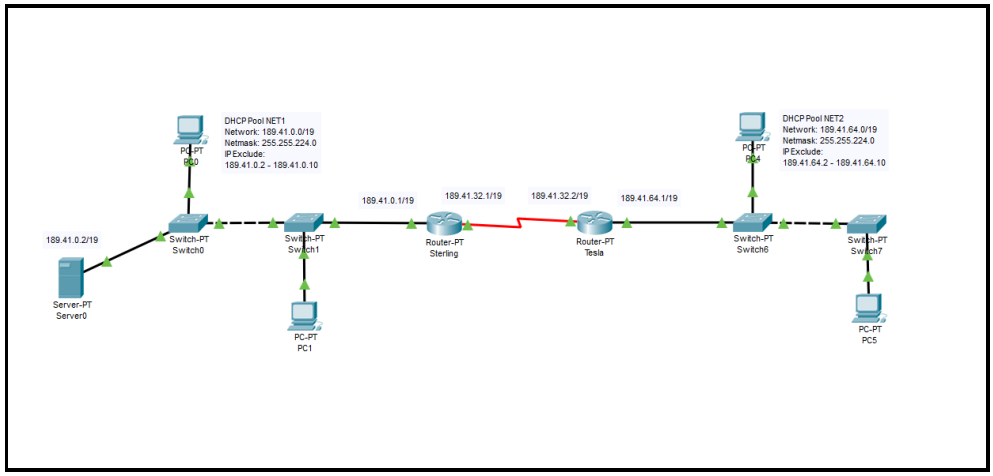
TUGAS PRAKTIKUM

SOAL PRAKTIKUM

1. Coba simulasikan kembali Soal Modul I nomor 2 menggunakan packet tracer lalu konfigurasi dhcp beserta routing agar 2 jaringan dapat saling terhubung! **(20 poin)**

   a. Topologi Bus



- List IP Address

  Server

  Fa0/0 : 189.41.0.2/19

  Router Sterling

  Fa0/0 : 189.41.0.1/19

  Se2/0 : 189.41.32.1/19

  Router Tesla

  Fa1/0 : 189.41.64.1/19

  Se2/0 : 189.41.32.2/19

  DHCP Pool

  Client R. Sterling : 189.41.0.11 – 189.41.31.254

  Client R. Tesla : 189.41.64.11 – 189.41.127.254

TUGAS PRAKTIKUM

- Konfigurasi IP Address Router

Router Sterling06941-JK189

```
Router>en
Router#conf t
Router(config)#int fa0/0
Router(config-if)#ip add 189.41.0.1 255.255.224.0
Router(config-if)#no shut
Router(config-if)#ex
Router(config)#
Router(config)#int se2/0
Router(config-if)#ip add 189.41.32.1 255.255.224.0
Router(config-if)#no shut
Router(config-if)#ex
Router(config)#
```

Router Tesla06941-JK189

```
Router>en
Router#conf t
Router(config)#int fa1/0
Router(config-if)#ip add 189.41.64.1 255.255.224.0
Router(config-if)#no shut
Router(config-if)#ex
Router(config)#
Router(config)#int se2/0
Router(config-if)#ip add 189.41.32.2 255.255.224.0
Router(config-if)#no shut
Router(config-if)#ex
Router(config)#
```

TUGAS PRAKTIKUM

- Konfigurasi Routing

  Router Sterling06941-JK189

  ```
  Router>en
  Router#conf t
  Router(config)#ip route 189.41.64.0 255.255.224.0
  189.41.32.2
  Router(config)#
  ```

  Router Tesla06941-JK189

  ```
  Router>en
  Router#conf t
  Router(config)#ip route 189.41.0.0 255.255.224.0
  189.41.32.1
  Router(config)#
  ```

- Konfigurasi DHCP

  Router Sterling06941-JK189

  ```
  Router>en
  Router#conf t
  Router(config)#ip dhcp pool NET1
  Router(dhcp-config)#network 189.41.0.0
  255.255.224.0
  Router(dhcp-config)#default-router 189.41.0.1
  Router(dhcp-config)#ex
  Router(config)#ip dhcp exclude-address 189.41.0.2
  189.41.0.10
  ```

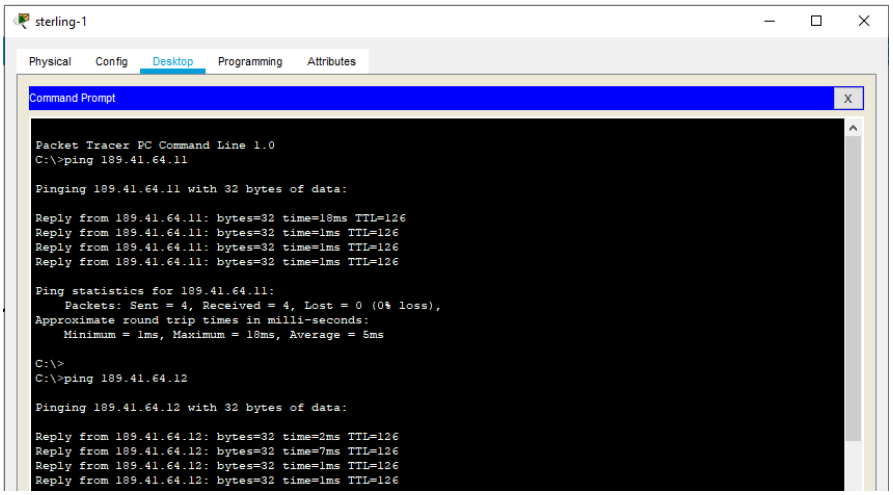
TUGAS PRAKTIKUM

Router Tesla06941-JK189

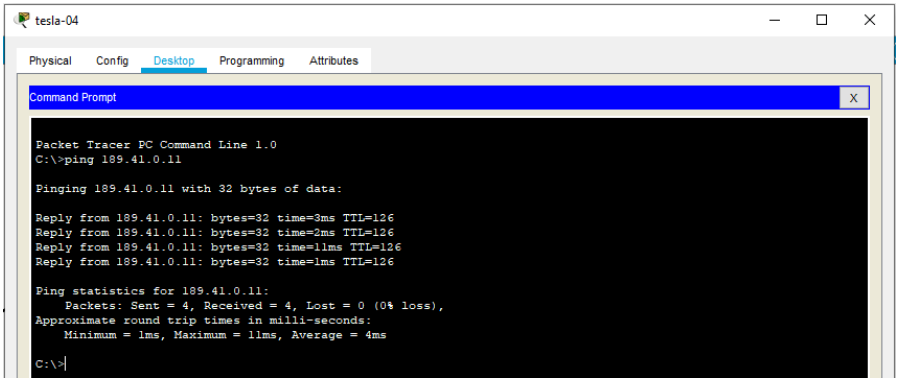
```
Router>en
Router#conf t
Router(config)#ip dhcp pool NET2
Router(dhcp-config)#network 189.41.64.0
255.255.224.0
Router(dhcp-config)#default-router 189.41.64.1
Router(dhcp-config)#ex
Router(config)#ip dhcp exclude-address 189.41.64.2
189.41.64.10
```

- Test koneksi : Ping antar client beda network

PC sterling-1 ke PC tesla-04

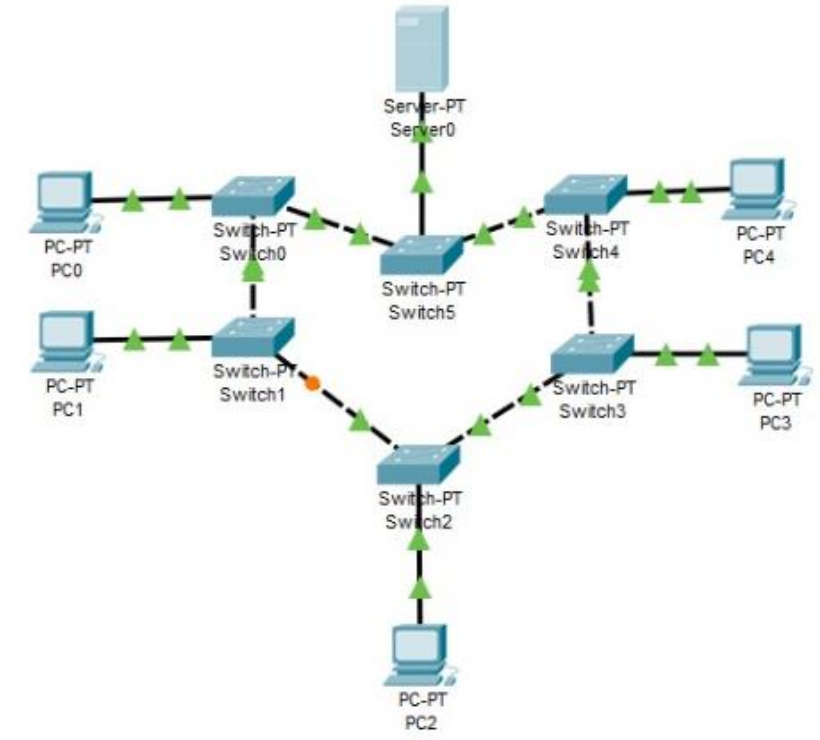


PC tesla-04 ke PC sterling-0

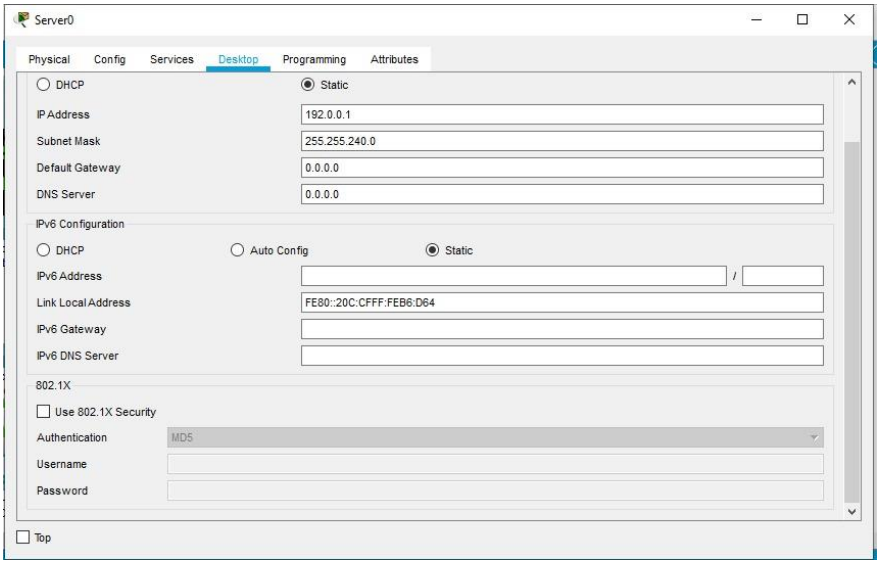


TUGAS PRAKTIKUM

b. Topologi Ring

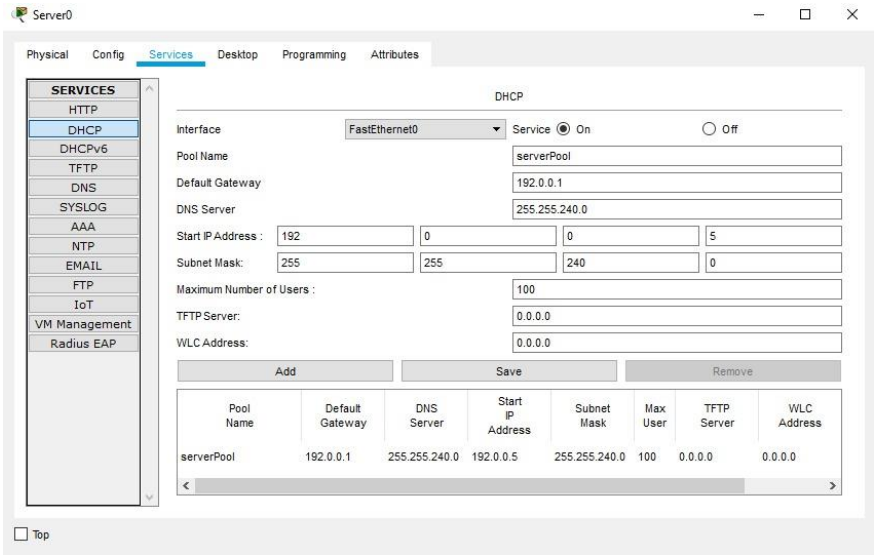


- Konfigurasi DHCP Server

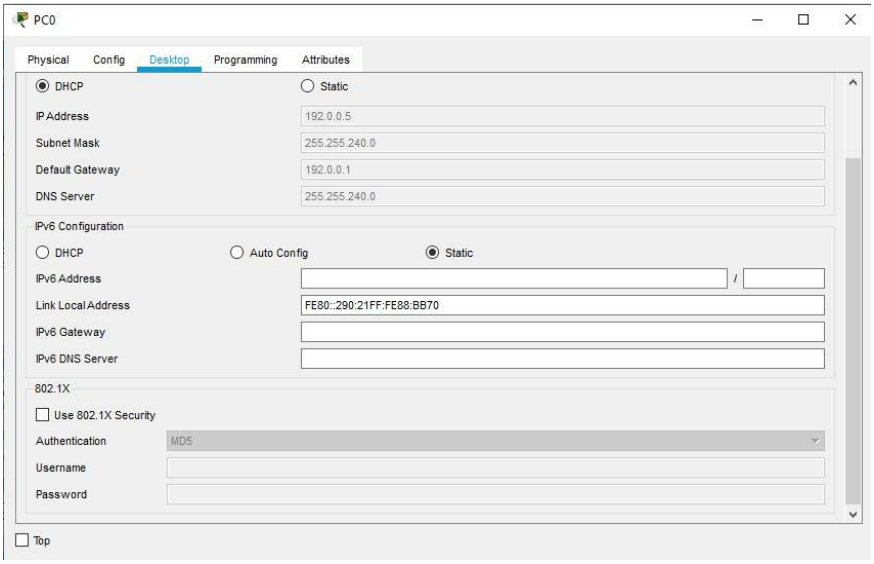


TUGAS PRAKTIKUM

- Konfigurasi server pool DHCP

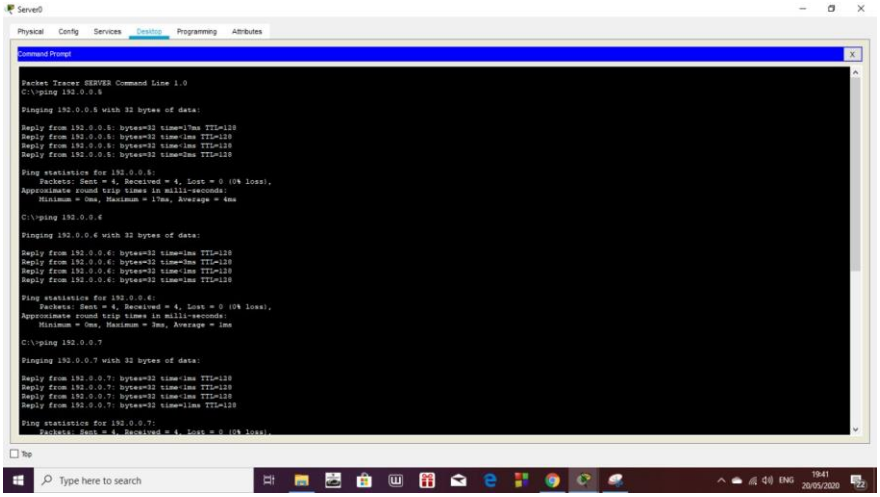


- Konfigurasi DHCP PC0

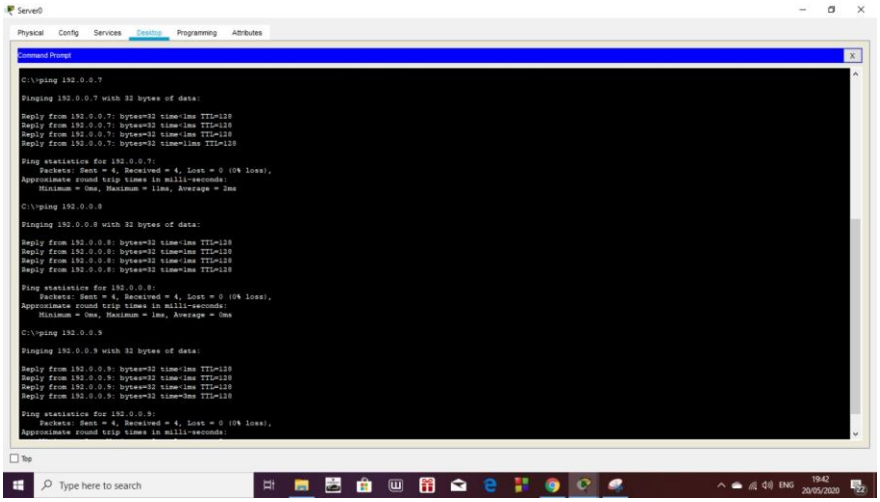


TUGAS PRAKTIKUM

- Tes Ping Dari Server DHCP Ke Client1 / PC0

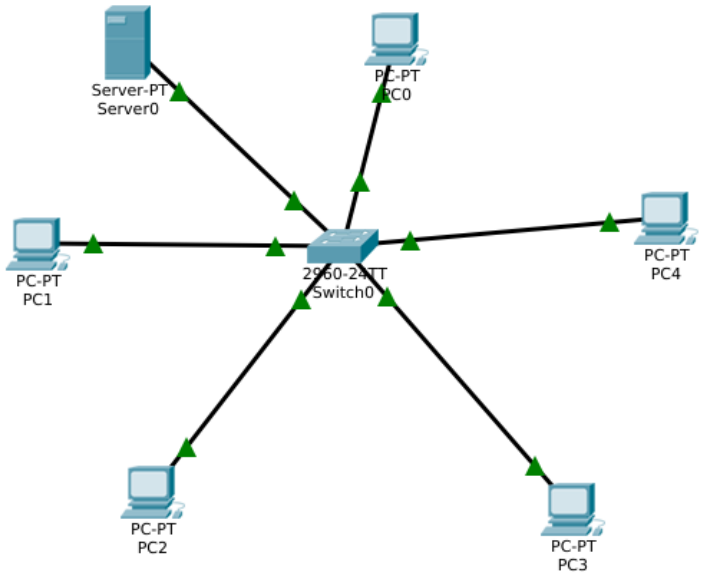


- Tes Ping Dari Client1 / PC0 Ke Server DHCP

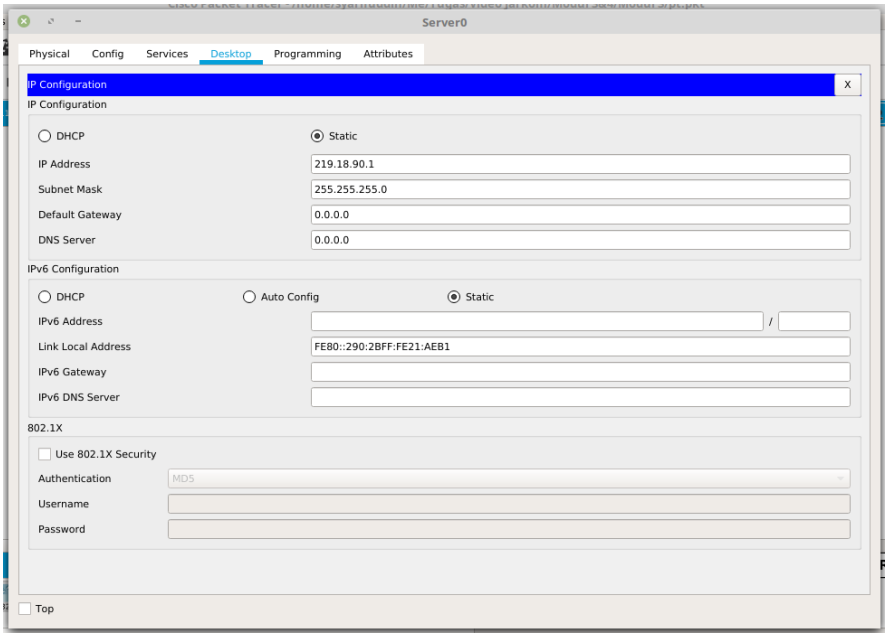


TUGAS PRAKTIKUM

c. Topologi Star

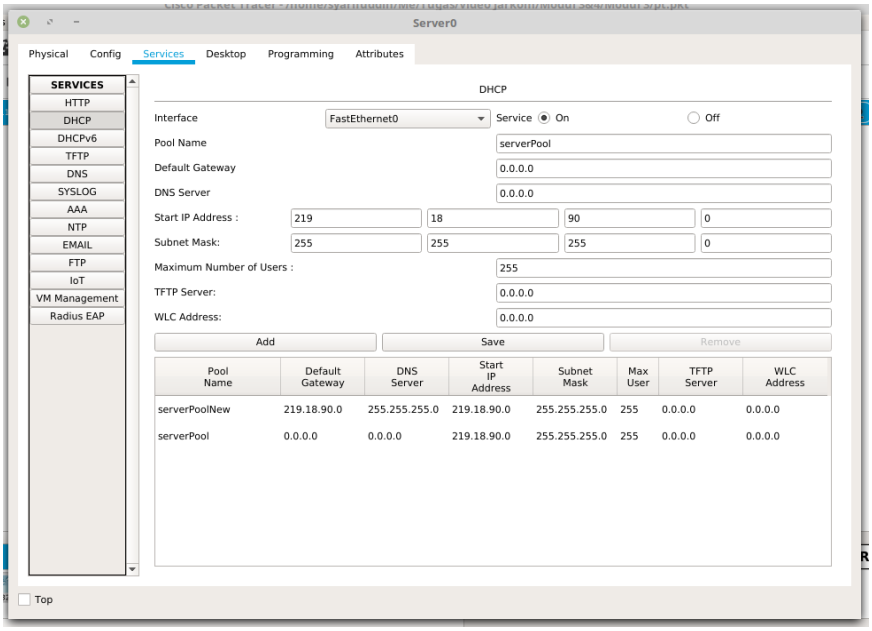


- Konfigurasi DHCP Server

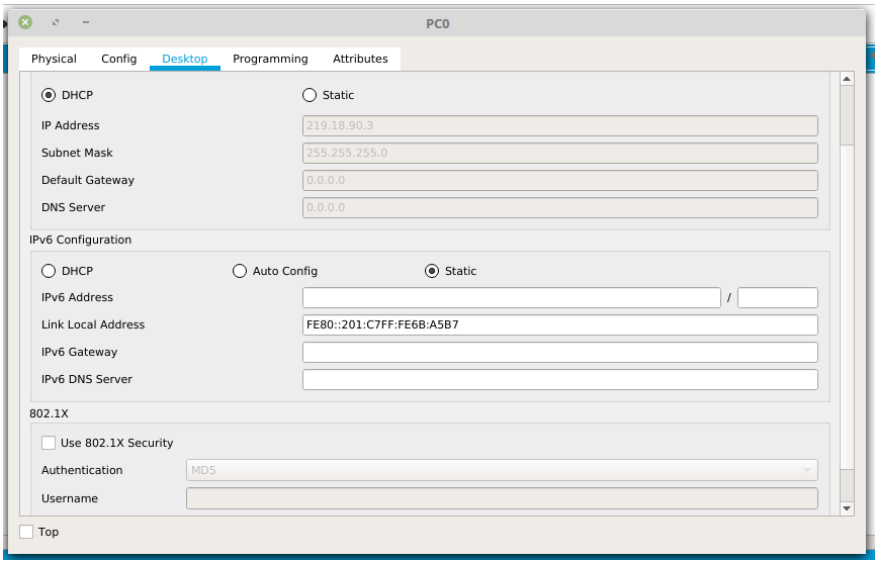


TUGAS PRAKTIKUM

- Konfigurasi DHCP Pool

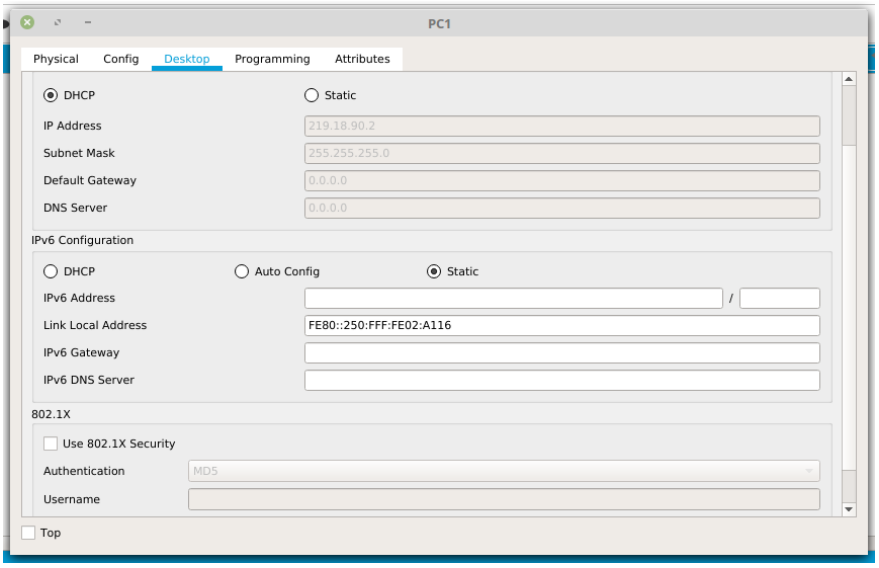


- Setting DHCP Client1 / PC0

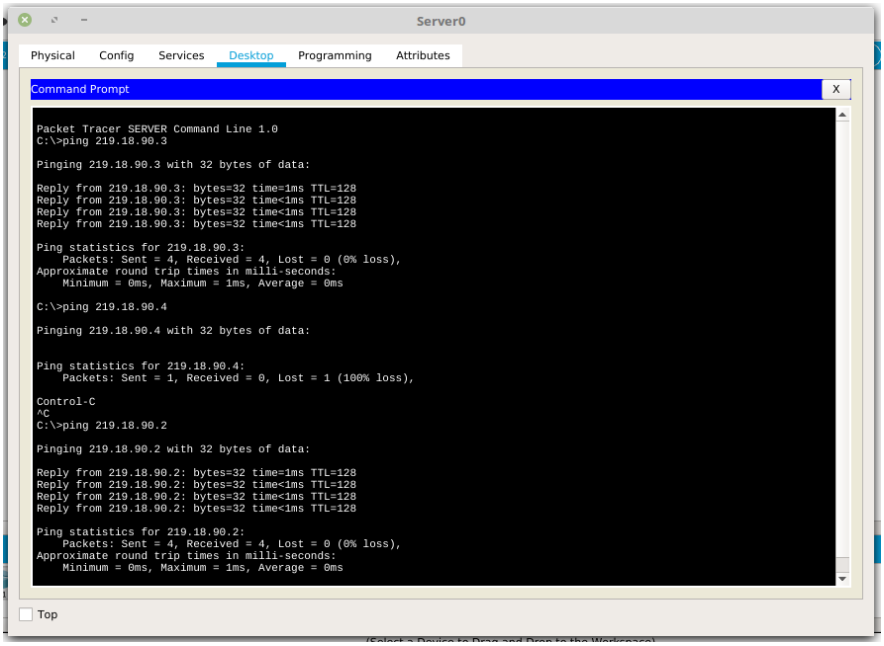


TUGAS PRAKTIKUM

- Setting DHCP Client2 / PC1

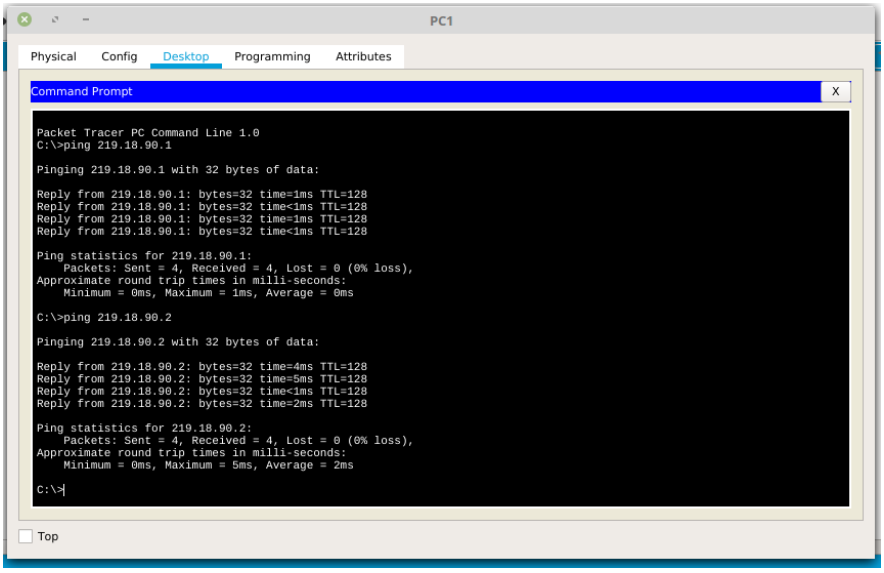


- Tes Ping Dari Server DHCP Ke Client1 & Client2

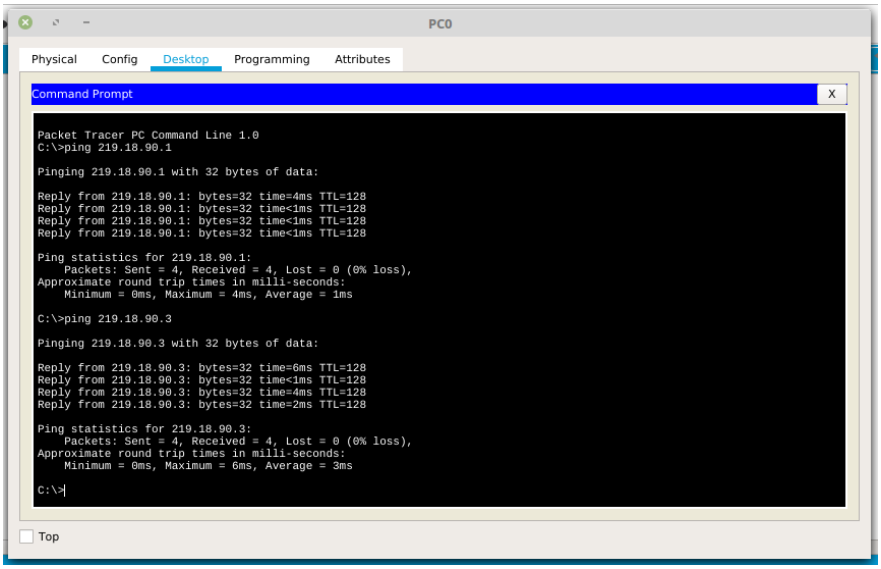


TUGAS PRAKTIKUM

- Tes Ping Dari Client1 Ke Server & Client2



- Tes Ping Dari Client2 Ke Server & Client1



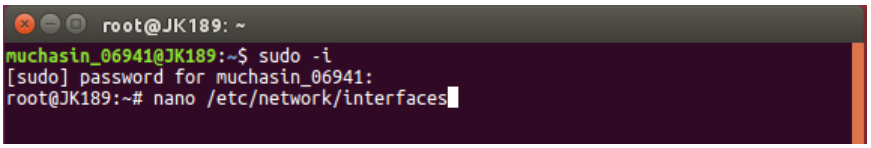
2. Lakukan konfigurasi routing pada **Server Virtual** kalian dan buktikan bahwa tiap **Client** dapat terhubung! **(40 poin)**

Konfigurasi untuk PC Router:

a. Setting IP untuk eth0 192.168.1.1 dan eth1 192.168.2.1 dengan subnetmask sama yaitu 255.255.255.0 dengan perintah berikut:

 # nano /etc/network/interfaces

TUGAS PRAKTIKUM



auto [nama_interfaces_0]

iface [nama_interfaces_0] inet static

address 192.168.1.1

netmask 255.255.255.0

network 192.168.1.0

gateway 192.168.1.1

auto [nama_interfaces_1]

iface [nama_interfaces_1] inet static

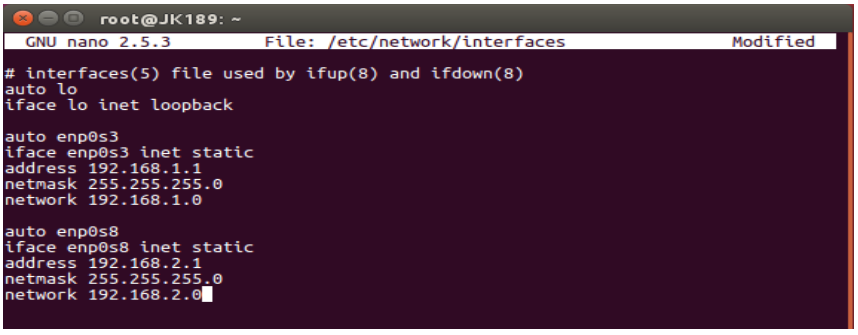
address 192.168.2.1

netmask 255.255.255.0

network 192.168.2.0

gateway 192.168.2.1

Simpan dengan ctrl+x kemudian tekan y lalu enter



b. Kemudian restart interfaces menggunakan perintah berikut:

 # /etc/init.d/networking restart

Atau

 # ifup [nama_interfaces_0] dan ifup [nama_interface_1]

TUGAS PRAKTIKUM

```
root@JK189: ~
muchasin_06941@JK189:~$ sudo -i
[sudo] password for muchasin_06941:
root@JK189:~# nano /etc/network/interfaces
root@JK189:~# /etc/init.d/networking restart
[ ok ] Restarting networking (via systemctl): networking.service.
root@JK189:~#
```

c. Supaya bisa meneruskan paket kita setting dengan mengetik perintah:

 # echo 1 > /proc/sys/net/ipv4/ip_forward

```
root@JK189: ~
muchasin_06941@JK189:~$ sudo -i
[sudo] password for muchasin_06941:
root@JK189:~# nano /etc/network/interfaces
root@JK189:~# /etc/init.d/networking restart
[ ok ] Restarting networking (via systemctl): networking.service.
root@JK189:~# echo 1 > /proc/sys/net/ipv
ipv4/ ipv6/
root@JK189:~# echo 1 > /proc/sys/net/ipv4/ip_forward
root@JK189:~#
```

d. Tambahkan iptable untuk forwarding interfaces eth0 ke eth1 di PC Router dengan perintah berikut:

 # sudo iptables –t nat –A POSTROUTING – o eth2 –j MASQUERADE

 # sudo iptables –A FORWARD –i eth1 –o eht0 –m state –state RELATED, ESTABLISHED –j ACCEPT

 # sudo iptables –A FORWARD –i eth0 –o eht1 –j ACCEPT

```
root@JK189: ~
muchasin_06941@JK189:~$ sudo -i
[sudo] password for muchasin_06941:
root@JK189:~# nano /etc/network/interfaces
root@JK189:~# /etc/init.d/networking restart
[ ok ] Restarting networking (via systemctl): networking.service.
root@JK189:~# echo 1 > /proc/sys/net/ipv
ipv4/ ipv6/
root@JK189:~# echo 1 > /proc/sys/net/ipv4/ip_forward
root@JK189:~# iptables -t nat -A POSTROUTING -o enp0s8 -j MASQUERADE
root@JK189:~# iptables -A FORWARD -i enp0s8 -o RELATED,ESTABLISHED -j ACCEPT
```

```
root@JK189: ~
root@JK189:~# iptables -A FORWARD -i enp0s8 -o enp0s3 -m state --state RELATED,E
STABLISHED -j ACCEPT
root@JK189:~# iptables -A FORWARD -i enp0s3 -o enp0s8 -j ACCEPT
root@JK189:~#
```

e. Lakukan tes ping ke [nama_interfaces_0] dan [nama_interfaces_1].

TUGAS PRAKTIKUM

```
root@JK189: ~
root@JK189:~# iptables -A FORWARD -i enp0s8 -o enp0s3 -m state --state RELATED,E
STABLISHED -j ACCEPT
root@JK189:~# iptables -A FORWARD -i enp0s3 -o enp0s8 -j ACCEPT
root@JK189:~# ping 192.168.1.1
PING 192.168.1.1 (192.168.1.1) 56(84) bytes of data.
64 bytes from 192.168.1.1: icmp_seq=1 ttl=64 time=0.032 ms
64 bytes from 192.168.1.1: icmp_seq=2 ttl=64 time=0.048 ms
64 bytes from 192.168.1.1: icmp_seq=3 ttl=64 time=0.039 ms
^C
--- 192.168.1.1 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2037ms
rtt min/avg/max/mdev = 0.032/0.039/0.048/0.009 ms
root@JK189:~# ping 192.168.2.1
connect: Network is unreachable
root@JK189:~# ping 192.168.2.1
PING 192.168.2.1 (192.168.2.1) 56(84) bytes of data.
64 bytes from 192.168.2.1: icmp_seq=1 ttl=64 time=0.053 ms
64 bytes from 192.168.2.1: icmp_seq=2 ttl=64 time=0.033 ms
64 bytes from 192.168.2.1: icmp_seq=3 ttl=64 time=0.042 ms
^C
--- 192.168.2.1 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2023ms
rtt min/avg/max/mdev = 0.033/0.042/0.053/0.011 ms
root@JK189:~#
```

f. Lihat hasil konfigurasi pada table routing dengan mengetikkan:

 # route -n

```
root@JK189:~# route -n
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
169.254.0.0     0.0.0.0         255.255.0.0     U     1000   0        0 enp0s3
192.168.1.0     0.0.0.0         255.255.255.0   U     0      0        0 enp0s3
192.168.1.0     0.0.0.0         255.255.255.0   U     0      0        0 enp0s8
192.168.1.0     0.0.0.0         255.255.255.0   U     100    0        0 enp0s8
192.168.2.0     0.0.0.0         255.255.255.0   U     0      0        0 enp0s8
192.168.2.0     0.0.0.0         255.255.255.0   U     100    0        0 enp0s8
root@JK189:~#
```

3. Konfigurasi Client1

a. Login sebagai User Root.

```
root@JK189-client: ~
muchlas_06941@JK189-client:~$ sudo -i
[sudo] password for muchlas_06941:
```

b. Setting IP yang satu kelas dengan PC Router, misalnya:

 # nano /etc/network/interfaces

```
root@JK189-client: ~
muchlas_06941@JK189-client:~$ sudo -i
[sudo] password for muchlas_06941:
root@JK189-client:~# nano /etc/network/interfaces
```

auto [nama_interfaces]

iface [nama_interfaces]

address 192.168.1.8

netmask 255.255.255.0

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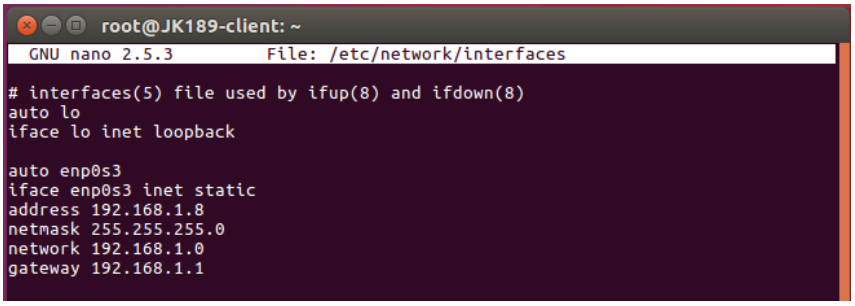
network 192.168.1.0

gateway 192.168.1.1

Simpan dengan ctrl+x kemudian tekan y lalu enter

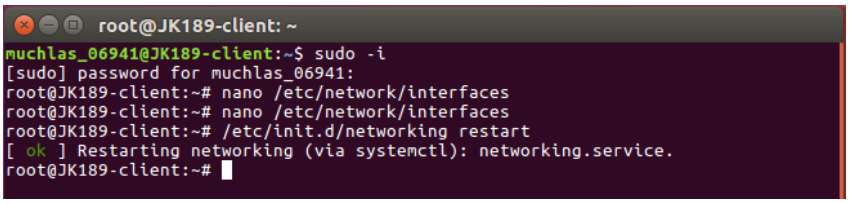


c. Restart service network

 # /etc/init.d/networking restart

Atau

#ifup [nama_intefaces]



4. Konfigurasi Client2

a. Login User Root.

b. Setting IP yang satu kelas dengan PC Router, misalnya:

 # nano /etc/network/interfaces

auto [nama_interfaces]

iface [nama_interfaces]

address 192.168.2.8

netmask 255.255.255.0

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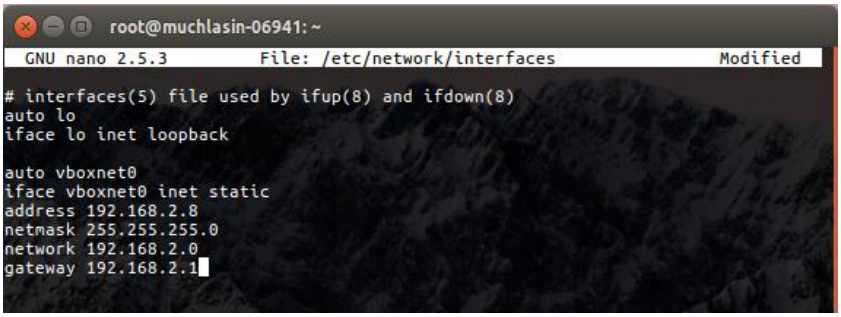
network 192.168.2.0

gateway 192.168.2.1

Simpan dengan ctrl+x kemudian tekan y lalu enter

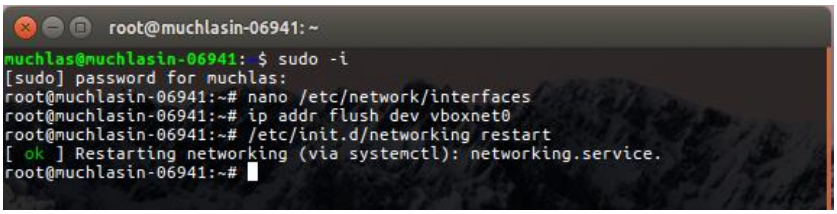


c. Restart service network.

 # /etc/init.d/networking restart

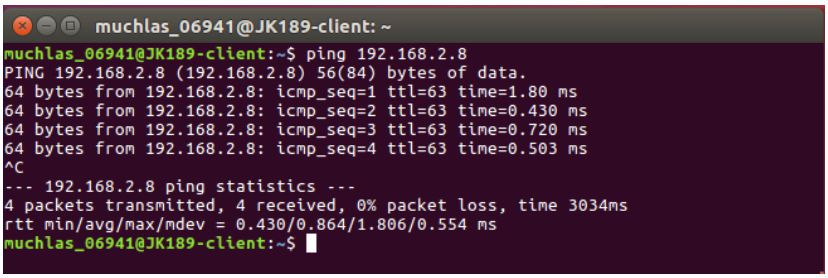
Atau

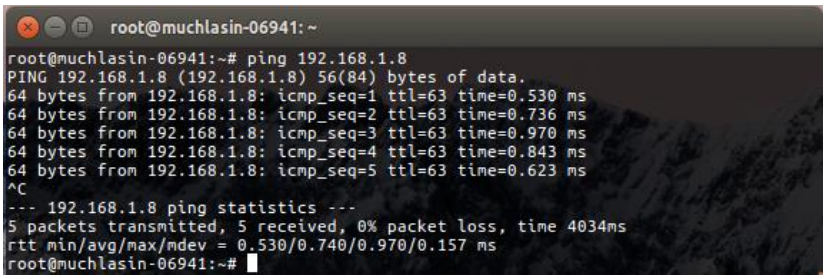
#ifup [nama_intefaces]



5. Pengetesan Routing

a. Lakukan ping dari client1 ke client2 atau sebaliknya (proses ping harus menunjukkan koneksi), seperti dibawah ini:





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b. Catatlah hasil percobaan tersebut pada laporan sementara.
   NB : Proses routing terbukti berhasil apabila tiap client yang terletak pada kelas atau jaringan yang berbeda dapat saling melakukan ping(terkoneksi).