

# 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.**

## Learning 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?

# Lab 1: Introduction IP/MAC Addresses

## 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:

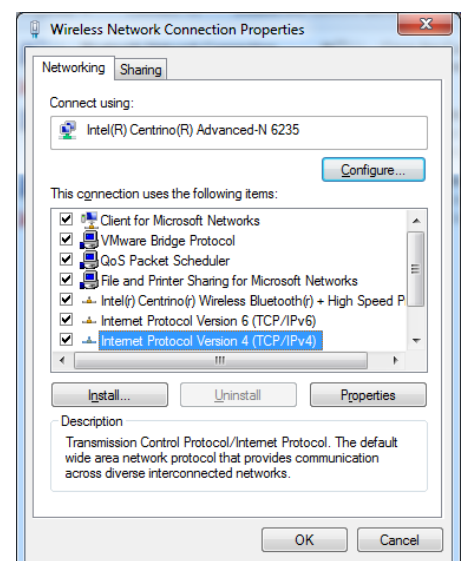
**The MAC address of the main network card on your computer:**

**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?**