

HARKBird Installation instruction and manual

Installation on Ubuntu

- Required packages for HARKBird:
 - [HARK](#)
 - [HARK-Python](#)
 - python-pyside
 - python-pandas
 - [SOX](#)
 - Follow the installation instructions on HARK website for HARK and HARK-Python
 - Other software can be installed using “sudo apt-get install packagename”

HARKBird installation and startup

1. Extract harkbird.zip in any directory
2. Execute install.sh without superuser previllage (not use sudo)
3. A shortcut named “HARKBird” will appear on the desktop, and HARKBird can be run by double clicking it.

Installation on Windows

- Required packages for HARKBird:
 - [HARK for Windows](#)
 - If the installation process fails during installation of HARK-Python, execute 'python "C:\Program Files (x86)\HARK\HARK-Python\setup.py"'
 - [SOX](#)
 - After installation, add "C:\Program Files (x86)\sox-14-4-2" to the environment variable "Path"
 - Python package PySide
 - Execute "pip install PySide" on a command prompt

HARKBird installation and startup

1. Extract harkbird.zip in any directory
2. Execute install.bat
3. A shortcut named "HARKBird" will appear on the desktop, and HARKBird can be run by double clicking it.

Recording

Directory in which recorded files are saved

Refreshing the directory information

File name of the recording (default: "PrefixYYYYMMDD_HHMMSS.wav")

Prefix of the filename (default: none)

Only for Ubuntu

The device names of microphones can be specified.

If multiple microphones are connected, enumerate their device names, separating them with “;”

Recording duration (default: 3600sec)

List of wav files in the working directory

The screenshot shows the HARKBird application window with three tabs: Recording, Localization, and Analysis. The Recording tab is active. On the left, there is a 'Working directory' field containing '/tmp/harkbird/' and a refresh button. Below it is a list of wav files: 'test.wav' and 'test2.wav'. On the right, there are several input fields and buttons. The 'File name' field contains 'YYYYMMDD_HHMMSS...' and the 'Prefix' field contains 'location'. Below these are 'Device' (plughw:1,0) and 'Channel' (8) fields. Further down are 'Duration' (3600) and 'Interval' (600) fields. At the bottom right are three large buttons: 'Recording', 'Play', and 'Divide'.

of channels of a microphone array

The duration of each recording session (default: 600sec)

Starts recording

Plays the wav file specified by left box

Divides the specified wav file into several short recording files

Localization

Directory in which recorded files are saved

Refreshing the directory information

Loads a JSON file of localization setting

Saves the current setting to a JSON file

The localization results will be saved in the specified directory

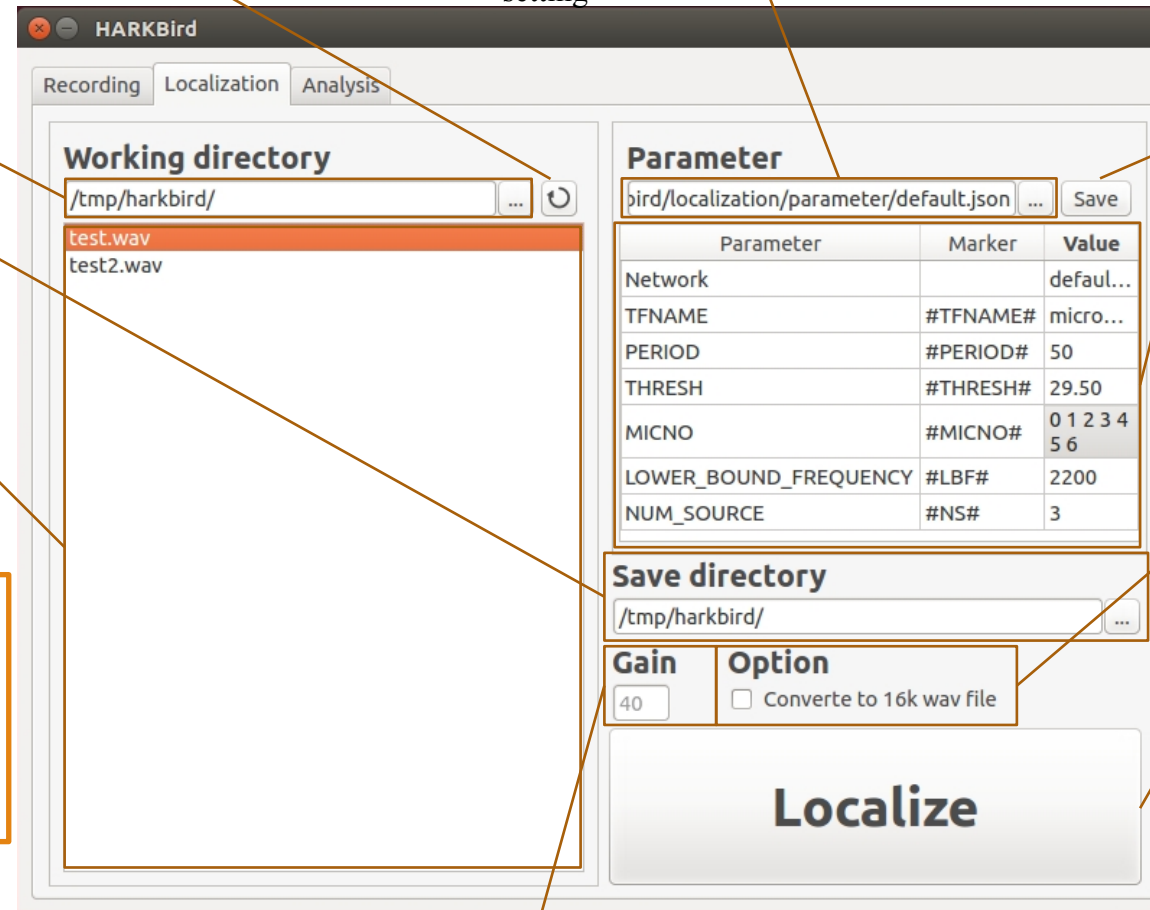
List of wav files in the working directory

Marker in the network file of HARK will be replaced by the corresponding Value. Markers and Values can be edited by double-clicking each cell.

Network files and transfer functions should be in the corresponding folders in localization folder.

If checked, the recording file will be converted 16kHz before localization

Starts localize the specified wav file with the setting above.
Multiple files can be analyzed at one time.



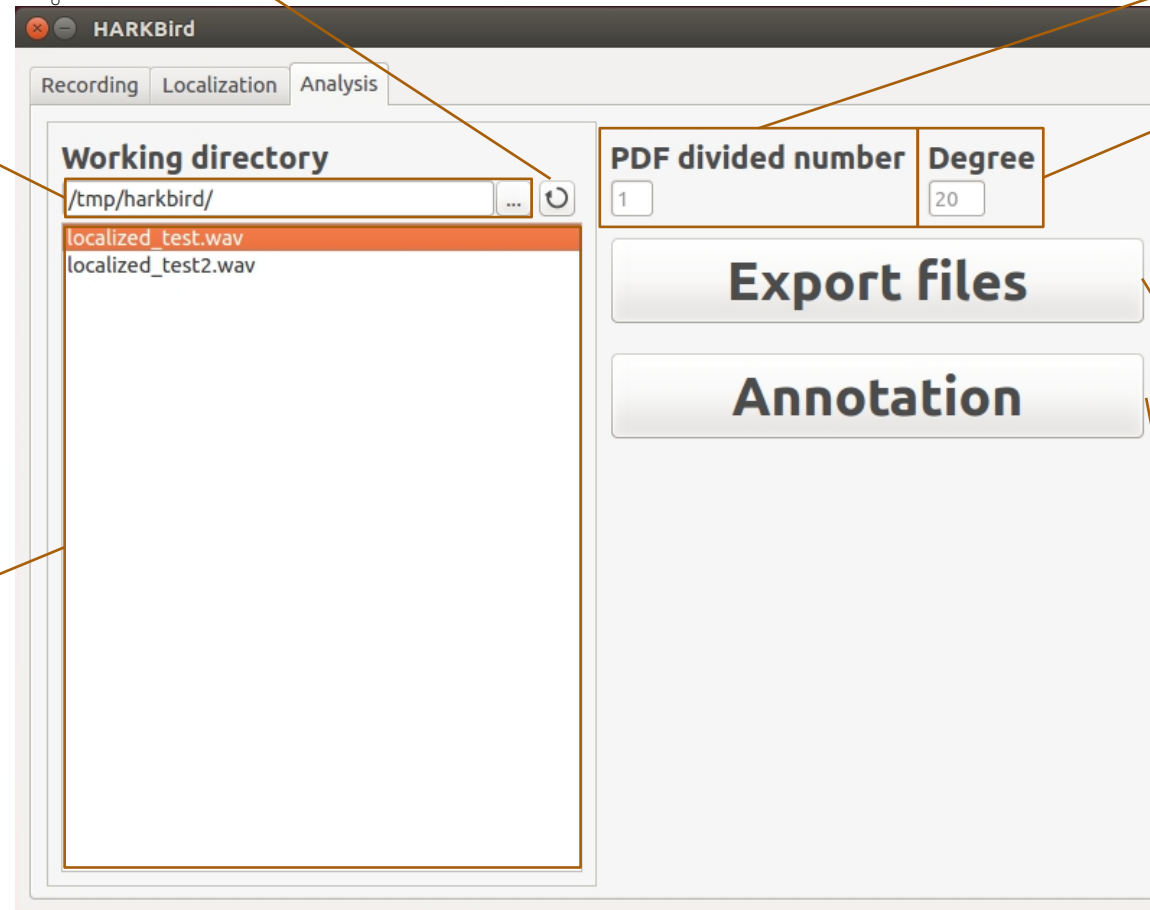
Increase or decrease the gain of the recording file before localization

Analysis

Directory in which localized recordings are saved

Refreshing the directory information

The number of pages of the exported PDF



The localized sources were regarded as ones of conspecifics if the DOA difference is within this degree.

Exports the analyzation results using localized results.

Multiple files can be specified at one time.

- localized and classified results (sourceinfo[.csv|.json])
- List of localized sources (sourcelist.csv)
- Visualized result (visualized.pdf)

Launches annotation tool for the specified analyzed file.

List of localized wav files in the working directory

Annotation

The screenshot shows the 'Annotation' software interface. On the left, there is a spectrogram with 'frequency' on the y-axis (0 to 8000) and 'second' on the x-axis (0 to 80). Below it is an azimuth-time plot with 'azimuth' on the y-axis (-200 to 200) and 'second' on the x-axis (0 to 80). The plot contains several colored rectangles representing localized sound sources. On the right, there is a control panel with buttons for 'Load', 'Save', 'Play', 'Play Separation', 'Color', 'Delete', 'Undo', and 'Save Figure'. A table displays information for the selected sound source:

iid	42
sid	42
time	84.0
duration	3.5
azimuth	9.98371458422
species	9

Annotations: '1 items Selected' is shown at the bottom left. Arrows point from text descriptions to various UI elements.

Each rectangle represents the information of a localized sound source. Each information can be modified by dragging, moving, or changing in the length of the rectangle.

A mouse wheel: the scale of the graph.
Left click: source selection
Left double-click: creating a new sound source information.
Right drag: selection of multiple sources (enabled and disabled by Q/A)