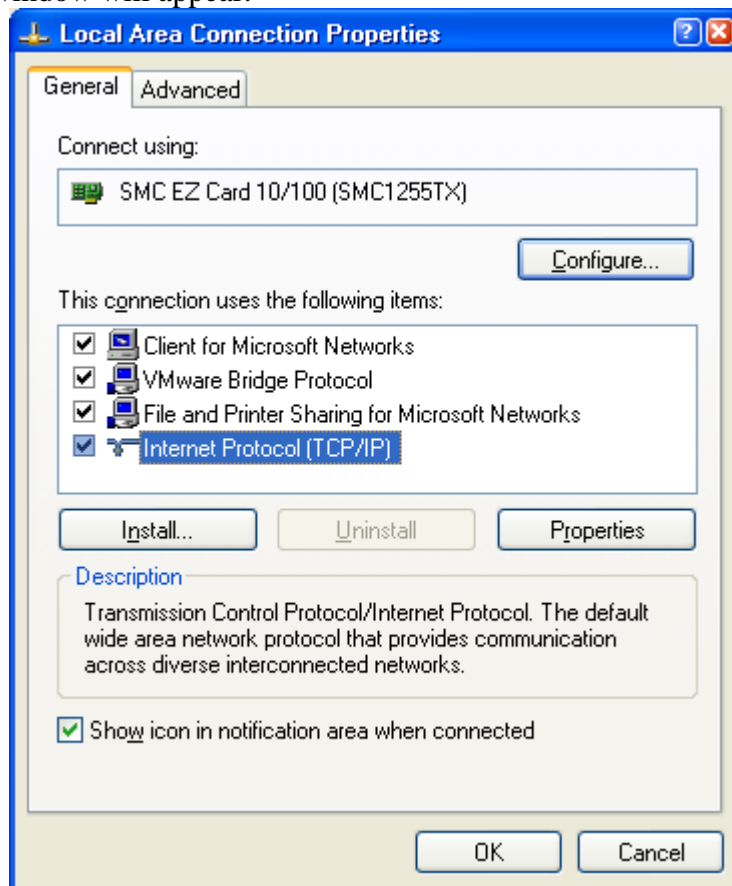


Name Chanasorn Howattamakulphong StudentID 65011277

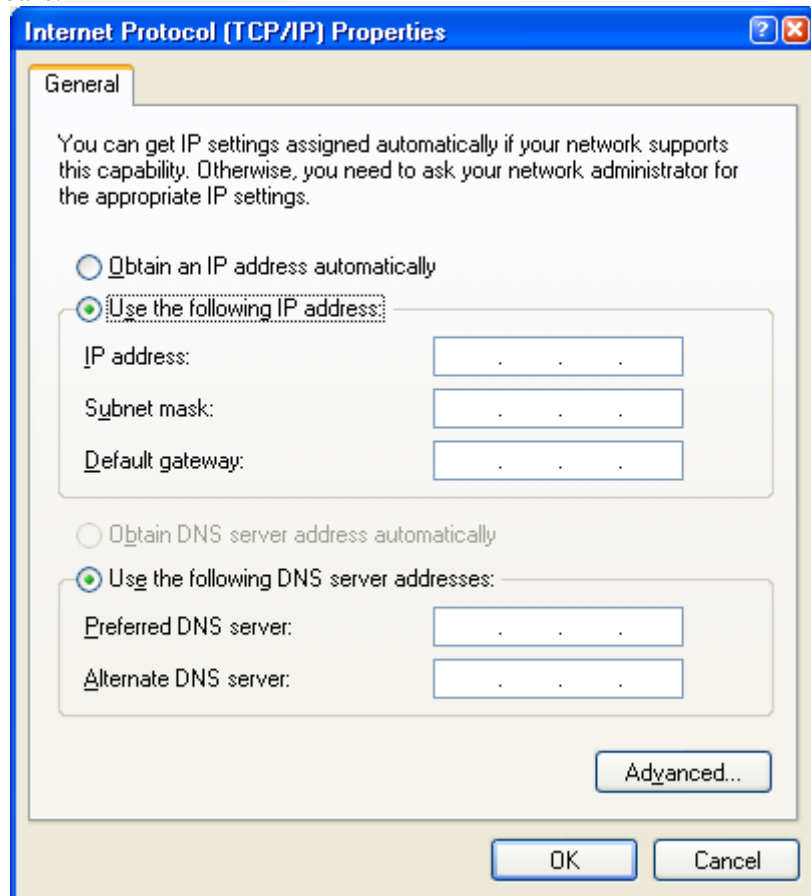
Chapter 1. Network Fundamental

Installing a computer into a network

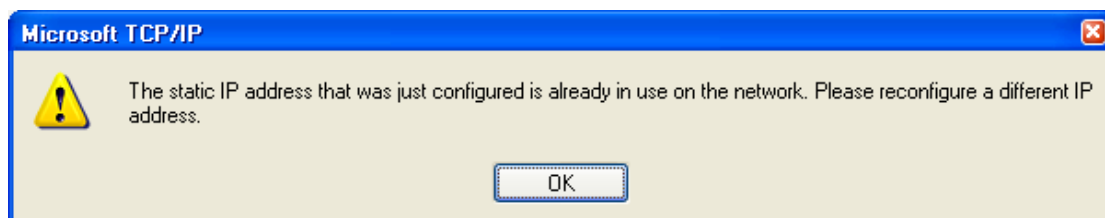
1. Open window control panel select network connections and select local Area Connection (select LAN card installed on the computer) click button Property and a window will appear.



2. choose Internet Protocol (TCP/IP) and select the button. Properties window appears.



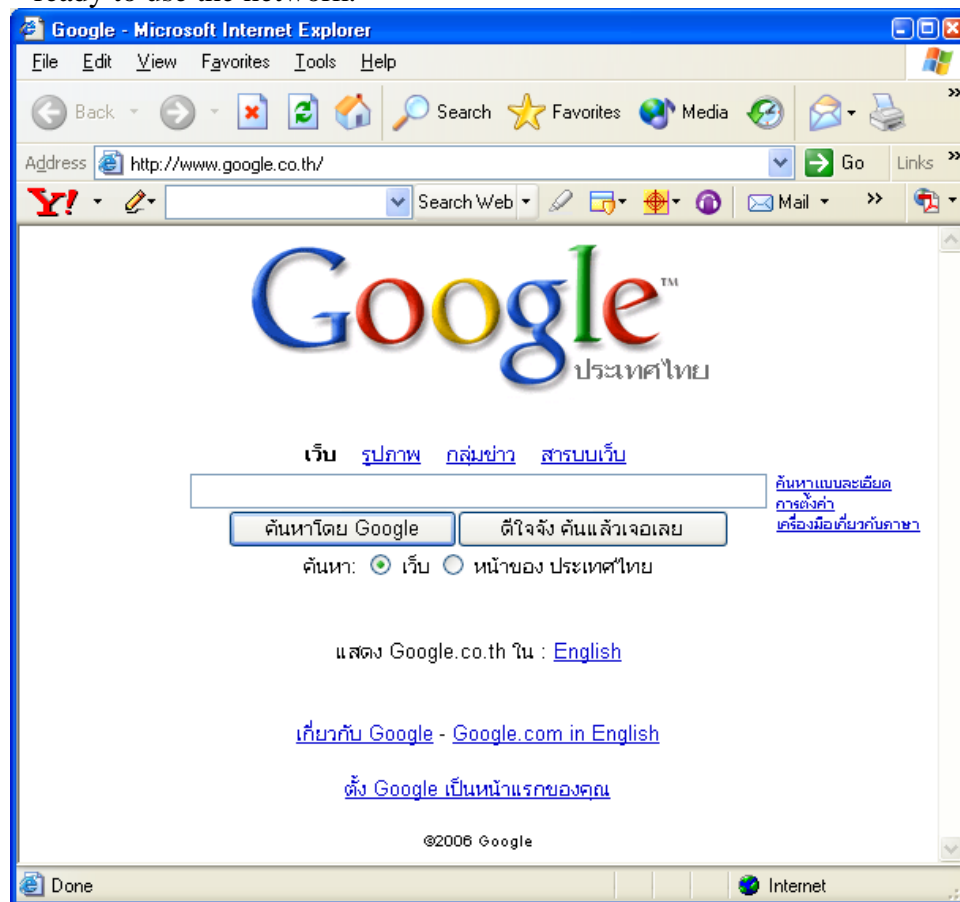
3. bring numbers IP address number Subnet mask number Gate Way No. The DNS provided by the network administrator comes into the blank. and then OK (In our laboratory there are already numbers for students. Take those numbers and fill in the blanks. Or if not, wait and see in the experiment about using the command ipconfig in the next section)
4. When all numbers are complete, press the button. OK and press Close at the window Local Area connection property confirms the installation of numbers. IP address for our computer to complete the installation. (note, but if a window shows that there is a collision The IP address of the student must be changed. new IP address The message will be displayed as shown in the figure)



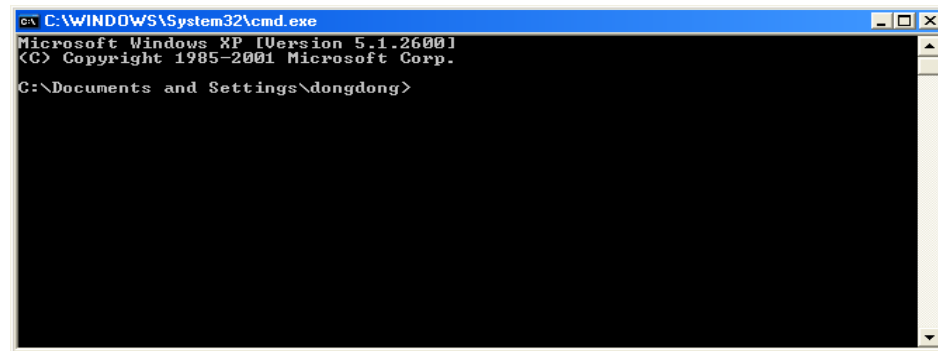
Testing the machine, the results of the installation of the machine in the network

after installing IP address to the computer, then how do we know if our computer is now able to use the network or not? We can check in an easy way. other as follows

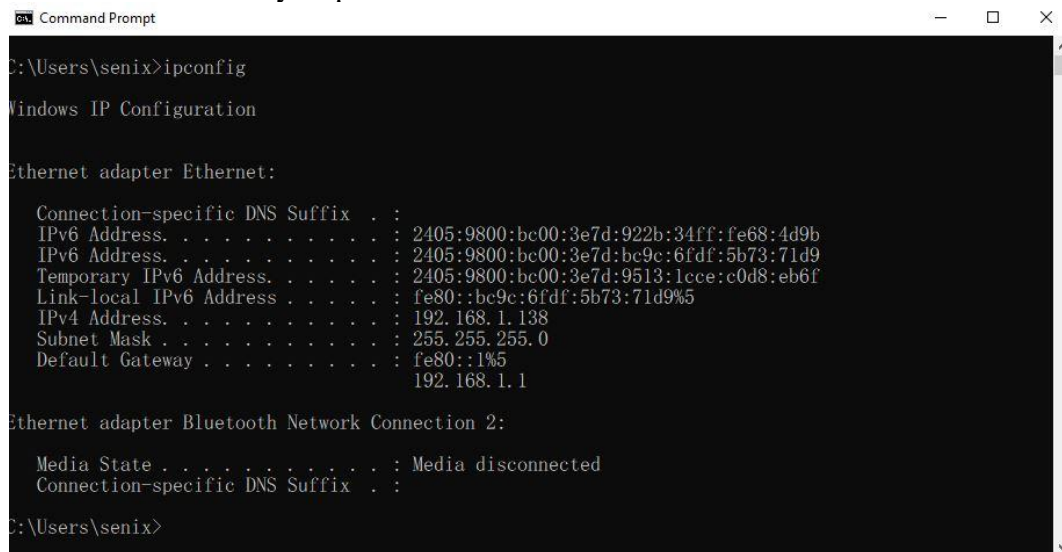
1. use Browser available on our computer to surf. different websites other (but be sure that our network is allowed to play Internet) if applicable Our computer is ready to use the network.



2. The second way is to use the command in the form command line to check IP address installed on our computer and use the command line to test the network connection
 - a. Check IP address (command **ipconfig**) open window command with selection start + Run and type cmd and then the button OK (if it is windows lower than XP, use the term command instead cmd) command window will appear as shown



- b. type ipconfig at prompt. It will be displayed IP address Subnet mask and Gateway as pictured



Use the command ipconfig with student's machine and save all the numbers seen in the student's screen into the blanks. If the number obtained is the same number as IP address in the installation process, it will show that the installation is correct.

IP address : 26.53.61.13

Subnet Mask : 255.0.0.0

Default Gateway: 26.0.0.1

- c. print ipconfig /all at the prompt to see the value configuration of more IP network configurations.

```

C:\Users\senix>ipconfig /all

Windows IP Configuration

Host Name . . . . . : DESKTOP-SJOTMSJ
Primary Dns Suffix . . . . . :
Node Type . . . . . : Hybrid
IP Routing Enabled. . . . . : No
WINS Proxy Enabled. . . . . : No

Ethernet adapter Ethernet:

Connection-specific DNS Suffix . :
Description . . . . . : Qualcomm Atheros AR8151 PCI-E Gigabit Ethernet Controller (ND
IS 6.30)
Physical Address. . . . . : 90-2B-34-68-4D-9B
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes
IPv6 Address. . . . . : 2405:9800:bc00:3e7d:922b:34ff:fe68:4d9b(Preferred)
Lease Obtained. . . . . : 18 11 2565 9:21:44
Lease Expires . . . . . : 18 11 2565 3:03:50
IPv6 Address. . . . . : 2405:9800:bc00:3e7d:bc9c:6fdf:5b73:71d9(Preferred)
Temporary IPv6 Address. . . . . : 2405:9800:bc00:3e7d:9513:1cce:c0d8:eb6f(Preferred)
Link-local IPv6 Address . . . . . : fe80::bc9c:6fdf:5b73:71d9%5(Preferred)
IPv4 Address. . . . . : 192.168.1.138(Preferred)
Subnet Mask . . . . . : 255.255.255.0
Lease Obtained. . . . . : 18 11 2565 9:21:43
Lease Expires . . . . . : 19 11 2565 9:21:46
Default Gateway . . . . . : fe80::1%5
                          192.168.1.1
DHCP Server . . . . . : 192.168.1.1
DHCPv6 IAID . . . . . : 93334324
DHCPv6 Client DUID. . . . . : 00-01-00-01-28-6A-E2-F5-90-2B-34-68-4D-9B
DNS Servers . . . . . : 2405:9800:a:2::26
                          2405:9800:a:1::10
                          115.178.58.26
                          115.178.58.10
                          192.168.1.1
                          2405:9800:a:2::26
                          2405:9800:a:1::10
NetBIOS over Tcpip. . . . . : Enabled

Ethernet adapter Bluetooth Network Connection 2:

Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . :
Description . . . . . : Bluetooth Device (Personal Area Network) #2
Physical Address. . . . . : 8C-88-2B-00-3D-81
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes

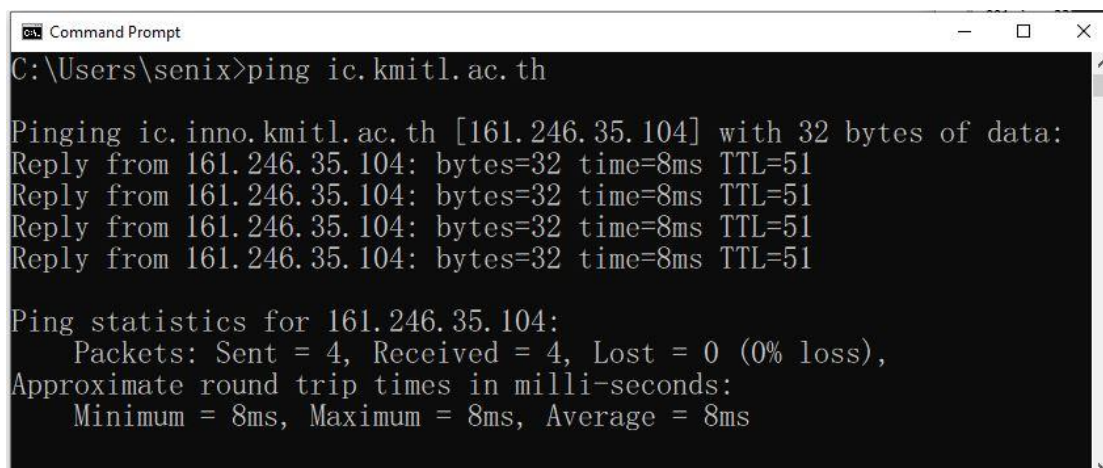
C:\Users\senix>

```

record other TCP/IP information of the computer such as host name and other servers in the blanks and explain what does each record mean?

Host Name :	<u>LAPTOP-FLIDQE0T</u>
Dhcp Server :	<u>10.252.29.52</u>
DNS Server :	<u>8.8.8.8</u>
Physical (MAC) address :	<u>14-85-7F-0C-67-05</u>
Description :	<u>Intel(R) Wi-Fi 6 AX200 160MHz</u>

- d. Once the installation settings have been verified, use command ping to check the connection between computers on the network by having students take IP address of the surrounding machine (IP address of the friend's machine next to other) and then type the command ping followed by IP address of the computer we want to verify the connection to. We will get the response as shown in the picture



```
Command Prompt
C:\Users\senix>ping ic.kmitl.ac.th

Pinging ic.inno.kmitl.ac.th [161.246.35.104] with 32 bytes of data:
Reply from 161.246.35.104: bytes=32 time=8ms TTL=51
Reply from 161.246.35.104: bytes=32 time=8ms TTL=51
Reply from 161.246.35.104: bytes=32 time=8ms TTL=51
Reply from 161.246.35.104: bytes=32 time=8ms TTL=51

Ping statistics for 161.246.35.104:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 8ms, Maximum = 8ms, Average = 8ms
```

Use the ping command to ping 3 surrounding computers. By pinging 3 times, use the ip addresses 192.168.xx (local) and record the result in the blank.

<p>IP address to be ping is <u>10.66.1.220</u></p> <p>results how is ping Pinging 10.66.1.220 with 32 bytes of data: Reply from 10.66.1.220: bytes=32 time=111ms TTL=64</p> <p>Reply from 10.66.1.220: bytes=32 time=113ms TTL=64</p> <p>Reply from 10.66.1.220: bytes=32 time=41ms TTL=64</p> <p>Reply from 10.66.1.220: bytes=32 time=10ms TTL=64</p> <p>Ping statistics for 10.66.1.220:</p> <p>Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),</p> <p>Approximate round trip times in milli-seconds: Minimum = 10ms, Maximum = 113ms, Average = 68ms</p>
<p>IP address to be ping is <u>10.0.4.94</u></p> <p>results how is ping Pinging 10.0.4.94 with 32 bytes of data:</p> <p>Reply from 10.0.4.94: bytes=32 time=71ms TTL=64</p> <p>Reply from 10.0.4.94: bytes=32 time=51ms TTL=64</p> <p>Reply from 10.0.4.94: bytes=32 time=41ms TTL=64</p> <p>Reply from 10.0.4.94: bytes=32 time=106ms TTL=64</p> <p>Ping statistics for 10.0.4.94: Packets: Sent = 4, Received = 4, Lost = 0 (0% loss), Approximate round trip times in milli-seconds: Minimum = 41ms, Maximum = 106ms, Average = 67ms</p>
<p>IP address to be ping is <u>192.168.XX</u> 192.168.137.1</p> <p>results how is ping Pinging 192.168.137.1 with 32 bytes of data:</p> <p>Reply from 192.168.137.1: bytes=32 time<1ms TTL=128</p> <p>Reply from 192.168.137.1: bytes=32 time<1ms TTL=128</p> <p>Reply from 192.168.137.1: bytes=32 time<1ms TTL=128</p> <p>Reply from 192.168.137.1: bytes=32 time<1ms TTL=128</p>

Ping statistics for 192.168.137.1:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

Approximate round trip times in milli-seconds:

Minimum = 0ms, Maximum = 0ms, Average = 0ms

The result was different from 2 the first time? Why?

No, they are the same. I am just pinging to different address

e. pinging to 127.0.0.1, what is the result?

IP address to be ping is **Pinging 127.0.0.1 with 32 bytes of data:**
results how is ping

Reply from 127.0.0.1: bytes=32 time<1ms TTL=128

Reply from 127.0.0.1: bytes=32 time<1ms TTL=128

Reply from 127.0.0.1: bytes=32 time<1ms TTL=128

Reply from 127.0.0.1: bytes=32 time<1ms TTL=128

Ping statistics for 127.0.0.1:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

Approximate round trip times in milli-seconds:

Minimum = 0ms, Maximum = 0ms, Average = 0ms

- f. ping to www.google.com What is the effect?

IP address to be ping is **Pinging www.google.com [142.251.43.68]**
results how is ping **with 32 bytes of data:**

Reply from 142.251.43.68: bytes=32 time=52ms TTL=113

Reply from 142.251.43.68: bytes=32 time=52ms TTL=113

Reply from 142.251.43.68: bytes=32 time=52ms TTL=113

Reply from 142.251.43.68: bytes=32 time=52ms TTL=113

Ping statistics for 142.251.43.68:

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

Approximate round trip times in milli-seconds:

Minimum = 52ms, Maximum = 52ms, Average = 52ms

- g. take the test ping to web site that students want at least 3 web and save the results ping that can no along with record URLs that students have tested

Can you ping? No URL : <https://www.reg.kmitl.ac.th/>

Can you ping? No URL : <https://chat.openai.com>

Can you ping? Yes URL : www.youtube.com

- h. To test the connection between computers using the command ping indicates whether we have connected to the terminal or not. But that's not to say our computer with of the terminals are adjacent to each other or have to go through the network other too which we can use the command tracert to find out if our computer is through another network other or that our computer is far from the destination machine how much by typing tracert followed by Destination IP address It will show the result as shown in the figure. which tells you how far away the terminal is hops

```

C:\Users\senix>tracert ic.kmitl.ac.th

Tracing route to ic.inno.kmitl.ac.th [161.246.35.104]
over a maximum of 30 hops:

  1  <1 ms  <1 ms  <1 ms  SMBSHARE [192.168.1.1]
  2   7 ms   7 ms   8 ms  100.104.0.1
  3   7 ms  10 ms  12 ms  eth12.bpi.silal-bcr01.myaisfibre.com [49.228.3.26]
  4   5 ms   5 ms   5 ms  ve474.cgn08a.silal.myaisfibre.com [49.228.7.38]
  5   6 ms   6 ms   6 ms  et27.bg02h.silal.myaisfibre.com [49.228.7.34]
  6   6 ms   5 ms   5 ms  aex.nix.silal-pe02.myaisfibre.com [49.228.3.53]
  7   7 ms   7 ms   7 ms  ae2-0.nixj-cwde-pe02.ais-idc.com [49.231.32.191]
  8   8 ms   8 ms   8 ms  203.113.61.81
  9  11 ms  12 ms  10 ms  node-17nu.pool-125-24.dynamic.totinternet.net [125.24.221.10]
 10  *      *      *      Request timed out.
 11  *      *      *      Request timed out.
 12  *      *      *      Request timed out.
 13  9 ms   9 ms   9 ms  tjsif2016.crsc.kmitl.ac.th [161.246.35.104]

Trace complete.

C:\Users\senix>

```

Use the “tracert” command to find out how many hops away from you’re your computer to a friend's computer? How many hops are apart and record the IP address of the web site that the students tested in the blank?

IP address of your friend's computer other : 10.66.1.220
 The student's computer is far from the computer. how many hops : 1
 IP address of your friend's computer other : 10.66.1.05
 The student's computer is far from the computer. how many hops : 1
 IP address of your friend's computer other : 10.66.1.94
 The student's computer is far from the computer. how many hops : 1
 IP address of web interested : youtube url : www.youtube.com
 Students' computers away from web interested how many hops : _____
 IP address of web interested : twitch url : www.twitch.tv
 Students' computers away from web interested how many hops : 9

