Operation manual of LTSA_gui.exe

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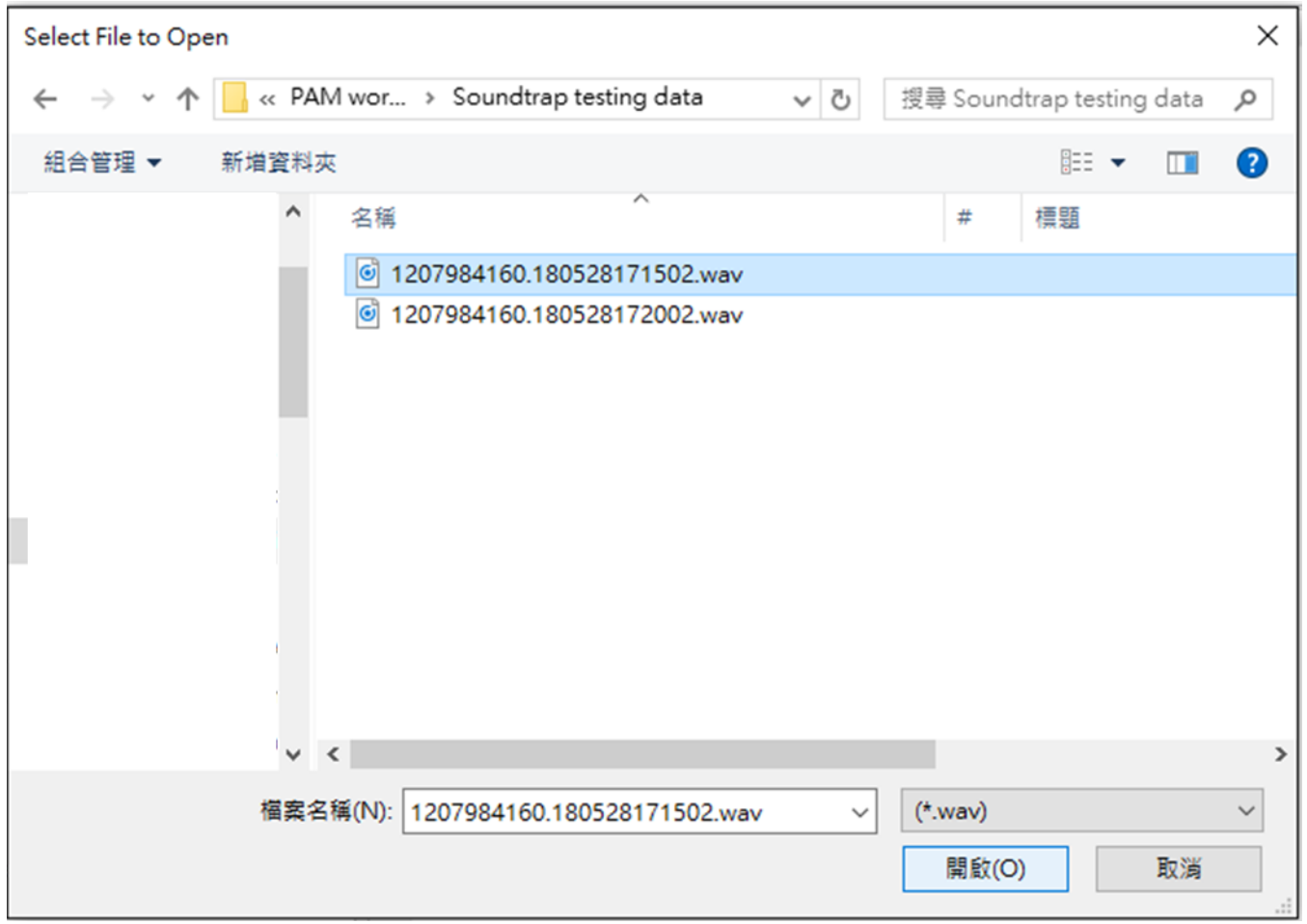
Preparation of using LTSA_gui.exe

- Install MATLAB Runtime R2017a (9.2) https://www.mathworks.com/products/compiler/matlab-runtime.html

- Prepare your long-duration recordings within one folder
  - It must be wav file!
  - Do not put recordings from different sites at the same folder
  - Beginning time of a recording should be stamped on the file name

Open the LTSA_gui.exe

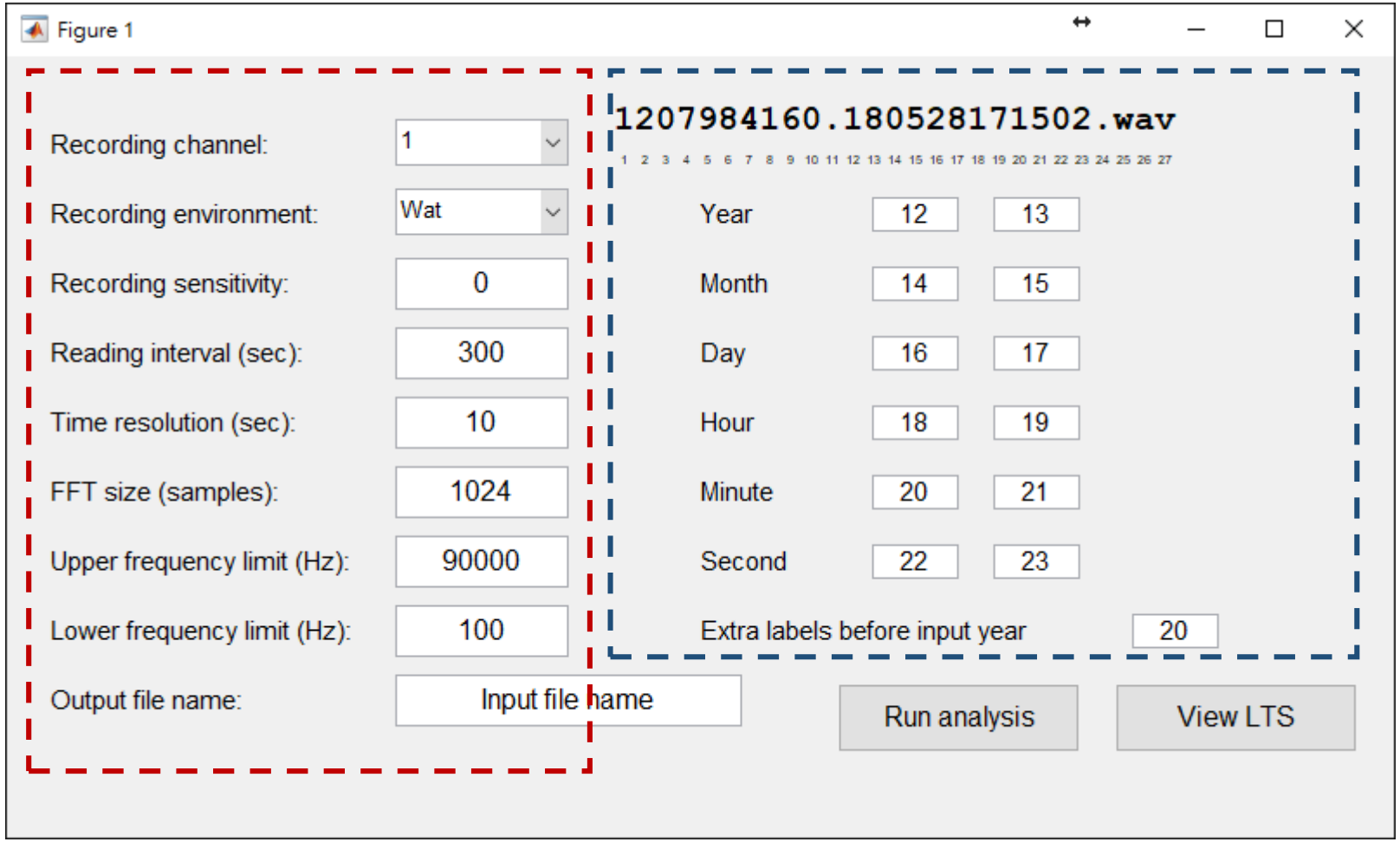
- Double clicked the LTSA_gui.exe, a window will displayed to ask you select the recordings you want to analyze
- Go to the folder you have prepared, and then select any one recording
- The program will process all the recordings contain in the same folder
  - Not including subfolders



Open Cancel

Control panel of LTSA_gui.exe

Parameters of generating a long-term spectrogram



Time stamp information

Parameters of generating a long-term spectrogram

- **Recording channel:** 1 (left), 2 (right)
- **Recording environment:** Wat (underwater), Air (in air)
- **Recording sensitivity:** sensitivity for the entire system (dBV/pa)
  - If the sensitivity is unclear, please use 0 to measure the relative change
- **Reading interval:** duration of each recording clip in the duty cycle (second)
  - If a recording clip is too big (hours…), then you can try 60 second or 300 second.
- **Time resolution:** the desired time resolution of a long-term spectrogram (second)
  - No longer than the reading interval
- **FFT size:** number of samples in the spectral analysis
  - Frequency resolution will be: sampling frequency/FFT size
- **Upper and lower frequency limits:** the desired frequency range of a long-term spectrogram (Hz)
- **Output file name**

Check the time stamps

- The program will get the beginning time of each recording clip from the file name
  - Make sure all the recordings in the same folder have the same format of time stamp
- Please choose the appropriate position of the following date format on the file name :
  - **Year, Month, Day, Hour, Minute, Second**
    - Position of the first digit
    - Position of the final digit
  - **Extra labels before input year**
    - If the year stamp is not complete, e.g., 2018 → 18, then put “20” here

Run analysis

- Press the button of "**Run analysis**", then the program will process the entire folder and display the current progress
- Once the analysis has been done, three types of long-term spectrogram will be displayed
  - **Median-based long-term spectrogram**
  - **Mean-based long-term spectrogram**
  - **Difference-based long-term spectrogram**
- A **mat file** which contains all the results and meta-data will be saved in the folder of LTSA_gui.exe