



prosoniq
morph

- User's Manual -

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1 Introduction

Thank you for purchasing a Prosoniq product. We are committed to delivering the latest in audio processing technology and the most unique set of signal enhancement and processing tools since 1991. We are happy to welcome you amongst the thousands of professionals who rely on Prosoniq products in their daily work for music production and enhancement. Should you have any questions as to how to use our products or on any other aspect of our product line please do not hesitate and contact us today. You will find our contact details at the back of this manual and on our web site at <http://www.prosoniq.com>.

1.1 Getting started

Please fill out and send in the registration card that you have received with your software package. By doing so you are entitled to technical support and will be notified of updates and other news regarding PROSONIQ morph. If you have purchased this product online (and do not have a registration card) make sure you register online with your product serial number today.

Before proceeding, read the Software Licensing Contract included in this package. By opening the disk pack or sending back the registration card, you are declaring yourself to be in agreement with the conditions of the contract.

1.2 System requirements

In order to be able to use PROSONIQ morph without limitations you need to make sure you meet the following requirements regarding your hardware and software setup.

Minimum hardware requirements:

A Mac model with either Intel or PPC processor running MacOS X 10.4 or 10.5 or later. An AudioUnit compatible host software.

Software requirements

In order to use this product you require any software that can load and use plug ins in Apple's proprietary AudioUnit format. Note that ProTools and Cubase currently do not support AudioUnit plug ins.

Using Prosoniq morph as standalone application

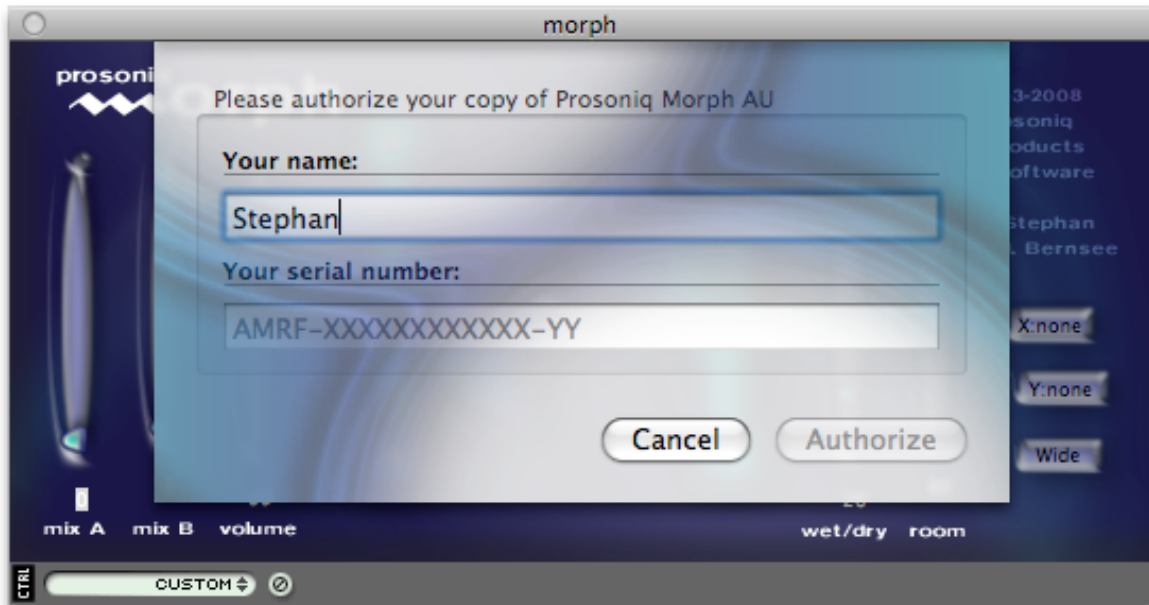
If you install the developer tools that came with your copy of MacOS X you will find a very useful program called "AULab" on your hard drive at /Developer/Applications/Audio. This program is a free application that lets you load and use AudioUnit plug ins and works independently of any other software. You can use AULab to work with morph in standalone mode, either by using the realtime input from your Mac or any combination of files. Please see the AULab documentation for more information on its use and setup instructions.

For quick and easy testing you can also use the Prosoniq Plug-In MiniHost application that you can find in your Prosoniq folder inside your applications folder.

1.3 Installation

The installer will place the plug in in the default Components directory, which is at /Library/Audio/Plug-Ins/Components. This will enable all users on this machine to use the plug in, if it is authorized. If you do not want to install the product at this location, you can move it to the ~/Library/Audio/Plug-Ins/Components (the one in your home directory) instead. If you put it there only you will be able to use the plug in from within your user account.

If you load the plug in for the first time into any host it will present an authorization screen in which you should enter your name and the serial number that came with the product in order to unlock it.



The installer will also place a copy of this manual and the Prosoniq Plug-In Helper applications in a folder called "Prosoniq Plug-In Support" inside your machine's Applications directory.

1.4 Routing settings for popular hosts

If you are using Logic or GarageBand, chances are that morph will work right out of the box. However, not all AudioUnit hosts use the same routing, and not all AudioUnit hosts have the same channel capabilities as Logic. Therefore, if you experience any problems setting up morph in other host applications we recommend you take a look at the Prosoniq Plug-In Helper application and its options. You will find this application in a folder called "Prosoniq Plug-In Support" inside your machine's Applications directory.

2 What is Audio Morphing?

2.1 Introduction To Audio Morphing

Many products in the music business have claimed to do „morphing“ on sounds. The term „Morphing“ has its roots in the Greek language where the syllable -morph- means „form“, or „shape“. Of course, in its simplest form, the term „morphing“ can be used to describe anything that changes the sound of an instrument in an unusual way, producing a different sound. Therefore, it is understandable why many developers of audio software have confusingly described signal processing techniques like a vocoder to do „morphing“ on sounds, which is their way of saying that these processes change, or „shape“, sound in some way.

However, as we know from early 1990's movies where this technique was widely used, morphing as used in the video world means gradually changing the shape of an object to become another object. Now you might ask why there has been no software to do the same on audio files. Well, now there is!

In the past, there have been several attempts to achieve „real“ audio morphing, all of which either had to do with Fourier transform spectrum manipulation, which rendered the resulting sound useless due to the lack of presence or the difficulty in tracking partials in a mixture of signals, or other techniques, which have been generally too CPU demanding to be used in realtime.

Prosoniq are proud to be the first company to deliver realtime audio morphing as a plug in for your favorite host application.

2.2 History of Morphing

The first commercial software to do audio morphing has been released in 1983 for the ATARI 1040ST by Stephan M. Sprenger (now known as Stephan Bernsee since his marriage in 2003), founder of Prosoniq Products Software. It took the ATARI computer about 10 hours to process a single audio segment of 3 seconds in length. Later in 1993, the audio morphing algorithms have been ported to the SGI and then to the

Macintosh, where they were sold as part of Prosoniq's sonicWORX software. Still, this algorithm was about 10 times slower than realtime.

Today, the same people deliver the first real-time audio morphing software for the Macintosh and the Windows PC.

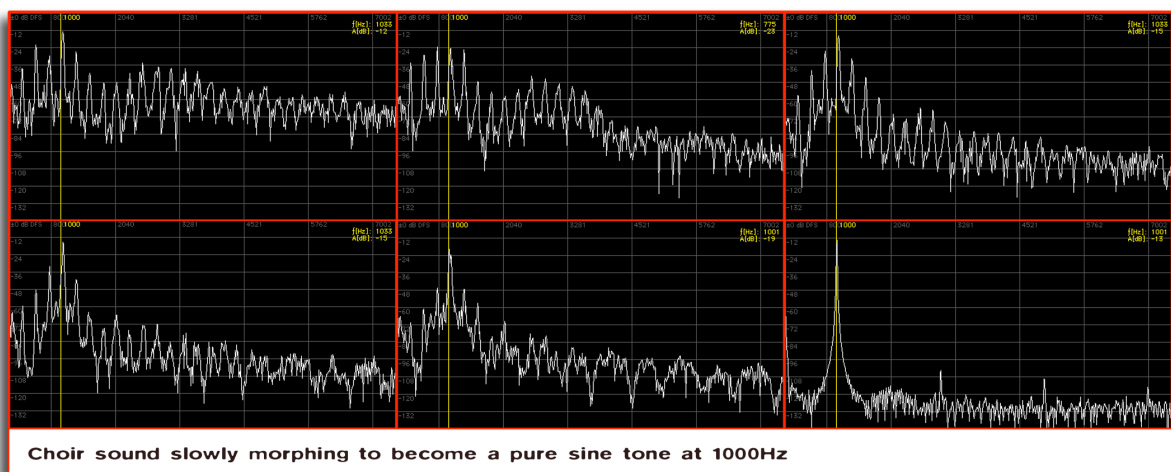
2.3 How does it work?

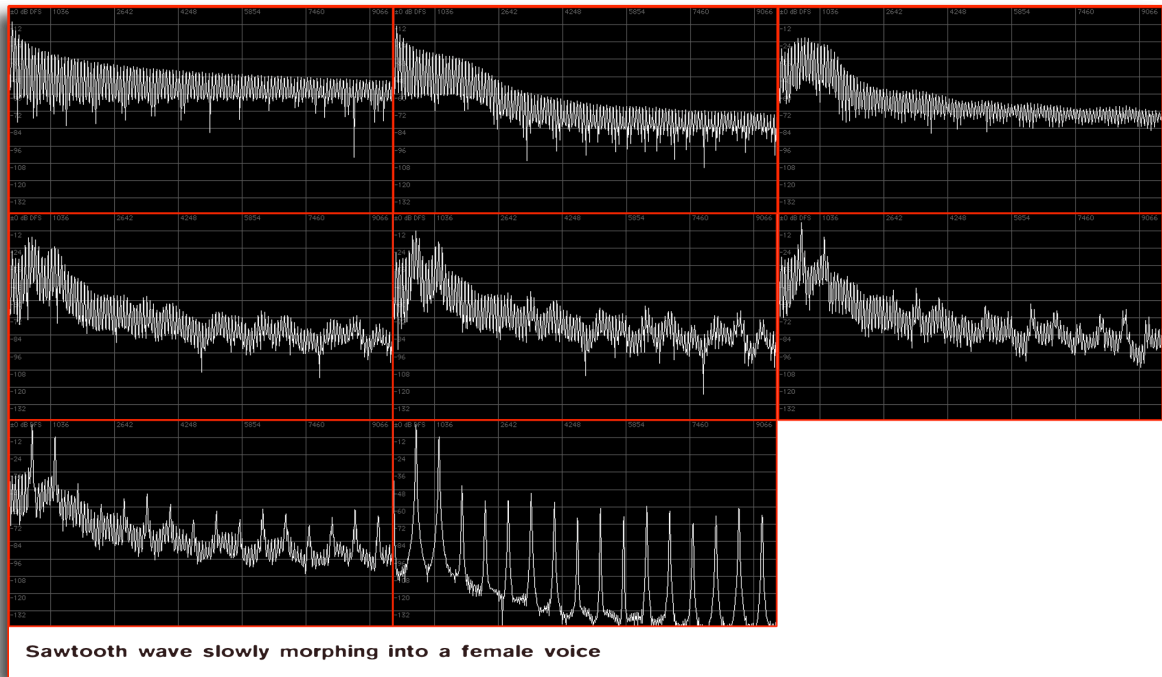
The PROSONIQ morph analyzes both input sounds and determines the physical shape of the instrument that is being played. This is done by a process involving artificial neural networks for pattern recognition, a technology described in more detail at <http://neuron.prosoniq.com>. It then creates an in-between shape for the resulting instrument, incorporating elements from both original recordings. If you start out from the instrument played through input A, PROSONIQ morph will gradually change its shape to become the instrument played through input B, and vice-versa.

■ Note that the resulting morph will be different in both cases, since the process takes the initial instrument with its unique properties (like percussiveness, tone and spectral evolution) and then changes these properties until they match the properties for said parameters of the destination. Since a string sound has a different set of parameters to start with than a drum loop, it will create a different morph if you start with the string sound than if you started with the drum loop.

2.4 Example Audio Morphs

Here are some spectral plots that illustrate how the morph looks like when analyzed with an FFT spectrograph:





The PROSONIQ morph has two inputs, left and right, which are called A and B on the user interface of the plug in. Since morphing is a symmetric process, it does not matter which sound is routed to input A or input B.

The easiest way to set it up would be to create a stereo audio file with the sounds you wish to morph panned to the left and to the right of the plug in input. The exact procedure is described in more detail below.

2.5 What you can do with PROSONIQ morph – example applications

- High quality sound morph effects with unbeatable fidelity and intelligibility
- Morphing transitions when mixing different tracks (seamless mixing for DJs)
- Creation of new and unheard instruments
- Subtle shaping of existing sounds in certain directions
- Creation of mouth-tube effects or speaking instruments
- Alien sound textures - good for movie soundtrack production
- Unusual effects by applying reversed drum loops to forward drum loops

3 Setup

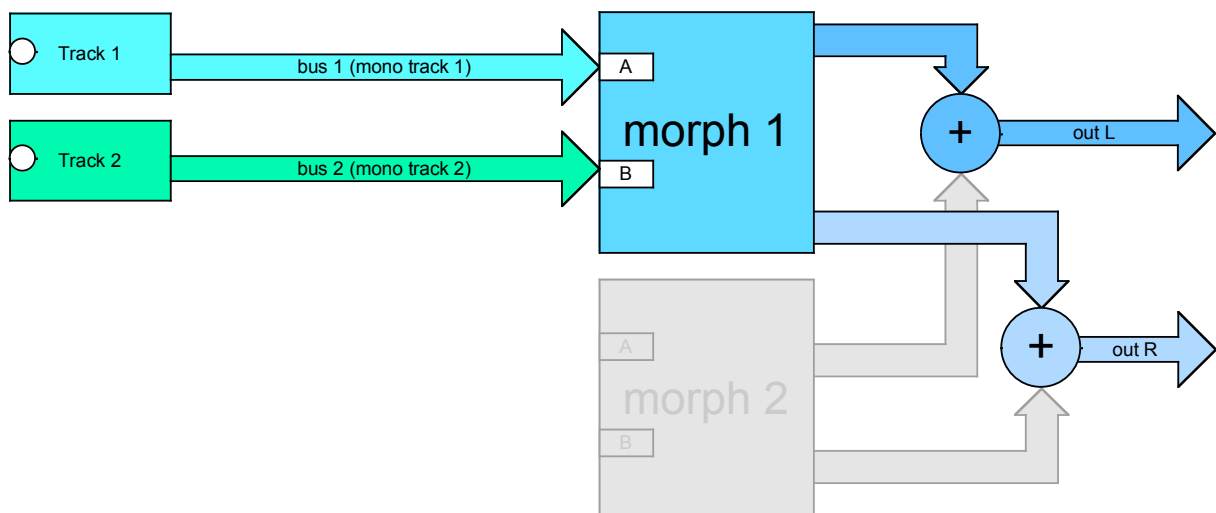
The PROSONIQ morph plugin is typically used in such a way that it *replaces* the original (input) signal. For this reason, you would normally use PROSONIQ morph in a channel insert effect slot in your audio/MIDI sequencer application. When using it in a send or bus effect slot, you should make sure that the send or bus mode is set to “pre-fader” and that the fader of the channel in question is turned all the way down to avoid hearing the original unprocessed signal.

Also, if you use it with applications that support a side chain channel you will typically use the side chain to send the signal of a second track to the morph plugin. Please find a detailed description below.

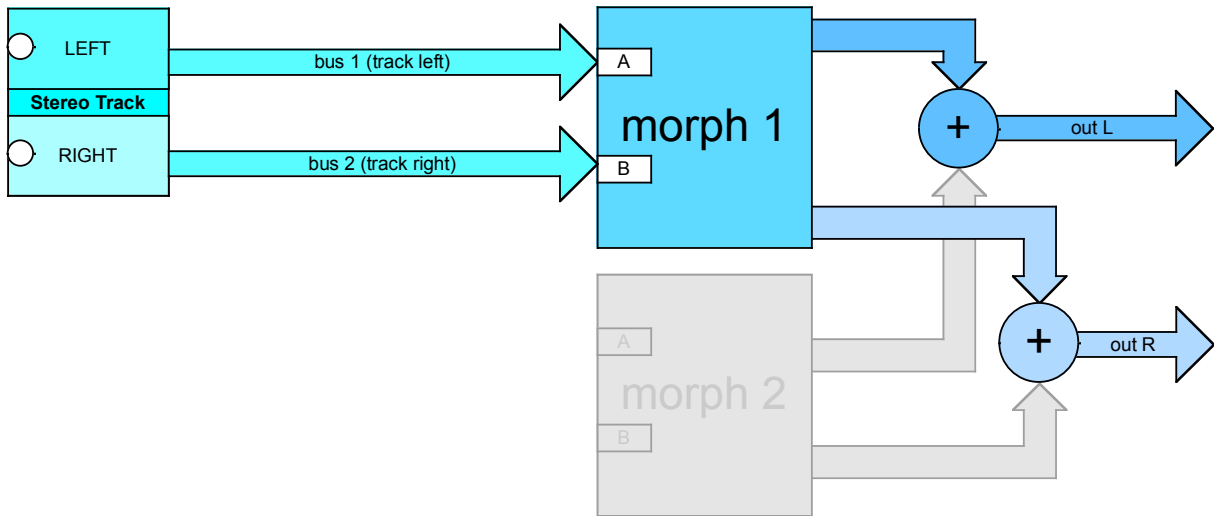
3.1 PROSONIQ morph internal buses

PROSONIQ morph has a maximum of 4 internal buses that are used to achieve the morphing effect. In order to accomplish morphing of mono and stereo sources there is a maximum of 2 morph instances that are used internally, as needed. These two morph instances are phase synchronous and therefore preserve stereo image information and mono compatibility.

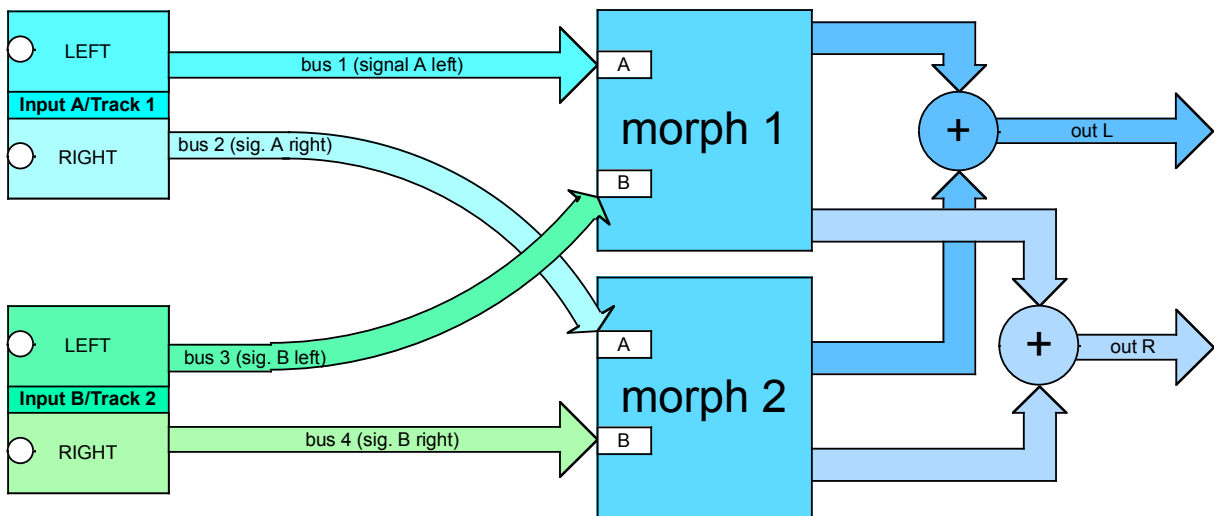
For a typical setup with two mono input tracks the internal routing looks like this:



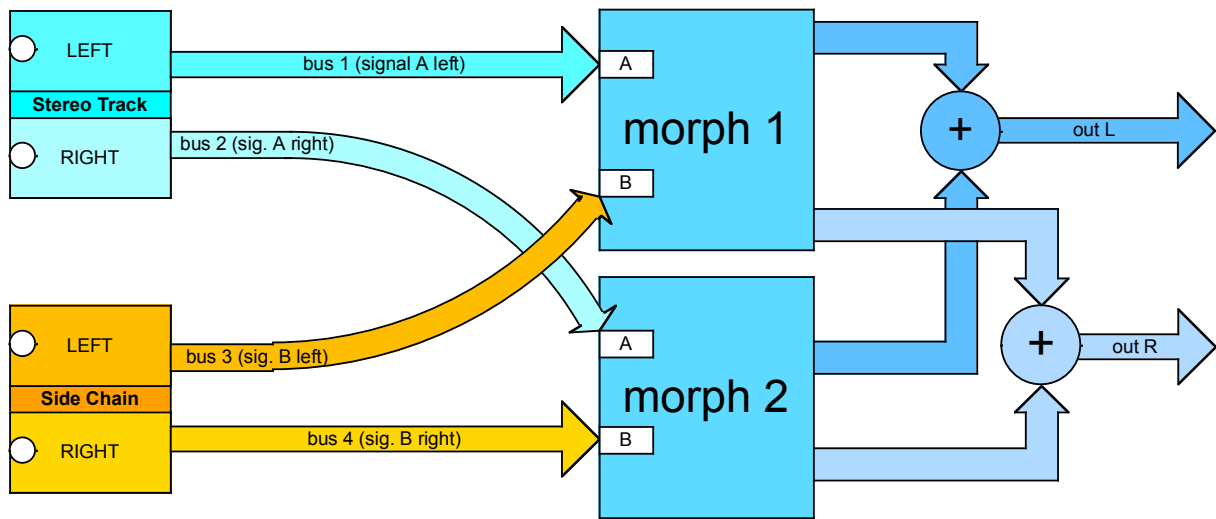
For a single stereo track the internal routing is as follows:



If you use morph with two stereo tracks, either as insert or in a quadraphonic setup both internal morph instances are used and the routing is as follows:



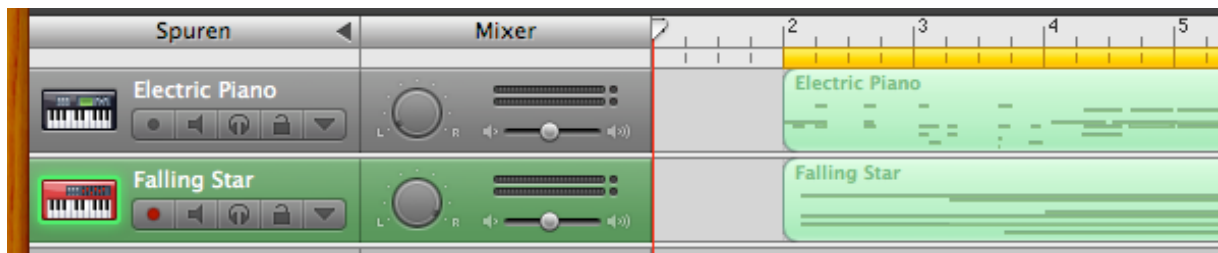
If a sidechain is used the setup is similar:



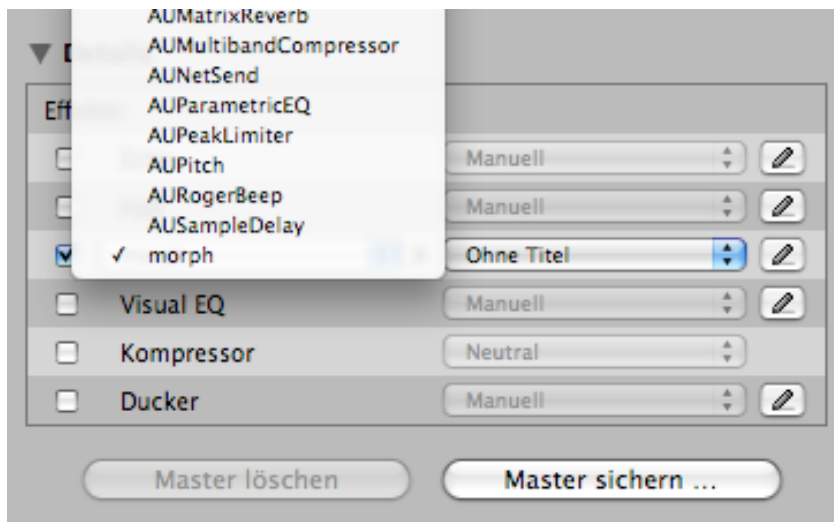
3.2 Using PROSONIQ morph in GarageBand

In GarageBand you will typically use PROSONIQ morph as a master effect. To do this please proceed as follows:

- (1) Create a new project and two new instrument tracks. Record some music on the two tracks
- (2) Switch off all effects for the two tracks
- (3) Pan the first track fully right and the second track fully left. Your GarageBand track settings should look like this:



- (4) Go to the master section and click on the "details" disclosure triangle.
- (5) In the master effect section choose morph from the list of effects.

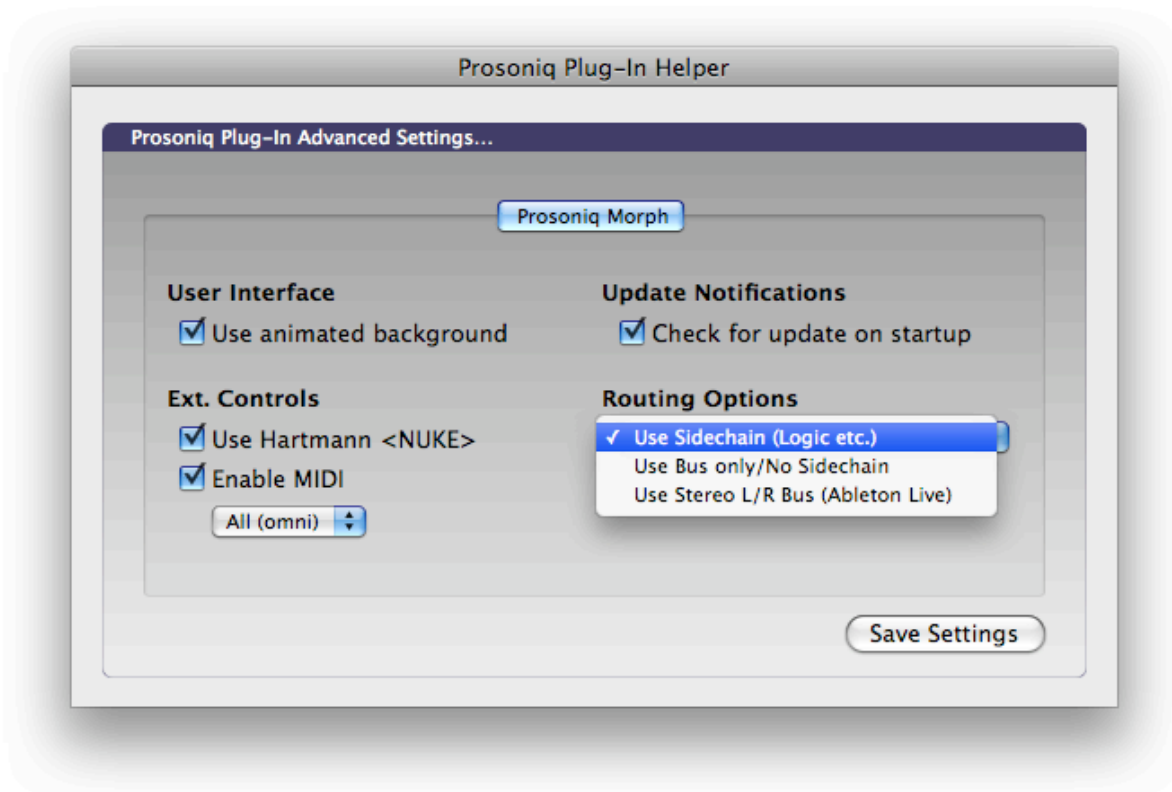


- (6) Play back your tracks and adjust the plugin settings until you are satisfied.

3.3 Using PROSONIQ morph in Apple Logic Pro 8.x

This section describes how to set up Logic Pro 8 for use with PROSONIQ morph AU. In Logic there are two basic methods of supplying morph with its input signals: by inserting morph into a bus and feeding it two signals via L/R (or Front/Rear) panning, called "Bus-Mode", or by inserting morph into an insert on a track/instrument object and feeding it the second signal via the sidechain input ("Sidechain-Mode"). morph will automatically detect whether or not a sidechain signal is connected and switch between input routing modes accordingly.

- To use the sidechain feature it needs to be turned on in the Prosoniq Plug-In Helper Application. It is active by default so you normally wouldn't need to worry about it unless you change this setting.



3.3.1 Setting up morph in Sidechain mode

This is probably the setting that you will use most of the time because it is easy to set up and works with all kinds of signal routings. Setting up morph in Sidechain-Mode is very easy. Create two audio tracks (mono or stereo) and place the audio files to be morphed on them. Insert morph into one of the two channel objects, in this example we've used "Audio 2".

Set the output of the other channel (in this case "Audio 1") to "No Output".



Finally, select "Audio 1" as the sidechain source for Morph by clicking on the "Side Chain" pull-down menu in the top right corner of the Morph plug-in window and selecting "Audio 1" from the list. Done.

Note that if you use a mono signal as the Sidechain source, Morph will route that signal to both the left and right channels.

3.3.2 Setting up morph in Bus Mode

Setting up Bus-Mode for morphing two mono signals is very straightforward.

First, create two mono tracks and place the sound files you want to morph on them. Route both to a stereo bus and pan one hard left and one hard right. You could also use two stereo tracks for your source material, and pan those hard left and hard right, but for the sake of clarity we suggest using mono tracks for this tutorial. Then insert morph into the bus and you're ready to go. This setup should look similar to the illustration below:



Note that the signal that is panned hard left will feed morph's internal bus "A" and the signal panned to the far right will feed bus "B", which both the colour coding and the track names in this image reflect.

3.3.3 Setting up PROSONIQ morph in Bus Mode with stereo sources:

Setting up Bus-Mode for dual stereo signals is slightly more involved, as Logic does not generally allow AU plug-ins to have more inputs than outputs. Since morphing between two stereo signals requires feeding morph with a total of four channels it is necessary to "abuse" Logic's surround capabilities for morphing between stereo signals in Bus-Mode. First set the surround format of your project to "Quadraphonic" under File/Project Settings/Audio:



Then, create two stereo tracks and place your source files on them, route them to a bus and set that bus to surround mode (by clicking on the channel mode button at the bottom left corner of the bus object and selecting "surround"). After inserting morph into that bus your project should look something like the screenshot below.



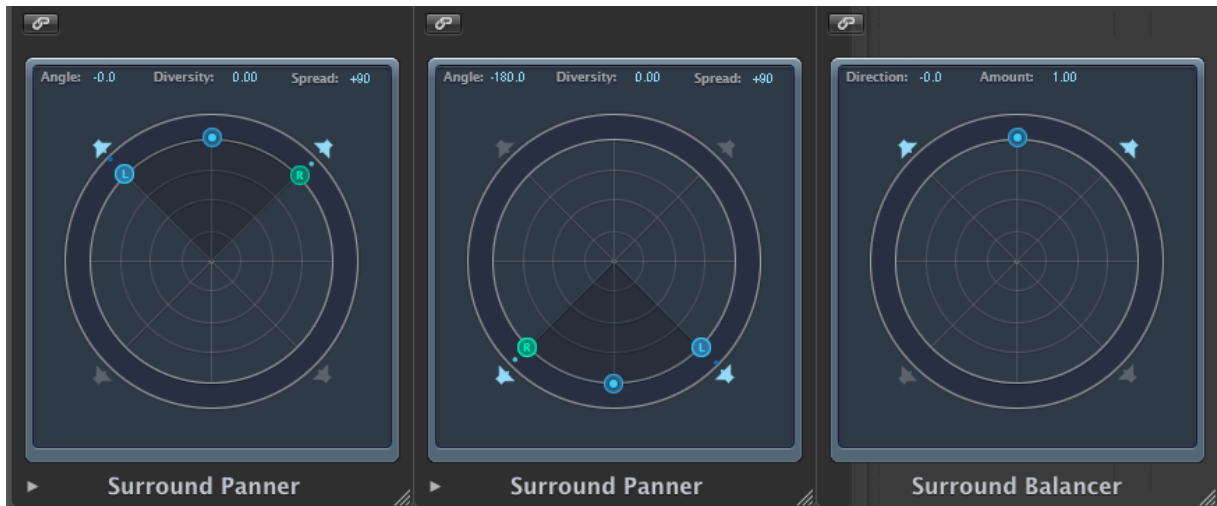
Note that the pan pots of the two audio track objects have changed from normal to surround panners. Morph's internal bus "A" is now fed by the front L/R channels, bus "B" by the rear L/R channels. Instead of panning one track hard left and one right you will now need to pan one hard front and one hard rear. And, since you probably don't want the stereo output of morph to play over four channels of your audio hardware, you'll need to switch off the rear outputs of the quadraphonic bus.

The correct settings for the three involved surround panners are as follows:

Track A panner

Track B panner

Quad bus panner



Make sure you switch off unused channels by clicking on the corresponding speaker icon in the surround panner window.

- Remember that you can always check very easily if you are getting the correct signals into the PROSONIQ morph plugin: just use the SOLO buttons (s. chapter 4) to monitor the inputs.
- There must be signals playing simultaneously on both inputs for the morphing effect to work. If there is no signal playing on either of the two inputs, then no morphing effect will be produced.

3.4 PROSONIQ morph Controls

PROSONIQ morph provides several different types of controls. This section describes how to use them.

3.1.1 Faders

PROSONIQ morph has a number of faders. There are several methods to set a value on any of these faders:

- You can drag the fader handle up or down with the mouse.
- You can click somewhere in the fader to make the handle jump there.

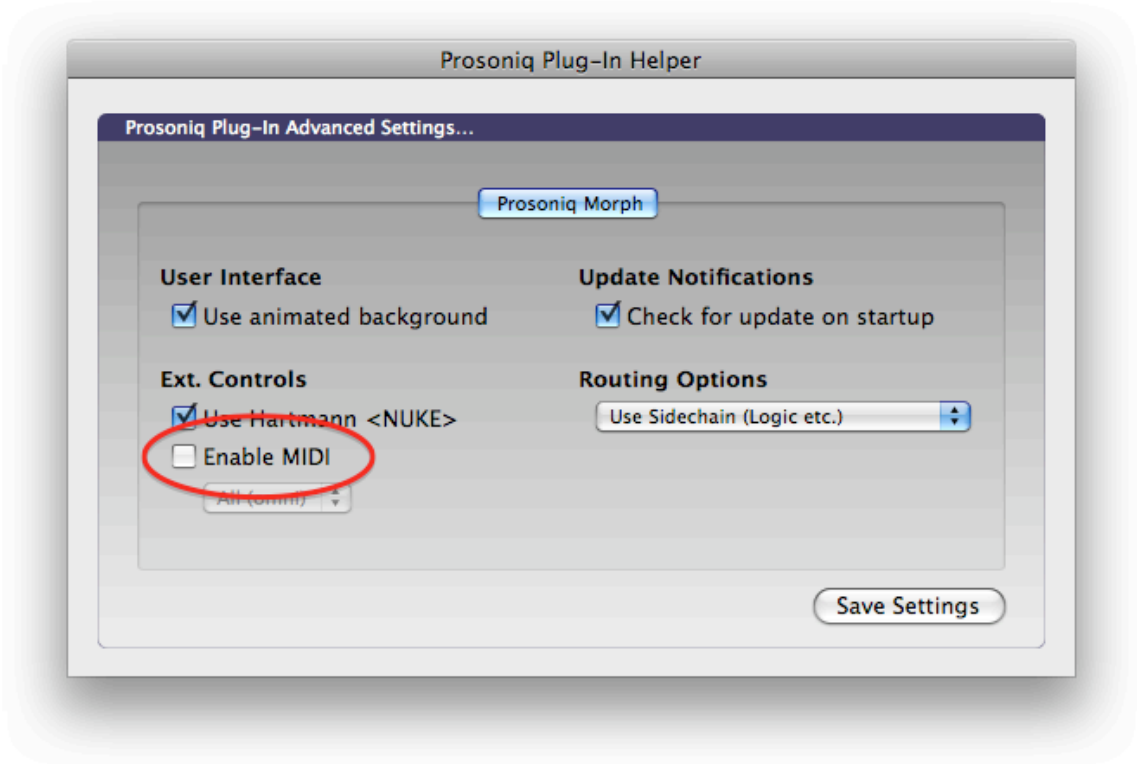
3.1.2 Popup Menus

There are two popup menus in the the PROSONIQ morph window. You can use them e.g. to select a Modulation source for one of the morphing axes.

3.5 Using PROSONIQ morph with MIDI

The morphing zone parameter of PROSONIQ morph can be controlled via a live MIDI input. This can be any device connected to your computer that is capable of transmitting MIDI information. MIDI channel and device settings are set using the Prosoniq Plug-In Helper application that is located in your Applications folder.

Note that MIDI control is designed to be used in a live context and the MIDI information is not passed on to the host application or the plug-in's user interface. In order to control any of the parameters of the plug-in via your host application please use the automation capabilities of your sequencing program.



Make sure you enable MIDI control in the Plug-In Helper application first – it is disabled by default.

3.6 Using PROSONIQ morph with the Hartmann Music <NUKE> Controller

The morphing zone parameter of PROSONIQ morph can be remote controlled via the Hartmann Music <NUKE> controller if one has been connected to your computer. Morph will automatically detect and use any such controller if it is connected via USB.

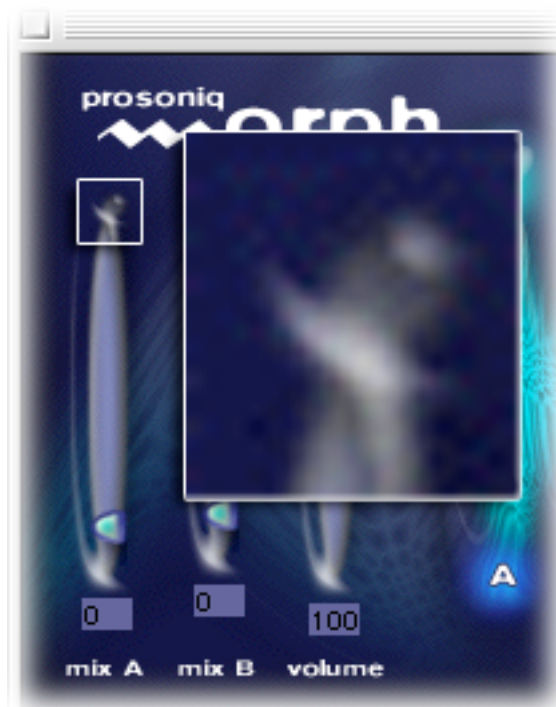
4 Parameters

The PROSONIQ morph has a number of parameters that affect its sound and operation. Please find these parameters explained below.

4.1 MixA and mixB with SOLO switch:

The mixA and mixB sliders control the amount of the original signal from input A or input B that gets through to the output.

If you are setting up the plug in in your host environment, the SOLO buttons might come in handy. They are directly located above the mixA and mixB sliders:



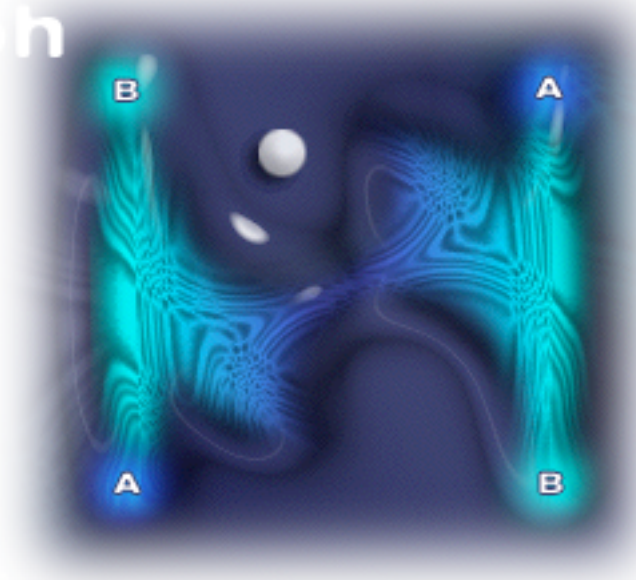
Clicking them once will activate the SOLO function for that input channel and you will only hear the selected channel(s) at the output of the plug in. No morphing or reverb will be audible at this time.

4.2 Volume

Sets the output volume of the morphing effect. Some sounds might cause an increase in volume at the output which can be compensated for with this parameter.

4.3 The Morphing Zone

Obviously, this is the most important part of the PROSONIQ morph plug in user interface. We will discuss its effects and operation in the following paragraph.



The PROSONIQ morph plug in has two audio inputs, left and right. They are referred to as A and B in the user interface of the plug in because they are not used like a conventional stereo plug in, but are rather used to supply two entirely different sounds or pieces of music to the PROSONIQ morph plug in. Everything you route to the plug in's left input channel will end up in input A, all sounds coming in through the right input channel reach the plug in's B channel.

Morphing is done by moving the white dot between the four inputs. If you place the white dot directly over any of the A's or B's you will hear the sound from that channel. As you move between the channels, the sound will morph to gradually become the sound from the other channel.

4.3.1 Vertical vs. horizontal movements

There is a difference between moving the white dot horizontally (left <-> right) or vertically (up <-> down).

Moving up and down between the left A and B points

Moving between the points A and B at the left side of the morphing zone (ie. on the greenish bar that connects the bottom left A and the top left B) will slowly morph between the A and B channels, taking the basic physical properties of the sound in channel A as the starting point, gradually altering its parameters to match sound B when you reach the point B.

Moving up and down between the right B and A points

Moving between the points A and B at the right side of the morphing zone (ie. on the greenish bar that connects the bottom right B and the top right A) will also gradually morph between the A and B channels, but this time taking the basic physical properties of the sound in channel B as the starting point.

Moving left and right horizontally

If you move from the left to the right, the morphed output from the right pair of A and B will mix with the morphed output from the left pair of A and B.

- Basically, the important rule of thumb to memorize is: vertical (up/down) movement means morphing, horizontal (left/right) movement means mixing.

4.4 Wet/dry

This parameter sets the amount of reverberation applied to the output of the morph. Since the output is a monophonic signal (s. Wide parameter below) it may sometimes be preferable to have some room applied to the resulting sound. Since the reverb can be implemented as integral part of the morphing process it uses no additional processor power.

4.5 Room

This sets the room size for the reverb that is applied to the output signal.

4.6 Normal/Wide

This option creates a virtual stereo image from the monophonic output sound. Use it when working with entire musical pieces, possibly in conjunction with the reverb to create a stereo output signal.

4.7:**X: Modulation Source****Y: Modulation Source**

With these two pop up menus, you can choose what type of MIDI controller will affect the morphing/mixing transition. It can be any of the following MIDI controllers:

<i>None:</i>	No MIDI controller
<i>Mwhl:</i>	Modulation Wheel
<i>Pbnd:</i>	Pitch Bend
<i>Pedl:</i>	Pedal
<i>ChAf:</i>	Channel Aftertouch
<i>Kybd:</i>	Keyboard Tracking. The last note played is being used.
<i>Sust:</i>	Sustain Switch. This can be either on or off

! The current value of the above controller will add to the setting set with the Morphing Zone control.

Make sure you select PROSONIQ morph as the output destination when routing the MIDI data.

4.8 Tips for best results:

To achieve the most impressive results, the following rules of thumb may give you a good starting point:

- 1) make sure both sounds have about the same volume
- 2) make sure both sounds have the same tuning. Although sounds with different tunings can be morphed as easily, in the musical context a common tuning is usually favorable
- 3) Make sure when morphing between drum loops that they have the same (or a common multiple, like twice or half) tempo.
- 4) Make sure you pan sound A fully to the left and sound B fully to the right, so none of the sounds leaks into the other channel.
- 5) Try moving the 2D Morph Control on a vertical line between sound A and B (ie. either the left or right side of the square between the A's and B's) to get a „clean“ morph.
- 6) If the resulting sound is not satisfactory, try the other side of the square.
- 7) Always remember: horizontal movement means mixing, vertical movement means morphing
- 8) If in doubt whether the routing is correct, use the SOLO buttons to check
- 9) If you get CPU over warnings or the playback stutters when you are using PROSONIQ morph, try switching to a larger playback buffer size in the ASIO control window in your host application.

5 Support

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