WIIT 7780 Lab 7: Managing Network Connections Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Step 1**

Sign into your Ubuntu Desktop with credentials provided by your Instructor

Exercise1: Exploring the NIC

1. Open a Terminal window.
2. At the prompt, type **ip -s link** and press Enter. This will pull up your network device status information.
3. Look through the network information presented, ignoring the information for the loopback (lo). You should see an information item named state. The state should be UP. If your system is not currently connected to the Internet, then do what is needed to get your network started with access to the Internet.
4. Once you ensure your network is up and running, on the tty2 terminal, type **sudo** **ifconfig** and press Enter. This command will also display Network Interface Card (NIC) information.
5. From the information displayed in the preceding step, write down your ip address:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
6. Type **ping -c 5 *ip\_address*** and press Enter. Don’t actually type *ip\_address*. Instead, type the ip address you recorded in step #7. You should see that this NIC is responding.
7. Try out your loopback address with the ping command by typing  
   **ping -c 5 127.0.0.1** and pressing Enter.
8. If you are in a classroom environment, ask someone else in the classroom for their machine’s ip address, and try to ping their ip address.

Exercise 2: Exploring Network Troubleshooting Tools

* + - 1. Open a Terminal window.
      2. Type **host cscc.edu** and press Enter.  
         The cscc.edu ip address is\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  
         The host command performs a DNS lookup, returning the ip address for the URL passed to it.
      3. Type **host amazon.com** and press Enter. Record how many ip addresses amazon.com has:\_\_\_\_. The DNS shows lots of information, including how many ip address a particular site uses.
      4. Using a different DNS query tool, type **dig amazon.com** and press Enter. Notice that the information is displayed in a "question/answer" format.
      5. (Note: Often the whois utility is not installed by default. Either install the whois utility by logging into the root account and typing **sudo apt-get install whois** or skip this step).  
         Here is another DNS query tool: type **whois cscc.edu** and press Enter. Write down the following information for cscc.edu:  
           
         Domain record activated on: \_\_\_\_\_\_\_\_\_\_\_  
           
         Domain expires: \_\_\_\_\_\_\_\_\_\_\_  
           
         The whois command provides a great deal of DNS information!
      6. In contrast type **whois nationwide.com** and press Enter. Note the difference in information provided.
      7. You can determine what DNS servers your system is querying using the host, dig, and whois tools by searching through your system's /etc/resolv.conf file. Type **grep nameserver /etc/resolv.conf** and press Enter. Write down the DNS server ip addresses this machine uses (there will be between one and three servers listed).  
            
         DNS Server #1: \_\_\_\_\_\_\_\_\_\_\_\_\_  
           
         DNS Server #2: \_\_\_\_\_\_\_\_\_\_\_\_\_  
           
         DNS Server #3: \_\_\_\_\_\_\_\_\_\_\_\_\_  
         The DNS servers used by your system are configured in the /etc/resolv.conf file. The keyword nameserver is used in front of the DNS ip addresses.

Exercise 2: Exploring Network Troubleshooting Tools (continued)

1. Try out another network troubleshooting tool. Type **sudo** **route** and press Enter. Find the "Gateway" column and write down the ip address of your gateway to the rest of the network and/or Internet: \_\_\_\_\_\_\_\_\_\_\_\_\_.  
   The route command can be used to view the default route of network packets.
2. Try out the netstat command. Type **netstat -r** and press Enter. Notice that the information it provides is nearly identical to that provided by the route command.
3. (Note: Often the whois utility is not installed by default. Either install the whois utility by logging into the root account and typing **sudo** **apt-get install traceroute** or skip this step).
4. The traceroute utility can be a helpful network troubleshooting tool. Type **traceroute amazon.com** and press Enter. Each number item is a router reporting information back to the traceroute command. When any asterisks (\*) are shown, that means the router is blocking your trace.