雯豐資產管理有限公司
Win & Fun Capital Limited
Software Engineer Exam
Version 2017.02.17.2

Instructions

- You have 14 days to complete exam, no extensions can be given.
- All code must be in C or C++ compiled on any linux distribution.
- Feel free to use any third party libraries available on linux, e.g. boost.
- Any internet resource (e.g. Google) will be allowed and is encouraged.
- No additional questions will be answered or hints given aside from what is already listed on this exam sheet.

Problem

Write a program that will parse FTD packets.

- **alltraffic.pcap** is a pcap file that contains the FTD packet to parse, along with other packets to disgard.
  - https://www.dropbox.com/s/pahosdv2nwwri01/alltraffic.pcap?dl=0
- **jr16-2014.pdf** is a rough guideline for how FTDC packets are structured. The key point to emphasize here is that this is only a rough guideline, the actual packets are laid out slightly differently.
  - https://www.dropbox.com/s/2pgufcui82cbite/jr16-2014.pdf?dl=0
- **libCFFEXTrader.so** is a library file that contains the binary to exactly parse FTD packets. There are no header files, so please use binary inspection or decompiler tools like nm.
  - https://www.dropbox.com/s/uymxz0b81xxn91w/libCFFEXtraderapi.so?dl=0

The parser will only parse inbound **CFTDOrderField** packets and retrieve the following fields:

1. OrderStatus
2. UserOrderLocalID
3. LimitPrice
4. Direction
5. InstrumentID

Put the results into a CSV file named **final_results.csv** with exactly the same header names as the field names above.

Hints

1. Filter out network traffic that you do not need. The alltraffic pcap file contains other network packets that is not FTD. FTD packets are always TCP. There are other types of FTD messages beside CFTDOrderField. We only care about the inbound CFTDOrderField messages.
2. You do not need to waste time understanding the other components of the CFFEXTrader library or the FTD protocol. Your only mission is to parse CFTDOrderField messages.
3. FTD packets are compressed. You first have to figure out how to decompress the packets. This can be accomplished a variety of ways.
4. Once the packet is decompressed, you will have to find how the FTD message struct is laid out. This can be accomplished a variety of ways.

How to Submit

- Please upload your solutions as a ZIP file to our dropbox: https://www.dropbox.com/request/yu5xVoPhixSh0tsLSsWa
- If the submission files do not contain a file named **final_results.csv**, your solution will not be accepted.
- Your submitted **final_results.csv** will be checked with a program, so CSVs that do not follow the format described in instructions above will not be accepted.
- Please also include your code in your solutions ZIP.
- Use this filename format for zip files. If your zip file does not follow the format, it will not be accepted:
    - Format: **<last_name>.<first_name>_<email_address>_<date>.zip**
    - Example: **Smith.John_john.smith@gmail.com_2017.02.17.zip**