Mata Kuliah Jaringan Komputer

Dosen : Ade Ismail

Praktikum 02

Identifikasi Hardware Jaringan

Serta Konfigurasi IP Dinamis dan Statis

oleh :

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No Urut : 05

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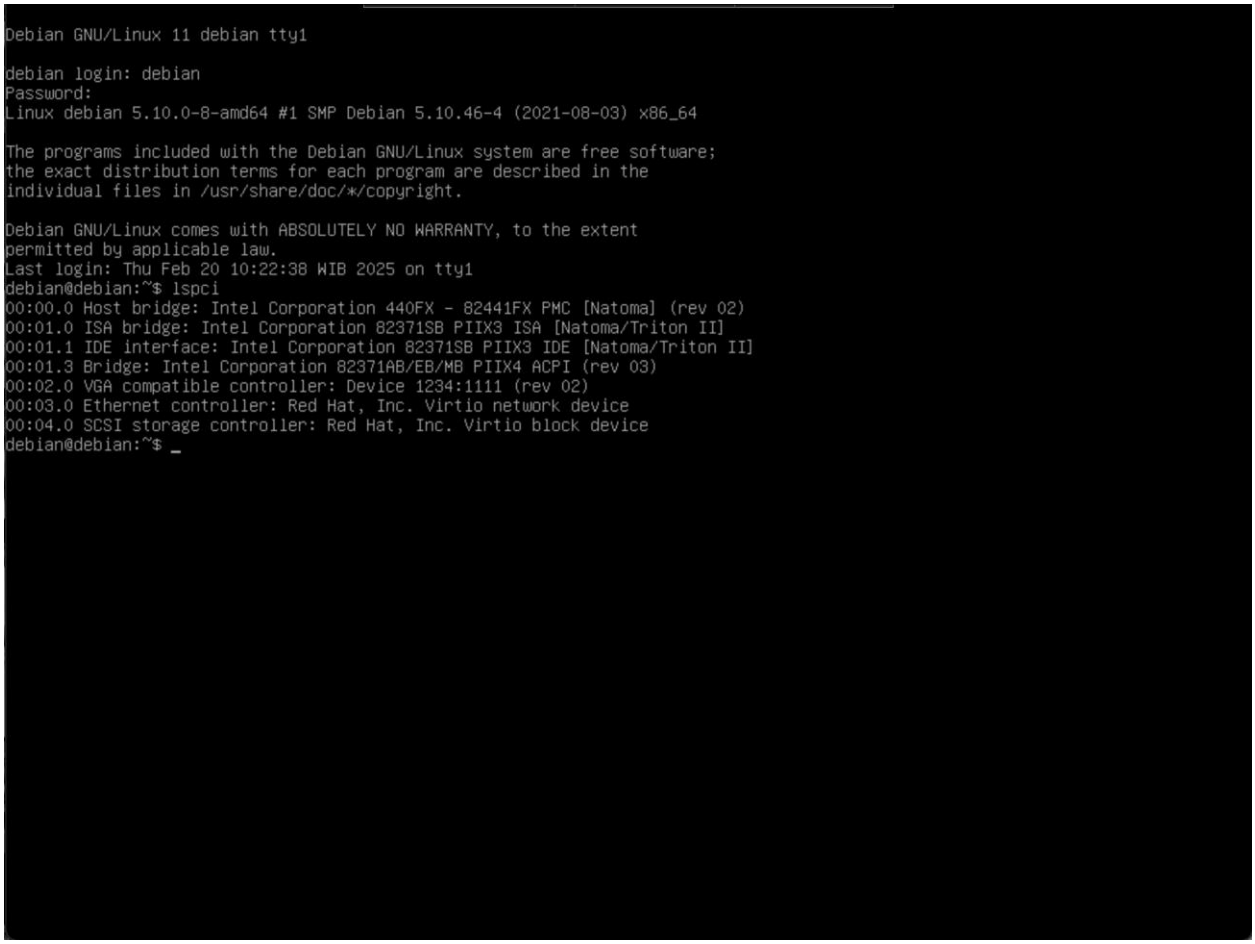
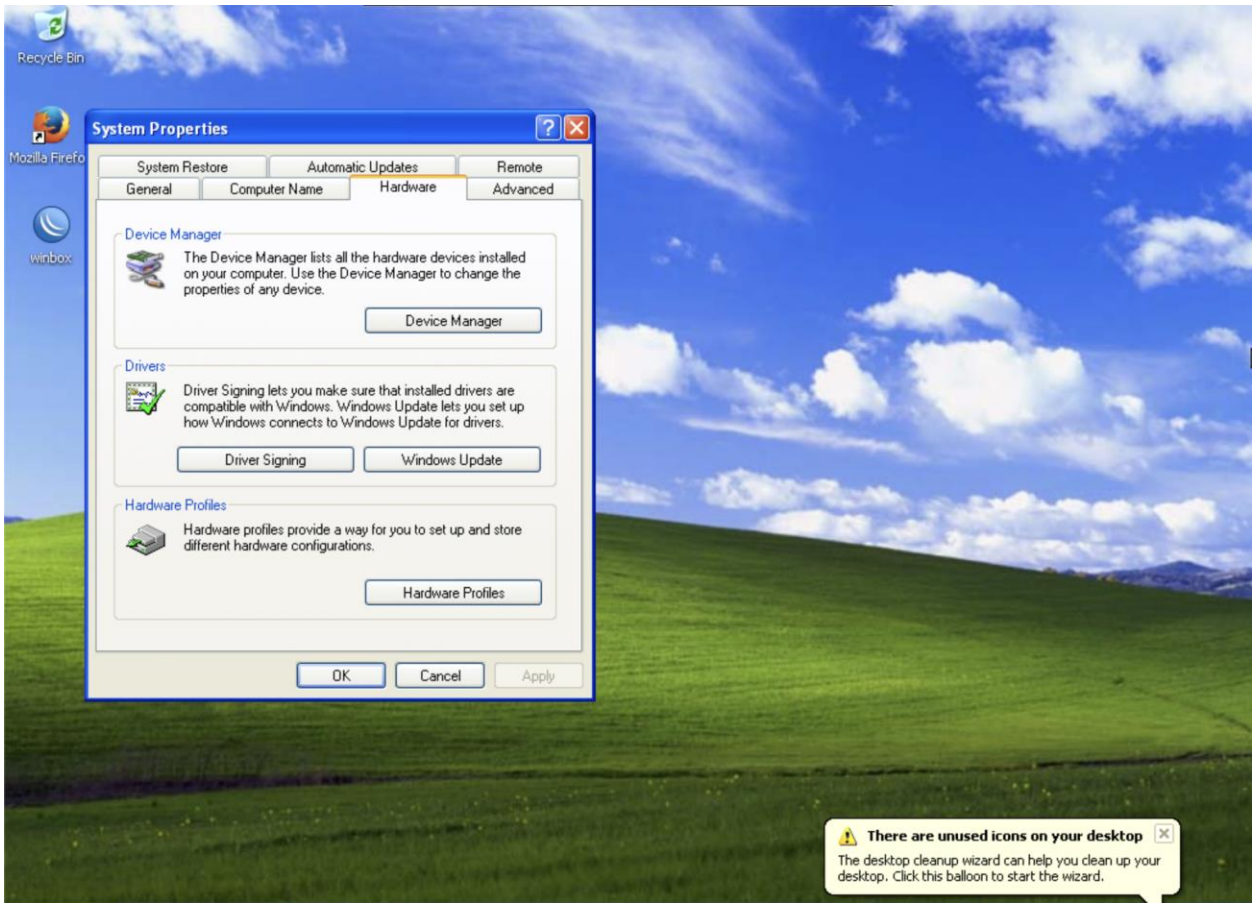
A. Network Hardware Identification a) Identification on Linux Operating System

1. In this first phase we need to turn on our linux and we must login into system operation with user name and password “Debian” by accessing it in the GNS3, I’m accessing the 05 device
2. Second we need to command lspci to make sure that we have NIC with Ethernet Controller.

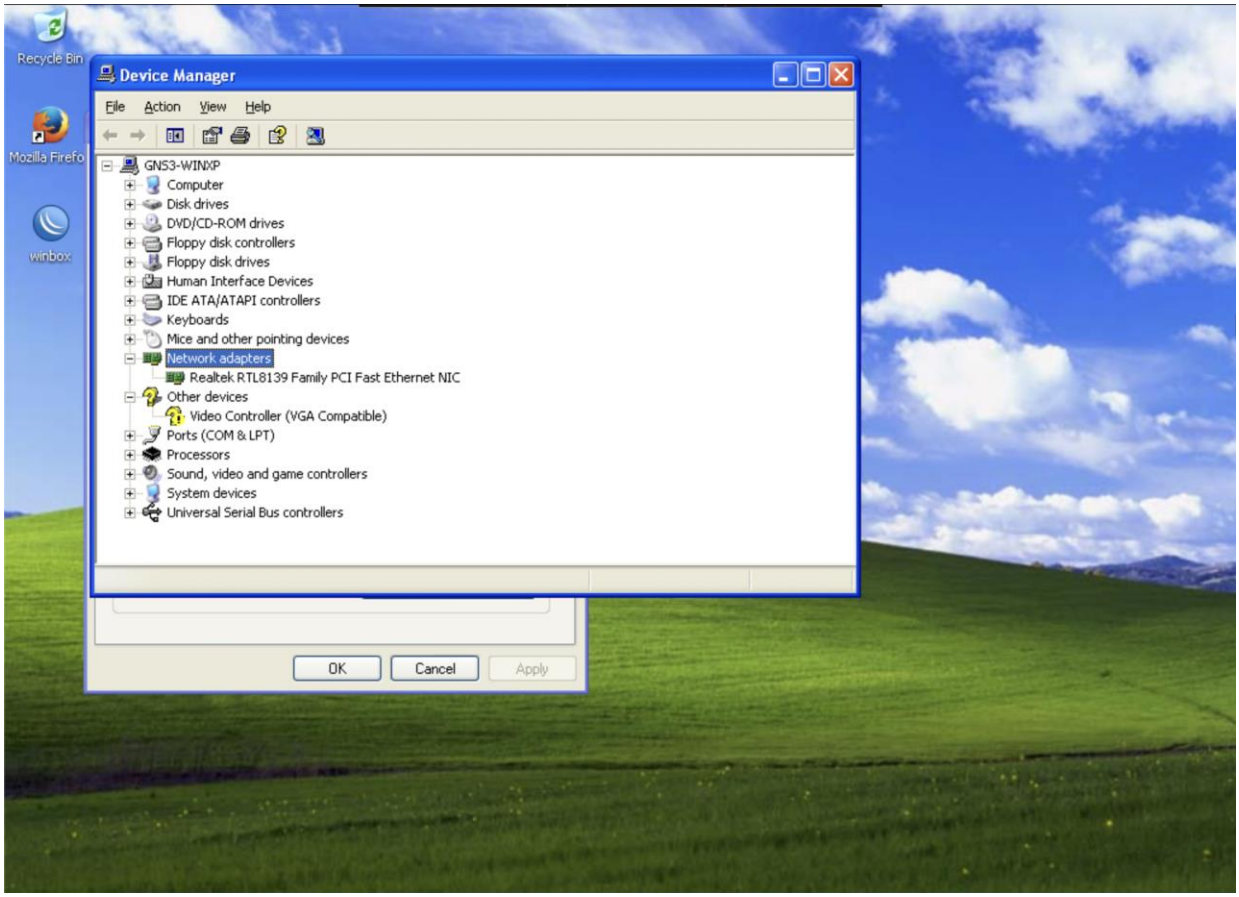


a. Identification on Windows Operating System

1. We need to turn on our windows computer in class project TI_2i and then we should choose the start menu and open my computer with right click then we need to access the properties option.
2. Click hardware tab in system properties, after that we need to choose the device manager to find our NIC in part Network Adapters

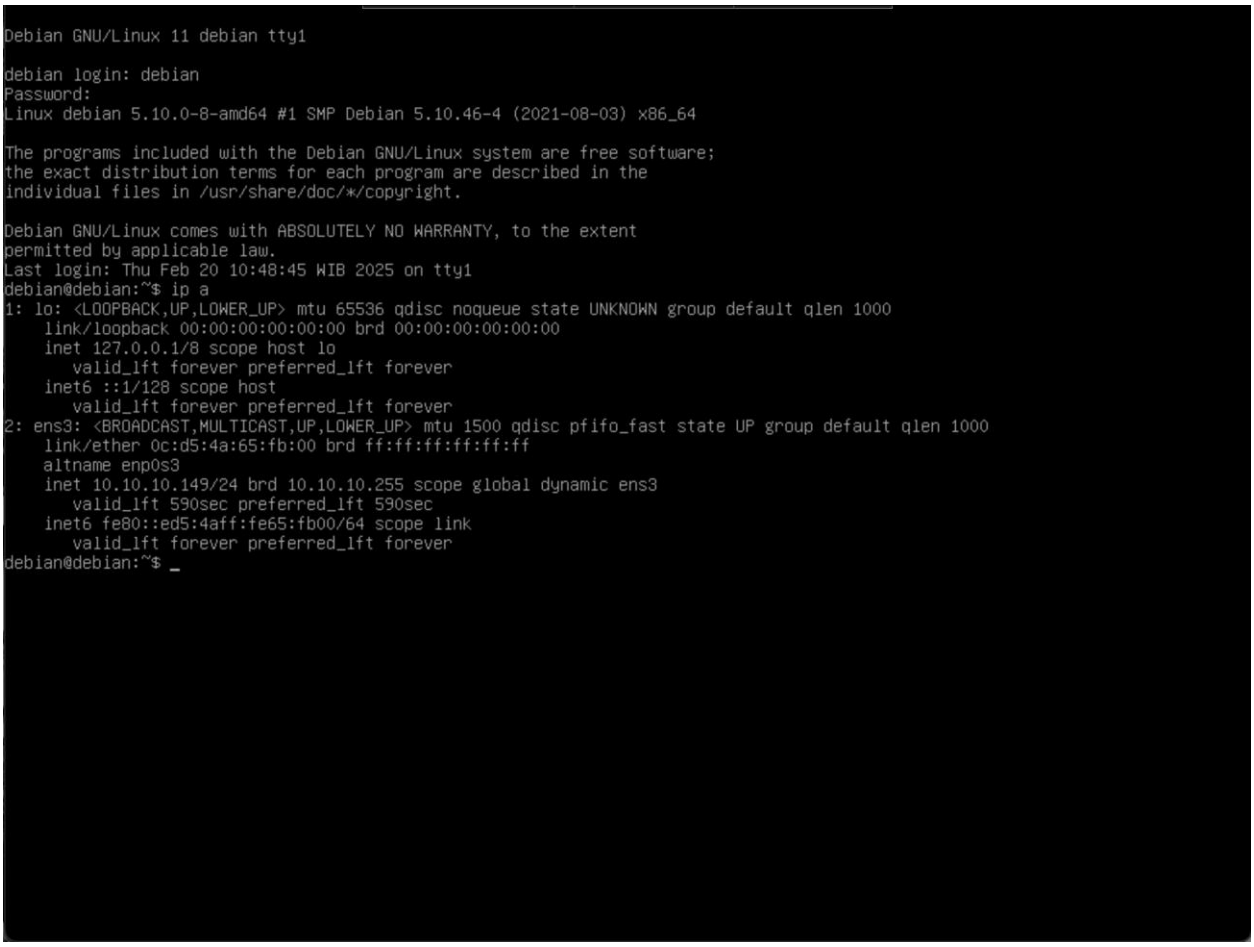


3. Click the Network Adapters to know that we have NIC(RTL8139) in our windows

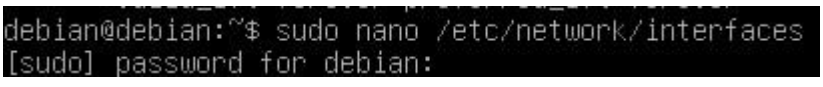


B. Dynamic IP Address Configuration a) Dynamic IP Address Configuration on Linux

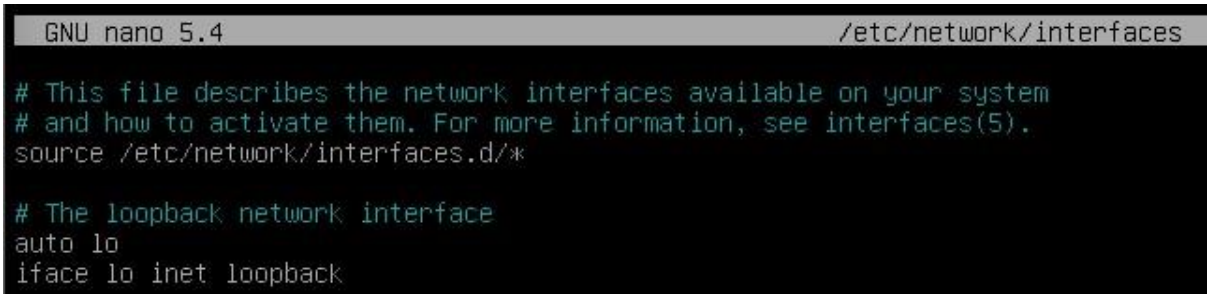
1. Run command ip a in our linux terminal to know our alias name for NIC that installed in your windows.This is the first step we must to do if we want to make configuration ip address in linux operation system.
   (note: The image has been update,ip has been configured)



2. In that case, ENS3 is your NIC alias name.In that terms you must set up your IP in file called “interfaces” which is located in “/etc/network/”,so first step type sudo to run access right then you type nano as yout text editor and you combine with “/etc/network/interfaces”.Next step Enter your password(“debian”) to enter your director



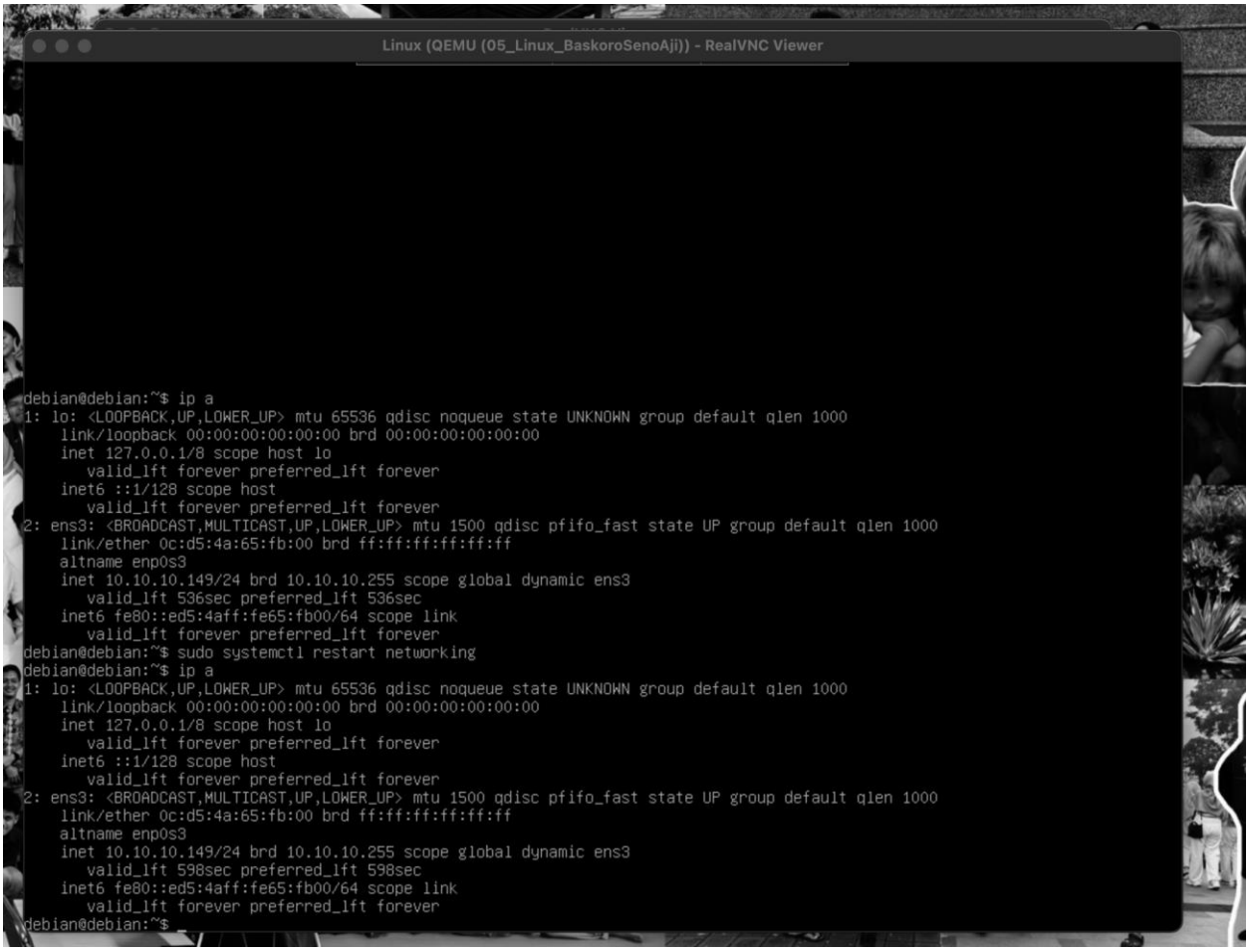
3. There is a interface in our directory in that case your directory doesn’t have NIC



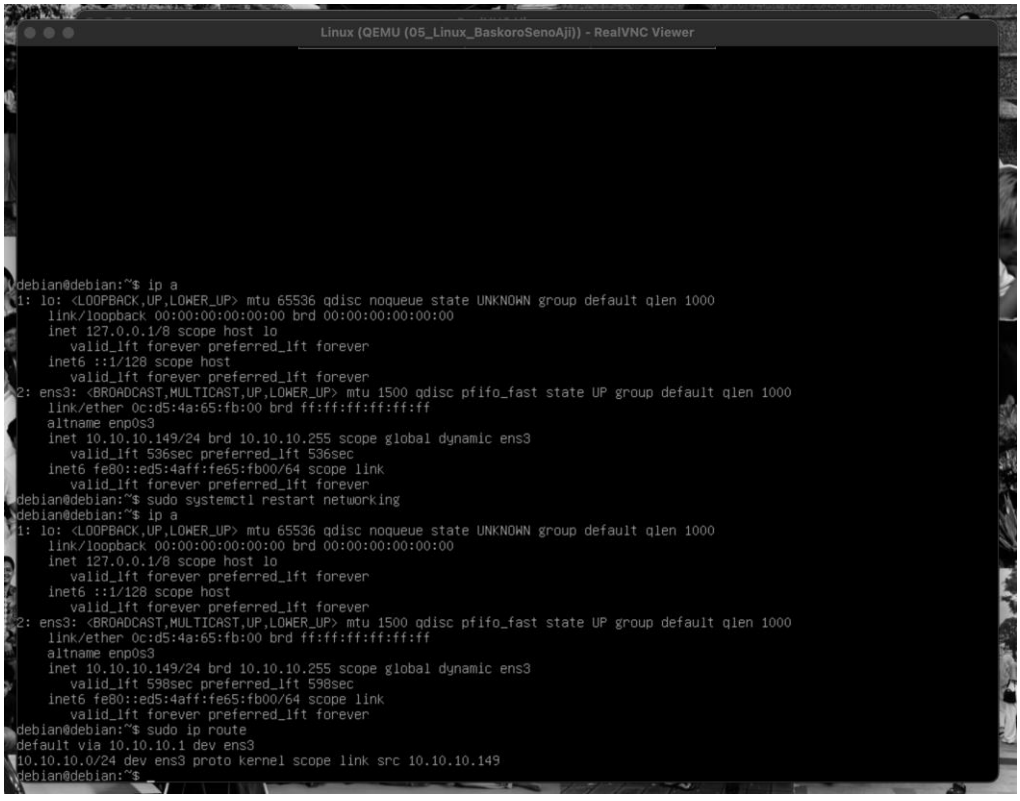
4. Edit your directory and configure your NIC. First, type the auto option to ensure your operating system does not allow manual changes. Second, use the dhcp option, which functions to assign an IP address automatically. The line iface ens3 inet dhcp indicates that the interface will receive an IP address via DHCP. After completing your edits, you can exit the Nano text editor by pressing Ctrl + X, then press Y to save your modifications.

5. After edit you must restart your network service with command sudo systemctl restart networking,and put your password(Debian).

6. Now check our ip,to make sure your NIC have your ip addresss



7. Other than ip address,your linux computer also have the automatic gateway address setting, to know that you can type sudo ip route

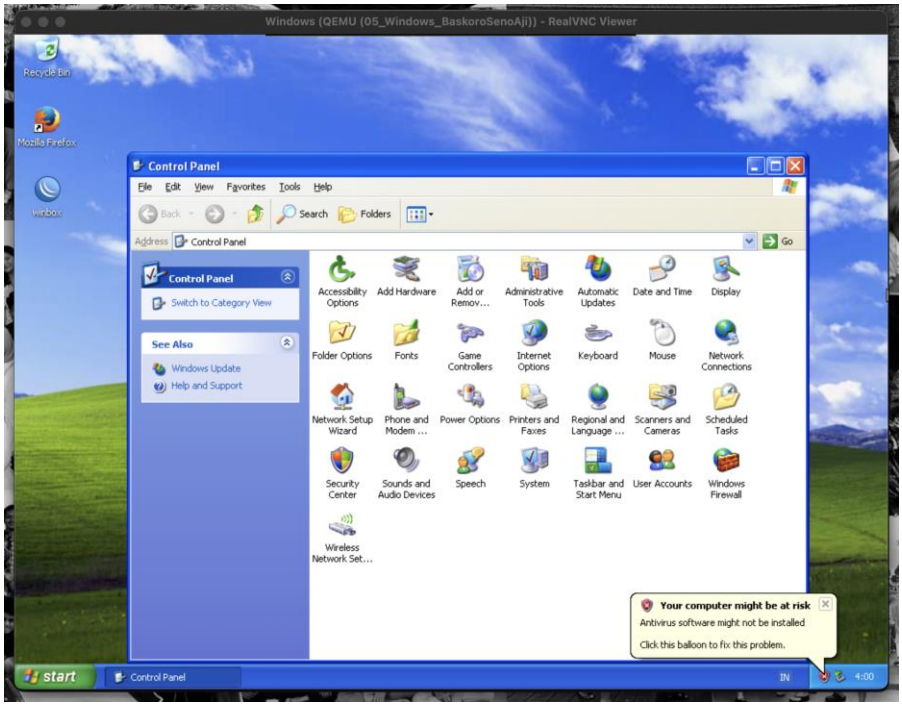


8. Besides ip address and gateway address setting,you can get DNS server addresss setting automatic.To check it you can type cat as command to see your file without edit,after that type “/etc/” as your directory and the type “resolv.conf” as your file that contain your DNS server address.

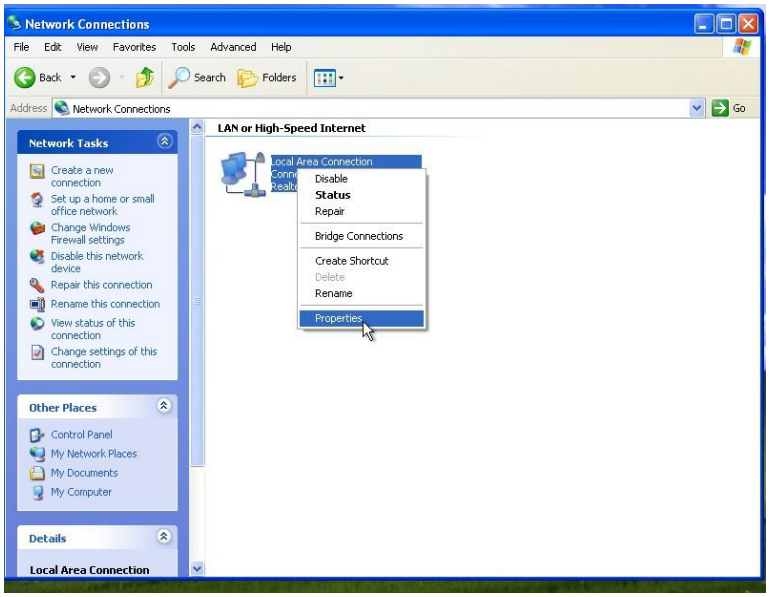
a) Dynamic IP Address Configuration on Windows

1. **First step, we need to access our windows, click start button then click control panel.**

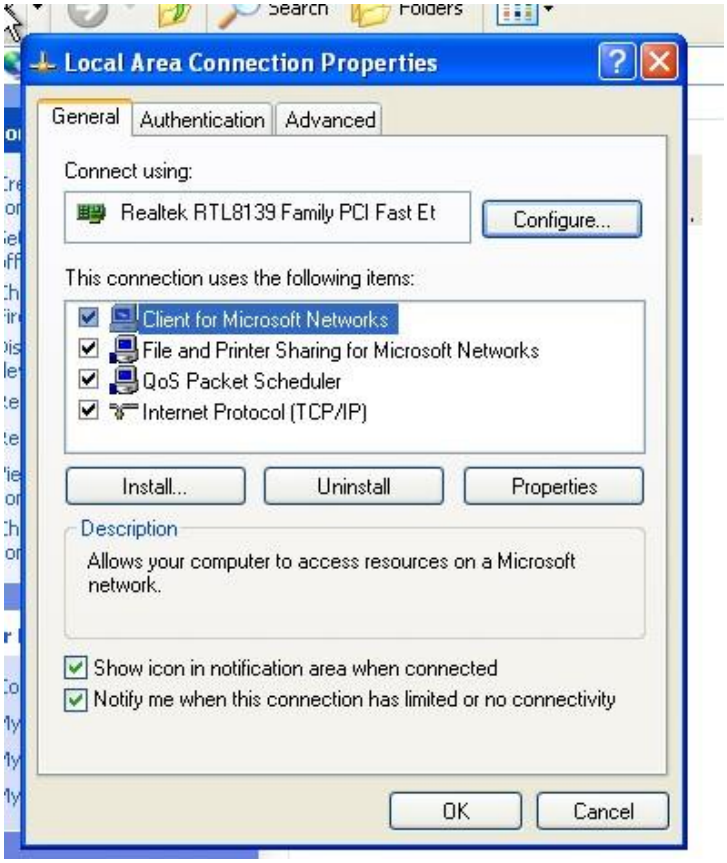
2. In control panel area,choose Network Connections menu



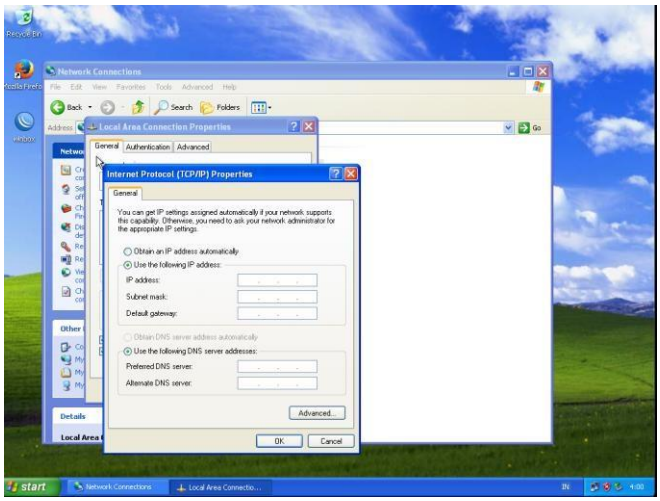
3. Basically there is defaut setting that NIC have that your computer is “Local Area Connection”,and then you right click the “Local Area Connection” and choose properties option.



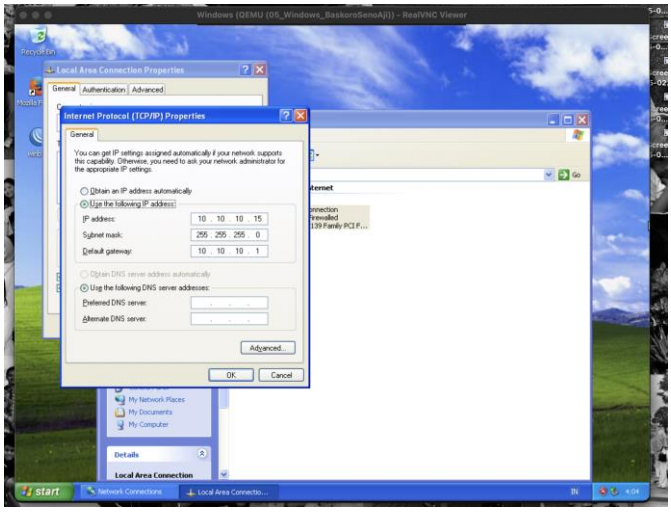
4. Choose Internet Protocol (TCP/IP) in your local area then click properties button



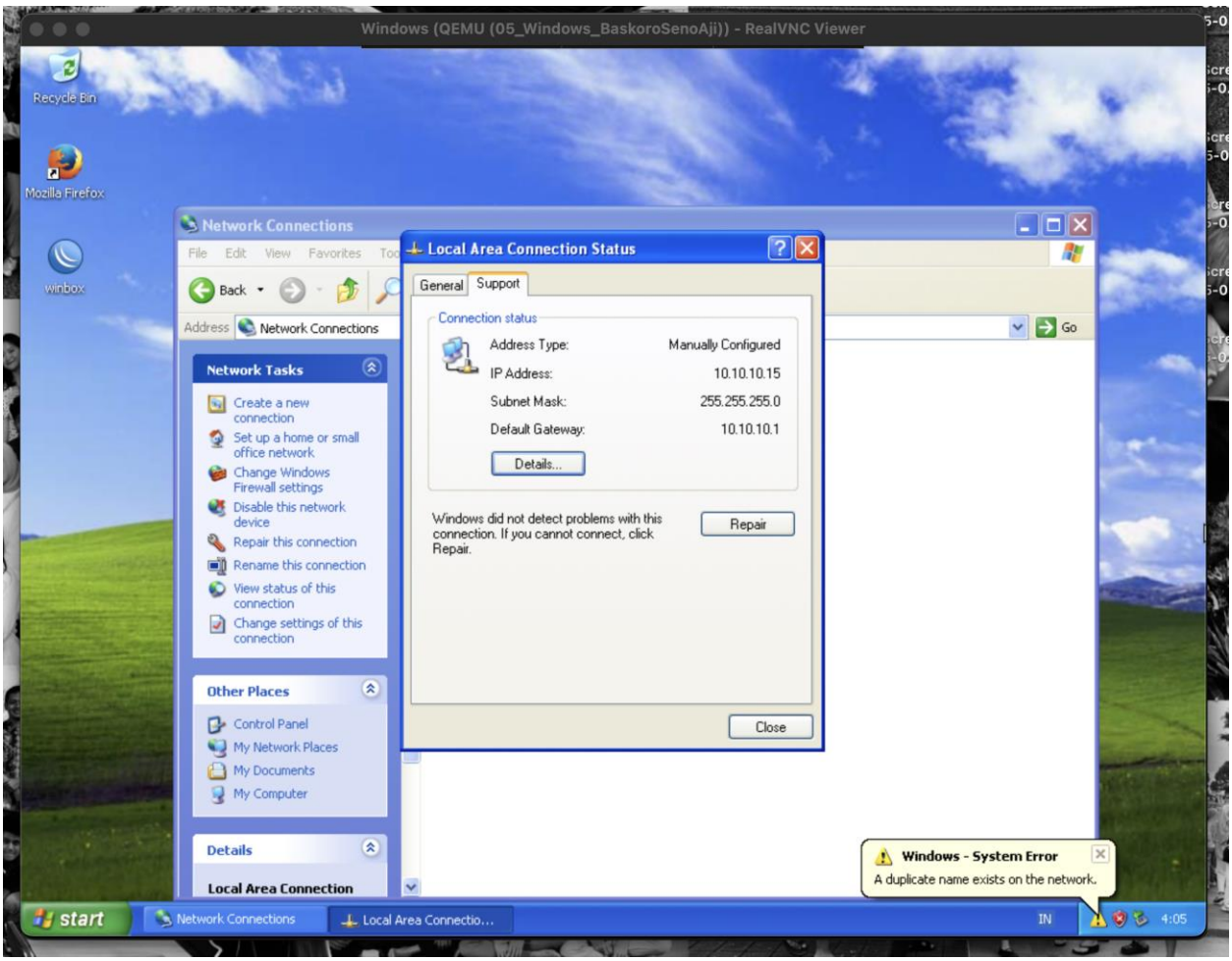
5. In Internet Protocol (TCP/IP) properties choose General tab and choose “Obtain an IP address automatically” optionto get your setting IP address and Gateway automatic.Then choose “Obtain DNS server address automatically’ option to get DNS server address automatic.After all click ok button in In Internet Protocol (TCP/IP) and Local Area Connection Properties.



6. To check your IP address,gateway and DNS you can right click Local Area Connection then choose status option and click support.



7. Click the detail option to know Network Connection Details.



C. Static IP Address Configuration a) Dynamic IP Address Configuration on Linux

1. To make configuration IP address statically,you can open sudo nano /etc/network/interfaces then you can edit file interface by text editor,before that you can input your password first.

```
debian@debian:~$ sudo nano /etc/network/interfaces
[sudo] password for debian:
```

2. This file interface after you open nano text editor.In this practicum there is rules for IP address

IP Address : 10.10.10.<10 + no_absent>

Subnet mask : 255.255.255.0

Gateway Address : 10.10.10.1

DNS Address Server : 10.10.10.1

After that change the option dhcp into static to give IP Address setting Statically.

```
  GNU nano 5.4                                          /etc/network/int

# This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).
source /etc/network/interfaces.d/*

# The loopback network interface
auto lo
iface lo inet loopback

auto ens3
iface ens3 inet dhcp_
```

Example :

```
auto ens3
iface ens3 inet static
        address 10.10.10.10
        netmask 255.255.255.0
        gateway 10.10.10.1_
```

Note: Don’t forget to always save modified buffer by click Y button and then exit with ctrl+x

```
Save modified buffer?
 Y Yes
 N No           ^C Cancel
```

1. Restart the networking service after you modified with sudo systemctl restarrt networking

```
debian@debian:~$ sudo systemctl restart networking
```

2. Type IP to check your NIC has IP Address automatic form DHCP server

```
2: ens3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP group default qlen 1000
    link/ether 0c:d5:4a:65:fb:00 brd ff:ff:ff:ff:ff:ff
    altname enp0s3
    inet 10.10.10.149/24 brd 10.10.10.255 scope global dynamic ens3
       valid_lft 590sec preferred_lft 590sec
    inet6 fe80::ed5:4aff:fe65:fb00/64 scope link
       valid_lft forever preferred_lft forever
debian@debian:~$ _
```

3. Click sudo ip route to check your gateway address in your linux computer

```
debian@debian:~$ sudo ip route
default via 10.10.10.1 dev ens3 onlink
10.10.10.0/24 dev ens3 proto kernel scope link src 10.10.10.10
```

4. Last type sudo nano /etc/resolv.conf to change your DNS Address Server

```
debian@debian:~$ sudo nano /etc/resolv.conf
```

5. Change address “nameserver”with your DNS IP Address server then ctrl +x to exit

```
  GNU nano 5.4                                    /etc/resolv.conf
nameserver 10.10.10.1
```

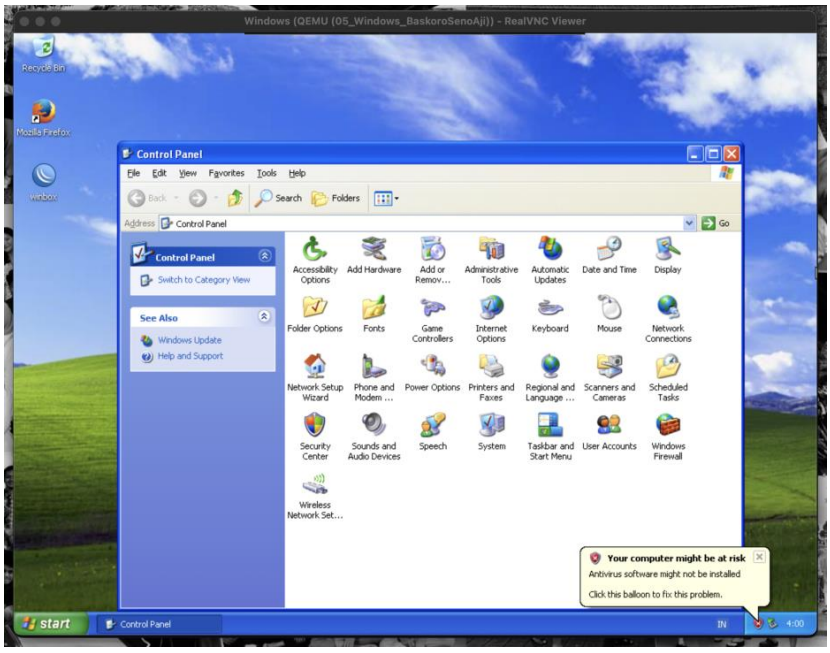
6. Check your nameserver by type cat /etc/resolv.conf

```
debian@debian:~$ cat /etc/resolv.conf
nameserver 10.10.10.1
debian@debian:~$ _
```

b) Dynamic IP Address Configuration on Windows

1. First step,access your windows,click start button then click control panel.

2. In control panel area,choose Network Connections menu



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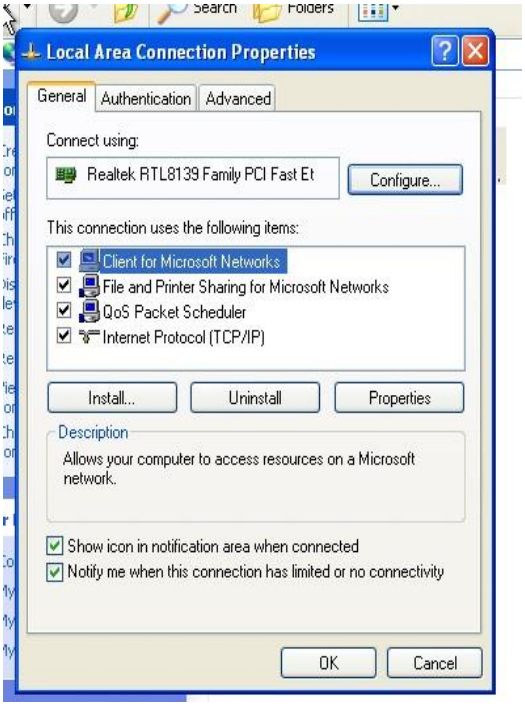
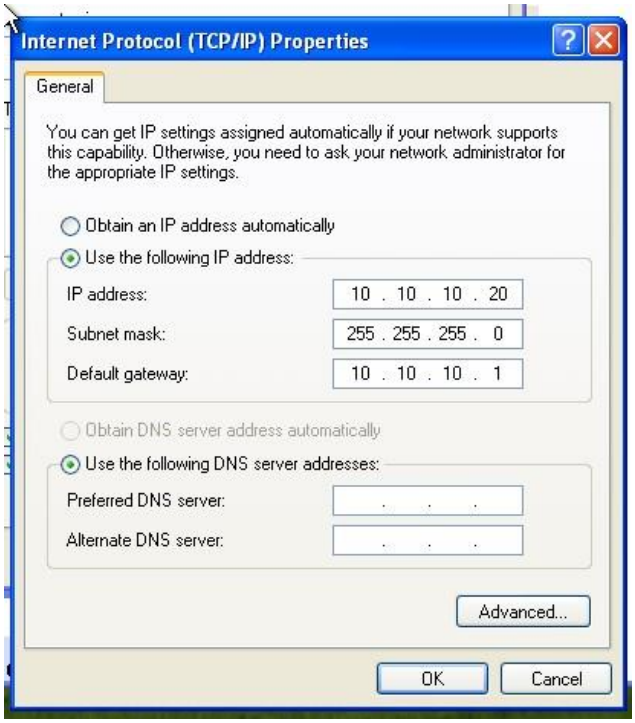
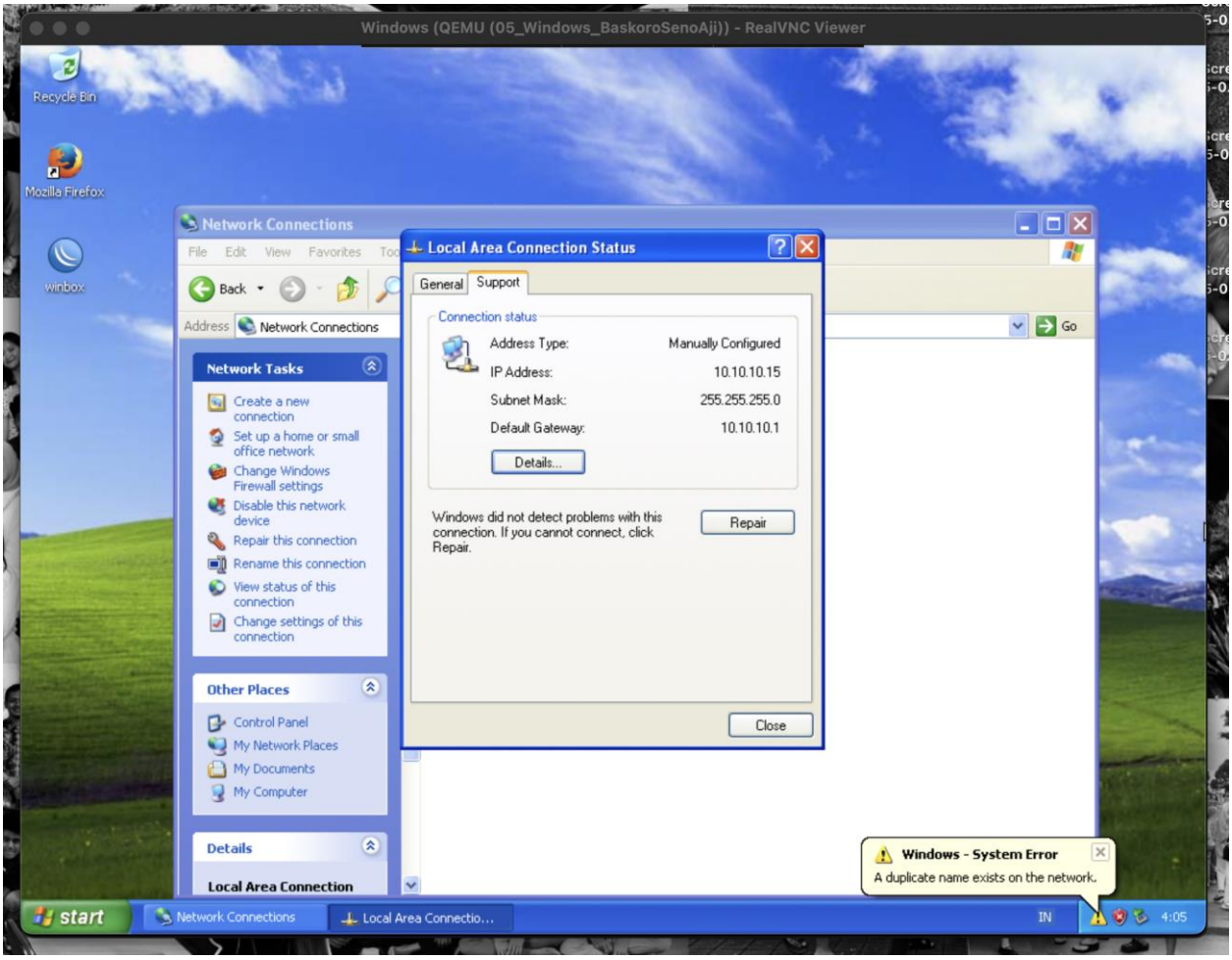
4. Choose Internet Protocol (TCP/IP) in your local area then click properties button



5. In Internet Protocol (TCP/IP) properties choose General tab and choose “Use the following IP address ” option to input your setting IP address and Gateway manually .Then choose “Use the following DNS server addresses ” option to input DNS server address manually.After all click ok button in In Internet Protocol (TCP/IP) and Local Area Connection Properties.



6. Click ok and back to Local Area Connectiom and choose status option.Choose support option to know the detail of Local Area Connection Status.



7. Choose detail option to get more information detail about DNS address server