**USER GUIDE**

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**Introduction**

scripts is a collection of R scripts. We can run the scripts in scripts using RStudio (or R command prompt) to process data folders in a specified working directory.

**Recommended file structure**

*Note: You can change the names of the folders and files but organize them in this structure.*

working\_dir

├── scripts

├── session1

│   ├── handheld.csv

│   ├── meta.csv

│   └── wav\_files

│   ├── File1.wav

│   ├── File2.wav

│   └── File3.wav

└── session2

├── handheld.csv

├── meta.csv

└── wav\_files

├── File1.wav

├── File2.wav

├── File3.wav

└── File4.wav

...

scripts: folder containing R scripts (do not change the names of anything here)

session1: folder containing all data for one session

handheld.csv: file containing GPS data from handheld device

meta.csv: file containing data from Kaleidoscope

wav\_files: folder containing all .wav files

X.wav: .wav files to copy and sort

session2: folder containing all data for another session

**How to use the script**

*Pre-requisites:*

* *Install R (*[*https://cran.r-project.org*](https://cran.r-project.org)*)*
* *Install RStudio (*[*https://rstudio.com/products/rstudio/download/*](https://rstudio.com/products/rstudio/download/)*)*
* *Ensure that the scripts folder is in your working directory*
* *Ensure that the original meta file has the following columns (exactly named as such):*
  + *MANUAL ID*
  + *IN FILE*
  + *LATITUDE*
  + *LONGITUDE*

1. Open the scripts folder. Double-click on process\_meta.r. Skip to step 4 if the script opens up automatically in RStudio.
2. Open RStudio.
3. Open a new R Script.

Graphical user interface, application, Word

Description automatically generated

1. Copy and paste the script in process\_meta.r into the R editor.

Graphical user interface, text, application

Description automatically generated

1. Scroll up in the R editor and look at the section commented “Variables to customise”. Replace the values of these variables accordingly.

*Note: These variables are shared across all the session data folders in the working directory. Please ensure that the session data folders are standardized before running the script.*

* 1. WORKING\_DIR: the full absolute path to your working directory containing the scripts folder and session data folder(s)
     1. Windows: <https://www.sony.com/electronics/support/articles/00015251>
     2. Mac: <https://macpaw.com/how-to/get-file-path-mac>
  2. [optional] META\_FILE: name of the meta file (defaults to meta.csv)
  3. [optional] META\_FILE\_DATE\_FORMAT: format of dates in the meta file (defaults to dmy) – please check this as results could be wrong otherwise
  4. [optional] DELIMITER: character separating manual ids in the meta file (defaults to \_)
  5. [optional] WAV\_FOLDER: name of folder containing .wav files (defaults to wav\_files)
  6. [optional] OUTPUT\_FOLDER: name of folder to store sorted wav folders. (defaults to out )
  7. [optional] HANDHELD\_GPS\_FILE: name of the file containing GPS data from the handheld device (defaults to handheld.csv)
  8. [optional] SKIPPED\_ROWS: number of rows to skip in the handheld GPS file since these rows are not related to the actual GPS data (defaults to 42 – see image below)

Graphical user interface, application, table, Excel

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1. Click on *Source* to run the script.

Graphical user interface, text, application

Description automatically generated

1. If the program is completed successfully, you should see a success message.

Graphical user interface, text, application

Description automatically generated

1. Check your working directory to see the generated outputs for each session data folder. The sorted .wav files will be available in a folder named out and the matched GPS data will be available in a CSV file named matched\_gps.csv.

working\_dir

├── scripts

├── session1

│   ├── handheld.csv

│   ├── matched\_gps.csv

│   ├── meta.csv

│   ├── out

│   └── wav\_files

└── session2

├── handheld.csv

├── matched\_gps.csv

├── meta.csv

├── out

└── wav\_files

...

**Troubleshooting**

To troubleshoot, search for the error message in your RStudio console here.

1. **Error in setwd(working\_dir): cannot change working directory**

Check that you have set the absolute file path to your working directory correctly.

1. **Error in FUN(newX[, i], ...) :**

**[ERROR]: The .wav file session 123/File1.wav does not exist. Please check that the WAV\_FOLDER have been set correctly.**

Check that you have set the folder name for WAV\_FOLDER correctly. Ensure that the .wav files can be found in this folder.

1. **Error in file(file, "rt") : cannot open the connection**

Check that you have set the name of the meta file META\_FILE correctly.

1. **Error in create\_output\_folder(output\_folder) :**

**[WARN]: This output folder already exists. Are you sure this is the right folder?**

This suggests that you already have a folder named OUTPUT\_FOLDER in the current working directory/ session data folder. The program will exit to prevent overwriting all the data in this folder.

1. **Error in check\_for\_duplicates(meta\_data) :**

**[ERROR]: There are duplicates in the meta file. Please check the duplicates found above.**

There are duplicate combinations of <file name, manual id> in the meta file. This is likely a human error – you should double check your meta file using the information printed in the RStudio console.

1. **Error in read.table(file = file, header = header, sep = sep, quote = quote, :**

**more columns than column names**

Check that you have set the correct number of rows to skip in the handheld GPS data file HANDHELD\_GPS\_FILE. Please make sure not to skip the row containing the headers for the actual GPS data. You can open the handheld GPS data file in Excel to identify the row number. Recall:

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Description automatically generated

1. **Package lubridate required by is not installed.**

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Description automatically generated

Install the lubridate package using RStudio. It is used to process datetime data in the script.