Lab 4-1 Testing Network Connectivity

Learning Targets

1. Understand how to use command line tools to test network connectivity

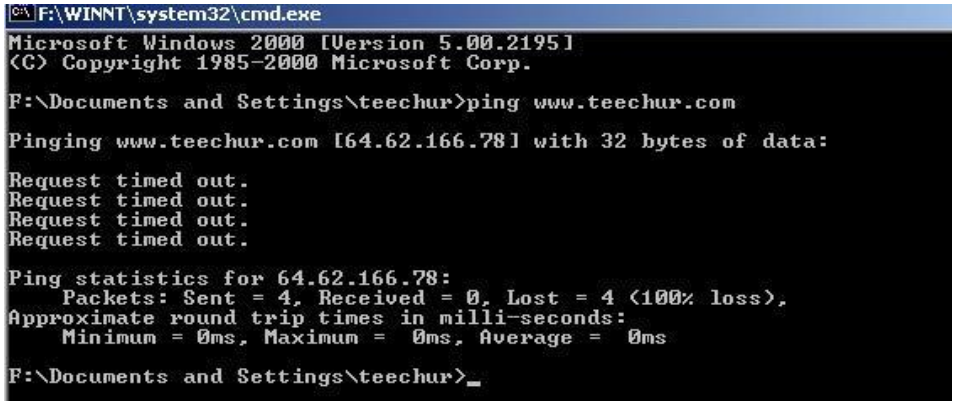
Success Criteria

You Check	Tory Check	Requirement
		Show me the different commands
		Answer your questions

Instructions

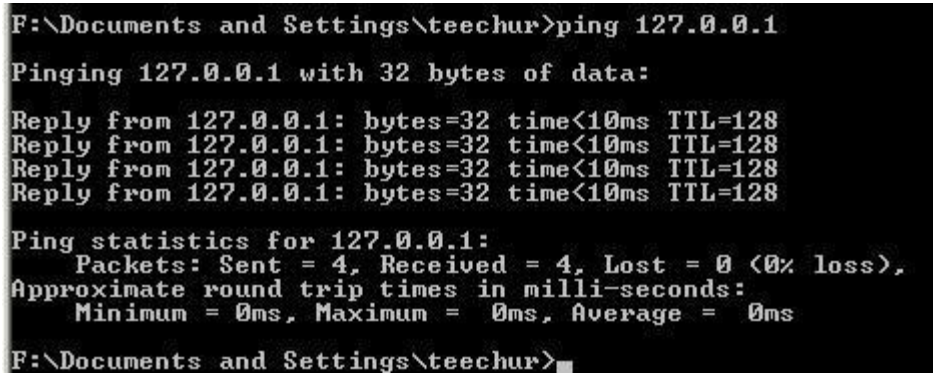
One of the protocols used in the TCP/IP suite is called PING (Packet Internet Groper). Ping uses a series of Internet Message Control Protocol (ICMP) packets to determine whether a remote host is active and what the round trip delay currently is in communicating it.

Parker Sneevle is trying to get to the server named teechur.com but it's not working. You can test his computer's connectivity to that computer by using Ping. This works the same in all versions of Windows.



1. Open your command prompt.
2. At the prompt type **ping** www.teechur.com.
3. You see the information to the right. This means that for some reason, the ICMP (Internet Control Messaging Packets) packets did not reach the remote computer. This could be caused by a number of situations:
    a. The server is down
    b. The network is using a firewall that blocks ICMP packets
    c. The network card on the local computer isn't working.
    d. The network card on the remote computer isn't working.
    e. The DNS server is not resolving the IP address correctly.
4. You have a couple of options here. If you know the IP address of the remote computer and you know that the network is not blocking ICMP packets, you can type ping followed by the IP address. You can also test your local network card to ensure that it is working. Since troubleshooting protocol dictates that you start locally and work your way out, you're going to start by testing your local network card.
5. You can use the ping command to do this using the loopback address of 127.0.0.1. At the command prompt type **ping 127.0.0.1**.

6. You see the following:



7. You determine that the network card is working. How can you tell? (Answer below)

8. Obtain the IP address of teechur.com from me. Ping the ip address.

9. Is Teechur.com working? (answer below)

You can use the ARP (Address Resolution Protocol) to identify the hardware address of a computer you have connected to by domain name, mapped network drive, or UNC pathname.

1. Log into Windows workstation. Log into ADDC-1. Also run ADDC-2 and your workstation.
2. Open the command prompt on ADDC-1.
3. At the command prompt type ARP and hit enter.
4. It will list the switches (modifiers) you can use with the command.
5. List the switches (modifiers) you can use with this command.

Switch	Purpose

Type arp –a and hit enter.

6. List the computers your computer is currently connected to.

IP Address	MAC Address

Which ones are the servers?

No go into your server, make sure everyone is started up and network cables are connected. Log in.

Fill out below:

	Computer Name	IP Address	MAC Address
1			
2			
3			

On your virtual servers, make sure all are up and running. Ping each one to ensure your network is working.

Virtual Server/workstation Name	IP Address	Successful Ping?	MAC Address

1. What does ICMP stand for? _____
2. What does ARP stand for? _____
3. What does PING stand for? _____
4. I can't find the printer. Its IP address is 192.168.1.103. What command can I do to see if it's alive on the network? _____
5. I want to set up MAC Address filtering on my router. I want to find out the MAC address of my server. What command will show me my MAC address? _____
6. What does MAC stand for? _____