Auto-Align

User Manual

Overview

When recording an instrument with more than one mic, sound tends to reach each microphone at a slightly different time, causing some frequencies to cancel each other out and other frequencies to build up unnaturally. This phenomenon is known as the comb-filter effect.
Until now, compensating for the delay between the microphones had to be done manually - an extremely time consuming and inaccurate process.

Enter Auto-Align.

Auto-Align will analyze your multi-mic recording and automatically detect and compensate for the delay between the microphones or between a microphone and a DI box, significantly reducing the comb-filter effect and dramatically improving the resulting sound.

When distant microphones are used, or when some delay is desired to enhance the sense of space, Auto-Align can time-place the microphones to better match the close-mic'ed source and therefore minimize the comb filter effect. Auto-Align can also automatically detect a reversed polarity mic and compensate for it.

Features

- Automatic, sample accurate time & phase alignment
- Phase polarity detection
- Alternate matching points for improving phase correlation while preserving delay
- Displays distance in samples, milliseconds, inches or centimeters

System Requirements

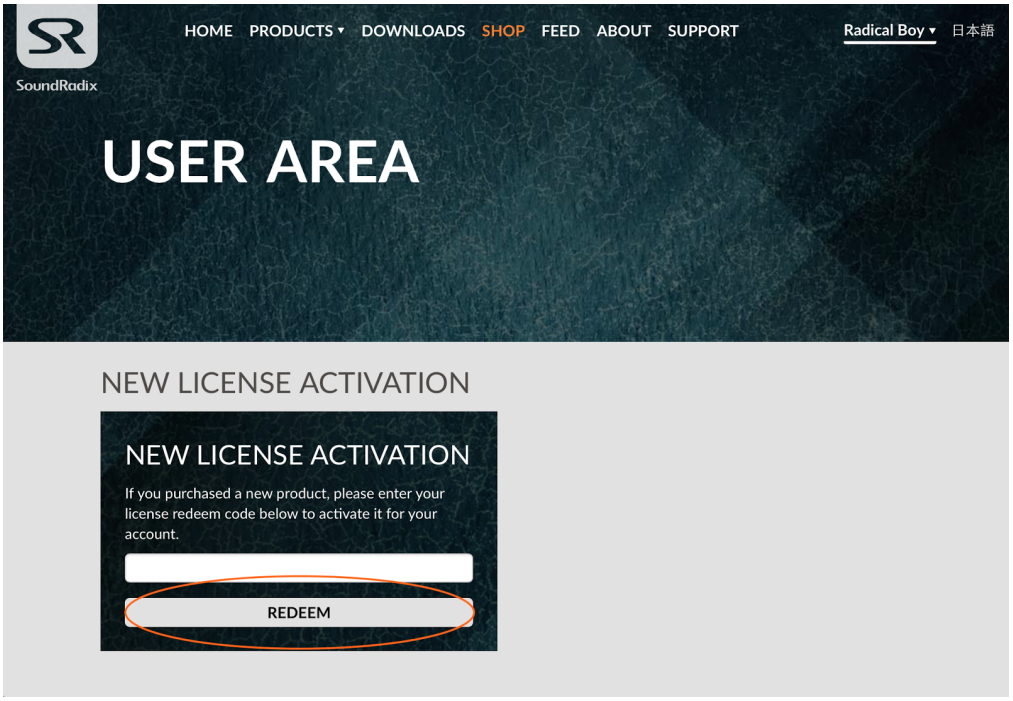
- Mac: Intel Core CPU, 2GB RAM, OS X 10.6 or higher
- Windows: Intel Core CPU, 2GB RAM, graphics card supporting OpenGL 2.1, Windows 7 or higher
- Plug-in formats: AAX, Audio Unit, RTAS, VST, VST3
- Free iLok account and iLok License Manager (iLok USB key is not required)

License Redemption

To use Auto-Align, you'll need a free iLok account and the iLok License Manager. To create an iLok account and download the iLok License manager, please point your browser to https://www.ilok.com/. An iLok USB device is not required.

1. Log-in to your User Area at https://www.soundradix.com/users/
2. Enter your license redeem code into the ***New License Activation*** box and click the ***Redeem*** button.
3. Enter your iLok Account User ID and email address and click ***Redeem***.

Auto-Align will now appear in your products downloads and the license will become available in your iLok account.

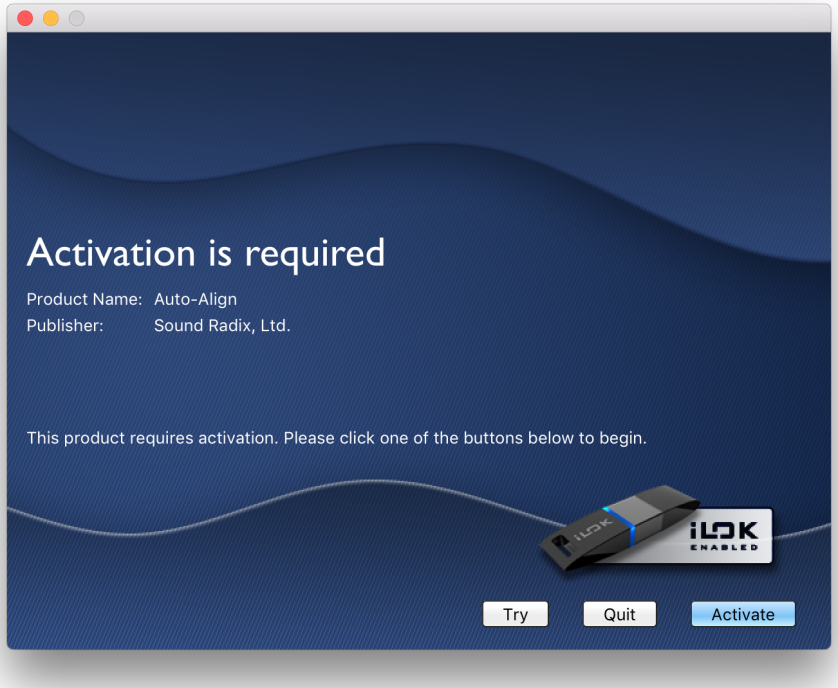


Installation

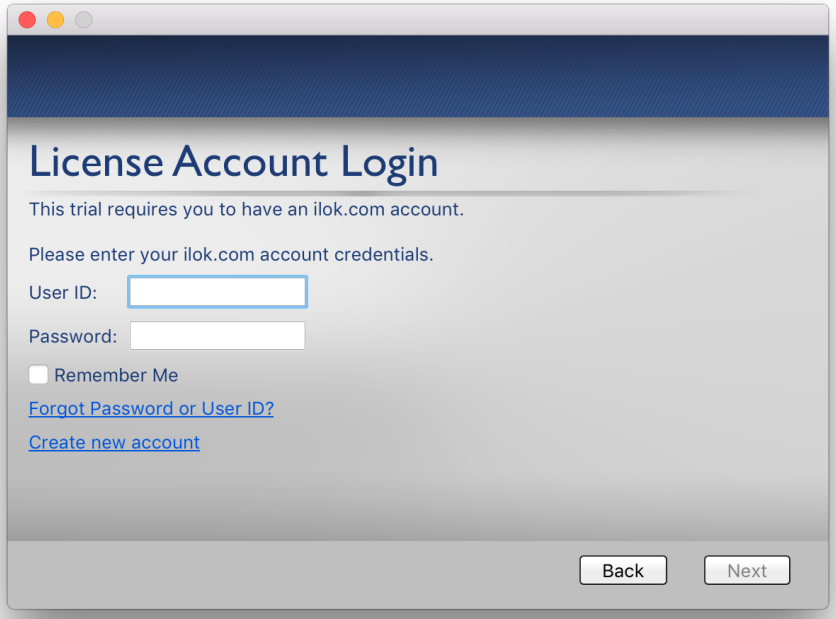
Download and run the the Auto-Align installer file and follow the steps on the screen. Please note that you may need administrator permissions and password for your machine to install Auto-Align. When installation is complete, quit the installer and launch your digital audio workstation.

License Activation

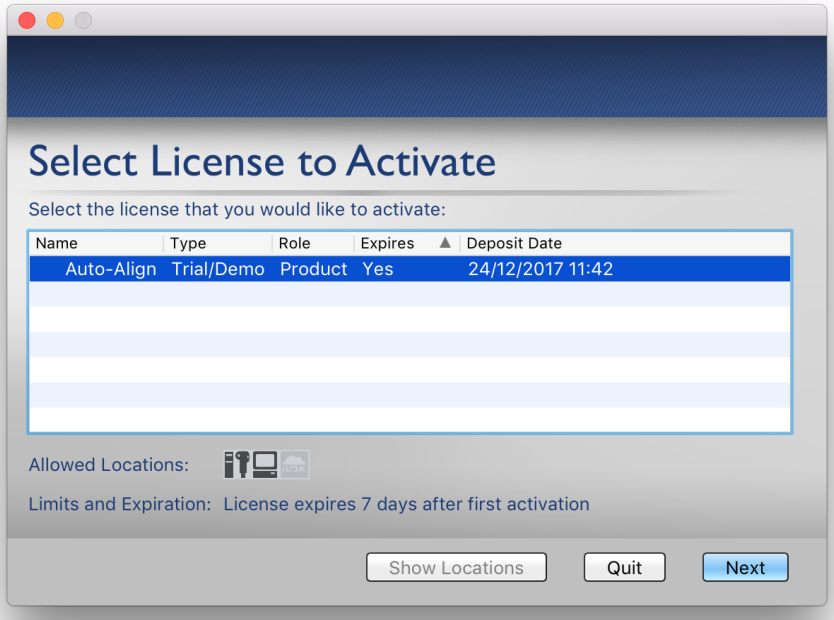
When first launching your DAW after installation, you will see the following screen:



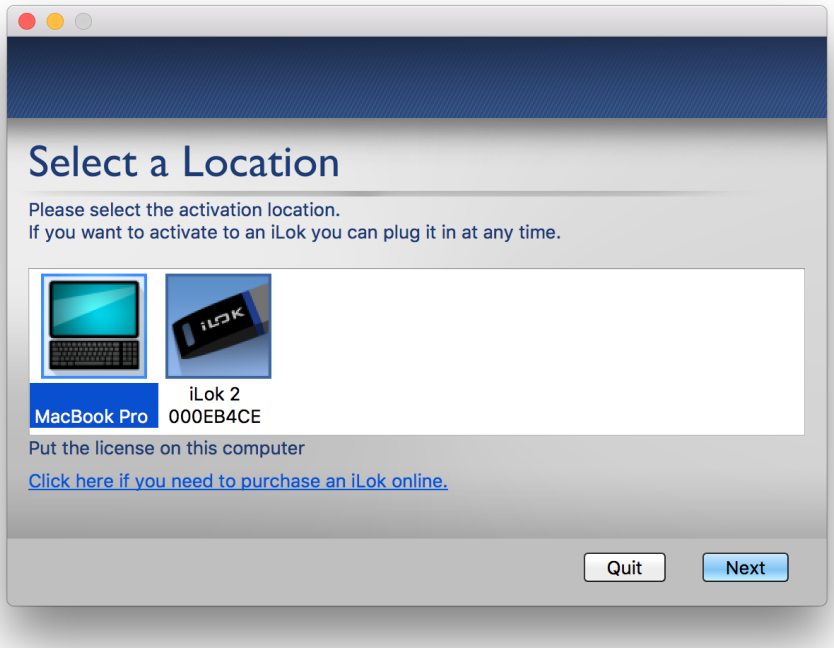
Click ***Activate*** to start the full license activation or ***Try*** to start the trial activation process.



Enter your iLok account ID and password and click ***Next***.

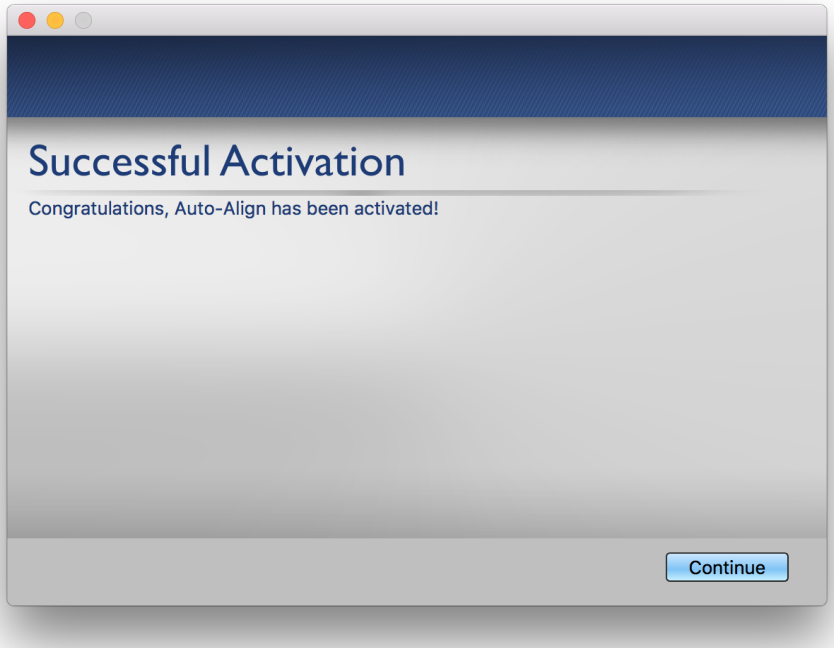


Click to select your Auto-Align license and click ***Next***.



Select your preferred activation location for your Auto-Align license and click ***Next***.

Important: *If you've opted-in to authorize your machine's drive, don't forget to deactivate your license to move it back to your iLok account before upgrading or retiring your machine.*



Click ***Continue*** to finish the installation and you're done. Auto-Align will now be available in your DAW's audio plug-ins menu.

User Interface

1. SR's Spectral Level Meters (Input and Side-Chain)

We wanted to do something more insightful than the traditional level meters, so instead of just displaying levels, we thought it would be cool to show the frequency content as well. Frequencies correspond to the color bar scheme. Lower frequencies are represented by wider bars, higher frequencies by thinner ones. The maximum meter width auto-adjusts according to the sound's content.

2. Noise Floor Faders

When Auto-Aligning drums, filtering out the bleed from other drum pieces will greatly enhance the accuracy of the detection. For best results, set the threshold safely above the bleed level.

3. Spectral Phase Correlation / Delays Match Points Displays

This is where you can experience the "magic" visually. The Spectral Phase Correlation display shows the phase differences between the input and side-chain. The best case is when most frequencies are centered upward. Centered downward is where we're trying to get you out of…

The Delays Match Points display shows the delays which have the best phase matching between the input and the side-chain. Higher bars means better overall match.

You can switch between the displays by pressing on the Display button. Auto-Align will automatically switch to the Delays display when detecting and will switch back to the Spectral Phase Correlation display when detection is complete.

4. Next / Previous

Switch between the best phase-matching delay and other delays which also have good phase-matching using the Next / Previous buttons. This is useful when you want to get a good phase match between close and distant microphones but still keep some delay between them.

5. Send & Receive Bus

Sends to and receives audio from other instances of Auto-Align. A click or drag on the bus number will advance it to the next available bus. When two instances of Auto-Align are connected, their bus numbers will turn green. Buses 1-9 are available. Bus 0 is Off. Each instance of Auto-Align can send and receive audio simultaneously.

6. Delay Display

Displays the delay between the microphones. Using the Unit button you can switch between Samples, Milliseconds and a close approximation of the distance between the microphones in Centimeters and Inches. We also had an option for tomorrow's weather but we ran out of space. Alt+Click on the value display will reset the detected delay value.

7. Detect

This is the "magic" button. Press Play on your DAW, hit the Detect button and watch Auto-Align do the hard work for you. You can use a straight delay detection or you can have Auto-Align detect the correct polarity as well. Please note Auto-Align can only tell if the input channel is reversed in polarity in relation to the side-chain channel.

8. Polarity Reverse Switch

Reverses the phase polarity of the channel. When Auto-Align's detection mode is set to *Delay + Polarity*, Auto-Align will consider correlation points on the inverted polarity side and will automatically flip the phase polarity switch if it found a better correlation there.

9. On / Off

The On/Off button lets you switch between corrected and original time smoothly. The displays still works when delay alignment is off, so you can hear and see the differences in phase and sound.

Using Auto-Align

- Insert Auto-Align into the first Insert-fx slot of the tracks you'd like to align. Auto-Align serves as a router as well, therefore it is necessary to insert it on the reference track and the secondary track. (for example a close mic'ed dynamic and a distant condenser)
- On the reference track, click on the Send number to select a bus number 1-9 (bus 0 is off). The selected Send number will turn red.
- On the receiving track, click on the Recv number to select the corresponding bus number. When a connection is made, the Send and Recv numbers will turn green.
- For drums, set the noise floor fader safely above the bleed range.
- While your DAW is playing back, click on the Detect button. Once Auto-Align has collected enough data, it'll automatically stop the detection process and align the receiving track to best match the sender track.
- Auto-Align has an innovative stereo management algorithm which enables true stereo alignment and intelligent stereo-to-mono and mono-to-stereo alignment.

Notes

- Automatic delay compensation has to be turned on in your host.
- It is recommended to run Auto-Align ahead of other insert fx such as EQ or reverb as they may introduce phase shifts into the sound.

Acknowledgements

Auto-Align uses the following libraries:

- JUCE by ROLI Ltd. - http://juce.com
- KISS FFT by Mark Borgerding - http://sourceforge.net/projects/kissfft
- VST PlugIn Technology by Steinberg Media Technologies GmbH

www.soundradix.com

Technical Support: https://www.soundradix.com/support