

# Matlab/Octave API for SOFA

**Piotr Majdak**  
Acoustics Research Institute (ARI),  
Austrian Academy of Sciences (OeAW)  
Vienna, Austria  
<piotr@majdak.com>

**This document contains preliminary remarks on the  
API\_MO version 1.0.0.**

**Further contributors:**

- **Hagen Wierstorf** (Telekom Innovation Laboratories, Technical University of Berlin, Berlin, Germany) hagen.wierstorf@telekom.de
- **Harald Ziegelwanger** (Acoustics Research Institute, Austrian Academy of Sciences, Vienna, Austria) h.ziegelwanger@me.com
- **Michael Mihocic** (Acoustics Research Institute, Austrian Academy of Sciences, Vienna, Austria) michael.mihocic@oeaw.ac.at
- **Wolfgang Hrauda** wolfgang.hrauda@gmx.at

## 1. STARTING THE API

SOFAs<sub>start</sub> compiles the conventions (stored in directory conventions as CSV files) to Matlab files and starts the API.

More information in readme.txt or help SOFAs<sub>start</sub>.

## 2. DEMONSTRATIONS

In the directory “demos”, some demonstrations of the functionality of the API are provided. This is the first place to get familiar with the structure of the API.

Note that for the demonstration of conversion functions, you will most probably need to download some non-SOFA HRTF files first. See readme.txt files in the HRTF directories of the corresponding non-SOFA format.

## 3. STRUCTURE OF THE SOFA OBJECT

All the SOFA information is stored in the a variable which we call SOFA object here. Such an object is, for example, returned by the function SOFAs<sub>load</sub>. In that object:

- “GLOBAL\_” are all global attributes. Do not use prefix GLOBAL for your attributes.
- Variables are stored with their names as they are.
- An attribute Y of a variable X is stored as X\_Y.
- “Data.” is a separate structure containing the SOFA data.
- “PRIVATE” is a structure with private data for application use. Here you can store your private variables which belong to the SOFA object. However, private variables won't be saved when saving the object as a SOFA file.
- “API” contains internal variables of the API. Do not modify them unless you know what you are doing. The variables are:
  - API.N, API.M, etc (all SOFA dimensions): store the size of a dimension
  - API.Dimensions: dimensions of SOFA variables

## 4. FURTHER RESOURCES

Further resources can be found:

- API\_MO/readme.txt provides a short description of the API.
- API\_MO/history.txt provides the history of the development and release notes.
- doc/specs provides specifications of the currently supported SOFA.
- HRTFs/SOFA stores SOFA files. Per default, it mirrors <http://sofacoustics.org/data>.
- HRTFs/SOFA/sofa\_api\_mo\_test: here, the automatically created SOFA files will be saved for testing purposes.
- HRTFs/other directories: directories containing HRTF files stored in other formats than SOFA.
- <http://sofaconventions.org> provides the most recent information on SOFA.