

S Y N C H R O A R T S

VocALign[®] Project

Compatible with Apple[®] Macintosh[®] and Microsoft[®] Windows[®] systems

Macintosh User's Manual

(Windows users - please use the Help system in the Windows application)

Manual Version 2.9.1



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A. Important Notes

Pro Tools

VocALign Project 2.9 and later does not support Digidesign Pro Tools.

If you require support for Pro Tools 5.0 or later you need to use VocALign Project for Pro Tools.

For Pro Tool 5.0 and earlier, use the legacy version of VocALign Project 2.71 which can either be found on your installer CD or at <http://www.synchroarts.com>

This program is currently compatible with the following systems:

Apple Mac Systems:

For Stand-alone Operation:

PowerPC 601 or better
Mac OS 9.0 or higher and OS X
10.3 or higher
2 Megabytes of Free RAM

Supported File Formats:

SDII and Wave at 44.1 KHz to
192KHz.

Additional requirements for

MOTU® Operation:

Digital Performer® 3.0 or higher
and Digital Performer® 4.0 or
higher software (But not 5.12, 5.13
and higher is supported.)

Microsoft Windows Systems:

For Stand-alone Operation:

Windows
95/98/NT/2000/ME/XP/Vista

Supported File Formats:

Wave and Broadcast wave files at
44.1 KHz to 192 KHz.

For Operation via the Windows Clipboard:

Syntrillium™ Cool Edit Pro™
Sonic Foundry® Sound Forge®

For the latest compatibility list, please check: www.SynchroArts.com

Acknowledgements

VocALign is developed and sold under license from Wordfit Limited. VocALign was written and developed by Jeff Bloom, John Ellwood, Tim Rogers and Mak Jukic at Synchro Arts Limited.



B. Introduction to VocALign

What is VocALign?

VocALign is a process that lets audio editors **make the timing of one audio signal match another automatically.**

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. This alignment is fast and of the highest quality.

What can VocALign do for me?

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 is for you!

Consider the following examples:

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 into time with the guide. The above process can take many hours for both the artist and the editor. Above all, the process sometimes creates a result that is inferior in quality.

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.

C. 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 all of 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
- 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 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



D. Authorization

Once installed, VocALign will initially run in a time-limited **trial** mode. Once your trial period is over, you will need to purchase the VocALign software in order to **unlock** it for its continued use on your computer. If you have already purchased the software, you can unlock it at any time, ready for fully functioning use.

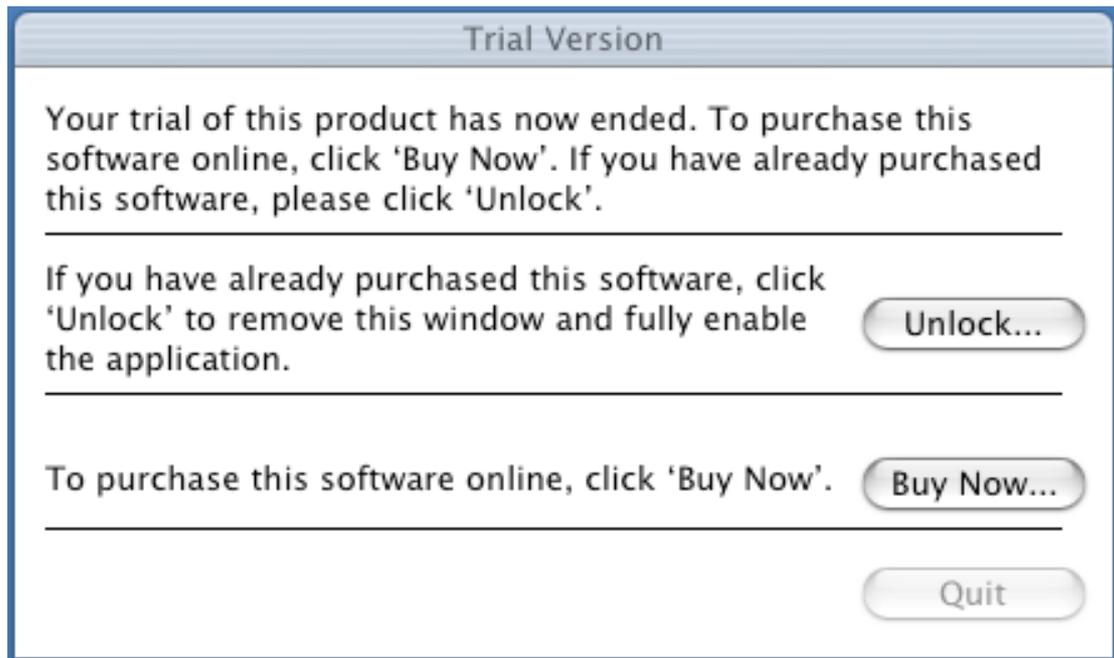
Unlocking the Software

When you purchase software from Synchro Arts you will be supplied with a unique code called a **Product Key**. This Product Key is used to start the unlocking process on your computer.

You cannot use the same Product Key to unlock the software on more than one computer.

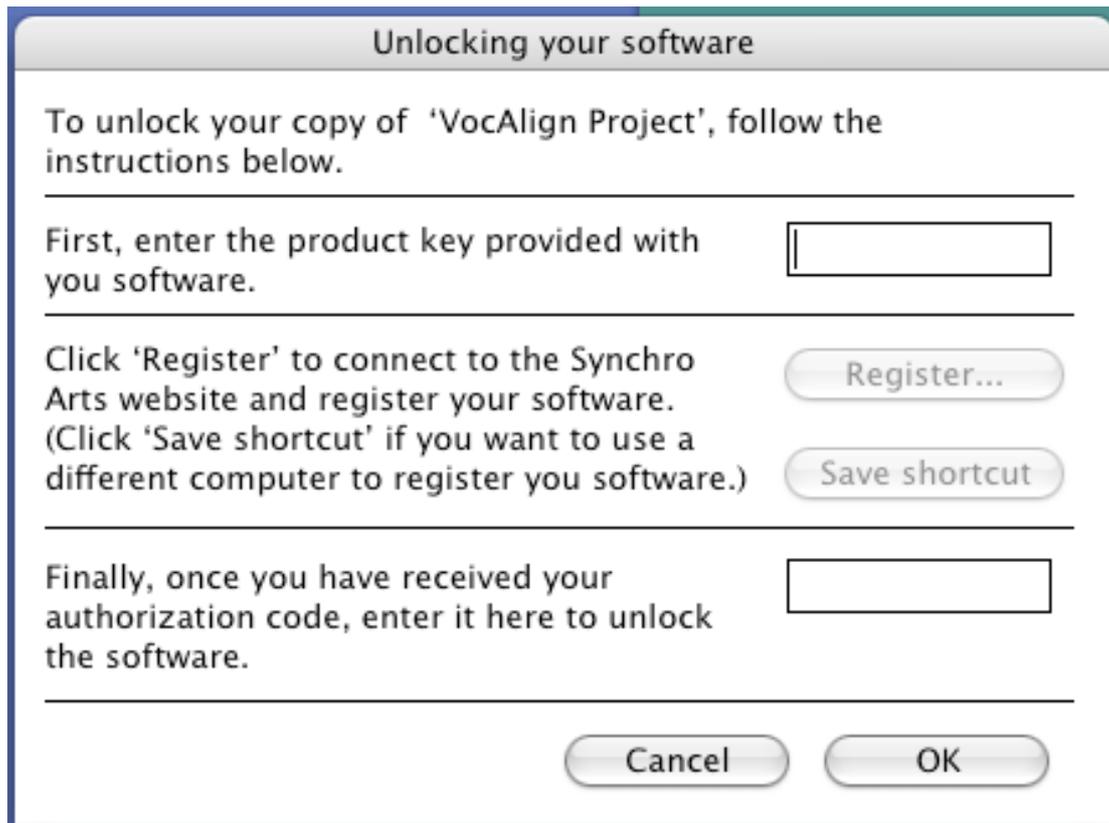
To unlock the software you will need an Internet connection, either on the computer on which you wish to run VocALign, or via a remote computer.

When the trial periods end the program will display the following dialog



If you have already purchased VocALign select **Unlock...** if you wish to purchase VocALign select **Buy Now...**

If you select **Unlock...** the following dialog will be displayed



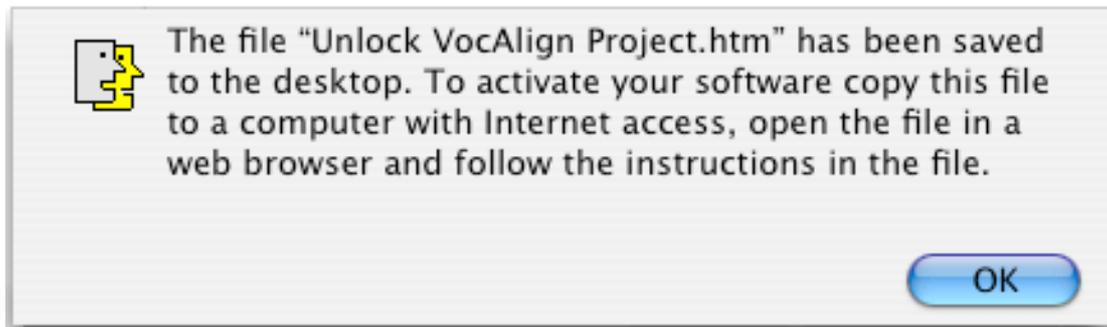
Enter your Product Key. Your Product key is an eleven digit string which will start with "VP27".

If your computer is attached to the Internet select **Register**. You will then be taken to a web page which will ask for your registration details. When you fill in this form, an email will be sent to the email address you supply. It may take up to 1 hour for this email to arrive. If you do not receive the email within 1 hour, contact Synchro Arts.

When you receive the email it will contain an **authorization code**. If you have closed VocAlign you need to restart VocAlign and then select **Unlock** to display this dialog again. You can then enter the authorization code into the lower edit field then select **OK**. If the authorization code is correct, VocAlign will then start. Once an authorization code has successfully authorized VocAlign, that authorization code cannot be used again. (Make sure that you do not confuse letters with numbers in the authorization code.)

The Product key can be used to generate new authorization codes if the software has been de-activated.

If your computer is not attached to the Internet you need to select **Save Shortcut**, and the following message will be displayed.



Locate the file **Unlock VocAlign Project.htm** on your desktop and move the file to a computer with an Internet connection (The computer can be using any operating system which supports web browsing). Open the file in a web browser and select the **Unlock VocAlign Project** link. A web page will then be displayed which will ask for you registration details – then follow the instructions above.

If you do not have any Internet connections open the **Unlock VocAlign Project.htm** file in a web browser (you do not need an Internet connection to open the file) and follow the instructions in the file.

Deactivation of your License

You can move your Product Key between computers by **deactivating** the license.

It is important that you deactivate your license before:

- Removing the software from your computer.
- Upgrading or re-installing your computer's operating system.

To deactivate the license you will need an Internet connection, either on the computer on which you wish to run VocAlign, or via a remote computer.

If access to an Internet connection is not possible, please contact Synchro Arts Limited during UK business hours: 1000-1800 GMT.

To start deactivation, select the "About VocAlign..." menu then click "Deactivate..." and follow the on-screen instructions.

This will then allow you to use your Product Key to unlock the software on another computer.

It is important to keep your Product Key safe as it may be needed if you upgrade your computer or wish to move the software to another computer.

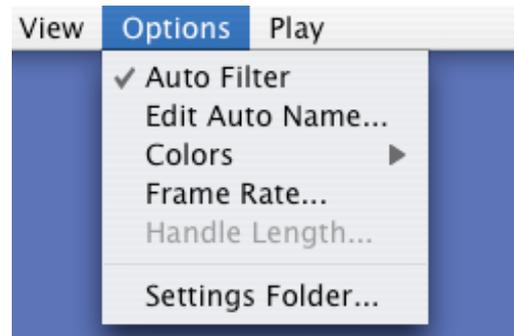
Do not allow any one else to use your Product Key, as this will prevent you from using your software.

E. Setting-up VocALign Project

It is highly advisable that you use the following instructions to set-up VocALign on your system before using it to process audio:

Auto Filter:

Click on the **Options** selection in the Main VocALign Menu.



Auto Filter should be switched **ON** by default already, showing a check mark next to the option. This means that anytime you select or change a *Guide* or *Dub* region and switch to VocALign, VocALign will automatically *Filter* (i.e. spectrally analyse) the new signal.

If there is no checkmark, **Auto Filter** is **OFF**, and you will see a waveform when VocALign runs instead of the spectral energy.

TIP: It is recommended that you leave **Auto Filter ON**.

Auto Naming:

Ensure a) VocALign is running in the foreground and b) the main VocALign window is present (not the TimeMod window).

Click on the **Options** selection in the Main VocALign Menu and from the drop down list select the **Edit Auto Name...** Using this feature will automatically create a new name of each new VocALigned audio file. This saves considerable time and effort and avoids mistakes.

The user has control over:-

- **Where** (i.e. in which disk and folder) the VocALigned audio is placed (the **Destination**)
- What **Name** VocALign automatically generates each time it Edits a signal.

In the **Edit Auto Name** window:

Select the **Destination** for the VocALigned audio. This can be the any of the following:-

Selection	Destination
Current Folder	<i>Use the folder the user selects when VocAlign Edits.</i>
Dub Folder	<i>Use the folder where the Dub Audio is</i>
Guide Folder	<i>Use the folder where the Guide Audio is</i>

The next instructions will determine how VocAlign names the new audio after Editing. The auto generated name is made up from the following components:

Prefix + < File Name> + Suffix + Auto Incrementing Number (optional)

It is easy to configure a useful name and an example field shows the result that will be produced as the user modifies the components.

First, select the *File Name* source. This can be any of the following:-

Selection	Resulting File <Name>
Last Name	<i>Use the last one typed in between the prefix and the suffix by the user during the Edit stage</i>
Dub Name	<i>Use the name of the Dub File (not the region) containing the selected Dub region.</i>
Guide Name	<i>Use the name of the Guide File (not the region) containing the selected Guide region.</i>

An example File Name (if Last Name is selected) might be "Fred" or "Scene23".

TIP: Selecting **Dub Folder** and **Dub Name** means that the processed audio has the file name of the Dub and remains in the same audio folder as the Dub audio. **This is strongly recommended.**

Next, select the **Prefix Field** and type in the desired *Prefix*.

An example might be "VA " to show that the audio is *VocAligned*.

Next, select the **Suffix Field** and type in the desired *Suffix*.

An example might be "." to separate the (optional) number.

Confirm File Name Option

When VocALign automatically creates a file name during the *editing* stage of its operation, the user can optionally have VocALign show a dialog box with the new name before the file gets written. This feature can be used to ensure that the file names, destination folders, and destination disks for the new audio are correct and, if not, the user can modify them.

If this box is not checked (i.e. selected), then VocALign will write the new file without any user confirmation or intervention unless a duplicate filename is encountered. This is recommended and makes operation quicker, but the user is responsible for ensuring that the Auto Name options are set correctly:

Setting	Result
Confirm File Name - ON	Show naming dialog before editing (Default)
Confirm File Name - OFF	Do not show naming dialog before editing

TIPS:

Confirm File Name - OFF is recommended for efficiency.

However, if there are file errors or problems saving files in the right location, put this option ON and observe what destination Disk and Folder VocALign is attempting to use.

Finally, if auto numbering is required, check the **Append Number** box and enter the desired **Starting Number** in the box.

An example of completed Recommended Settings is shown below. (*Note that the Number field can be set to any number from which the user wishes to start the automated count*).

WARNING: The Destination Folder for the VocALign output audio must be on a drive accessible by your Digital Audio Editing System.

Changing the Colors of the Audio Waveforms

Note: It is not recommended that you alter the waveform colours until you are familiar with the operation of VocALign.

Note also that if you have run previous versions of the VocALign Application on your system, the previous color scheme will be displayed.

Ensure VocALign is running in the foreground. Select the **Colors** option in the **Options** menu.

Select which of the waveforms' color to change. (**Unselected** refers to the audio not included in the region currently selected but which is adjacent to it. This is normally Grey).

Selecting any of these will bring up a color selection control panel. The user can now choose a new color as required.

Settings Folder

The **Settings Folder** currently comprises six factory pre-sets used to control how *flexible* VocALign's Time Alignment is. Normally, this folder is automatically found when VocALign is loaded, however, if a previous version has been run, or if VocALign is moved, the following procedure should be carried out.

Ensure VocALign is running in the foreground. Click the VocALign **Settings Selector and Display** drop-down menu at the bottom of the VocALign window.

Check that the drop down menu has several settings titles (e.g. "Normal Flexibility", "Maximum Compression", etc.)

If this drop down menu only contains "<Default>", carry out the following procedure:

1. Select the menu item "**Settings Folder**" from the VocALign **Options** menu.
2. Locate and set the directory at the top of the screen to point to the folder labelled "**VocALign Settings**" in the VocALign Project Folder and then click the box with "**Select VocALign Settings**" or "**Choose**" at the bottom of this window.
3. Check again in the VocALign Application that the drop down **Settings Menu** has several settings titles. If not, redo the previous steps in this section.

F. Quick Start Guide

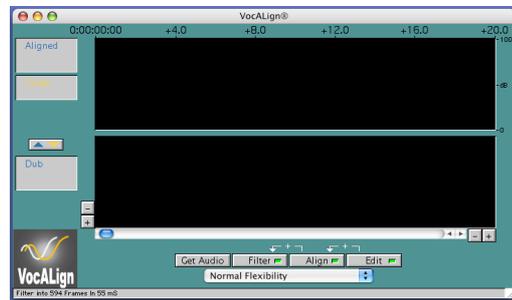
Operating VocALign is easy and has three basic steps:

- A. Identify the "Guide Audio"
- B. Identify the "Dub Audio"
- C. Create a new "Aligned Audio" sound file (which can be automatically positioned in certain audio editors)

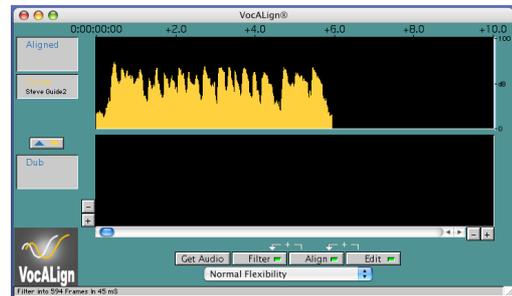
To demonstrate this, make sure that you can hear the sound output of your Macintosh (use the "Sound" Control Panel).

Also, you will need the audio files that come with the VocALign Tutorial. This can be found in the "Tutorial" folder on the install CD (if you have one), or can be downloaded from www.synchroarts.com/downloads

1. First, launch VocALign Project:

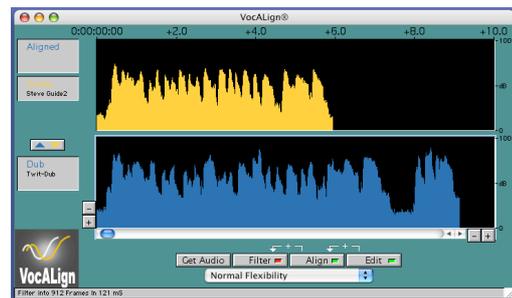


2. Now, using the finder, drag-and-drop the file "Steve Guide2" from the installed Tutorial Session "Audio Files" folder onto the *upper* black panel in VocALign Project:



3. Then, using the finder, drag-and-drop the file "Twit Dub" from the installed Tutorial Session "Audio Files" folder onto the *lower* black panel in VocALign Project:

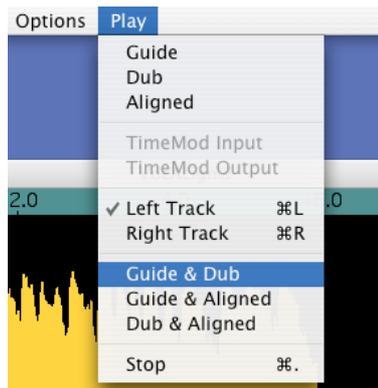
You may need to zoom out and move the dub audio in order to make it visible in the same screen as the Guide.



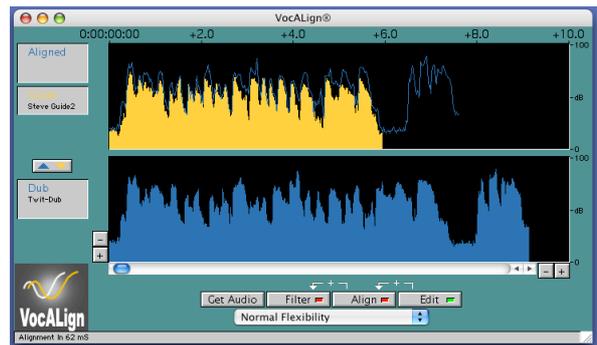
You have now selected the Guide and Dub audio files.

4. You can now *audition* the files that you have selected, using the **PLAY** menu:

You can also use the "F" key on most Macintosh keyboards.

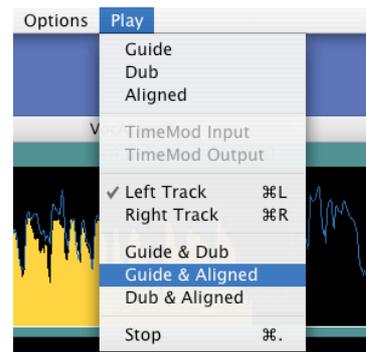


- Press the "Align" button. VocAlign will now create another track, the "Aligned" audio, which is the Dub audio, modified so that the peaks and troughs in the energy match that of the Guide. The "Aligned" audio appears as a yellow trace above the Guide waveform. Check that it follows the shape of the Guide's energy:

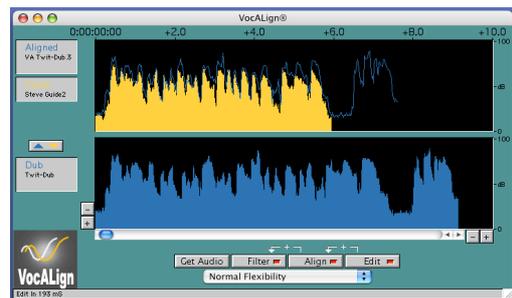


- You can now *audition* the Aligned and Guide files together, using the **PLAY** menu:

You can also use the "e" key on most Macintosh keyboards.



- Finally, to Edit the Aligned Audio into a sound file, press the EDIT button.



This creates a sound file on your hard disk (normally in the same folder as the Dub audio is located) In this case it is called "VA Twit Dub.1":



Congratulations - You have successfully "VocAligned" your first audio track!

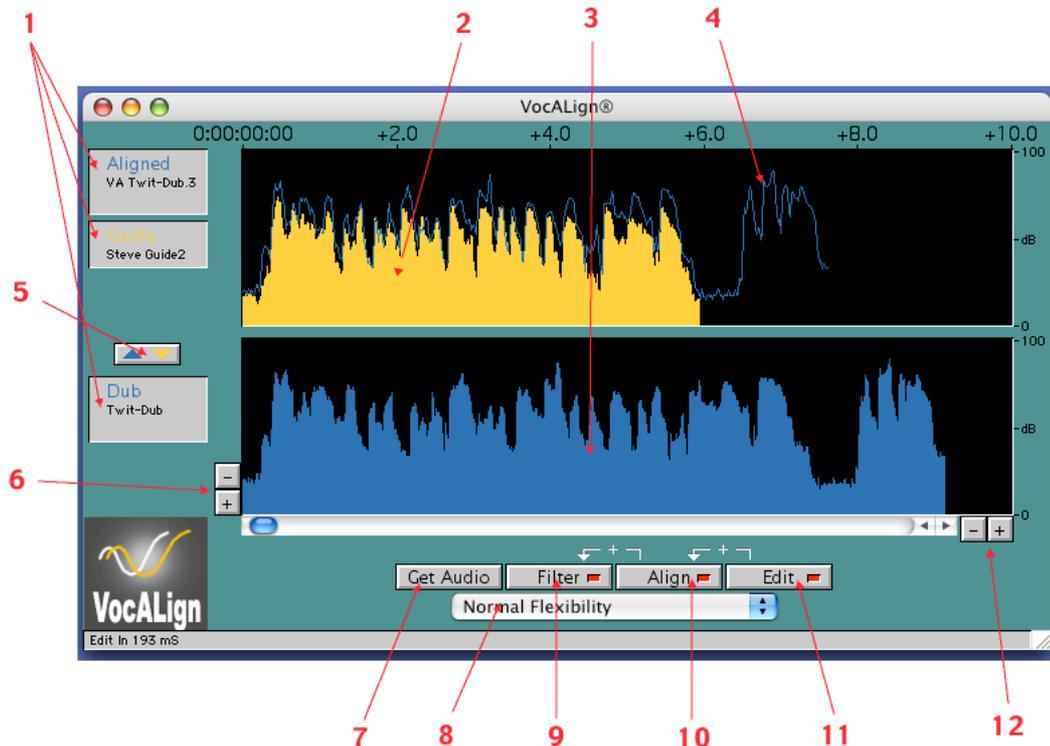
Consult the information in the “**Troubleshooting**” chapter if the audio does not appear to be properly aligned.

The next chapter details how to get the most out of VocALign Project:



G. Operational Guide to using VocALign

Screen and Controls:



Description of Controls:

1. **Name Display Panels:** Shows the name of the *Guide*, *Dub* and *Aligned* files. Clicking either "Guide" or "Dub" panels will open a dialog box to allow you to select a specific "region" within the SDII file instead of the entire file itself.
2. **Guide Energy:** A profile of the energy of the *Guide* signal in time
3. **Dub Energy:** A profile of the energy of the *Dub* signal in time
4. **Aligned Audio Trace:** A representation of the energy of the new *Aligned* signal in time
5. **Exchange Button:** Swaps the captured *Guide* with the captured *Dub* in VocALign.
6. **Graph vertical scale:** Use to increase or decrease the scale of the graph.
7. **Get Audio Button:** Click to load a sound file into VocALign.
8. **VocALign Settings:** Control the way that VocALign aligns the audio:
 - *Maximum Compression:* Tries to match the Guide by time compressing the aligned audio as much as possible
 - *Low Flexibility:* Alignment is not very flexible, sound quality may be best.
 - *Normal Flexibility:* Standard VocALign settings, works best in most cases
 - *High Flexibility:* Alignment is as flexible as possible
 - *Maximum Expansion:* Tries to match the Guide by time-expanding the aligned audio as much as possible
9. **Filter Button:** Used to analyse the energy of the selected audio (not needed if the **Auto Filter** Option is ON)

10. **Align Button:** Click this to generate the *Aligned* audio trace.
11. **Edit Button:** Creates the *Aligned* audio file.
12. **Graph Time Scale:** Use to increase or decrease the time scale of the graph.

Operation with Digital Performer

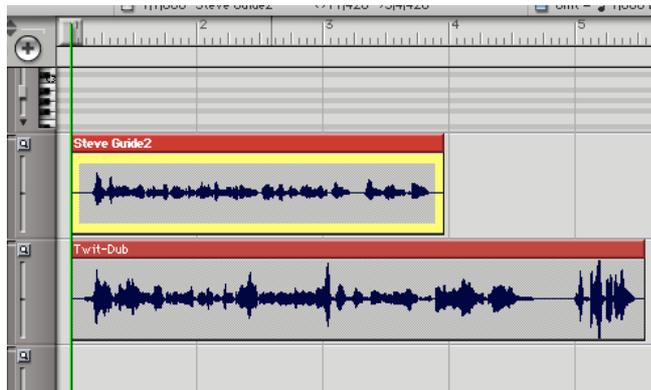
To use VocALign with MOTU's Digital Performer, the way that you capture the Guide and Dub is different to the method described in the **Quick Start Guide (Chapter F)**. You also have a way of returning the Aligned audio straight back into DP.

Tip: You need Digital Performer version 3.0 or later to use the VocALign integration.

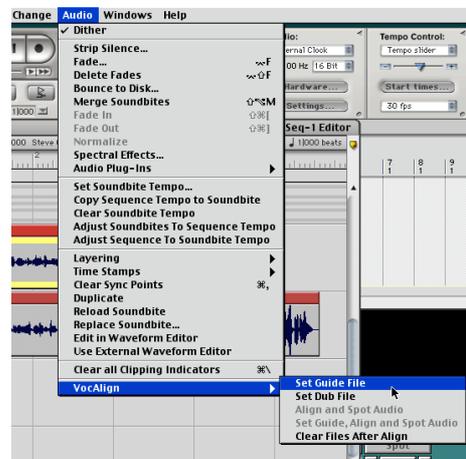
Digital Performer Tutorial

1. Make sure VocALign Project is running, then, in Digital Performer, open the file "VocALign Tutorial DP" (which is in the "Tutorial" folder on your install CD, or available for download from our website: www.synchroarts.com).

2. Now, select the sound bite "Steve Guide 2":

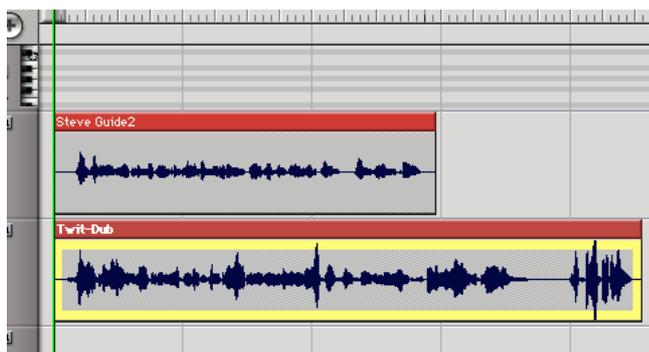


3. Next, set this as "Guide" using the Audio > VocALign menu:

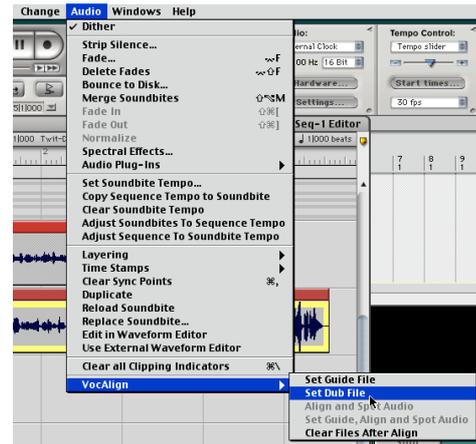


You have now identified the Guide file to VocALign.

4. Now, select the sound bite "Twit Dub":

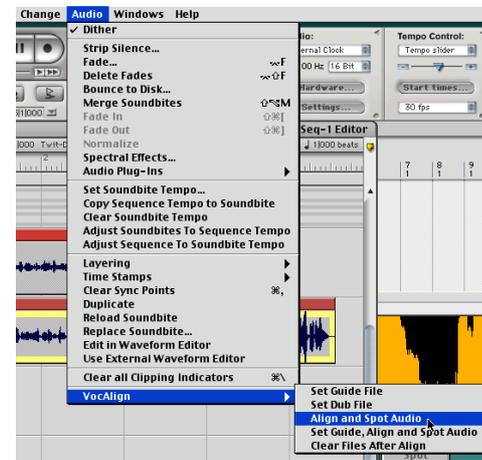


- Next, set this as "Dub" using the Audio > VocAlign menu:



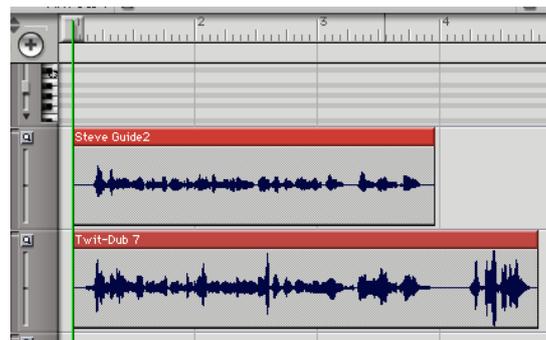
You have now identified the Dub file to VocAlign.

- Optionally, at this point, you can switch to VocAlign and adjust the selected files or VocAlign's flexibility settings.
- Finally, just select "Align and Spot Audio" from the Audio > VocAlign menu.



- This will replace the selected Dub with the Aligned Audio:

In the illustration, the aligned audio file is called "Twit-Dub 7"



You have just VocAligned the audio from Digital Performer!

Using VocALign with Sound Files

In addition to the "drag-and-drop" operation detailed in the **Quick Start Guide (Chapter F)**, there are some additional features about using VocALign to directly process Sound Files:

Selecting an Audio File:

In VocALign, there are four ways to select an audio file for the *Guide* or *Dub*:-

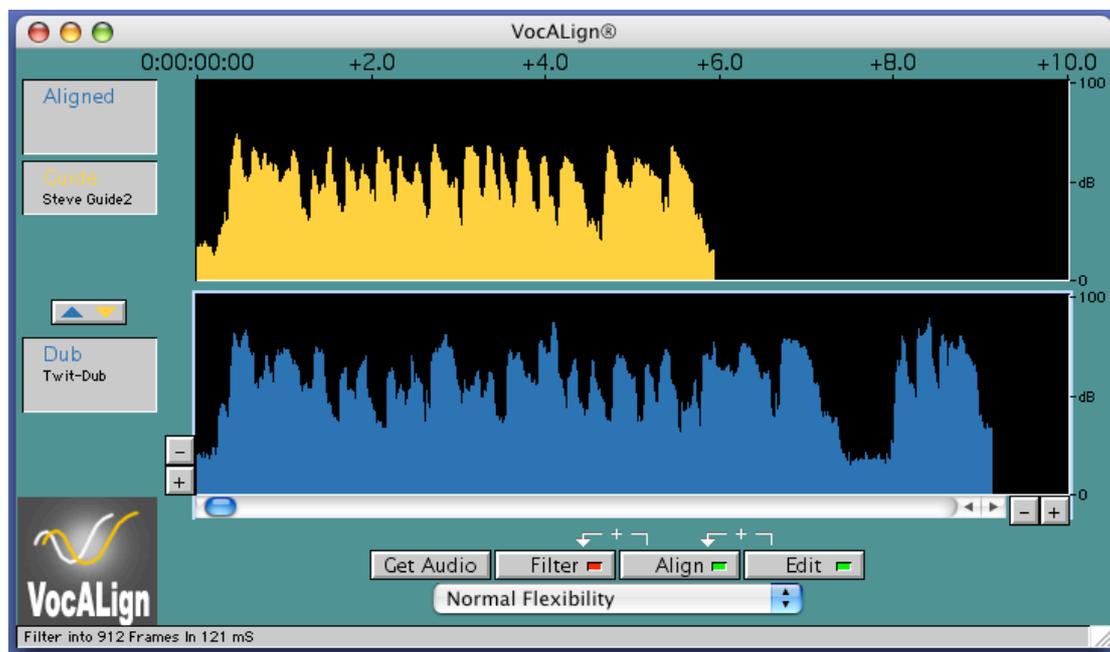
- Drag-and-Drop onto VocALign
- Press the **Get Audio** button
- Press the ⌘o shortcut keystroke
- Select the **Open** option in the **File Menu**.

With Drag-and-Drop, you specify the file as either Guide or Dub by dropping it into the appropriate panel in VocALign.

For the other methods, you will need to locate the files you wish to open in a file browser, making sure that you select either Guide or Left Dub in the drop-down menu when you open each one.

Note that interleaved Stereo files can be used and processed correctly, but VocALign cannot replay them. Split Stereo files need to be opened as Left Dub and Right Dub Appropriately.

Once opened, and if **Auto Filter** is on (Auto Filter is described in **Chapter E**), the files will be filtered and displayed on screen. **Auto Filter** is recommended, as you will otherwise have to manually click filter for each signal:



Selecting Regions within Sound Files:

The most common method of selecting audio within opened sound files is by opening **REGION** definitions within them. In this way, you can specify sections that you want to VocALign as REGIONS in your Digital Audio Workstation, then open the files in VocALign, recalling the regions to process and process them highly efficiently.

Important: When using Regions, make sure that you *EXPORT* the region definitions to the SDII or Wave file (normally region definitions are saved in the Digital Audio Workstation)

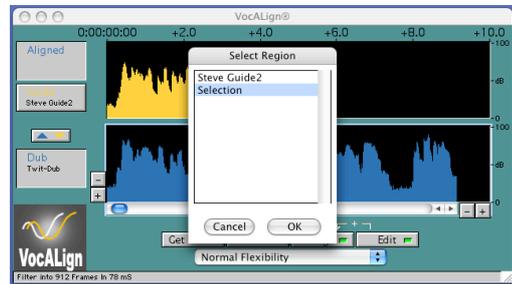
Regions Tutorial:

Using the example audio from the **Quick Start Guide**, we will remove the "laugh" from the end of the aligned audio:

1. To select a region in the Guide, click on the Guide Name Panel.

A dialog box will appear allowing you to select the desired Region within the SDII file.

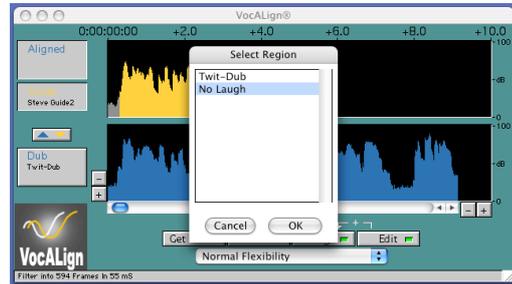
For this example select the region called "selection".



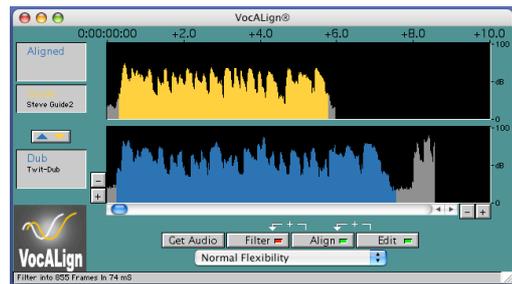
2. Next, click on the Dub Name Panel.

A dialog box will appear allowing you to select the desired Region within the SDII file

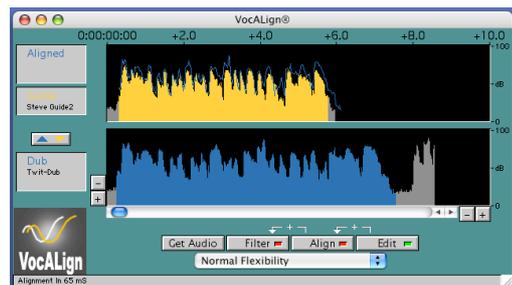
For this example, select the region called "No Laugh"



3. The Regions will now appear highlighted in the Guide and Dub panels:



4. The selected Regions can now be Aligned normally:



Operation with Pro Tools 3.2 - 5.0

This version of VocALign does not support Pro Tools. For Pro Tools 3.2 to 5.0 you must use the earlier version of VocALign Project 2.7.2 which can be found on your product CD or at <http://www.synchroarts.com>

General Operational Features

Hot-Key Control of VocALign and Process Descriptions

Once the user has captured the *Guide* and *Dub* audio and is satisfied with the start and end of each, any of the four on-screen Processing buttons can be pressed (or, alternatively, their "Hot-keys" equivalents):

Function [Hot-Key]	Process and description
Filter (no hot key)	Starts VocALign's analysis processing, in which both the Guide and Dub are filtered by a band pass filterbank. Using the VocALign View menu, any of the four filter bank bands' outputs (or the original audio) can be displayed. Note: Normally, Auto Filter is <i>ON</i> and the Filter step does not need to be activated manually.
Align Hot-key = ⌘a	Can be activated once the signals are filtered. This uses the Setting shown under the Align button. After Alignment, a trace of the same colour as the <i>Dub</i> will be shown in the same Display window as the <i>Guide</i> , superimposed on the <i>Guide</i> . The user can visually inspect quickly how well the peaks of the <i>Guide</i> and Aligned Dub line-up. The Scale + and - keys as well as the Scroll Controls will assist in this process.
Edit Hot-key = ⌘e	Can be activated once the Alignment has been carried out. This process automatically edits the <i>Dub</i> audio according to the time alignment path that was created in the Align step and writes a new audio file to the disk. Before writing the file, a window may appear requesting the user confirm the Auto Naming selection, or the user can manually enter a file name. The user must ensure that the directory path is correct. HOT TIP: Use Autonaming and Prefix the new name with "VA" to keep the "VocALigned" audio easily identifiable.

Note that pressing keys with arrows and "+" symbols above them will activate the processing operations to the left of the keys, as indicated by the flow of the arrows. A completed operation will have a Red light and an uncompleted operation will have a Green light as shown below where the filter operation is shown completed.



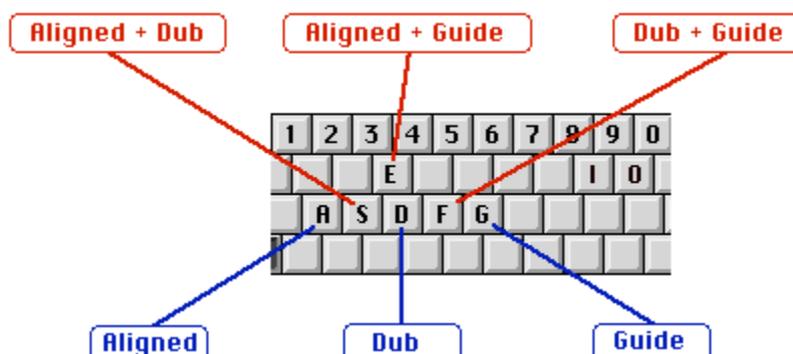
Thus, pressing **Align** instead of **Filter** will both run the Filter (if required) and the Align functions.

If the *Dub* is *stereo*, then the user must use the drop down menu to assign and get the **Left Dub Audio** and the **Right Dub Audio** files separately.

Accessing Audio Waveforms:

The user may view the audio waveform (instead of the waveform's energy) in the VocALign window by pressing **⌘d**.

Auditioning



In the VocALign Application, the selected Guide, Dub and Aligned signals can be played back separately or together with single keys.

Pressing the same key will restart playback or pressing one of the other keys will stop the current playback and start playback of the new selection:

One signal audition	Two signal audition
g for Guide Audio	f for Guide and Dub together
d for Dub Audio	s for Dub and Aligned together
a for Aligned Audio	e for Aligned and Guide together
[Space] - stops or repeats previous playback (toggle)	

Tip: Use of the **[e]** or **[a]** keys will **process and play** the audio - providing a very efficient single key operation.

Further Notes for VocALign Playback

To make it easy to remember, the keys that play two signals are "between" the two keys used to play the relevant individual signals.

Also, during Playback, a green arrow in the Signal Identification panels will show which signal and channels of signals are being played.

If the user presses any playback key that plays the Aligned signal (**a**, **s**, or **e**) before an Aligned signal has been generated, a temporary signal will be produced and indicated by the name *Audition*.

If the user is satisfied with the Audition signal, then if the **Edit** button is pressed, the *Audition* signal will be renamed with the appropriate name. It will not be regenerated.

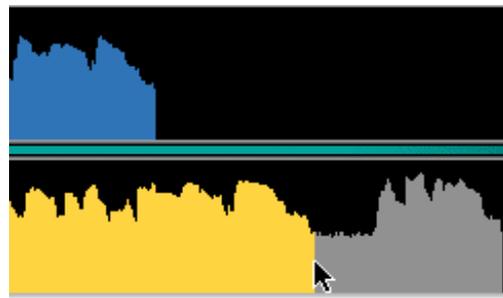
If a *stereo* signal is played, both channels will be played when the signal is played by itself (e.g. **[g]**, **[d]** or **[a]**) are pressed.

However, if a stereo signal is played with another signal, then only the channel selected in the Play menu will be fed to the output. The left channel is the default.

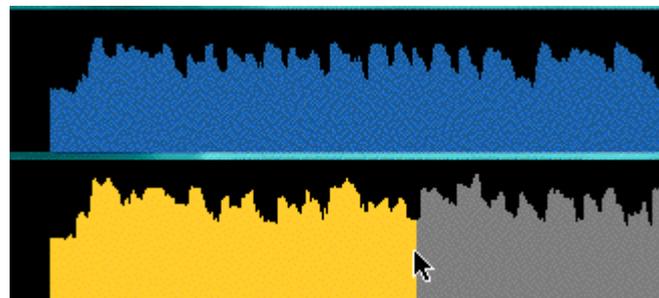
Trimming the Selected Audio

We will next reduce the length of the Dub being processed. You may wish to do this to align only the beginning part of the dub and leave the following part unaligned.

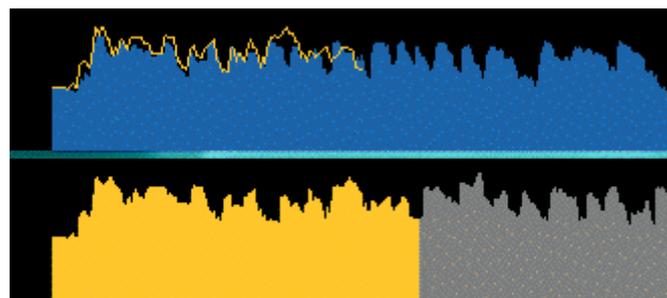
- 1) First, move the cursor to the end of the Dub filtered as shown below.



- 2) Next, hold down the mouse button, and a dotted line should appear. While holding down the mouse button, drag the line to the left and release it at the point shown in the next picture. (This does not need to be exactly the same point).



- 3) The above picture indicates that the selected Dub region for processing is now much shorter than the Guide selected region.
- 4) Click on *Align* and the following result should appear:



The Selected Dub audio has been aligned to the corresponding section of the Guide.

- 5) It is useful to audition the Aligned audio.
- 6) The Aligned Audio File can now be created.

Moving the Dub Display for Inspection

Before or after Alignment takes place, if mouse pointer is placed over the Dub energy display and the mouse button clicked, an Open Hand Icon will appear:



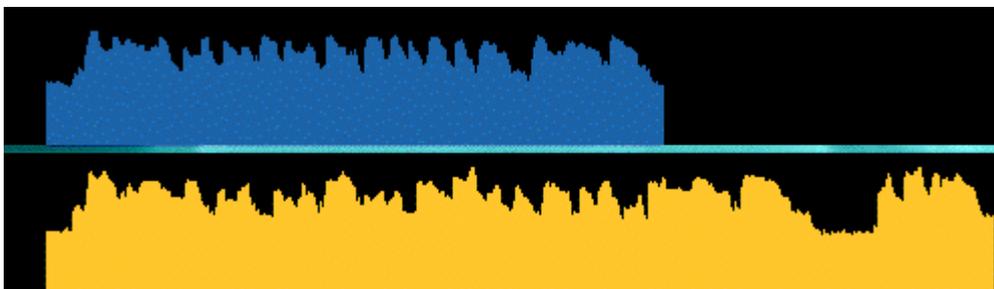
By holding down the mouse button, the Hand Icon will appear "closed" and the Dub audio or Filtered output display can be "dragged" back or forth to check the alignment visually. This has no effect on processing.

Processing Signals with Different Lengths

In general, it is common for either the Guide or Dub to be part of a much longer audio region than the other is. In most cases, the Guide region is longer (being part of a long transfer), while the Dub is a shorter section.

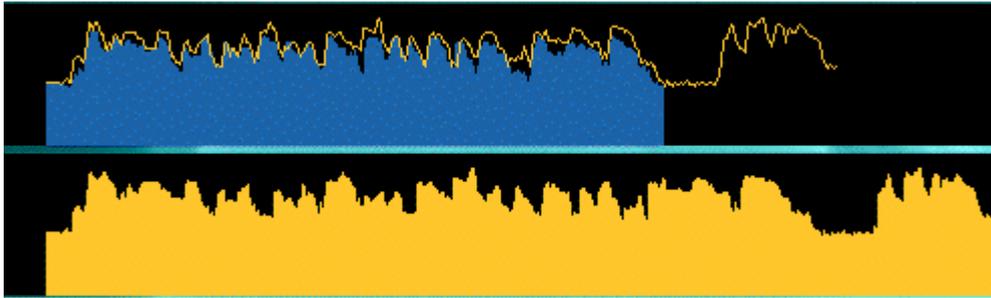
In the second example in the Demo Session, however, we have a Dub that is much longer than the Guide, and even contains extra audio at the end of the region that is not in the Guide.

The *Tutorial* files *Steve Guide2* and *Twit-Dub* should be opened in VocALign and played together to hear how the Dub is not only much slower and longer than the Guide but it has extra audio at the end.



Before processing, the user should try to determine which modulations in the Guide match with modulation in the Dub.

Next, click on the *Align* button and the resulting aligned (orange) trace over the *Guide* should appear as shown below:



In this case, the *Dub* audio filter waveform is aligned up to the point where the *Guide* selected waveform (shown in blue) stops, and then the rest of the Dub filter waveform is joined on but without any modification.

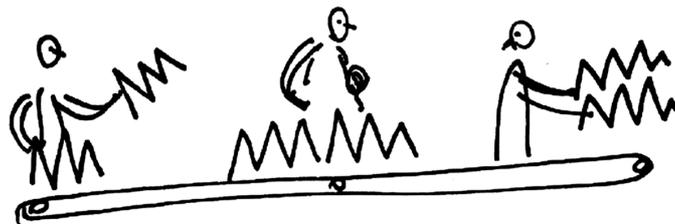
Audition the resulting Aligned Audio along with the Guide (press "e" on the Macintosh keyboard) and note the amount of time compression required to align these two signals and also note how the "laugh" at the end of the Aligned Dub is unedited.

"Latching"

To align just the start of the Dub with the Guide (and leave the rest of the Dub unprocessed), capture only 0.25 to 1.0 second of the Guide and capture the Dub as normal.

Reverb tails

To stop the end of a Dub from being stretched to wrongly "fit" to a noisy or reverberant Guide, stop the captured end of the Guide 0.25 to 1.0 second before the Guide signal of interest ends and capture the Dub as normal.



Foreign Dialogue Synchronization

Summary

This section discusses the problems that arise in foreign language dialogue replacement (dubbing) and how and when VocALign can be used to assist this process.

Overview

The quality of lip synch that can be achieved in Foreign Dialogue Replacement (often called Dubbing, Doublage, etc.) depends on many factors including:-

- The quality of the translation.
- The accuracy of the timing of the new dialogue recording.
- The ability of the editor to modify the new dialogue.

VocALign will attempt to align one set of audio modulations to another, no matter what the audio signals are. Therefore, it can be used to align the modulations of recorded dialogue in one language to recorded dialogue in another language.

Thus, when there is an audio Guide Track that is in good synch with the lip movements in the picture, VocALign can generally be used to improve the accuracy of the lip sync of the replacement foreign dialogue.

Sometimes, unfortunately, the Guide Track will not be in close sync with the picture. This can occur if the Guide Track is itself already badly dubbed or in a different language from the original location recording.

In this case, even if VocALign matches the new audio modulations to the Guide, they will be out of sync, just as the Guide is. An experienced editor must align the audio by ear and eye in this case, and VocALign is not likely to be of much assistance.

Also, the Guide track used for dubbing can sometimes contain music and effects. This makes the job for VocALign harder, but not impossible, since it must "ignore" the music and effects in the Guide Track and match only to the dialogue.

Lastly, the translation may demand that the two audio signals are vastly incompatible and result could never be totally satisfactory. In this case, the best result sometimes comes from making the two audio signals start together and, if possible, end together. VocALign or the use of linear time compression or expansion products (such as Synchro Arts TimeMod™) can often help in this case, too.

Suggested Operations

Advice: Dialogue Editors should be very familiar with the use of VocALign on dialogue replacement in the same language before attempting to use it for foreign dialogue replacement.

The following tips are suggestions and not rules, so the user should not only try these techniques, but also experiment further. Every line of dialogue is likely to need individual attention.

When to use VocALign

If the Guide Track dialogue is in sync with the picture, and the replacement foreign dialogue has been translated and recorded to achieve good lip sync, then VocALign should be able to improve the quality of lip sync.

Break the dialogue into appropriate length sections.

The user must remember that VocALign is deliberately restricted to stretching a part of a signal by a factor of 2.0 (100% expansion) and compressing it by a factor of 1/2 (50% compression). If VocALign is trying to expand or compress a gap in the speech, and it has used up its allowance, it may try to expand or compress the neighbouring speech.

This means, for example, that if gaps in the new and replacement dialogue appear in different places or are of very different durations, after modifying the gap region, VocALign might also have to expand or compress the replacement speech signal near the gap, to best align the modulations. This may lead to unwanted effects. In this case, the user should break the signal into sections that can be individually treated.

Sync up only the beginning of a line

To get only the beginning of a new line of dialogue to sync up with the Guide, use the "latching" technique described earlier. This means only selecting perhaps a second at the start of the guide that VocALign will try to sync the dub start to, and the entire replacement line for the dub.

Minimize the amount of VocALign's Time Compression and Expansion

If VocALign is making too many timing modifications and creating unnatural sounding speech, try using the "Low Flexibility" setting.

To align only the start and end of the replacement audio

Use a Linear Time Compression/Expansion utility (such as the TimeMod™) to get the new dialogue to the same length. Then use VocALign to adjust it.

H. TimeMod™

Overview of TimeMod

TimeMod™ is available as part of the Macintosh Version of VocALign Project and is designed to provide an easy to use, high-quality audio stretching and compression utility.

TimeMod is a non-real time, time compression/expansion process with the following features:

- The user can quickly specify the required changes by setting a new start or end time code, duration, ratio or change in a simple TimeMod window.
- TimeMod generates user-specified invisible "handles" which will be added to both ends of the selected audio and processed with it, so crossfades and extensions can be added later.
- Stereo is processed without phase shifts between the two output channels.
- No pitch change is introduced.
- It is a linear process (as opposed to VocALign which is non-linear) so that the time modification is uniformly spread throughout the signal and maintains rhythms accurately.
- The user can audition the input and output directly from the TimeMod window.

TimeMod Setup

It is highly advisable that you use the following instructions to set-up TimeMod on your system before using it to process audio:

Handles:

TimeMod, however, allows the user to have additional audio *before* and *after* the selected region automatically included in the processing. These are commonly called "**Handles**".

These Handles are processed along with the selected audio, but remain "invisible" unless the user extends them.

To set the length of the handles, with the TimeMod window in the foreground:

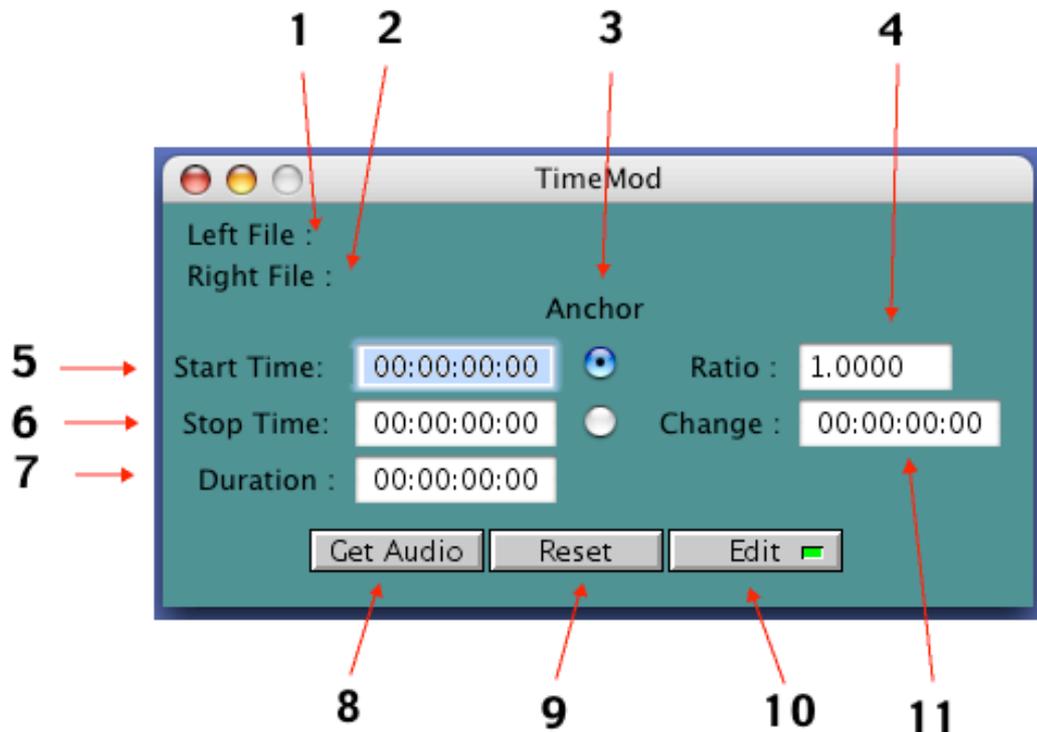
5. Click on the **Options** selection in the VocALign Application's **TimeMod** Menu.
6. Click on the **Handles** selection and a menu will appear with the default length set to 0.25 seconds.
7. Set the handle length to the required amount (generally, between 0.002 second and 2.00 seconds). When complete, click **OK**.

The use of handles is discussed in the operational description, later in this chapter

Note: The **Handle Length**, **Frame Rate**, and **Auto Name** settings can be reset at any time when running TimeMod.

This completes the setup of TimeMod.

The TimeMod Window and Controls



1. **Left File:** Filename of the selected *Left Audio file*
2. **Right File:** Filename of the selected *Right Audio file*
3. **Anchor:** The buttons under this label select whether the original audio's *Start* or *Stop* time will be fixed.
4. **Ratio:** This number equals $(\text{Current Duration} / \text{Original Duration})$. This is initially 1.0000 and can go from 0.5 to 2.0. This field can be modified anytime.
5. **Start Time:** This initially is the selected region's start time. If the Anchor is set to *Start Time*, the Start Time *cannot* be modified.
6. **Stop Time:** This initially is the selected region's end time. If the Anchor is set to *Stop Time*, the Stop Time *cannot* be modified.
7. **Duration:** This initially is the selected region's "*Length*". This field can be modified anytime but the new duration must be greater than 0.5 times or less than 2.0 times that of the original signal.
8. **Get Audio:** Click to open an audio file for processing
9. **Reset:** Sets all input boxes to the default state
10. **Edit:** Creates the Processed audio file(s)
11. **Change:** This is the difference between the *Current Duration* and the *Original Duration*. This is initially 00:00:00 and can go positive or negative. This field can be modified anytime.

Using TimeMod

If the VocALign application is running and the TimeMod window is not in the foreground, the user can use the VocALign drop down **File** menu, select the **TimeMod** entry and the TimeMod window should appear in the foreground.

There are three ways to select the Left or Right Files:-

- Press the **Get Audio** button
- Press the **⌘o** shortcut keystroke
- Select the **Open** option in the **File Menu**.

Any of these actions should bring up a file selection window.

The user must select the relevant file as shown above. If the signal is mono, then only the **Left Audio** must be selected. Once selected, the **Open** button must be pressed.

If the signal is stereo, the **Right Audio** must be selected as well as the **Left Audio** using the same procedures. Using the drop down menu and choosing the **Right Audio** option allows the user to select the Right Audio. Then the **Right Audio** file must be selected as shown below after which the **Open** button should be pressed.

Completing the Processing

The user can audition the input using the **[i]** key, and then select the desired TimeMod parameters. When these are set, pressing **Edit** will generate the new signal which can be played with the **[o]** key.

Pressing the **[o]** key before pressing **Edit** will generate the audio and play it.

I. Trouble-Shooting

Help and advice can also be found on the Synchro Arts website at www.SynchroArts.com/support

Some commonly occurring problems are listed here:

General Trouble Shooting

Problem:

"VocALign stretches or compresses the audio too much at one or more points."

Possible Reason:

The signal must be inspected for differences in gaps between corresponding "words" or the lengths of words themselves being different between the *Guide* and *Dub* by more than 1/2 or 2/1.

Solution: If this is the case, work with smaller sections of the signals, because VocALign will not compress by more than 1/2 or stretch by more than 2/1.

Problem:

"VocALign produces an error saying that the files need to be greater than 0.25s or less than 120s"

Possible Reason:

VocALign can process files and regions that are between 0.25s and 120s in length.

Solution: Bounce your files down into shorter sections before loading them into VocALign.

Trouble Shooting for Digital Performer Users

Problem:

"Digital Performer reports "Error Communicating with VocALign" when one of the VocALign menu options is selected."

Possible Reason:

There is a warning or error message in VocALign.

Solution: switch over to the VocALign Application and clear any warning or error messages before switching back to performer to proceed.

