Challenge: Trapped in Time

Objective

The goal of this challenge is to login to **Gourd's Super Duper FTP Server** (network details will be provided at the beginning of the challenge) using the following credentials:

Username: **disintuitive**
Password: **disintuitiveXXXXY**

XXXXY in the password is a TimeLock code as defined by our TimeLock algorithm...almost. There is an extra character at the end that is simply the middle character of the final hash (i.e., hash length / 2). Keep integer division in mind. Of course, the password to the **disintuitive** account changes every 60 seconds!

Once logged in, you will need to fetch a few files that can somehow be further inspected to reveal one or more messages cleverly embedded within. You are provided no other details, other than that an exorcism may need to be performed, followed by closely inspecting bits and bytes.

Important notes:

- The epoch time for the TimeLock algorithm is 2019-05-03 10:00:00; and
- The current time of the machine implementing the TimeLock algorithm for the **disintuitive** user account can be obtained by making a simple socket connection to it on port **54321**.

GOOD LUCK!

Hints:

- There are actually **two** hidden files in the correct file (one may be somewhat...obvious; the other, not so much)
- For the first hidden file, the offset is a power of 2 (and happens to start with that digit too), and the interval is a power of 2 (the byte method may work quite well)
- For the second hidden file, the offset is a power of 2, plus 1, and the interval is a power of 2 that is less than or equal to 4 (the bit method may work quite well)
- The following bytes are most likely meaningful: 0x00, 0xFF, 0x00, 0x00, 0xFF, 0x00
- What's a JFIF, and is it perhaps involved with the byte method?
- It's possible that a **third** hidden file exists inside of one of the two hidden files!