



VocAlign Project 3 VST

VST3 Plug-In
for Cubase and Nuendo

User Manual



Manual Version 2.1.0

SYNCHROARTS

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Important Notes

- In this manual, 'VocALign Project 3 VST' will be referred to simply as 'VocALign Project' or simply 'VocALign'.

Technical specifications

- This program is compatible with Steinberg Cubase 4.5.2, 5 and above; also with Nuendo 4.3 and above, running on Mac OS 10.4.9 and above, or on Windows XP and above.

Acknowledgements

- Special thanks goes to our beta testers and Steinberg staff for their help and support.
- Thanks to Steve Cooke for providing the English voices in the demonstration audio.
- VocALign is developed and sold under license from Wordfit Limited.

Trademarks

- VocALign is a registered trademark of Synchro Arts Limited.
- All other trademarks are the property of their respective holders.

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A Introduction to VocALign

What is VocALign?

VocALign is a process that automatically edits the timing of one audio signal to match another. In this version it is implemented as a VST plug-in that works with Cubase or Nuendo.

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 three main steps as shown in Figure 1.

VocALign analyses the Guide and Dub audio signals using identical spectrum analysers to produce time-varying energy patterns. Then it uses advanced pattern recognition techniques to examine the energy patterns and determine the best way to 'warp' the time structure of the Dub signal so that its energy pattern is matched to that of the Guide. The time-warping path describes the best time-distortion of the Dub for matching to the Guide. The time-warping 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 spectrum analyser colours match those used in the VocALign screen for Guide and Dub audio signals and controls.

How can VocALign help?

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

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-synching, 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

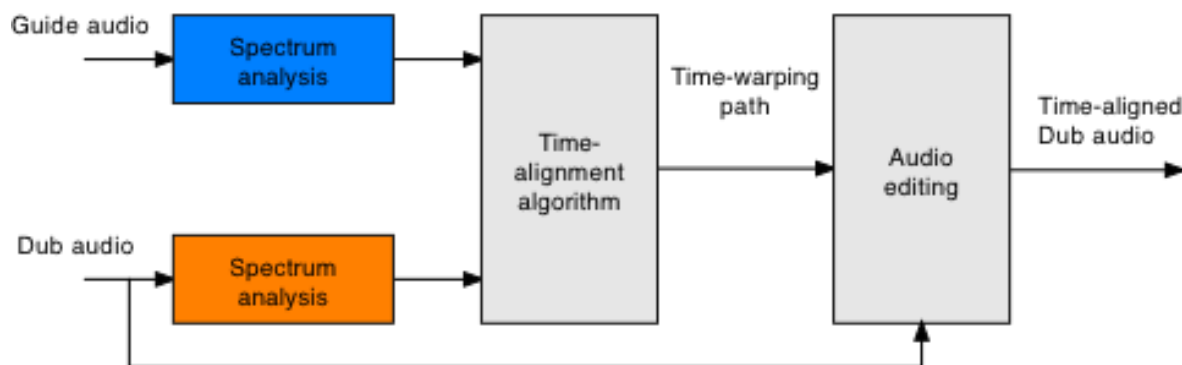


Figure 1 VocALign block diagram

flow of the line. Lastly, the editor will attempt manually 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.

Working with VocALign

The above process becomes a simple matter of getting the artist to concentrate on creating a great performance, rather than worrying about the fact that it may drift in and out of exact synch with a previous performance. VocALign can then be used to adjust the timing by automatically time-stretching and compressing the material to allow the Dub to take on the same timing pattern as the Guide.

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



B Applications

VocALign was originally designed for lip-synching 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 the ensemble of singers with one another, or with the lead vocal
- Tightening the ensemble of backing instrumental tracks
- Syncing 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 apparent sex of a singer or actor's performance
- Replacing the vocals from a music video shoot with a production track, achieving perfect lip-synch
- Foreign language dubbing



C Software Installation and Authorization

Installation

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

For Macs: 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.

For Windows: Run the downloaded installer.

Demonstration, Trial and Full Licenses

VocALign can run (fully functional) in one of 3 Licensed Modes:

1. **Trial Mode** – requires an iLok Trial License installed in a iLok Smart Key to run for a Limited Period after launch.
2. **Demonstration Mode** – runs immediately on a “built-in” Demonstration License for a limited time after launch. This mode does not need an iLok Smart key.
3. **Full License Mode** – requires an iLok “Full” license installed in an iLok Smart Key to run without time limits.

NOTES:

- Different versions of the VocALign plug-in will run either in the Demonstration or Trial Modes without having to purchase a license.
- The user will be informed, before downloading the software, if the Trial Modes is built into the software being downloaded.
- Software that runs a Demonstration mode does not need an iLok account or Smart key while the demonstration mode is active, but will need both to run a purchased license in Full mode..
- If the software is using a Trial or has purchased a license to run in Full Mode – the user will require both an iLok “Smart Key” (described below) and an account on iLok.com.

The rest of this Chapter provides more details on each of these authorization Modes and on the iLok authorization system.

Software Authorization

VocALign uses the iLok system for authorization and, once installed, your license will reside on a USB ‘smart Key’ (shown in Figure 2). This is different from the USB ‘dongle’ that is used to authorize Cubase or Nuendo. If you already have a license installed on your iLok, you can skip this section on authorization.



Figure 2 iLok Keys

For **Trial** and **Full** Licenses, the VocALign licenses are downloaded from an iLok.com Account and installed on one of the USB ‘smart Keys’ pictured above.

Before you can download a license, one must be deposited into your iLok.com Account.

There are two main methods for getting VocALign licenses from Synchro Arts into your iLok.com Account.

- Synchro Arts can deposit a VocALign iLok license directly into your iLok.com account (if we are told your account USER ID). This can occur if you purchase from Synchro Arts store or dealers. Or,
- You can obtain a Trial or Full License Code from the Synchro Arts website or from an authorized Synchro Arts Software Dealer. The License Code must be redeemed (i.e. traded in) on iLok.com for a VocALign License that is deposited into your iLok.com account.

Once your iLok.com account contains a VocALign license, you can log in and download the license to your iLok Key.

When your iLok Key contains a VocALign license, plug the Key into a USB port on the computer that will be running your copy of VocALign software and any host application. You will then be able to launch and run the VocALign software in an authorized mode.

iLok Keys can hold licenses for a large number of protected software products. You can also have licenses from Synchro Arts and other software vendors on the same iLok.

More information on iLok.com

The www.iLok.com website (provided by PACE) lets you create a personal account which is used to manage your software licenses. If you don’t have a user account you will need to create one before you can authorise your VocALign Trial or Full software.

On www.iLok.com, you can receive new licenses from software publishers such as Synchro Arts, see what licenses are on your iLok Keys, register your licenses and move your licenses between iLok Keys. Using software available from iLok.com, you can transfer licenses from iLok.com to your

computer and also identify the iLoks you currently have connected to the USB port on your computer. Synchro Arts may also use your iLok.com account to provide your license and give you technical support.

First time using iLok?

If this is the first time you have used iLok you may need to download and install the iLok extensions and drivers from <http://www.ilok.com>

Obtaining your Trial or Full license

1. If you haven't done so, you need to inform Synchro Arts (or your software dealer) of your iLok.com **User ID** (This is normally done at the same time you obtain a Trial license or purchase a Full License.
2. Synchro Arts will deposit a license into your iLok.com account and notify you.
3. Alternatively, you might have originally received an iLok Trial or Full License Code which you must redeem on iLok.com in order to obtain your iLok license in your account.

Failure to keep your iLok.com account up to date may result in delays in providing you with services or other support.

How to install your VocALign License from iLok.com onto your iLok Key

1. Insert the iLok Key into an available USB port on your computer and ensure its indicator light is lit.
2. Log in to your account at www.ilok.com.
3. On iLok.com, if you have received notification from Synchro Arts that your electronic license has been deposited, then your authorization is available for transfer. Your iLok.com account will display a notice saying 'You have licenses'. Select that link to start the transfer.
4. The next page on iLok.com will display the pending licenses available for download, along with the name of the plug-in, the manufacturer, the type of authorization (Trial, Demo, NFR (Not For Resale), or License), the date the authorization was deposited, and the date when the authorization will no longer be available for download from the server.
5. Before an authorization transfer can take place, synchronize your iLok Key with iLok.com.
6. Once you have synchronized your iLok, select the authorization(s) you wish to transfer to your iLok. If you have multiple iLoks connected to your computer, it is important to select the correct iLok as the destination to which you want an authorization to be transferred.
7. On iLok.com, click **Download Licenses** to begin the process. When the transfer finishes you will be asked to confirm completion, indicating that the transfer was successful.

How to authorize your VocALign software with your iLok Key

If you followed the above procedure correctly, authorizing VocALign is simply a matter of inserting the iLok Smart Key that contains the correct license into the computer that you are using with your host audio editing software. Once that iLok Smart key is inserted, you will be able to use VocALign. See the next chapter for details on how to do this.

Reauthorizing VocAlign if the iLok Key is removed

If you subsequently try to run VocAlign without the iLok Key inserted into your computer you will receive a warning message. Press **Retry** (or, if different version, press **Buy** as shown in Figure 3) and reinsert the iLok Key containing the relevant license. The software will be reauthorized.

WARNING: Do *not* remove the iLok from your computer while you are using VocAlign. If the iLok is removed VocAlign will stop working and you might lose your work.

iLok Support

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

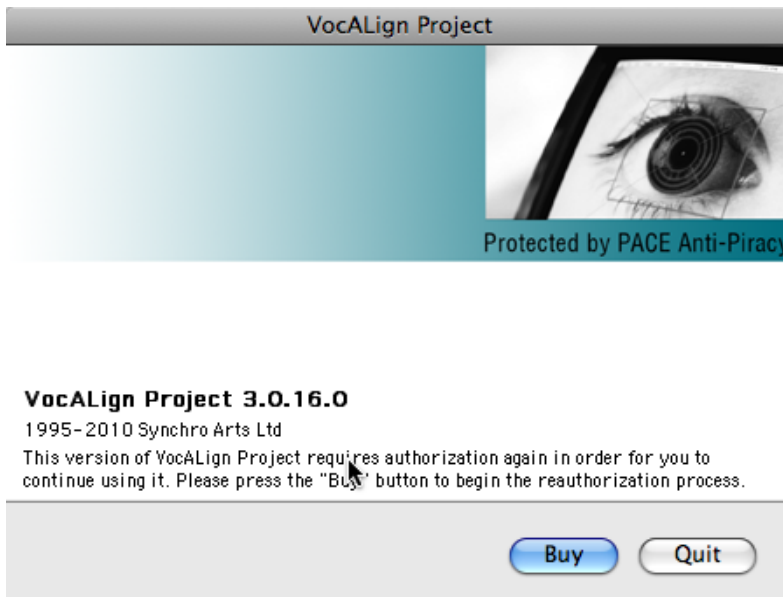


Figure 3 Reauthorisation window when no iLok is present

D Getting started

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 in Section E, which uses prepared audio examples. The following, however, is a Quick Start guide for those that want to jump straight in without following the tutorial. Although the plug-in works with Cubase or Nuendo, the text refers to use with Cubase. The two user interfaces are very similar.

Quick start

- 1 In Cubase, add VocAlign Project as an Insert on the track to be aligned (the 'Dub' track) by selecting **Other>VocAlign Project** from the list of plug-ins that drops down when you click on an available Insert slot, as shown in Figure 4.
- 2 The VocAlign plug-in window will open as shown in Figure 5.

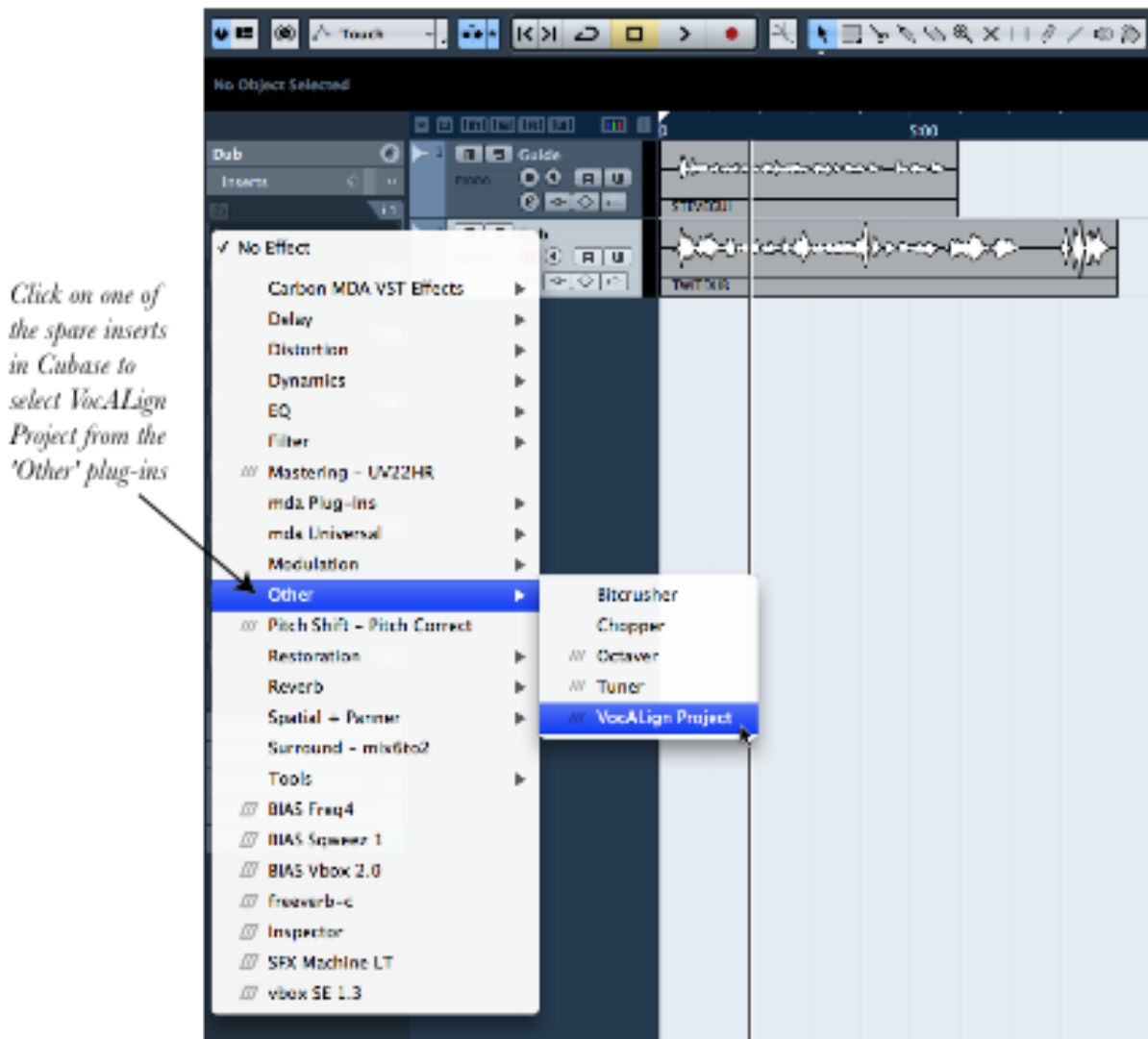


Figure 4 Selecting VocAlign as an Insert in Cubase

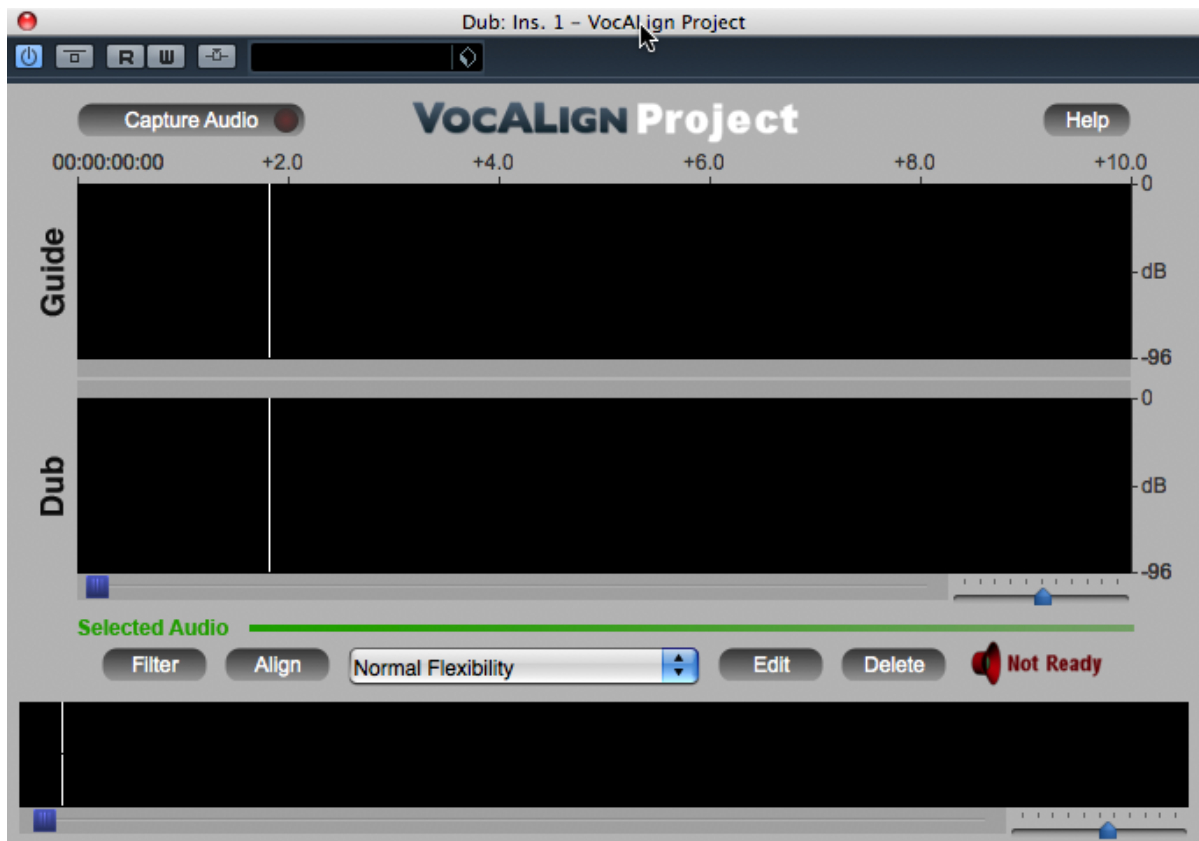


Figure 5 VocALIGN window before audio capture

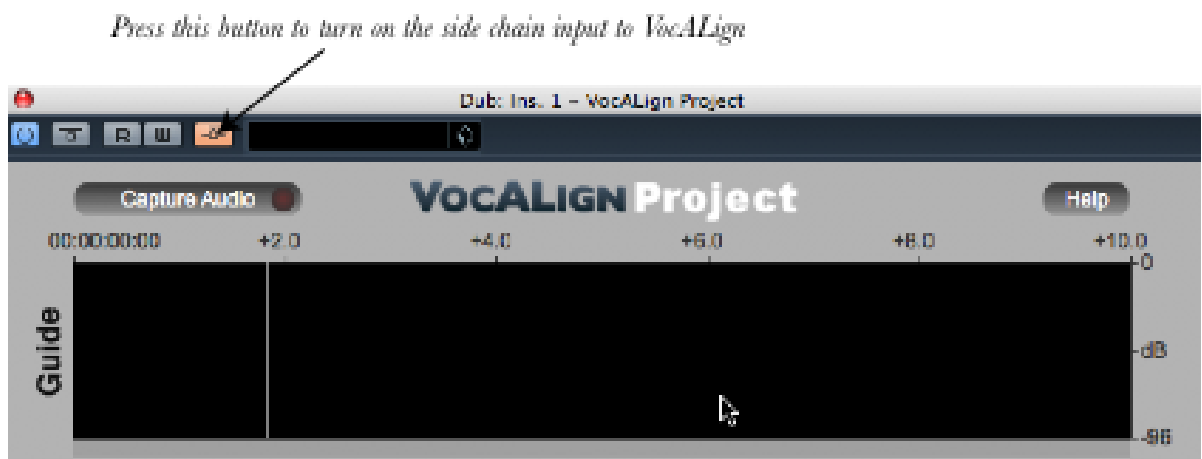


Figure 6 Turning on the side chain input

- 3 Turn on the side chain input in VocALIGN by pressing the fifth button from the top left of the plug-in's window, as shown in Figure 6.
- 4 Now select a 'Guide' track in Cubase (the material to which the Dub will be aligned) and route one of its Sends to the side chain of the Dub track Insert that controls VocALIGN, as shown in Figure 7. Set the gain of the Send to 0 dB.
- 5 In Cubase, select the start point of the audio you want to process, using Cubase's time line.

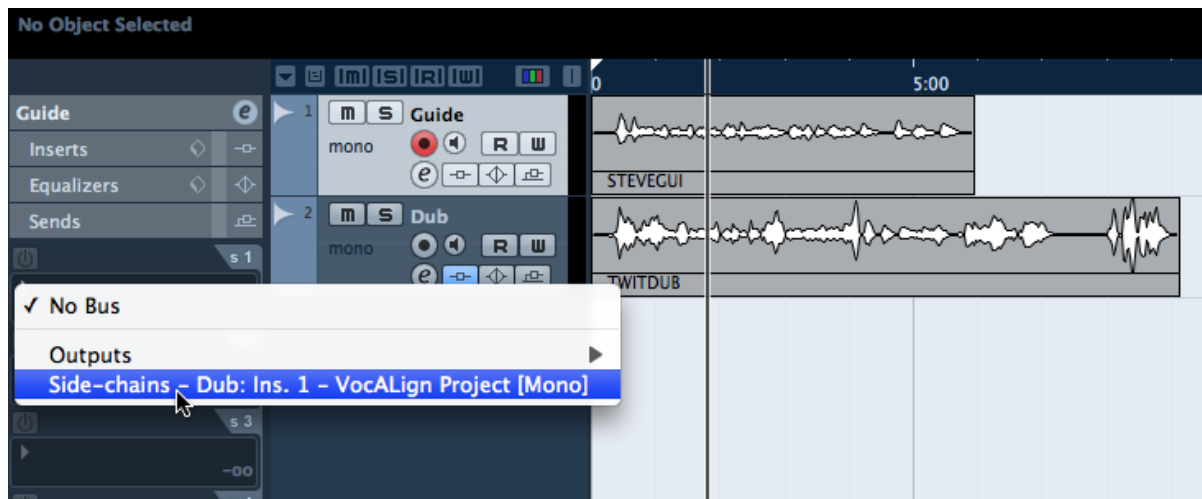


Figure 7 Route a Guide track Send to VocALign's side chain

(The Guide and Dub audio should be approximately in the same place.)

- 6 In the VocALign window press **Capture Audio**. The light in that button will glow yellow and show **Stop Capture** to show that it is waiting for audio. (You can press it again to cancel the capture if necessary.)
- 7 Press **Play** (space bar) in Cubase. The light in the button will flash green while the audio is being captured. The selected section of the Dub track will be loaded into VocALign and a pair of waveforms will be displayed in the VocALign window showing the selected Guide and Dub audio (see Figure 8). Press **Stop** in Cubase (space bar) when you reach the end of the audio material to be captured.
- 8 Provided the Guide audio content is sufficiently similar to the Dub, starts in roughly the same place and has a small amount of lead-in containing a bit of background noise, press **Edit** and the Dub audio will be aligned to the Guide audio as well as possible. The display changes to an energy plot of the two extracts and in the Guide window the yellow trace shows how the energy of the Dub is matched to that of the Guide. Press **Play** in Cubase, after moving the time line back to the start of the region in question, and you will hear the effect of the alignment.
- 9 Use Cubase's **Export...>Audio Mixdown** function to create an audio file of the Aligned Dub. (This can be found under Cubase's File menu, as shown in Figure 9.) Set Cubase's location indicators so that they highlight the time region of audio that is to be mixed down. Select the Dub track to be mixed down. The mixdown options are discussed in more detail in the Tutorial. Make sure the original tracks in Cubase are not muted, faded down or solo'ed, then press **Export** to create the aligned file. This will be available in Cubase's Pool and can optionally be written to a spare track as part of the mixdown process.

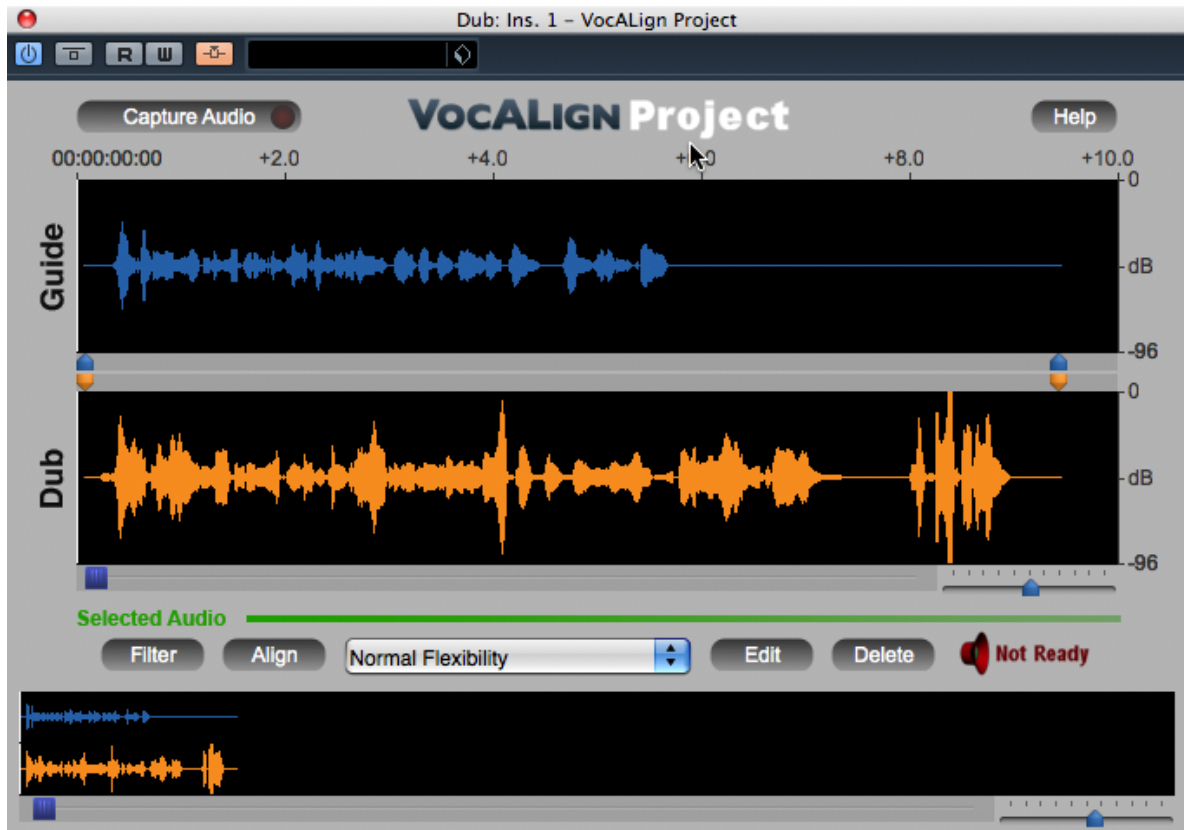


Figure 8 VocAlign display after audio capture

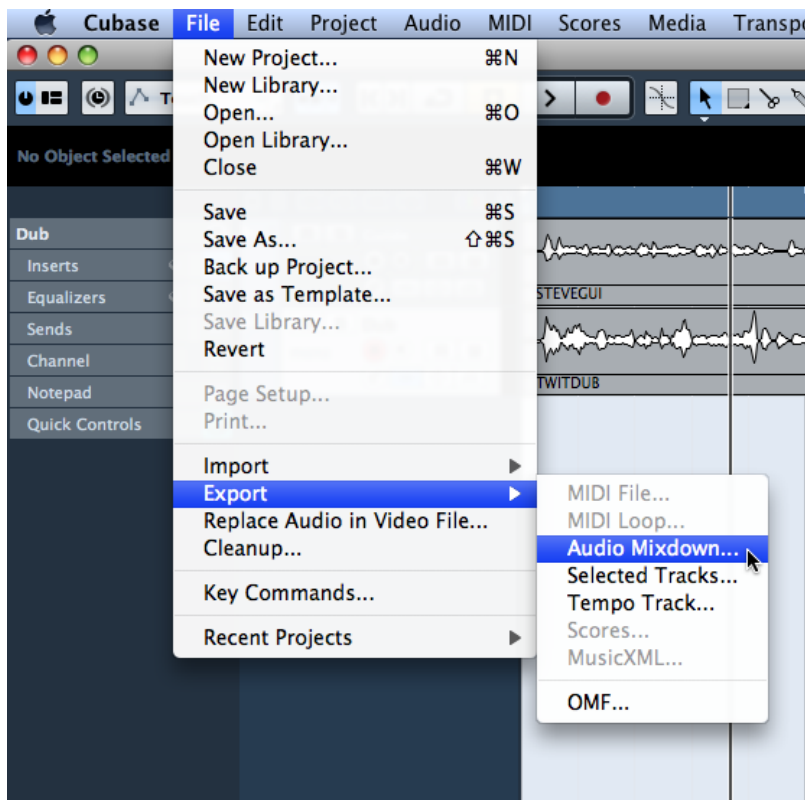


Figure 9 Selecting Audio Mixdown as an Export option

E Tutorial

This tutorial guides you through the use of VocALign in easy stages, so that you can learn about how it works and how best to use it. It uses a prepared Cubase project that can be downloaded from the Synchro Arts website. (This can also be opened and worked on in Nuendo, although for the rest of this tutorial it will be assumed that you are using Cubase. The two user interfaces are very similar.) You will learn how to:

- Select the Guide and Dub audio that will be processed in VocALign
- Transfer the Guide and Dub audio into the VocALign plug-in
- Use VocALign to create an Aligned (synchronized) Dub and audition it
- Return the Aligned Dub audio to Cubase

Step 1 Obtain the tutorial project and audio

The Cubase project for the tutorial session can be found by going to www.synchroarts.com and locating the **Downloads** page. On the Downloads page, locate and click on the link **Cubase Project for VocALign VST** to download a copy of the tutorial project to your computer. Copy the contents to a suitable folder on your computer's hard disk. The copied material should contain the file and folders shown in Figure 10. The .cpr file is the Cubase project file, and the folder called 'Untitled' contains Audio and Image folders for the project. In the Audio folder are contained the two audio files used in this tutorial – 'STEVEGUI.WAV' and 'TWITDUB.WAV'.

Step 2 Open the project in Cubase

When you open the project file in Cubase you may get a message that the project has been moved (because Cubase thinks it was created somewhere else). Simply click on **New** to select the location to which you have copied it as the project directory. The displayed project should look similar to that shown in Figure 11. You may need to do a bit of zooming and rearranging to fit your screen.

Step 3 Add VocALign as an insert

In Cubase, add VocALign Project as an Insert on the Dub (Audio 2) track by selecting **Other** from the list of plug-ins that drops down when you click on an available Insert slot, and then **VocALign Project** as shown in Figure 12. The VocALign Project window should appear as shown in Figure 13. If you are using a trial version of VocALign there will be an option either to continue using it for a

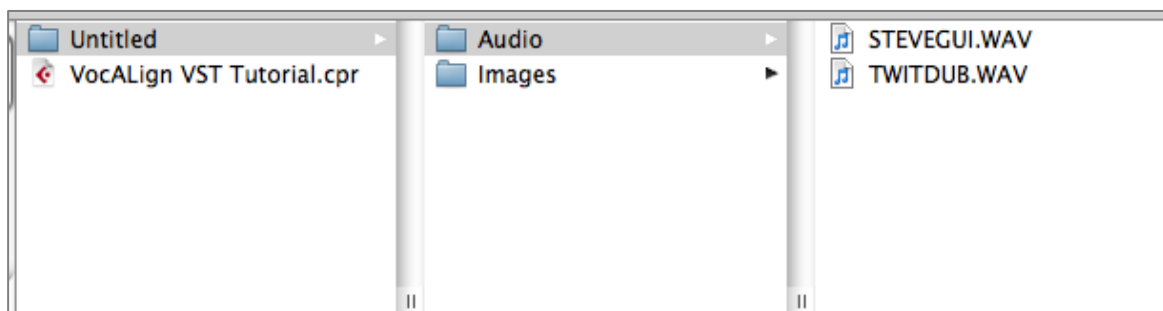


Figure 10 Contents of the tutorial project download

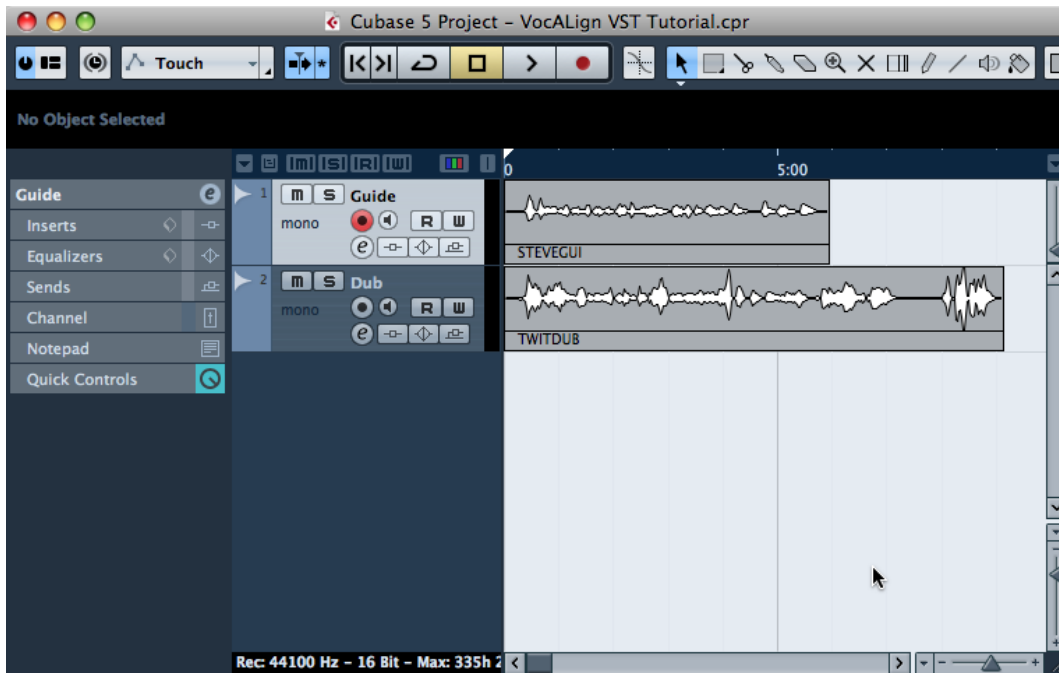


Figure 11 Tutorial project display in Cubase

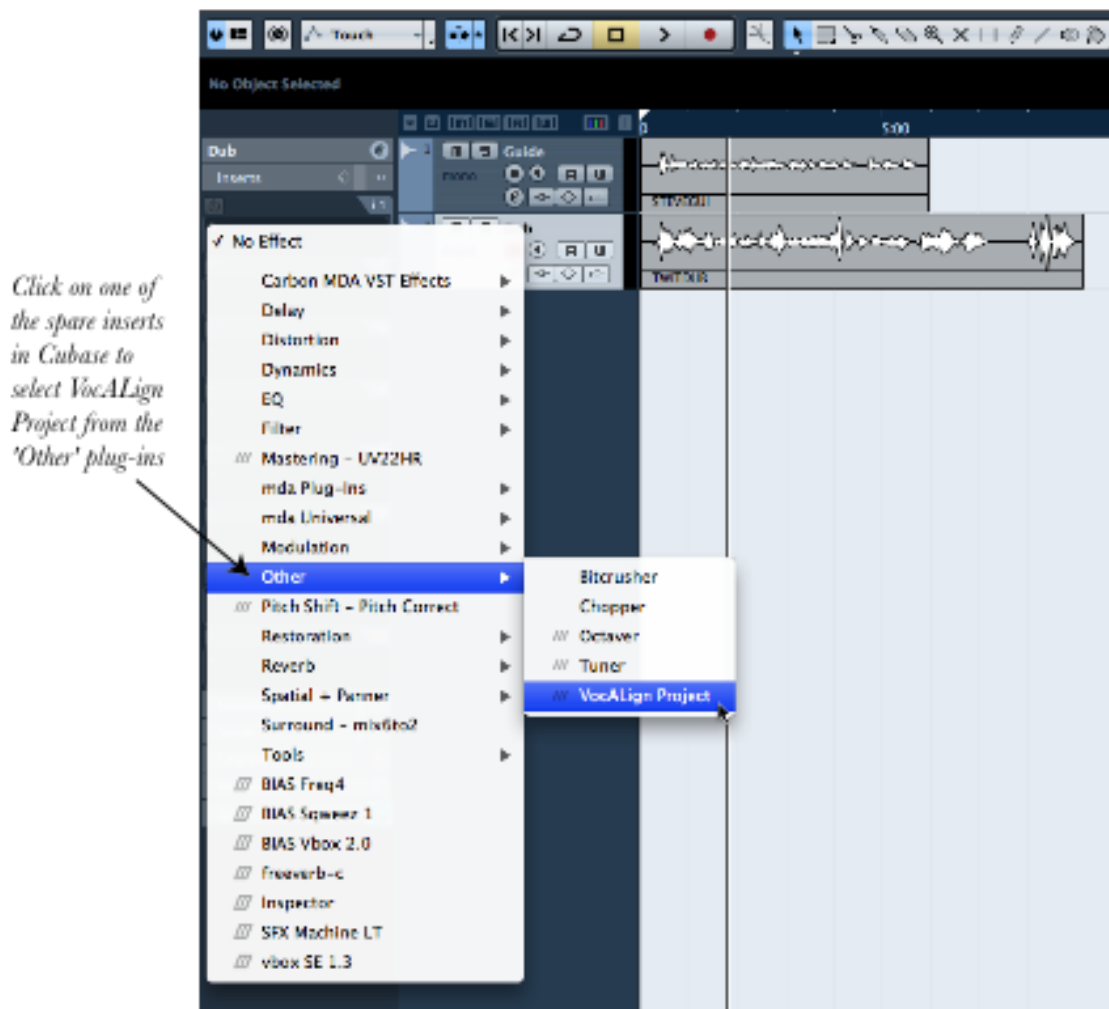


Figure 12 Select VocAlign as an Insert

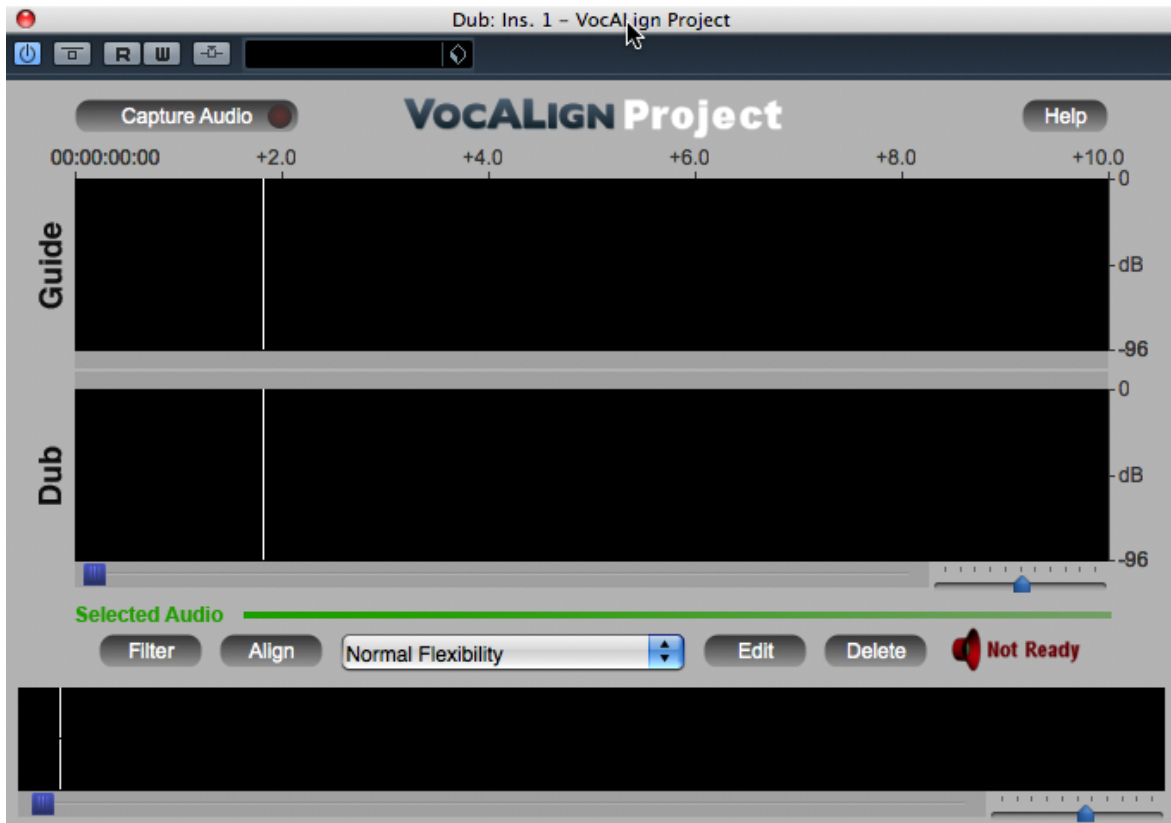


Figure 13 VocALIGN plug-in editor window before audio capture

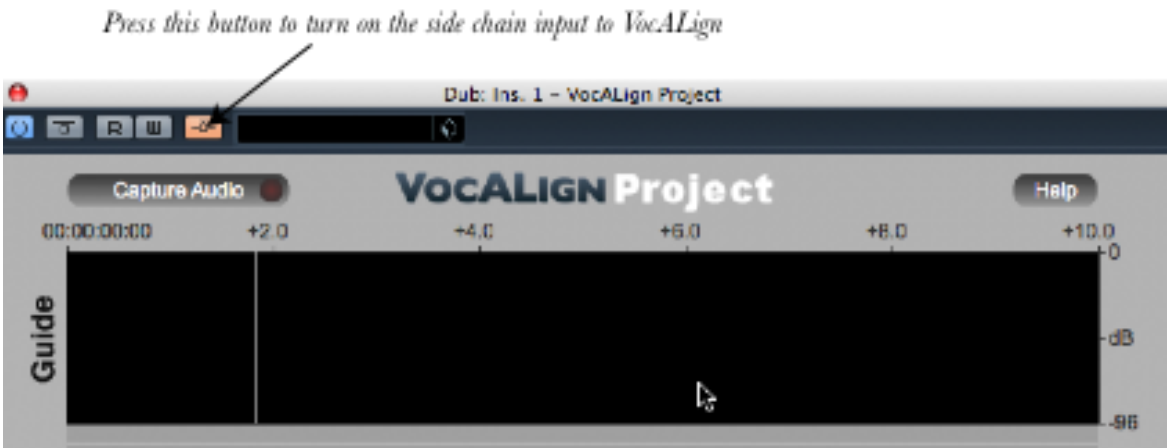


Figure 14 Turning on the side chain input

limited number of days by pressing **Try**, or to purchase a license by pressing **Buy** (see the earlier section on software installation).

Step 4 Select the Guide audio as the side chain input

A side chain to the VocALIGN insert is used to connect the audio track that will be used to guide the alignment process. Turn on the side chain input in VocALIGN by pressing the fifth button from the top left of the plug-in's window, as shown in Figure 14. The button will now glow orange.

Now select the Guide track in Cubase and route one of its Sends to the side chain of the Dub track Insert that controls VocALign, as shown in Figure 15. Turn the Send on and set its gain to 0 dB as shown in Figure 16.

Step 5 Set the start point in Cubase

In Cubase, select the start point of the audio you want to process, using Cubase's time line. (The Guide and Dub audio should be approximately in the same place.) In this case it means dragging the time line back to zero (before the start of the audio extracts).

Step 6 Capture the audio

In the VocALign window press **Capture Audio** as shown in Figure 17. The light in that button will glow yellow and show **Stop Capture** to show that it is waiting for audio. (You can press it again to cancel the capture if necessary.)

Press **Play** (space bar) in Cubase. The light in the button will flash green while the audio is being captured. The selected section of the Dub track will be loaded into VocALign and a pair of waveforms will be displayed in the VocALign window showing the selected Guide and Dub audio (see Figure 18). Press **Stop** in Cubase (space bar) when you reach the end of the audio material to be captured.

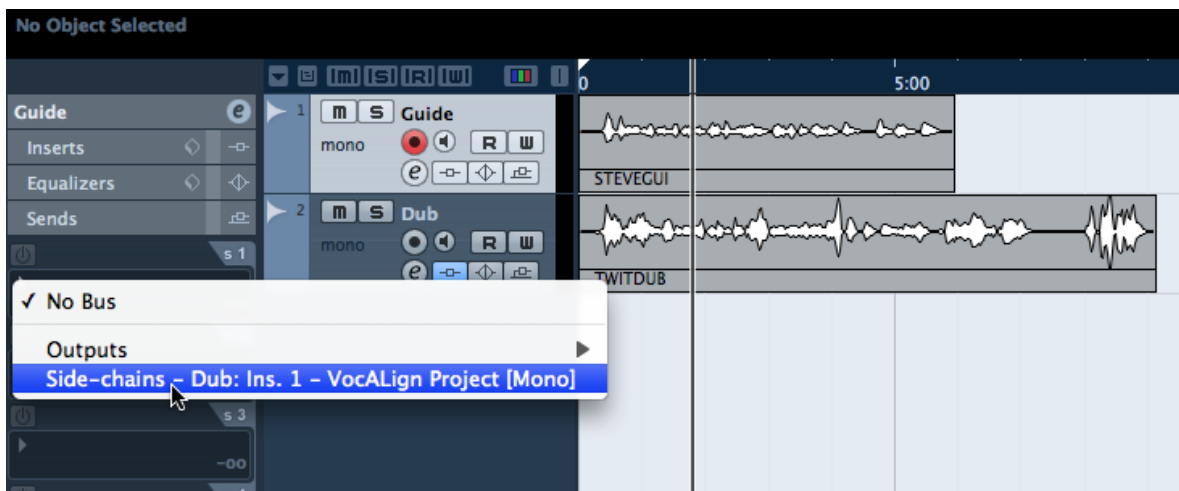


Figure 15 Route a Guide track Send to VocALign's side chain



Figure 16 Setting the Send controls in Cubase

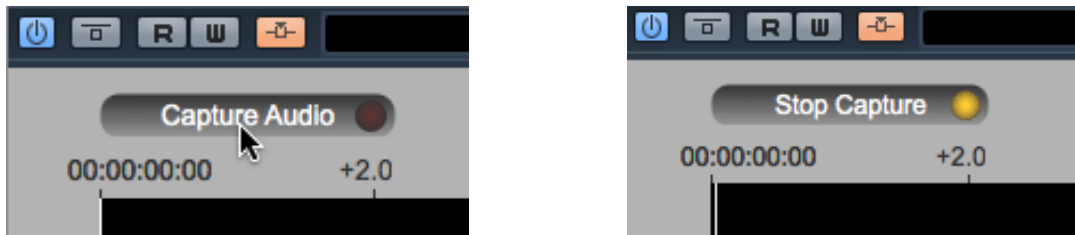


Figure 17 Selecting Capture Audio (left) after which the light in the button glows yellow and shows 'Stop Capture' (right)



Figure 18 VocAlign plug-in editor window after audio capture

Step 7 Prepare the settings for alignment

In VocAlign, if required, adjust the start or end of the Guide or Dub audio so that the sections to be aligned are roughly similar in terms of content. This is done by clicking and dragging the waveform from its ends (when first captured), or where it changes colour to grey (after adjustment). The selection can also be made by sliding the blue or orange pointers above or below the waveform, as shown in Figure 18. There is a pointer at the beginning and at the end of each waveform to begin with. You may have to scroll to the right in the VocAlign window in order to see the pointers at the end of the waveforms. Cubase's transport commands are used to play the audio.

Try to ensure the start of the audio selection is in 'silence' (or low level noise) for 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.

Step 8 Analyse the audio

In VocAlign click **Filter**. The display changes to show an energy plot of the Guide and Dub tracks (Figure 19), which is what VocAlign uses to create a time-warp path to match the two extracts. (It

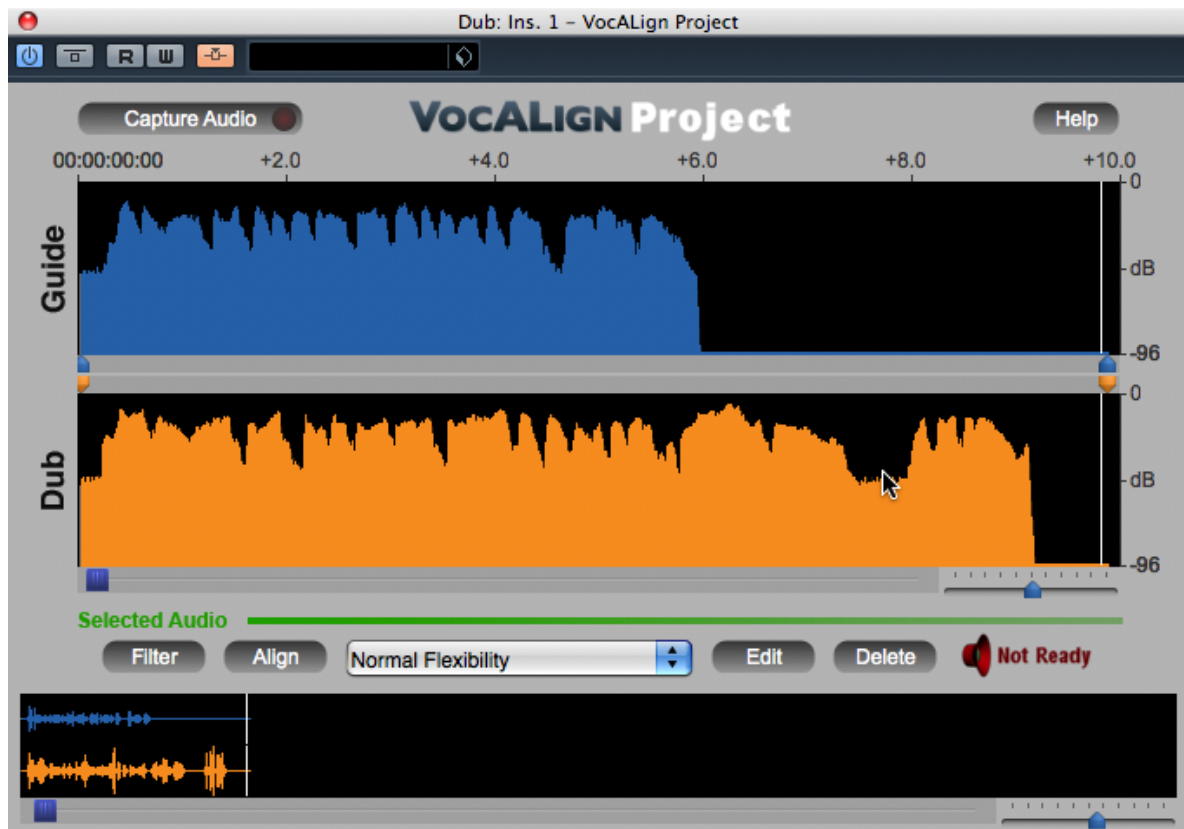


Figure 19 VocAlign energy display after pressing 'Filter'

isn't strictly necessary to do this as a separate step, because **Align** or **Edit** will automatically do it anyway, but it helps to see what is happening.)

Step 9 Align the Dub audio

Clicking **Align** creates a processed version of the track on which the VocAlign plug-in is inserted. You will now see a yellow trace superimposed on the Guide audio track's waveform (see Figure 20), which is VocAlign's proposed mapping of the Dub track's energy pattern to match that of the Guide. Initially this is done in a temporary fashion, but soon you can also create a more permanent audio file of the processed version. (If you press **Help** then **About** in VocAlign, you can see where the plug-in stores these temporary audio files, and you can change that location.)

Step 10 Create the time-aligned version of the Dub audio

Click **Edit** to create a rendered version of the aligned audio that is written temporarily to disk. The loudspeaker symbol next to the **Delete** button changes to green and shows **Ready** to show that audio is ready to be auditioned, as shown in Figure 21.

(While the loudspeaker symbol next to the **Delete** button is red – Not Ready – you won't be able to hear any audio from the track being processed. When it's green you will be able to hear audio.)

Step 11 Play the aligned audio

Once the edit is completed and the speaker symbol is green, if you press **Play** (space bar) in Cubase (having moved the time line back to the start) you will hear both the Guide and aligned Dub audio together in sync. If you left the start and end pointers unaltered before editing, the laugh at the end

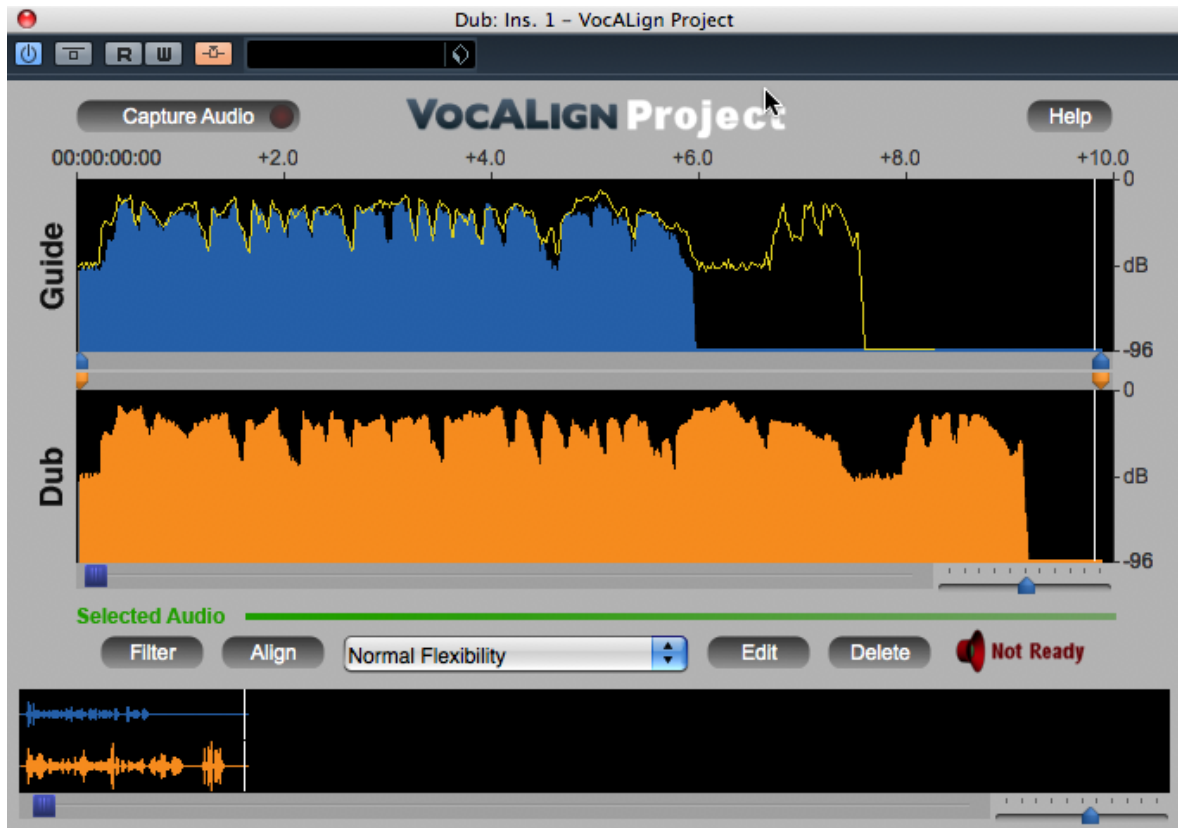


Figure 20 Yellow trace over Guide showing proposed alignment

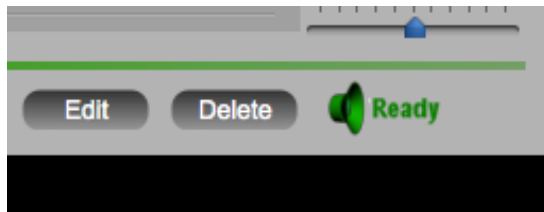


Figure 21 The Green loudspeaker shows that audio is ready to be replayed

of the Dub audio will still be audible and a little time-compressed. (VocAlign's mapping of the two energy patterns, as shown by the yellow trace, results in an overall shortening of the Dub audio.)

The bypass button in the top left hand corner of VocAlign's display (see Figure 22) allows you to temporarily turn off the processing of this plug in so that you can hear the original unprocessed audio. The button is yellow when the plug-in is bypassed. Be sure to turn bypass off (i.e. *not* bypassed) if you want to use the Aligned audio.

If you move the Guide's end marker (right hand blue pointer) to just after the end of the Guide signal, then press **Edit** again so as to regenerate the Aligned Dub, the laugh at the end of the dub will be left unprocessed and will remain at the original speed. You can move the right hand orange pointer as well if you wish (the Dub's end marker), so that the Dub energy end point is before the laugh starts, then press **Edit** again. This will eliminate the laugh from the processed version.

Step 12 Create an audio file of the aligned Dub

Bypass button is yellow when VocALign is bypassed



Figure 22 Bypass button in VocALign editor window

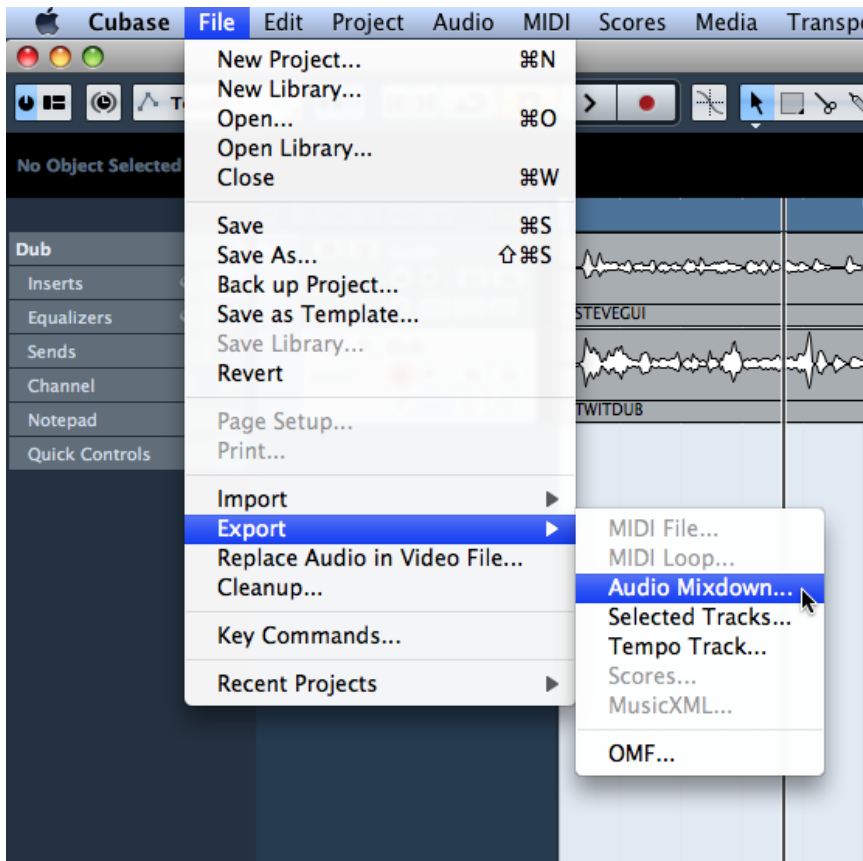


Figure 23 Audio Mixdown selected from the Export options under the File menu

In order to create an audio file of the processed version (of the Aligned Dub), select the **Audio Mixdown** function, which is under **Export...** on Cubase's **File** menu, as shown in Figure 23.

Set Cubase's location indicators so that they highlight the time region of audio that is to be mixed down. As shown in Figure 24, this is done by dragging the small triangular markers at the top of the time bar above the audio tracks, so that one is at the start and one at the end of the region. If none exist, you can make them by moving the cursor into that area of the time bar until the cursor turns into a pencil, then clicking to create a location indicator that can then be dragged.

The mixdown options are shown in Figure 25. Under **Channel Selection** on the left, choose the Dub audio channel only. The new region can be named in the box at the top of the 'Export Audio Mixdown' window (shown here as 'TWITDUB_aligned') and a path (folder location) for the new

file chosen. You can set various file saving options according to the needs of your project. A mono downmix would be the normal option for VocALign processing. If you tick **Audio Track** in the 'Import into Project' at the bottom, the processed region will be bounced onto a new track in sync with the start of the original one, as well as being made available in Cubase's Pool.

Make sure the original tracks in Cubase are not muted, faded down or solo'ed, then press **Export**.

The aligned file will then be created and written to an audio track. In Figure 26 you can see the new 'TWITDUB_aligned' track with the fitted version of the Dub audio. If you play it along with the

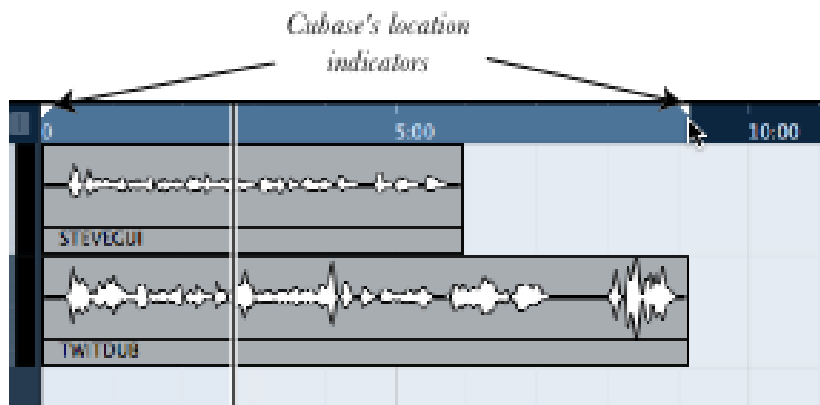


Figure 24 Setting Cubase's location indicators to highlight the region for mixdown

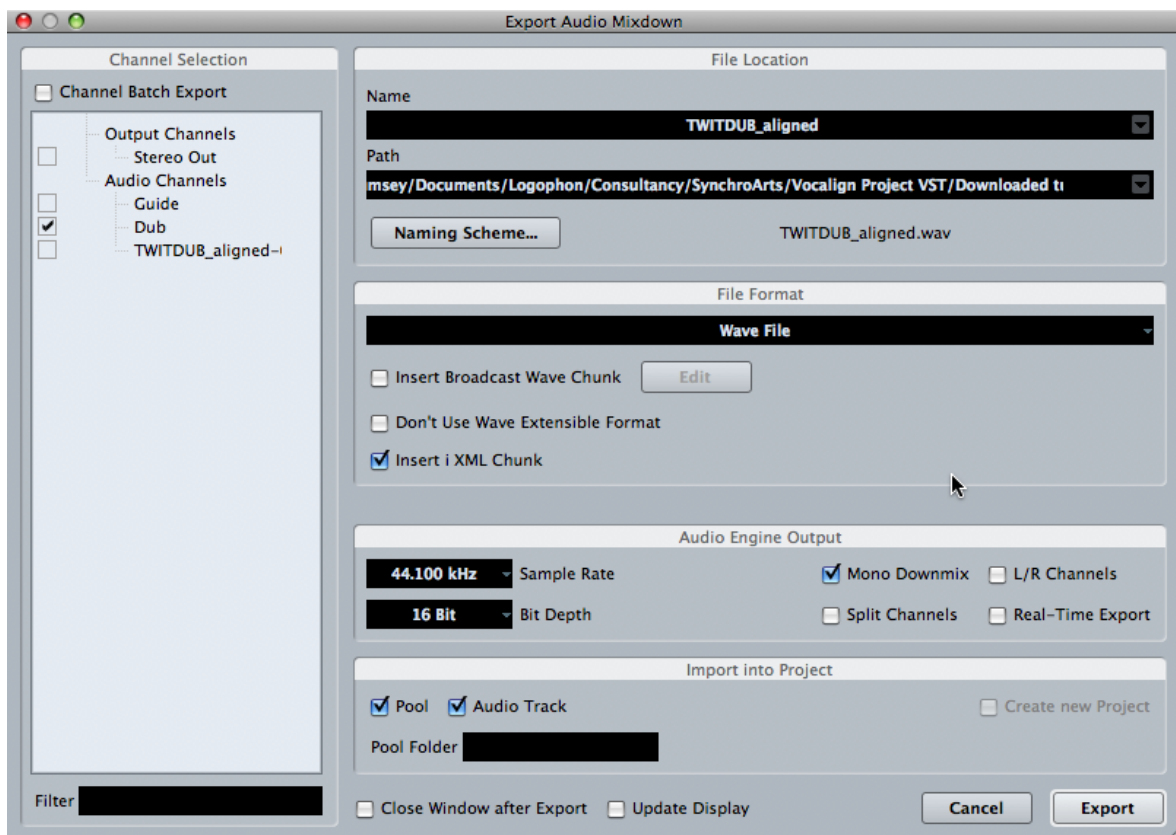


Figure 25 Cubase's audio mixdown options

Guide track these should be in sync (mute the unprocessed Dub track first).

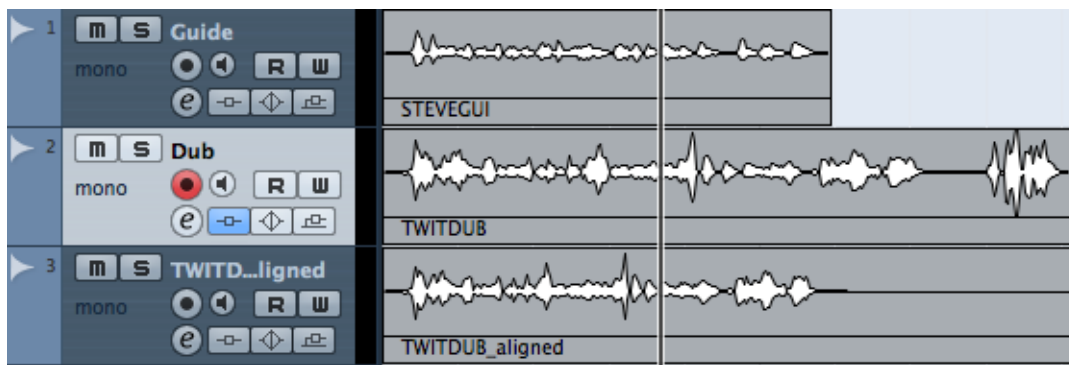


Figure 26 The newly aligned Dub track has been mixed down to track 3 in Cubase

TIP: Do not save the modified Cubase tutorial session over the original downloaded session when exiting Cubase, so that it can be used again. Save the modified one with a different name.

F VocALign Project 3 screen contents and controls

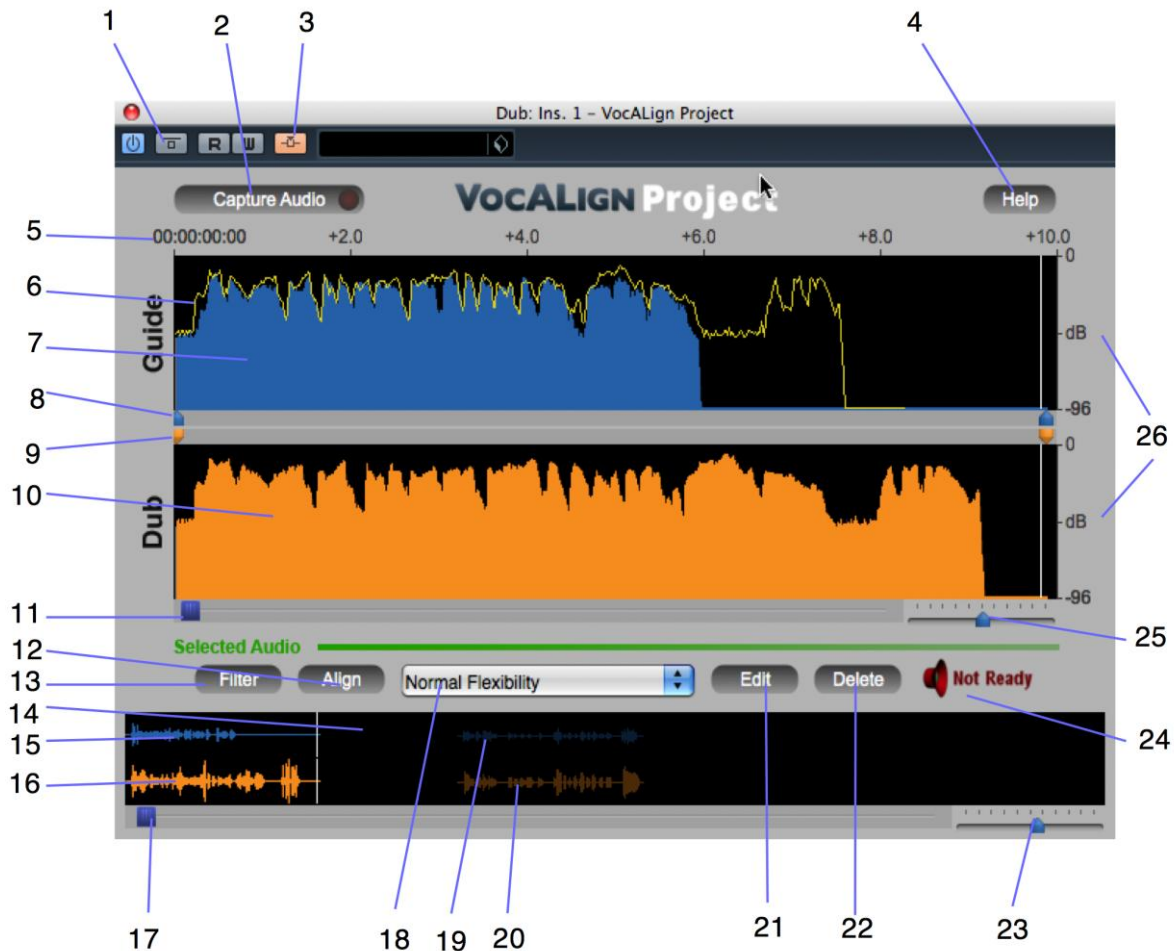


Figure 27 Key to VocALIGN screen contents and controls

- 1) **Bypass button:** bypasses any Vocalign processing applied on this Insert. If OFF (grey), VocALIGN plays and transfers aligned Dub audio (as long as (24) is green). If ON (yellow), VocALIGN plays and transfers original (unprocessed) Dub audio.
- 2) **Capture Audio button:** arms VocALIGN to receive Guide and Dub audio from the editor during a play pass. (Yellow when waiting for audio, flashing green when capturing audio.)
- 3) **Side chain button:** turns on the side chain input to VocALIGN (normally routed from a Send of the Guide track). (Orange when ON.)
- 4) **Help button:** click to access help tips.
- 5) **Display start time and time offsets** – shows position of captured audio referenced to the editor time line.
- 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. (The corresponding end point selector is shown further to the right).
- 9) **Dub start point selector:** adjusts processing start. (The corresponding end point selector is

shown further to the right).

- 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.
- 12) **Align button**: click this to generate and display the aligned Dub audio energy trace in Guide window (does not create aligned audio).
- 13) **Filter button**: click to analyse and display the energy plot of the Guide and Dub. VocALign displays the energy in only one band (500Hz – 1kHz) but actually splits it into four bands.
- 14) **Overview window**: shows multiple captured regions and clicking waveform selects the Dub and Guide waveforms to be processed.
- 15) **Selected Guide waveform**: Guide audio that will be processed.
- 16) **Selected Dub waveform**: Dub audio that will be processed.
- 17) **Overview waveform display scrolling**: slide to move display
- 18) **VocALign settings**: controls the characteristics of the alignment processing (see section G).
- 19) **Unselected Guide waveform**: Guide audio that will not be processed (shown as darker waveform). (These will only be visible if multiple regions occurring at different time values have been separately captured into the plug-in.)
- 20) **Unselected Dub waveform**: Dub audio that will not be processed (shown as darker waveform). (These will only be visible if multiple regions occurring at different time values have been separately captured into the plug-in.)
- 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 ('Ready'), edited (aligned) audio is processed and ready for playback. If red ('Not Ready'), aligned audio is not yet ready to be replayed.
- 25) **Selected waveform display scaling**: slide to zoom in and out
- 26) **Energy scale**: shows range of display.

G Important tips for effective operation

Assuming you have mastered either the Quick Start introduction or the Tutorial in the previous sections, the following will help you to get the best results from VocALign. The text refers to use with Cubase, but the same principles apply when used with Nuendo.

Cubase/Nuendo Preferences

- In the VST>Plug-ins page of Cubase's Preferences, disable (untick) the setting 'Suspend VST3 plug-in processing when no audio signals are received'. If this setting is enabled then Cubase will not replay the complete Aligned Dub when the Aligned Dub is longer than the original.
- On the same Preferences page, you may wish to set Cubase's preferences so that the plug-in editor window is always on top.

Capture

- In Cubase, you will start with a session in which there is Guide (original) audio contained on one track and Dub (replacement or new) audio on a second track.
- In the Cubase Project window, drag the time line (current play time) so that it starts just before the desired portion of the Guide and Dub audio regions for processing. The captured material can include any individual region or multiple regions. Your selection can begin and end in the middle of a region. VocALign Project works best when working on relatively short regions at a time, though.
- 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 VocALign to set the noise floor levels and allow better alignment at the start of the signal. (In the current version of VocALign Project 3 VST, the selected audio can be up to two minutes long and must be longer than 0.25 seconds.)
- The Dub does not have to start at the same time as 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.
- Try to leave as much or very slightly more background audio before the Dub signal starts than for the Guide.
- If you capture an audio region that begins in digital silence, VocALign may generate an error as it needs to be able to detect a signal to enable it to set its analysis parameters. Try to start capturing where there is at least some low level background noise within the audio region.

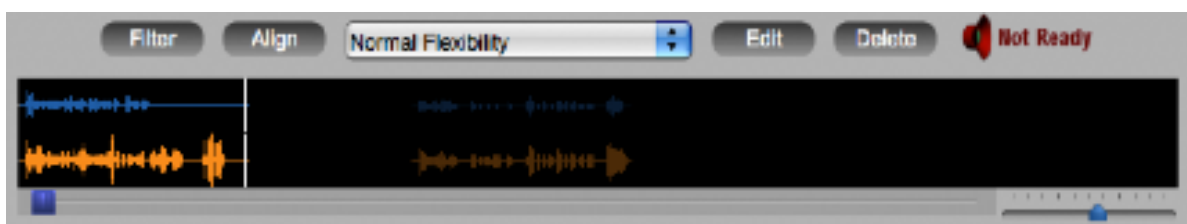


Figure 28 Overview display showing dimmed waveform for unselected audio (right)

- If you capture more than one audio region (in separate capture passes) while the VocALign plug-in is open these will show up as separate waveforms in the overview window at the bottom of the display. You can click on the waveform section that you want to align and this will appear in the upper display ready for processing. The unselected regions' waveforms are dimmed as shown in Figure 28.

Trimming the captured material

- Captured audio material may need to be trimmed before alignment in order to ensure that the extracts are optimised for processing. VocALign will work best if Guide and Dub material start at a similar point in their energy profiles, and both have a small period of background noise before they begin.
- It is preferable to trim starts and ends of extracts using the energy display. You can help VocALign do a good job by trimming the audio so as to match initial energy profiles and ensure that there is a good chance of starting the alignment accurately. To convert a captured audio waveform into the energy display press **Filter**.
- **IMPORTANT:** There is currently no way to return to the waveform display once an energy analysis has been done. The current contents must be deleted and recaptured if you need to start again.)
- You can optionally perform several operations on the energy display waveform itself before alignment:
 - a) The start and end boundaries of the selected regions can be modified by dragging the blue or orange pointers at either end of the audio selections as shown in Fig. 29, left. The waveform turns grey to indicate unselected audio energy. Alternatively you can position your cursor at the boundary of the coloured audio material (the cursor changes into a pair of horizontal arrows) and drag the boundary left or right.
 - b) The display can be scrolled horizontally with the scroll bars to examine the captured waveforms. You may need to scroll right to see the end point adjuster.
 - c) The scale control (Fig. 29, right) can be used to expand or contract the horizontal time scale (slider).

Alignment

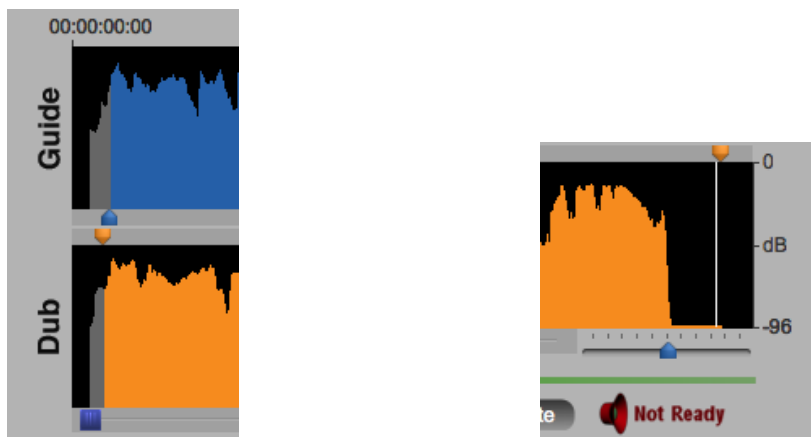


Figure 29 (left) Pointers to adjust start of Guide and Dub energy; (right) scale control

- Choose an appropriate VocAlign setting before pressing **Align** (e.g. if the Dub is very long compared to the Guide, try 'Maximum Compression'). Guidance is offered in the following section 'Alignment settings'.
- 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 Figure 30.
- If the alignment looks satisfactory, generate the aligned audio by pressing **Edit**. This creates the aligned audio.
- A shortcut is to simply press **Edit** after capturing the audio as this will run the Analyse and Align steps first.
- Preview the results by using the Cubase play controls.
- If the alignment is satisfactory, transfer the edited audio to Cubase by using the Audio Mix-down function, as described in the tutorial.
- If you make any changes to the selected waveform or energy profile region after initial alignment (such as modifying the start or end points), the yellow aligned energy profile display disappears and **Align** or **Edit** will need to be pressed again to perform a new alignment.
- 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 slightly longer.
 - c. Adjust the end of the Guide or Dub (see previous section).
 - d. Reselect and recapture the Guide or Dub audio in Cubase, if the original selection is thought to be causing the problem.

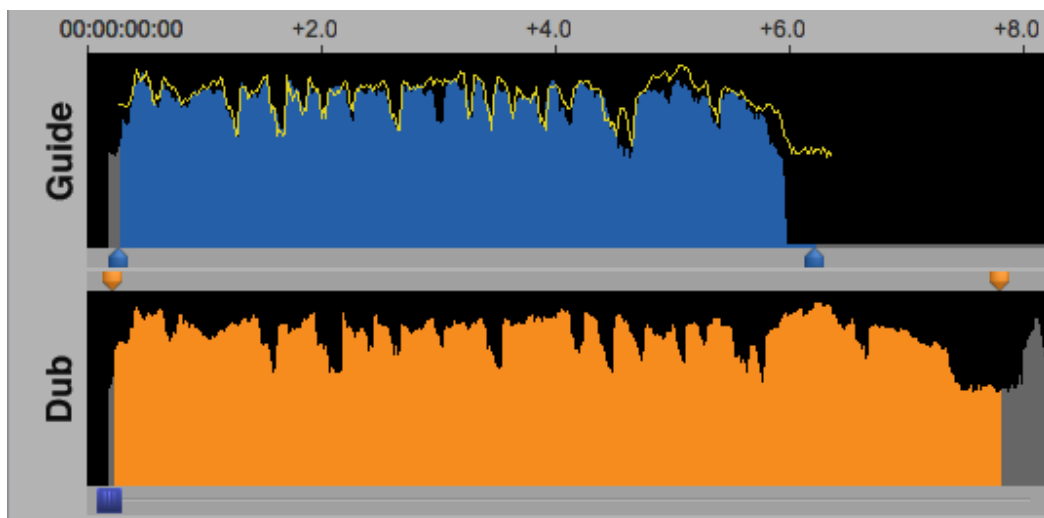


Figure 30 Checking the aligned energy (yellow trace)

Alignment settings

You can control the alignment settings, which greatly affect how the alignment performs. Use the alignment settings menu to select which preset is active, as shown in Figure 31.

The main setting characteristics are described in Table 1.

<i>Setting</i>	<i>Main characteristics</i>
Low Flexibility	Alignment is not very flexible, sound quality may be best.
Normal Flexibility	(Default): it is recommended to try this first as it works best in most cases.
High Flexibility	Alignment is the most flexible of the settings, but may compromise sound quality.
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.

Table 1 Alignment settings

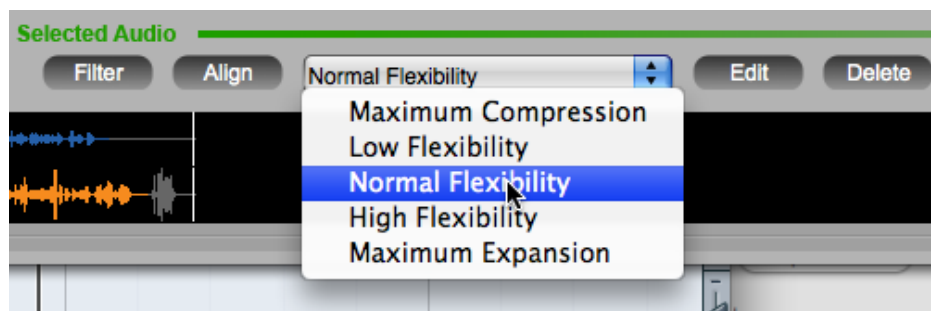


Figure 31 Selecting alignment setting

Further tips and tricks

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.

Reverb tails

To stop the end of a Dub from being stretched to wrongly match 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.

Controlling the plug-in status

After having first added VocALign as an Insert on a Cubase track, the name of the plug-in will appear on the relevant Insert slot. To change or remove the plug-in, click and hold on the Insert slot and select the appropriate plug-in (or 'No Effect'). To reopen the VocALign window once the plug-in window has been closed, click on the round button in the Insert controls containing an italic 'e' to open the plug-in editor window.

Previewing material

Once the Dub track has been provisionally aligned (before mixing down the aligned audio to an audio file) you can listen to either the Guide track or the Dub track separately by using the track mute or solo controls in Cubase. Mute the Guide track to hear only the Dub track, for example. Use the Bypass control in VocALign to turn on or off the alignment effect. Remember to remove these modifications before mixing down a processed track.

Troubleshooting

For help and advice, visit the Synchro Arts support website at:

<http://www.synchroarts.com/>

