Theory of operation of a program designed to dump firmware from GE Appliances

1. Query the bus for boards
    a. Send command 0x01 to address 0xff (broadcast)
        Example:

        ```
        0xe2, 0xff, 0x08, youraddr, 0x01, crcmsb, crclsb, 0xe3
        ```

    b. Listen for responses. Boards will respond with their source address and a 32-bit software version.
        Example:

        ```
        0xe2, youraddr, 0x0c, boardaddr, 0x01, msb1, lsb1, msb2, lsb2, crcmsb, crclsb, 0xe3
        ```

    c. Parse the GEA message from each board, then store source addresses into an array (ie. detectedBoards[]).
    d. Check if any boards were detected by checking if the array size is greater than zero. If false, then handle the error. If true, proceed to step 2.

2. Prompt for the following for each board detected:
    a. Base address.
    b. Size.

3. For each board detected, read it's memory in 16 byte chunks given the base address and size
    a. Calculate the number of 16-byte chunks required to read the entire flash. Last chunk size equals the remainder
        I. int numChunks = size / 16
        II. U8 lastChunkSize = size % 16
    b. For each chunk, send command 0xdd0c followed by:
        I. U8 bytesReadPerChunk (in this case: 16 or 0x10)
        II. U32 baseAddress
        Example: Request 16 bytes from address 0xdeadbeef.

        ```
        0xe2, boardaddr, 0x0e, youraddr, 0xdd, 0x0c, 0x10, 0xde, 0xad, 0xbe, 0xef, crcmsb, crclsb, 0xe3
        ```

    c. For each chunk, listen for a response containing the bytes requested.
        Example: 16 bytes read from 0xdeadbeef.

```
0xe2, youraddr, 0x1e, 0xboardaddr, 0xdd, 0x0c, 0x10, 0xde, 0xad, 0xbe, 0xef, 16 bytes…, crcmsb,
crclsb, 0xe3
```

d. Parse data from the response, then store it into a file.
e. Increment baseAddress by 16.
f. Repeat b-e every chunk.
g. Read remaining bytes by sending command 0xdd0c followed by:
    I. U8 lastChunkSize
    II. U32 baseAddress

4. Save flash dump file with a unique name:
   Ex: dump-yyyymmdd-hhmmss-baseaddr-size.bin