Laporan Praktikum 12
Pengantar Open Source dan Aplikasi

"Jaringan di Linux"

Muhammad Azhar Rasyad

0110217029

Teknik Informatika 1

Sekolah Tinggi Teknologi Terpadu Nurul Fikri
2017

Modul XIII Jaringan di Linux

A. Tujuan

1. Mampu menjelaskan cara memberi alamat IP statis, dinamis, pengaturan route, dan DNS resolver.

2. Mampu mengubah setting jaringan dengan perintah - perintah.

3. Mampu mengubah setting jaringan di desktop.

B. Teori Singkat

Menurut saya teori singkat mengenai modul ini, yaitu :

Pada setiap komputer jika ingin menggunakan jaringan harus mengatur network card atau kartu jaringan supaya komputer tersebut dapat terbaca oleh anggota jaringan yang lain seperti mengatur IP Address, IP Gateway, dan DNS Resolver.

Pada jaringan di linux kita dapat mengaturnya dengan menggunakan command line ataupun desktop. Jika menggunakan command line maka diperlukan perintah – perintah seperti ifconfig, dhclient, route, ping, nslookup. Jika menggunakan desktop dapat menggunakan Connection Information dan Edit Connections.

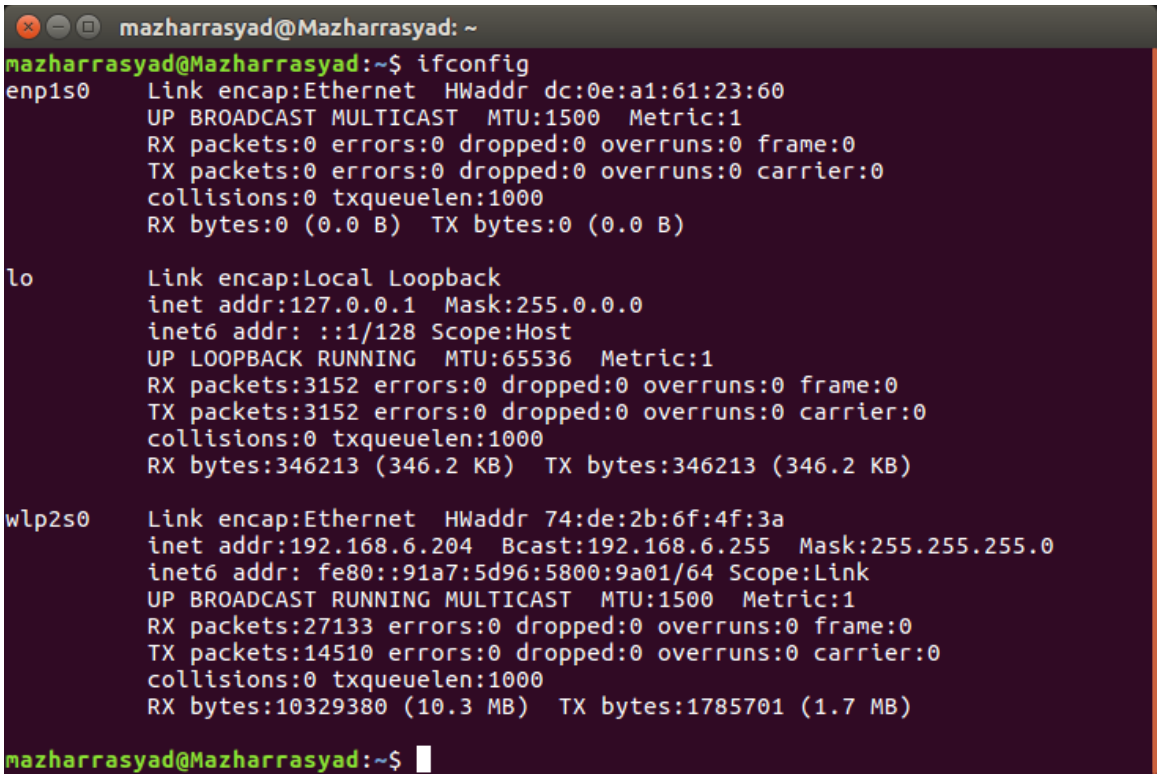
C. Langkah – langkah Praktikum

1. Konfigurasi jaringan menggunakan command line

- Menampilkan konfigurasi kartu jaringan yang aktif

  $ ifconfig

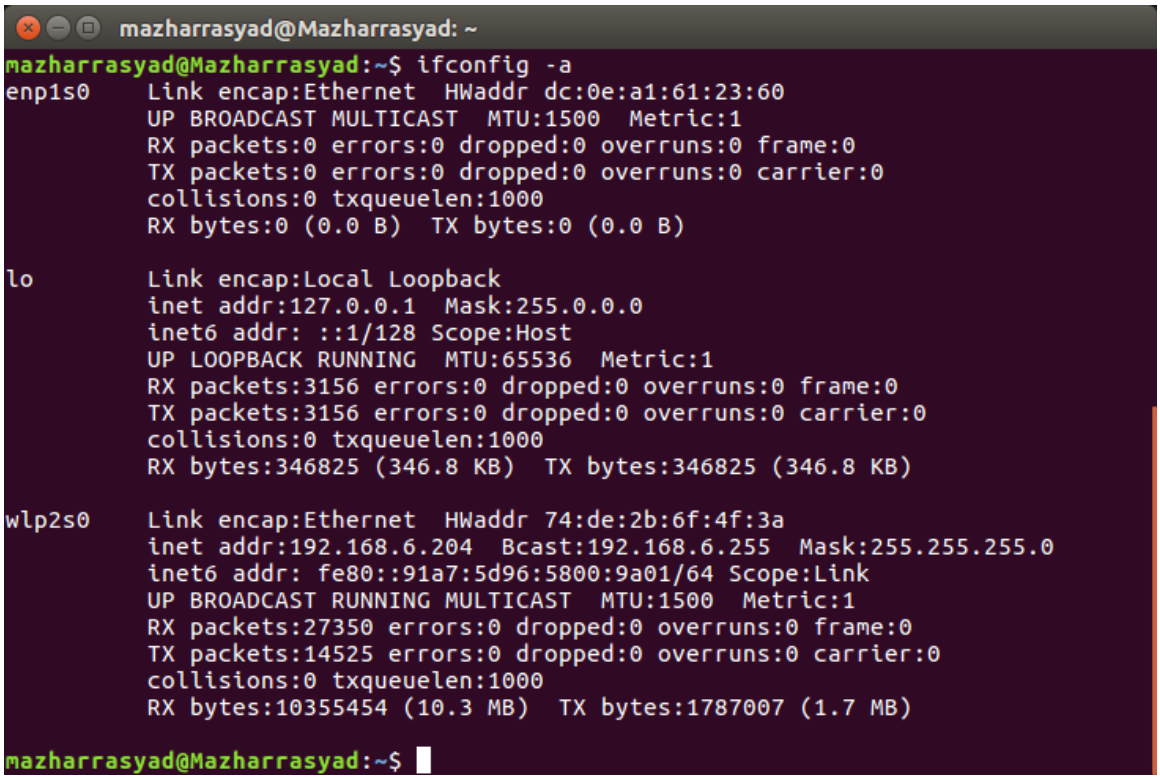
  Ada 3 kartu jaringan pada komputer ini yaitu enp1s0, lo, dan wlp2s0.



- Menampilkan konfigurasi kartu jaringan baik yang aktif maupun yang tidak aktif

  $ ifconfig -a

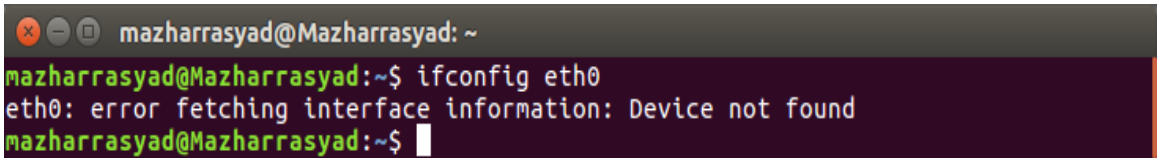
  Hanya ada 3 kartu jaringan pada komputer ini dan tidak ada yang tidak aktif.

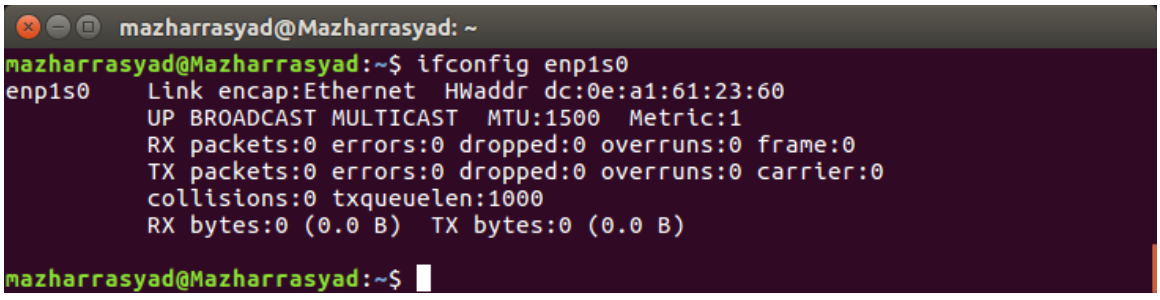


- Menampilkan konfigurasi kartu jaringan tertentu

  $ ifconfig eth0

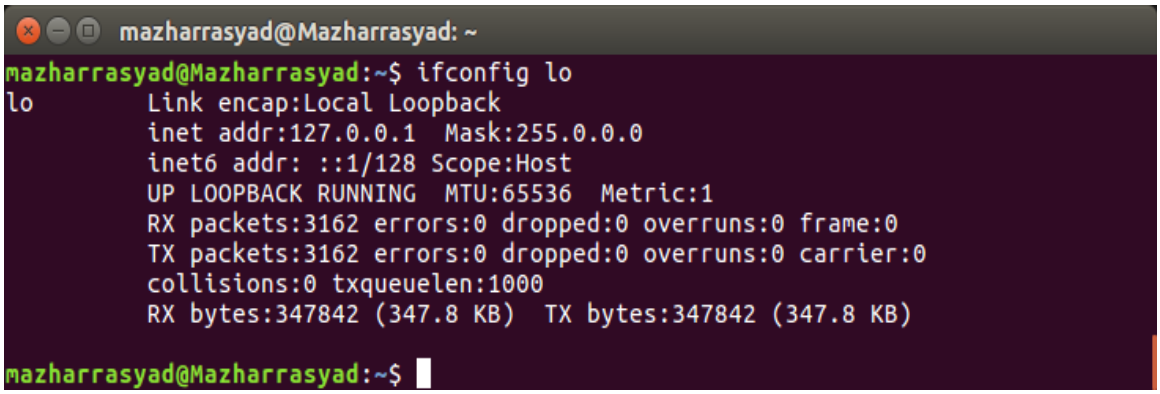
  eth0 merupakan kartu jaringan ethernet seperti enp1s0 hanya saja berbeda nama





$ ifconfig lo

lo merupakan kartu jaringan untuk local loopback

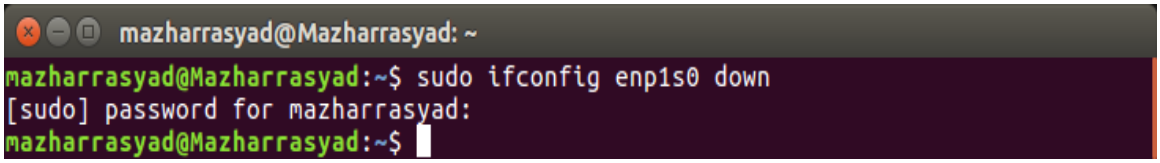


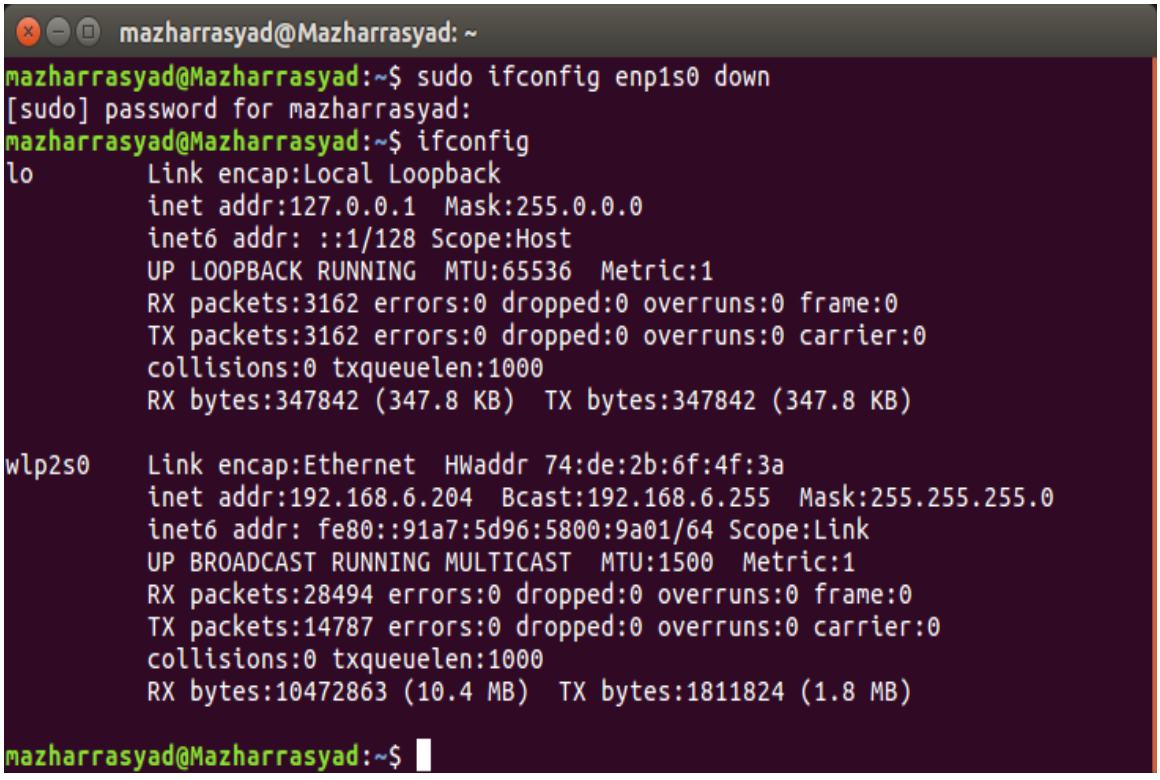
- Menonaktifkan kartu jaringan

$ sudo ifconfig eth0 down

“Catatan : eth0 diganti dengan enp1s0“

Kartu jaringan enp1s0 dinon-aktifkan dengan option down





- Mengaktifkan kartu jaringan

  $ sudo ifconfig eth0 up

  Kartu jaringan enp1s0 diaktifkan

```
mazharrasyad@Mazharrasyad: ~
mazharrasyad@Mazharrasyad:~$ sudo ifconfig enp1s0 up
mazharrasyad@Mazharrasyad:~$
```

```
mazharrasyad@Mazharrasyad: ~
mazharrasyad@Mazharrasyad:~$ sudo ifconfig enp1s0 up
mazharrasyad@Mazharrasyad:~$ ifconfig
enp1s0    Link encap:Ethernet  HWaddr dc:0e:a1:61:23:60
          UP BROADCAST MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:3162 errors:0 dropped:0 overruns:0 frame:0
          TX packets:3162 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:347842 (347.8 KB)  TX bytes:347842 (347.8 KB)

wlp2s0    Link encap:Ethernet  HWaddr 74:de:2b:6f:4f:3a
          inet addr:192.168.6.204  Bcast:192.168.6.255  Mask:255.255.255.0
          inet6 addr: fe80::91a7:5d96:5800:9a01/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:28552 errors:0 dropped:0 overruns:0 frame:0
          TX packets:14829 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:10480590 (10.4 MB)  TX bytes:1815474 (1.8 MB)

mazharrasyad@Mazharrasyad:~$
```

- Mengubah setting ip address suatu kartu jaringan

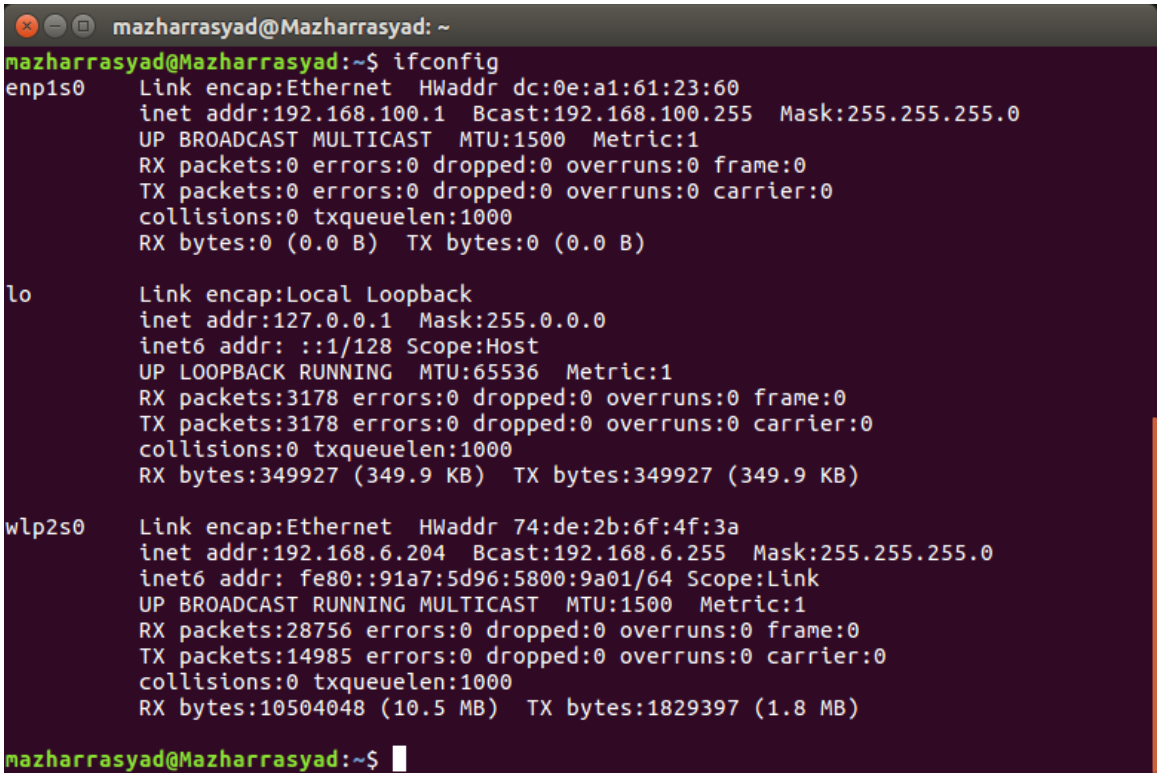
  $ sudo ifconfig eth0 192.168.100.1

```
mazharrasyad@Mazharrasyad: ~
mazharrasyad@Mazharrasyad:~$ sudo ifconfig enp1s0 192.168.100.1
mazharrasyad@Mazharrasyad:~$
```

  $ sudo ifconfig eth0 192.168.100.1 netmask 255.255.255.0

```
mazharrasyad@Mazharrasyad: ~
mazharrasyad@Mazharrasyad:~$ sudo ifconfig enp1s0 192.168.100.1 netmask 255.255.255.0
mazharrasyad@Mazharrasyad:~$
```

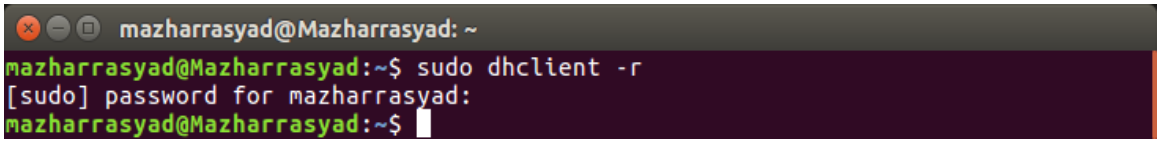
Hasilnya akan berubah pada kartu jaringan enp1s0 di inet addr dan Mask



- Mendapatkan ip address secara dinamis melalui dhcp server

  $ sudo dhclient -r

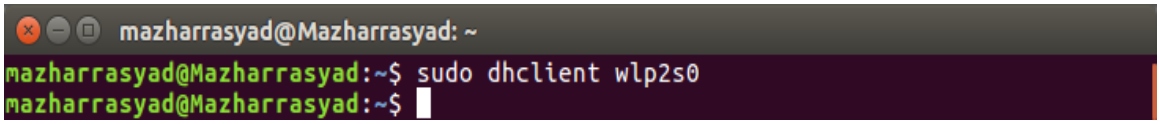
  Perintah dhclient dengan option -r untuk menghentikan program dhcp client dan menghapus konfigurasi saat ini



  $ sudo dhclient eth0

  Mendapatkan ip address secara otomatis melalui perintah dhclient untuk kartu jaringan wlp2s0

  “Catatan : kartu jaringan eth0 diganti dengan wlp2s0 dikarenakan komputer menggunakan WiFi”



- Menampilkan tabel routing

  $ route

```
mazharrasyad@Mazharrasyad: ~
mazharrasyad@Mazharrasyad:~$ route
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
default         192.168.6.1     0.0.0.0         UG    0      0        0 wlp2s0
default         192.168.6.1     0.0.0.0         UG    600    0        0 wlp2s0
link-local      *               255.255.0.0     U     1000   0        0 wlp2s0
192.168.6.0     *               255.255.255.0   U     600    0        0 wlp2s0
192.168.100.0   *               255.255.255.0   U     0      0        0 enp1s0
mazharrasyad@Mazharrasyad:~$
```

  $ route -n

  Menampilkan tabel routing dengan option -n untuk menampilkan alamat dan format numerik

```
mazharrasyad@Mazharrasyad: ~
mazharrasyad@Mazharrasyad:~$ route -n
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
0.0.0.0         192.168.6.1     0.0.0.0         UG    0      0        0 wlp2s0
0.0.0.0         192.168.6.1     0.0.0.0         UG    600    0        0 wlp2s0
169.254.0.0     0.0.0.0         255.255.0.0     U     1000   0        0 wlp2s0
192.168.6.0     0.0.0.0         255.255.255.0   U     600    0        0 wlp2s0
192.168.100.0   0.0.0.0         255.255.255.0   U     0      0        0 enp1s0
mazharrasyad@Mazharrasyad:~$
```

- Menghapus gateway default

  $ sudo route del default

```
mazharrasyad@Mazharrasyad: ~
mazharrasyad@Mazharrasyad:~$ route
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
default         192.168.1.254   0.0.0.0         UG    600    0        0 wlp2s0
link-local      *               255.255.0.0     U     1000   0        0 wlp2s0
192.168.1.0     *               255.255.255.0   U     600    0        0 wlp2s0
mazharrasyad@Mazharrasyad:~$
```

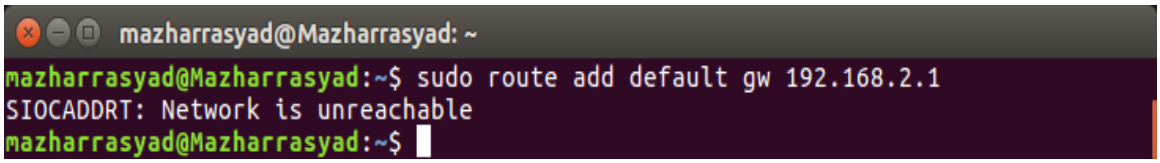
```
mazharrasyad@Mazharrasyad: ~
mazharrasyad@Mazharrasyad:~$ sudo route del default
[sudo] password for mazharrasyad:
mazharrasyad@Mazharrasyad:~$
```

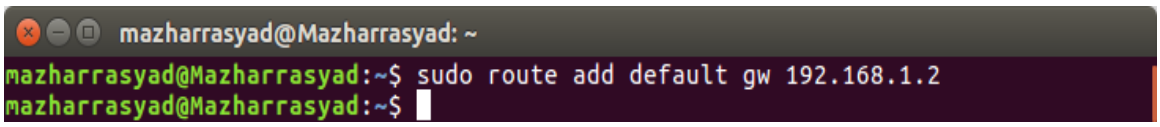
```
mazharrasyad@Mazharrasyad: ~
mazharrasyad@Mazharrasyad:~$ route
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
link-local      *               255.255.0.0     U     1000   0        0 wlp2s0
192.168.1.0     *               255.255.255.0   U     600    0        0 wlp2s0
mazharrasyad@Mazharrasyad:~$
```

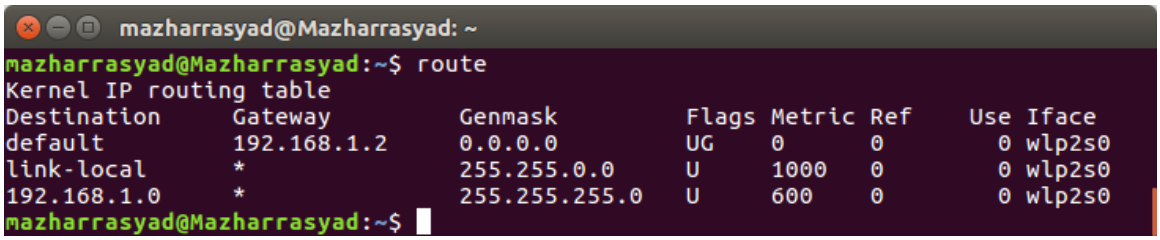
- Menambahkan gateway default

  $ sudo route add default gw 192.168.2.1

  “Catatan : gateway 192.168.2.1 diganti dengan 192.168.2.1 dikarenakan jaringan yang digunakan tidak mendukung”





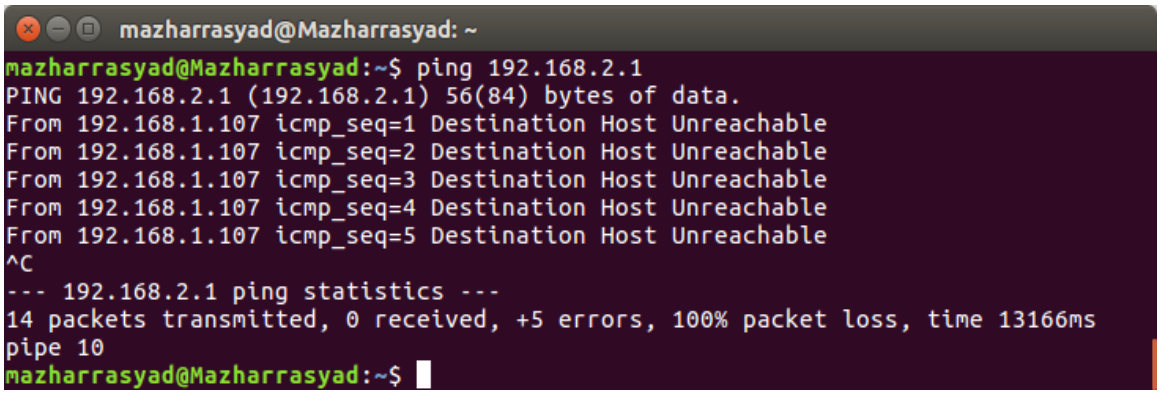


- Cek koneksi jaringan

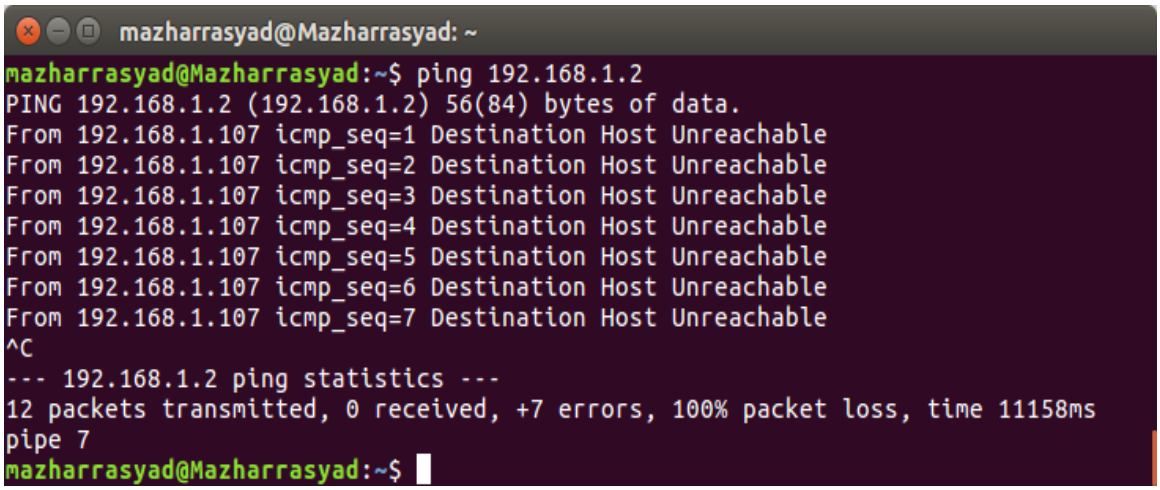
  $ ping 192.168.2.1

  Mengecek koneksi jaringan dengan packets tanpa batas

  IP berikut tidak dapat terkoneksi karena tidak terdaftar pada gateway

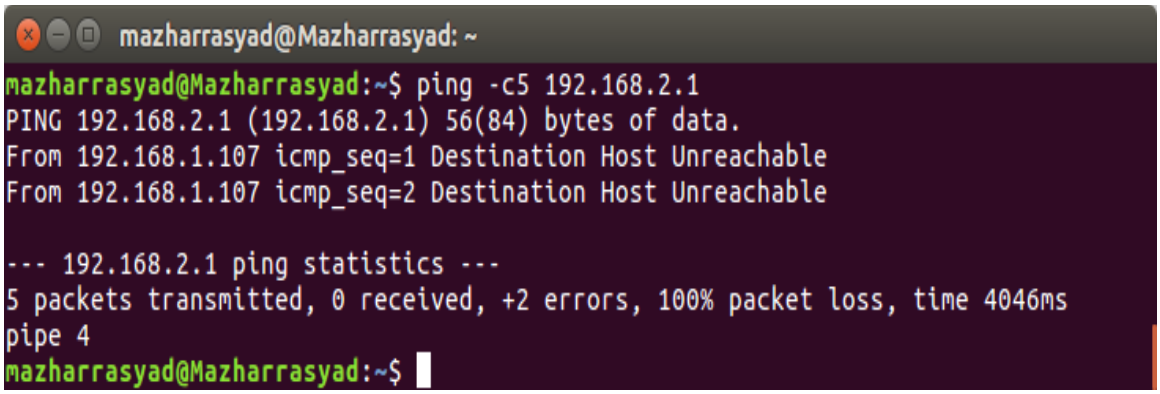


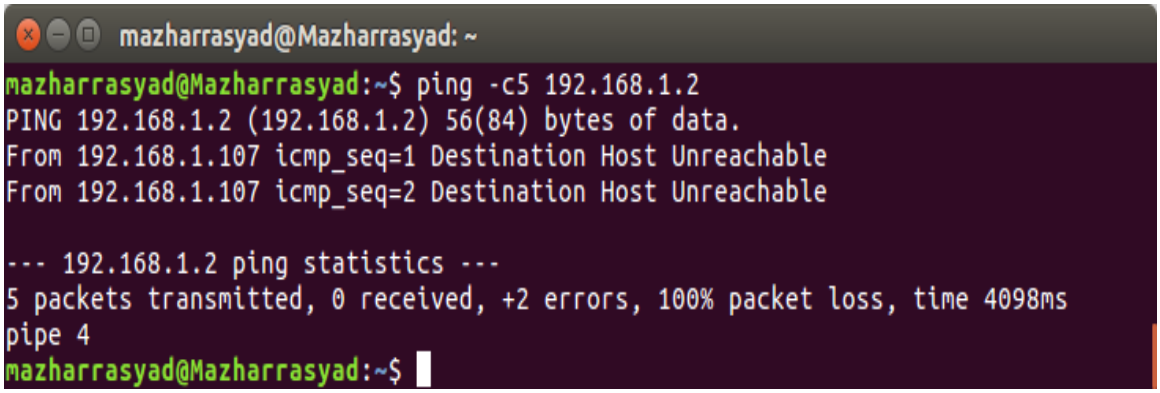
IP berikut juga tidak dapat terkoneksi karena tidak dapat koneksi dari jaringan yang digunakan



$ ping -c5 192.168.2.1

Cek koneksi dengan 5 packets.





- Query nama domain

  $ nslookup detik.com

```
mazharrasyad@Mazharrasyad: ~
mazharrasyad@Mazharrasyad:~$ nslookup detik.com
Server:         127.0.1.1
Address:        127.0.1.1#53

Non-authoritative answer:
Name:   detik.com
Address: 203.190.242.211
Name:   detik.com
Address: 103.49.221.211

mazharrasyad@Mazharrasyad:~$
```

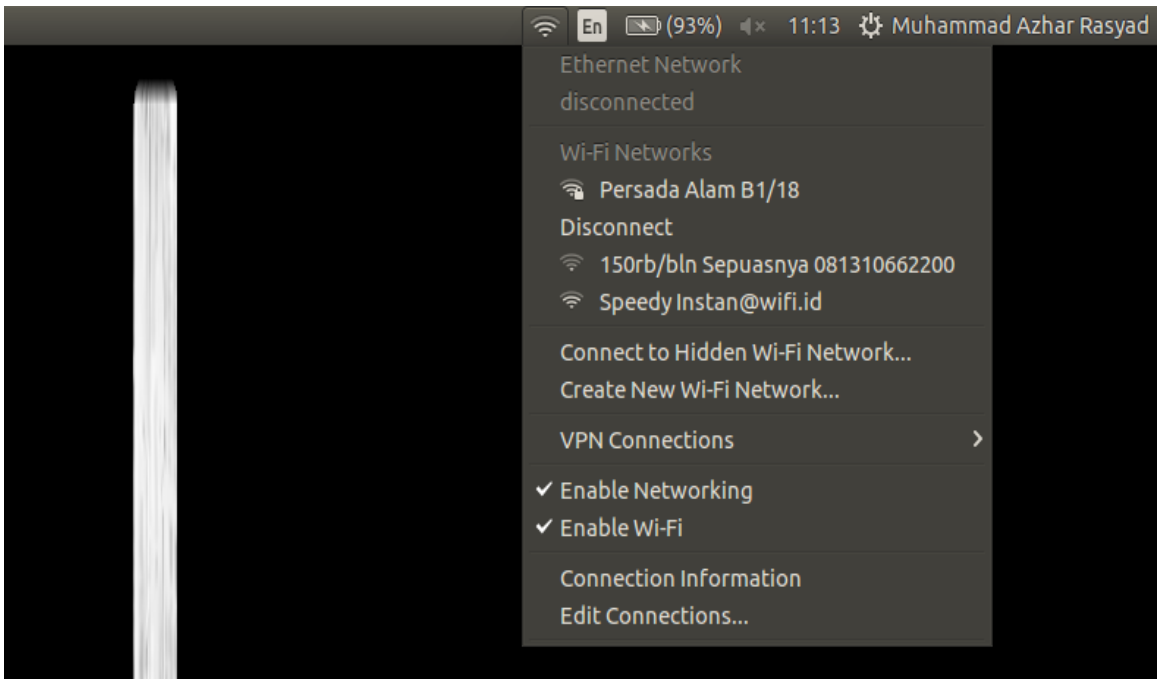
  $ nslookup detik.com 8.8.8.8

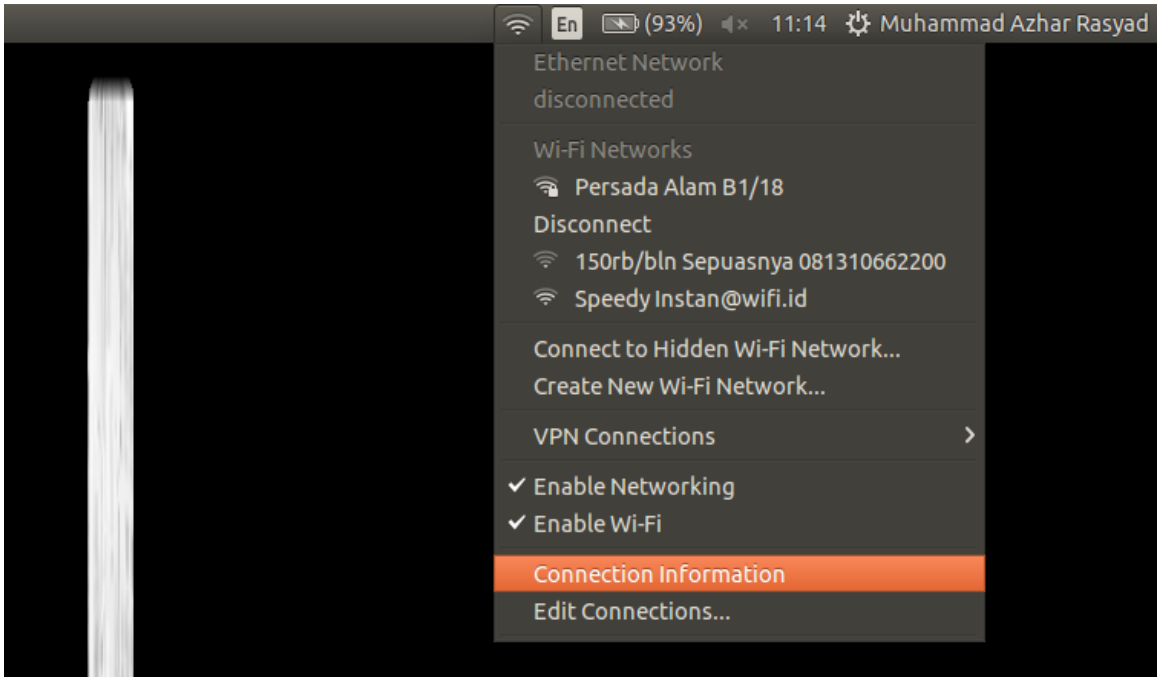
```
mazharrasyad@Mazharrasyad: ~
mazharrasyad@Mazharrasyad:~$ nslookup detik.com 8.8.8.8
;; connection timed out; no servers could be reached

mazharrasyad@Mazharrasyad:~$
```

```
mazharrasyad@Mazharrasyad: ~
mazharrasyad@Mazharrasyad:~$ nslookup 8.8.8.8
Server:         127.0.1.1
Address:        127.0.1.1#53

Non-authoritative answer:
8.8.8.8.in-addr.arpa    name = google-public-dns-a.google.com.

Authoritative answers can be found from:

mazharrasyad@Mazharrasyad:~$
```

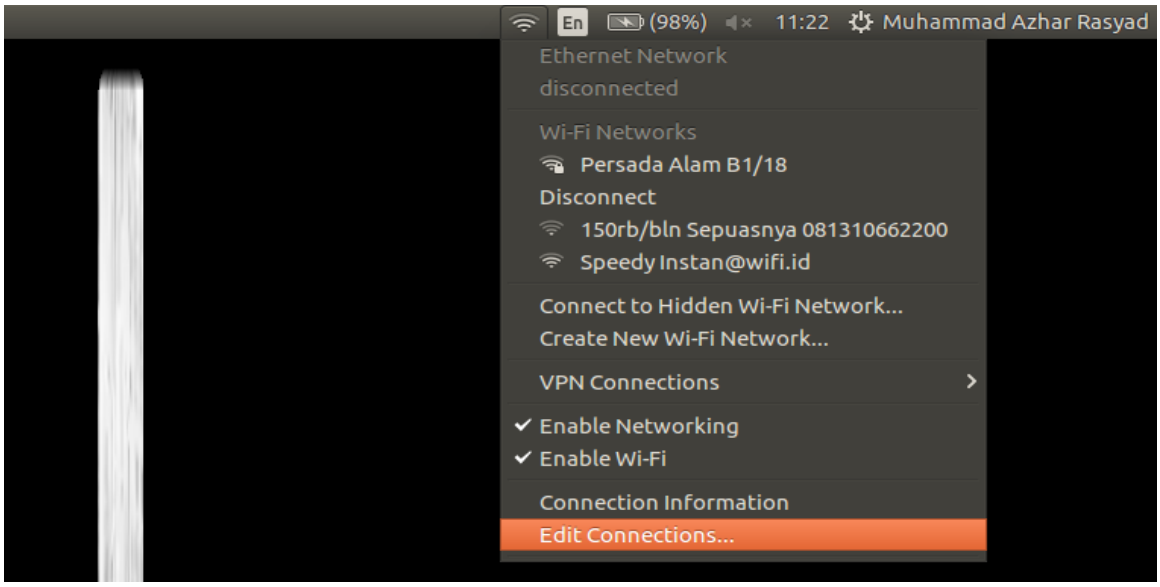
2. Konfigurasi Jaringan di Desktop

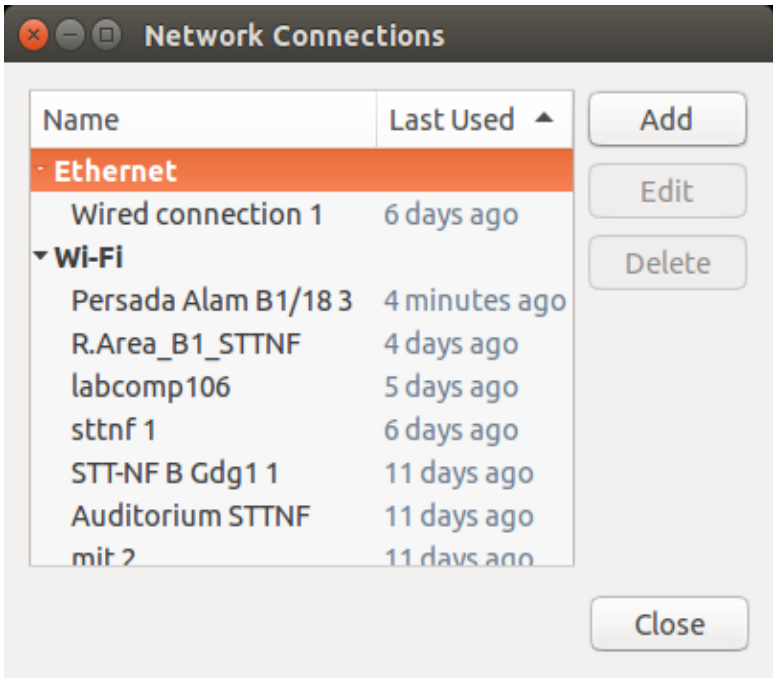
- **Menampilkan konfigurasi jaringan**
  - Klik ikon Network yang ada di menu bar kemudian pilih Connection Information



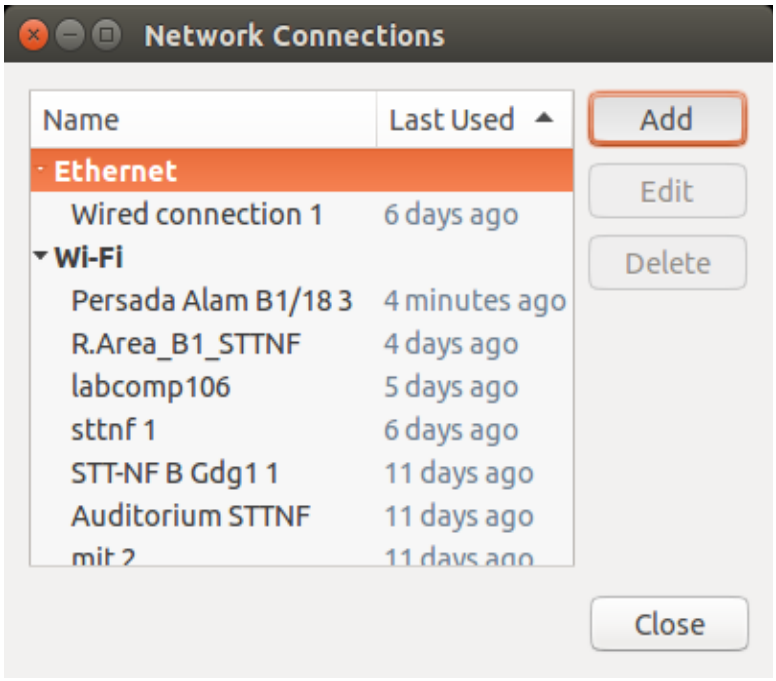


- **Mengubah / menambah konfigurasi jaringan**
  - Klik ikon Network yang ada di menu bar kemudian pilih Edit Connection…

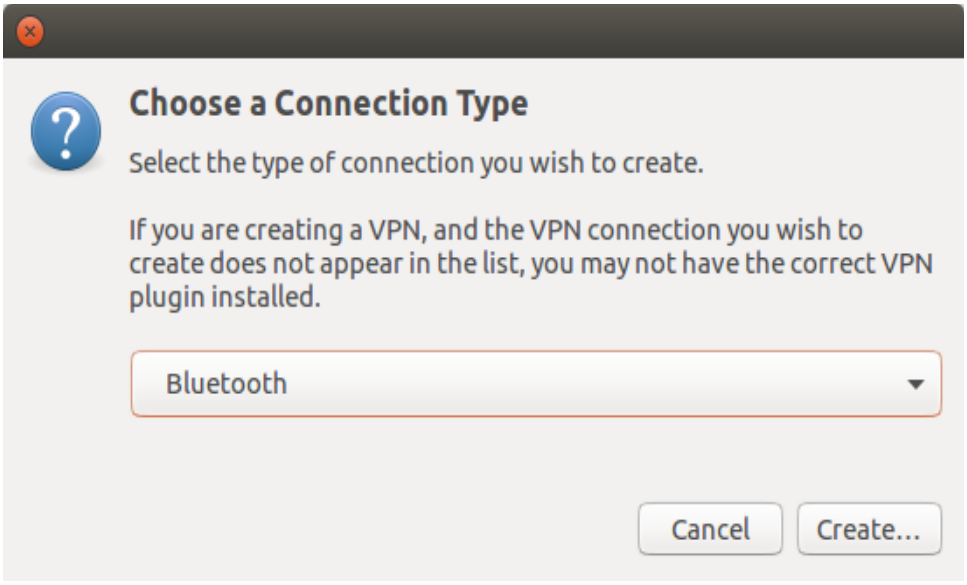


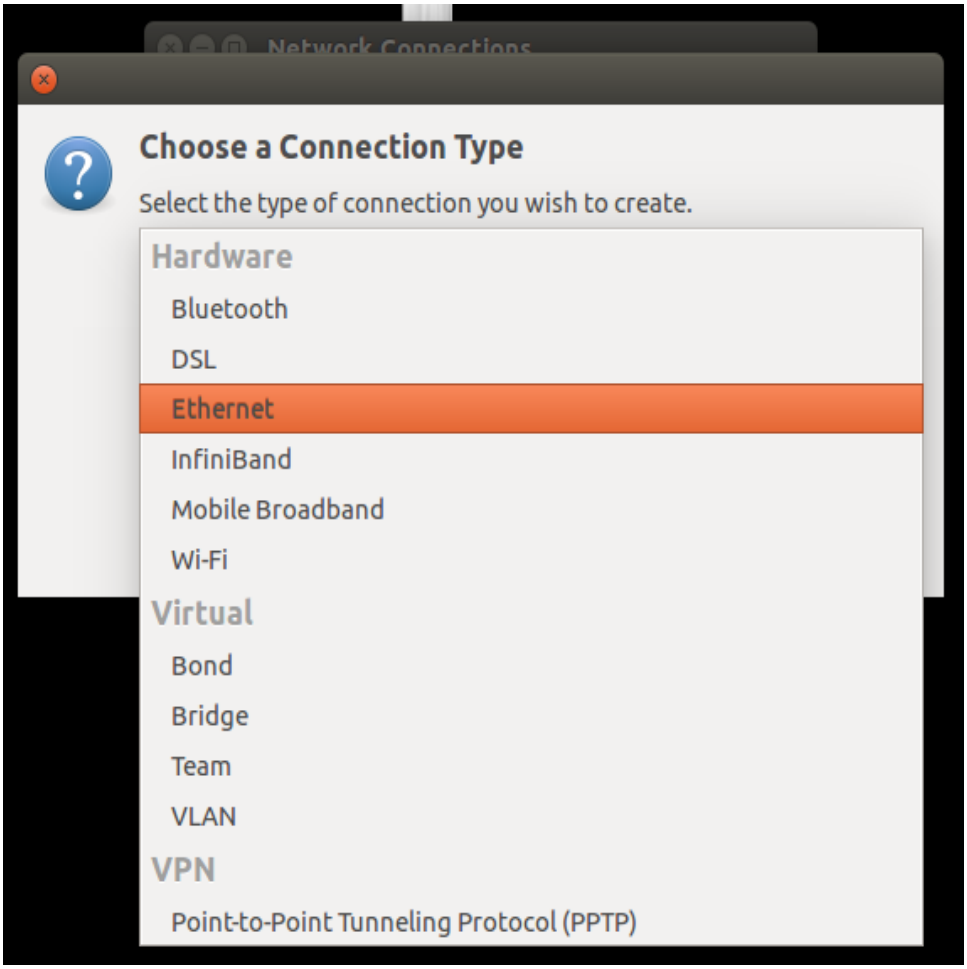


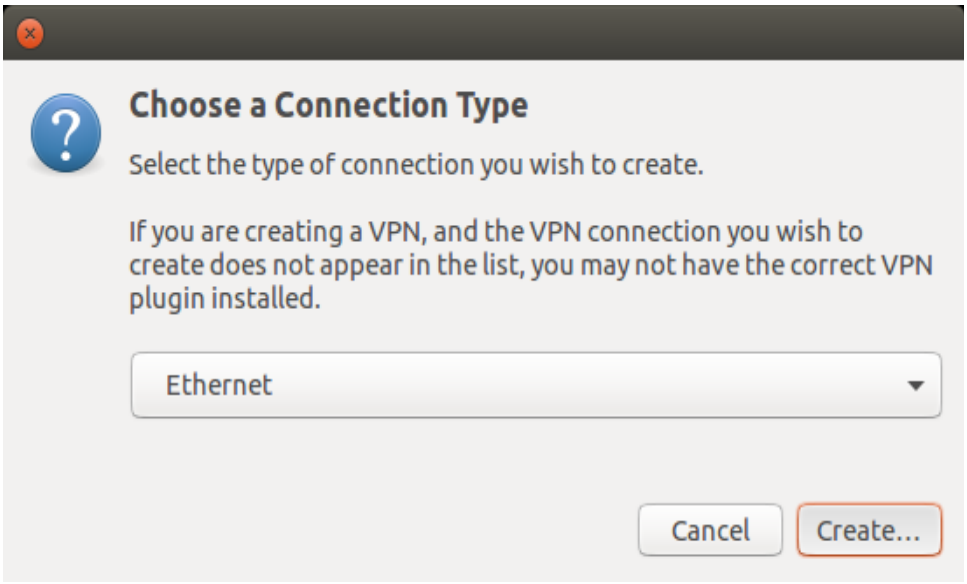
- Pada window Network Connections, klik tombol Add

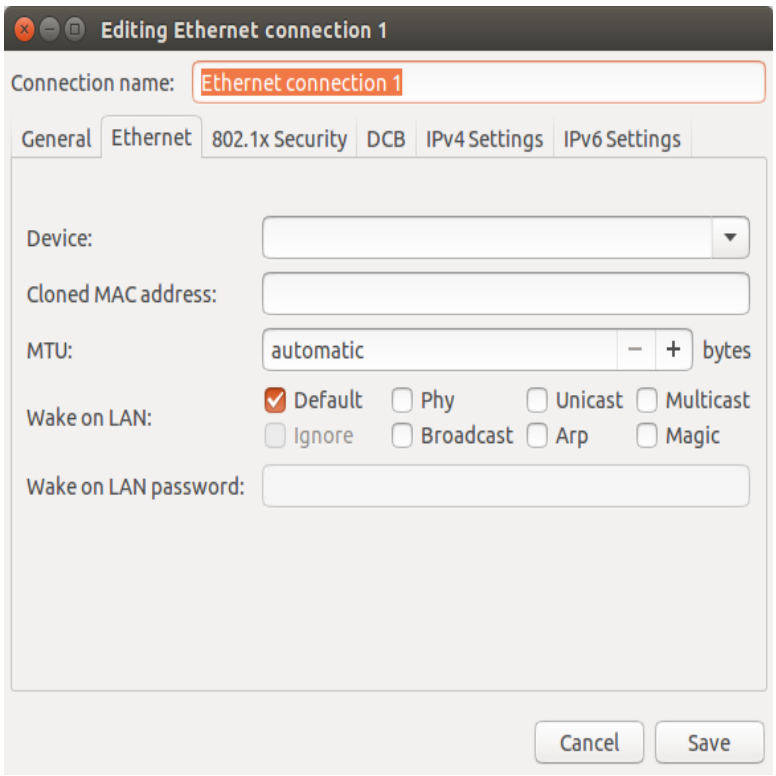


- Pada dialog Choose a connection type pilih Ethenet kemudian klik tombol Create…

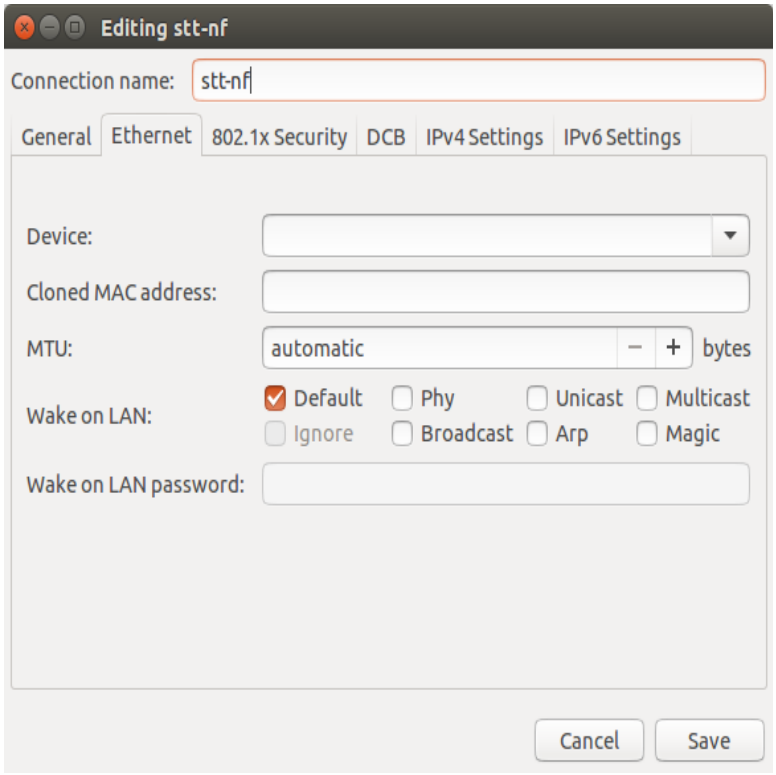


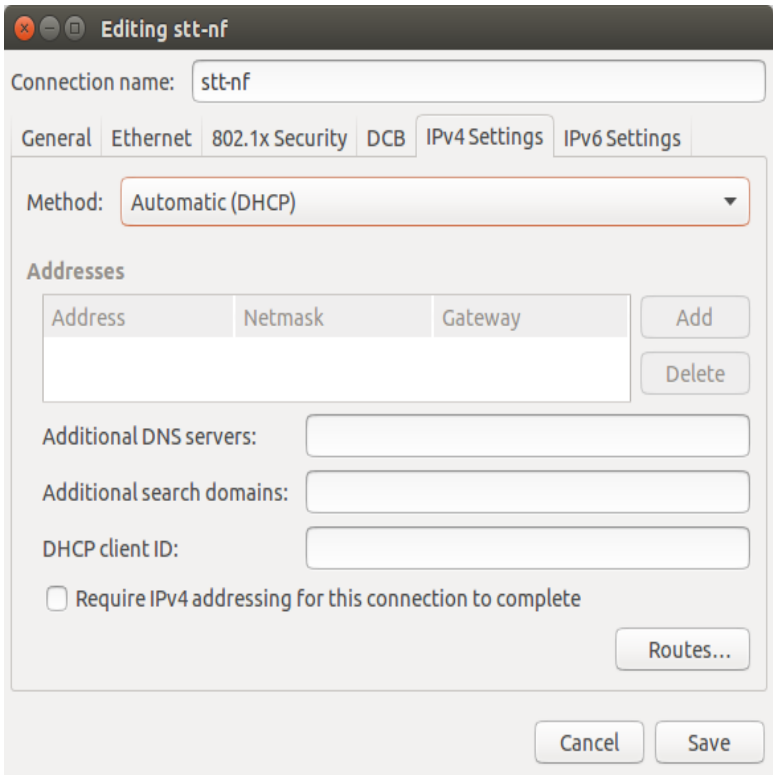



Choose a Connection Type
Select the type of connection you wish to create.
If you are creating a VPN, and the VPN connection you wish to create does not appear in the list, you may not have the correct VPN plugin installed.
Ethernet
Cancel
Create...

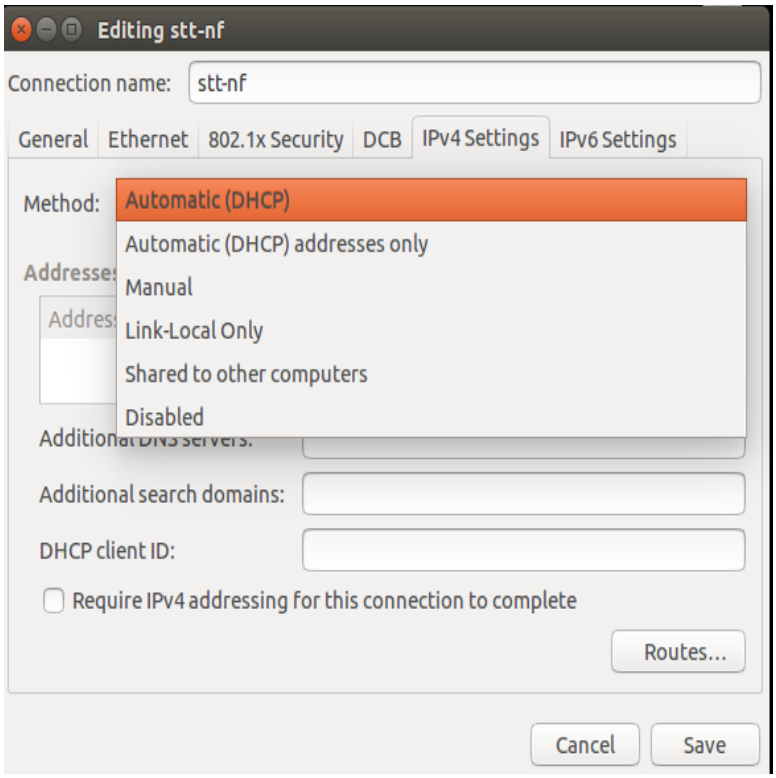

Editing Ethernet connection 1
Connection name:
Ethernet connection 1
General
Ethernet
802.1x Security
DCB
IPv4 Settings
IPv6 Settings
Device:
Cloned MAC address:
MTU:
automatic
bytes
Wake on LAN:
Default
Phy
Unicast
Multicast
Ignore
Broadcast
Arp
Magic
Wake on LAN password:
Cancel
Save

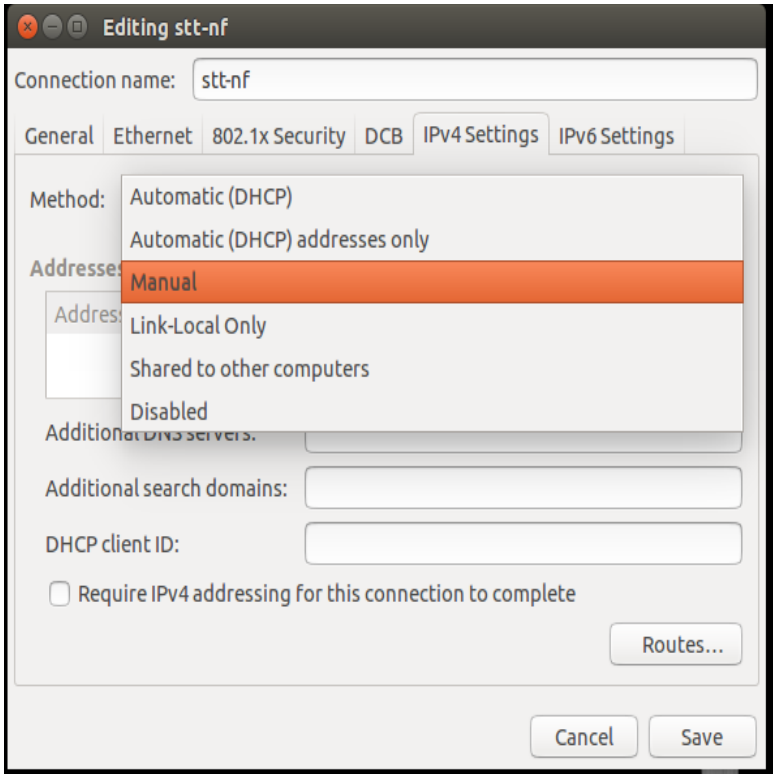
- Pada kolom Connection name ketik 'stt-nf', kemudian klik tab IPv4 Settings

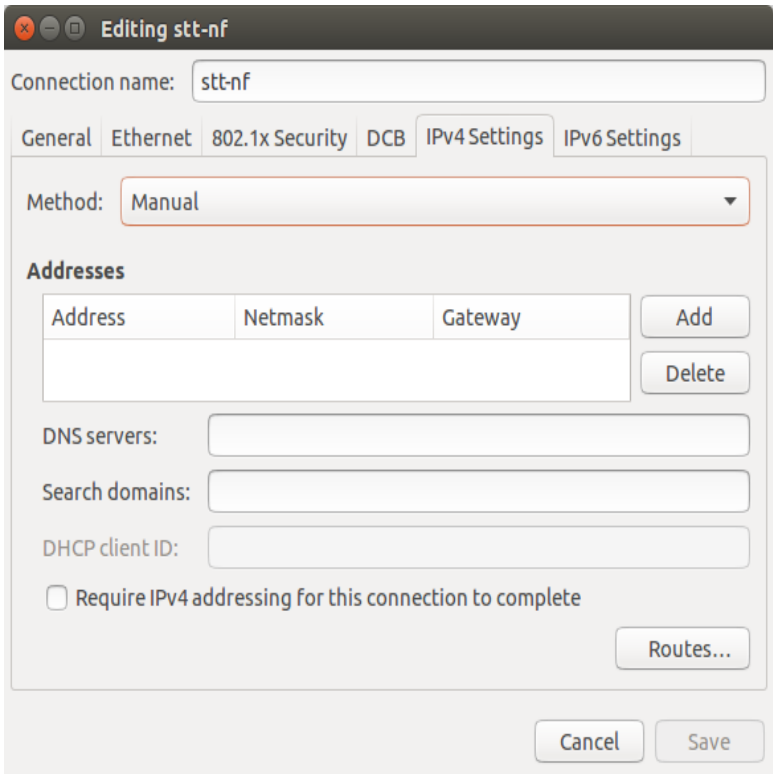


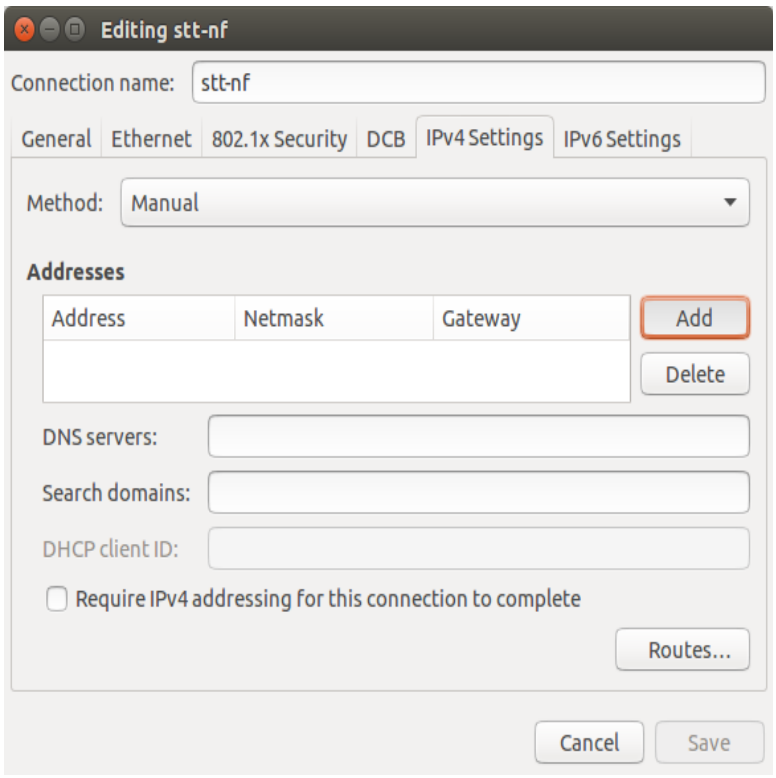


- Pada menu drop down Method, pilih Manual kemudian klik tombol Add

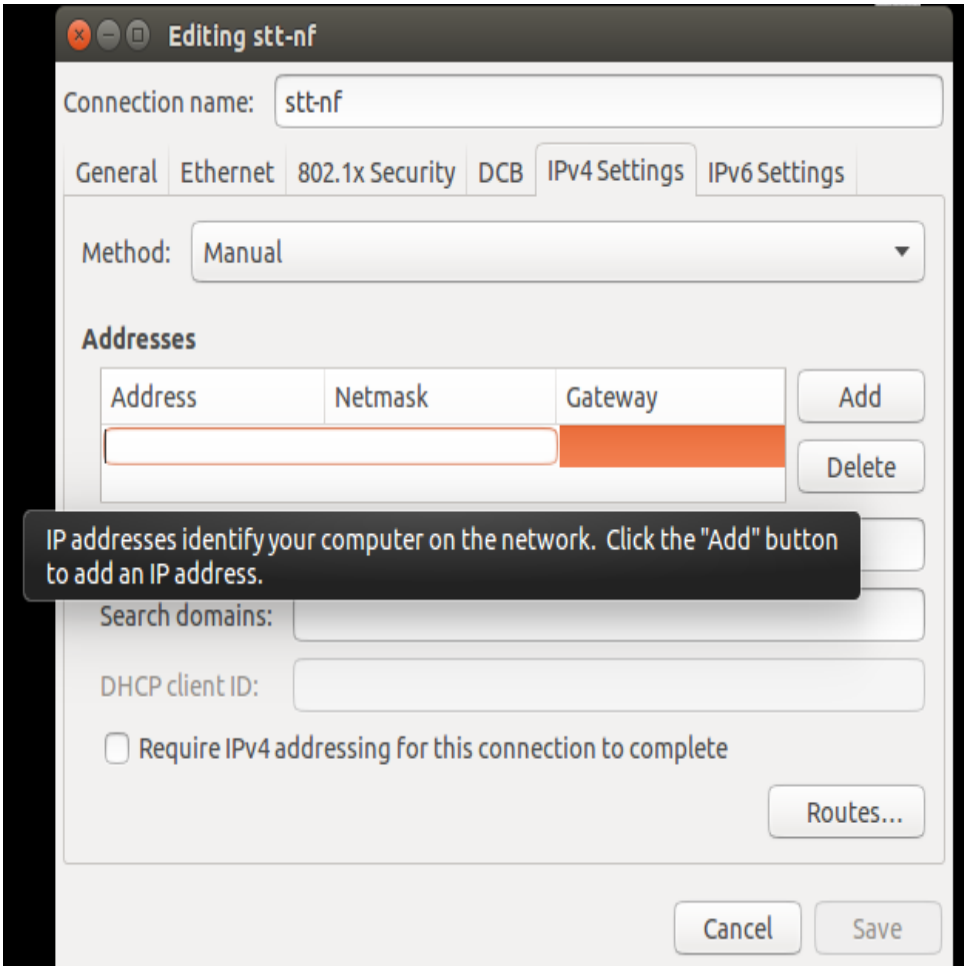


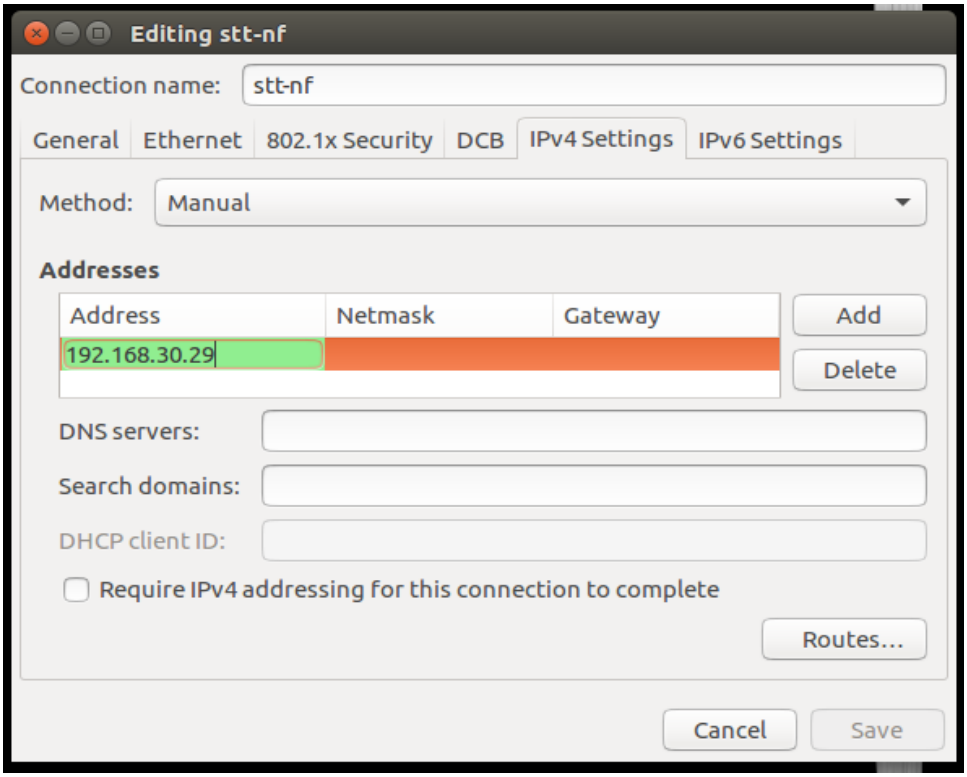



Editing stt-nf
Connection name: stt-nf
General
Ethernet
802.1x Security
DCB
IPv4 Settings
IPv6 Settings
Method: Manual
Addresses
Address
Netmask
Gateway
Add
Delete
DNS servers:
Search domains:
DHCP client ID:
Require IPv4 addressing for this connection to complete
Routes...
Cancel
Save

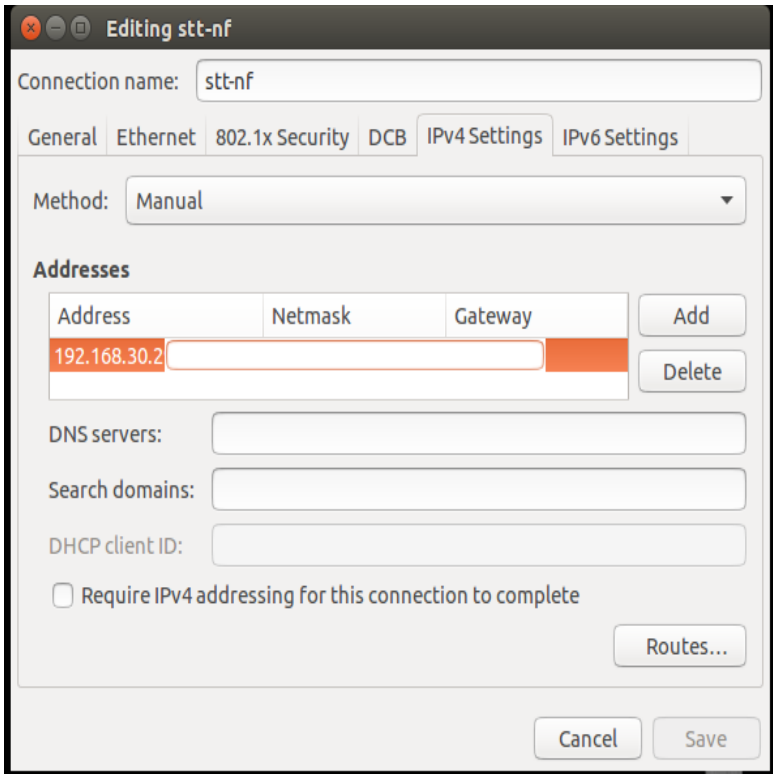

Editing stt-nf
Connection name: stt-nf
General
Ethernet
802.1x Security
DCB
IPv4 Settings
IPv6 Settings
Method: Manual
Addresses
Address
Netmask
Gateway
Add
Delete
DNS servers:
Search domains:
DHCP client ID:
Require IPv4 addressing for this connection to complete
Routes...
Cancel
Save

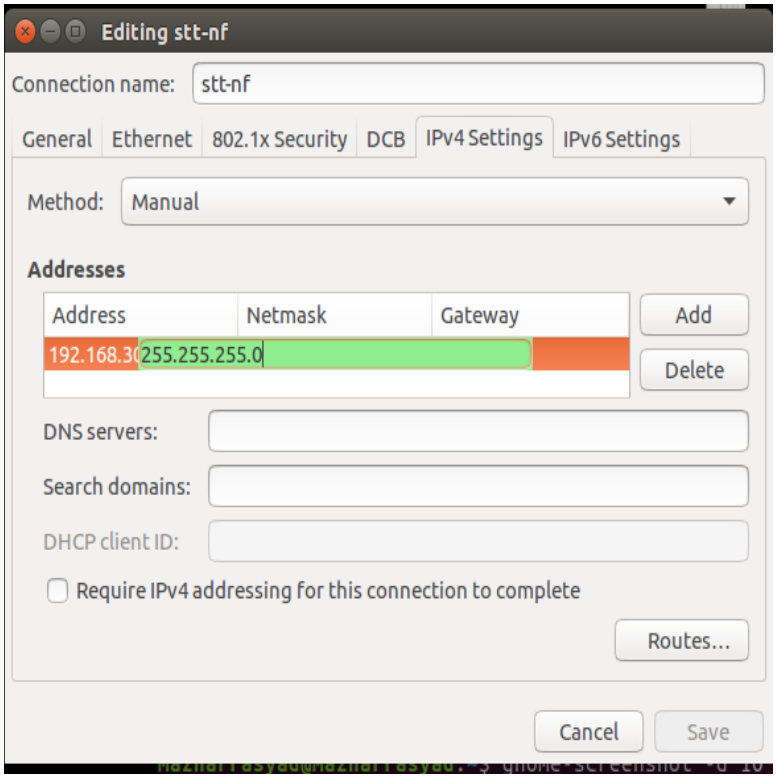
- Ketikkan 192.168.30.x (ganti x dengan nomor urut absen) pada kolom Address



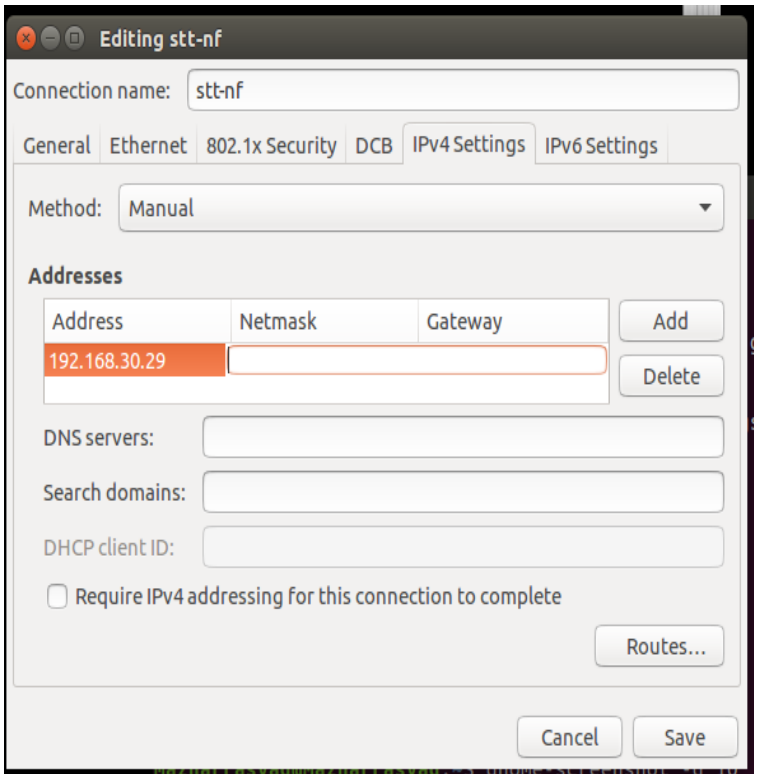


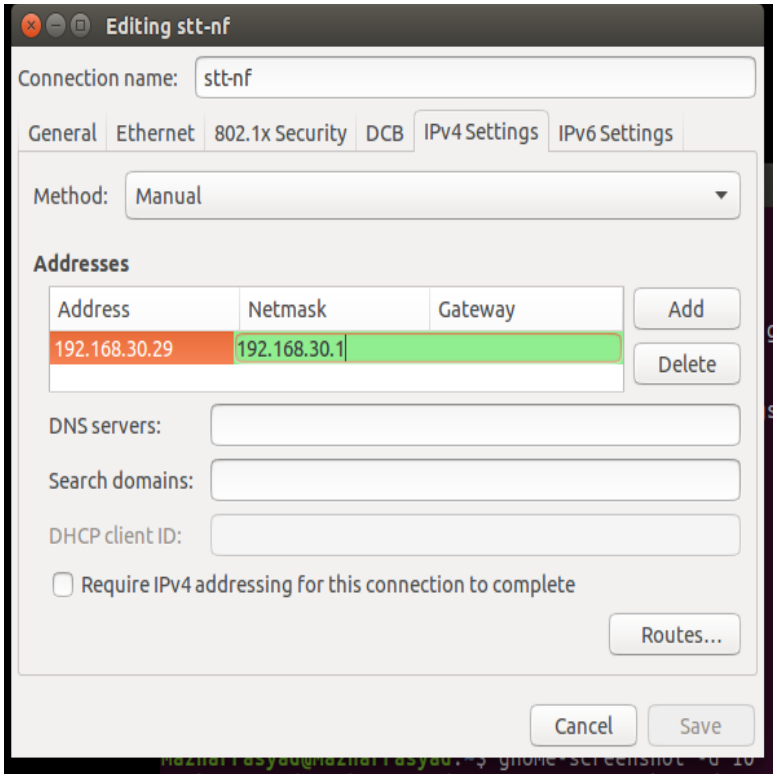
- Ketikkan 255.255.255.0 atau 24 pada kolom Netmask



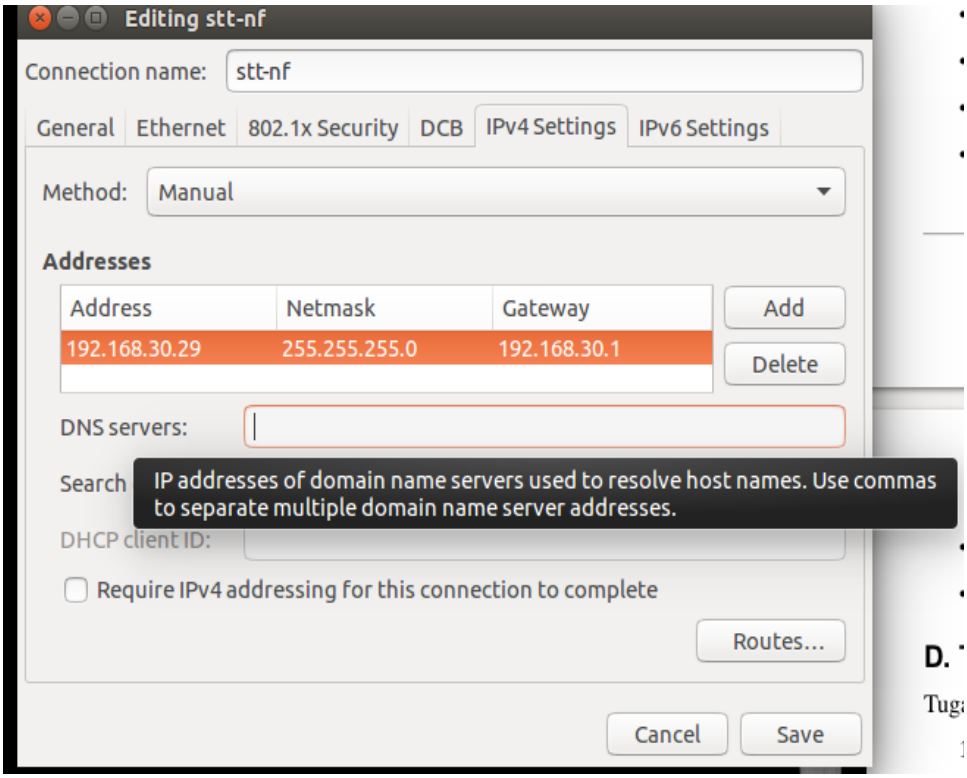


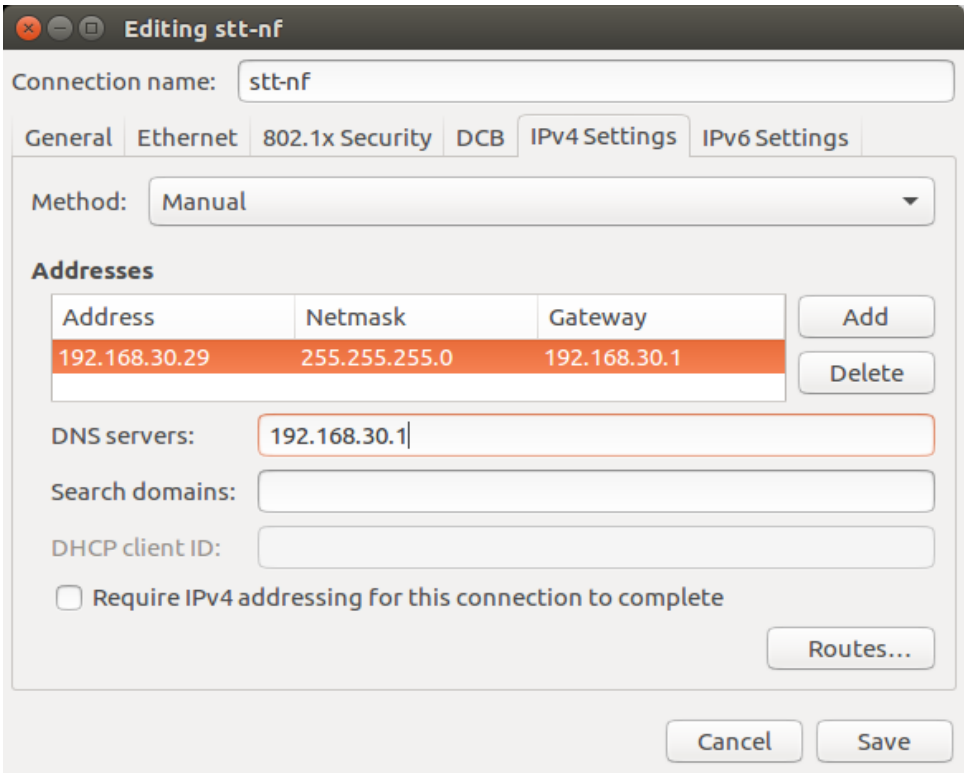
- Ketikkan 192.168.30.1 pada kolom Gateway



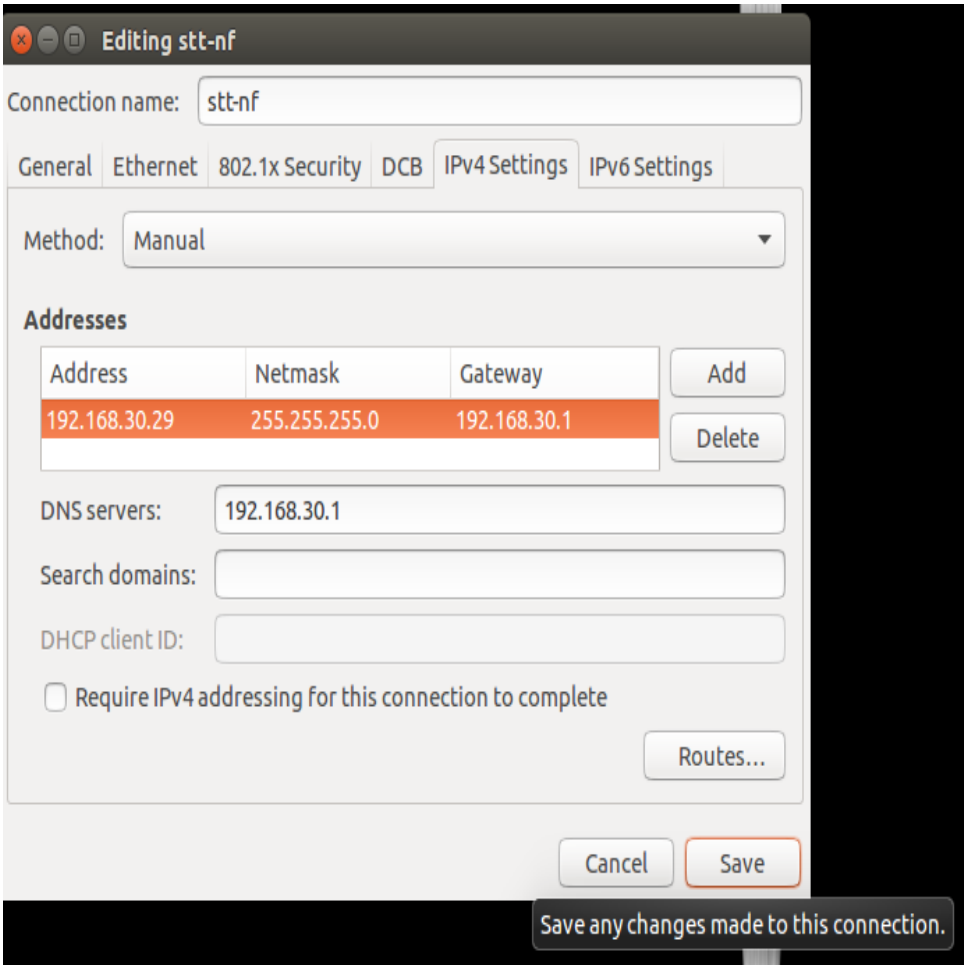


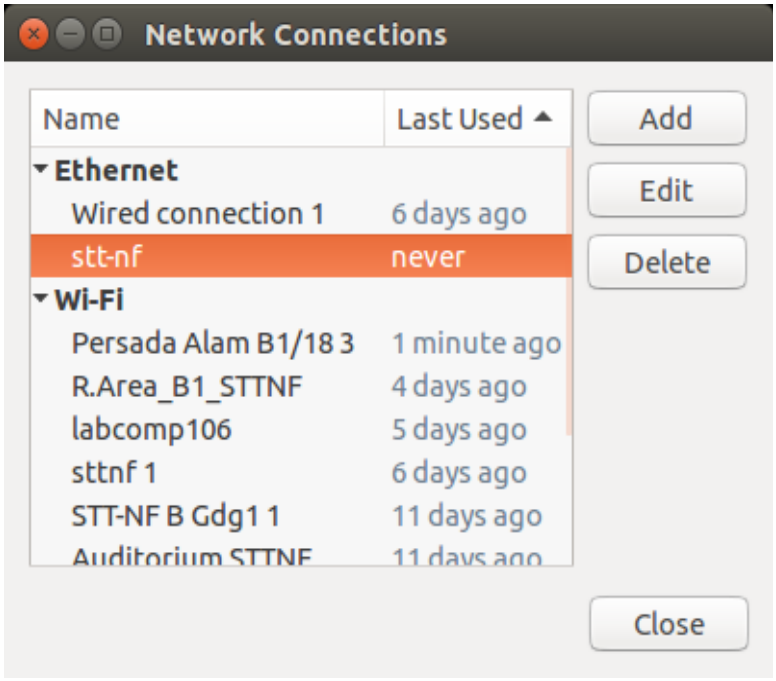
- Ketikkan 192.168.30.1 pada kolom DNS Servers





- Klik tombol Save... untuk mengakhiri konfigurasi.





D. Tugas

1. Ubahlah konfigurasi kartu jaringan eth0 komputer anda menjadi sbb:

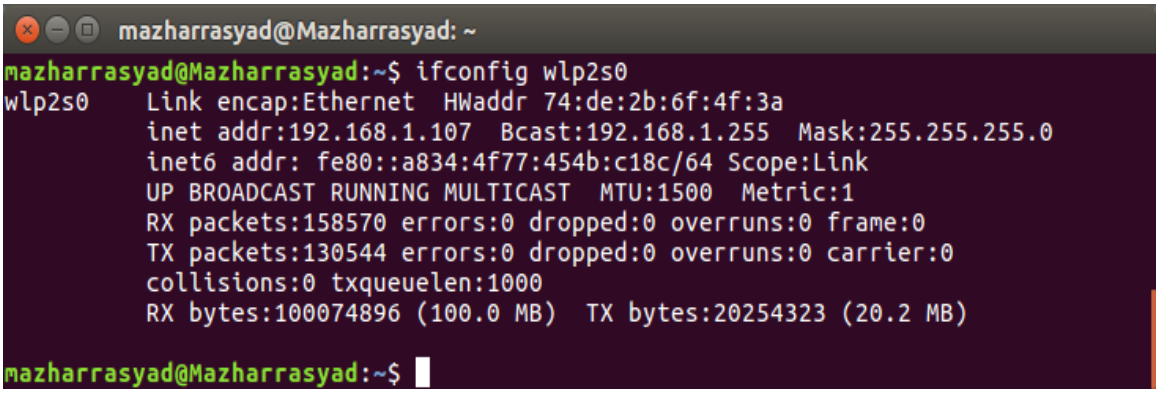
   IP Address : 192.168.20.100

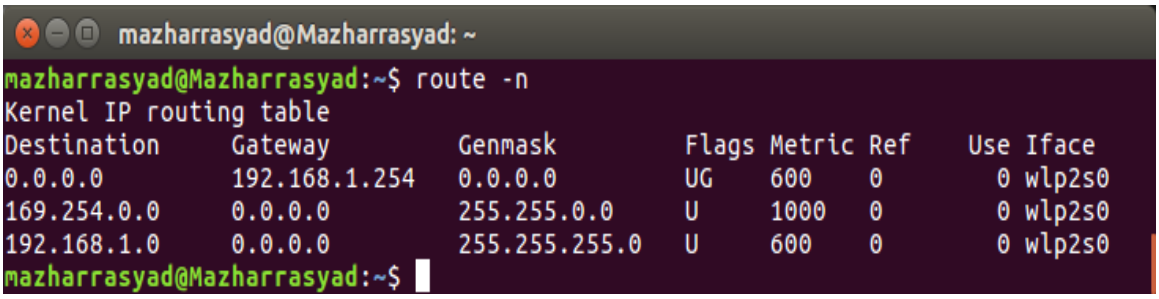
   Netmask : 255.255.255.128

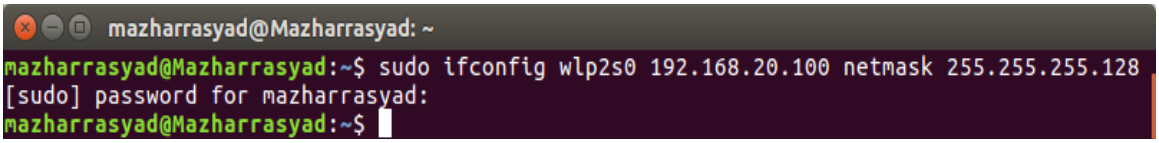
   Gateway : 192.168.20.1

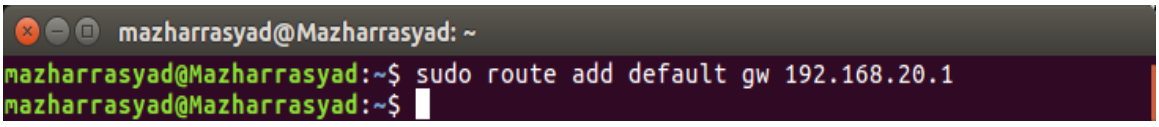
   Kemudian tampilkan hasilnya apakah konfigurasi yang dilakukan sudah berhasil atau belum.

   Tuliskan perintah apa saja yang harus digunakan untuk kegiatan di atas!









```
mazharrasyad@Mazharrasyad: ~
mazharrasyad@Mazharrasyad:~$ ifconfig wlp2s0
wlp2s0    Link encap:Ethernet  HWaddr 74:de:2b:6f:4f:3a
          inet addr:192.168.20.100  Bcast:192.168.20.127  Mask:255.255.255.128
          inet6 addr: fe80::a834:4f77:454b:c18c/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:158791 errors:0 dropped:0 overruns:0 frame:0
          TX packets:130726 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:100111175 (100.1 MB)  TX bytes:20273432 (20.2 MB)

mazharrasyad@Mazharrasyad:~$
```

```
mazharrasyad@Mazharrasyad: ~
mazharrasyad@Mazharrasyad:~$ route -n
Kernel IP routing table
Destination     Gateway         Genmask         Flags Metric Ref    Use Iface
0.0.0.0         192.168.20.1    0.0.0.0         UG    0      0        0 wlp2s0
192.168.20.0    0.0.0.0         255.255.255.128 U     0      0        0 wlp2s0
mazharrasyad@Mazharrasyad:~$
```

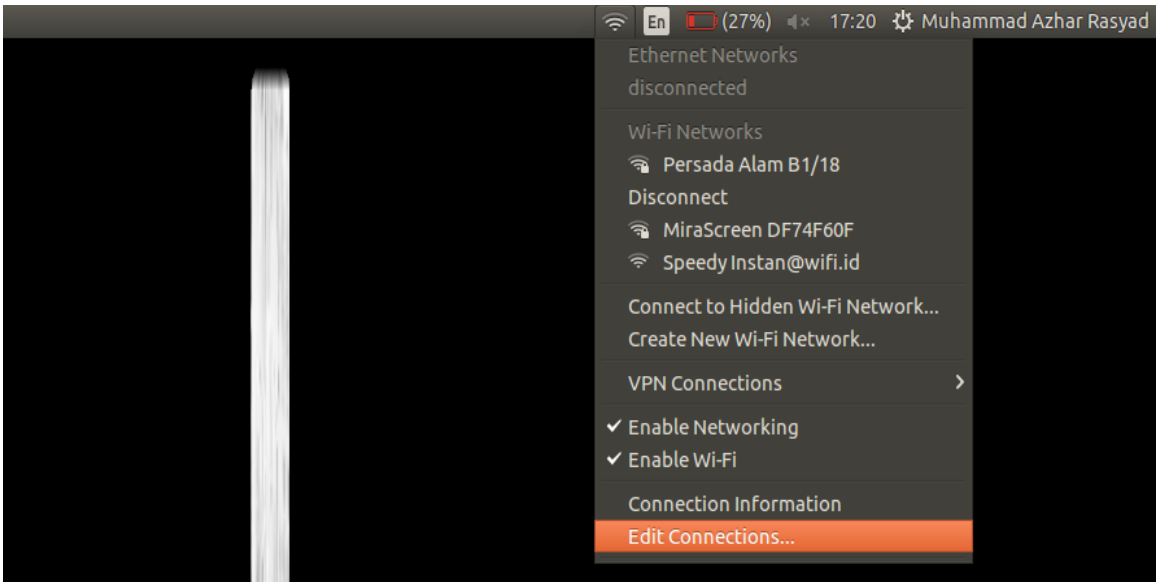
2. Tuliskan langkah-langkah untuk menambahkan konfigurasi jaringan kabel dengan nama koneksi 'kampus' menggunakan ip statis melalui desktop dengan konfigurasi sebagai berikut:

   IP address : 192.168.50.x (ganti x dengan nomor urut absen)

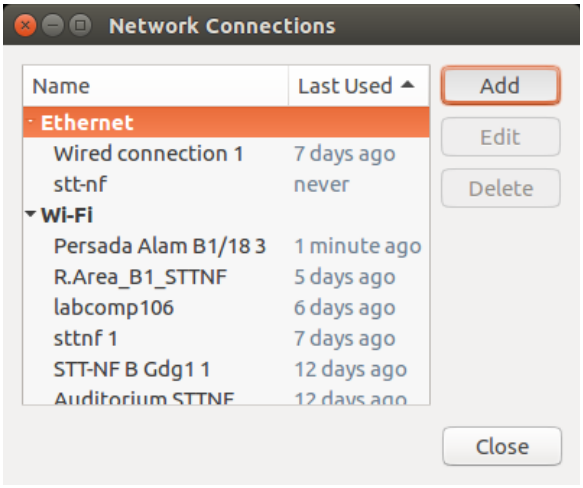
   Netmask : 255.255.255.0

   Gateway : 192.168.50.1

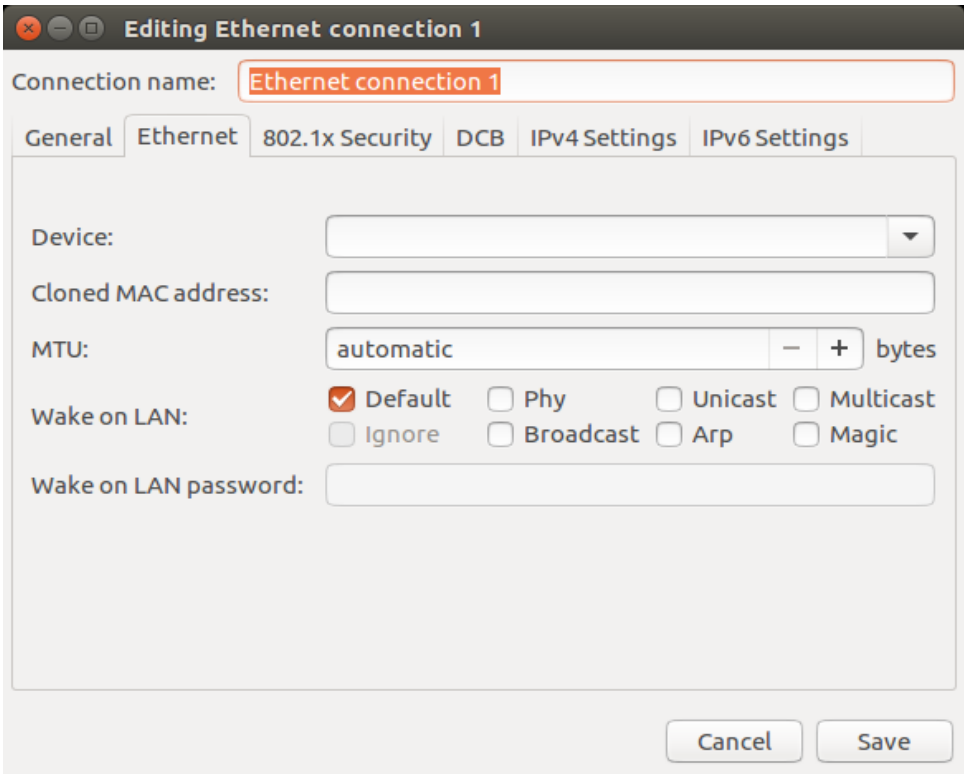
   DNS Server : 8.8.8.8

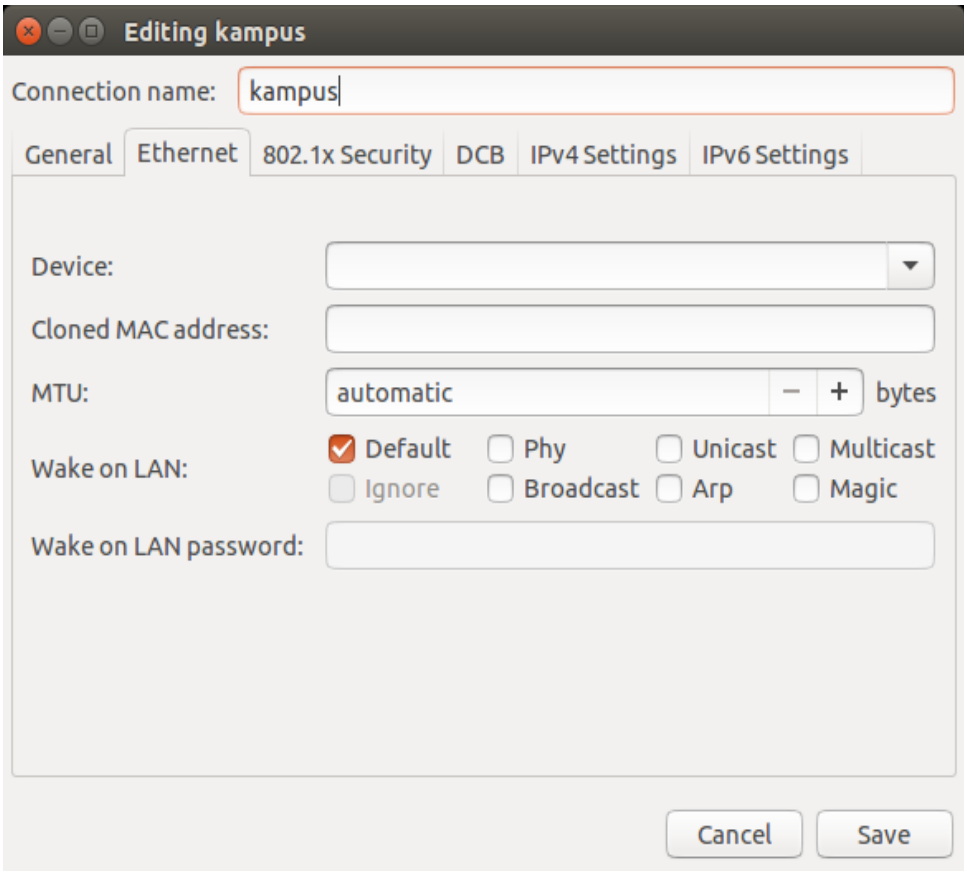


Klik tombol Add

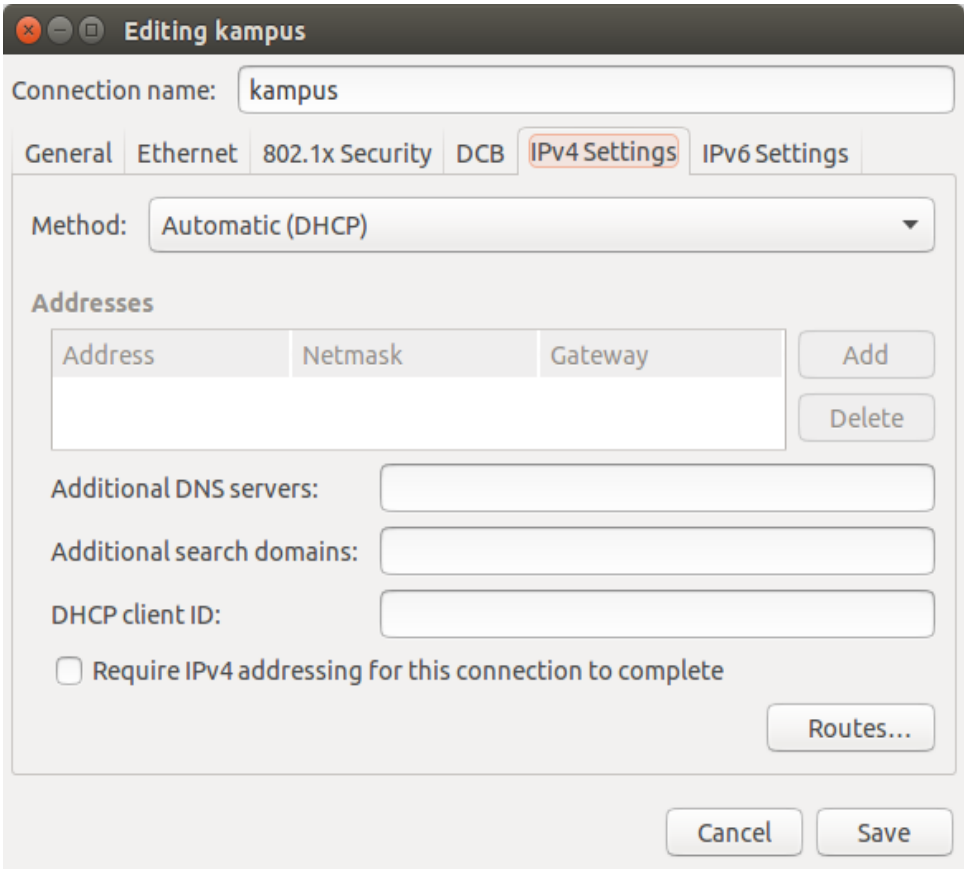


Pilih Connection Type Ethernet

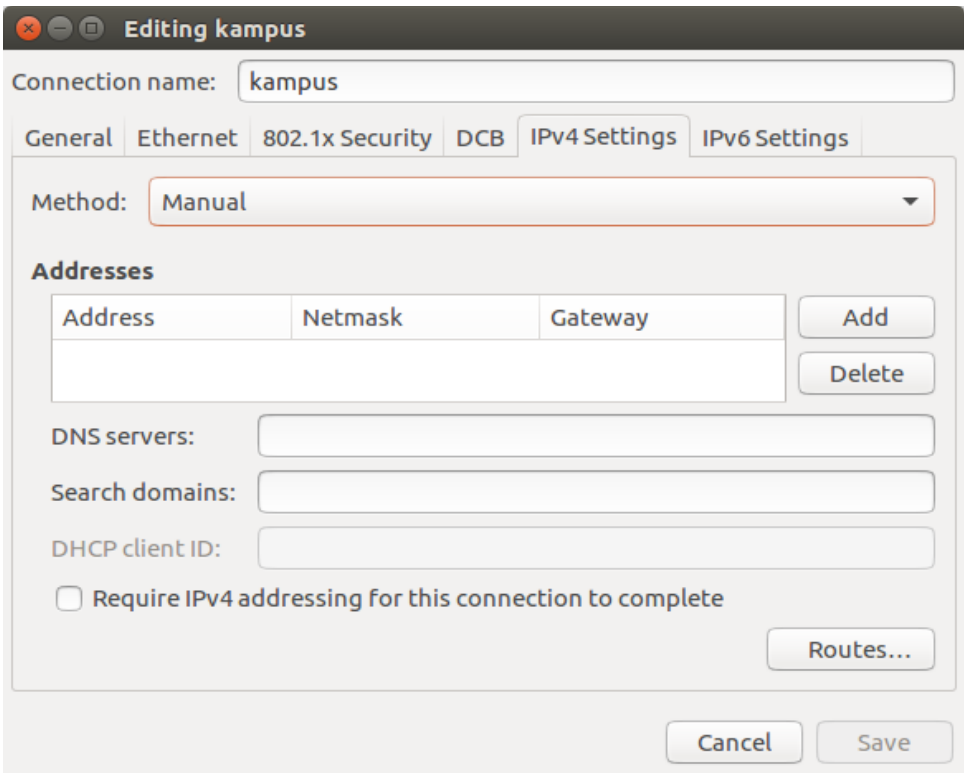

Editing Ethernet connection 1
Connection name:
Ethernet connection 1
General
Ethernet
802.1x Security
DCB
IPv4 Settings
IPv6 Settings
Device:
Cloned MAC address:
MTU:
automatic
bytes
Wake on LAN:
Default
Phy
Unicast
Multicast
Ignore
Broadcast
Arp
Magic
Wake on LAN password:
Cancel
Save

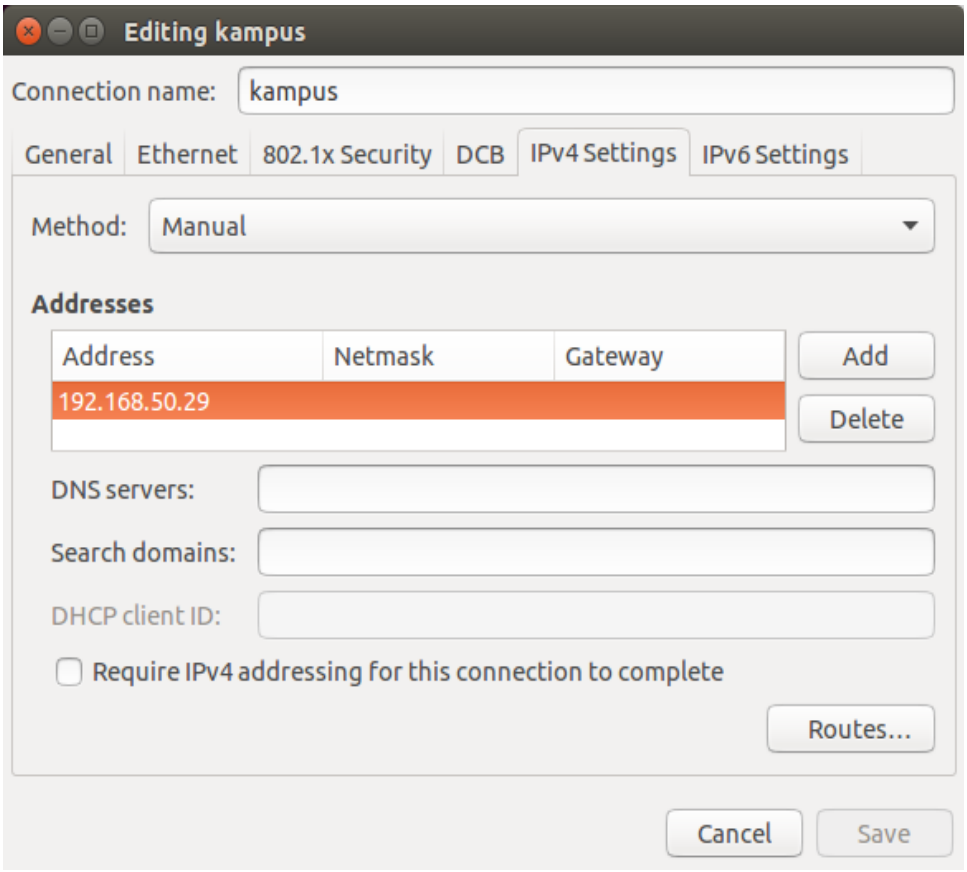

Editing kampus
Connection name:
kampus
General
Ethernet
802.1x Security
DCB
IPv4 Settings
IPv6 Settings
Device:
Cloned MAC address:
MTU:
automatic
bytes
Wake on LAN:
Default
Phy
Unicast
Multicast
Ignore
Broadcast
Arp
Magic
Wake on LAN password:
Cancel
Save

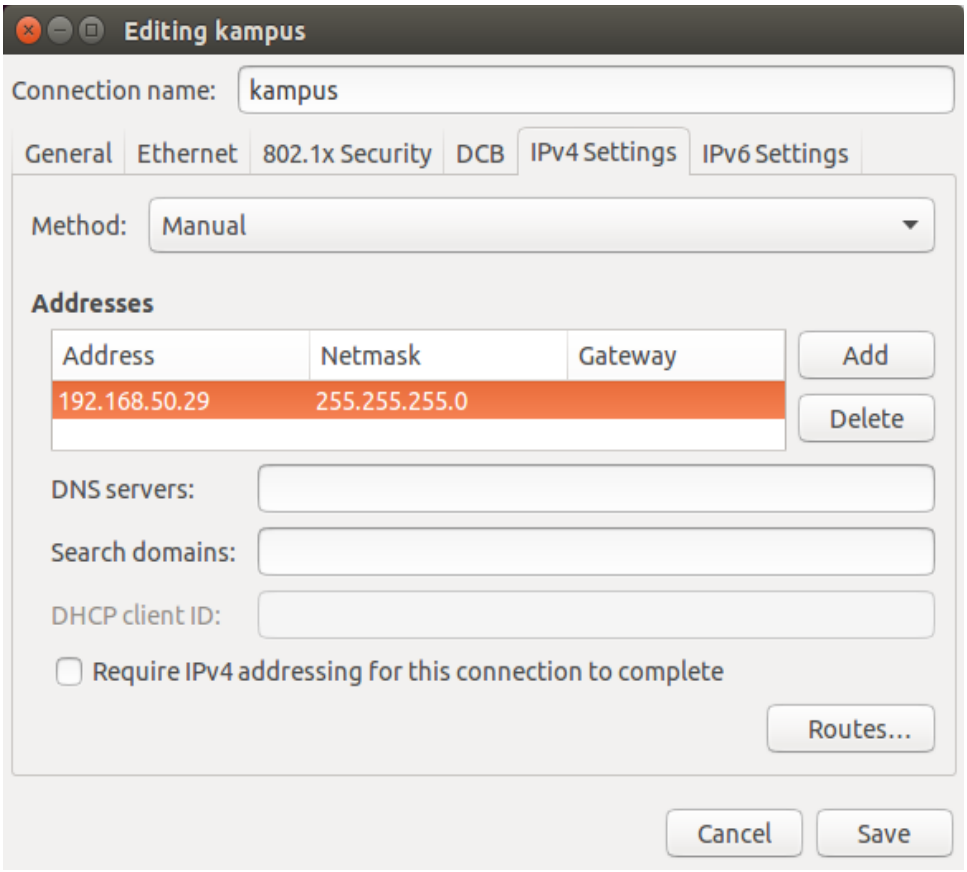
Pilih Menu Bar IPv4 Settings

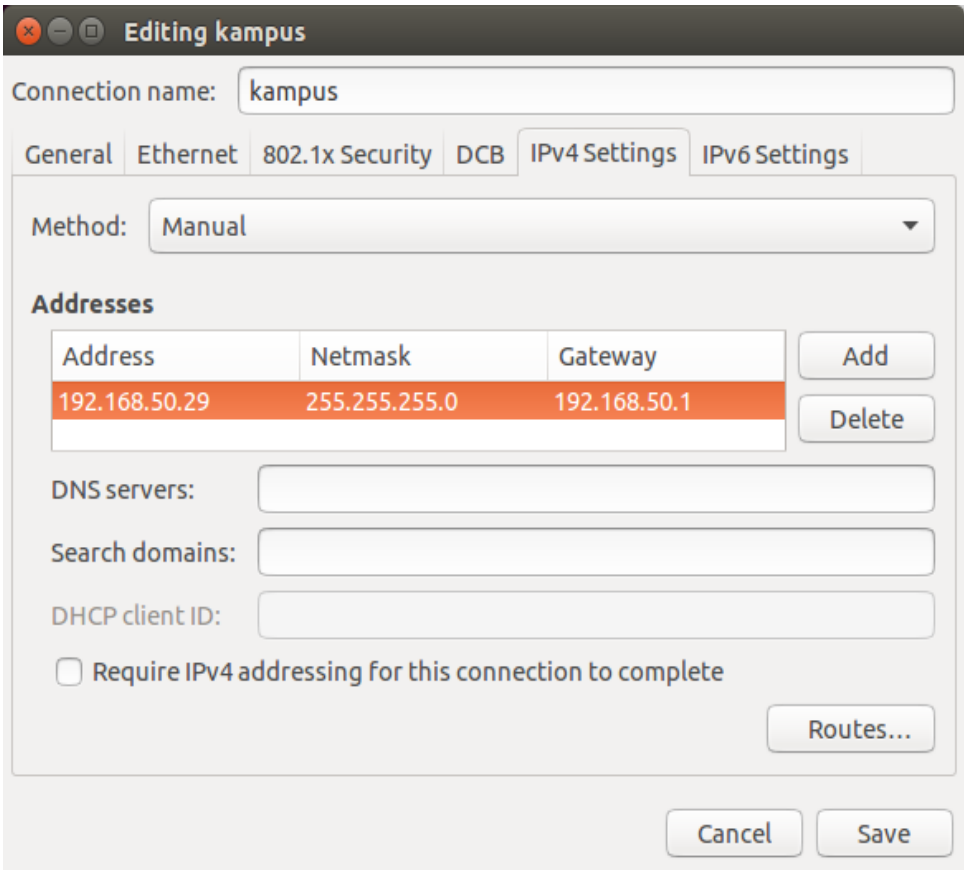


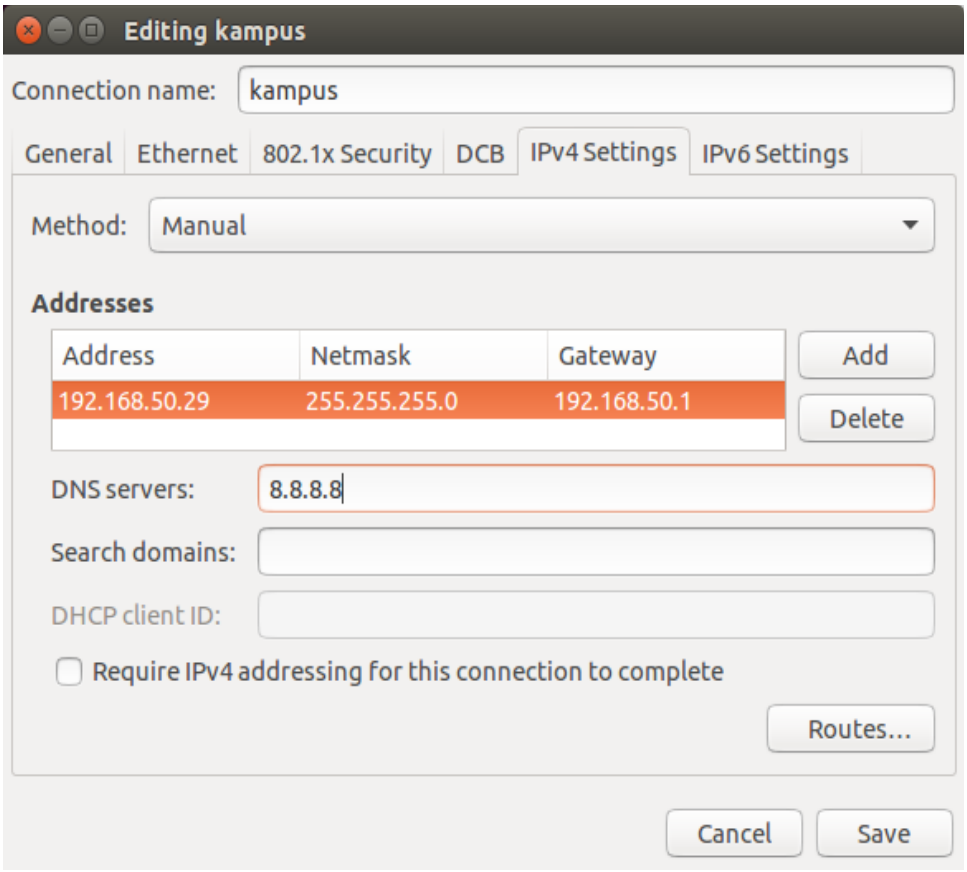
Pilih Method Manual



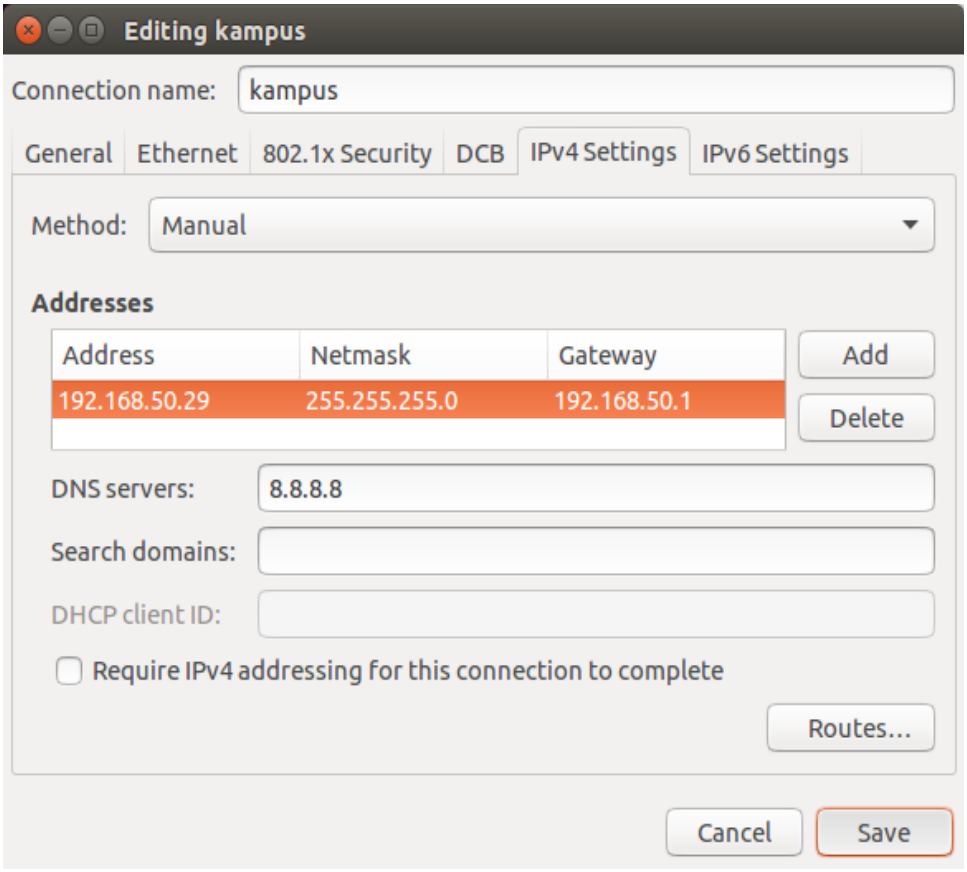

Editing kampus
Connection name: kampus
General
Ethernet
802.1x Security
DCB
IPv4 Settings
IPv6 Settings
Method: Manual
Addresses
Address
Netmask
Gateway
Add
192.168.50.29
Delete
DNS servers:
Search domains:
DHCP client ID:
Require IPv4 addressing for this connection to complete
Routes...
Cancel
Save

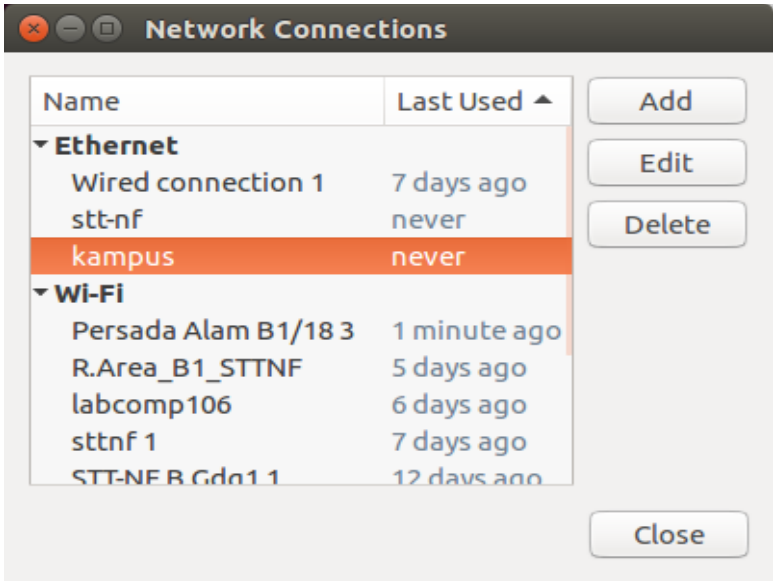

Editing kampus
Connection name: kampus
General
Ethernet
802.1x Security
DCB
IPv4 Settings
IPv6 Settings
Method: Manual
Addresses
Address
Netmask
Gateway
Add
192.168.50.29
255.255.255.0
Delete
DNS servers:
Search domains:
DHCP client ID:
Require IPv4 addressing for this connection to complete
Routes...
Cancel
Save


Editing kampus
Connection name: kampus
General
Ethernet
802.1x Security
DCB
IPv4 Settings
IPv6 Settings
Method: Manual
Addresses
Address
Netmask
Gateway
192.168.50.29
255.255.255.0
192.168.50.1
Add
Delete
DNS servers:
Search domains:
DHCP client ID:
Require IPv4 addressing for this connection to complete
Routes...
Cancel
Save


Editing kampus
Connection name: kampus
General
Ethernet
802.1x Security
DCB
IPv4 Settings
IPv6 Settings
Method: Manual
Addresses
Address
Netmask
Gateway
192.168.50.29
255.255.255.0
192.168.50.1
Add
Delete
DNS servers: 8.8.8.8
Search domains:
DHCP client ID:
Require IPv4 addressing for this connection to complete
Routes...
Cancel
Save

Klik Tombol Save





Kesimpulan

Jadi pada setiap komputer jika ingin menggunakan jaringan harus mengatur network card atau kartu jaringan supaya komputer tersebut dapat terbaca oleh anggota jaringan yang lain seperti mengatur IP Address, IP Gateway, dan DNS Resolver. Pada jaringan di linux kita dapat mengaturnya dengan menggunakan command line ataupun desktop. Jika menggunakan command line maka diperlukan perintah – perintah seperti ifconfig, dhclient, route, ping, nslookup. Jika menggunakan desktop dapat menggunakan Connection Information dan Edit Connections.