Lab 2-4 Testing for IP Address and Connectivity

Using the cables you created, do this lab. This will tell you for sure that your cables are working and give you some insight into Windows Server 2008.

1. Start up your server.
2. Go to the command prompt.
3. Type pathping nettech01
4. What does it say?

5. Now type tracert nettech01
6. What does it say?

7. **Do this at home (since it's blocked because of our proxy).**
    a. Pathping www.teechur.com
    b. Tracert www.teechur.com
8. Attach screen shots.

Open the command prompt again. You're going to use the ARP protocol and command to resolve an address to a MAC address. ARP stands for Address Resolution Protocol.

9. At the prompt type **arp –a**
10. Write down what you see.

11. Using this screen, what is the MAC address of your server? How can you tell?

12. Type **arp /?** Write down the switches you can use after /

13. Write down the switches you can use after –a

14. Configure your computer for static addressing.
    a. Open your control panels
    b. Go to the Network and Sharing Center
    c. Click Manage Network Connection
    d. Right click on your network connection and select properties.
    e. Double click on Internet Protocol Version 4 (TCP/IPv4)
    f. Assign the IP address as follows:

Pod	Addresses	Subnet Mask	Default Gateway	DNS Server
A	10.10.1.2 10.10.1.3	255.255.255.0	10.10.1.1	10.10.1.2 10.10.1.3

	10.10.1.4 10.10.1.5 (be sure each computer has a different one)			10.10.1.4 10.10.1.5
B	10.10.2.2 10.10.2.3 10.10.2.4 10.10.2.5	255.255.255.0	10.10.2.1	10.10.2.2 10.10.2.3 10.10.2.4 10.10.2.5
C	10.10.3.2 10.10.3.3 10.10.3.4 10.10.3.5	255.255.255.0	10.10.3.1	10.10.3.2 10.10.3.3 10.10.3.4 10.10.3.5
D	10.10.4.2 10.10.4.3 10.10.4.4 10.10.5.4	255.255.255.0	10.10.4.1	10.10.4.2 10.10.4.3 10.10.4.4 10.10.5.4
E	10.10.55.2 10.10.55.3 10.10.55.4 10.10.55.4	255.255.255.0	10.10.55.1	10.10.55.2 10.10.55.3 10.10.55.4 10.10.55.4

15. Click okay.
16. Open your command prompt.
17. Type IP Config
18. Write down:
    a. IP Address v4

    b. IP Address v6

    c. Subnet Mask

    d. Default Gateway

So what are these????

A. Subnet mask tells a router what network you live on. Since your subnet mask is 255.255.255.0 that means that you are in network 10.10.4.0 (if your IP address is 10.10.4.2-10.10.4.254. the 255s “mask” off the part of the address that says “I live in this network”. The 0 masks off the part that identifies your computer in that network.

   So on the following IP Address and subnet mask:

   192.168.1.1 255.255.255.0

   What part is the network?

   What part is the host (or computer)?

B. Default Gateway: This is the address of the router that allows you out of and into the network. When we set routers up in our networks, they will be assigned this address. Usually they get the network address with the host of 1.
C. DNS Servers: The DNS server has a table of DNS entries…IP addresses matched to computer names. So if your computer name is **PICKLE** and your IP address is 10.10.10.1 the DNS server would be able to tell other computers looking for PICKLE that it lives at 10.10.10.1. You will set up DNS on one server in your network and have the others replicate the directory. We'll do that later.

Questions

1. What does pathping do?

2. What does tracert do?

3. How many hops from your computer to www.teechur.com? (For example, I just did it from mine and it was 23 hops! Wow!)

4. What is a hop?

5. What does ARP stand for?

6. What does ARP do?

7. What is your IP address in V4?

8. How did your computer get a V6 address?

9. What is the default gateway?

10. What is a subnet mask?

11. What is the NETWORK part of the IP address (v4) assigned to your computer?

12. What is the HOST part of the IP address assigned to your computer?

13. What does a DNS server do?