

AURoundTripAAC Audio Unit Read Me

The AURoundTripAAC Audio Unit lets you compare audio encoded using iTunes Plus AAC against a source audio file. It also includes clip and peak detection, as well as a simple listening test environment. The Audio Unit can be used in any Audio Unit host application, such as Logic or AU Lab.

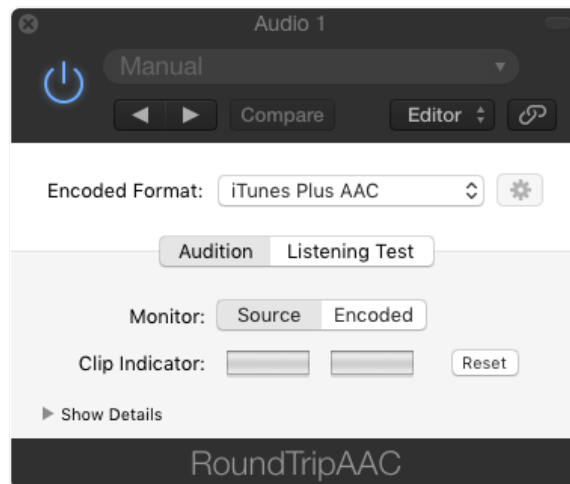
The Mastered for iTunes Installer installs the AURoundTripAAC Audio Unit in `/Library/Audio/Plug-Ins/Components`.

For more information about setting up the AURoundTripAAC Audio Unit in AU Lab, see the Setting Up AURoundTripAAC Audio Unit section of this document.

Using the AURoundTripAAC Audio Unit

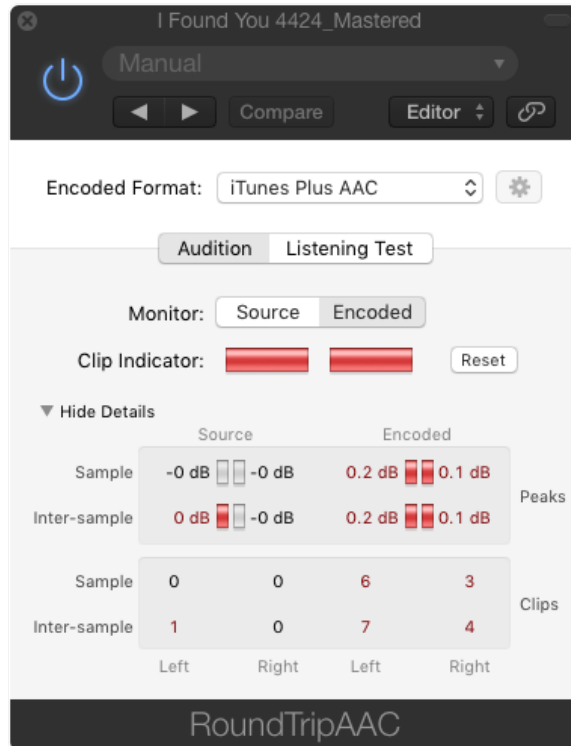
The AURoundTripAAC Audio Unit has the following UI elements.

- **Encoded Format dropdown menu.** By default, the AURoundTripAAC Audio Unit is set to iTunes Plus AAC as the Encoded Format. To choose another format, choose Custom from the Encoded Format menu.
- **Audition tab.** The Audition tab allows you to switch between monitoring either the source audio or the audio encoded in the specified format. When the window is active, you can use keys 1 and 2 on your keyboard to switch sources.



The clip indicator illuminates when the audio is clipped. The first indicator corresponds to the source and the second to the encoded audio. The clipping indicators can be reset using the Reset button.

The Audio tab has a details pane that provides information about the peak values and clipping counts in the audio. It displays information about the highest peak per channel for both the source and encoded audio. It also displays the sample peak as well as the inter-sample peak.

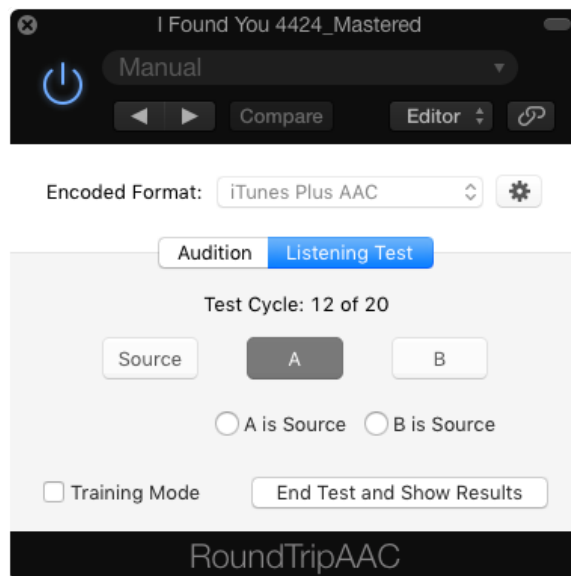


To view the details pane, click Show Details.

To reset the peak values and clip counts, click Reset.

- **Listening Test tab.** The Listening Test tab provides a double-blind test to determine if the listener can identify an “unknown” audio source as being either the source or encoded audio.

The AURoundTrip AAC window has three buttons: Source, A, and B. The Source button always auditions the source as provided to the audio unit. At the beginning of each test cycle, the source audio is randomly assigned to either the A or B button, and the encoded audio is assigned to the remaining button. If the RoundTripAAC window is active, the hot keys S, A, or B can be used to switch between the Source, A, and B buttons respectively. The 1 and 2 keys can be used to choose either A is Source or B is Source.



You can also enable a training mode, which operates in the same way as the standard test, except that it immediately displays the results of the test each time you select a source. This mode should be used for training only. For reliable ABX testing, you should always run a predetermined number of test cycles before viewing the results.

Conducting an ABX Listening Test Using AURoundTripAAC

An ABX test is a blind listening test that eliminates any listener bias caused by knowing which audio source is being played. If the source material can be correctly identified with a 95% confidence interval in an ABX test, there is an audible difference between the source material and encoded audio. For example, if a listener is able to correctly identify the source material 19 out of 20 test cycles, you can conclude that the source material is audibly different from the encoded audio. The 95% confidence interval is a commonly used, statistically significant confidence interval. The ABX test in the Audio Unit will allow for up to 20 test cycles.

Use the following instructions to conduct a listening test using AURoundTripAAC.

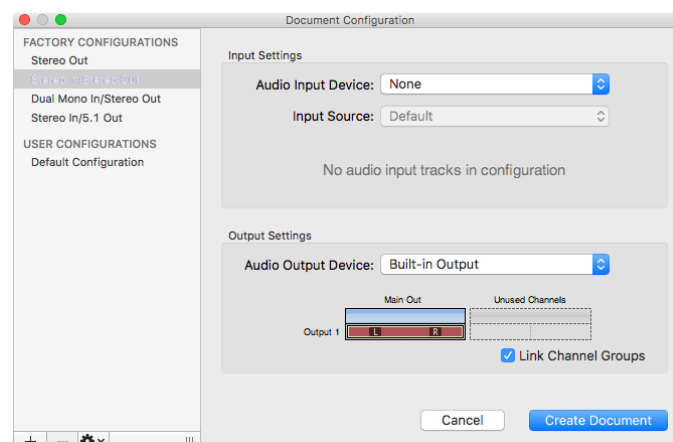
1. Compare the audio files by clicking Source, A, and B. You can listen to each file as many times as you like to make the comparison.
2. Select either the A is Source radio button or the B is Source radio button, depending on which you believe is the source audio.
The test cycle will reset, causing the source and encoded audio files to be randomly assigned to the A and B buttons again.
3. Continue to test by comparing the A and B files to the Source file and selecting which one you think is the source. (It is recommend that you run at least 20 test cycles, but you can achieve reliable results running the test cycles as few as 10 times if you are able to achieve 100% accuracy for those test cycles.)
4. When you are finished testing, click End Test and Show Results. Optionally, you can save these results to a text file.

Setting Up AURoundTripAAC Audio Unit

This section provides steps for setting up AURoundTripAAC Audio Unit in AU Lab. If you do not have an Audio Unit host application, AU Lab is available for free and can be used on either Mac OS X Lion and Mac OS X Snow Leopard.

To set up AURoundTripAAC Audio Unit in AU Lab:

1. When you first open AU Lab, a Document Configuration window opens with Stereo In/Stereo Out selected by default. Select the following Stereo In/Stereo Out settings in the Document Configuration window.

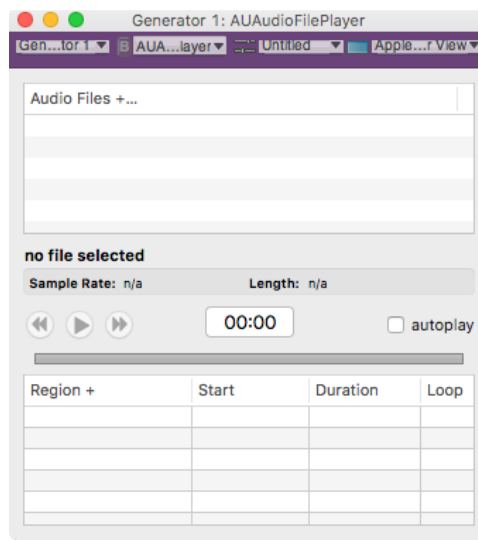


- **Audio Input Device.** If you have a preferred audio input device, select it from the Audio Input Device menu. If you are using a notebook computer, select Built-in Input as your Audio Input Device rather than Built-In Microphone; selecting Built-In Microphone may cause feedback.
- **Input Source.** The default for Built-in Input is Line In. If you have a different preferred Input Source, select it from the Input Source menu.
- **Audio Output Device.** Optionally, you can select your preferred Audio Output Device.

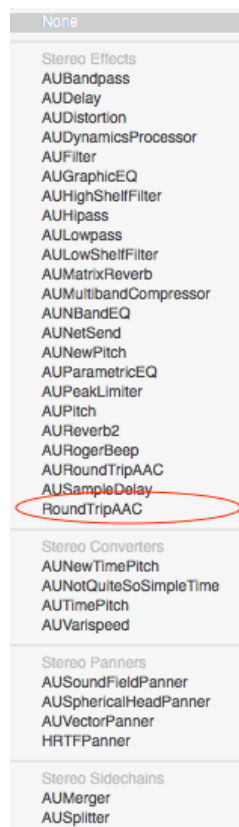
2. Click Create Document. The AU Lab Document window (also known as the mixer window) will open.



3. From the Edit menu, choose Add Audio Unit Generator. The Generator should be set to AU Audio File Player by default.
4. Click OK to add an Audio Unit Generator to the mixer window. This will also cause a Generator window to open.



5. In the Generator window, click Audio Files +... to add audio files.
6. Select the uncompressed audio file or files you want to use and click Open.
7. In the mixer window, go to the Generator 1 strip, open the Effects menu, and choose RoundTripAAC from the Stereo Effects.



If you have a lot of effects from a range of manufacturers, the Effects menu may be different than the one shown in the example below. If this is the case, you can find RoundTripAAC in the Effects menu, under Apple in the Stereo Effects section.

Once you have selected the RoundTripAAC stereo effect, the RoundTripAAC window will open and you can use the AURoundTripAAC Audio Unit.

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Apple Inc.
1 Infinite Loop
Cupertino, CA 95014
408-996-1010

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