

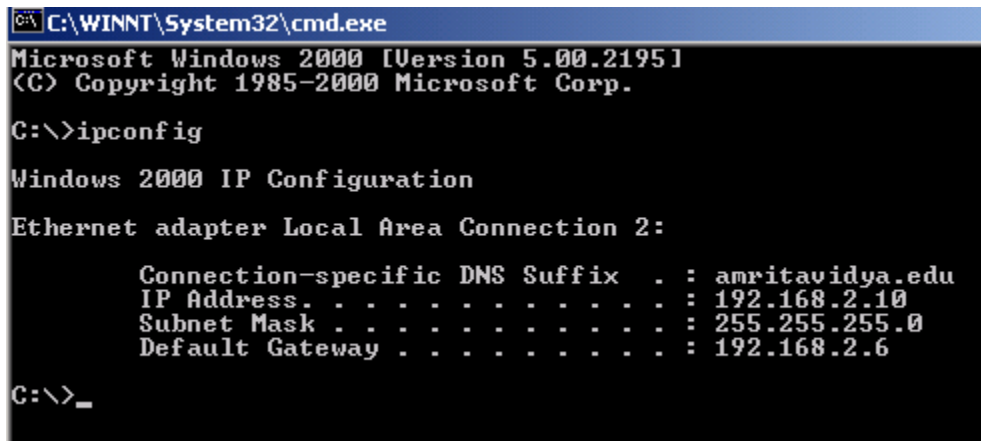
Analyzing the End Device connectivity to the Network

Part1: Gather basic TCP/IP configuration information

Use the Start menu to open the Command Prompt, an MS-DOS-like window. Press **Start**

Programs > Accessories > Command Prompt or **Start > Programs > Command Prompt**.

The following figure shows the Command screen.



```
C:\WINNT\System32\cmd.exe
Microsoft Windows 2000 [Version 5.00.2195]
(C) Copyright 1985-2000 Microsoft Corp.

C:\>ipconfig

Windows 2000 IP Configuration

Ethernet adapter Local Area Connection 2:

    Connection-specific DNS Suffix  . : amritavidya.edu
    IP Address. . . . . : 192.168.2.10
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.2.6

C:\>_
```

Type **ipconfig** and press the **Enter** key.

Note: **ifconfig** is the command in **Ubuntu machine**

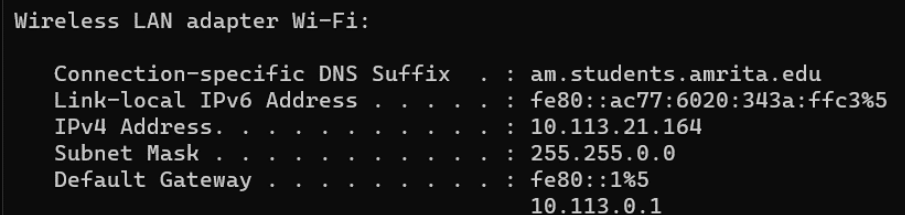
It is short for IP Configuration. This first screen shows the IP address, subnet mask, and default gateway. The IP address and the default gateway should be in the same network or subnet, otherwise this host would not be able to communicate outside the network

Record the following TCP/IP information for your computer

IP address: 10.113.21.164

Subnet Mask: 255.255.0.0

Default Gateway: 10.113.0.1



```
Wireless LAN adapter Wi-Fi:

    Connection-specific DNS Suffix  . : am.students.amrita.edu
    Link-local IPv6 Address . . . . . : fe80::ac77:6020:343a:ffc3%5
    IPv4 Address. . . . . : 10.113.21.164
    Subnet Mask . . . . . : 255.255.0.0
    Default Gateway . . . . . : fe80::1%5
                                10.113.0.1
```

Part2- Using ping and tracert to troubleshoot connecting to the Internet

Objective

Learn to use the TCP/IP Packet Internet Groper (**ping**) command from a PC/laptop.

- Learn to use the Traceroute (**tracert**) command from a workstation.
- Observe name resolution occurrences using WINS and/or DNS servers.

Ping the IP address of another computer

1. ping the IP address of the default gateway

```
C:\Users\admin\Anuvind(22010)>ping 10.113.0.1

Pinging 10.113.0.1 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 10.113.0.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

2. ping the IP address of a DHCP or DNS server

```
C:\Users\admin\Anuvind(22010)>ping 192.168.0.251

Pinging 192.168.0.251 with 32 bytes of data:
Reply from 192.168.0.251: bytes=32 time=144ms TTL=126
Reply from 192.168.0.251: bytes=32 time=79ms TTL=126
Reply from 192.168.0.251: bytes=32 time=111ms TTL=126
Reply from 192.168.0.251: bytes=32 time=6ms TTL=126

Ping statistics for 192.168.0.251:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 6ms, Maximum = 144ms, Average = 85ms
```

3. Find the IP address of any one web server

IP Address of facebook.com : 157.240.23.35

```
C:\Users\admin\Anuvind(22010)>ping facebook.com

Pinging facebook.com [157.240.23.35] with 32 bytes of data:
Reply from 157.240.23.35: bytes=32 time=150ms TTL=53
Reply from 157.240.23.35: bytes=32 time=111ms TTL=53
Request timed out.
Reply from 157.240.23.35: bytes=32 time=143ms TTL=53

Ping statistics for 157.240.23.35:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 111ms, Maximum = 150ms, Average = 134ms
```

4. Find the IP address of any one search engine

IP Address of google.com : 142.250.195.174

```
C:\Users\admin\Anuvind(22010)>ping google.com

Pinging google.com [142.250.182.142] with 32 bytes of data:
Reply from 142.250.182.142: bytes=32 time=540ms TTL=59
Reply from 142.250.182.142: bytes=32 time=299ms TTL=59
Request timed out.
Request timed out.

Ping statistics for 142.250.182.142:
    Packets: Sent = 4, Received = 2, Lost = 2 (50% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 299ms, Maximum = 540ms, Average = 419ms
```

5. Trace a local host name or IP address

```
C:\Users\admin\Anuvind(22010)>tracert localhost

Tracing route to anuvind [::1]
over a maximum of 30 hops:

  1    <1 ms    <1 ms    <1 ms    anuvind [::1]

Trace complete.
```

- Trace other IP addresses or domain names

```
C:\Users\admin\Anuvind(22010)>tracert youtube.com

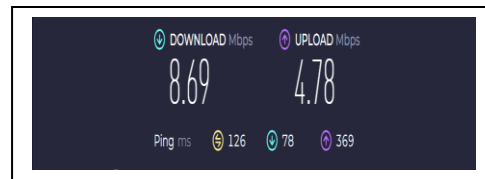
Tracing route to youtube.com [142.250.182.110]
over a maximum of 30 hops:

  1      4 ms      3 ms      181 ms    10.113.0.1
  2      4 ms      36 ms      4 ms     123.63.2.1
  3     125 ms      *      236 ms    122.15.45.170
  4      *          *          *        Request timed out.
  5      *      188 ms      *      74.125.146.82
  6     177 ms     217 ms     149 ms    72.14.234.9
  7      59 ms     158 ms     103 ms    142.251.55.243
  8     249 ms      *          *      maa05s21-in-f14.1e100.net [142.250.182.110]
  9     121 ms     135 ms     124 ms    maa05s21-in-f14.1e100.net [142.250.182.110]
```

Part-3: What is the speed of your Internet Access?

Upload speed :8.69Mbps

Download speed 4.78Mbps



Part-4: How do you access the Internet in your home?

- I access the internet at home through broadband WiFi. I have a WiFi router that connects to my broadband service provided by my Internet Service Provider (ISP).
- This router broadcasts a wireless signal, allowing my devices like computers and smartphones, to connect to the internet wirelessly.

