**CS2010  
LabC-Networkin   
Points: 25**

# LabC-Networking

## Overview

When creating and supporting web sites, it may be necessary to troubleshoot networking issues. These issues could prevent web pages from displaying properly or the inability to publish web pages.

The commands and knowledge covers:

* ipconfig
  + <https://www.lifewire.com/ip-config-818377>
* ifconfig
  + <https://www.computerhope.com/unix/uifconfi.htm>
* host
  + <https://www.computerhope.com/unix/host.htm>
* nslookup
  + <https://www.lifewire.com/what-is-nslookup-817516>
* DNS
  + <https://computer.howstuffworks.com/dns.htm>
* ping
  + <https://www.lifewire.com/ping-command-2618099>
* IPv4/IPv6
  + <https://www.webopedia.com/DidYouKnow/Internet/ipv6_ipv4_difference.html>
* Command line - terminal window:
  + Linux - <http://www.linfo.org/command_line_lesson_1.html>
  + Mac - <https://www.wikihow.com/Get-to-the-Command-Line-on-a-Mac>
  + Windows - <https://www.lifewire.com/how-to-open-command-prompt-2618089>

## Terminal Window

1. Before running the other commands, you must first open a terminal window.
2. Follow these instructions or refer to the reference links above:
   1. Linux/Unix – Launch the Terminal application to bring up a command shell.
   2. Mac OS X – Open the Applications folder then the Utilities folder. Double-click the Terminal application to launch a command shell.
   3. Windows – Go to the start menu and type **cmd** in the search field. This should locate a program called **cmd.exe** or **Command Prompt**. Click on the program to open a command shell.

## Checking System Network Interfaces

Commands used:

* ifconfig
* ipconfig

These commands will verify that the network interfaces on the system have been properly assigned an IP address. Depending on the system configuration, the IP address could be IPv4 or IPv6. IPv4 is an older 32-bit protocol, IPv6 is a newer 128-bit protocol. Without an assigned IP address, your system will not connect to other systems.

1. Linux/Unix or Mac OS X: In a terminal window, type **ifconfig** and press enter.
   1. Look for entries that start with **inet**.
   2. The entry to use would be for the network interface in use.
2. Windows: In a command prompt window, type **ipconfig** and press enter.
   1. Look for entries that have **IPv4 address** or **IPv6** address.
   2. The entry to use would be for the network interface in use.
3. Record your IP address here: 192.168.86.249

## Verifying Remote Host Name Resolution

Commands used:

* host
* nslookup

These commands will verify that the DNS names are properly resolving to IP addresses. If an **unknown** response comes back as a response, then chances are that a DNS is not being properly referenced or the name servers are not resolving correctly.

1. Linux/Unix or Mac OS X: In a terminal window, type **host <domain name>**.
   1. Example: **host www.google.com**
   2. An IP address will be returned, it might be listed under a section called **Non-authoritative answer**.
   3. The response may be different across systems.
2. Windows: In a command prompt window, type **nslookup <domain name>**
   1. Example: **nslookup www.google.com**
   2. An IP address will be returned under the **Non-authoritative answer** section.
   3. The response may be different across systems.
3. Repeat the above for other domain names and record them below:
   1. www.google.com IP address: 142.251.32.4
   2. Your domain: michaelcharara.com IP address: 66.235.200.147
   3. Other domain: apple.com IP address: 17.253.144.10
4. If you run the above commands using an IP address instead of a domain name, you may still be able to resolve the IP address to a domain name in the other direction. However, the name may not resolve to the actual domain name and may stop short at a frontend system on the receiving end. If you wish to verify that the frontend system it resolves to is related to the domain you are checking, you can use **tracert** on a Windows system or **traceroute** on a Linux/Unix or Mac if it is installed. A substitute would be using an online tool such as an online traceroute tool.
5. Post an image of a screen capture here:

Text

Description automatically generated with medium confidence

Text

Description automatically generated

## Verifying Remote Connectivity and Response Times

Commands used:

* ping

This command will verify the connection to the remote system responds in a timely manner. When the command is issued against a domain name or an IP address, the remote system will reply and information will be displayed on how long it took to reply to each packet sent from the command and the echo back to the source, the number of bites sent, and the time to live before packets are dropped. If connections are not stable, you may also see request timeouts.

1. At a command prompt or terminal window, type **ping <domain or IP address>**
2. Ping the following:
   1. www.google.com Time: 19-29ms TTL: 115
   2. Your domain: michaelcharara.com Time: 21-25s TTL: 52
   3. Other domain: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Time: 20-26ms TTL: 56
3. Post an image of a screen capture here:

Text

Description automatically generated

Text

Description automatically generated