CSCI 4220 Lab 7

Lab 7: FTP Wireshark Trace

This lab is heavily adapted from Bill Buchanan here, but we're only focusing on FTP. You can find the zip file under Course Materials on Submitty (Lab7_ftp2.zip), which contains a single capture file to open in Wireshark. You may want to consult Internet sources including the RFC to fill in any knowledge gaps.

For part 1, answer the following questions:

1. Using the filter of `ftp.request.command`, determine the FTP commands that the user has used:
2. Using the filter of `ftp.response`, determine the FTP codes that have been returned:
3. What is the username and password for the access to the FTP server:
4. What is the name of the file which is uploaded:
5. What is the name of the file which is downloaded:
6. Using the filter of `ftp.request.command=="LIST"`, determine the first packet number which performs a "LIST":
7. In performing in the list of the files on the FTP server, which TCP port is used on the server for the transfer:
8. From the final "LIST" command, which are the files on the server?
9. What does the filter `ftp.response.code==227` identify in terms of the ports that are used for the transfer:

For part 2, open a terminal, follow the steps below, and answer `10.` and `11.` . For all instructions, you may need to type `?` and press enter to see a list of commands in your FTP client. You should be using a command-line FTP client for this lab, and if you're on **Windows you should use WSL**.

Mac users may find this guide useful since you will need to use one of these methods to get a command line FTP client (usually in the inetutils package).

- 1. Inside it, connect to `ftp.ncbi.nlm.nih.gov`. Log in with `anonymous` as your username, and leave empty for password.
- 2. Get a list of what's in the current working directory (this will probably be `ls`). If the server never responds, your computer's firewall is probably blocking the connection. You can work around this by setting your FTP client to passive mode (probably by using `passive`). This is not the same as the `PASV` FTP instruction, but tells the client/server to treat all data in a similar manner to how `PASV` works.
- 3. Navigate to the pub/pmc/oa_pdf/01/01 directory. (probably involves one or more `cd` commands)
- 4. Download main.PMC5757905.pdf in ASCII mode as main.PMC5757905.ascii.pdf (this is usally the default transfer mode) (probably `ascii` and `get` commands)
- 5. Download main.PMC5757905.pdf in binary mode as main.PMC5757905.bin.pdf (probably `binary` command)
- 6. Quit/log off from the server (the server will eventually disconnect you after enough inactivity, but it's polite to quit when we're done. Probably the `bye` command.)

10. Include all terminal output in your Lab7_answers.pdf, showing that you were able to execute the commands listed above and download both versions of the file.
11. Open both downloaded PDF files in a PDF viewer and compare (try looking at the image in the upper left of the first page). *note: Acrobat/Firefox will probably fail to open the ASCII version, but Edge, Chrome and Safari will open it just fine.* Explain why the two files are different (if they are), or why `ascii` vs `binary` mode didn't matter. Also state your operating system, since this can affect your results.

Submission

Submit a single PDF, Lab7_answers.pdf that contains your responses to all the questions (`1-9` from part 1, and `10-11` from part 2).