Lab 1: Introduction to IP/MAC Addresses

Aim:

To provide a foundation in identifying IP and MAC addresses, and configure both static and dynamic IP address allocation.

Time to complete: Up to 45 minutes.

Activities:

- **Complete Lab 1**: Introduction to IP/MAC Addresses.
- **Complete Test 1**.

Leaning Activities:

At the end of these activities, you should understand:

- How to determine the IP and MAC address for Windows and Linux.
- How to use nslookup to determine IP addresses of domain names.
- How to use extra options in nslookup to determine additional details on a domain name.

Commands used:

The key commands used are:

- nslookup.
- IPCONFIG (Windows)
- ifconfig (Linux).

Reflective statements (end-of-exercise):

You should reflect on these questions:

- How easy is it for someone to change their IP address on a home computer?

- What risk is there in an intruder changing domain name settings?

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1 Details

Aim: To provide a foundation in identifying IP and MAC addresses, and configure both static and dynamic IP address allocation.

The demo of this lab is at: http://www.youtube.com/watch?v=PkdqvXXQjoA

2 Activities

L1.1 **From Microsoft Windows**, open up a console window by selecting Run, and then enter **cmd**. Next run **ipconfig**, and determine the following parameters of your computer:

The names of two network adaptors on your computer:

The IP address and subnet mask of the main network connection which you use to connect to the Internet:

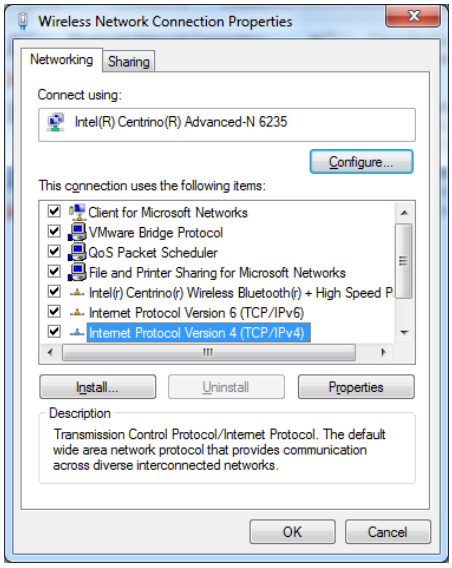
The default gateway address of the main network adaptor which connects to the Internet:

L1.2 **From Microsoft Window,** now run **ipconfig /all**, and determine the following parameters of your computer:

The MAC address of the main network card on your computer:

From the MAC address of your computer, can you identify the manufacturer of the network card: Ref: http://www.wireshark.org/tools/oui-lookup.html

L1.3 **From Microsoft Window,** open up the properties of your network card, and created a static address which is on the same network as your current IP address allocation.



Does your computer still connect to the Internet?

Now change the network address to 10.0.0.1, with a subnet mask of 255.255.255.0 and default gateway of 10.0.0.1. Can you connect to the Internet?

Now change it back so that it uses DHCP. Does your computer still connect to the Internet?

L1.4 From the Linux Virtual Machine, open up a terminal session, and determine the following:

The names of the network adaptors on your computer:

The IP address and subnet mask of the main network connection which you use to connect to the Internet:

The default gateway address:

The MAC address of the main network card on your computer:

From the MAC address of your computer, can you identify the manufacturer of the network card: Ref: http://www.wireshark.org/tools/oui-lookup.html

What can you observe from the manufacturer of this adaptor:

L1.5 Using nslookup, determine the main IP addresses for the following domains:

Microsoft.com

Intel.com

IBM.com

Bbc.co.uk

L1.6 Using whois, determine the main IP addresses and registrar for the following domains: Link: http://www.asecuritysite.com/IP/whois

Microsoft.com

Intel.com

IBM.com

Bbc.co.uk

L1.7 Using nslookup and using type=soa and type=mx, for Cisco.com, determine the following:

Primary name server:

Serial number of record:

Refresh time:

Retry:

Expire time:

Default TTL:

Name servers:

Mail servers (and their preference value):

IP Address of mail servers:

What security risk is there involved with these records?