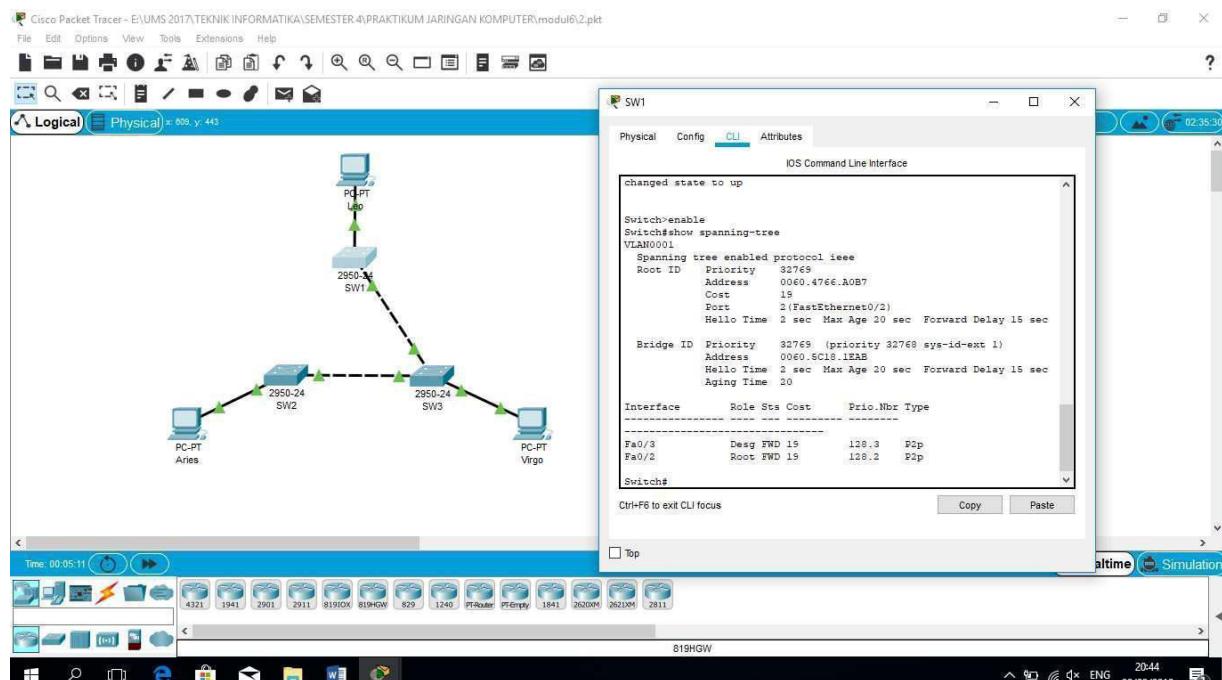
Tekan enter

Masuk mode privileged (optional)

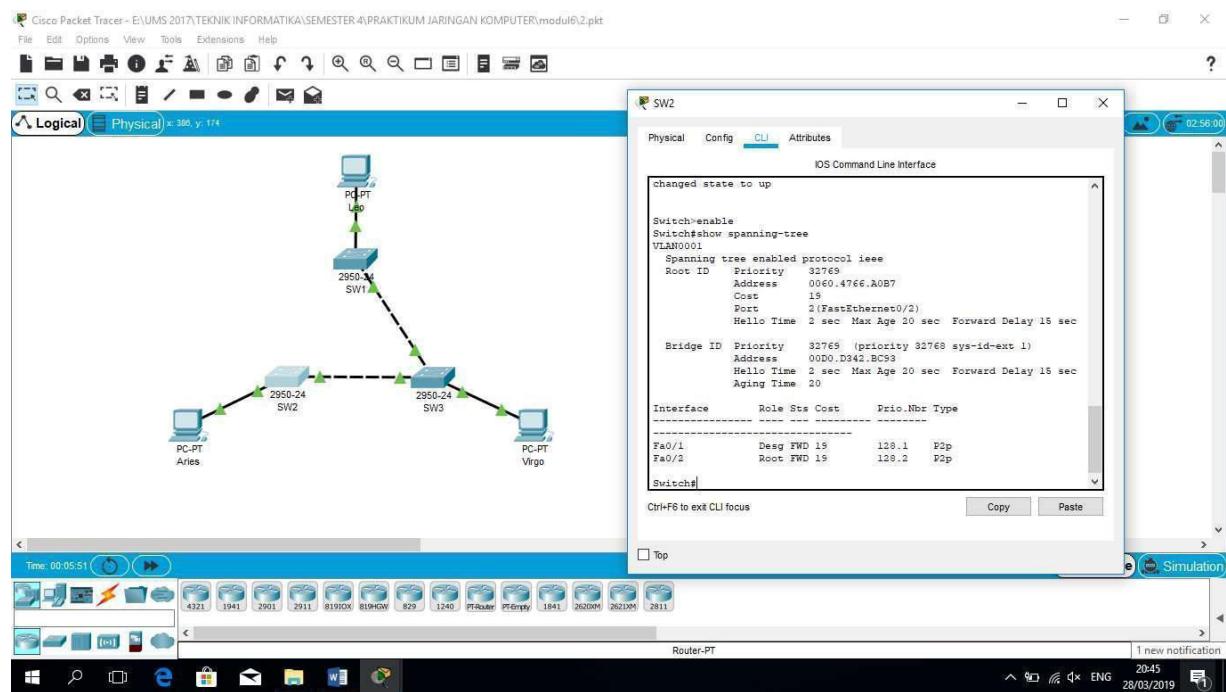
Ketik show spanning-tree

Tugas 4A : Pada kondisi default, capture masing-masing tampilan status STP switch (SW1, SW2 dan SW3)

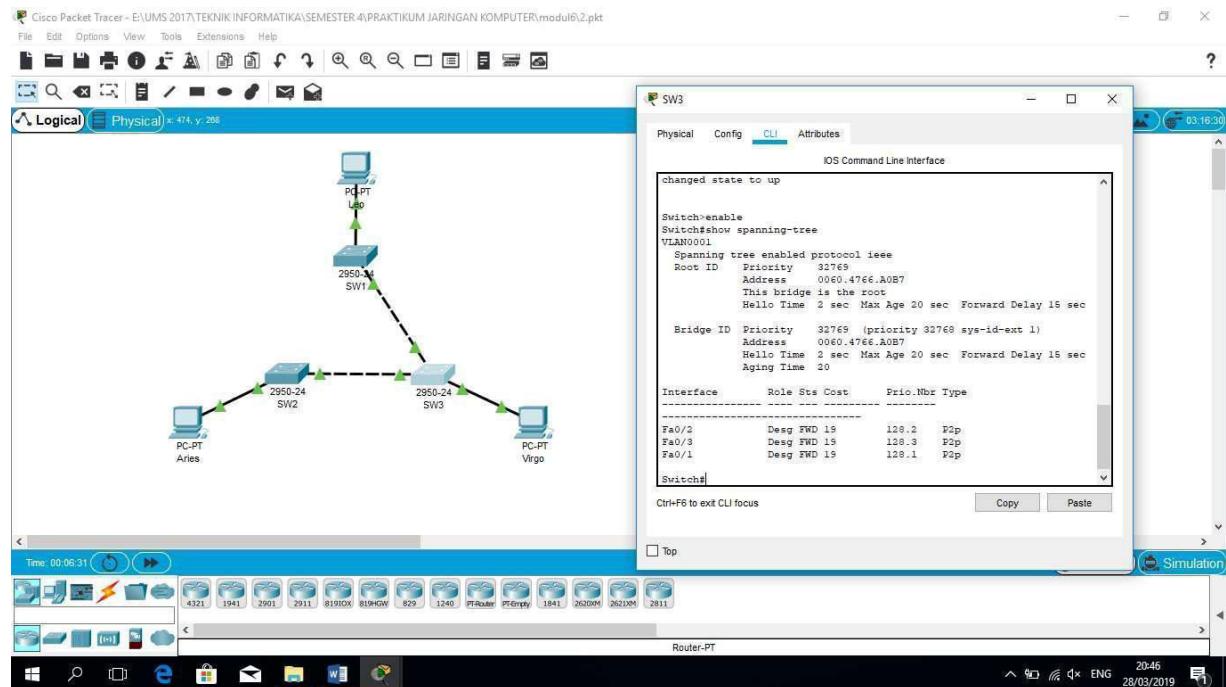
SW1



SW2



SW3



Tugas 4B : Untuk tiap-tiap switch, isikan table berikut:

SW1

No	Variabel	Nilai
1	Root ID	32769, 0060.4766.A0B7
2	Priority	32769
3	MAC Address	0060.4766.A0B7
4	Bridge ID	32769, 0060.4766.A0B7

Cost(0/1;0/2;0/
5 3) 0/2;Root,FWD,19 0/3;Desg,FWD,19

6 Hello Time 2 sec

7 Max Age 20 sec

Forward
8 Delay 15 sec

SW2

--	--	--

No Variabel Nilai

1 Root ID 32769, 0060.4766.A0B7

2 Priority 32769

3 MAC Address 0060.4766.A0B7

4 Bridge ID 32769, 0060.4766.A0B7

5 Cost(0/1;0/2;0/
3) 0/1;Desg,FWD,19 0/2;Root,FWD,19

6 Hello Time 2 sec

7 Max Age 20 sec

8 Forward
Delay 15 sec

SW3

No	Variabel	Nilai
1	Root ID	32769, 0060.4766.A0B7
2	Priority	32769
3	MAC Address	0060.4766.A0B7
4	Bridge ID	32769, 0060.4766.A0B7

**5 Cost(0/1;0/2;0/3) 0/1;Desg,FWD,19
0/2;Desg,FWD,19
0/3;Desg,FWD,19**

6 Hello Time 2 sec

7 Max Age 20 sec

**8 Forward
Delay 15 sec**

Tugas 4C : Pada Kondisi default, switch dan port mana saja yang:

Menjadi root bridge : SW3

Menjadi designated bridge : SW3

Menjadi root port : SW1(Fa0/2) dan SW2(Fa0/2)

Menjadi designated port : SW1(Fa0/3), SW2(Fa0/1) dan

SW3(Fa0/1, Fa0/2, Fa0/3)

Tugas 4D : Pada Kondisi default, switch dan port mana saja yang:

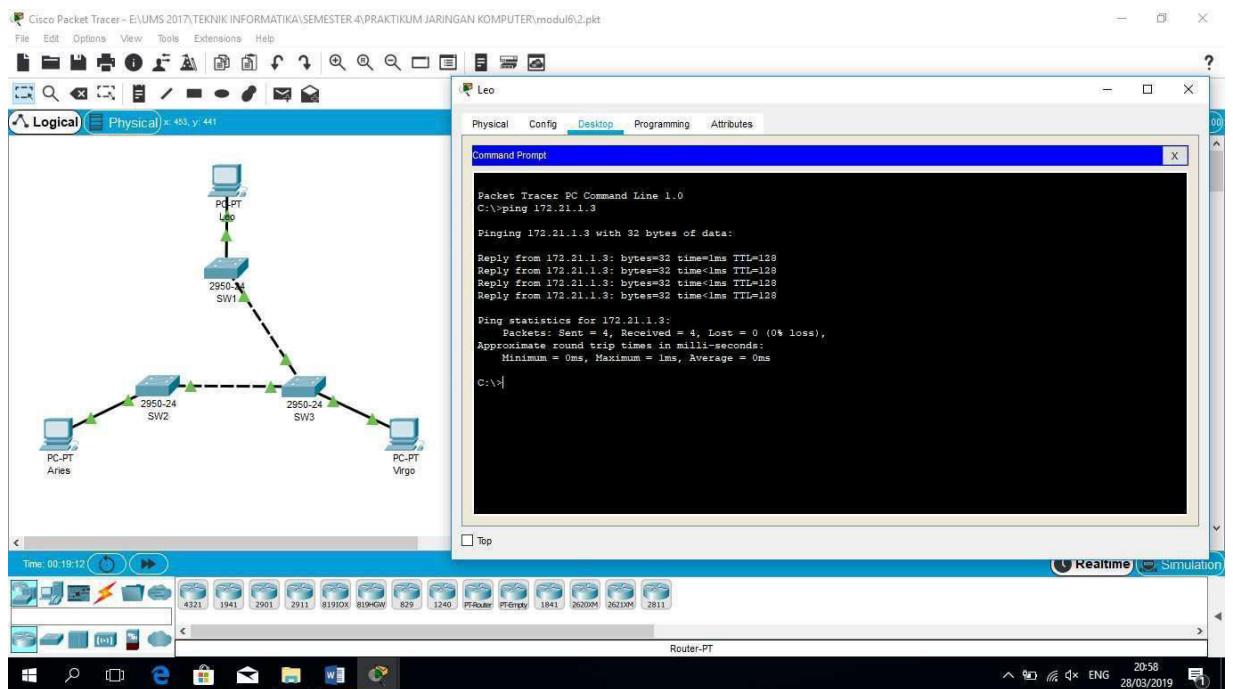
Berada pada keadaan forwarding : SW1(Fa0/2, Fa0/3),

SW2(Fa0/1, Fa0/2) dan

SW3(Fa0/1, Fa0/2, Fa0/3)

Berada pada keadaan blocking : -

5. Dari PC Leo lakukan ping ke PC Virgo



Tugas 5A : Tulis langkah untuk menyimpan perintah ping Klik pada PC Leo

Klik Desktop

Klik Command Prompt

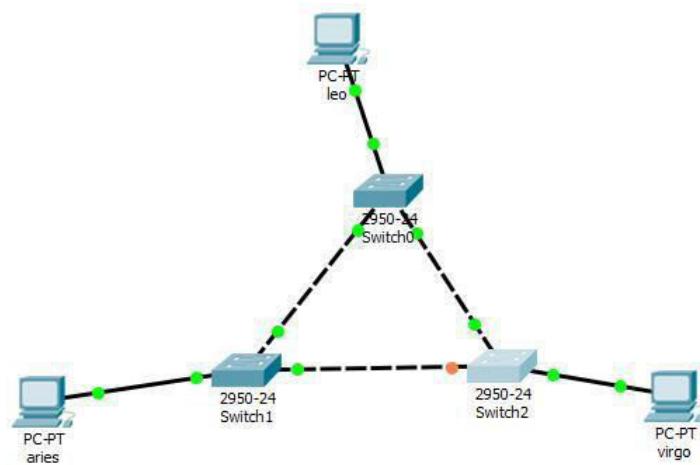
Nama : Muhammad ihsan nuralam

NIM : L200170008

Kelas : A

C. Kegiatan
Praktikum Kegiatan
1. Topologi 1

1. Menggunakan PACKET TRACER buat topologi berikut ini dengan menggunakan switch Catalyst 2950.



- Tugas 1 A : Tulis langkah pembuatan

topologi. Langkah – langkah :

- a. Pada menu bar yang terdapat pada packet cisco tracer pilih Devices
 - b. Drag and Drop PC sejumlah 3 buah
 - c. Pada menu bar yang terdapat pada packet cisco tracer pilih Network Devices lalu pilih Switches
 - d. Drag and Drop Switch 950-24
 - e. Susun PC dan Switch lalu hubungkan dengan kabel seperti pada modul
 - f. Klik 2x pada PC lalu beri nama sesuai nama yang ada pada modul
2. Beri nama masing-masing switch dengan SW1,SW2, dan SW3
- Tugas 2A : tulis langkah pemberian nama switch mulai dari *mode user*.
- Langkah-langkah :
- a. Klik 2x pada switch lalu ganti nama menjadi SW1,SW2 dan SW3
3. Konfigurasi masing-masing PC dengan alamat IP:
- Leo = 172.21.1.1/24
 - Aries = 172.21.1.2/4
 - Virgo = 172.21.1.3/24
4. Pada mode user atau mode privileged, lihat status STP pada masing-masing switch. Langkah pengoperasian

- Tekan enter
- Masuk mode privileged (optional)

- Ketik show spanning-tree
- Tugas 4A : Pada kondisi default, capture masing-masing tampilan status STP switch (SW1,SW2,dan SW3).

The screenshot shows a Windows application window titled "Switch0". Inside, there are tabs for "Physical", "Config", "CLI", and "Attributes", with "CLI" selected. The main area is labeled "IOS Command Line Interface". The output of the command "show spanning-tree" is displayed:

```

*LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3,
changed state to up

Switch>en
Switch#show sp
VLAN001
  Spanning tree enabled protocol ieee
  Root ID    Priority    32769
              Address     0006.2A0A.CBB2
              This bridge is the root
              Hello Time   2 sec  Max Age 20 sec  Forward Delay 15
              sec

  Bridge ID  Priority    32769 (priority 32768 sys-id-ext 1)
              Address     0006.2A0A.CBB2
              Hello Time   2 sec  Max Age 20 sec  Forward Delay 15
              sec
              Aging Time   20

  Interface      Role Sts Cost      Prio.Nbr Type
  -----  -----
  Fa0/1          Desg FWD 19      128.1    P2p
  Fa0/2          Desg FWD 19      128.2    P2p
  Fa0/3          Desg FWD 19      128.3    P2p

```

At the bottom left, it says "Ctrl+F6 to exit CLI focus". At the bottom right are "Copy" and "Paste" buttons. A checkbox labeled "Top" is at the very bottom.

Switch1

Physical Config CLI Attributes

IOS Command Line Interface

```
Switch>en
Switch#show sp
VLAN0001
  Spanning tree enabled protocol ieee
    Root ID  Priority    32769
              Address     0006.2A0A.CBB2
              Cost         19
              Port        1(FastEthernet0/1)
              Hello Time   2 sec  Max Age 20 sec  Forward Delay 15
              sec

    Bridge ID Priority    32769 (priority 32768 sys-id-ext 1)
              Address     000D.BD63.A046
              Hello Time   2 sec  Max Age 20 sec  Forward Delay 15
              sec
              Aging Time   20

    Interface      Role Sts Cost      Prio.Nbr Type
    -----  -----  -----  -----  -----
    Fa0/1          Root FWD 19      128.1    P2p
    Fa0/2          Desg FWD 19      128.2    P2p
    Fa0/3          Desg FWD 19      128.3    P2p

Switch#
```

Ctrl+F6 to exit CLI focus

Switch2

Physical Config CLI Attributes

IOS Command Line Interface

```
Switch>en
Switch#show sp
VLAN0001
  Spanning tree enabled protocol ieee
    Root ID  Priority    32769
              Address     0006.2A0A.CBB2
              Cost         19
              Port        1(FastEthernet0/1)
              Hello Time   2 sec  Max Age 20 sec  Forward Delay 15
              sec

    Bridge ID Priority    32769 (priority 32768 sys-id-ext 1)
              Address     00E0.F977.373B
              Hello Time   2 sec  Max Age 20 sec  Forward Delay 15
              sec
              Aging Time   20

    Interface      Role Sts Cost      Prio.Nbr Type
    -----  -----  -----  -----  -----
    Fa0/1          Root FWD 19      128.1    P2p
    Fa0/2          Altn BLK 19      128.2    P2p
    Fa0/3          Desg FWD 19      128.3    P2p

Switch#
```

Ctrl+F6 to exit CLI focus

- Tugas 4B : Untuk tiap-tiap switch, isikan tabel berikut :

SW0

No	Variabel	Nilai
1	Root ID	32769,0006.2A0A.CBB2
2	Priority	32769
3	MAC Adress	0006.2A0A.CBB2
4	Bridge ID	32769,0006.2A0A.CBB2
5	Cost (0/1;0/2;0/3)	19 FWD;19 FWD;19 FWD
6	Hello Time	2 sec
7	Max Age	20 sec
8	Forward Delay	15

SW1

No	Variabel	Nilai
1	Root ID	32769,0006.2A0A.CBB2
2	Priority	32769
3	MAC Adress	0006.2A0A.CBB2
4	Bridge ID	32769,000D.BD63.A046
5	Cost (0/1;0/2;0/3)	19 FWD;19 FWD;19 FWD
6	Hello Time	2 sec
7	Max Age	20 sec
8	Forward Delay	15

SW2

No	Variabel	Nilai
1	Root ID	32769,0006.2A0A.CBB2
2	Priority	32769
3	MAC Adress	0006.2A0A.CBB2
4	Bridge ID	32769,00E0.F977.373B
5	Cost (0/1;0/2;0/3)	19 FWD;19 BLK;19 FWD

6	Hello Time	2 sec
7	Max Age	20 sec
8	Forward Delay	15

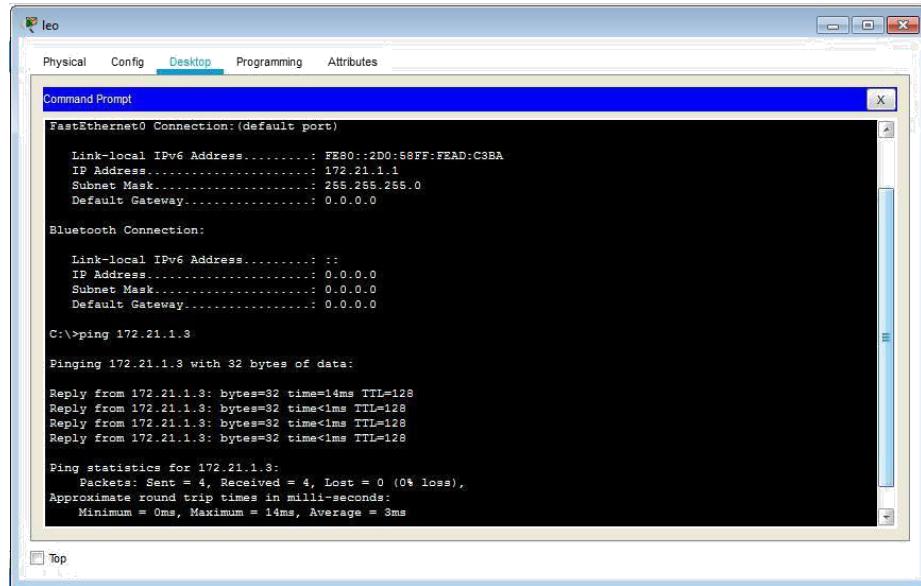
- 4C : pada kondisi default tersebut, switch dan port mana saja yang :

- Menjadi root bridge : SW0
- Menjadi designated bridge : SW0
- Menjadi root port : SW1 dan SW2
- Menjadi designated port : SW1 dan SW2

- Tugas 4D: pada kondisi default tersebut, dan port mana saja yang:

- Berada pada keadaan forwarding : SW0 dan SW1
- Berada pada keadaan blocking : SW2

5. Dari PC Leo lakukan ping ke PC Virgo.

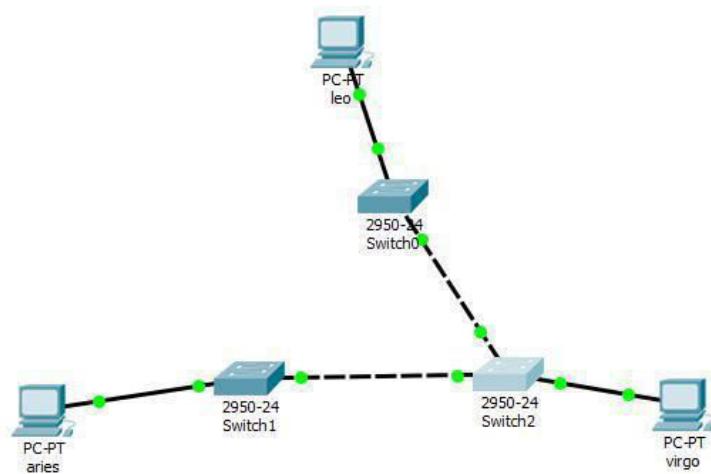


- Tugas 5A: Tulis langkah untuk melakukan perintah ping.
 - a. Klik 2x pada PC leo
 - b. Klik desktop
 - c. Pilih command prompt
 - d. Lalu ping ke alamat IP virgo dengan cara ketik ping 172.21.1.3
- 6. Simpan konfigurasi jaringan dengan nama lab2.nwc
 - Tugas 6A : Tulis langkah untuk menyimpan konfigurasi jaringan.

- a. Masuk switch lalu pilih menu CLI
- b. Lalu ketikkan copy running-config startup-config

Kegiatan 2. Topologi 2

1. Menggunakan Packet Tracer ubah topologi menjadi seperti topologi berikut ini:



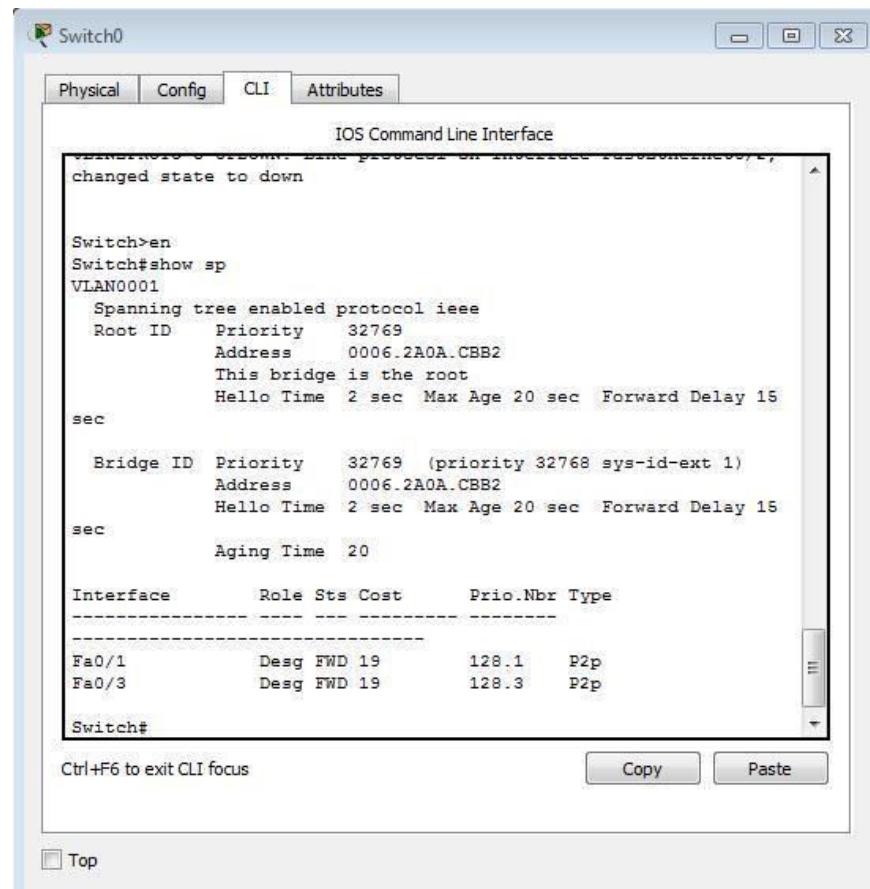
2. Simpan topologi dan buka topologi tersebut pada lingkungan Packet Tracer. Kemudian load file konfigurasi lab2.ncw

3. Lakukan langkah lab.4 dan lab.5
 - Tugas 9A : kerjakan tugas seperti pada tugas langkah lab.4

4. Pada mode user atau mode privileged, lihat status STP pada masing-masing switch. Langkah pengoperasian
 - Tekan enter

 - Masuk mode privileged (optional)

 - Ketik show spanning-tree
 - Tugas 4A : Pada kondisi default, capture masing-masing tampilan status STP switch (SW1,SW2,dan SW3).



The screenshot shows the Cisco IOS Command Line Interface (CLI) running on a device named "Switch0". The window title is "Switch0". The tabs at the top are "Physical", "Config", "CLI" (which is selected), and "Attributes". The main pane displays the output of the "show spanning-tree" command:

```

IOS Command Line Interface
changed state to down

Switch>en
Switch#show sp
VLAN0001
  Spanning tree enabled protocol ieee
  Root ID  Priority    32769
            Address   0006.2A0A.CBB2
            This bridge is the root
            Hello Time 2 sec  Max Age 20 sec  Forward Delay 15
sec

  Bridge ID  Priority    32769 (priority 32768 sys-id-ext 1)
            Address   0006.2A0A.CBB2
            Hello Time 2 sec  Max Age 20 sec  Forward Delay 15
sec
            Aging Time 20

  Interface      Role Sts Cost      Prio.Nbr Type
  -----  -----
  Fa0/1          Desg FWD 19      128.1    P2p
  Fa0/3          Desg FWD 19      128.3    P2p

Switch#

```

At the bottom of the CLI window, there is a message: "Ctrl+F6 to exit CLI focus". Below the window, there are "Copy" and "Paste" buttons, and a checkbox labeled "Top".

Switch1

Physical Config **CLI** Attributes

IOS Command Line Interface

```
Switch>en
Switch#show sp
VLAN001
  Spanning tree enabled protocol ieee
    Root ID    Priority      32769
                Address       0006.2A0A.CBB2
                Cost          38
                Port         2 (FastEthernet0/2)
                Hello Time   2 sec  Max Age 20 sec  Forward Delay 15
                sec

    Bridge ID  Priority      32769 (priority 32768 sys-id-ext 1)
                Address       000D.BD63.A046
                Hello Time   2 sec  Max Age 20 sec  Forward Delay 15
                sec
                Aging Time  20

    Interface      Role Sts Cost      Prio.Nbr Type
    -----  -----
    Fa0/2          Root FWD 19      128.2      P2p
    Fa0/3          Desg FWD 19     128.3      P2p

Switch#
```

Ctrl+F6 to exit CLI focus **Copy** **Paste**

Switch2

Physical Config **CLI** Attributes

IOS Command Line Interface

```
Switch>en
Switch#show sp
VLAN001
  Spanning tree enabled protocol ieee
    Root ID    Priority      32769
                Address       0006.2A0A.CBB2
                Cost          19
                Port         1 (FastEthernet0/1)
                Hello Time   2 sec  Max Age 20 sec  Forward Delay 15
                sec

    Bridge ID  Priority      32769 (priority 32768 sys-id-ext 1)
                Address       00E0.F977.373B
                Hello Time   2 sec  Max Age 20 sec  Forward Delay 15
                sec
                Aging Time  20

    Interface      Role Sts Cost      Prio.Nbr Type
    -----  -----
    Fa0/1          Root FWD 19      128.1      P2p
    Fa0/2          Desg FWD 19     128.2      P2p
    Fa0/3          Desg FWD 19     128.3      P2p

Switch#
```

Ctrl+F6 to exit CLI focus **Copy** **Paste**

SW0

No	Variabel	Nilai
1	Root ID	32769,0006.2A0A.CBB2
2	Priority	32769
3	MAC Adress	0006.2A0A.CBB2
4	Bridge ID	32769,0006.2A0A.CBB2
5	Cost (0/1;0/3)	19 FWD;19 FWD
6	Hello Time	2 sec
7	Max Age	20 sec
8	Forward Delay	15

SW1

No	Variabel	Nilai
1	Root ID	32769,0006.2A0A.CBB2
2	Priority	32769
3	MAC Adress	0006.2A0A.CBB2
4	Bridge ID	32769,000D.BD63.A046
5	Cost (0/2;0/3)	19 FWD;19 FWD
6	Hello Time	2 sec
7	Max Age	20 sec
8	Forward Delay	15

SW2

No	Variabel	Nilai
1	Root ID	32769,0006.2A0A.CBB2
2	Priority	32769
3	MAC Adress	0006.2A0A.CBB2
4	Bridge ID	32769,00E0.F977.373B
5	Cost (0/1;0/2;0/3)	19 FWD;19 FWD;19 FWD
6	Hello Time	2 sec
7	Max Age	20 sec

8	Forward Delay	15
---	---------------	----

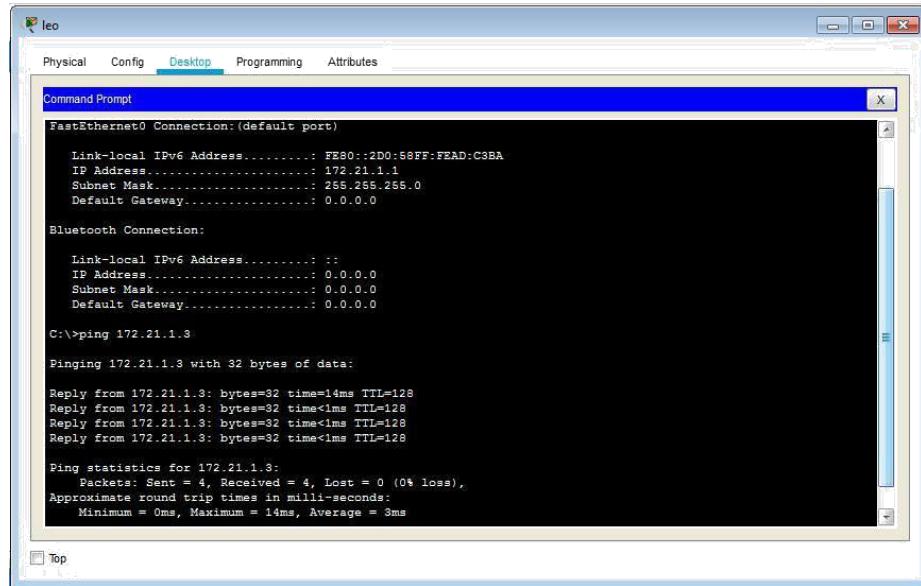
- 4C : pada kondisi default tersebut, switch dan port mana saja
- Tugas yang :

- Menjadi root bridge : SW0
- Menjadi designated bridge : SW0
- Menjadi root port : SW1 dan SW2
- Menjadi designated port : SW1 dan SW2

- Tugas 4D: pada kondisi default tersebut, dan port mana saja yang:

- Berada pada keadaan forwarding : SW0,SW1 dan SW2
- Berada pada keadaan blocking : tidak ada

5. Dari PC Leo lakukan ping ke PC Virgo.



- Tugas 5A: Tulis langkah untuk melakukan perintah ping.

Langkah-langkah :

e. Klik 2x pada PC leo

f. Klik desktop

g. Pilih command prompt

h. Lalu ping ke alamat IP virgo dengan cara ketik ping 172.21.1.3

Nama : Muhammad ihsan nuralam

NIM : L200170008

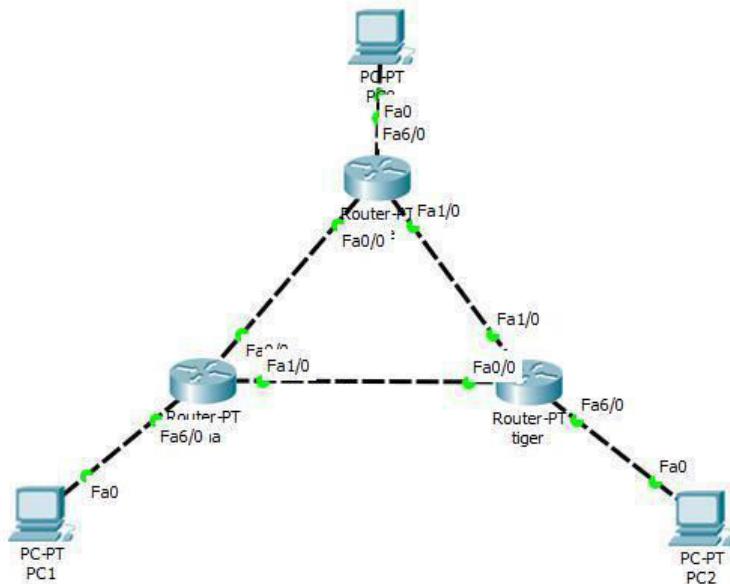
Kelas : A

MODUL 7

C. Kegiatan Praktikum

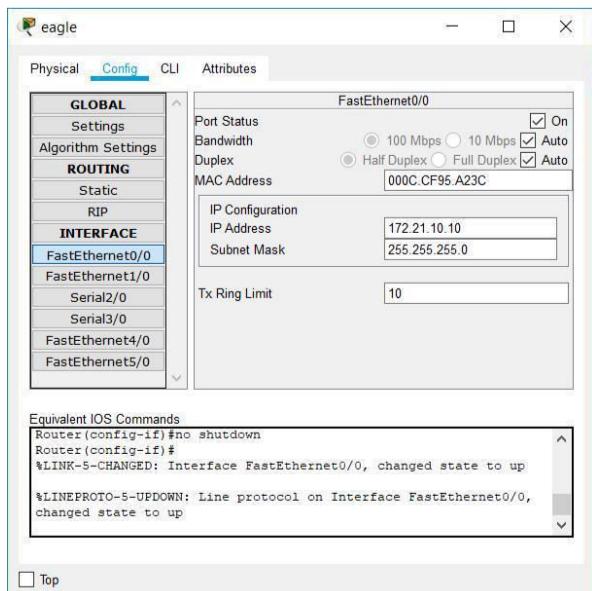
Kegiatan 1. Topologi 1 (Static Routing)

1. Menggunakan Packet Tracer buat topologi berikut ini dengan menggunakan Router generic

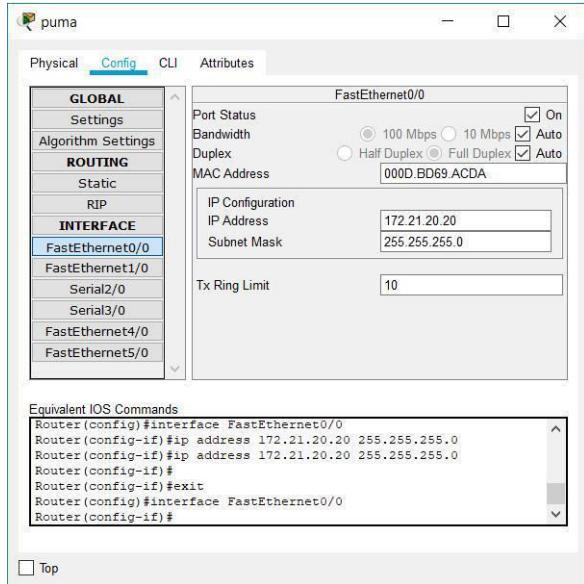


2. Konfigurasi masing-masing interface pada tiap router dengan alamat IP berikut :

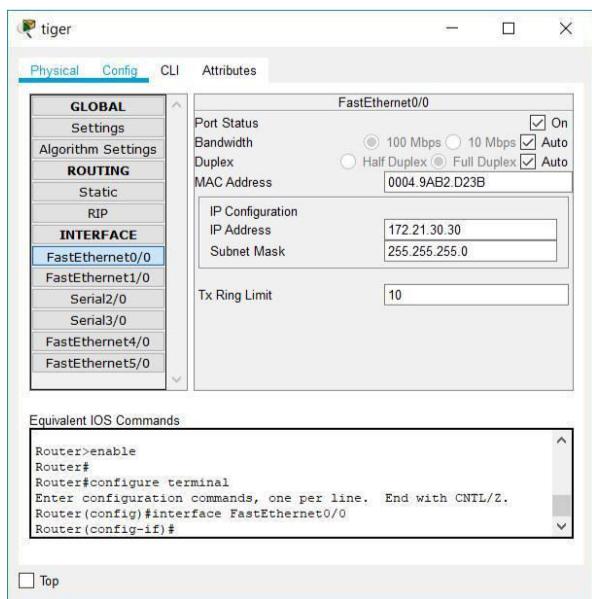
- eagle



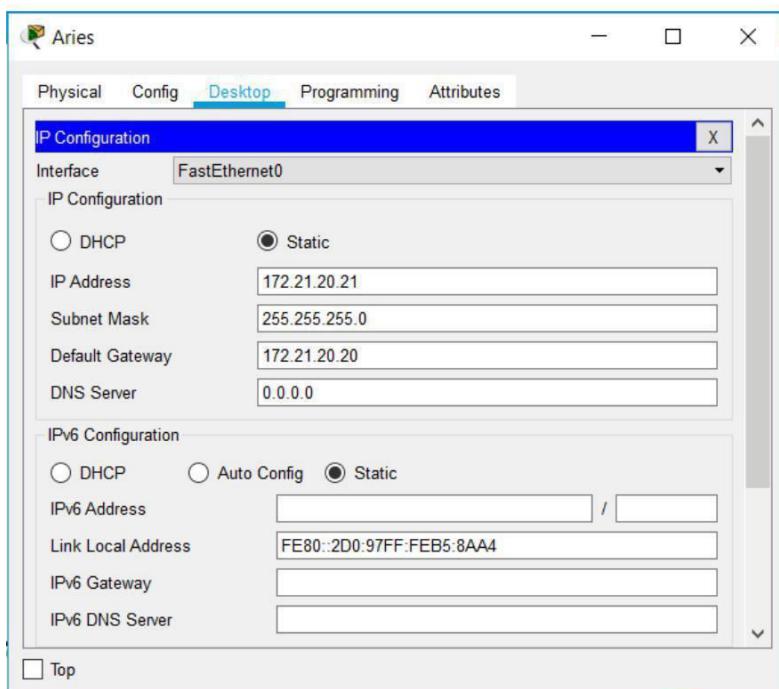
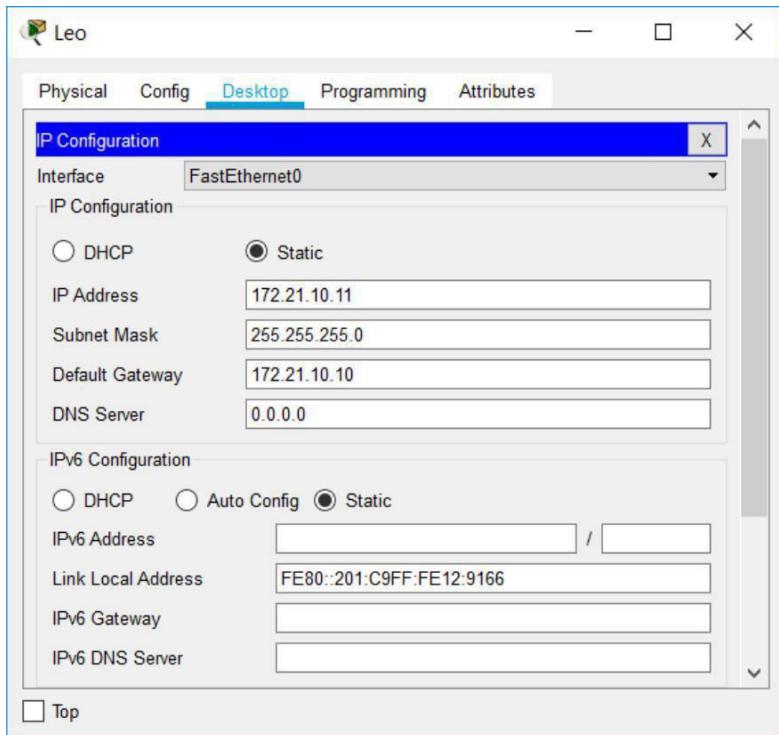
- puma

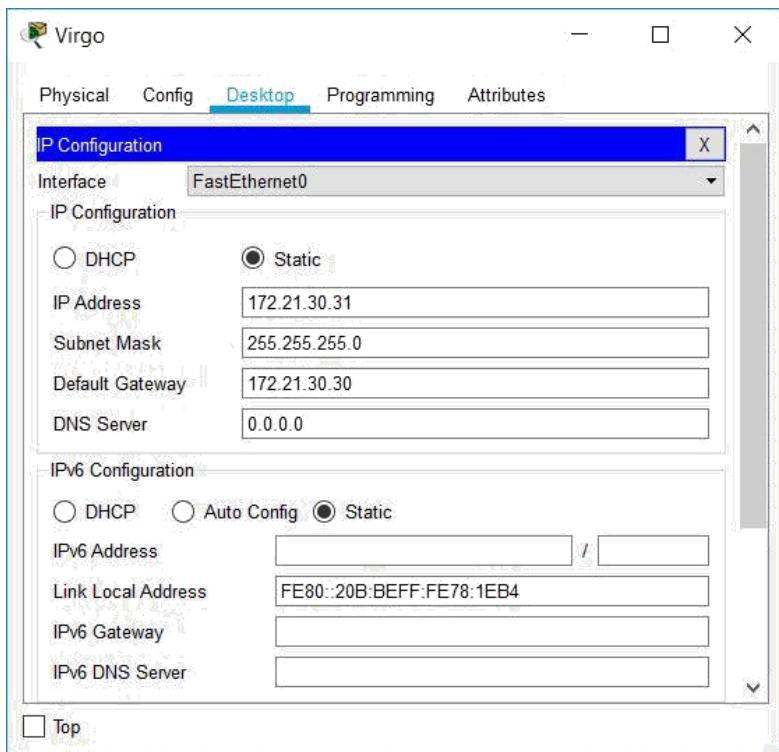


- tiger



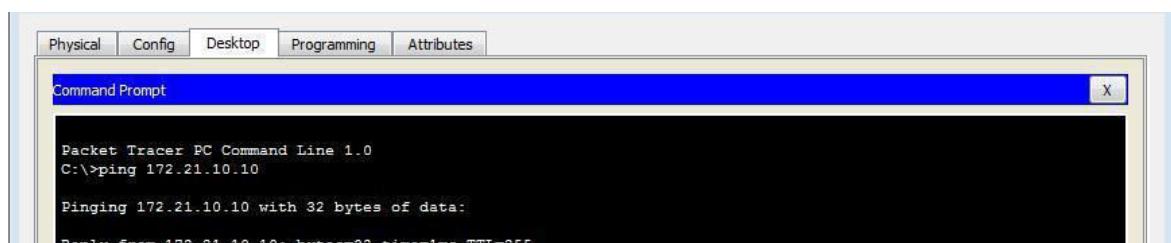
3. konfigurasi masing-masing PC dengan nama dan alamat IP berikut :



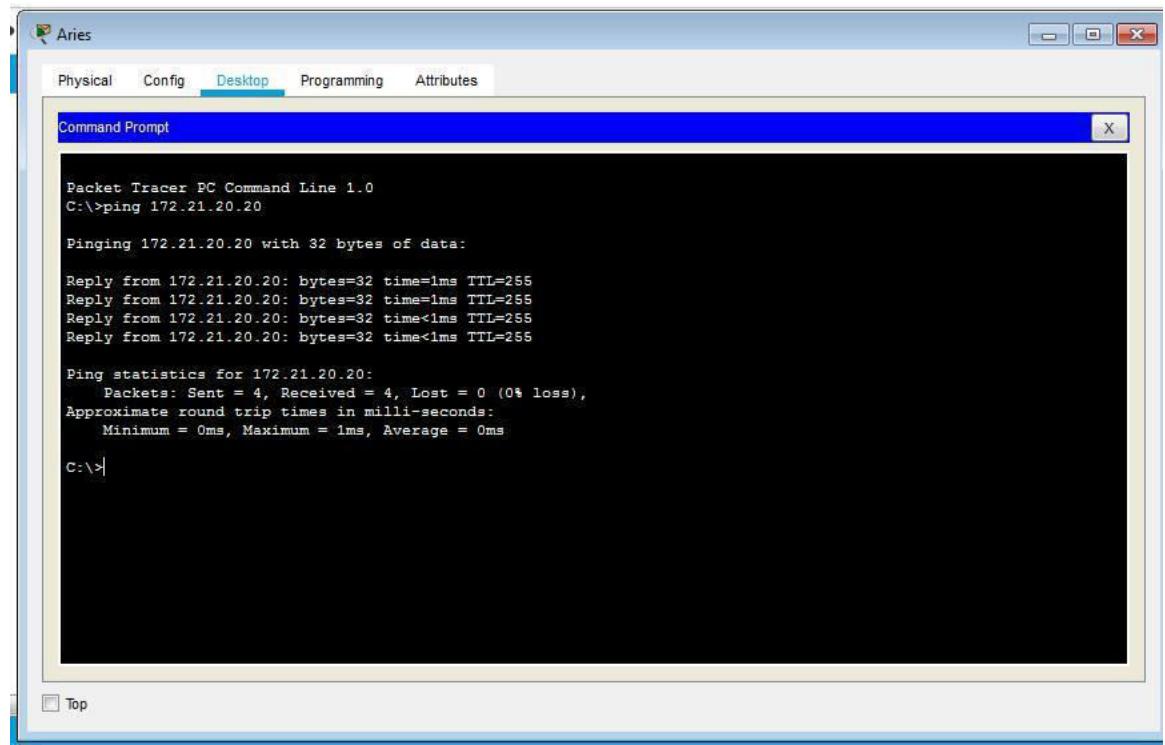


4. Pengujian :

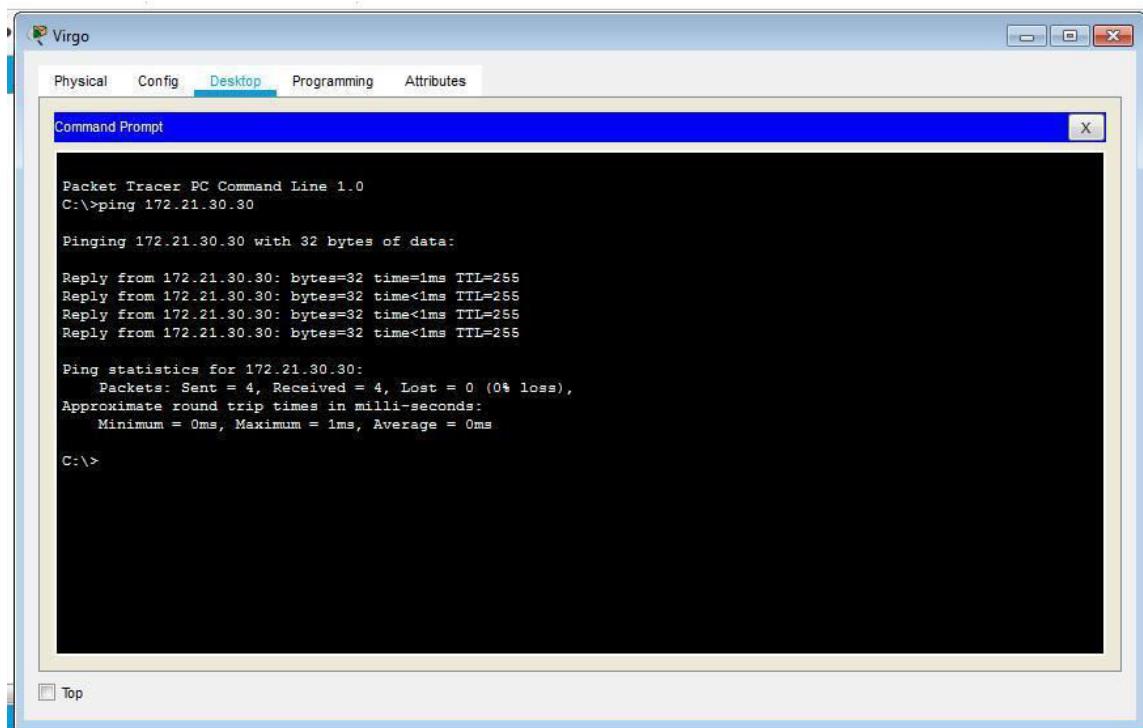
- ping PC Leo ke router eagle



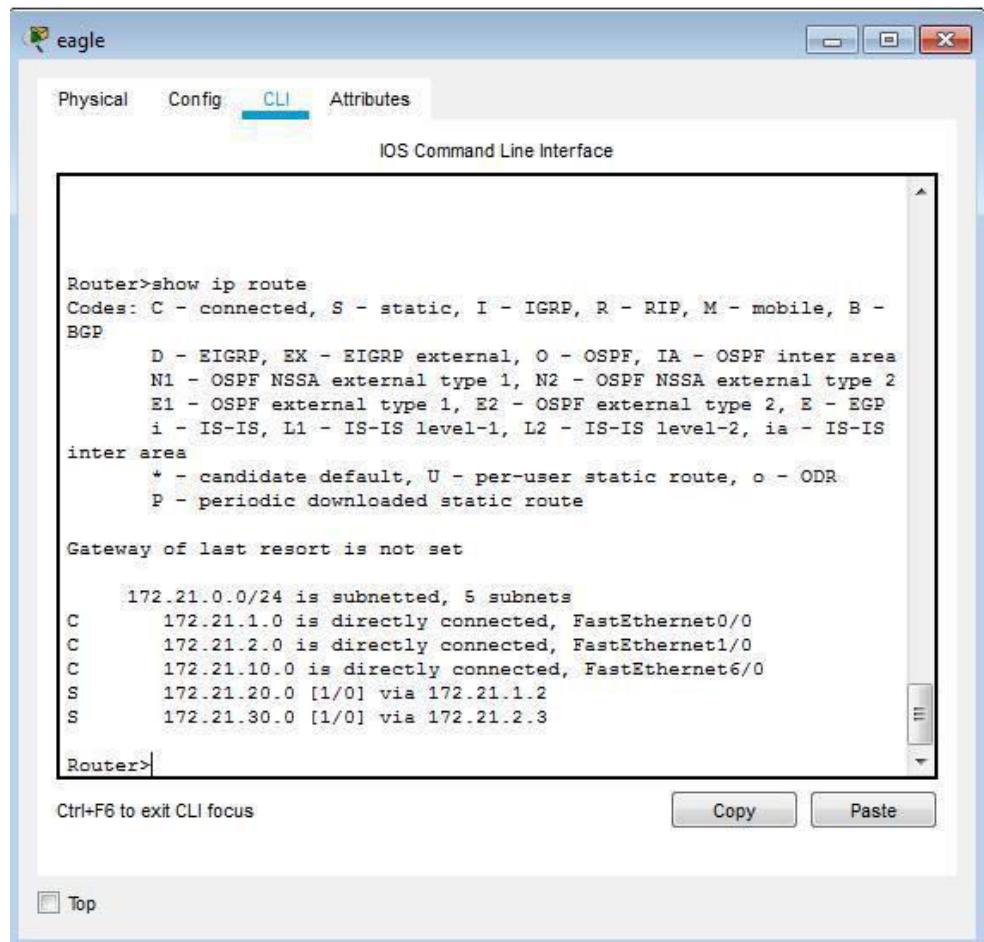
- ping PC Aries ke router puma



- ping PC Virgo ke router tiger



5. Pada mode user atau mode privileged lihat route table pada masing-masing router - Eagle



The screenshot shows the Cisco Eagle software interface with the 'eagle' window open. The 'CLI' tab is selected, displaying the IOS Command Line Interface. The command entered is 'Router>show ip route'. The output shows the following route table:

```
Router>show ip route
Codes: C - connected, S - static, I - IGRP, 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

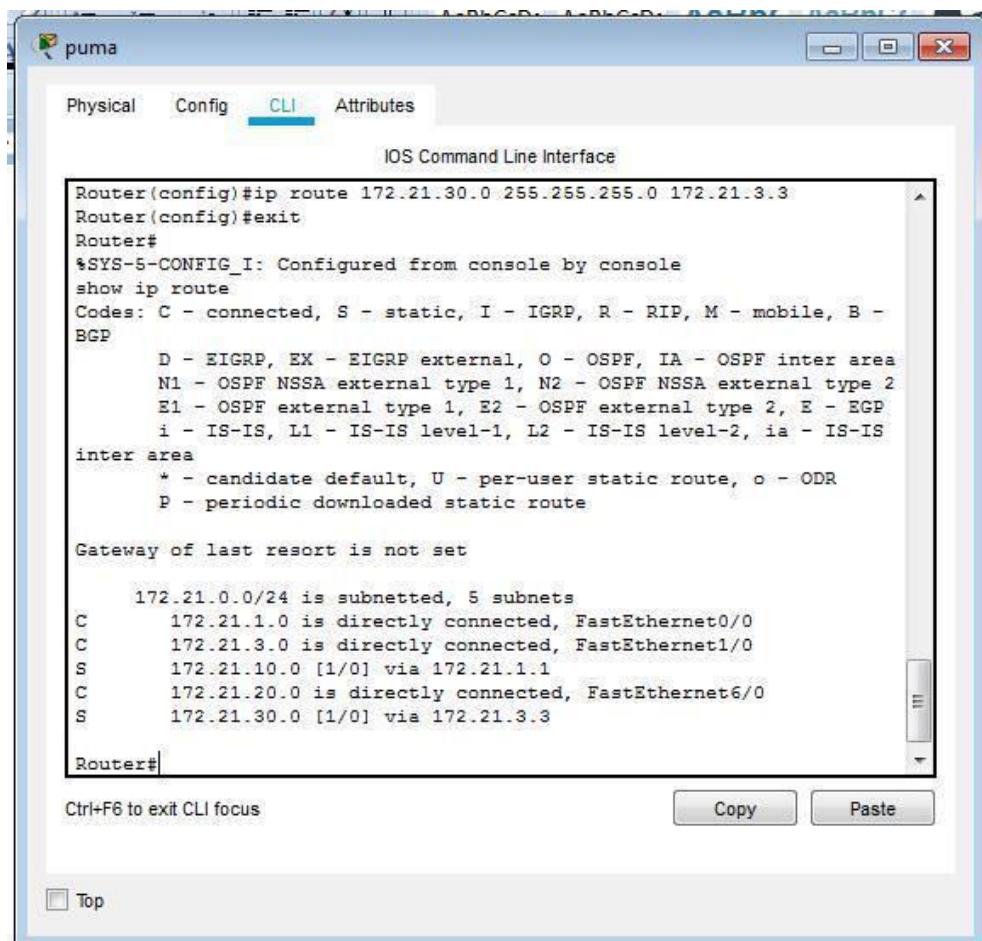
Gateway of last resort is not set

      172.21.0.0/24 is subnetted, 5 subnets
C        172.21.1.0 is directly connected, FastEthernet0/0
C        172.21.2.0 is directly connected, FastEthernet1/0
C        172.21.10.0 is directly connected, FastEthernet6/0
S        172.21.20.0 [1/0] via 172.21.1.2
S        172.21.30.0 [1/0] via 172.21.2.3

Router>
```

At the bottom of the CLI window, there are buttons for 'Copy' and 'Paste'. Below the window, there is a status bar with the text 'Ctrl+F6 to exit CLI focus' and a 'Top' button.

- Puma



The screenshot shows the Puma software interface with the 'CLI' tab selected. The main window displays the IOS Command Line Interface (CLI) output. The output includes:

```
Router(config)#ip route 172.21.30.0 255.255.255.0 172.21.3.3
Router(config)#exit
Router#
%SYS-5-CONFIG_I: Configured from console by console
show ip route
Codes: C - connected, S - static, I - IGRP, 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

  172.21.0.0/24 is subnetted, 5 subnets
C        172.21.1.0 is directly connected, FastEthernet0/0
C        172.21.3.0 is directly connected, FastEthernet1/0
S        172.21.10.0 [1/0] via 172.21.1.1
C        172.21.20.0 is directly connected, FastEthernet6/0
S        172.21.30.0 [1/0] via 172.21.3.3

Router#
```

At the bottom left, there is a checkbox labeled 'Top'. At the bottom right, there are 'Copy' and 'Paste' buttons.

- Tiger

The screenshot shows a Windows application window titled "tiger". The window has a tab bar at the top with "Physical", "Config", "CLI" (which is selected), and "Attributes". Below the tabs is a title bar "IOS Command Line Interface". The main area contains the following text:

```
Router#
%SYS-5-CONFIG_I: Configured from console by console
show ip ro
Codes: C - connected, S - static, I - IGRP, 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

      172.21.0.0/24 is subnetted, 5 subnets
C        172.21.2.0 is directly connected, FastEthernet1/0
C        172.21.3.0 is directly connected, FastEthernet0/0
S        172.21.10.0 [1/0] via 172.21.2.1
S        172.21.20.0 [1/0] via 172.21.3.2
C        172.21.30.0 is directly connected, FastEthernet6/0

Router#
```

At the bottom left is the text "Ctrl+F6 to exit CLI focus". At the bottom right are "Copy" and "Paste" buttons. A checkbox labeled "Top" is located at the bottom left of the main window area.

6. Ping antara PC leo ke puma dan tiger

Physical Config Desktop Programming Attributes

Command Prompt

```
C:\>ping 172.21.30.31
Pinging 172.21.30.31 with 32 bytes of data:
Reply from 172.21.30.31: bytes=32 time<1ms TTL=126

Ping statistics for 172.21.30.31:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 172.21.20.21
Pinging 172.21.20.21 with 32 bytes of data:
Reply from 172.21.20.21: bytes=32 time<1ms TTL=126

Ping statistics for 172.21.20.21:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Ping antara pc aries ke eagle dan tiger

Physical Config Desktop Programming Attributes

Command Prompt

```
C:\>ping 172.21.10.11
Pinging 172.21.10.11 with 32 bytes of data:
Reply from 172.21.10.11: bytes=32 time<1ms TTL=126

Ping statistics for 172.21.10.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 172.21.30.31
Pinging 172.21.30.31 with 32 bytes of data:
Reply from 172.21.30.31: bytes=32 time<1ms TTL=126
Reply from 172.21.30.31: bytes=32 time<1ms TTL=126
```

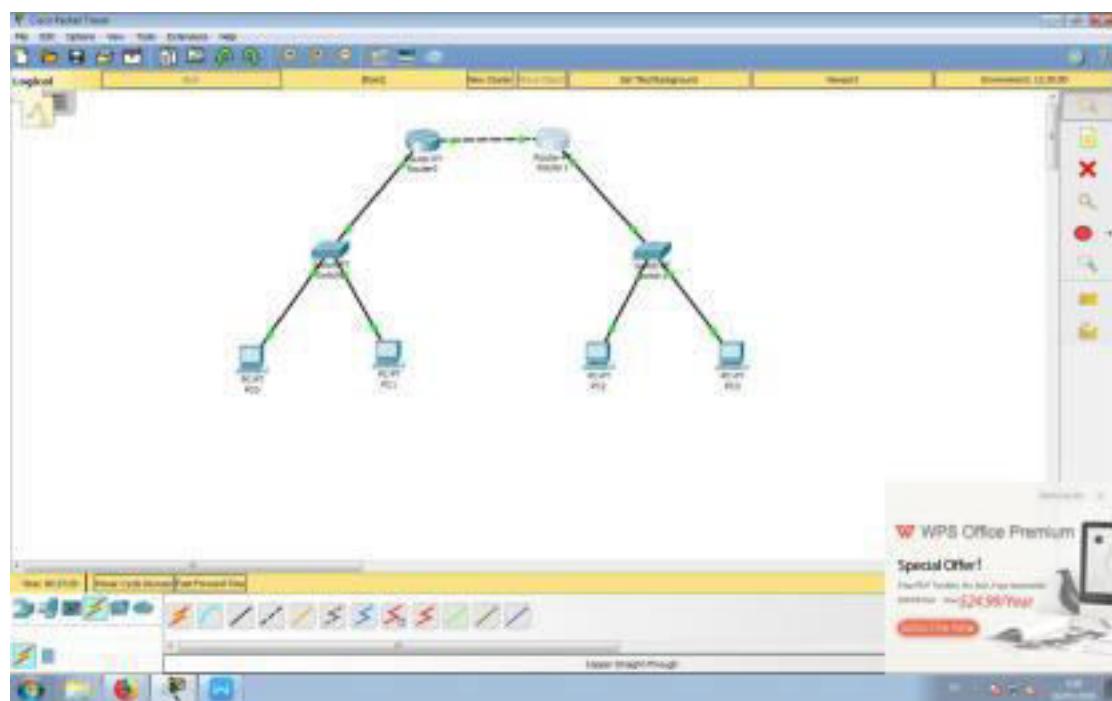
Ping antara pc virgo ke eagle dan puma

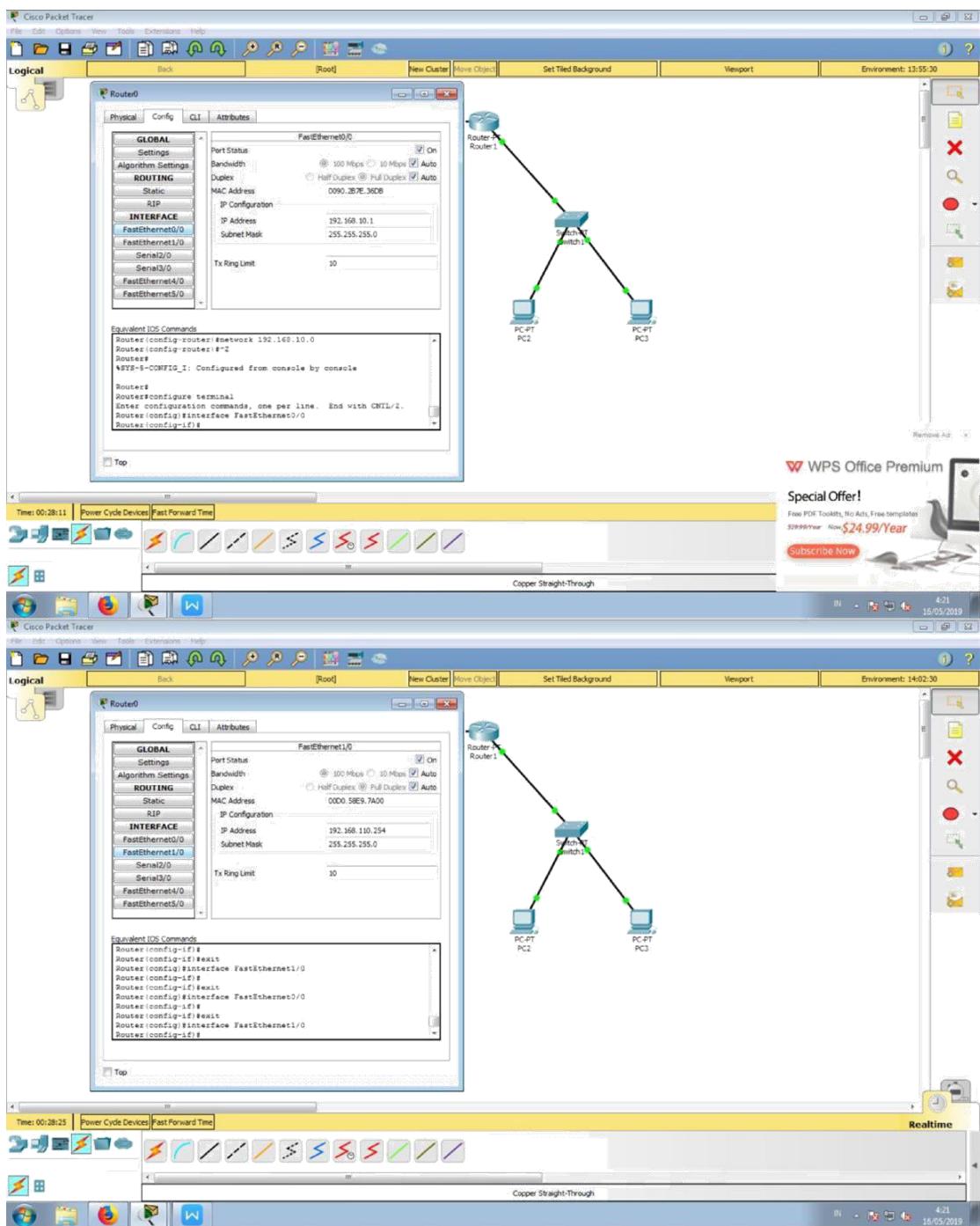
Nama : Muhammad ihsan nuralam

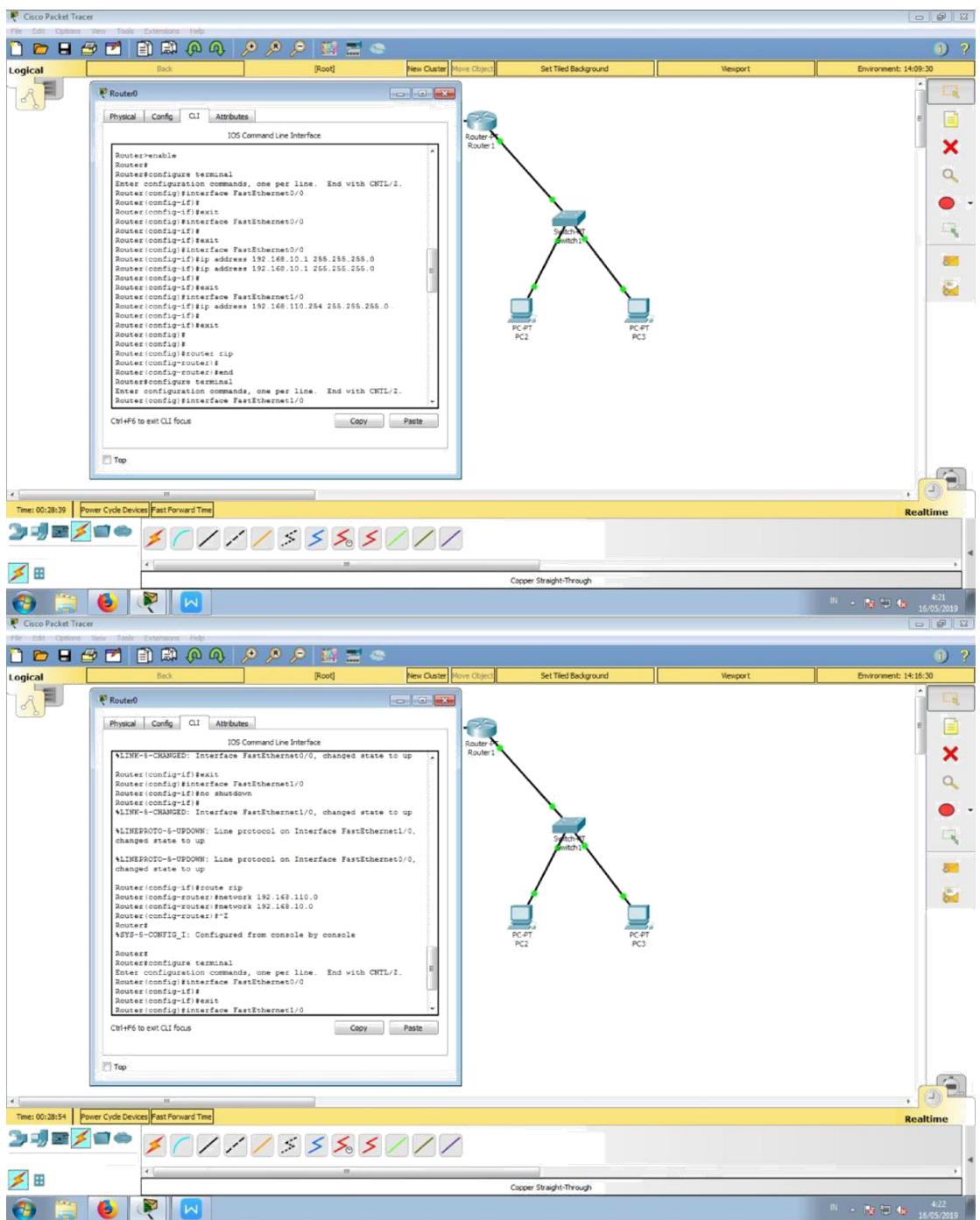
NIM : L200170008

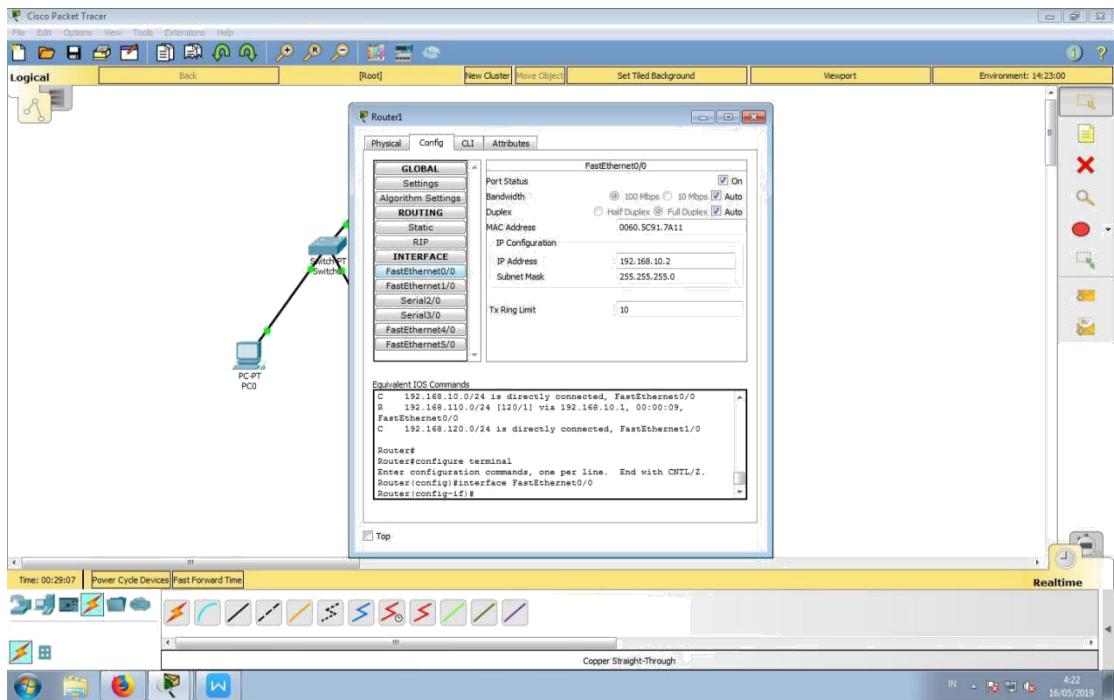
Kelas : A

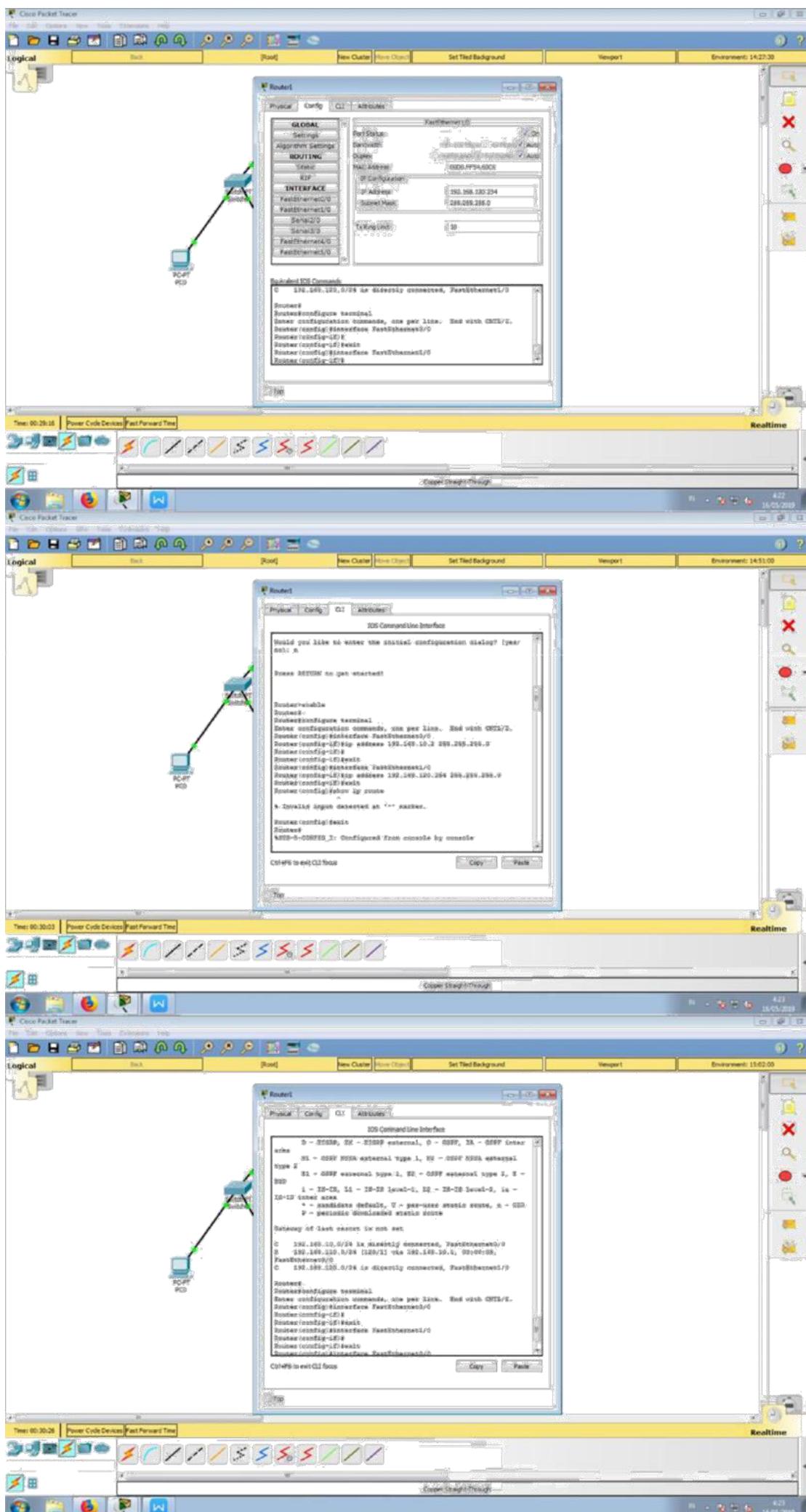
MODUL 8

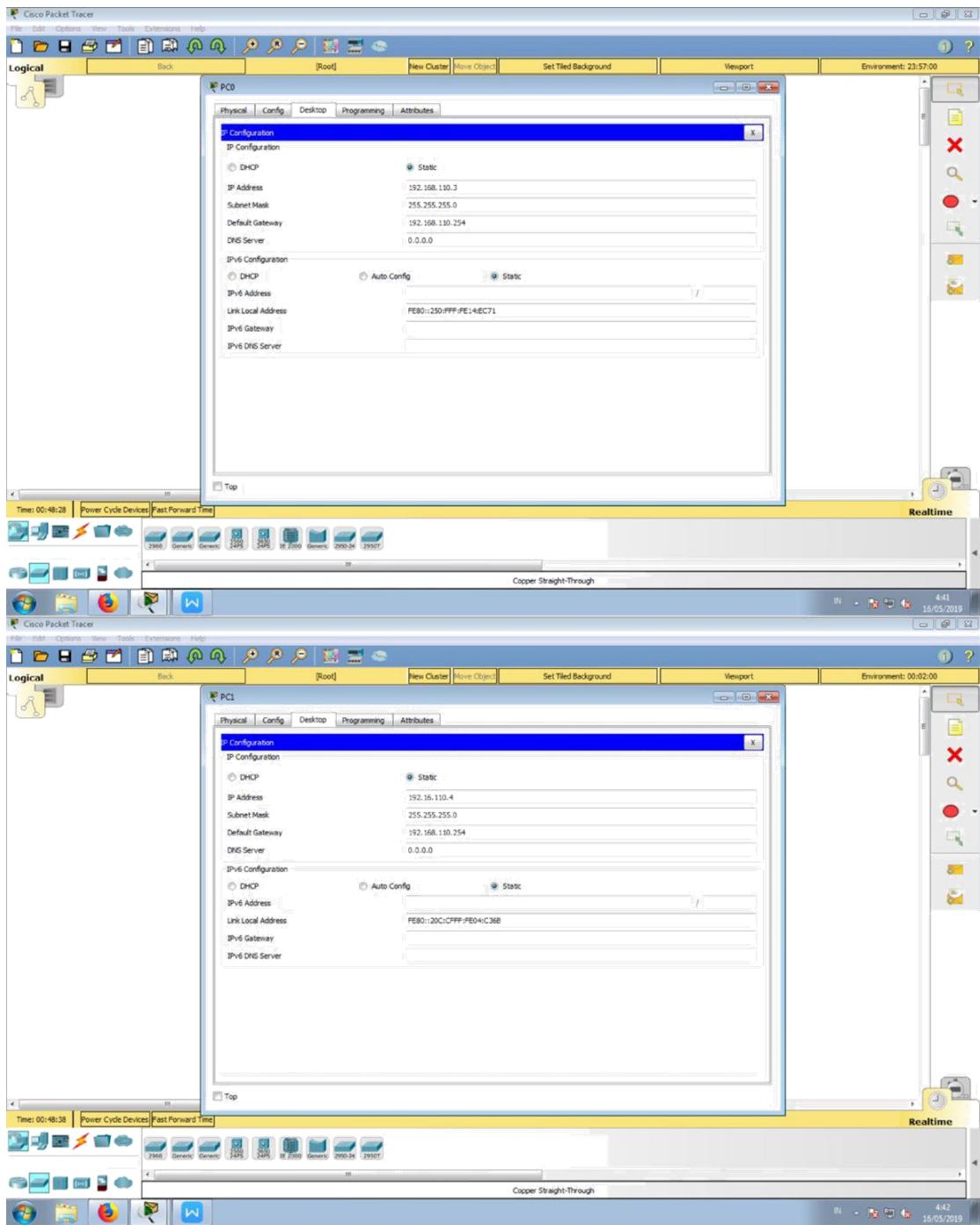


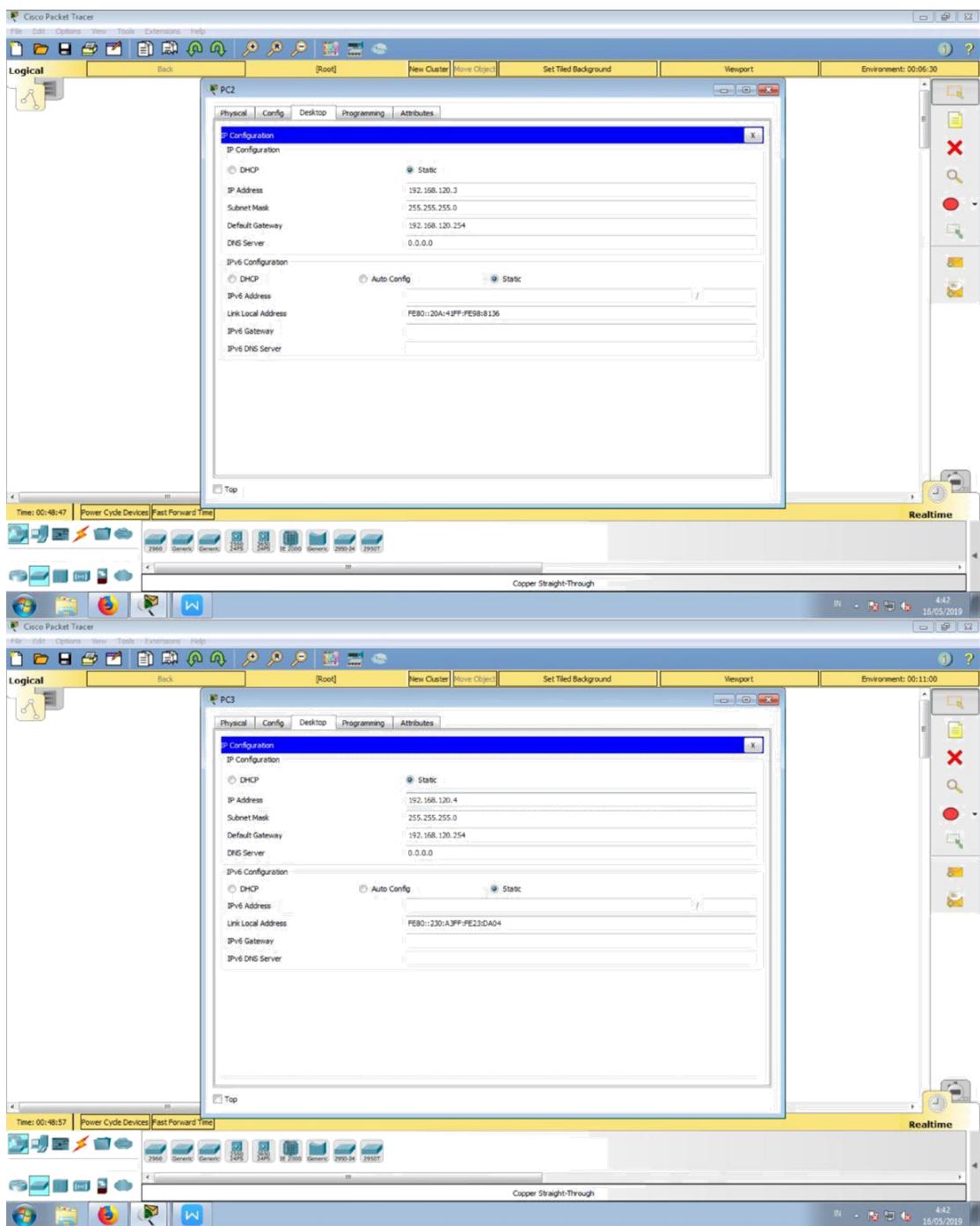


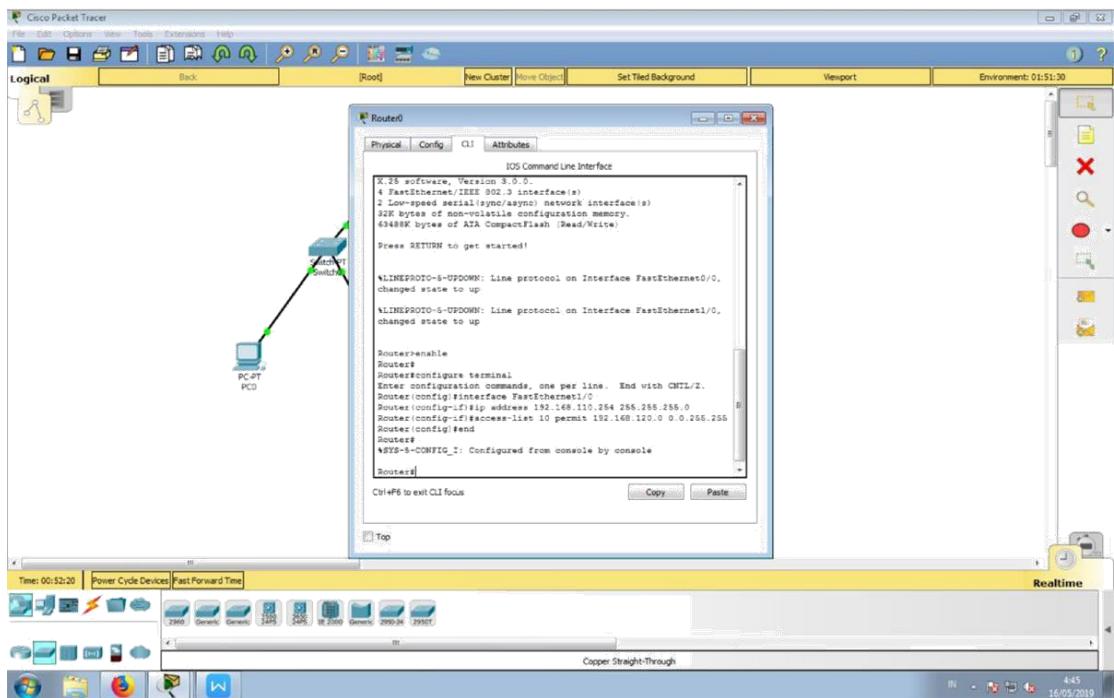
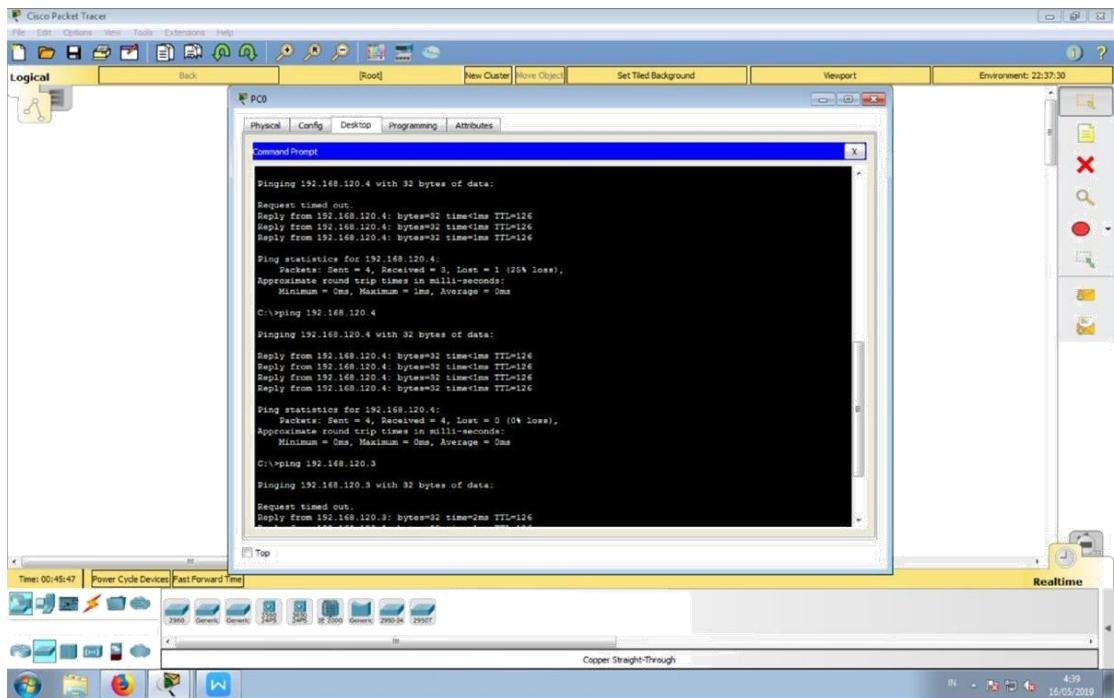


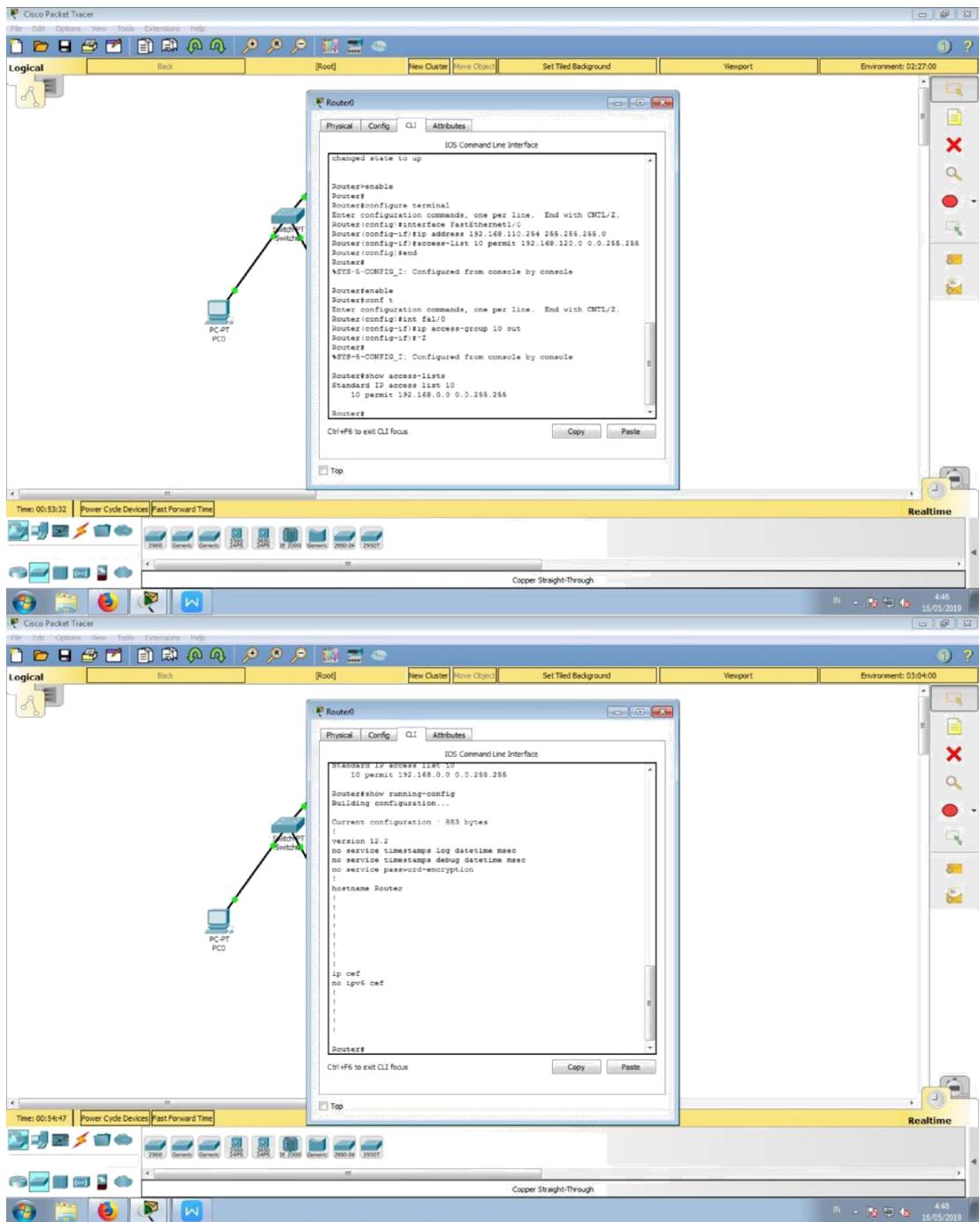




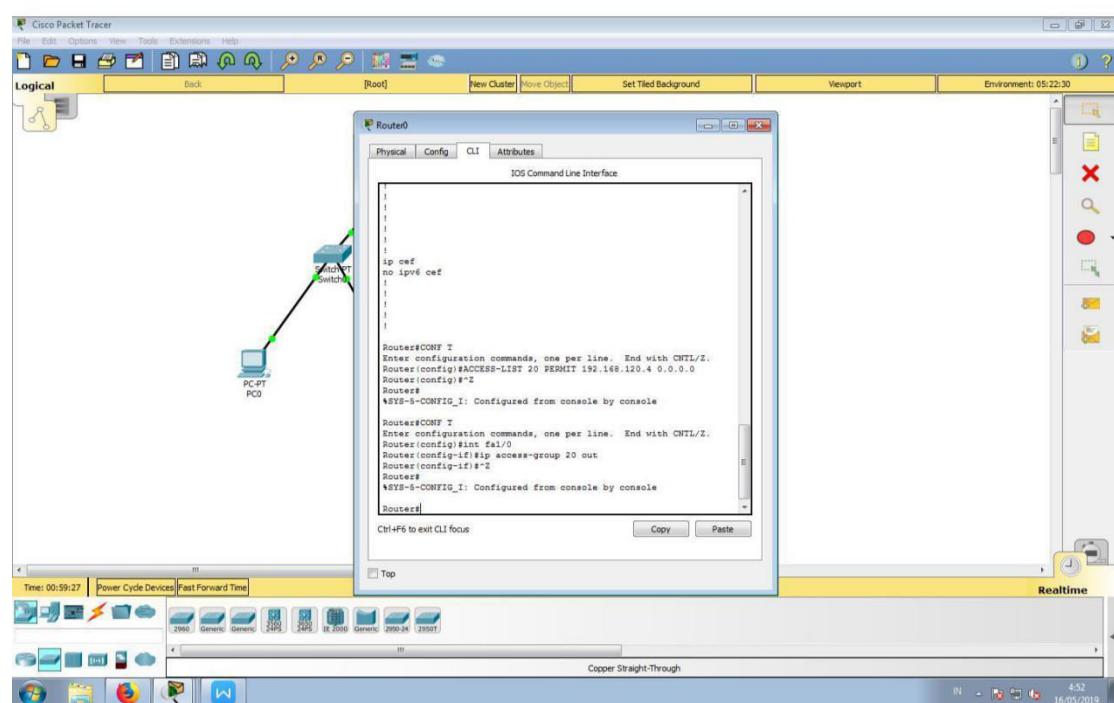
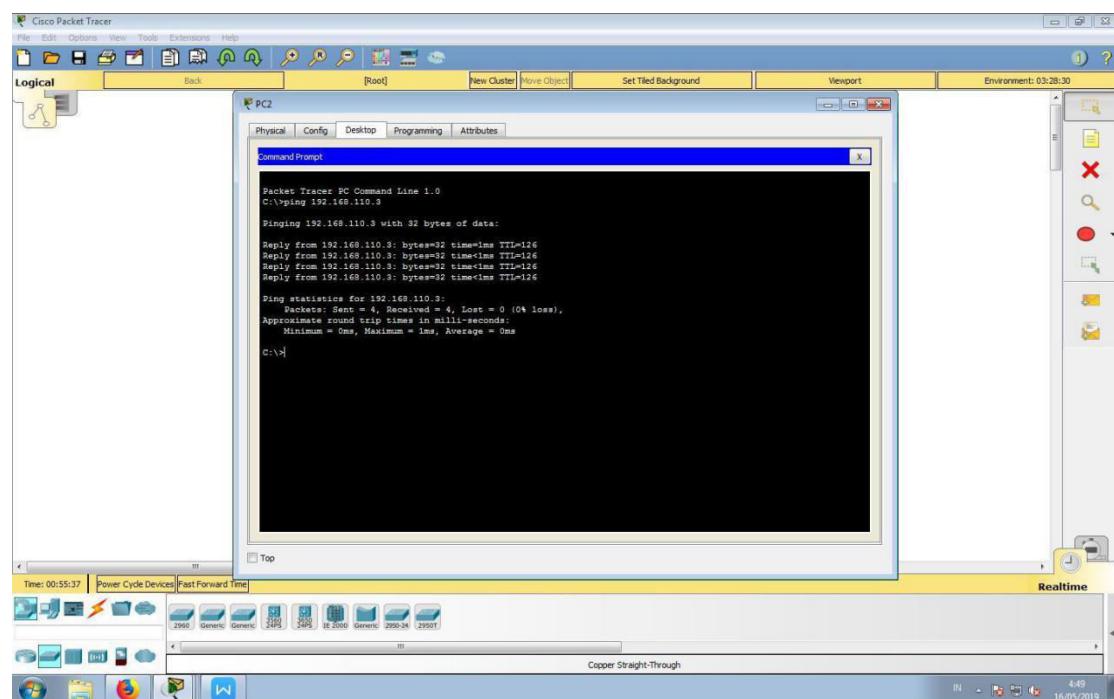




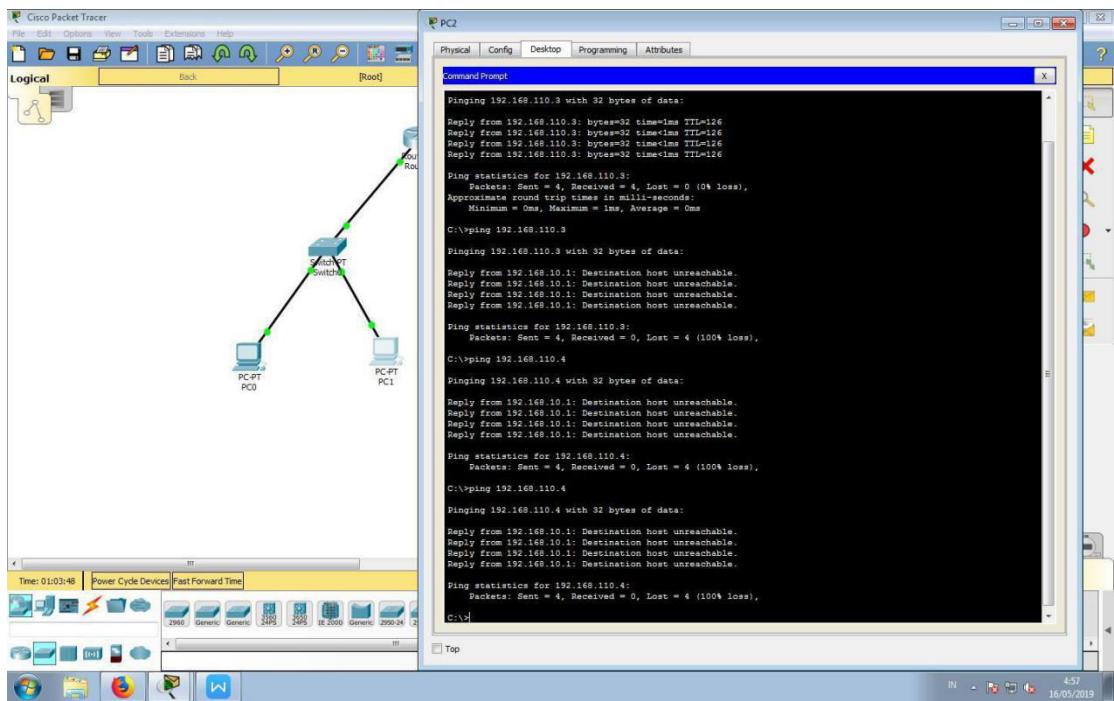




PING PC3 KE PC 1



PC3



PC4

Nama : muhammad ihsan nuralam

NIM : L200170008

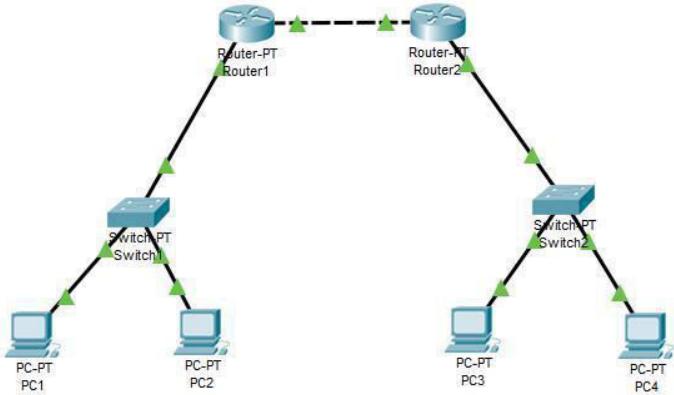
Kelas : A

Modul : 8

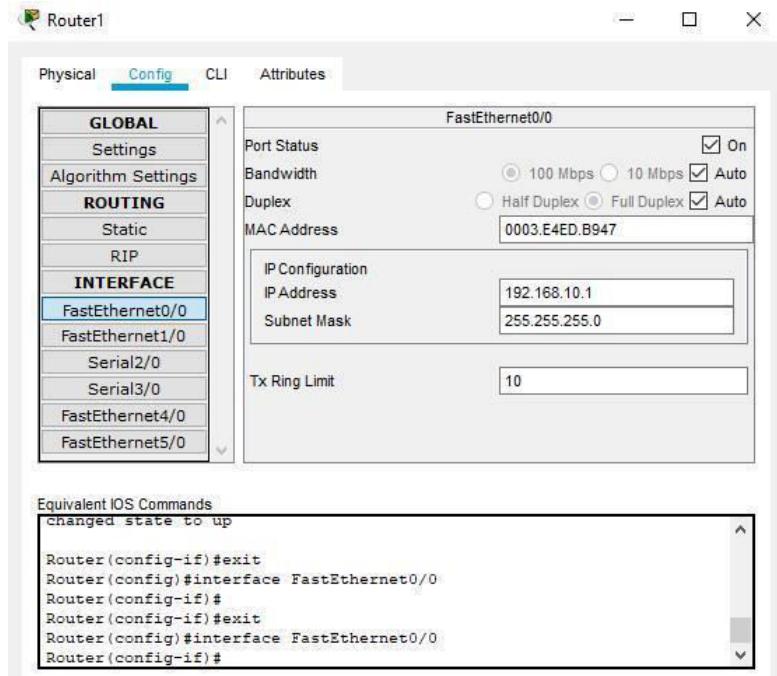
MODUL 8

Kegiatan 1.Konfigurasi Access List

1. Membuat desain topologi jaringan



- Memberikan IP Address untuk setiap router, masing masing di fa 0/0 dan fa 1/0 sesuai dengan di modul. Berikut contoh pada fa 0/0 di Router 1

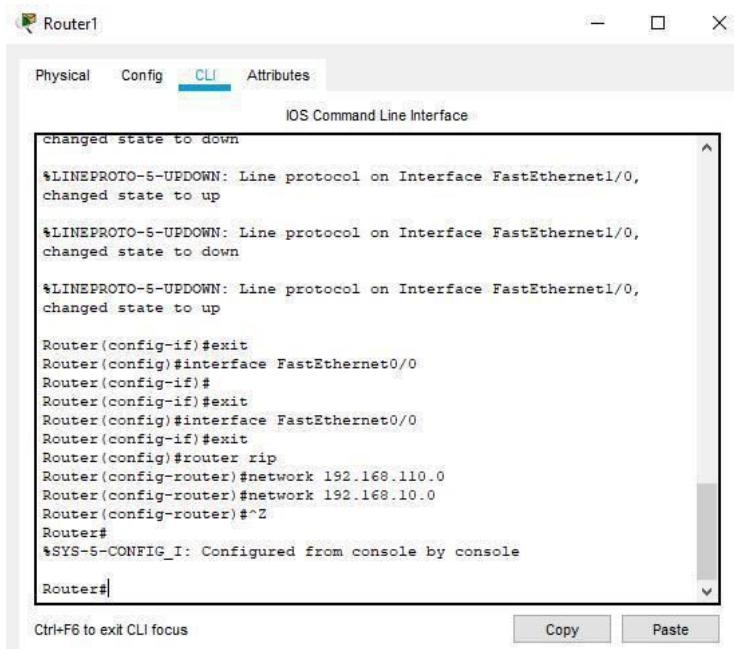


3. Memberikan IP Address untuk setiap PC

The image displays four separate windows, each titled with a computer icon and a label (PC1, PC2, PC3, or PC4). Each window shows a network configuration interface with tabs for Physical, Config, Desktop, Programming, and Attributes. The Desktop tab is selected in all cases. The configuration for each PC is as follows:

- PC1:** IP Address: 192.168.110.3, Subnet Mask: 255.255.255.0, Default Gateway: 192.168.110.254, DNS Server: 0.0.0.0.
- PC2:** IP Address: 192.168.110.4, Subnet Mask: 255.255.255.0, Default Gateway: 192.168.110.254, DNS Server: 0.0.0.0.
- PC3:** IP Address: 192.168.120.3, Subnet Mask: 255.255.255.0, Default Gateway: 192.168.120.254, DNS Server: 0.0.0.0.
- PC4:** IP Address: 192.168.120.4, Subnet Mask: 255.255.255.0, Default Gateway: 192.168.120.254, DNS Server: 0.0.0.0.

4. Melakukan routing dengan protocol RIP pada kedua jaringan



The screenshot shows a Cisco Router's Command Line Interface (CLI) window titled "Router1". The window has tabs for "Physical", "Config", "CLI" (which is selected), and "Attributes". The main area displays the IOS Command Line Interface. The user has entered the following commands to enable RIP on two interfaces:

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

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

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

Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet0/0
Router(config-if)#exit
Router(config)#router rip
Router(config-router)#network 192.168.110.0
Router(config-router)#network 192.168.10.0
Router(config-router)#^Z
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#
```

At the bottom of the window, there are "Copy" and "Paste" buttons.

Router2

Physical Config **CLI** Attributes

IOS Command Line Interface

```
Router>
Router>conf term
^
% Invalid input detected at '^' marker.

Router>en
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#router rip
Router(config-router)#network 192.168.120.0
Router(config-router)#network 192.168.10.0
Router(config-router)#{Z
Router#
%SYS-5-CONFIG_I: Configured from console by console
Router#
```

Ctrl+F6 to exit CLI focus Copy Paste

5. Untuk mengetest routing berhasil, ping PC1 ke PC4

PC1

Physical Config **Desktop** Programming Attributes

Command Prompt

```
C:\>ping 192.168.120.4

Pinging 192.168.120.4 with 32 bytes of data:
Reply from 192.168.120.4: bytes=32 time<1ms TTL=126
Reply from 192.168.120.4: bytes=32 time=11ms TTL=126
Reply from 192.168.120.4: bytes=32 time=12ms TTL=126
Reply from 192.168.120.4: bytes=32 time=13ms TTL=126

Ping statistics for 192.168.120.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 13ms, Average = 9ms
```

6. Cara memblokir akses

```
Router(config-router)#network 192.168.10.0
Router(config-router)#^Z
Router#
*SYS-5-CONFIG_I: Configured from console by console

Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#access-list 20 deny permit 192.168.120.4 0.0.0.0
^
* Invalid input detected at '^' marker.

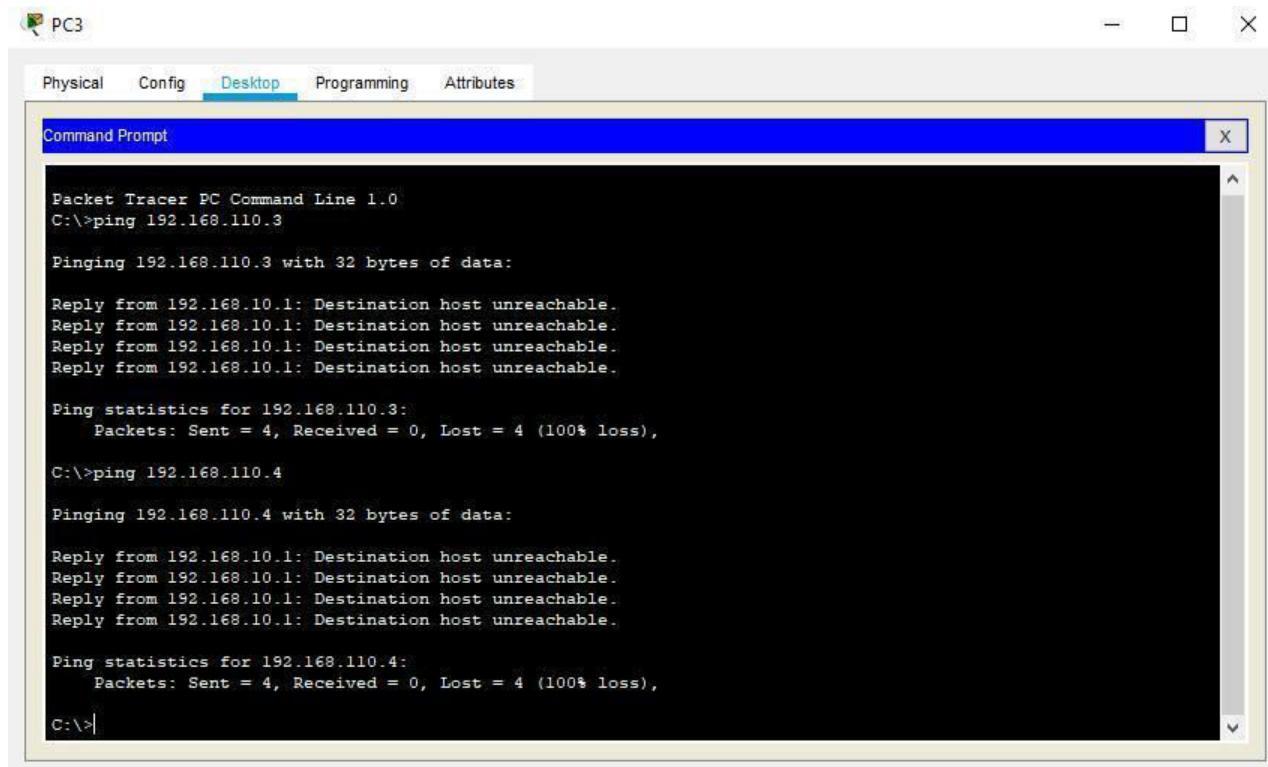
Router(config)#access-list 20 deny 192.168.120.4 0.0.0.0
Router(config)#^Z
Router#
*SYS-5-CONFIG_I: Configured from console by console

Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int fa 1/0
Router(config-if)#ip access-group 20 out
Router(config-if)#^Z
Router#
*SYS-5-CONFIG_I: Configured from console by console

Router#
```

Ctrl+F6 to exit CLI focus

7. Tes koneksi dari PC3 ke PC1 dan PC2



The screenshot shows a Windows Command Prompt window titled "Command Prompt". The window has a blue header bar with tabs: Physical, Config, Desktop, Programming, and Attributes. The "Desktop" tab is currently selected. The main area of the window displays the output of a "ping" command. The user has entered "C:\>ping 192.168.110.3" and "C:\>ping 192.168.110.4". Both commands result in "Destination host unreachable" messages for all four attempts, indicating network connectivity issues between PC3 and the other hosts.

```
Packet Tracer PC Command Line 1.0
C:\>ping 192.168.110.3

Pinging 192.168.110.3 with 32 bytes of data:

Reply from 192.168.10.1: Destination host unreachable.

Ping statistics for 192.168.110.3:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\>ping 192.168.110.4

Pinging 192.168.110.4 with 32 bytes of data:

Reply from 192.168.10.1: Destination host unreachable.

Ping statistics for 192.168.110.4:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\>
```

Destination host unreachable menunjukkan bahwa akses dari PC3 ke PC1 maupun PC2 sudah ter blokir

8. Tes koneksi dari PC4 ke PC1 dan PC2

The screenshot shows a network configuration interface for a device named 'PC4'. At the top, there are tabs for 'Physical', 'Config', 'Desktop' (which is selected), 'Programming', and 'Attributes'. Below this is a 'Command Prompt' window with the following output:

```
Packet Tracer PC Command Line 1.0
C:\>ping 192.168.110.3

Pinging 192.168.110.3 with 32 bytes of data:

Reply from 192.168.10.1: Destination host unreachable.

Ping statistics for 192.168.110.3:
  Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\>ping 192.168.110.4

Pinging 192.168.110.4 with 32 bytes of data:

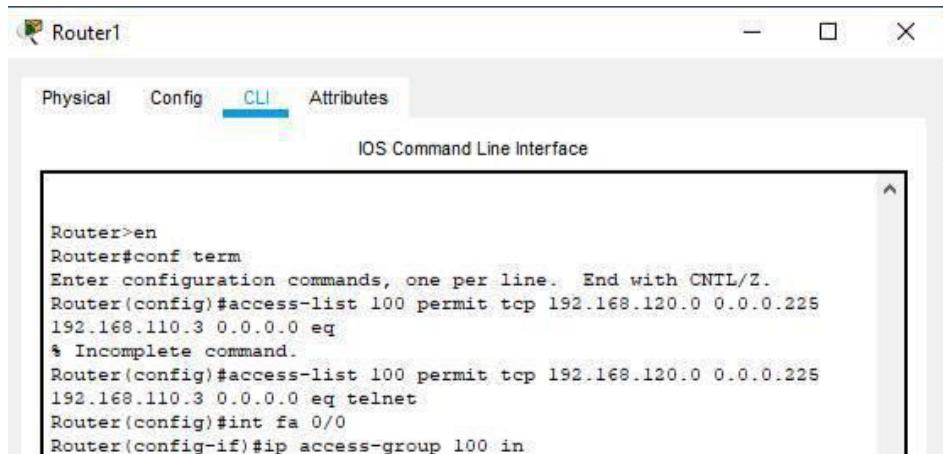
Reply from 192.168.10.1: Destination host unreachable.

Ping statistics for 192.168.110.4:
  Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\>
```

Destination host unreachable menunjukkan bahwa akses dari PC4 ke PC1 maupun PC2 sudah terblokir

Kegiatan 2. Kegiatan Extended Access List

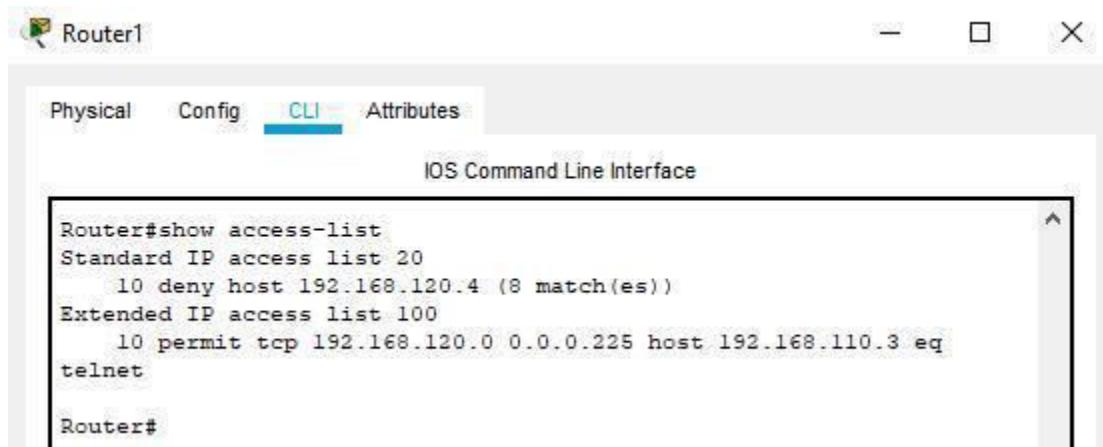
1. Konfigurasi mengizinkan paket telnet dari semua host yang ada di jaringan 192.168.120 ke host 192.168.110.3



The screenshot shows the Cisco Configuration Constructor interface for a device named 'Router1'. The 'CLI' tab is selected. The configuration window displays the following commands:

```
Router>en
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#access-list 100 permit tcp 192.168.120.0 0.0.0.225
192.168.110.3 0.0.0.0 eq
* Incomplete command.
Router(config)#access-list 100 permit tcp 192.168.120.0 0.0.0.225
192.168.110.3 0.0.0.0 eq telnet
Router(config)#int fa 0/0
Router(config-if)#ip access-group 100 in
```

2. Melihat hasil konfigurasi



The screenshot shows the Cisco Configuration Constructor interface for the same 'Router1' device. The 'CLI' tab is selected. The configuration window displays the output of the 'show access-list' command:

```
Router#show access-list
Standard IP access list 20
  10 deny host 192.168.120.4 (8 match(es))
Extended IP access list 100
  10 permit tcp 192.168.120.0 0.0.0.225 host 192.168.110.3 eq
telnet

Router#
```

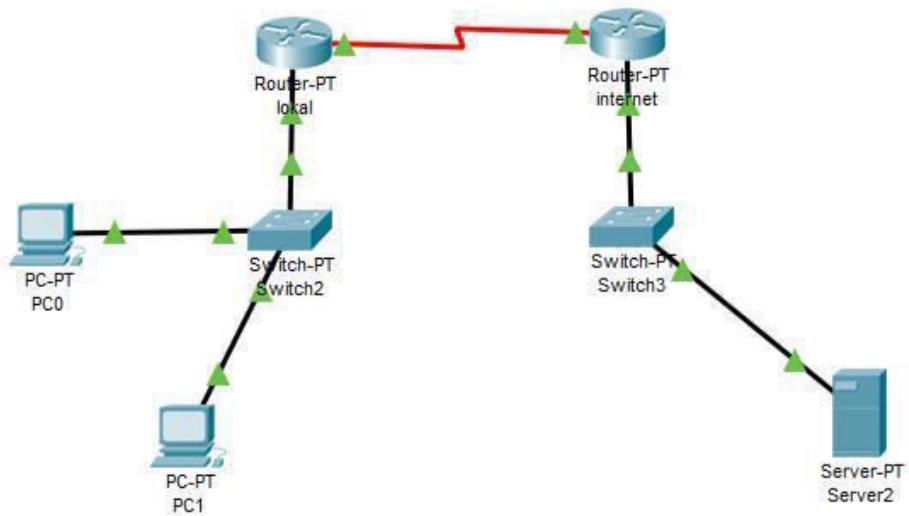
Nama : muhammad ihsan nuralam

NIM : L200170008

Kelas : A

Kegiatan Praktikum

1. Buat topologi jaringan



Ubah router 1 menjadi router local, dan router 2 menjadi router internet, dalam topologi gambar 9.5 tersebut, yang akan dikonfigurasikan fungsi MATnya adalah jaringan yang terhubung antara router internet dan web server. Mekanismenya adalah, membut jaringan webserver tersebut tidak dapat diketahui IP Privatenya, namun masih dapat diakses melalui jaringan di luar router internet melalui IP Publik. Pembagian network ID adalah sebagai berikut :

- ✓ Koneksi router local - router internet adalah 20.0.0.0
- ✓ Koneksi router local - pc local adalah 30.0.0.0
- ✓ Koneksi router internet ke web server adalah 10.0.0.0

- ✓ IP NAT untuk private network 10.0.0.0 > 20.0.0.2 (web server) ditranslasi menjadi 50.0.0.1

Hubungkan kedua router tersebut, koneksi antara router local dengan router internet menggunakan kabel serial 2/0 untuk router local diset sebagai perangkat DCE, sehingga nanti diperlukan konfigurasi clock rate pada port serial 2/0 yang terhubung dengan router internet. Sedangkan koneksi antara kedua router dengan masing - masing client menggunakan port **Ethernet 0**. Pengalaman IP pada masing

- masing port menggunakan alamat IP statis dengan subnet /24 atau 255.255.255.0. Kebutuhan IP akan dijabarkan pada langkah berikutnya.

2. Catat kebutuhan IP Address

Catat kebutuhan alamat IP dan sesuaikan seperti pada tabel dibawah ini :

Device	Interface	IP	Keterangan
Router - Internet	Serial 0	20.0.0.2	Koneksi ke Router - Local
	Ethernet 0	10.0.0.1	Koneksi ke WEb Server
Router - Lokal	Serial 0	20.0.0.1	Koneksi ke Router - Internet
	Ethernet 0	30.0.0.1	Koneksi ke PC lokal
Web Server	Ethernet 0	10.0.0.2	Koneksi ke Router - Internet

PC - Lokal	Ethernet 0	30.0.0.2	Koneksi ke Router - Lokal
------------	------------	----------	---------------------------

3. Konfigurasikan Router Internet

Setelah kebutuhan IP dialokasikan, urutan langkah berikutnya sebagai berikut:

- ✓ Mengonfigurasikan router Internet
- ✓ Merubah nama hostname
- ✓ Konfigurasi IP untuk serial 0 dan Ethernet 0
- ✓ Mengaktifkan routing tabel agar router mengenali network 30.0.0.0
Mengaktifkan NAT Source Static untuk IP 10.0 .0.2(milik web server) pada jaringan
10.0.0.0 agar ditranslasikan menjadi 50.0.0.1

- ✓ Mengaktifkan NAT inside untuk port Ethernet 0 dan NAT outside untuk serial 0

```

Router>enable
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip route 30.0.0.0 255.255.255.0 20.0.0.1
Router(config)#ip nat inside source static 10.0.0.2 50.0.0.1
Router(config)#interface fastethernet 0/0
Router(config-if)#ex
Router(config)#interface serial2/0
Router(config-if)#ip nat inside
Router(config-if)#ex
Router(config)#

```

Ctrl+F6 to exit CLI focus

Top

Copy Paste

4. Konfigurasikan Router Local

Sedangkan urutan untuk konfigurasi router lokal adalah sebagai berikut :

- ✓
- ✓ Mengkonfigurasikan port ethernet 0 (**interface Ethernet 0**) dan memberi IP mengaktifkan port Ethernet 0 (**no shutdown**) **30.0.0.1 255.0.0.0** kemudian
- ✓ Mengkonfigurasikan port serial 0 (**interface Serial 0**) dan memberikan IP (**ip address 20 .0.0.1 255.0.0.0**) kemudian mengaktifkan dengan perintah **no shutdown**
- ✓ Mengaktifkan clockrate (clock rate 64000) dan bandwith (bandwidth 64) proses ini masih berada dalam mode prompt interface(config-if)
- ✓ Memberikan tabel routing statis agar jaringan lokal dapat berhubungan dengan jaringan **20.0.0.2** internet dan web server dengan perintah (**ip route 50.0.0.0 255.0.0.0 30.0.0.1 subnet 255.0.0.0**)**(ipaddress**

```

Router>enable
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#ip route 50.0.0.0 255.255.255.0 20.0.0.2

```

5. Uji coba koneksi dari PC-Lokal ke Web-Server

Lakukan proses ping untuk menguji apakah konfigurasi NAT berhasil atau tidak.
Ping pertama lakukan dengan ping terhadap IP asli dari web server (10.0.0.2)

```
C:\>ping 10.0.0.2

Pinging 10.0.0.2 with 32 bytes of data:

Reply from 30.0.0.1: Destination host unreachable.
Reply from 30.0.0.1: Destination host unreachable.
Reply from 30.0.0.1: Destination host unreachable.
Request timed out.

Ping statistics for 10.0.0.2:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
C:\>
```

Top

Ping kedua dilakukan dengan ping terhadap IP Publik dari web server (50.0.0.1)

```
C:\>ping 50.0.0.1

Pinging 50.0.0.1 with 32 bytes of data:

Reply from 50.0.0.1: bytes=32 time=4ms TTL=126
Reply from 50.0.0.1: bytes=32 time=1ms TTL=126
Reply from 50.0.0.1: bytes=32 time=1ms TTL=126
Reply from 50.0.0.1: bytes=32 time=1ms TTL=126

Ping statistics for 50.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 4ms, Average = 1ms
C:\>
```

Top

Nama : Muhammad ihsan nuralam

NIM : L200170008

Kelas : A

MODUL 12

STUDI KASUS PERANCANGAN JARINGAN KOMPUTER

MELIPUTI PERANCANGAN HTTP SERVER DAN DNS SERVER

A. Tujuan

Mahasiswa mampu merancang dan mengkonfigurasikan DNS server dan HTTP server menggunakan Packet Tracer.

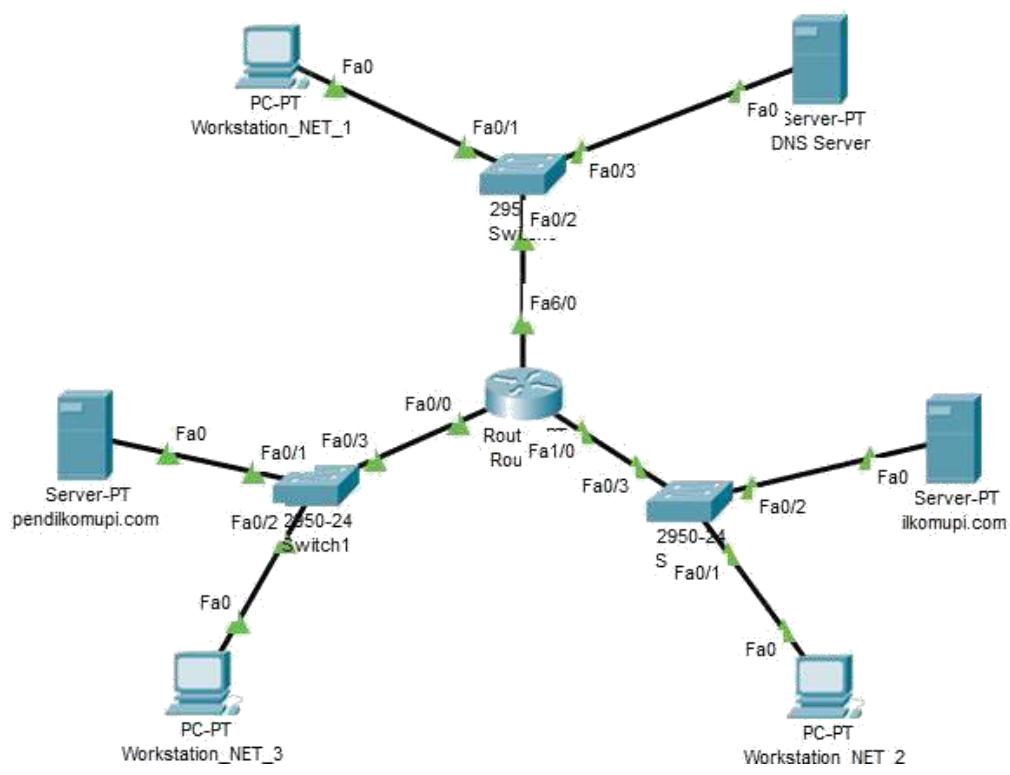
B. Pendahuluan

Perancangan jaringan komputer merupakan hal yang sangat penting dalam sebuah instansi yang sudah menerapkan sistem komputer dalam pengelolaannya.

Perancangan jaringan komputer harus sesuai dengan kebutuhan instansi terkait. Salah satu instansi yang banyak menerapkan jaringan komputer adalah di bidang pendidikan, terutama di Universitas. Biasanya Universitas menerapkan jaringan komputer untuk mengelola DNS server dan WEB server sendiri. Diharapkan dari praktikum ini mahasiswa dapat merancang DNS server dan HTTP server menggunakan Packet Tracer.

C. Analisa Kebutuhan Sistem

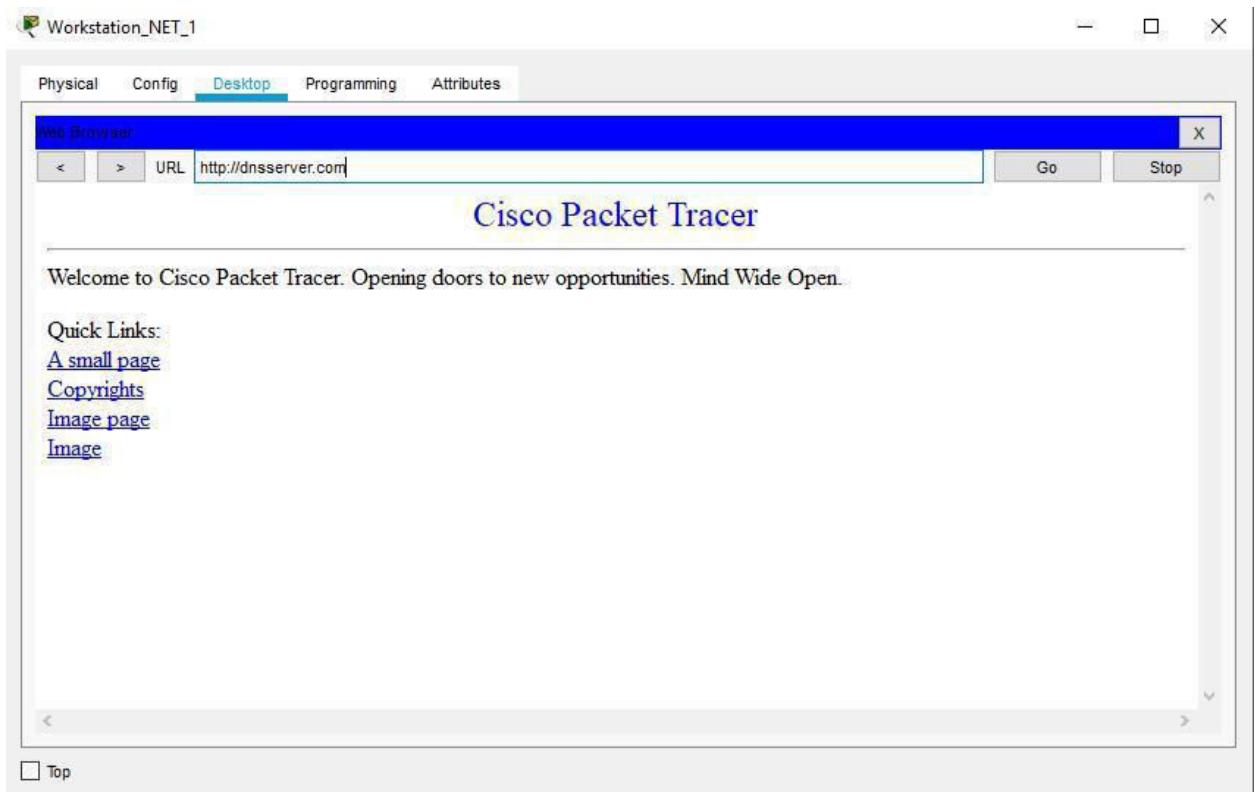
Coba buat interkoneksi antara 3 buah network yang terhubung pada sebuah router. Di network – 1 terdapat DNS Server dan 1 Workstation , di network – 2 terdapat HTTP Server (pada domain ilkomupi.com) dan 1 workstation, di network – 3 terdapat HTTP Server (pada domain pendilkomupi.com) dan 1 workstation. Lakukan konfigurasi sedemikian sehingga setiap workstation bisa mengakses layanan server-server yang ada pada tiga network tersebut. Ilustrasi pada gambar 28!



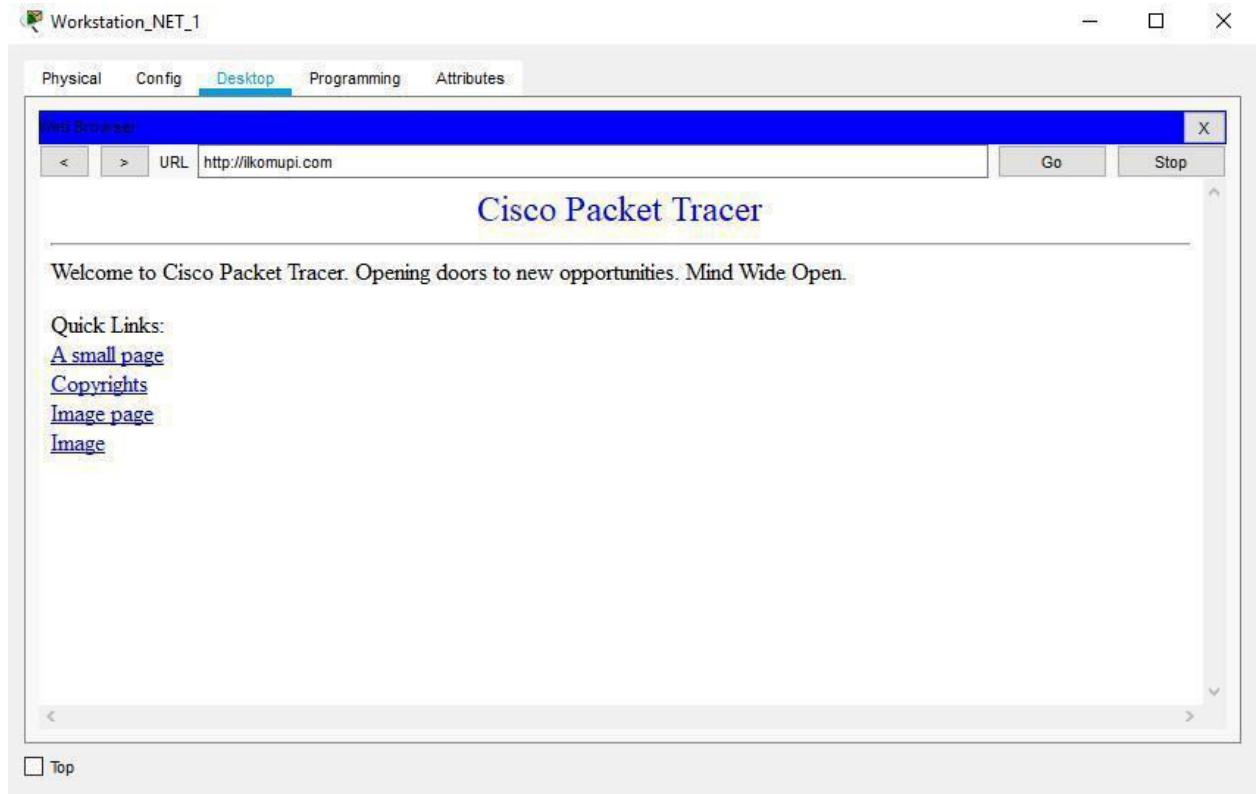
Konfigurasi pada DNS Server :



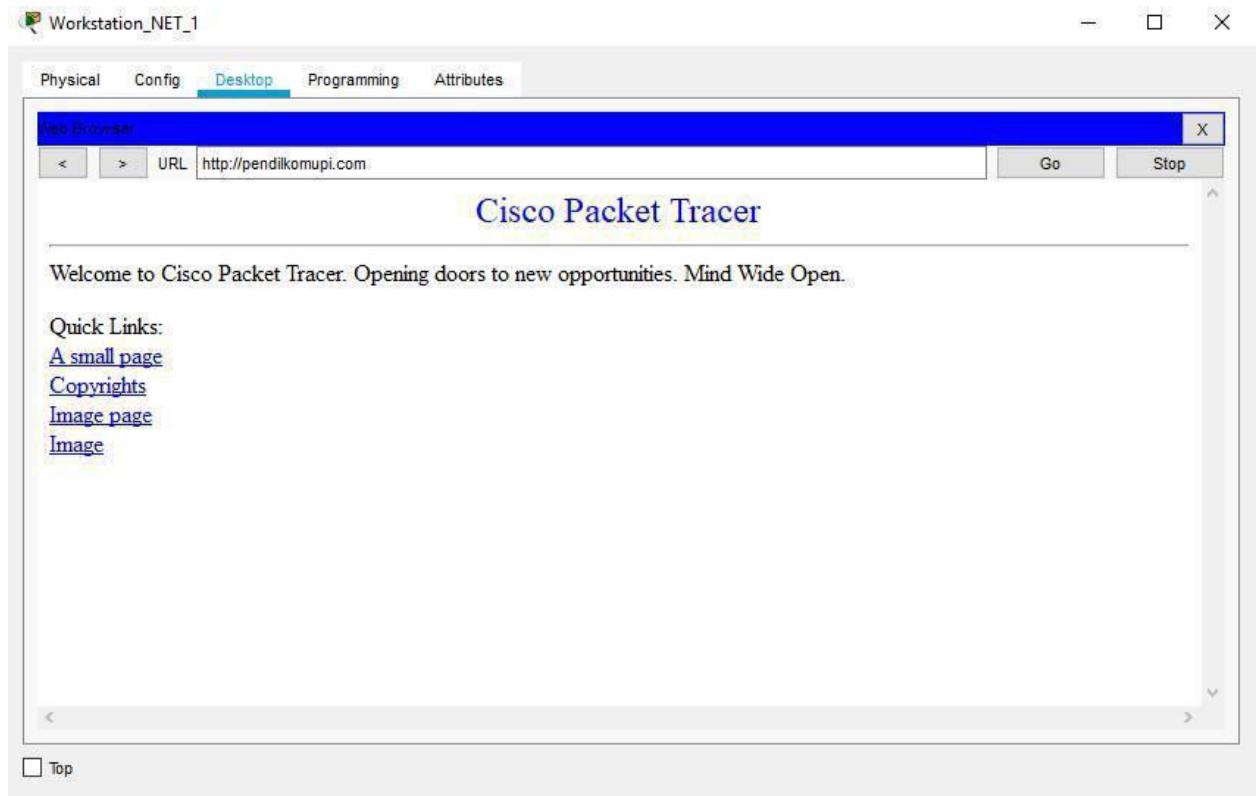
Hasil Akses Workstation_NET_1 ke dnsserver.com :



Hasil Akses Workstation_NET_1 ke server ilkomupi.com :



Hasil Akses Workstation_NET_1 ke server pendikomupi.com :



Hasil Akses Workstation_NET_2 ke dnsserver.com :



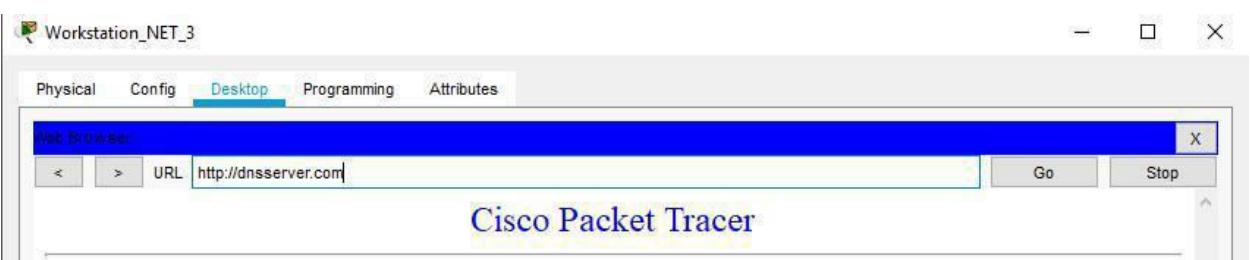
Hasil Akses Workstation_NET_2 ke server ilkomupi.com :



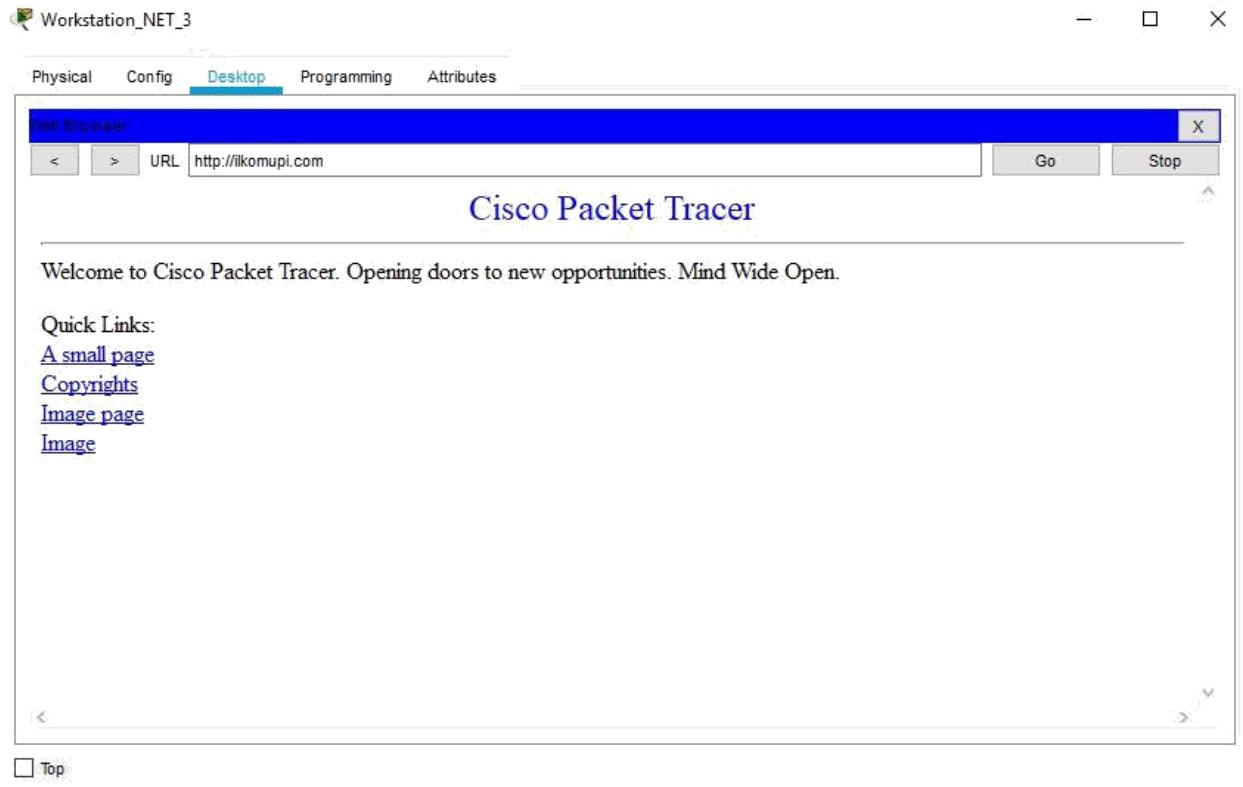
Hasil Akses Workstation_NET_2 ke server pendikomupi.com :



Hasil Akses Workstation_NET_3 ke dnsserver.com :



Hasil Akses Workstation_NET_3 ke ilkomupi.com :



Hasil Akses Workstation_NET_3 ke server pendilkomupi.com :

