



CNE – Tutorial Guide

Week 1

LAN Configuration

(Windows & Linux environment)

I. Configure your real PC in computer lab:

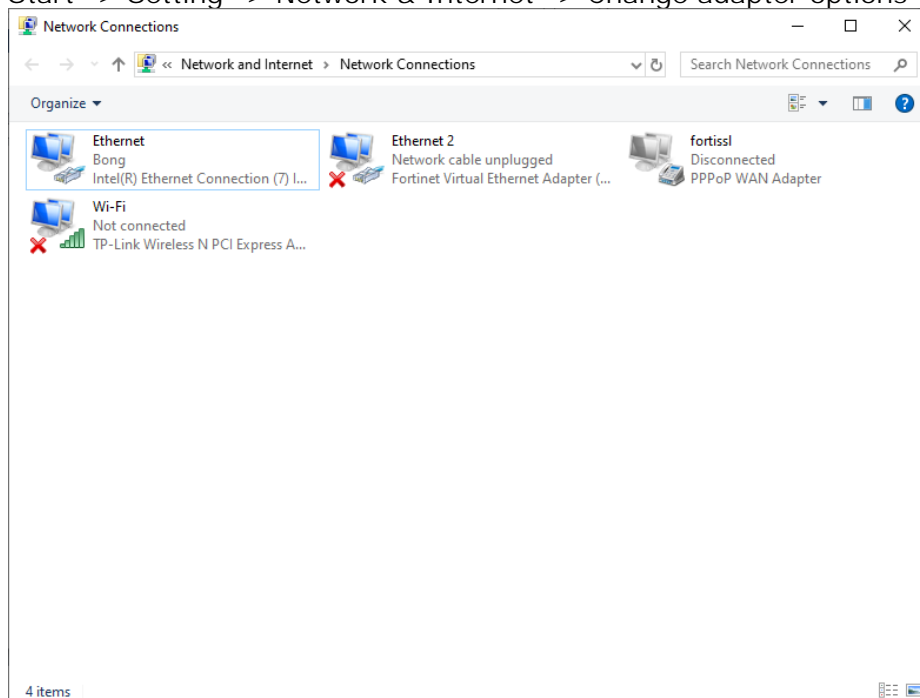
IP range (192.168.28.1 - 192.168.28.253)

Network mask (255.255.255.0)

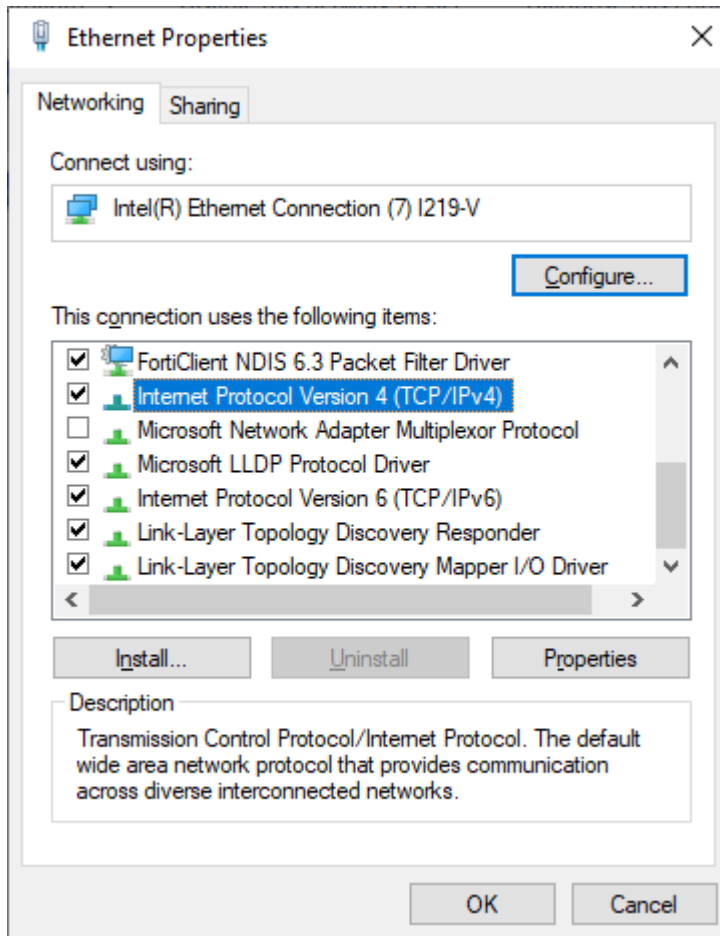
Gateway (192.168.28.254)

DNS (192.168.100.2)

Start -> Setting -> Network & Internet -> Change adapter options

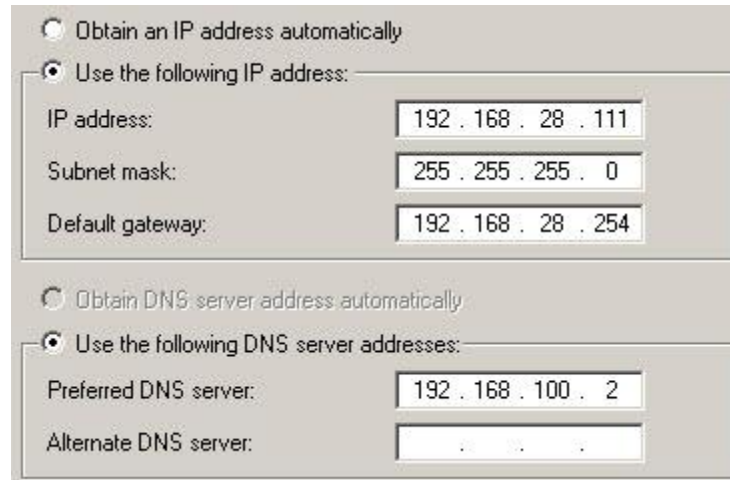


Right click on "Ethernet" then choose ***Properties***.



On Windows XP: Click on Network icon in the System Tray → choose **Properties** or **Start** → **Control Panel** → **Network Connections** → right click on "Local Area Network" then choose **Properties**.

Double click on "Internet Protocol (TCP/IP)", fill in information then click OK.



The screenshot shows the 'Internet Protocol (TCP/IP) Properties' dialog box. Under the 'IP Address' tab, the 'Use the following IP address' radio button is selected. The IP address field contains '192 . 168 . 28 . 111', the subnet mask field contains '255 . 255 . 255 . 0', and the default gateway field contains '192 . 168 . 28 . 254'. Below this, the 'Obtain DNS server address automatically' radio button is selected. The 'Preferred DNS server' field contains '192 . 168 . 100 . 2', and the 'Alternate DNS server' field is empty.

Here I choose 192.168.28.111 for my PC's IP address. You can choose any IP from the IP range. However, to avoid IP conflict (because PCs in the same network cannot have the same IP), you can choose number based on your student ID number, for example: your student ID is 0501040101 so you can choose IP like: 192.168.28.101

Open **cmd** (**Start** → **Run** → type `cmd`) and ping your own PC's IP and then your friend PC:

For example: `ping 192.168.28.111`

II. Work with some Commands.

Open cmd on your PC to work with these commands.

1. **ipconfig**

Configure IP (internet protocol configuration)

Syntax:

`ipconfig /all`: Display full configuration information.

```
C:\WINDOWS\system32\cmd.exe
Autoconfiguration Enabled . . . . : Yes

Ethernet adapter Ethernet:

    Connection-specific DNS Suffix  . : Home
    Description . . . . . : Intel(R) Ethernet Connection (7) I219-V
    Physical Address. . . . . : 40-B0-76-DF-07-2D
    DHCP Enabled. . . . . : Yes
    Autoconfiguration Enabled . . . . : Yes
    IPv6 Address. . . . . : 2001:ee0:40c1:b7d1:6111:fd4f:a079:3271(Preferred)
    Temporary IPv6 Address. . . . . : 2001:ee0:40c1:b7d1:887a:720a:b57a:fca4(Deprecated)
    Temporary IPv6 Address. . . . . : 2001:ee0:40c1:b7d1:fc6e:a60e:3aeb:2470(Preferred)
    Link-local IPv6 Address . . . . . : fe80::6111:fd4f:a079:3271%19(Preferred)
    IPv4 Address. . . . . : 192.168.1.14(Preferred)
    Subnet Mask . . . . . : 255.255.255.0
    Lease Obtained. . . . . : Monday, March 23, 2020 3:26:59 PM
    Lease Expires . . . . . : Wednesday, March 25, 2020 2:32:36 PM
    Default Gateway . . . . . : fe80::a6f4:c2ff:fe95:2d6e%19
                                192.168.1.1
    DHCP Server . . . . . : 192.168.1.1
    DHCPv6 IAID . . . . . : 289452150
    DHCPv6 Client DUID. . . . . : 00-01-00-01-24-5D-D3-FE-40-B0-76-DF-07-2D
    DNS Servers . . . . . : 2001:ee0:26::26
                                2001:ee0:23::23
                                123.26.26.26
                                123.23.23.23
                                2001:ee0:26::26
                                2001:ee0:23::23
    NetBIOS over Tcpip. . . . . : Enabled

C:\Users\Admin>
```

```
C:\Documents and Settings\kie87vn>ipconfig /all

Windows IP Configuration

    Host Name . . . . . : kie-ibnt43
    Primary Dns Suffix . . . . . :
    Node Type . . . . . : Unknown
    IP Routing Enabled. . . . . : No
    WINS Proxy Enabled. . . . . : No

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix  . :
    Description . . . . . : Broadcom NetXtreme Gigabit Ethernet
    Physical Address. . . . . : 00-16-41-12-B1-45
    Dhcp Enabled. . . . . : Yes
    Autoconfiguration Enabled . . . . : Yes
    IP Address. . . . . : 192.168.1.11
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.1.1
    DHCP Server . . . . . : 192.168.1.1
    DNS Servers . . . . . : 192.168.1.1
    Lease Obtained. . . . . : Tuesday, February 17, 2009 8:38:45 P
```

ipconfig /release [*adapter*]: Release the IP address for the specified adapter.
For example: ipconfig /release "Ethernet"

```
C:\WINDOWS\system32\cmd.exe

Ethernet adapter Ethernet 2:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Wireless LAN adapter Wi-Fi:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . : Home

Wireless LAN adapter Local Area Connection* 1:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Wireless LAN adapter Local Area Connection* 12:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :

Ethernet adapter Ethernet:

    Connection-specific DNS Suffix  . :
    IPv6 Address. . . . . : 2001:ee0:40c1:b7d1:6111:fd4f:a079:3271
    Temporary IPv6 Address. . . . . : 2001:ee0:40c1:b7d1:887a:720a:b57a:fca4
    Temporary IPv6 Address. . . . . : 2001:ee0:40c1:b7d1:fc6e:a60e:3aeb:2470
    Link-local IPv6 Address . . . . . : fe80::6111:fd4f:a079:3271%19
    Default Gateway . . . . . : fe80::a6f4:c2ff:fe95:2d6e%19

C:\Users\Admin>
```

Ipconfig /all

```
C:\WINDOWS\system32\cmd.exe

Wireless LAN adapter Local Area Connection* 12:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . :
    Description . . . . . : Microsoft Wi-Fi Direct Virtual Adapter #4
    Physical Address. . . . . : 50-3E-AA-D3-4C-EE
    DHCP Enabled. . . . . : Yes
    Autoconfiguration Enabled . . . . : Yes

Ethernet adapter Ethernet:

    Connection-specific DNS Suffix  . :
    Description . . . . . : Intel(R) Ethernet Connection (7) I219-V
    Physical Address. . . . . : 40-B0-76-DF-07-2D
    DHCP Enabled. . . . . : Yes
    Autoconfiguration Enabled . . . . : Yes
    IPv6 Address. . . . . : 2001:ee0:40c1:b7d1:6111:fd4f:a079:3271(Preferred)
    Temporary IPv6 Address. . . . . : 2001:ee0:40c1:b7d1:887a:720a:b57a:fca4(Deprecated)

    Temporary IPv6 Address. . . . . : 2001:ee0:40c1:b7d1:fc6e:a60e:3aeb:2470(Preferred)
    Link-local IPv6 Address . . . . . : fe80::6111:fd4f:a079:3271%19(Preferred)
    Autoconfiguration IPv4 Address. . : 169.254.50.113(Preferred)
    Subnet Mask . . . . . : 255.255.0.0
    Default Gateway . . . . . : fe80::a6f4:c2ff:fe95:2d6e%19
    DHCPv6 IAID . . . . . : 289452150
    DHCPv6 Client DUID. . . . . : 00-01-00-01-24-5D-D3-FE-40-B0-76-DF-07-2D
    DNS Servers . . . . . : 2001:ee0:26::26
                           : 2001:ee0:23::23
    NetBIOS over Tcpip. . . . . : Enabled

C:\Users\Admin>
```

On Windows XP: ipconfig /release "Local Area Connection"

```
C:\Documents and Settings\kie87vn>ipconfig /release "Local Area Connection"

Windows IP Configuration

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix  . :
    IP Address. . . . . : 0.0.0.0
    Subnet Mask . . . . . : 0.0.0.0
    Default Gateway . . . . . :
```

`ipconfig /renew [adapter]`: Renew the IP address for the specified adapter.

For example: `ipconfig /renew "Ethernet"`

```
C:\WINDOWS\system32\cmd.exe
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . :

Wireless LAN adapter Wi-Fi:

Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . : Home

Wireless LAN adapter Local Area Connection* 1:

Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . :

Wireless LAN adapter Local Area Connection* 12:

Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . :

Ethernet adapter Ethernet:

Connection-specific DNS Suffix . : Home
IPv6 Address. . . . . : 2001:ee0:40c1:b7d1:6111:fd4f:a079:3271
Temporary IPv6 Address. . . . . : 2001:ee0:40c1:b7d1:887a:720a:b57a:fca4
Temporary IPv6 Address. . . . . : 2001:ee0:40c1:b7d1:fc6e:a60e:3aeb:2470
Link-local IPv6 Address . . . . . : fe80::6111:fd4f:a079:3271%19
IPv4 Address. . . . . : 192.168.1.14
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : fe80::a6f4:c2ff:fe95:2d6e%19
                          192.168.1.1

C:\Users\Admin>
```

On Windows XP: `ipconfig /renew "Local Area Connection"`

```
C:\Documents and Settings\kie87vn>ipconfig /renew "Local Area Connection"

Windows IP Configuration

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix . : 
    IP Address. . . . . : 192.168.1.11
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.1.1

Ethernet adapter Wireless Network Connection:

    Media State . . . . . : Media disconnected
```

More @ <http://www.ss64.com/nt/ipconfig.html>

2. ping

Ping is used to test whether a particular host is reachable across an IP network or to self test the network interface card or as a speed test.

It works by sending ICMP echo request packets to the target host and listening for ICMP echo response replies.

Example:

In computer lab we may not ping fit.hanu.vn so just try pinging other PCs in lab or gateway. You can practice more at home.

```
C:\Users\Trang Kie>ping fit.hanu.vn

Pinging fit.hanu.vn [210.245.52.227] with 32 bytes of data:
Reply from 210.245.52.227: bytes=32 time=13ms TTL=57
Reply from 210.245.52.227: bytes=32 time=15ms TTL=57
Reply from 210.245.52.227: bytes=32 time=12ms TTL=57
Reply from 210.245.52.227: bytes=32 time=14ms TTL=57
```

210.245.52.227: IP address of fit.hanu.vn

byte=32: size of ping packet (32 bytes)

times=13ms: round trip times - The elapsed time for transit of a signal over a closed circuit, or time elapsed for a message to a remote place and back again.

TTL=57: is a limit on the period of time or number of iterations or transmissions in computer and computer network technology that a unit of data (e.g. a packet) can experience before it should be discarded.

When the host was down:

```
C:\Users\Trang Kie>ping fit.hanu.vn

Pinging fit.hanu.vn [210.245.52.227] with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 210.245.52.227:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```


When the host was up:

```
C:\Users\Trang Kie>ping 192.168.1.11

Pinging 192.168.1.11 with 32 bytes of data:
Reply from 192.168.1.11: bytes=32 time=1ms TTL=128
Reply from 192.168.1.11: bytes=32 time=1ms TTL=128
Reply from 192.168.1.11: bytes=32 time=1ms TTL=128
Reply from 192.168.1.11: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.1.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 1ms, Average = 1ms
```

When IP address was out of range:

```
C:\Users\Trang Kie>ping 192.168.10.10

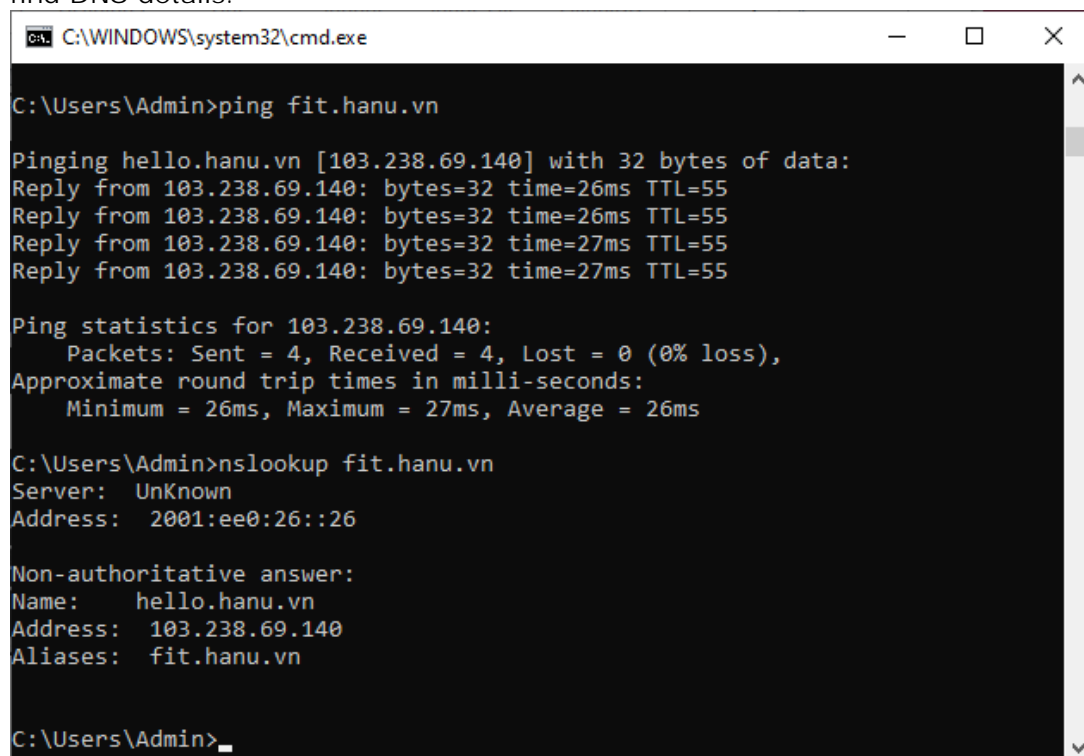
Pinging 192.168.10.10 with 32 bytes of data:
Reply from 203.113.158.134: TTL expired in transit.
Reply from 203.113.158.134: TTL expired in transit.
Reply from 203.113.158.134: TTL expired in transit.
Reply from 203.113.158.134: TTL expired in transit.

Ping statistics for 192.168.10.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
```

More @ <http://en.wikipedia.org/wiki/Ping>

3. nslookup

DNS (Domain Name System) is an internet system to translate names into IP addresses and **nslookup** (Name server lookup) is used to query DNS servers to find DNS details.

A screenshot of a Windows Command Prompt window titled "C:\WINDOWS\system32\cmd.exe". The window shows the execution of two commands: "ping fit.hanu.vn" and "nslookup fit.hanu.vn". The ping command shows successful results with 0% loss and round trip times between 26ms and 27ms. The nslookup command shows the IP address 103.238.69.140 and the domain name hello.hanu.vn. The window has standard Windows window controls (minimize, maximize, close) in the top right corner.

```
C:\WINDOWS\system32\cmd.exe

C:\Users\Admin>ping fit.hanu.vn

Pinging hello.hanu.vn [103.238.69.140] with 32 bytes of data:
Reply from 103.238.69.140: bytes=32 time=26ms TTL=55
Reply from 103.238.69.140: bytes=32 time=26ms TTL=55
Reply from 103.238.69.140: bytes=32 time=27ms TTL=55
Reply from 103.238.69.140: bytes=32 time=27ms TTL=55

Ping statistics for 103.238.69.140:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 26ms, Maximum = 27ms, Average = 26ms

C:\Users\Admin>nslookup fit.hanu.vn
Server:      UnKnown
Address:     2001:ee0:26::26

Non-authoritative answer:
Name:        hello.hanu.vn
Address:     103.238.69.140
Aliases:     fit.hanu.vn

C:\Users\Admin>
```

```
C:\WINDOWS\system32\cmd.exe

C:\Users\Admin>nslookup hanu.vn
Server: UnKnown
Address: 2001:ee0:26::26

DNS request timed out.
    timeout was 2 seconds.
Non-authoritative answer:
Name:     hanu.vn
Address:  113.160.84.242

C:\Users\Admin>nslookup google.com.vn
Server: UnKnown
Address: 2001:ee0:26::26

DNS request timed out.
    timeout was 2 seconds.
Non-authoritative answer:
Name:     google.com.vn
Addresses: 2404:6800:4005:809::2003
           216.58.200.67

C:\Users\Admin>
```

More @ <http://en.wikipedia.org/wiki/Nslookup>

4. netstat

Netstat displays network connections (both incoming and outgoing), routing tables, and a number of network interface statistics.

```
C:\WINDOWS\system32\cmd.exe
Non-authoritative answer:
Name:    google.com
Addresses: 2404:6800:4005:805::200e
          172.217.161.142

C:\Users\Admin>netstat

Active Connections

Proto Local Address           Foreign Address         State
TCP    127.0.0.1:50000          HOANGNAM:52787          ESTABLISHED
TCP    127.0.0.1:51289          HOANGNAM:65001          ESTABLISHED
TCP    127.0.0.1:51334          HOANGNAM:51355          ESTABLISHED
TCP    127.0.0.1:51355          HOANGNAM:51334          ESTABLISHED
TCP    127.0.0.1:52787          HOANGNAM:50000          ESTABLISHED
TCP    127.0.0.1:65001          HOANGNAM:51289          ESTABLISHED
TCP    192.168.1.14:53064       40.119.211.203:https     ESTABLISHED
TCP    192.168.1.14:53115       52.114.15.8:https        ESTABLISHED
TCP    192.168.1.14:53124       52.114.6.32:https        ESTABLISHED
TCP    [2001:ee0:40c1:b7d1:887a:720a:b57a:fca4]:51400 g2600-1417-7800-0380-0000-0000-0000-4106:https CLOSE_WAIT
TCP    [2001:ee0:40c1:b7d1:887a:720a:b57a:fca4]:51401 g2600-1417-7800-0380-0000-0000-0000-4106:https CLOSE_WAIT
TCP    [2001:ee0:40c1:b7d1:887a:720a:b57a:fca4]:51402 [2001:ee0:3240:8191::3114]:http CLOSE_WAIT
TCP    [2001:ee0:40c1:b7d1:887a:720a:b57a:fca4]:51403 [2001:ee0:3240:8191::3114]:http CLOSE_WAIT
TCP    [2001:ee0:40c1:b7d1:887a:720a:b57a:fca4]:51404 [2001:ee0:3240:8191::3114]:http CLOSE_WAIT
TCP    [2001:ee0:40c1:b7d1:887a:720a:b57a:fca4]:51405 [2001:ee0:3240:8191::3114]:http CLOSE_WAIT
TCP    [2001:ee0:40c1:b7d1:887a:720a:b57a:fca4]:51406 [2001:ee0:3240:8191::3114]:http CLOSE_WAIT
TCP    [2001:ee0:40c1:b7d1:887a:720a:b57a:fca4]:51407 g2600-1417-7800-0380-0000-0000-0000-4106:https CLOSE_WAIT
TCP    [2001:ee0:40c1:b7d1:fc6e:a60e:3aeb:2470]:52816 [2603:1046:c02:1820::2]:https ESTABLISHED
TCP    [2001:ee0:40c1:b7d1:fc6e:a60e:3aeb:2470]:52836 [2a01:111:f102:8001::1761:4f94]:https ESTABLISHED
TCP    [2001:ee0:40c1:b7d1:fc6e:a60e:3aeb:2470]:53113 [2404:6800:4008:c01::bc]:5228 ESTABLISHED
TCP    [2001:ee0:40c1:b7d1:fc6e:a60e:3aeb:2470]:53117 [2603:1046:201:15::2]:https ESTABLISHED
TCP    [2001:ee0:40c1:b7d1:fc6e:a60e:3aeb:2470]:53121 hkg12s17-in-x05:https    ESTABLISHED
TCP    [2001:ee0:40c1:b7d1:fc6e:a60e:3aeb:2470]:53136 hkg07s29-in-x05:https    TIME_WAIT
```

For using parameters guide, please see more @ <http://en.wikipedia.org/wiki/Netstat>

5. tracert

Tracert (similar to **traceroute** in Linux) allows you to determine the route packets take through a network to reach a particular host that you specify.

```
C:\WINDOWS\system32\cmd.exe
over a maximum of 30 hops:

 1    <1 ms    <1 ms    <1 ms    192.168.1.1
 2     2 ms     1 ms     1 ms    static.vnpt.vn [14.232.87.254]
 3     2 ms     1 ms     2 ms    static.vnpt.vn [113.177.31.245]
 4     2 ms     2 ms     2 ms    static.vnpt.vn [113.177.31.41]
 5     1 ms     1 ms     2 ms    static.vnpt.vn [113.177.31.42]
 6     3 ms     2 ms     3 ms    static.vnpt.vn [113.160.84.242]

Trace complete.

C:\Users\Admin>tracert fit.hanu.vn

Tracing route to hello.hanu.vn [103.238.69.140]
over a maximum of 30 hops:

 1    <1 ms    <1 ms    <1 ms    192.168.1.1
 2     1 ms     1 ms     1 ms    static.vnpt.vn [14.232.87.254]
 3     1 ms     1 ms     2 ms    static.vnpt.vn [113.177.31.245]
 4     1 ms     1 ms     1 ms    static.vnpt.vn [113.171.32.25]
 5      *      *      *      Request timed out.
 6    24 ms    24 ms    24 ms    static.vnpt.vn [113.171.27.206]
 7    26 ms    26 ms    27 ms    static.vnpt.vn [113.171.7.206]
 8    24 ms    23 ms    23 ms    static.vnpt.vn [113.164.240.18]
 9    24 ms    24 ms    24 ms    10.0.0.162
10    24 ms    24 ms    25 ms    10.1.0.82
11    24 ms    24 ms    24 ms    10.0.0.249
12    24 ms    24 ms    24 ms    10.0.0.117
13    24 ms    24 ms    24 ms    103.238.70.18
14    26 ms    25 ms    24 ms    103.238.70.26
15    26 ms    26 ms    26 ms    103.238.69.140

Trace complete.

C:\Users\Admin>
```

For using parameters guide, type: `tracert /?`

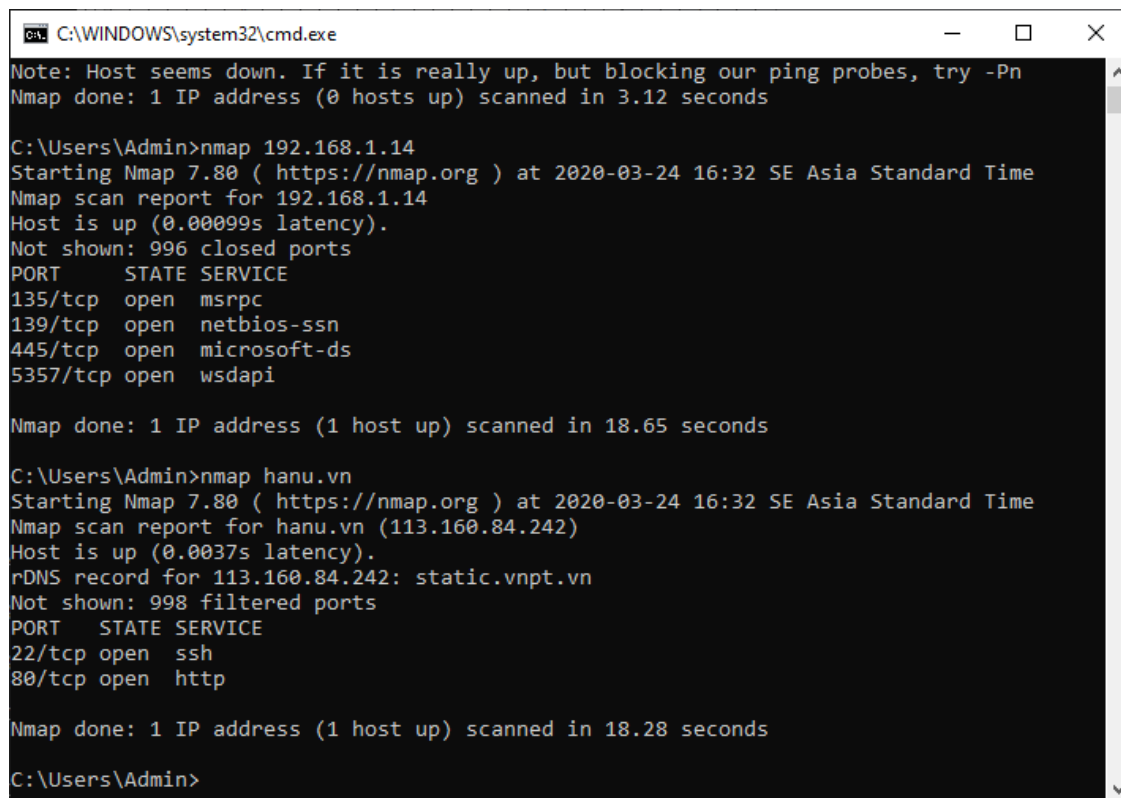
More @ http://www.windowsnetworking.com/articles_tutorials/Using-Tracert.html

6. nmap

Download and install nmap for Windows. After installing, read the instruction on executing Nmap on Windows: <http://nmap.org/book/inst-windows.html>

Nmap (Network Mapper) is a security scanner used to discover computers and services on a computer network.

`nmap [<Scan Type> ...] [<Options>] { <target specification> }`



```
C:\WINDOWS\system32\cmd.exe
Note: Host seems down. If it is really up, but blocking our ping probes, try -Pn
Nmap done: 1 IP address (0 hosts up) scanned in 3.12 seconds

C:\Users\Admin>nmap 192.168.1.14
Starting Nmap 7.80 ( https://nmap.org ) at 2020-03-24 16:32 SE Asia Standard Time
Nmap scan report for 192.168.1.14
Host is up (0.00099s latency).
Not shown: 996 closed ports
PORT      STATE SERVICE
135/tcp   open  msrpc
139/tcp   open  netbios-ssn
445/tcp   open  microsoft-ds
5357/tcp  open  wsdaapi

Nmap done: 1 IP address (1 host up) scanned in 18.65 seconds

C:\Users\Admin>nmap hanu.vn
Starting Nmap 7.80 ( https://nmap.org ) at 2020-03-24 16:32 SE Asia Standard Time
Nmap scan report for hanu.vn (113.160.84.242)
Host is up (0.0037s latency).
rDNS record for 113.160.84.242: static.vnpt.vn
Not shown: 998 filtered ports
PORT      STATE SERVICE
22/tcp    open  ssh
80/tcp    open  http

Nmap done: 1 IP address (1 host up) scanned in 18.28 seconds

C:\Users\Admin>
```

Reference Guide for using Nmap: <http://nmap.org/book/man.html>

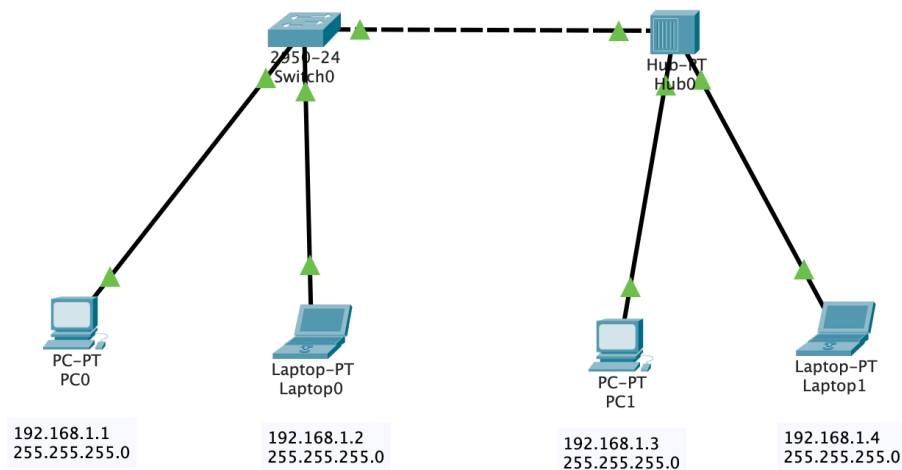
III. LAN configuration with Packet Tracer

1. What is Package Tracer?

- A standalone, medium-fidelity, simulation-based learning environment for networking novices to design, configure, and troubleshoot computer networks at a CCNA-level of complexity.

- Supports student and instructor creation of simulations, visualizations, and animations of networking phenomena.
2. Download Package Tracer (choose Student version or 6.x version, with 7.x or 8.x version you need to have an account):
https://drive.google.com/file/d/14LX4Okdtcq2GGSjbgZ3mowqpWxHW_G6Z/view?usp=share_link (Packet Tracer 6.2)
 3. Learn how to use Package Tracer:
 - **Help → Contents...** (or press F1): The help files are designed to familiarize users with the Packet Tracer interface, functions, and features.
 - **Help → Tutorials** (or press F11): The tutorials demonstrate the basic functions, features, and aspects of Packet Tracer.
 4. Tutorial guide:
In this tutorial section, you will use Package Tracer to set up a Local Area Network (LAN).

Scenario: Using Package Tracer to design a LAN using 1 switch and 1 hub, cross-over cable to connect switch - hub, copper straight-through cables to connect switch/hub – computer/laptop.



PC0

Physical **Config** Desktop Programming Attributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

FastEthernet0

Bluetooth

FastEthernet0

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0040.0B6A.1C6C

IP Configuration

☐ DHCP

☒ Static

IP Address 192.168.1.1

Subnet Mask 255.255.255.0

IPv6 Configuration

☐ DHCP

☐ Auto Config

☒ Static

IPv6 Address /

Link Local Address: FE80::240:BFF:FE6A:1C6C

Laptop0

Physical **Config** Desktop Programming Attributes

GLOBAL

Settings

Algorithm Settings

INTERFACE

FastEthernet0

Bluetooth

FastEthernet0

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 000A.F394.392B

IP Configuration

☐ DHCP

☒ Static

IP Address 192.168.1.2

Subnet Mask 255.255.255.0

IPv6 Configuration

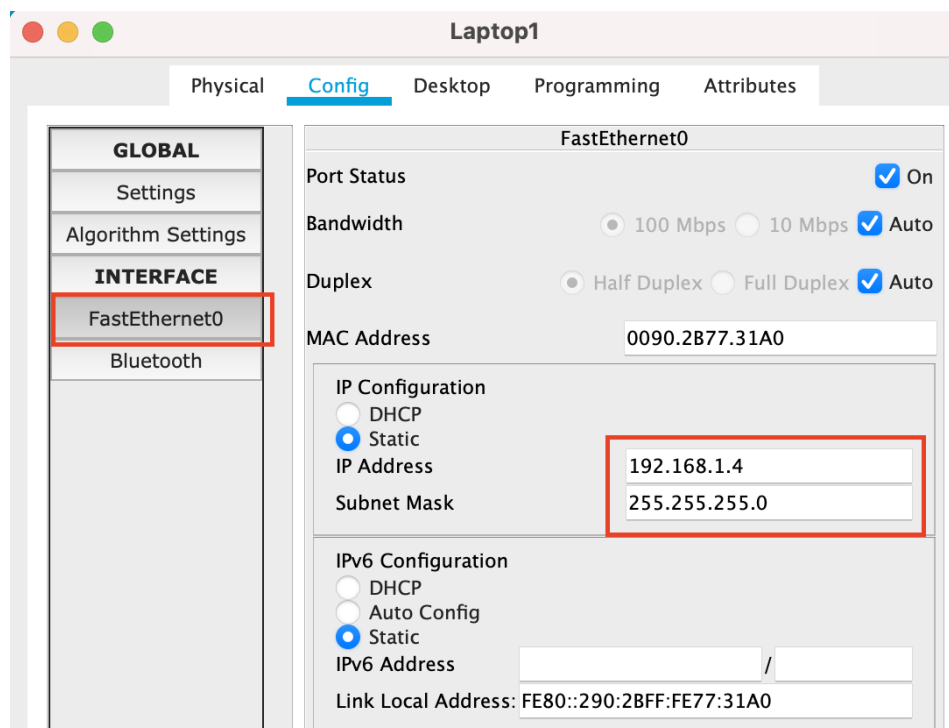
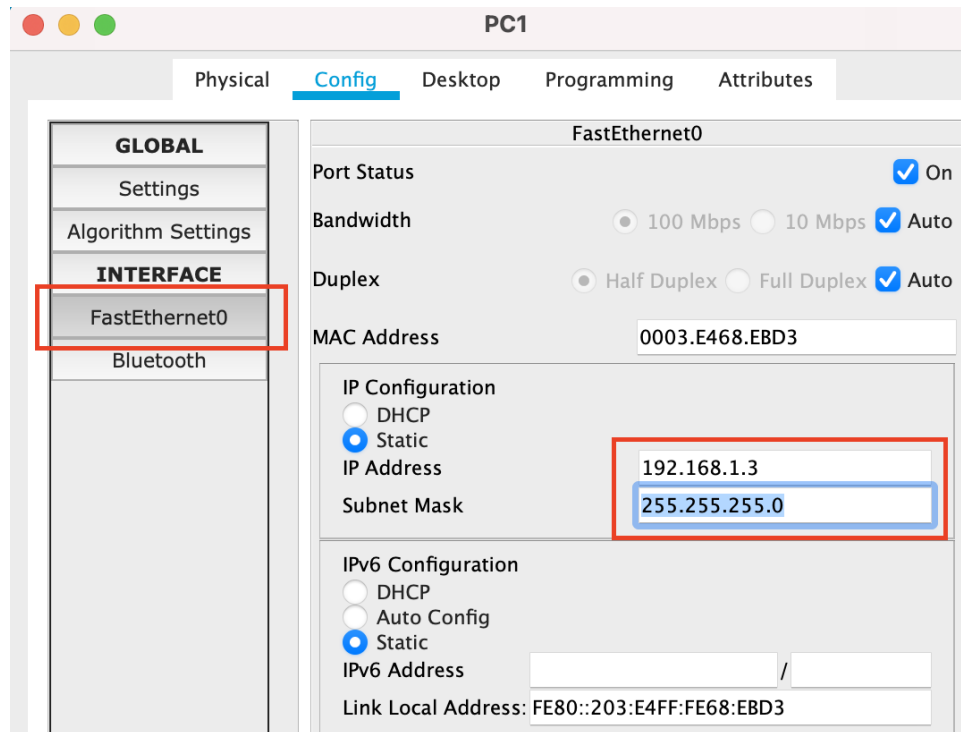
☐ DHCP

☐ Auto Config

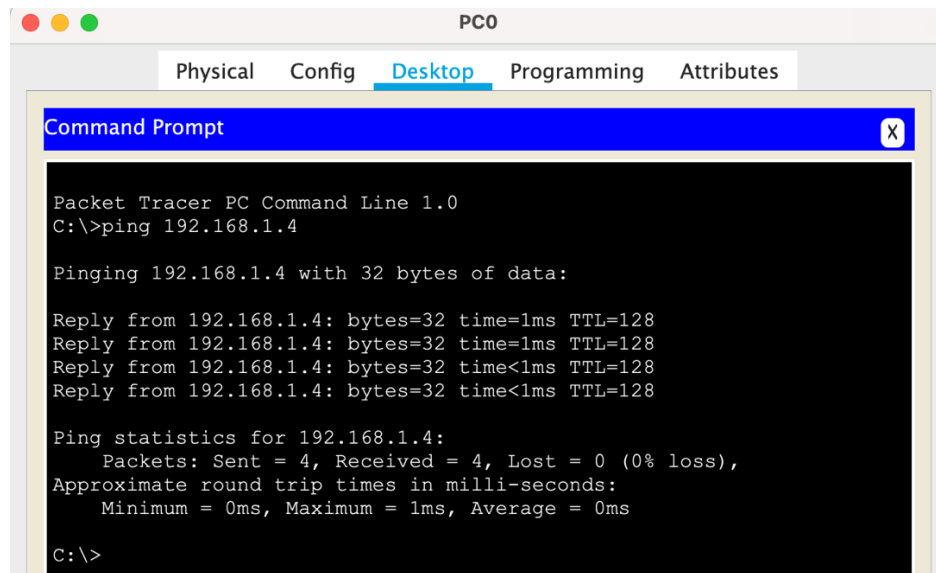
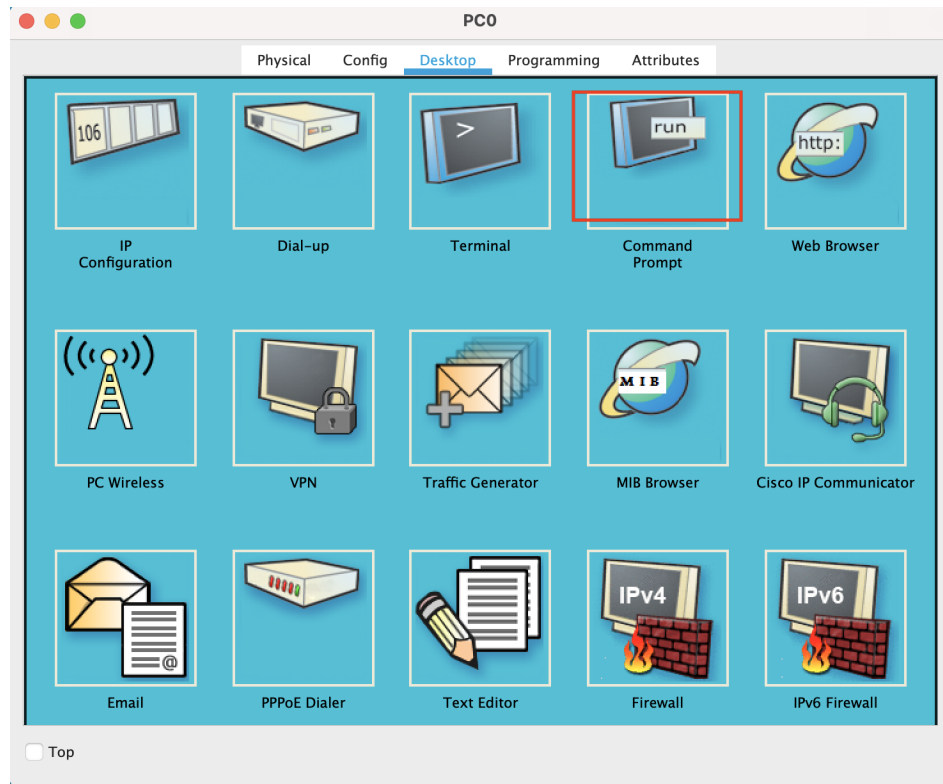
☒ Static

IPv6 Address /

Link Local Address: FE80::20A:F3FF:FE94:392B



Now you can ping successfully from PC0 to Laptop1:



IV. EXTRA: Network configuration in Linux (Debian)

Login Debian using this account:

User: **fit**

Password: **fit**

Using graphic interface: Open network configuration tool in the top bar at **System**
→ **Administration** → **Network**

or

Using command line (recommended): Open terminal tool in the top bar at **Applications → Accessories → Terminal**

If you use command line, follow these steps:

+ Switch to root account: type in the terminal this command: **su root**, then type the password, which is: **fithanu** (for example)

+ Open and edit interface file, type this into the terminal:

nano /etc/network/interfaces

+ by default you'll see something like this:

```
# The loopback network interface
auto lo
iface lo inet loopback

# The primary network interface - use DHCP to find
our address
auto eth0
iface eth0 inet dhcp
```

+ And if you want to fix your IP, modify it to:

```
# The loopback network interface
auto lo
iface lo inet loopback

# The primary network
interface auto eth0
iface eth0 inet static
address 192.168.28.101
gateway 192.168.28.254
netmask 255.255.255.0
```

+ After changes are made, don't forget to restart the networking by running **/etc/init.d/networking restart** in the terminal.

To see the IP address of your machine, in the terminal (using root account) type: **ifconfig** (in Windows, it is **ipconfig**, don't be confused).

Ping from other PC to check your network configuration.

Self-study

Try configuring network in some other distributions of Linux.