VocALign Project 3 AU

Audio Units Plug-In
for Logic 9 and higher

User Manual

Manual Version 6.0

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Table of Content

Important Notes

In this manual, "VocALign Project 3 AU Plug-In for Logic" will sometimes be referred to simply as "VocALign Project 3" or "VocALign"..

Technical specifications

This program is compatible with Apple Logic 9 or higher software running on Mac OS 10.6.8 or later.

VocALign Project 3 processes audio with sample rates up to 192 kHz.

Acknowledgements

Special thanks goes to our beta testers and the Apple Logic team for their help and support.

Thanks to Steve Cooke for providing the English voices in the demonstration audio.

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A) Introduction to VocALign

1. What is VocALign?

VocALign is a process that edits the timing of one audio signal to match another – automatically.

TIP: To use VocALign Project 3 effectively, the audio editor should understand the basic components of the processing.

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2. How does VocALign work?

VocALign works by applying varying amounts of time stretching or compression to one signal (called the "Dub") to make its energy peaks and troughs align in time with a "Guide" signal. It does this in 3 main steps.

VocALign Block Diagram
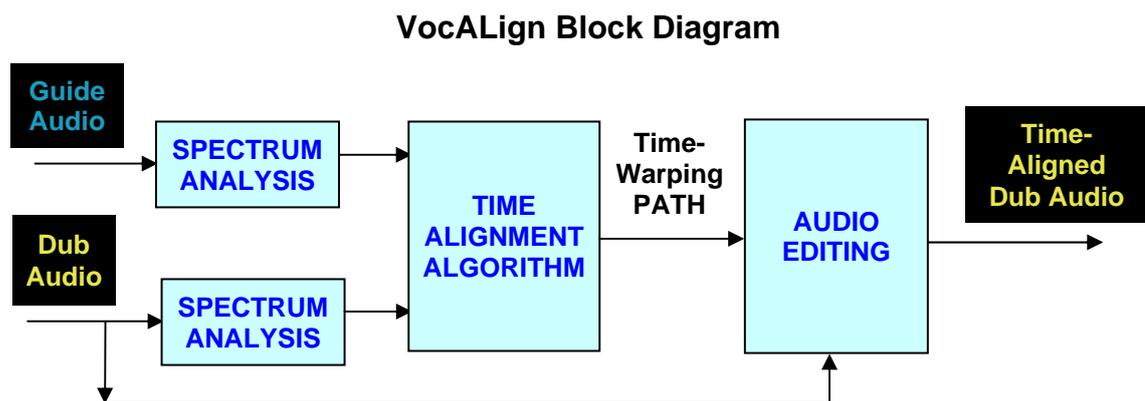
1. VocALign analyses the Guide and Dub audio signals using identical Spectrum Analysers to produce time-varying energy patterns.
2. Then it uses advanced pattern recognition techniques to examine the energy patterns and determine the best way to "warp" time to align the Dub energy to the Guide energy. The Time-Warping Path describes the best time-distortion of the Dub for matching to the Guide. It is important to remember this.
3. The Path is fed to an Audio Editing processor that time-compresses and expands the Dub audio to create the aligned version based on the Path. It is this edited version of the Dub that is returned to the audio editing software for the desired use.

Note: In the above diagram, the audio signal name's colours match those in the VocALign Project 3 screen.

3. How can VocALign help?

If you are a dialogue editor needing to lip-sync vocals, or a music editor needing to tighten-up lead or backing vocals, instrumental tracks, or a number of other alignment tasks, then VocALign will help you!

4. Working without VocALign

A dubbing session, for film post production, or music production, begins with a guide track. Then the voice-over artist, singer, or musician will dub this as closely as possible.

Because humans are not machines, they will not be able to get exactly in time with the Guide. This is generally not acceptable for lip-syncing, nor for double-tracking of vocals or instruments. Often, the next step is to loop-record the more tricky sections individually, but this can break-up the natural flow of the line. Lastly, the editor will use a digital audio editor to cut and nudge individual sections of the new recordings into time with the Guide.

The above process can take many hours for both the artist and the editor.

5. Working with VocALign

The above process becomes a simple matter of getting the artist to concentrate on creating a great performance, and not worry about the fact that it may drift in and out of exact sync with a previous performance. VocALign can then be used to adjust the timing by automatically applying the required amount of varying time-stretching and compression to allow the Dub to take on the same timing as the Guide.

This saves studio time, saves artists time and improves the quality of your results.
Most importantly, you allow your artists to produce their best performances, free from the rigidity normally associated with dubbing.

B) Applications

VocALign was originally designed for Lip Syncing replacement dialogue for Film and Video post-production but it has been adapted to work successfully in the following applications:

- Syncing replacement dialogue in Post Production for Film and Video.

- Double-tracking vocal parts or instrumental parts

- Tightening backing singers with one another, or with the lead vocal

- Tightening backing instrumental tracks

- Sync'ing a drum machine audio-output to a real drummer (or vice versa)

- Giving a dubbed vocal the timing of a "live" vocal performance,

- Changing the voice or even sex of a singer or actor's performance.

- Replacing the vocals in a music video shoot with a production track, achieving perfect lip-sync.

- Foreign Language Dubbing
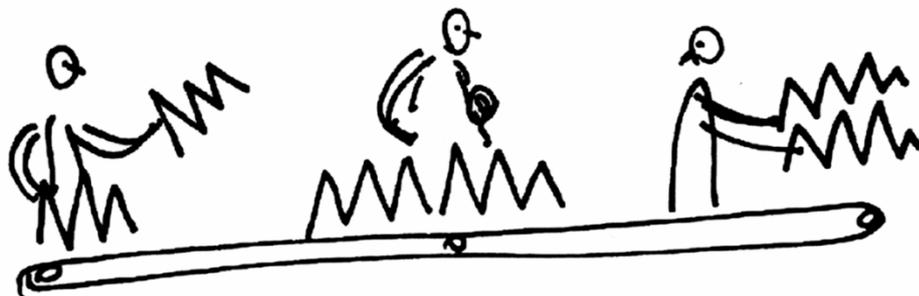
C) Software Installation and Authorization

1. Installation

If you have not already done so, you can download VocALign from
http://www.synchroarts.com/downloads

Double click the disk image (.dmg) file that you downloaded to mount the disk image on the desktop. Next, double click the VocALign **pkg** to install the VocALign software.

2. Trial and Full Licenses

VocALign Project can run in a **Trial Mode** but it will require an **iLok Trial license** which you can obtain from the Synchro Arts website. Once you have obtained and installed the Trial license as described below, VocALign Project will run in a **fully functional** demonstration mode for the number of days stated in the information you receive with it.

VocALign Project licenses will authorize both Mac and Windows versions.

If you already have a VocALign Project license installed on an iLok USB Key that is plugged into the computer running VocALign Project, you can skip the rest of this section on authorization.

3. Software authorization overview

VocALign Project uses the iLok system described on www.iLok.com for authorization.

IMPORTANT: Before you can run VocALign Project, you must do all of the following (if you haven't already done so)

1. Create a free account on www.iLok.com

2. Go to www.iLok.com, download and install the new **iLok License Manager** on your computer.

3. Run the iLok License Manager and sign in.

4. Synchro Arts normally supplies an iLok Activation code in the form:

   XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XXXX-XX
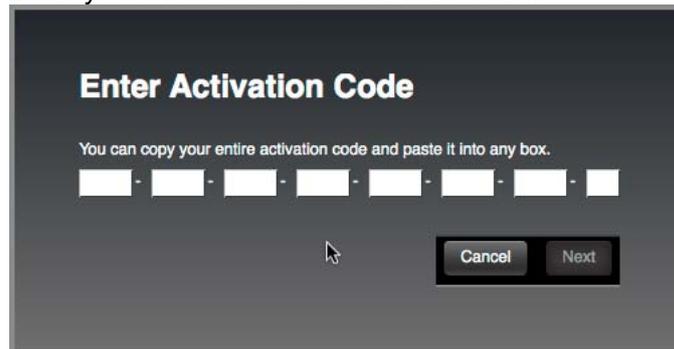   (where X's are numbers)

   note that this code is NOT a licence but an **Activation Code** that you can redeem in the iLok License Manager to obtain your licence.

5. To redeem an **Activation Code**:

   - Open the 'Redeem Activation Code' window in the iLok License Manager.
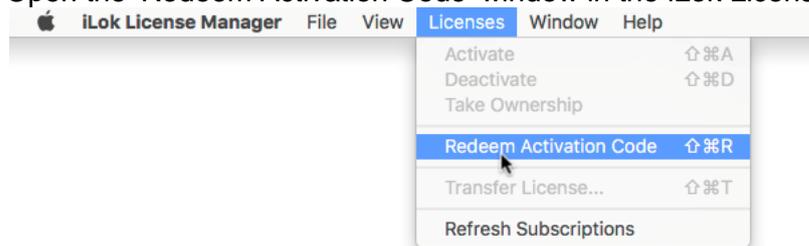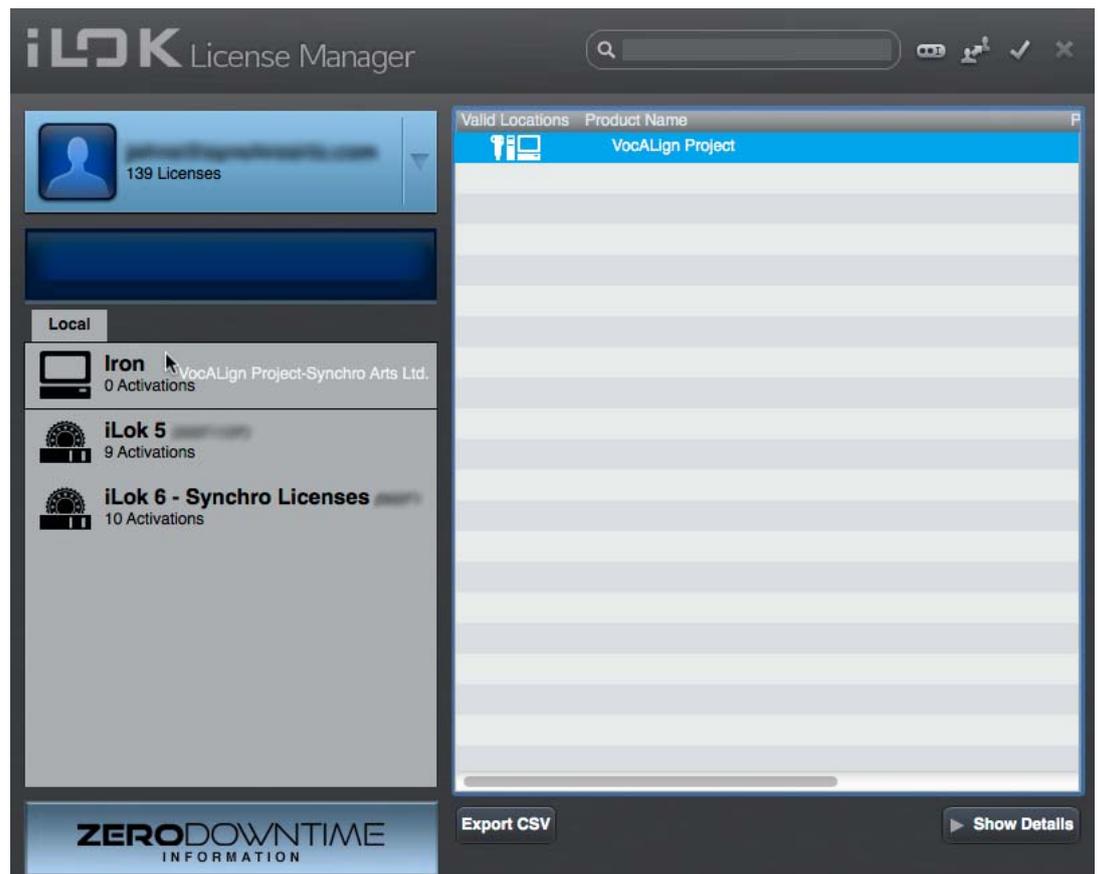

   - Enter your Activation Code as instructed.

   - If the code is recognized, you will get a VocALign Project License in the iLok Manager

6. Drag the License to your Machine or iLok USB Key.

Optional – iLok USB Key

How to authorize VocALign software with your iLok Key
iLok Keys can hold licenses for a number of protected software products. You can have licenses from Synchro Arts and other software vendors on the same iLok.

If you followed the above procedures correctly, and the iLok Key with the relevant license is inserted in the computer running VocALign Project, it should run in an authorized mode by simply launching VocALign Project.

Reauthorizing VocALign Project if iLok is removed
If you subsequently try to run VocALign Project without the iLok inserted into your computer you will receive a warning message. Follow the instructions in the warning to reauthorize the software.

WARNING:

Do **not** remove the iLok from your computer while you are using VocALign Project.

If the iLok is removed, VocALign Project will put up a message asking you to reinsert your iLok Key. If you do not re-insert the key, the program will output silence and also warn you that it is not licensed.

iLok Support

For further information on iLok, go to www.iLok.com.

D) Tutorial and Overview of Operation

To learn to use the basic functions of VocALign Project 3 only takes a few minutes, but for quickly getting the best understanding **we strongly recommend that you first follow the brief Tutorial below which uses prepared audio examples.**

In this Tutorial, once we load the prepared Tutorial Project in Logic, we will explain how to:

     a) Select the Guide and Dub audio in Logic that will be processed in VocALign.

     b) Transfer the Guide and Dub audio into the VocALign plug-in

     c) Use VocALign to create an Aligned (synchronized) Dub and audition it

     d) Return the Aligned Dub audio to Logic

1. Obtain the Tutorial Project and Audio

The Logic Project for the Tutorial session can be found by going to
www.synchroarts.com/downloads

On the Downloads page, locate the Tutorials and click on the following link to download the Tutorial Project to a hard disk:

<p align="center">**VocALign**   *Logic Project*</p>

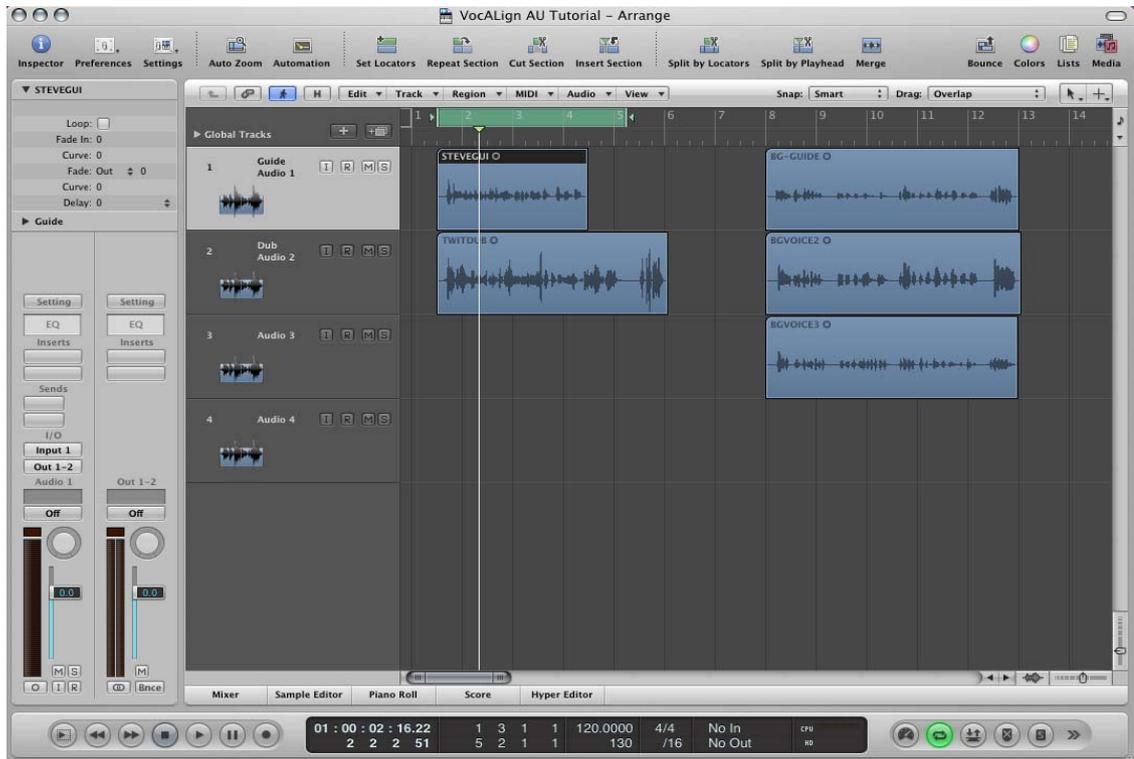The copied folder should contain the file and folder shown below.

The folder VocALign AU Tutorial should contain the following audio files and Project:

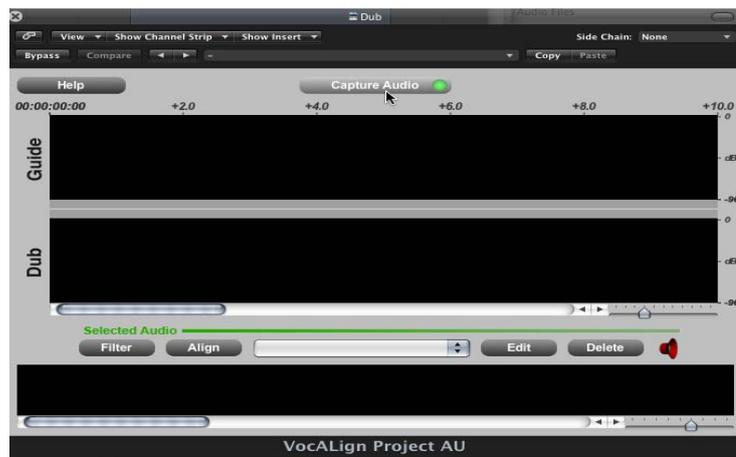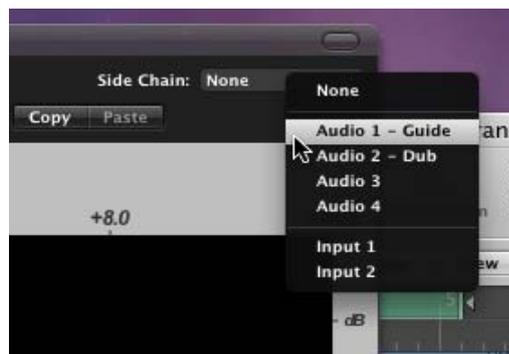**2. Open the *VocALign AU Tutorial* project in Logic.**

(Logic 9 is shown below)

3. In Logic, add "VocALign Project AU" *as an Insert* on the DUB track by selecting the folders: "Audio Units" and then "Synchro Arts Limited" as shown below.
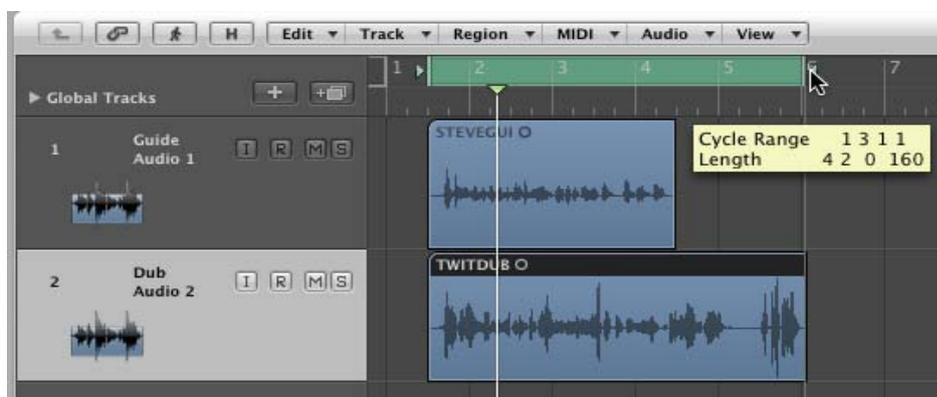
The VocALign Project AU window should appear as shown below:

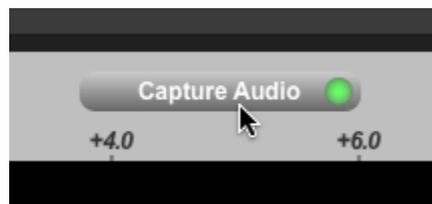**4. In the VocALign window set the side chain input to the GUIDE track as shown below.**

5. In Logic, select the part of the project you want to process using Logic's Location Indicators – as shown below.

6. In VocALign, click the "Capture Audio" button and make sure its "Ready" light goes green as shown below.
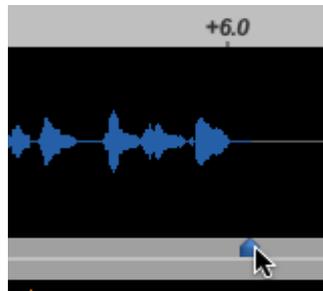

7. In Logic, play your selected Guide and Dub audio (press the space bar).

8. When playback stops, waveforms (as shown below) should appear in the VocALign window showing the selected Guide and Dub audio.

9. **In VocALign, If required, adjust the start or end of the audio by clicking the waveform where the change of colour occurs and dragging the cursor.**

Adjusting end of

Adjusting end of

Tip
Try to ensure the start of the audio selection is in "silence" about 0.25 seconds before the waveform energy appears and try to ensure the end of the selected audio is at the desired stopping point.

10. **In VocALign, make sure the drop down menu for setting the Alignment control is showing "Normal Flexibility".**

11. **Click "Align". A trace will appear in the Guide window showing the Aligned energy of the Dub superimposed on the Guide energy as shown below.**

Note that the small speaker icon in the lower right corner is red, indicating that the audio has not been processed and cannot be played back.

12. In VocALign, click "Edit". The edited (aligned) audio will be created and written to disk and the "playback ready" (speaker) indicator will change to green as shown below. (Nothing else visible happens).
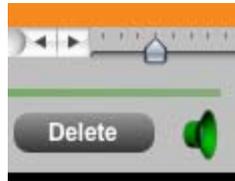

13. **In Logic, select Play (space bar). You should hear the Guide and Aligned audio played in sync together.** In Logic, you can adjust the section being played back.

14. **You can listen to the audio before alignment by turning the VocALign "Bypass" switch on as shown below and they press Play in Logic.
Be sure to turn Bypass off if you want to use the Aligned audio.**

15. **Lastly, you can create an audio file from the Aligned Dub:**

- In Logic, hold down "Control" key and click inside the Dub region.
- In the menu that is displayed (shown below) select "Export as Audio File"
- Then save the selected audio as a named file.
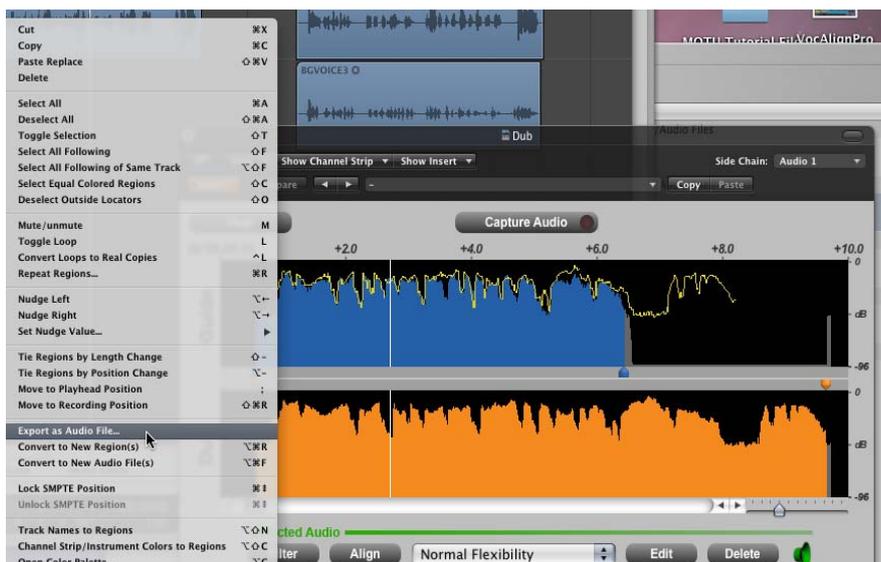
16. The new file can then be dragged from the Bin back to the Logic timeline.
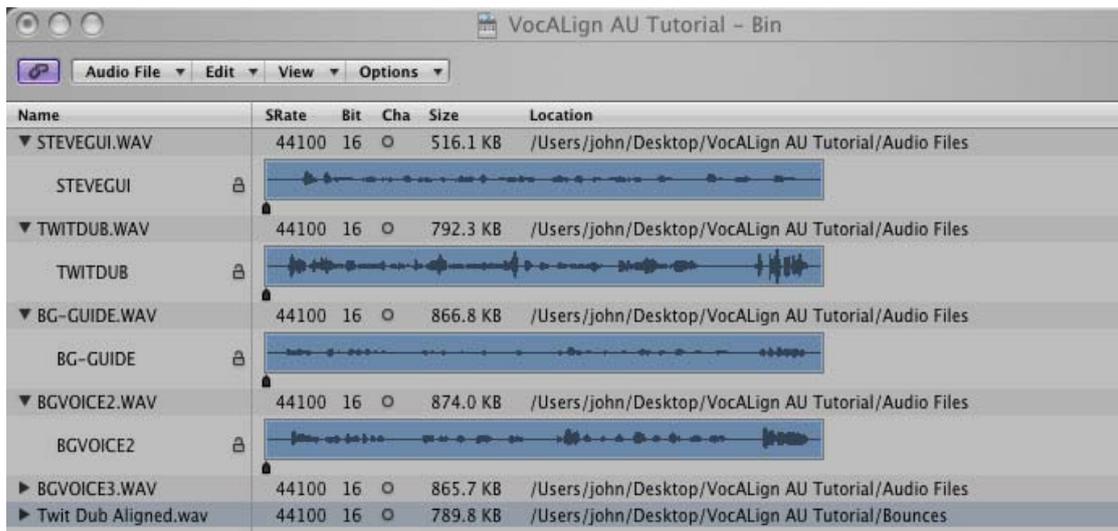
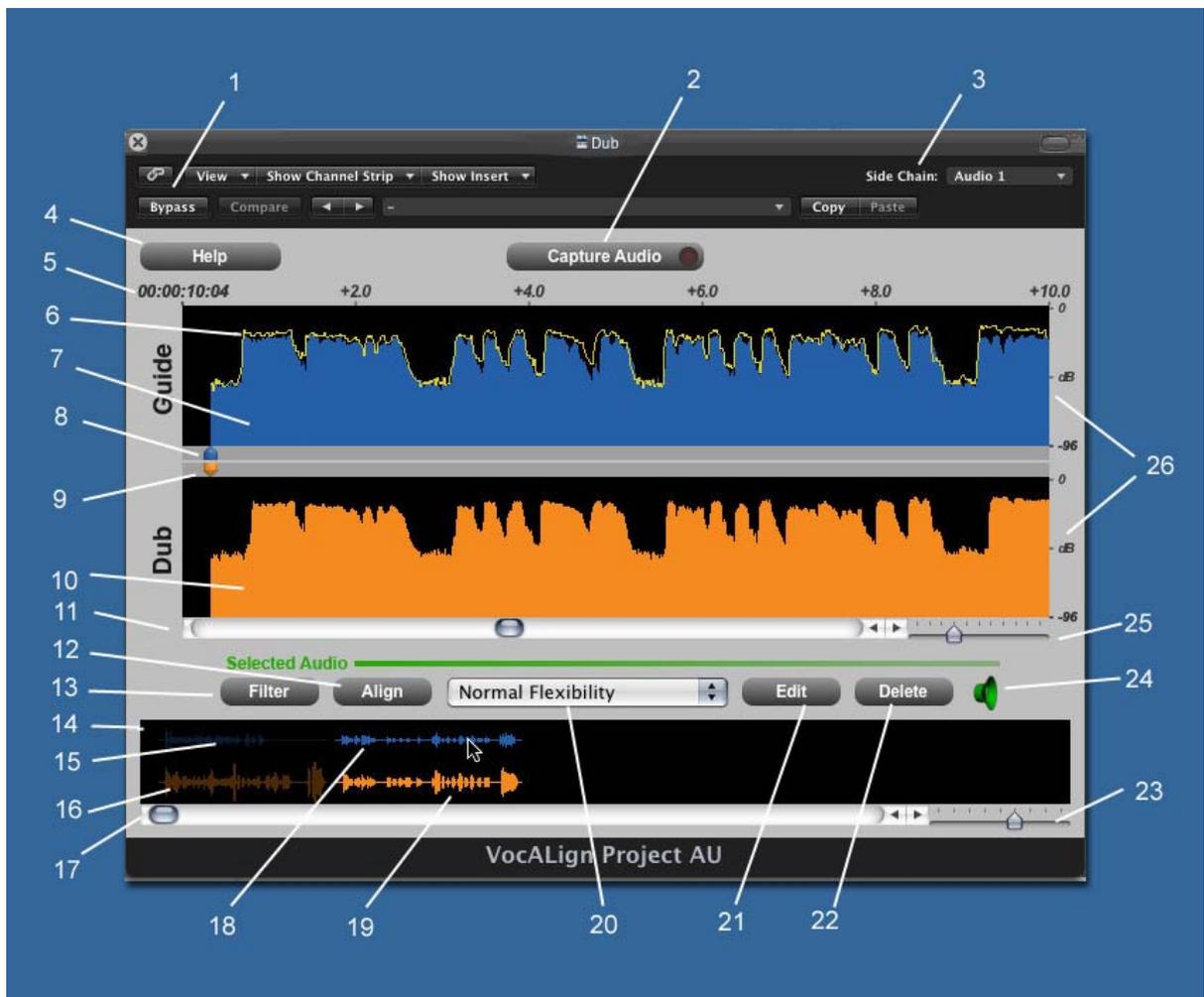Note: If Logic is in Grid mode, then the waveform can be placed with sample accuracy

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TIP

DO NOT Save the "*VocALign Project 3 Tutorial PT"* session over the original Tutorial session when exiting Pro Tools, so it can be used again.

E) Basic Operation

1. List of Screen Contents and Controls

1) **Bypass Button:** If OFF, VocALign plays and transfers Aligned Dub audio.
   If ON, VocALign plays and transfers original Dub audio.

2) **Capture Audio Button:** Arms VocALign to receive Guide and Dub audio from Logic during play pass.

3) **Side Chain Selector:** User selects the Logic track containing the Dub audio.

4) **Help Button:** Click to access this manual.

5) **Display Start Time and time offsets.**

6) **Aligned Audio Trace:** A representation of the energy of the new Aligned signal.

7) **Guide Energy: A profile of the energy of the Guide signal in time**

8) **Guide Start Point Selector:** Adjusts processing start. (corresponding End Point Selector not shown)

9) **Dub Start Point Selector:** Adjusts processing start. (corresponding End Point Selector not shown)

10) **Dub Energy: A profile of the energy of the Dub signal in time**

11) **Scroll Bar** Use slider to move waveform position in window in conjunction with controls in 16.

12) **Align Button**: Click this to generate the Aligned audio energy trace in Guide Window (does not create aligned audio).

13) **Filter Button:** Click to only analyse the audio through a filterbank and display the energy from the band from 500 to 1000 Hz.

14) **Overview Window**: Shows multiple captured regions and clicking waveform selects the Dub and Guide waveforms to be processed.

15) **Unselected Guide Waveform:** Guide audio that will not be processed

16) **Unselected Dub Waveform:** Dub audio that will not be processed

17) **Overview waveform display scrolling:** Slide to move display

18) **Selected Guide Waveform:** Guide audio that will be processed.

19) **Selected Dub Waveform:** Dub audio that will be processed.

20) **VocALign Settings**: Controls the characteristics of the alignment processing.

21) **Edit Button:** Click to generate Aligned audio. (24) will indicate when done.

22) **Delete Button:** Click to remove all waveforms from VocALign.

23) **Overview waveform display scaling**: Slide to zoom in and out

24) **Editing Complete Indicator:** If green, edited (Aligned) audio is processed and ready for playback.

25) **Selected waveform display scaling**: Slide to zoom in and out

26) **Energy Scale:** Shows range of display.

F) Further Detailed Operations and Tips

7. General Operations

In this section, we describe additional operational details with reference to the VocALign Project 3 window shown previously and in additional figures following in use with the Tutorial Audio.

1) In Logic, we start with a session in which there is "Guide" (original) audio contained in a on one track and a "Dub" (replacement or new) audio in a second track.

2) Highlight the desired portion of the Guide and Dub audio regions for processing.

   There can be any given region or multiple regions. Your selection can begin and end in the middle of a region.

   > **TIP: Try to capture up to around 0.25 to 0.5 seconds of "background" or "leader" audio at the beginning of your *Guide* audio selection.**
   >
   > (This will assist the process to set the noise floor levels and generally allow better alignment at the start of the signal).

   Note: In the current version of VocALign Project 3, the selected audio must be shorter than 120 seconds and longer than 0.25 seconds.

   > **NOTE**: The Dub does not have to start at the same time of the Guide. In other words, the timecode position of the Dub is not used. The Guide's timecode is important and so is the amount of "background" captured before the Guide and the Dub.

   > **TIP: Try to leave as much or *very slightly* more "background" audio before the Dub signal starts than for the Guide.**

3) The user can optionally perform several operations on the energy display waveform itself *before* Alignment :-

   a) The start and end boundary of the selected regions can be modified by positioning the cursor (arrow) at either end of the audio selections, holding down the mouse and dragging the dotted line that appears. Where the waveform turns grey indicates unselected audio energy. Releasing the mouse will leave the boundary indicator in place.
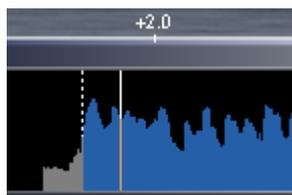
b) Clicking at the boundary and dragging will leave a dotted line in place at the previous boundary and create a second line to show the new cursor position. Moving the cursor by dragging will allow a new boundary position to indicate a new energy start point. This is shown above. This operation affects the processing.

c) The display can be scrolled with the scroll bars to examine the captured waveforms.

d) The Scale control can be used to zoom in or out of the waveform to see more (+) or less (-) detail in the display windows at one time.

e) Choose an appropriate setting (e.g. if the Dub is very long compared to the Guide, try "Maximum Compression").

4) After clicking **Align,** visually inspect the results in the Guide window. The peaks and troughs of the yellow (Aligned Dub) energy trace should line up generally with those of the Guide as in the figure below.
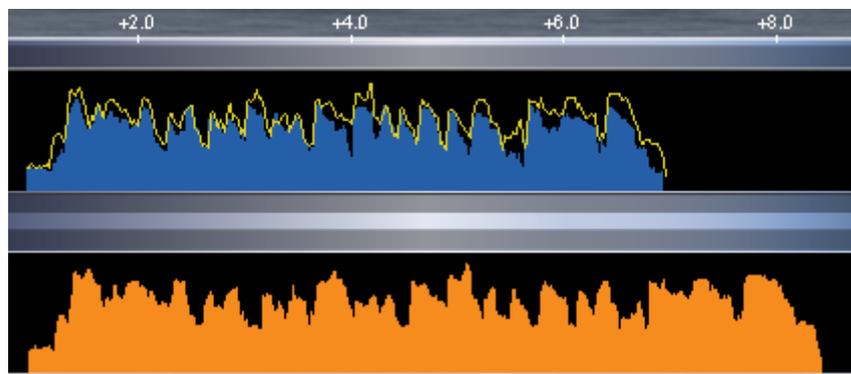
5) If the alignment looks satisfactory, generate the Aligned Audio by pressing **Edit**. This creates the Aligned audio.

6) A "shortcut" is to simply press **Edit** after Capturing the audio.

7) Preview the results by using the Logic Play controls.

8) If the alignment is satisfactory, transfer the edited audio to Logic as described in the Tutorial.

9) **If the alignment does not look or sound satisfactory,** there are a few options:

a) Select another **Setting** or Alignment mode (which will clear the aligned trace), click **Align** again, and examine the results.

b) Adjust the "leader" audio before the start of the Guide and Dub to be roughly equivalent with the Dub "leader" being somewhat longer.

c) Adjust the "end" of the Guide or Dub (see section ???)

d) Reselect and recapture the Guide or Dub audio in Logic, if the selection is thought to be causing the problem.

8. Description of Alignment Settings

The user has control over the Alignment Settings, which greatly affect how the alignment performs.

Clicking to the right of the "**Alignment Setting**" window will bring up the Settings Pre-sets , from which the user can select which **Setting** is active.

The main Setting characteristics are described in the chart below.

Setting	Main characteristics
Low Flexibility	Alignment is not very flexible, sound quality may be best.
Normal Flexibility	(Default): Recommended trying this first as it works best in most cases.
High Flexibility	Alignment is the most flexible of the Basic Settings.
Maximum Compression	Tries to match the Guide by time compressing the aligned audio as much as possible.
Maximum Expansion	Tries to match the Guide by time-expanding the aligned audio as much as possible.

9. Special Operations

a) "Latching"

To align just the start of the Dub with the Guide (and leave the rest of the Dub unprocessed), use the **Guide End Point Selector** to use only select 0.25 to 1.0 second of the Guide audio for processing and keep the Dub signal full length.

b) Reverb tails

To stop the end of a Dub from being stretched to wrongly "fit" to a noisy or reverberant Guide, stop the end of the Guide for processing to be 0.25 to 1.0 second before the Guide signal of interest ends and use the entire Dub .

G) Trouble Shooting

Some commonly occurring problems are listed here:

Problem:
"VocALign Project does not appear in the Audio Units menu."

Solution:
Mac users: Check that the file "VocALign Project 3" has been copied to the correct Plug-Ins folder.

Problem
In Logic when selecting the following menu:

>   Logic Pro>Preferences>Audio Units Manager

VocALign is not displayed in the list.

Solution
Try selecting 'Reset and Rescan Selection'

Further help and advice can be found in the Support pages on the Synchro Arts website at: http://www.SynchroArts.com