

ISSE User Manual  
`isse.sourceforge.net`

Version 0.2.0 (alpha)  
The ISSE Team

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# Preface

For an updated manual, please always see <http://isse.sourceforge.net/Manual.pdf>.

## 1 About

ISSE is an interactive sound source separation editor. It allows you to import a single audio recording and separate it into two distinct sound sources via drawing and painting tools. Example tasks include separating a cell phone ring from recorded speech, separating drums mixed with bass guitar, or separating vocals from background music. See our [demo video](#) for more information.

The software is an open source, freely available, cross platform audio editing tool developed by the Center for Computer Research in Music and Acoustics (CCRMA), Stanford University and Adobe Research. It is licensed under the GNU General Public License, Version 3. Authors include: [Nicholas J. Bryan](#), [Gautham J. Mysore](#), and [Ge Wang](#).

For questions or comments, please see our

- Main web site <http://isse.sourceforge.net/>
- User forum <http://isse.sourceforge.net/forum/>
- Wiki <http://isse.sourceforge.net/wiki>
- Mailing list <http://isse.sourceforge.net/contact.html>.

## 2 Installation

### 2.1 OSX

1. Download the latest version at [isse.sourceforge.net/download.html](http://isse.sourceforge.net/download.html)
2. Double-click the ISSE.dmg file. This will open the ISSE disk image.
3. Click-and-drag the ISSE application into your Applications folder.
4. (Optional) Copy the additional materials (test files, manual, etc.).
5. Done!

## 2.2 Windows

1. Download the latest version at [isse.sourceforge.net/download.html](http://isse.sourceforge.net/download.html)
2. Double-click the ISSE-Setup.exe file. This will open the ISSE installer.
3. Following the installation steps.
4. Note, additional materials (test files, manual, etc.) are also installed along with the application.
5. Done!

## 2.3 Linux

1. Download the latest version of the code at [sourceforge.net/p/isse/code/ci/master/tree/](http://sourceforge.net/p/isse/code/ci/master/tree/)
2. Following the compilation steps from at [isse.sourceforge.net/wiki/index.php/Developer](http://isse.sourceforge.net/wiki/index.php/Developer).
3. Compile as needed per platform....
4. Done!
5. Note: we will eventually support installation packages, but at this time only the source code (tested on Fedora) is available.

## 3 Quick Start

1. For a quick introduction to the application, please see the demo video posted at <http://isse.sourceforge.net/index.html>.
2. Open the application and start a new project via: File → New.
3. Select a short (5-30 second) .wav file. Longer files are permitted, but will be slow to process. If needed, select one of the example files from the *Test Files* folder of the download package.
4. View and listen to the sound. Time goes from left to right. Frequency goes from bottom to top. You can zoom, scroll, etc. Click the play button at the top or hit spacebar to listen.
5. Choose which sound you would like to separate (e.g. vocals vs. background music, cell phone ring vs. speech, etc.).

6. Associate one of the two colors from the top left to a given sound (e.g. vocals). Associate the remaining color for the remaining sound in the recording (e.g. background music).
7. Start annotating the visualization of sound. Select one of the drawing/painting tools (e.g. brush, time select, frequency select, box select). Draw on salient regions of the visualization that correspond to each sound source (e.g. drums, bass, vocals, etc). Use the brush controls (click the plus sign to right of the brush tools) as a measure of confidence. You do not have to annotate the entire file.
8. Click the process button (upper right). Wait a little bit and the middle and bottom audio tracks will soon display the separated results. When the processing button is on the results will continually update in the background.
9. Listen and view the separated results. They won't be perfect, but...!
10. Repeat the annotation process. Now draw on the input and output to refine the separation.
11. Export the separated results via: File → Export Audio and save the project via: File → Save As. Note, to save, export audio, open, and create new projects, the processing button must be off and the processing progress bar must 100%.
12. Done!

# ISSE - An Interactive Source Separation Editor

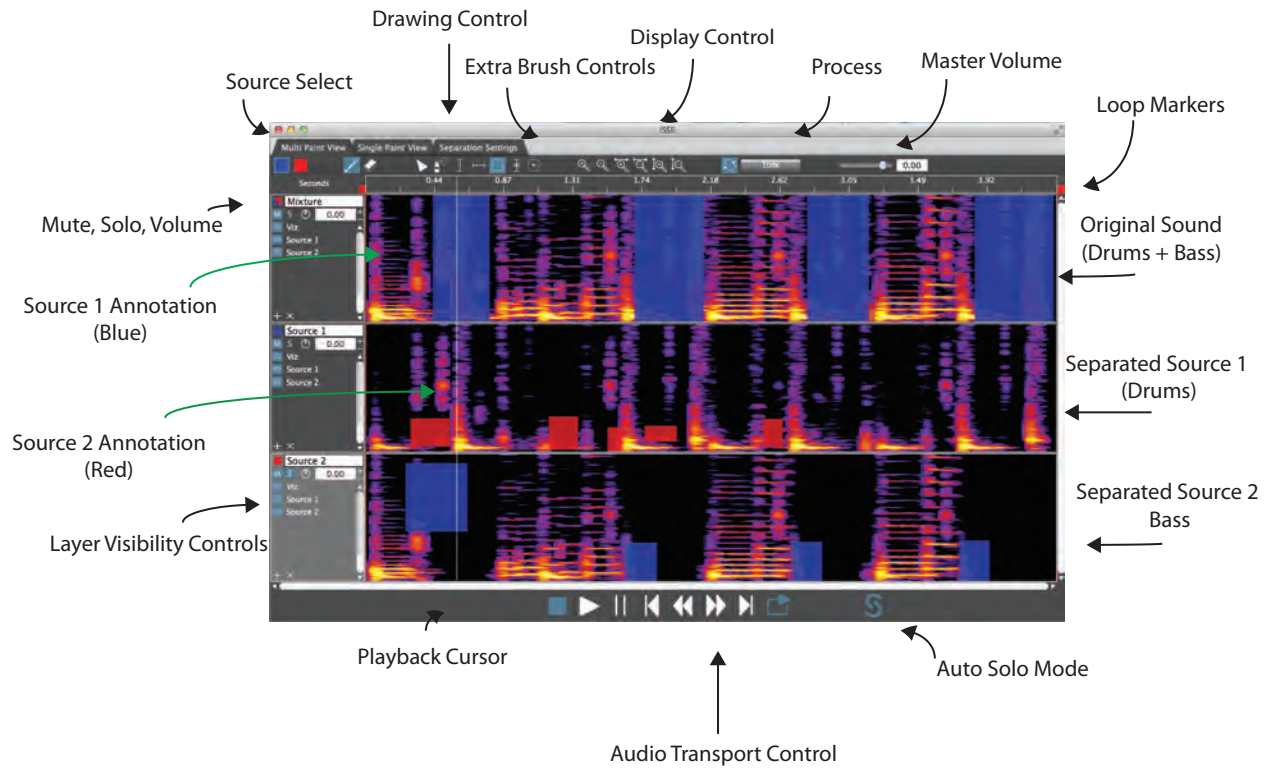


Figure 1: Quick Start Guide to ISSE.

## 4 Screenshots

To give a better idea of some of the functionality of ISSE, please see the screenshots below.

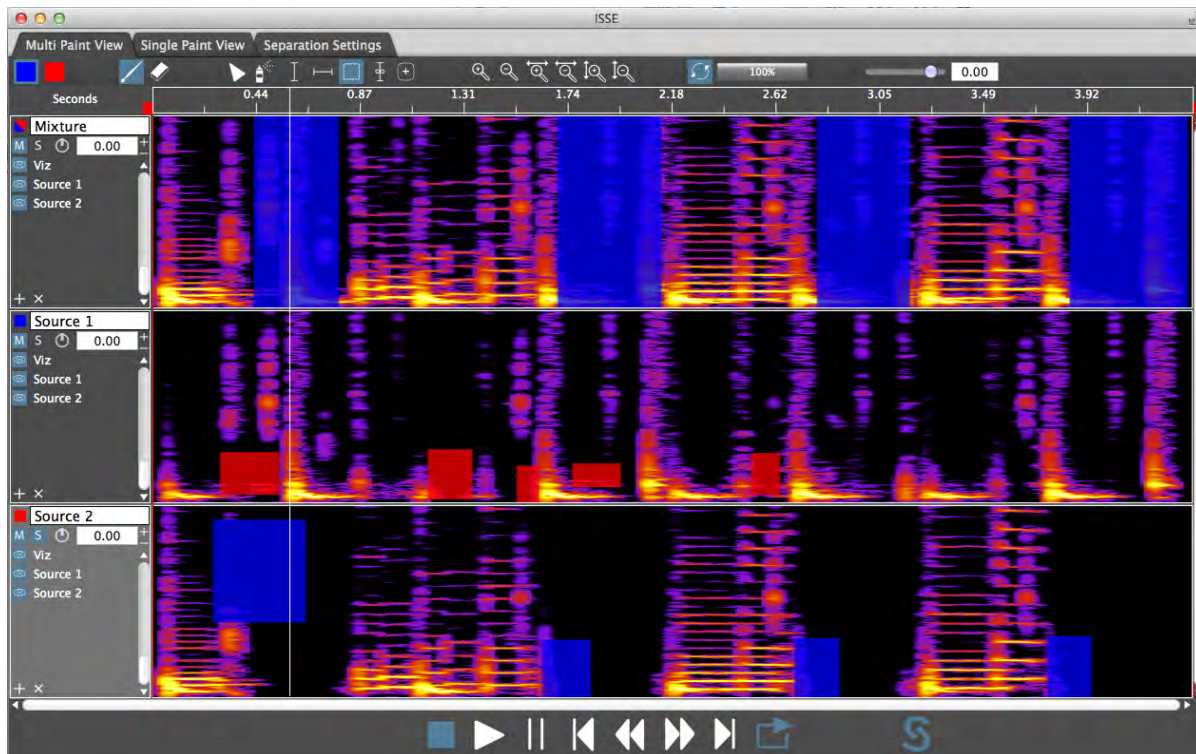


Figure 2: The Multi Paint View. In this view, you can see both the input audio file and the two outputs.

## 5 Technical Documentation

Technical publication on the source separation algorithm use within ISSE can be found at:

- [1] - An extended abstract and introduction to the idea.
- [2] - The core algorithm and technical material.
- [3] - Algorithmic extensions and additional interpretation.

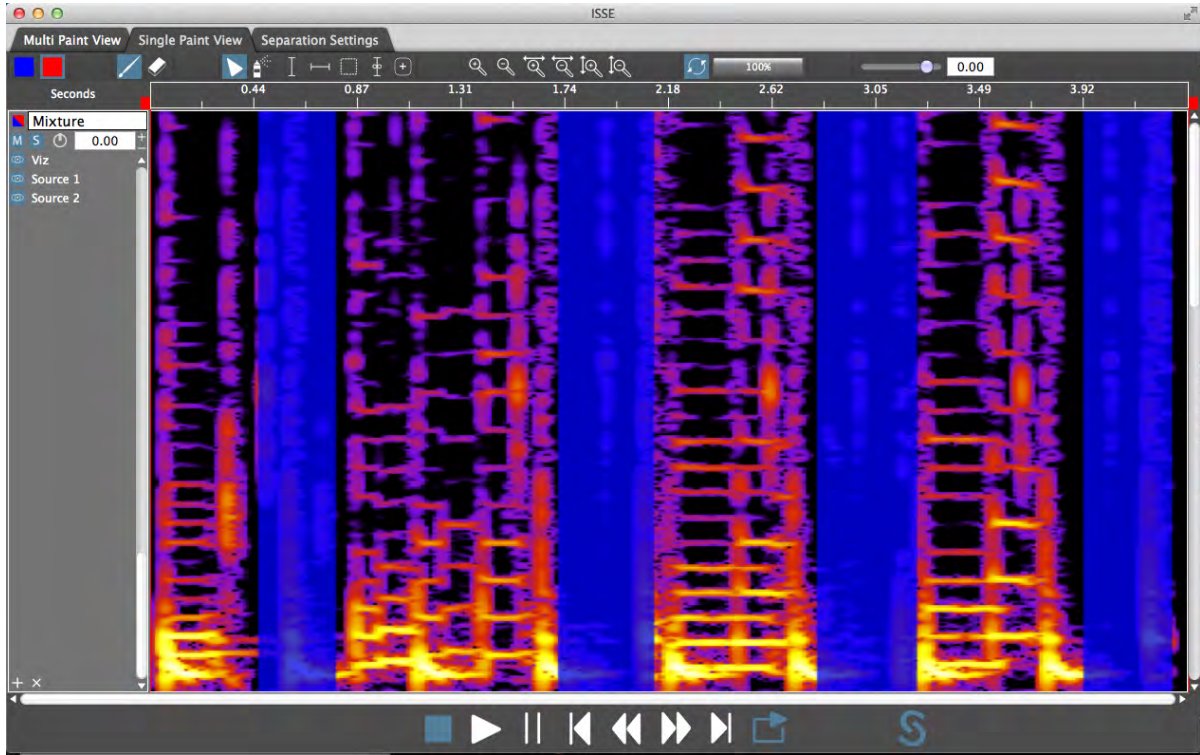


Figure 3: The Single Paint View. In this view, you get a larger screen space to view a single track.

## References

- [1] N. J. Bryan and G. J. Mysore. Interactive user-feedback for sound source separation. In *International Conference on Intelligent User-Interfaces, Workshop on Interactive Machine Learning (Extended Abstract/Workshop Paper)*, March 2013.
- [2] N. J. Bryan and G. J. Mysore. An efficient posterior regularized latent variable model for interactive sound source separation. In *International Conference on Machine Learning*, June 2013.
- [3] N. J. Bryan and G. J. Mysore. Interactive refinement of supervised and semi-supervised sound source separation estimates. In *IEEE International Conference on Acoustics, Speech, and Signal Processing*, May 2013.

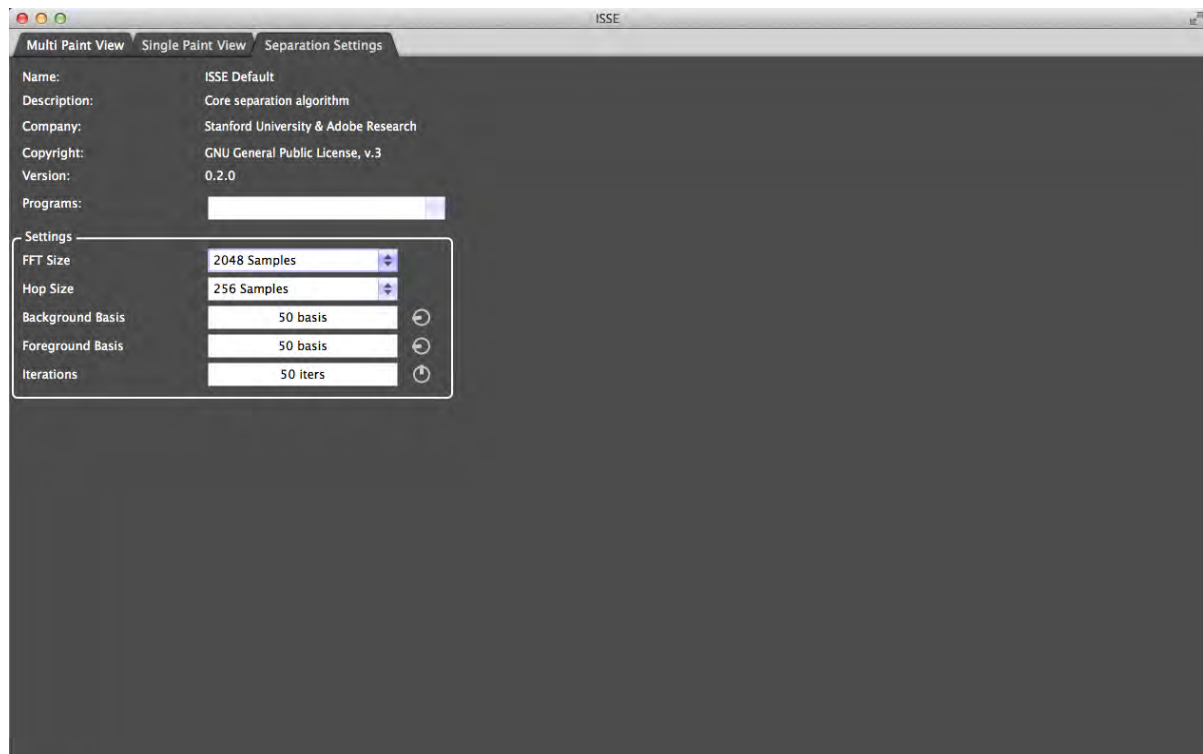


Figure 4: The Separation Settings View. In this view, you change parameters of the separation algorithm. Careful, changing certain settings can clear your painting annotations (an alert box will tell you which ones...).



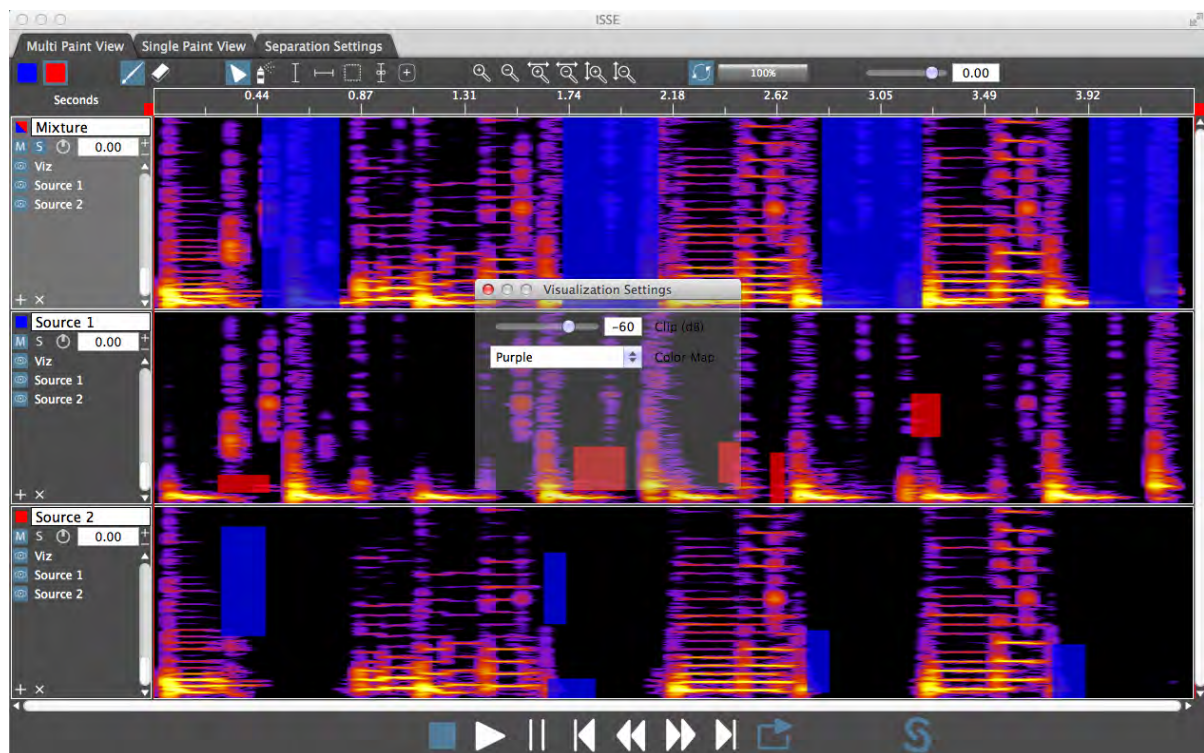


Figure 5: The Visualization Settings View. In this view, you change parameters that control the visualization of sound such as the color map and the clip limit.

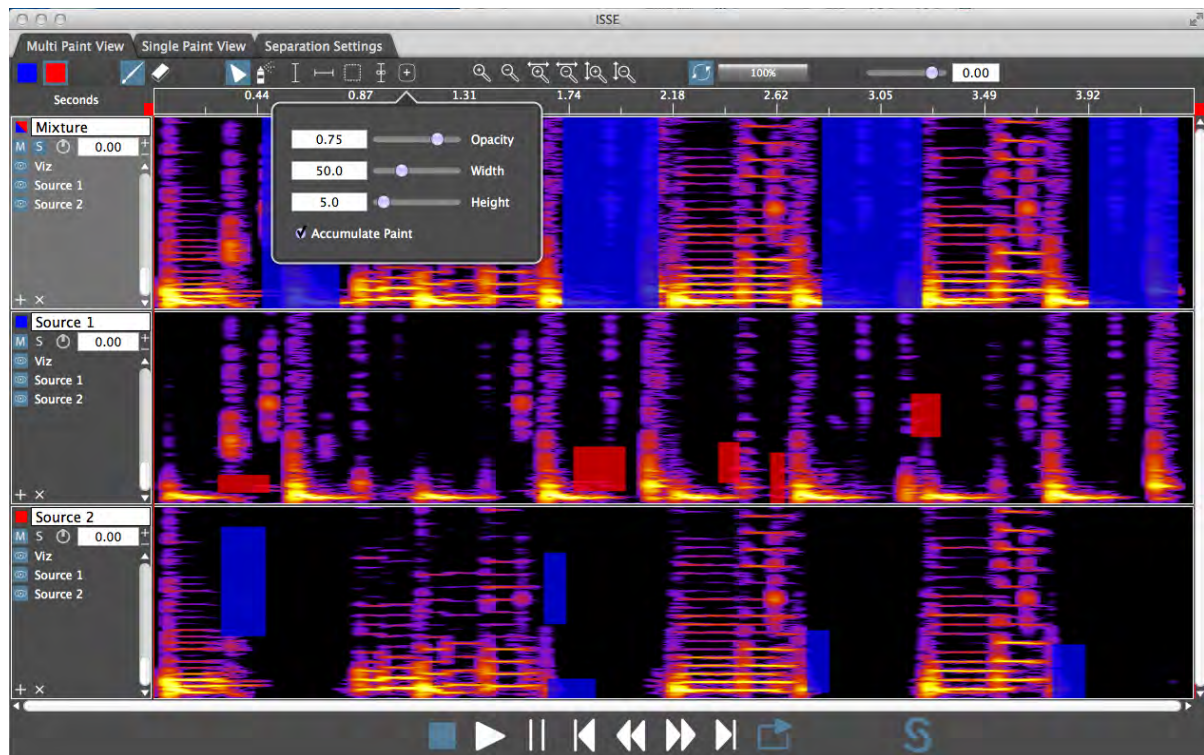


Figure 6: The Brush Settings View. In this view, you change additional painting brush parameters. Click the plus sign to the right of the brush icons.

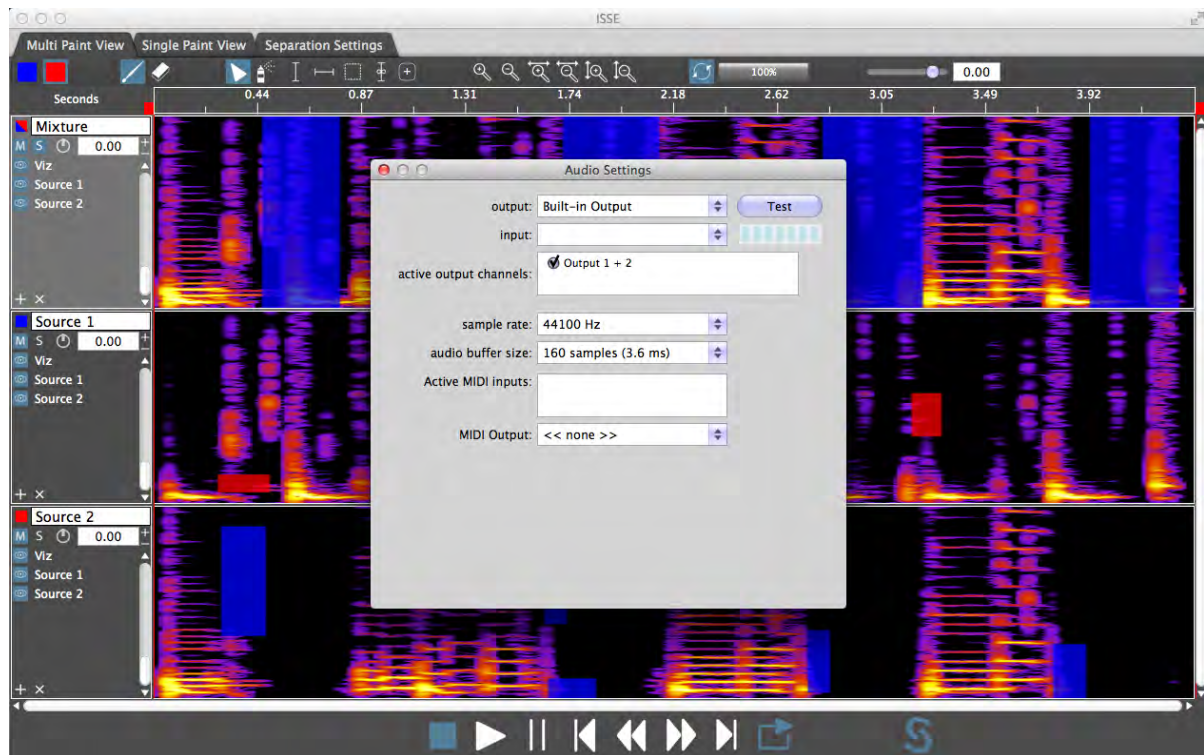


Figure 7: The Audio Settings View. In this view, you can change the audio settings (sample rate, buffer size, etc.). To open this view, go to File → Audio Settings.