

Lab Objectives:


- 1) To become familiar with basics of computer networking
- 2) To become familiar with basic TCP/IP configuration
- 3) To understand the basics of Internet routing

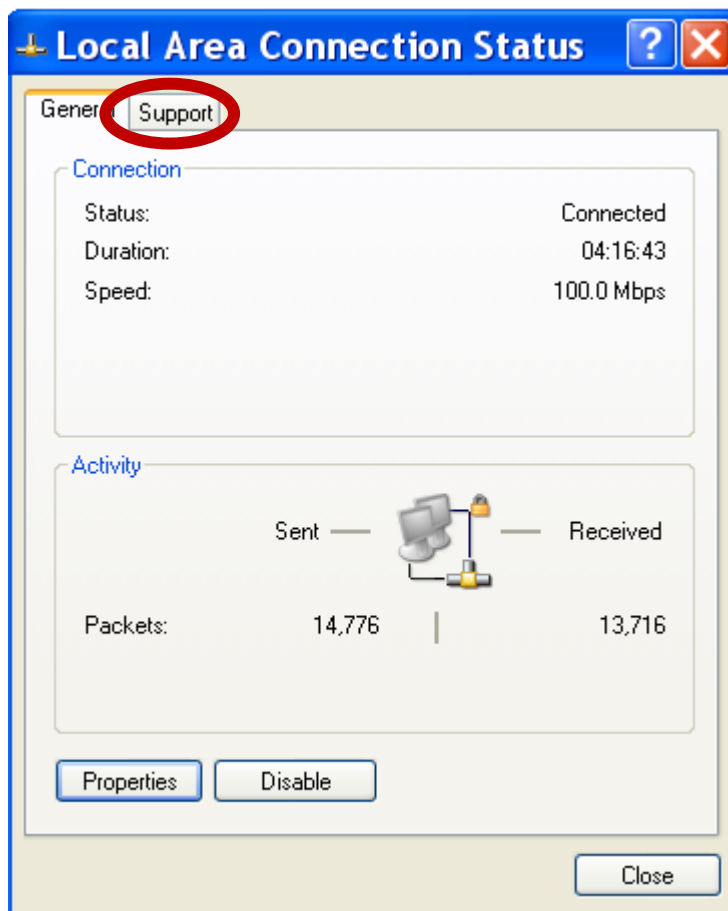
Preamble:

You can read about some TCP/IP basics at <http://en.wikipedia.org/wiki/TCP/IP>

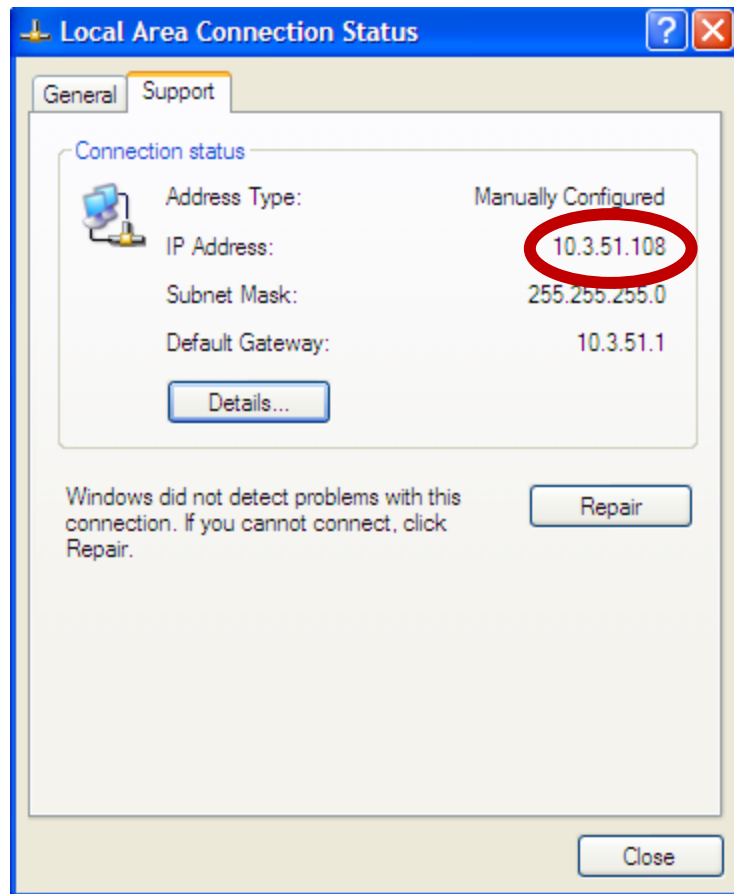
Lab exercise:

- 1) Note down the TCP/IP configuration of your machine:

To check the TCP/IP configuration, double click on the LAN icon on your taskbar (two small monitors on the right hand side of your taskbar that look like ). Next, click on the Support tab of the window.



You will get a window similar to that shown next.



- a. Note down the IP address configured on your machine?
 - b. What is the subnet mask?
 - c. Is the address manually configured, or assigned automatically through a server

(Hint: the name of the server that automatically configures IP address is called a “dynamic host configuration protocol” [DHCP] server)
 - d. What is the IP address of the default gateway? Is the gateway used for communication in the same network, or in communications with *other* networks?
- 2) Open a DOS command prompt (start > run > cmd), and use the **tracert** command on your machine to trace the route of a packet from your machine to the machine **www.google.com**.

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C:\WINDOWS\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\Junaid Qadir>tracert www.google.com

Tracing route to www.l.google.com [74.125.77.104]
over a maximum of 30 hops:

  1    15 ms    1 ms    1 ms    10.3.51.1
  2    <1 ms    <1 ms    1 ms    10.3.4.62
  3    <1 ms    <1 ms    <1 ms    10.1.2.54
  4    <1 ms    <1 ms    <1 ms    10.1.1.106
  5    <1 ms    <1 ms    <1 ms    10.1.100.1
  6    <1 ms    13 ms    <1 ms    121.52.148.57.pern.pk [121.52.148.57]
  7    1 ms    7 ms    1 ms    172.31.252.25
  8    2 ms    5 ms    2 ms    rwp44.pie.net.pk [221.120.236.189]
  9    29 ms    31 ms    26 ms    tw31-static245.tw1.com [117.20.31.245]
 10    30 ms    46 ms    32 ms    tw112-static117.tw1.com [221.132.112.117]
 11    149 ms    32 ms    143 ms    74.125.50.221
 12    29 ms    145 ms    30 ms    khi-ni01-gw1.pie.net.pk [221.120.250.226]
 13    115 ms    114 ms    210 ms    209.85.254.155
 14    212 ms    111 ms    111 ms    209.85.254.168
 15    177 ms    177 ms    296 ms    209.85.248.131
 16    182 ms    322 ms    179 ms    209.85.255.57
 17    335 ms    263 ms    390 ms    209.85.243.116
 18    346 ms    294 ms    341 ms    72.14.232.140
 19    371 ms    304 ms    364 ms    216.239.46.15
 20    443 ms    311 ms    314 ms    72.14.232.140
 21    447 ms    454 ms    369 ms    216.239.46.15
 22    411 ms    411 ms    441 ms    72.14.233.63
 23    417 ms    334 ms    404 ms    72.14.236.217
 24    *        446 ms    416 ms    209.85.248.181
 25    426 ms    435 ms    466 ms    ew-in-f104.google.com [74.125.77.104]

Trace complete.

C:\Documents and Settings\Junaid Qadir>

```

- What is the IP address of the first hop router?
- Can you trace the route of the packet and determine until which hop the packets are in Pakistan, when do they exit Pakistan?

[Hint: for a list of all IPs that are allocated to Pakistan currently, you can use the link:
<http://private.dnsstuff.com/tools/ipcountries.ch?domain=pk> ; or the IP information tool in
<http://member.dnsstuff.com/pages/tools.php?ptype=free>]

- Using the link <http://www.net.berkeley.edu/cgi-bin/traceroute> (which will run and output the traceroute command in University of California, Berkeley), trace the route to the webserver at NIIT (www.niit.edu.pk).

[Hint: you will enter the domain name: www.niit.edu.pk in the box saying 'Enter the IP address or domain name']

Next week's lab: Introduction to Microsoft Word