

Addressing

First, you will use the `ipconfig` command to retrieve the IP address of the computer you are using:

1. Click 'Start' then 'Run'.
2. Type 'cmd' in the text box that appears and click OK.
3. Click on the command window that appears and type **ipconfig**.
4. What is the IP address of your computer?

Next, you will use the `tracert` command to determine the route taken by a message sent from your computer to one of your favorite websites:

1. Choose a website (like facebook.com or google.com).
2. At the command window, type **tracert website**, replacing *website* with the domain name of the website you chose (e.g, tracert google.com).
3. How many routers forward messages sent from your computer to the website you chose?
4. Switch users and try a different website.
5. Do you see the same number of routers for the new website?
6. Do you think you would see the same number of routers if you tried this at home?

Now, you will use the `nslookup` command to determine the IP address of the websites you chose in the previous exercise:

1. At the command window, type **nslookup website**, again replacing *website* with the website you chose.
2. How many IP addresses did you find for your website?
3. Repeat the `tracert` command, replacing the domain name (e.g., google.com), with one of the IP addresses you found for that website.
4. Do you see the same set of routers as you did when you used the domain name instead of the IP address?
5. Switch users and try a different website.

HTML/HTTP

First, you will use the `netstat` command to look at the status of your computer's network connections, then you will `telnet` into a web server and view the changes to the network connections:

1. At the command window, type **netstat**.
2. Open a second command window (Start->Run->cmd->OK). At the prompt, type **telnet google.com 80**. You may replace `google.com` with the domain name of another website, or with the IP address of another website if you like, but be sure to include the 80 in any case.
3. Go back to the first window and type **netstat** again.
4. Do you notice any new connections? Can you identify the connection you just made?

Now, you will retrieve a web page by speaking HTTP directly with a web server.:

1. In the window where you typed `telnet`, type **GET /index.html**.
2. Open a browser window. In the URL bar, type the same domain name and click enter. When the page loads, go to the View menu and select Page Source. Compare the output of the GET command with the output you see in the Page Source window. Are they the same?
3. Switch users and start from the beginning using a different website.

Next, you will retrieve a web page by using `telnet` to talk directly to a web server, and compare the HTML you get back from the web server with what you see in your browser window.

1. In your browser, open the following web page:
<http://www.cs.usfca.edu/~sep2009/htmlexercise.html>
2. In one of your command windows, type **telnet www.cs.usfca.edu 80**
3. Type **GET /~sep2009/htmlexercise.html**.
4. Compare the HTML you retrieve in the command window with what you see in the browser.
5. How do you make text bold?
6. How do you make text italic?
7. How do you specify the title that appears at the top of the window?
8. How do you include text that is not shown by the browser?

SMTP

For this exercise, you will telnet directly into a mail server and use SMTP to send an email without using a mail client. For each instruction, replace the portion in italics with the appropriate information (e.g, replace *your_email* with something like srollins@cs.usfca.edu). Make sure to include the pointy brackets where specified.

1. At the command window, type **telnet mail 25**.
2. Type **HELO *your_login_name***.
3. Type **MAIL FROM: <*your_email*>**.
4. Type **RCPT TO: <*receivers_email*>**.
5. Type **DATA** and hit return. Type as much text as you want in the message, and then hit return, type a period, and hit return again. This will send your message.
6. Type **QUIT**.
7. Switch users and try again.
8. Now, try misspelling some of the comamnds (HELO, MAIL FROM, etc) and see what happens.

Next, search the web for more information about the SMTP protocol. See if you can figure out how to do the following tasks:

1. Specify the Subject in a message.
2. Cc another recipient.
3. Send the message to three or more people.