

Sound Sculptor Pro

User Manual



Sound Sculptor Pro

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Introduction

Sound Sculptor Pro is a high quality sound program for the Macintosh that's two programs in one, a sound editor and a multitrack recording studio with real time effects. With the sound editor you can record, cut, copy, paste and add effects. With the multitrack editor you can record tracks, add realtime effects, mix and master.

Sound Editor

- Easy to use interface
- Lots of high quality effects
- Supports AIFF and WAVE file formats
- Supports 8, 16, 24 bit integer and 32 bit floating point file types

Multitrack Editor

- Very low CPU usage
- 99 tracks
- Real time effects
- 5 master insert effects
- 5 send effects
- 5 track insert effects for each track
- Bass & treble controls for each track
- Automation for volume, pan, filter cutoff & resonance for each track
- Supports AIFF and WAVE file formats
- Supports 8, 16, 24 bit integer and 32 bit floating point file types

Minimum requirements - OS X 10.4, Intel or PPC.

Registration is \$30.00 or \$20.00 upgrade from Sound Sculptor II. Registration is required to enable the "Save" command.

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

sculptorpro@gmail.com

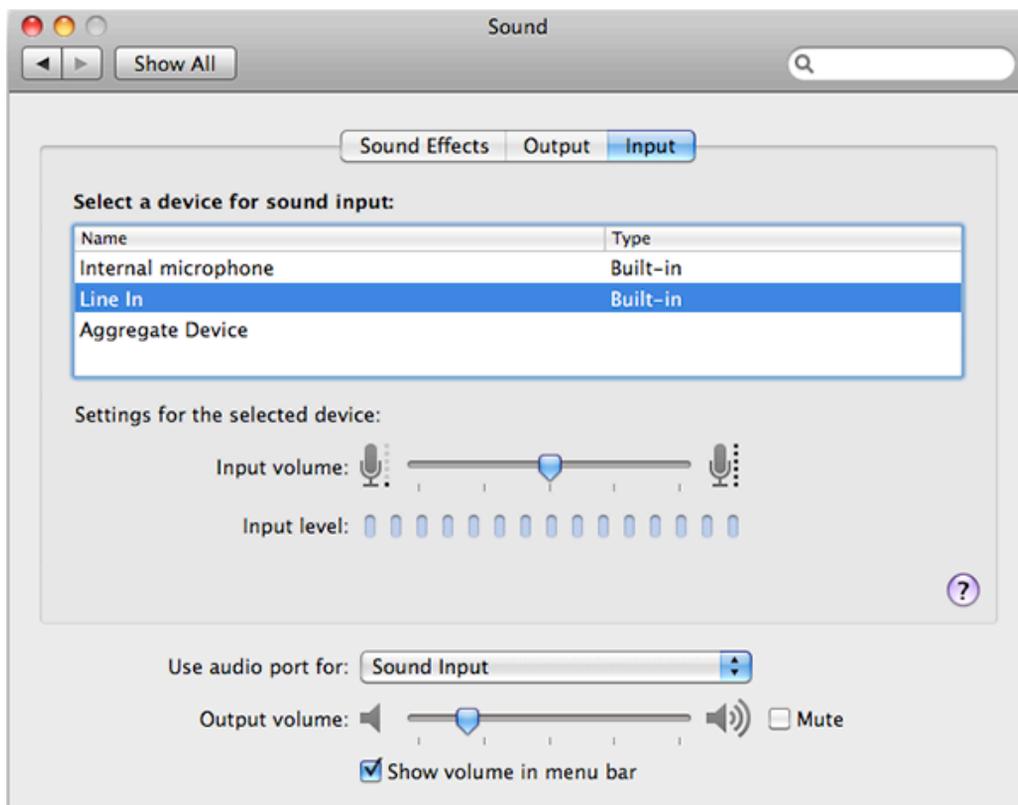
Getting Started

Two Programs In One...

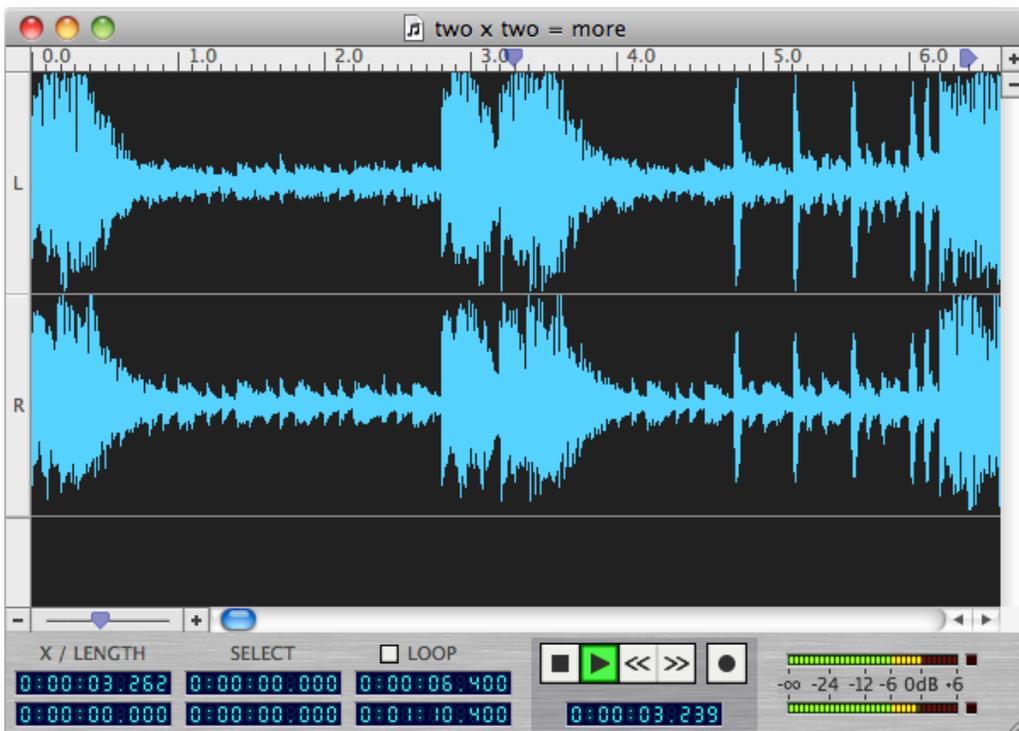
Sound Sculptor Pro is a sound editor and a multitrack editor in one program, but they operate totally separately. The sound editor only works with sound files and no items in the "Multitrack" menu are used. The multitrack editor only works with multitrack files and no items in the "Sound" menu are used. The sound editor is very easy to use and you should be able to start using it immediately. The multitrack editor is easy to use too, but there is a bit of a learning curve.

Setting Up The Audio Hardware

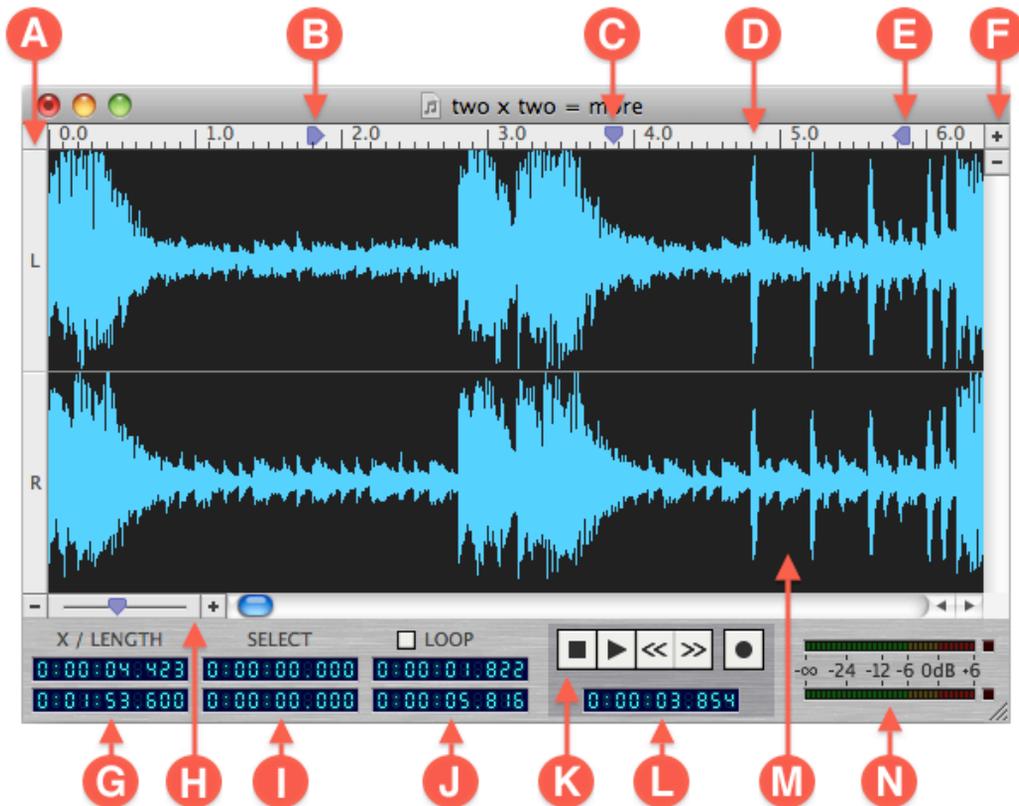
Sound Sculptor Pro uses the device settings that are set in Apple's Sound preferences for playing and recording. Open the System Preferences application and click on the **Sound** icon. To select an output device, click on the **Output** button and select an output device. To select an input device, click on the **Input** button and select an input device. You can also set the input volume there.



Sound Documents



Overview



A - Channel selection buttons.

B - Loop start indicator. Click and drag to move it. You can also use "Set Loop" in the "Edit" menu.

C - Playhead indicator. Clicking anywhere on the ruler will move the playhead, if the sound is playing, it will stop the waveform display from auto-scrolling.

D - Ruler.

E - Loop end indicator. Click and drag to move it. You can also use "Set Loop" in the "Edit" menu.

F - Vertical zoom controls.

G - Horizontal cursor position and sound length.

H - Horizontal zoom controls. You can also use the up/down arrows.

I - Selection range.

J - Loop on/off button and loop range.

K - Transport controls. Stop, Play, Shuttle and Record.

The Stop button will stop the sound from playing or recording. If it's already stopped, it will move the playhead to the beginning of the sound. Hitting the space bar will also stop playing or recording.

The Play button plays the song. You can also hit the space bar.

The Shuttle will rewind or fast forward the sound. Click and drag to the left or right. If you hold down the option key, it will play the sound slower instead of faster.

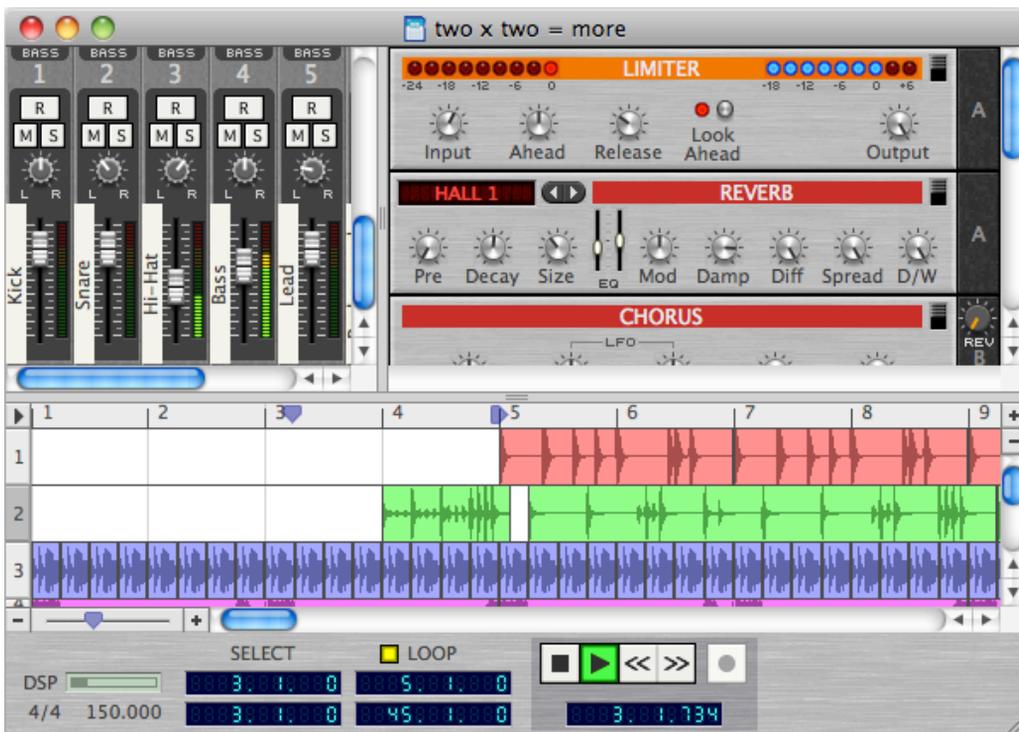
The Record button starts recording a sound.

L - Playhead position.

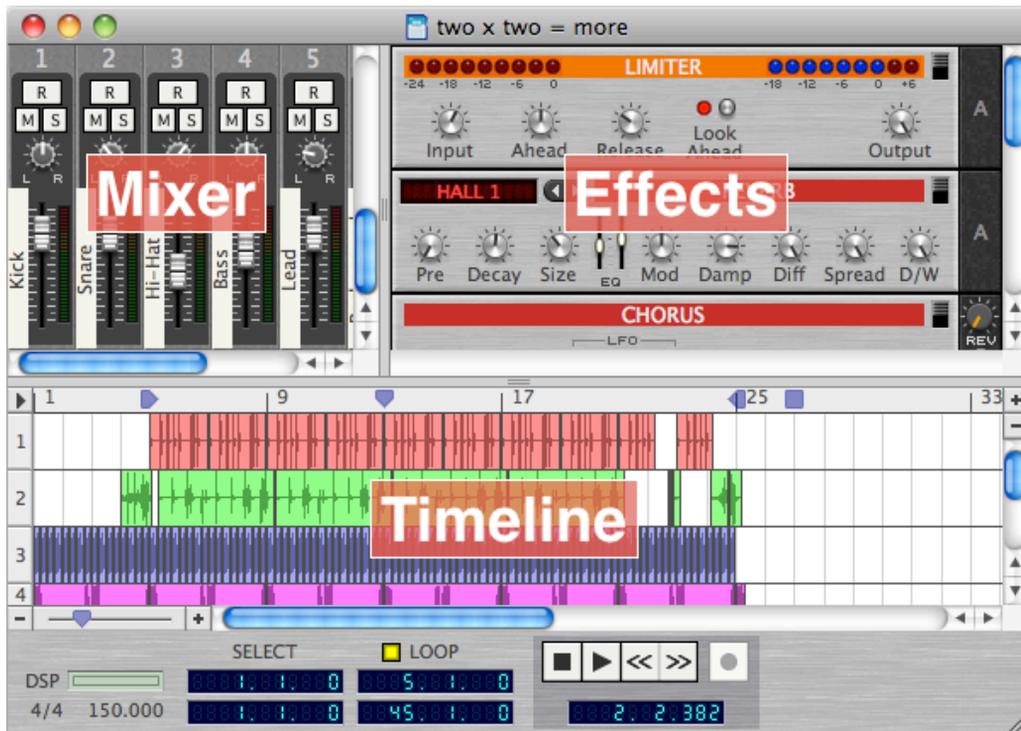
M - Waveform display and editing area. This is where you select part of the sound to edit it or add effects. Note: to adjust the selection, shift-click the waveform. To toggle the channel selection, **command**-click the waveform. If the sound is playing, clicking on the waveform display will stop it from auto-scrolling.

N - Level meters. When playing it shows the output level. When recording it shows the input level. The clip indicators show when the level is above 0 dB.

Multitrack Documents



Overview



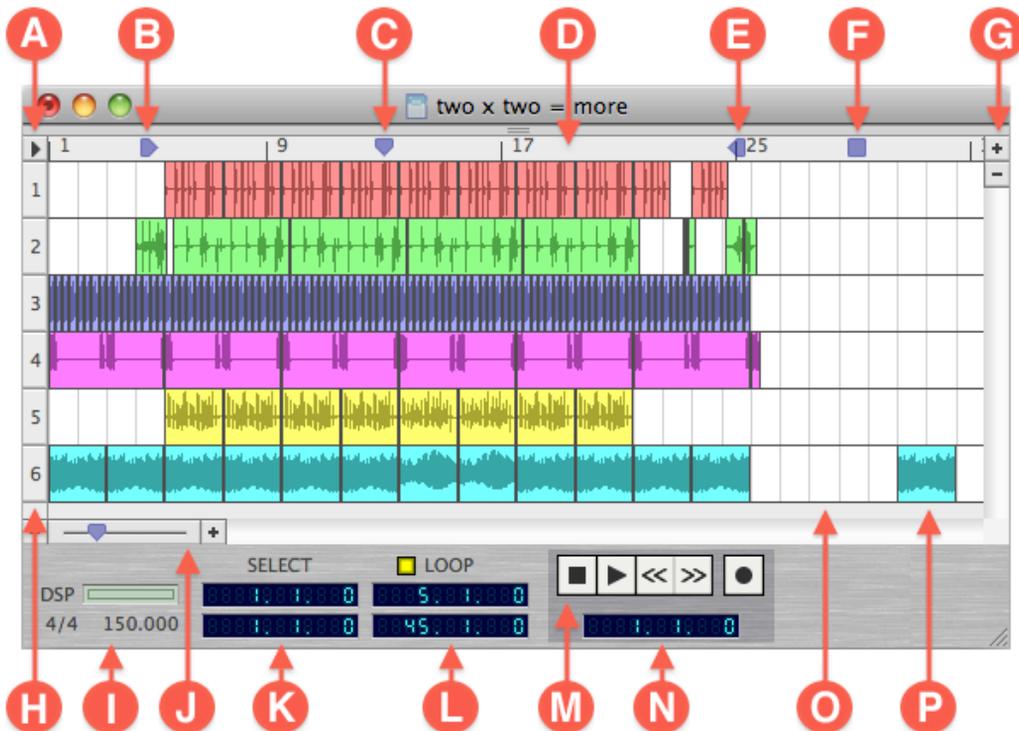
A multitrack document is split into three sections, the mixer, the effects and the timeline...

Mixer - In the mixer you can set the track volume and pan, solo and mute tracks, and add master, send and track effects.

Effects - In the effects section you can adjust the effects settings (effects are added in the mixer).

Timeline - In the timeline you can record or add regions and rearrange them. Note: if the song is playing, clicking on the timeline will stop it from auto-scrolling.

Timeline



A - Automation show/hide button. Automation lets you create changes over time.

B - Loop start indicator. Click and drag to move it. You can also use "Set Loop" in the "Edit" menu.

C - Playhead indicator. Clicking anywhere on the ruler will move the playhead, if the song is playing, it will stop the timeline from auto-scrolling. The playhead is also where cut or copied regions will be pasted in the timeline.

D - Ruler.

E - Loop end indicator. Click and drag to move it. You can also use "Set Loop" in the "Edit" menu.

F - Song end indicator. Click and drag to move it.

G - Vertical zoom controls.

H - Track selection buttons.

I - DSP power usage, time signature and tempo. You can double click on the time signature or tempo to change them.

J - Horizontal zoom controls. You can also use the up/down arrows.

K - Selection range.

L - Loop on/off button and loop range.

M - Transport controls. Stop, Play, Shuttle and Record.

The Stop button will stop the song from playing or recording. If it's already stopped, it will move the playhead to the beginning of the song. Hitting the space bar will also stop playing or recording.

The Play button plays the song. You can also hit the space bar.

The Shuttle will rewind or fast forward the song. Click and drag to the left or right. If you hold down the option key, it will play the song slower instead of faster.

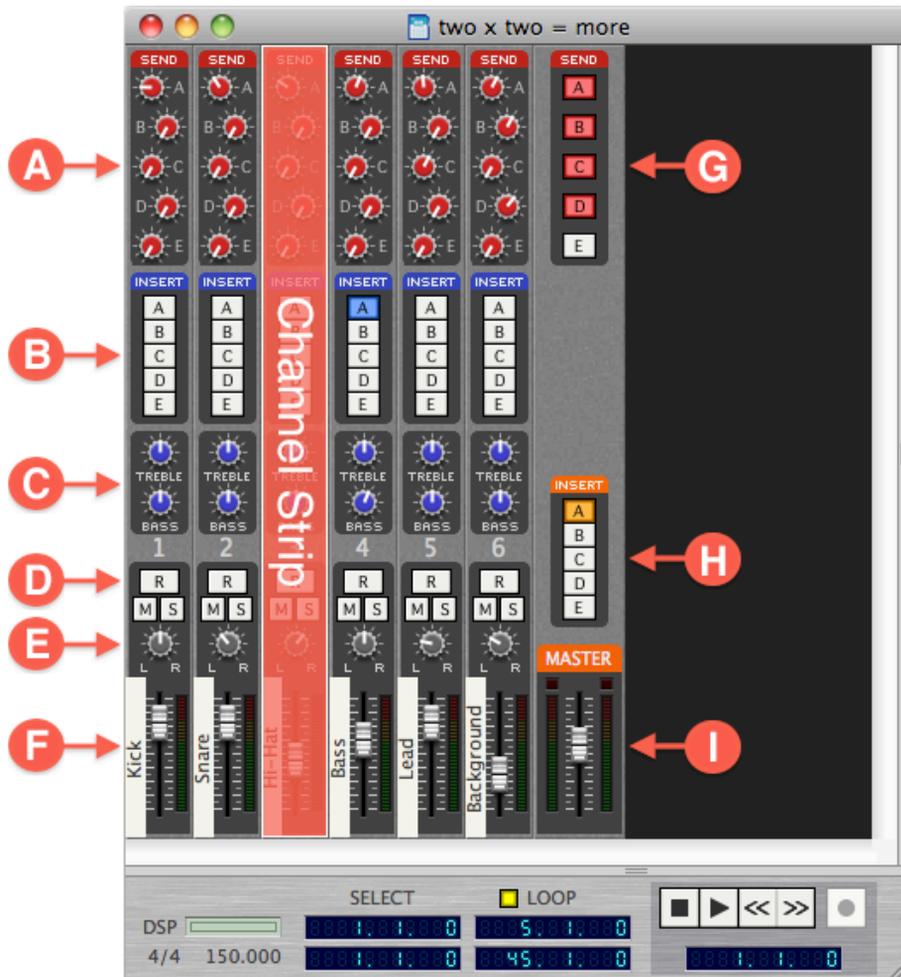
The Record button starts recording a sound. Note: there must be a channel that is record-enabled.

N - Playhead position.

O - Track. This is where you record and add regions. Note: to select the entire track, double click the track. To toggle the track selection, command-click the track.

P - Region. Regions are visual representations of audio data. They can represent all of the sound or a portion of it. You can move and resize them, copy and paste them, and arrange them in any way you like. Note: to adjust the selection, shift-click a region or track. To toggle the region selection, command-click the region. To duplicate regions, option-click a region and drag.

Mixer



Channel Strip - The mixer controls for each track are contained in a channel strip.

A - Channel send effect level controls. Controls how much of the channel's output is sent to the send effect.

B - Channel insert effect popup menus. For adding and deleting channel insert effects.

C - Channel Bass and Treble controls.

D - Channel Record, Mute and Solo buttons.

The record-enabled button enables recording for the track.

Mute silences the track.

Solo silences the other tracks.

E - Channel pan control.

F - Track name, channel fader and level meter.

The track name can be changed by double clicking on it.

The channel level meter shows the output level when playing. When the channel is record-enabled, it shows the input level.

The fader sets the level for the channel. When the channel is record-enabled, it sets the monitor level so you can hear what is being recorded. If you are recording with a microphone and monitoring it with speakers, it is possible to get into a feedback loop. Note: To record in stereo, you will need to make it a stereo track. Select "Track" in the "Multitrack" menu and check "Stereo".

G - Send effect popup menus. For adding and deleting send effects. They correspond to the channel strip's send effect level controls (see "**A**" above).

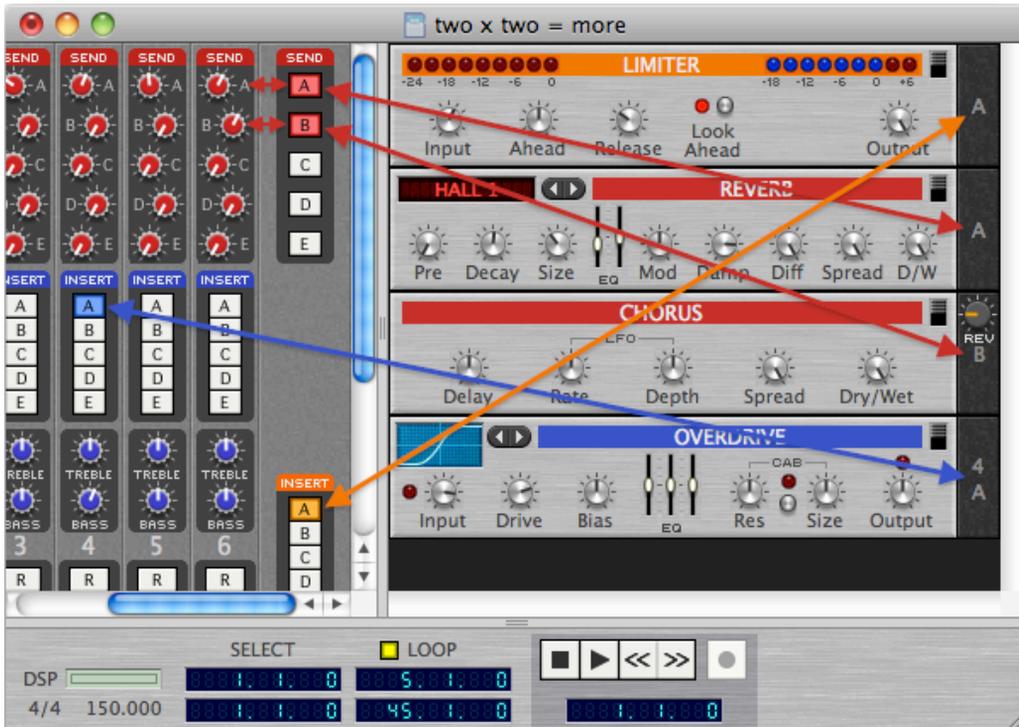
H - Master insert effect popup menus. For adding and deleting master insert effects.

I - Master fader and level meters. The level meters show the final output level after any master insert effects. The clip indicators show when the level is above 0 dB.

Notes:

To set a parameter to the default value, command-click the knob (not all of the parameters have default values). To fine tune a parameter, shift-click the knob.

Effects



Orange - Master insert effects. In this example there is one master insert effect, the Limiter. The left arrow points to the master insert effect popup menus in the mixer. This is where master insert effects are added and deleted. The right arrow points to which effect it is. Master insert effects are inserted in the sound path between the master fader and the master level meters.

Red - Send effects. They are for when you want an effect to be shared by multiple tracks. In this example there are two send effects, Reverb and Chorus. The left arrows point to the send effect popup menus in the mixer. This is where send effects are added and deleted. To the left of the send effect popup menus are the channel's send effect level controls. They set how "wet" the effect is for each channel. The right arrows point to which effect it is. The Chorus also has a reverb send level control which sends the output of the Chorus to the Reverb.

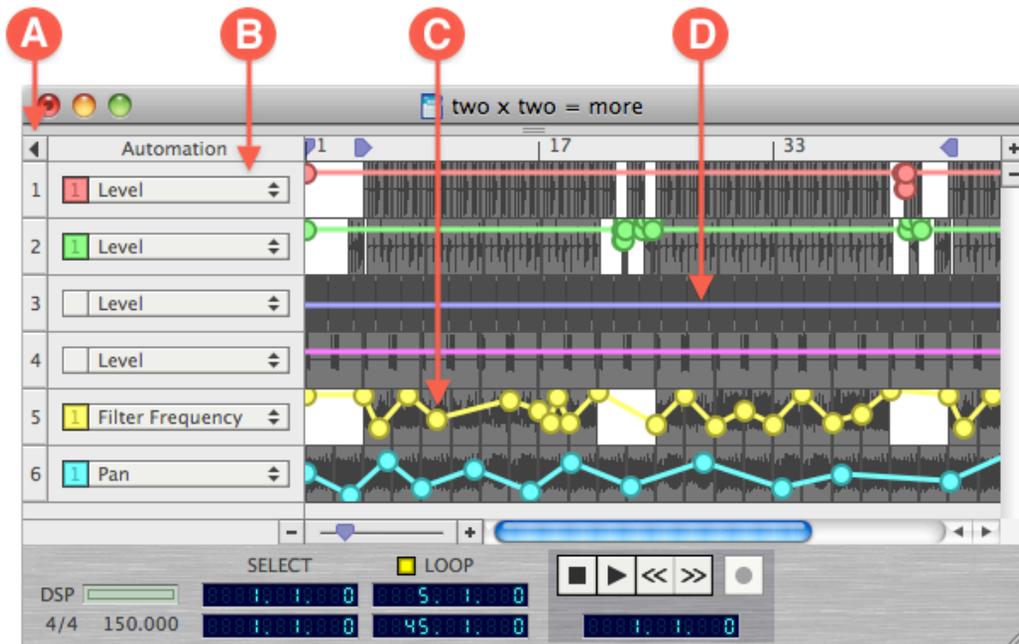
Blue - Channel insert effects. In this example track 4 has one insert effect, Distortion/Overdrive. The left arrow points to the channel's insert effect popup menus in the mixer. This is where channel insert effects are added and deleted. The right arrow points to which effect it is. Channel insert effects are inserted in the sound path between the track and the mixer.

Notes:

To set a parameter to the default value, command-click the knob (not all of the parameters have default values). To fine tune a parameter, shift-click the knob.

See the effects in the "Sound" menu documentation for an explanation of each effect.

Automation



A - Automation show/hide button. Automation lets you create changes over time.

B - Automation type popup menu and enable button. There is automation for level, pan, filter frequency and filter resonance. The enable button also displays the number of automation types that are enabled for that track. So for example if there was automation for the level and panning, it would show "2". Note: to enable the track's filter, select "Track" in the "Multitrack" menu and check "Filter".

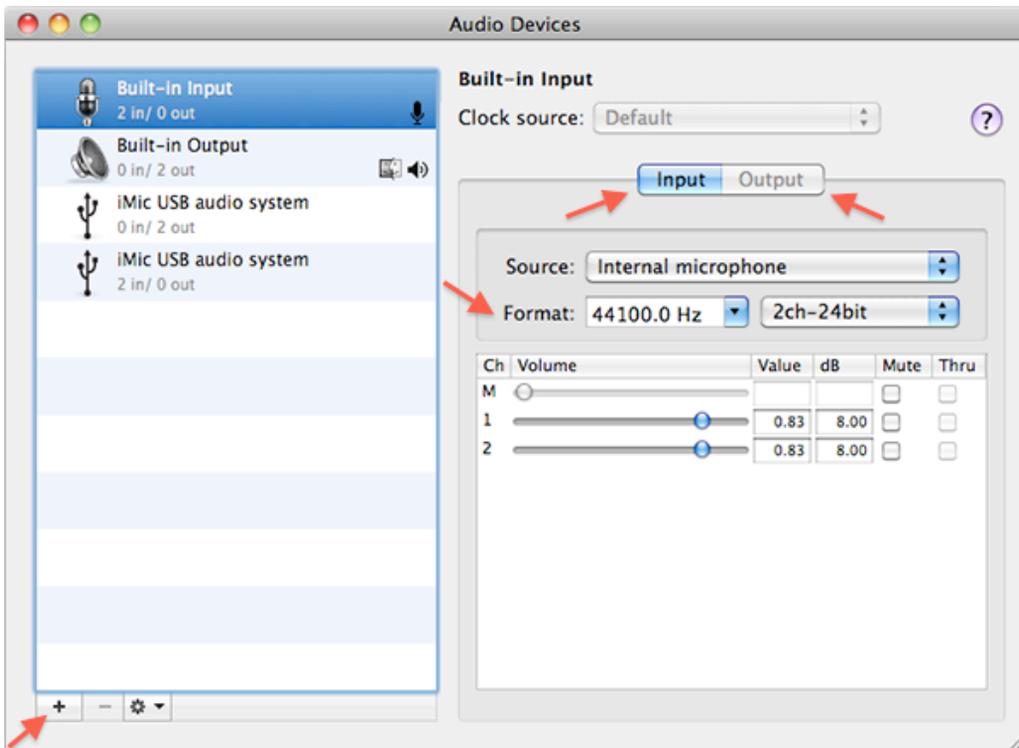
C - Automation envelope tag. Click on a tag to move it. Click on the line to add a new tag. To select a range of tags, shift-click a tag. Most of the edit commands will also work with editing envelope tags (Cut, Copy, Paste, Delete, etc.).

D - When a track does not have automation for a type, it will show the default value. In this example its showing the fader value for the track, so if you move the channel fader, the line will change showing the current value.

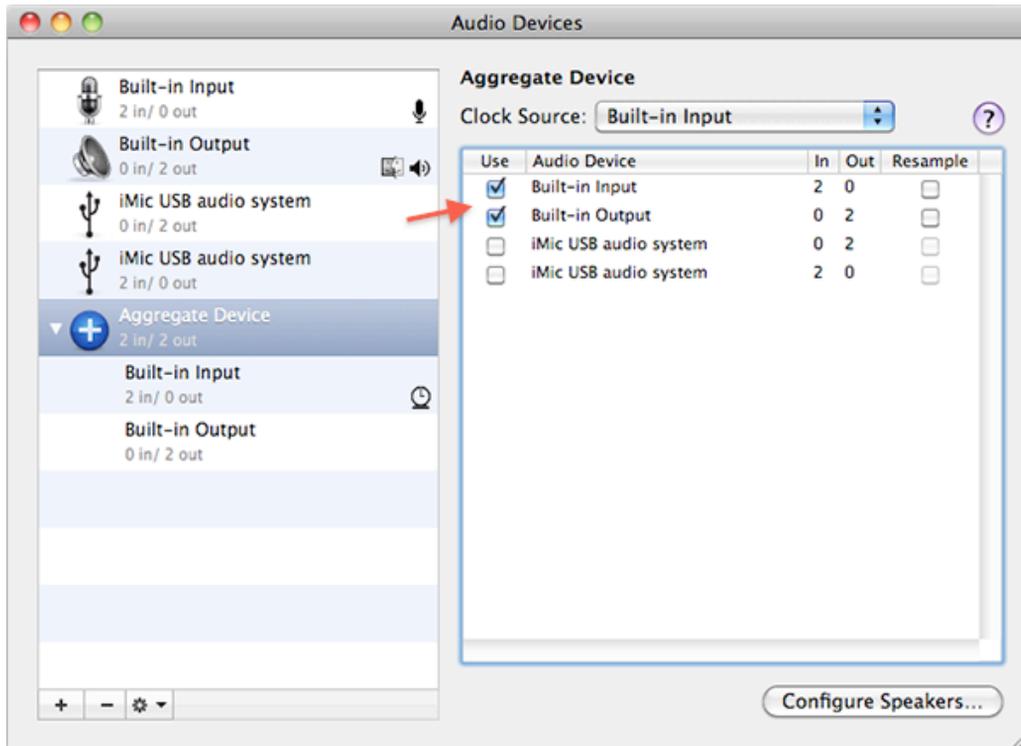
Setting up an aggregate device in OS 10.6 or 10.7

The following steps are necessary only if you are going to record in the multitrack editor on an Intel Macintosh. This is because the input and output are treated as separate devices. You can record in the multitrack editor without an aggregate device, but it may be out of sync and you can't monitor the recording.

1. Open the Audio MIDI Setup application in /Applications/Utilities.
2. Click the **Input** button and set **Format** to 44100.0 Hz.
3. Click the **Output** button and set **Format** to 44100.0 Hz.
4. Click the **+** button to create a new aggregate device.



5. Select an input device (this will be the clock source).
6. Select an output device (Resample will automatically be selected if necessary).



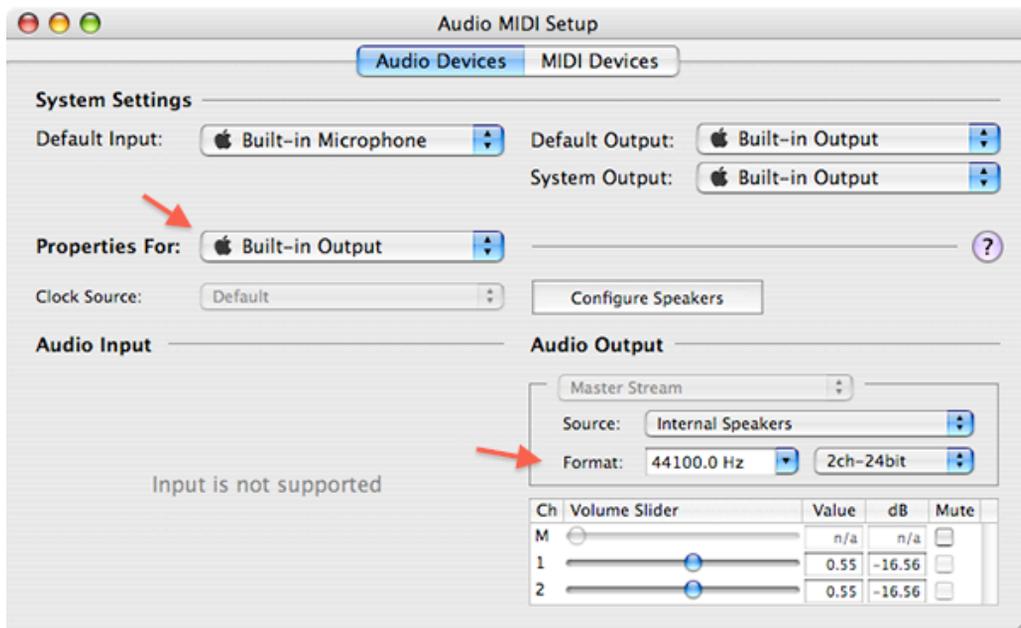
7. Quit Audio MIDI Setup.
8. Open the System Preferences application and click on the **Sound** icon.
9. Click the **Input** button and select the **Aggregate Device**.
10. Click the **Output** button and select the **Aggregate Device**.
11. Quit System Preferences.

Note: When using an aggregate device, you can only adjust the level for the input and output device in Audio MIDI Setup.

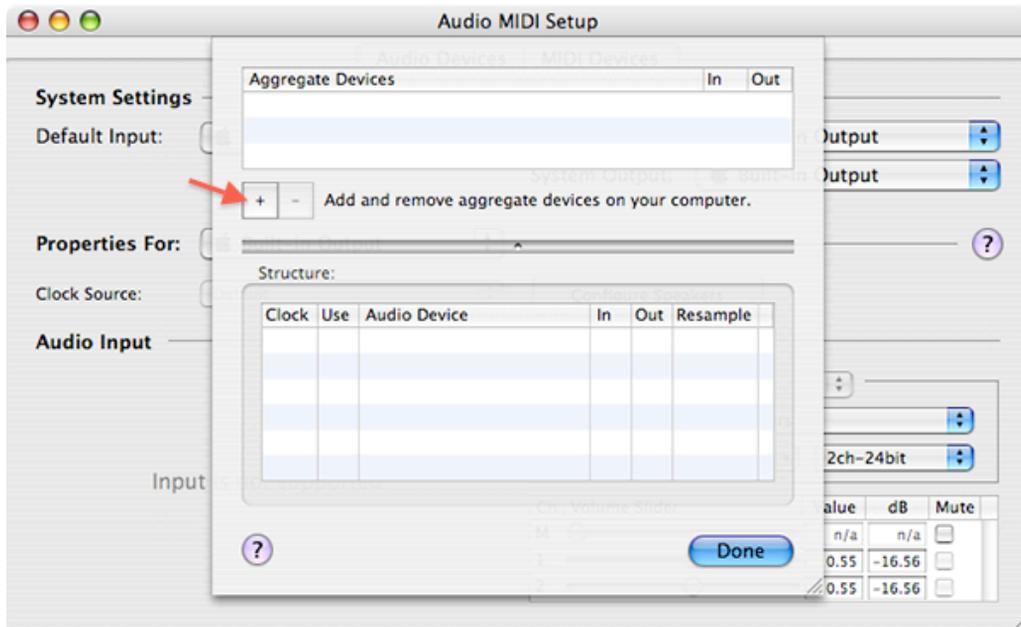
Setting up an aggregate device in OS 10.4 or 10.5

The following steps are necessary only if you are going to record in the multitrack editor on an Intel Macintosh. This is because the input and output are treated as separate devices. You can record in the multitrack editor without an aggregate device, but it may be out of sync and you can't monitor the recording.

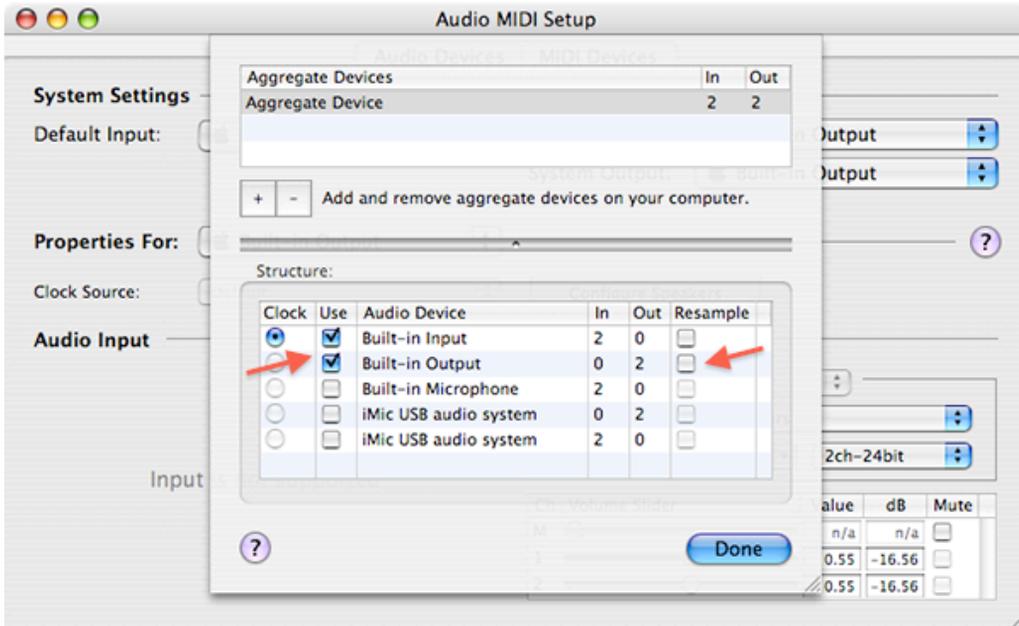
1. Open the Audio MIDI Setup application in /Applications/Utilities.
2. Click the **Properties For** popup menu for the **Input** and set **Format** to 44100.0 Hz.
3. Click the **Properties For** popup menu for the **Output** and set **Format** to 44100.0 Hz.



4. Select **Open Aggregate Device Editor** from the **Audio** menu.
5. Click the **+** button to create a new aggregate device.



6. Select an input device (this will be the clock source).
7. Select an output device (select Resample if necessary).



8. Quit Audio MIDI Setup.
9. Open the System Preferences application and click on the **Sound** icon.
10. Click the **Input** button and select the **Aggregate Device**.
11. Click the **Output** button and select the **Aggregate Device**.
12. Quit System Preferences.

Note: When using an aggregate device, you can only adjust the level for the input and output device in Audio MIDI Setup. Select the **Properties For** popup menu for the Input or Output device, not the Aggregate device.

Keyboard Shortcuts

Left/Right Arrows	In the sound editor, it moves the selection to the left or right. If the option key is held down, it moves the selection to the beginning or the end of the sound. If the shift key is held down, it extends the selection to the left or right (the shift and option keys can be used together). In the multitrack editor, it moves the playhead to the previous or next bar.
Up/Down Arrows	Zoom in/out horizontally.
Page Up/Down	Jump to the previous/next page.
Home	Jump to the beginning of the sound or song.
End	Jump to the end of a sound or song.
Tab	Jump to the start or the end of a selection.
Caps Lock	When the caps lock is on in the sound editor, the length field shows the length of the selection instead of the length of the sound.
Space Bar	Play or stop.

About box keyboard shortcuts (registered users only).

1, 2	Toggles the oscillators on/off.
Left/Right Arrows	Decreases/increases the reverb decay time.
Up/Down Arrows	Increases/decreases the reverb level.
Caps Lock	When the caps lock is on, it uses the spring reverb (after reset).
Escape	Randomly resets the sound settings. Clicking on the about box works too.
Space Bar	Extends the play time (normally it's one minute).

File Menu

New Sound

Displays a dialog box where you can set the sample rate and number of channels for the new sound document.

Sample Rate The sample rate can be from 1000 to 1000000 hertz. The popup list has some of the most common sample rates.

Channels Mono or stereo.

Notes:

The bit depth is set when the file is saved because Sound Sculptor Pro does all of its sound processing in 32 bit float (Resample uses 64 bit float).

New Multitrack

Displays a dialog box where you can set the tempo and time signature for the new multitrack document.

Tempo The speed of the song in beats per minute (BPM).

Time Signature The first number is how many beats in a bar. The second number is length of a beat.

Notes:

The default snap to grid setting is 16ths. To change the snap to grid settings, select "Multitrack" in the "Multitrack" menu.

Open

Displays the open dialog box. You can open AIFF, WAVE and Sound Sculptor Pro multitrack files.

Close

Close the document.

Save

Saves the document to disk.

Save As

Displays the save as dialog box. The following is for sound documents only.

Format	The type of file. AIFF or WAVE.
Bit Depth	The number of bits per sample. 8, 16, 24 bit integer or 32 bit float.
Dither	This adds a virtually inaudible amount of Gaussian noise (equivalent to high pass filtered noise) that helps hide quantization noise at low levels.

Notes:

Sound Sculptor Pro converts all files to 32 bit float when opening them (if they are not already). When saving audio files, it's best to save them as 32 bit float if you plan on editing them some more. This avoids quantization noise that's caused by going to lower bit depths. When your completely done editing, you can save it as 16 bit integer with the option of dithering. Since it adds noise, only dither a sound that's not going to be edited anymore.

Revert

Reloads the file from disk.

Import Audio Files

Displays a dialog box where you can choose multiple audio files to import into an empty multitrack document.

Edit Menu

Undo

Reverses the last change made.

Redo

Reverses the last undo.

Cut

Copies the selected area to the clipboard and deletes it.

Copy

Copies the selected area to the clipboard.

Paste

Puts the contents of the clipboard into the selected area.

Crop

Deletes the areas before and after the selected area.

Delete

Deletes the selected area.

Select All

The first time it selects the entire channel or track. The second time it selects all of the channels or tracks.

Select None

Sets the selection to nothing.

Select Loop

Selects the loop.

Zero Crossing

Finds the points at the beginning and the ending of the selection that cross zero. Then when you set the loop, it should play the loop smoothly without any ticking.

Set Loop

Sets the loop points to the beginning and the ending of the selection. Use "Zero Crossing" to find the best loop points.

Sound Menu

(sound documents only)

Add Channel

Adds a channel to a mono sound to make it stereo. There is a maximum of two channels.

Delete Channel

Deletes the selected channel. There must be at least one channel.

Swap Channels

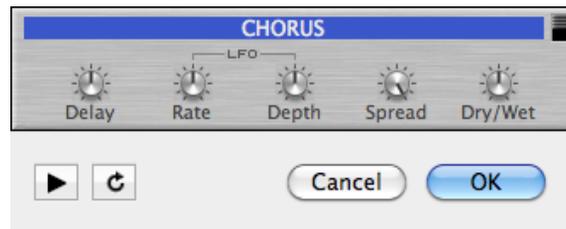
Swaps the left and right channels.

Convert to Mono

Mixes the left and right channels and deletes the right channel.

Effects

The sound editor shares most of the same effects with the multitrack editor, so the effects documentation for the sound editor works for the multitrack editor too.



Here are a few things that are common in most of the effect dialog boxes.

- On/Off** Turns the effect on and off (upper right).
- Preview** Plays the sound using the effect in realtime (lower left).
- Reset** Resets all of the parameters to the original values (lower left).
- Cancel** Cancels the effect.
- OK** Applies the effect to the sound.

Notes:

To set a parameter to the default value, command-click the knob (not all of the parameters have default values). To fine tune a parameter, shift-click the knob.

Amplify

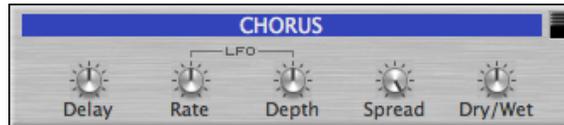
The Amplify effect adjusts the amplitude (volume) of the audio signal.

Amplify The amount the audio signal is amplified. 200% would double the amplitude, 50% would be half the amplitude.

Notes:

To set the amplitude to a specific level, use the Normalize effect.

Chorus



The Chorus effect makes a single instrument sound like multiple instruments. It works by mixing the original signal with two signals that are delayed and modulated by an LFO (low frequency oscillator).

Delay	The amount of time the signal is delayed.
LFO Rate	The speed the delay is modulated.
LFO Depth	The amount the delay is modulated.
Stereo Spread	The width of the stereo image. Negative numbers swap the left and right outputs.
Dry/Wet	The balance between the dry and wet signals.

Notes:

This gives you a thicker sounding chorus than the Chorus/Flanger because it uses two modulated audio signals instead of one.

For a natural sound, the higher the LFO Rate, the lower the LFO Depth, and vice versa.

It also works good with the wet signal only (Delay = 0, Dry/Wet = 127).

Chorus/Flanger



The Chorus/Flanger effect can function as a chorus or a flanger depending on the settings. The chorus makes a single instrument sound like two instruments. The flanger gives the sound a "whooshing" effect. It works by mixing the original signal with a signal that is delayed and modulated by an LFO (low frequency oscillator).

Effect Variation	1. Has a rate and a right channel phase control. 2. Has left and right rate controls.
Delay	The amount of time the signal is delayed. Use a short delay for a flanger effect.
Feedback	The amount of the output signal that is fed back into the input. Increases the strength of the flanger effect. Negative numbers invert the feedback signal. Normally set to zero for a chorus effect.
LFO Rate	The speed the delay is modulated.
LFO Sync	Synchronizes the LFO with the tempo. Available in the multitrack editor only.
LFO Depth	The amount the delay is modulated.
LFO Phase	The phase difference between the left and right LFOs. 90 degrees is common for a stereo effect.
Stereo Spread	The width of the stereo image. Negative numbers swap the left and right outputs.
Dry/Wet	The balance between the dry and wet signals.

Notes:

The default parameter settings give a flanger effect.

For a chorus effect, give it a medium delay, no feedback, a high rate or depth, and a phase of about 90 degrees.

Compressor



The Compressor decreases the dynamic range of the audio signal by making the loud parts of the sound quieter. It works by reducing the level of the sound that's above the threshold by the ratio amount.

RMS/Peak	RMS (root mean square) or peak level detection. Peak detection is for limiting.
Auto Makeup Gain	Raises the output level by the total gain reduction amount.
Threshold	Gain reduction starts above this level.
Ratio	The amount of gain reduction. Below 2:1 is mild compression. Above 10:1 is limiting.
Soft Knee	How gradual the compressor starts working below the threshold.
Attack	The time it takes for the compressor to start working.
Smooth	Smooths the attack and release transitions. 0, 1, 2 and 3.
Release	The time it takes for the compressor to stop working.
Output Gain	The amount of gain applied to the output signal. The LED shows when it's over 0 dB.
Clip	The type of clipping used on the output signal. Soft (+2, +4, +6 dB) and hard at 0 dB.
Meter	Shows the amount of gain reduction.

Notes:

If the compressor doesn't seem to be working, try lowering the Threshold.

If it's compressing too much, try raising the Threshold or lowering the Ratio.

If it doesn't sound natural when the compressor is attacking, try increasing the Attack time.

If it's "pumping" or "breathing", try increasing the Release time.

For *upward* compression, use the Expander and click on the upward compressor button.

Delay



The Delay creates echo effects by mixing the original signal with a delayed signal. It can have a single echo or multiple echos by adding feedback.

Delay Unit	Sets the delay to be in milliseconds or steps. Available in the multitrack editor only.
Step Length	Sets the delay steps to 1/16 or 1/8T of a note. Eighth triplet is the equivalent of 1/12 of a note. Available in the multitrack editor only.
Mono/Stereo	Sets the delay to operate in mono (mixes the left and right input signals) or stereo.
Delay	The amount of time the signal is delayed.
Feedback	The amount of the output signal that is fed back into the input. Negative numbers invert the feedback signal.
Damp Low Freqs.	The amount that the feedback signal is high pass filtered.
Damp High Freqs.	The amount that the feedback signal is low pass filtered.
Pan	Pans the delayed signal to the left or the right.
Dry/Wet	The balance between the dry and wet signals.

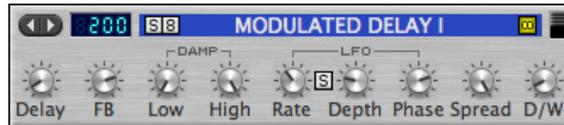
LCR Delay



The LCR Delay creates echo effects by mixing the original signal with three delayed signals (left, center and right).

Delay Unit	Sets the delay to be in milliseconds or steps. Available in the multitrack editor only.
Step Length	Sets the delay steps to 1/16 or 1/8T of a note. Eighth triplet is the equivalent of 1/12 of a note. Available in the multitrack editor only.
Mono/Stereo	Sets the delay to operate in mono (mixes the left and right input signals) or stereo.
Delay	The amount of time the signal is delayed.
Level	The level of the delayed signal.
Feedback	The amount of the output signal that is fed back into the input. Negative numbers invert the feedback signal.
Damp Low Freqs.	The amount that the feedback signal is high pass filtered.
Damp High Freqs.	The amount that the feedback signal is low pass filtered.
Stereo Spread	The width of the stereo image. Negative numbers swap the left and right outputs.
Dry/Wet	The balance between the dry and wet signals.

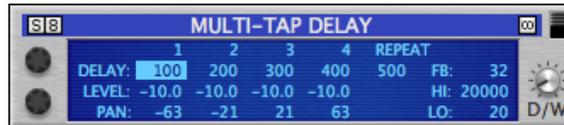
Modulated Delay



The Modulated Delay creates echo effects by mixing the original signal with a delayed signal modulated by an LFO (low frequency oscillator). Modulation adds depth to the stereo image and gives it a slight chorus effect.

Effect Variation	1. Has a rate and a phase control. 2. Has left and right rate controls.
Delay Unit	Sets the delay to be in milliseconds or steps. Available in the multitrack editor only.
Step Length	Sets the delay steps to 1/16 or 1/8T of a note. Eighth triplet is the equivalent of 1/12 of a note. Available in the multitrack editor only.
Mono/Stereo	Sets the delay to operate in mono (mixes the left and right input signals) or stereo.
Delay	The amount of time the signal is delayed.
Feedback	The amount of the output signal that is fed back into the input. Negative numbers invert the feedback signal.
Damp Low Freqs.	The amount that the feedback signal is high pass filtered.
Damp High Freqs.	The amount that the feedback signal is low pass filtered.
LFO Rate	The speed the delay is modulated.
LFO Sync	Synchronizes the LFO with the tempo. Available in the multitrack editor only.
LFO Depth	The amount the delay is modulated.
LFO Phase	The phase difference between the left and right LFOs. 90 degrees is common for a stereo effect.
Stereo Spread	The width of the stereo image. Negative numbers swap the left and right outputs.
Dry/Wet	The balance between the dry and wet signals.

Multi-Tap Delay



The Multi-Tap Delay creates echo effects by mixing the original signal with four delayed signals that can be panned independently of each other.

Delay Unit	Sets the delay to be in milliseconds or steps. Available in the multitrack editor only.
Step Length	Sets the delay steps to 1/16 or 1/8T of a note. Eighth triplet is the equivalent of 1/12 of a note. Available in the multitrack editor only.
Mono/Stereo	Sets the delay to operate in mono (mixes the left and right input signals) or stereo.
Parameter Selector	Selects the parameter. You can also click on a parameter to select it.
Parameter Value	Sets the value for the selected parameter.
Delay	The amount of time the signal is delayed.
Level	The level of the delayed signal.
Pan	Pans the delayed signal to the left or the right.
Repeat Delay	The amount of time the feedback signal is delayed.
Feedback	The amount of the output signal that is fed back into the input. Negative numbers invert the feedback signal.
Damp Low Freqs.	The amount that the feedback signal is high pass filtered.
Damp High Freqs.	The amount that the feedback signal is low pass filtered.
Dry/Wet	The balance between the dry and wet signals.

Stereo Delay



The Stereo Delay creates echo effects by mixing the original signal with two delayed signals (left and right). It can add depth to the stereo image by having slightly different delays for the left and right signals or by inverting the feedback of one of the signals. It also has cross feedback for ping-pong effects.

Delay Unit	Sets the delay to be in milliseconds or steps. Available in the multitrack editor only.
Step Length	Sets the delay steps to 1/16 or 1/8T of a note. Eighth triplet is the equivalent of 1/12 of a note. Available in the multitrack editor only.
Input Left Cross Feedback	Combines the left and right input signals and sends them to the left input of the delay and enables cross feedback. Cross feedback is when the left output is fed back into the right input and vice versa (sometimes called a Ping-Pong delay).
Input Right Cross Feedback	Same as above. If both the left and the right are selected, the inputs are swapped.
Delay	The amount of time the signal is delayed.
Feedback	The amount of the output signal that is fed back into the input. Negative numbers invert the feedback signal.
Damp Low Freqs.	The amount that the feedback signal is high pass filtered.
Damp High Freqs.	The amount that the feedback signal is low pass filtered.
Stereo Spread	The width of the stereo image. Negative numbers swap the left and right outputs.
Dry/Wet	The balance between the dry and wet signals.

Distortion/Overdrive



The Distortion/Overdrive effect can do everything from tape saturation, to vacuum tube type overdrive, to transistor type hard clipping distortion.

Effect Variation	The type of distortion. Overdrive, Distortion, Saturation, Foldback, Flipover, Wraparound and Exponential.
Input Gain	The amount of gain applied to the input signal. The LED shows when it is over 0 dB.
Shape	The amount the signal is distorted. The Input Gain also effects the amount of distortion. Note: the name changes depending on the type of distortion.
Bias	The distortion symmetry. For symmetrical (odd harmonics only) or asymmetrical distortion.
EQ	The amount of boost or cut to the low, mid and high frequency bands.
Cabinet Resonance	The amount of cabinet resonance.
Cabinet On/Off	Switches the cabinet simulator on or off.
Cabinet Size	The size of the cabinet.
Output Gain	The amount of gain applied to the output signal. The LED shows when it's over 0 dB.

Envelope Follower



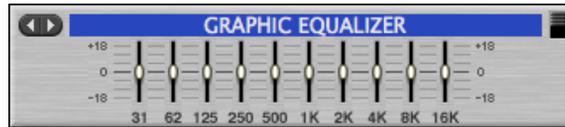
The Envelope Follower creates auto-wah type effects. It works by following the envelope of the audio signal to control a filter or other type of effect.

Effect Variation	The type of envelope follower. Low pass filter (-24, -18, -12, -6 dB per octave ladder filter), high pass filter, band pass filter, notch filter, comb filter and pan.
Invert Envelope	Inverts the envelope.
Sensitivity	Controls how the envelope follows the signal. The LED indicates when it's fully opened.
Attack	The time it takes for the envelope follower to start working.
Decay	The time it takes for the envelope follower to stop working.
Depth	The amount the filter or effect is modulated by the envelope.
Filter Frequency	The filter's cutoff frequency.
Filter Resonance	The amount of filter resonance (feedback). For the notch filter, it controls the bandwidth.
Filter Overload	The amount the filter is overdriven.

Erase

The Erase effect replaces the audio with silence.

Graphic Equalizer

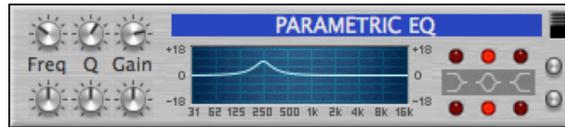


The Graphic Equalizer adjusts the tone of the audio signal by boosting or cutting up to ten predefined frequency bands.

Effect Variation The type of equalizer. 10 band, 5 band and 3 band.

EQ Bands The amount of boost or cut to the frequency band.

Parametric Equalizer



The Parametric Equalizer adjusts the tone of the audio signal by boosting or cutting two variable frequency bands.

Frequency	The filter's cutoff frequency.
Q	The peaking filter's bandwidth or the shelving filter's slope.
Gain	The amount of boost or cut to the frequency band.
Type	The type of equalizer. Low shelving, peaking and high shelving.

Exciter



The Exciter effect adds high frequency harmonics to the audio signal which makes it sound brighter. It creates harmonics related to the original sound instead of boosting them like an equalizer does. It works by high pass filtering the input signal, distorting it, then adding it back to the original signal.

Input Gain	The amount of gain applied to the input signal. The LED shows when it is over 0 dB.
Drive	The amount the signal is distorted. The Input Gain also effects the amount of distortion.
Filter Frequency	The high pass filter's cutoff frequency.
Depth	The amount of harmonics added to the original signal.
Output Gain	The amount of gain applied to the output signal. The LED shows when it's over 0 dB.

Expander



The Expander increases the dynamic range of the audio signal by making the quiet parts of the sound quieter. It works by reducing the level of the sound that's below the threshold by the ratio amount. It can also operate as an upward compressor by *increasing* the level of the sound that's below the threshold.

RMS/Peak	RMS (root mean square) or peak level detection. Peak detection is for noise gating.
Upward Compressor	Raises the output level below the threshold instead of lowering it.
Threshold	Gain reduction starts below this level.
Ratio	The amount of gain reduction. Below 2:1 is mild expansion. Above 10:1 is noise gating.
Soft Knee	How gradual the expander starts working below the threshold.
Attack	The time it takes for the expander to stop working.
Smooth	Smooths the attack and release transitions. 0, 1, 2 and 3.
Release	The time it takes for the expander to start working.
Output Gain	The amount of gain applied to the output signal. The LED shows when it's over 0 dB.
Clip	The type of clipping used on the output signal. Soft (+2, +4, +6 dB) and hard at 0 dB.
Meter	Shows the amount of gain reduction.

Notes:

If the expander doesn't seem to be working, try raising the Threshold.

If it's expanding too much, try lowering the Threshold or lowering the Ratio.

If it doesn't sound natural when the expander is attacking, try decreasing the Attack time.

If it's "pumping" or "breathing", try increasing the Release time.

When the Expander is operating as an upward compressor, some of the parameters work differently.

Threshold	Gain amplification starts below this level.
Ratio	The amount of gain amplification.
Attack	The time it takes for the compressor to start working.
Release	The time it takes for the compressor to stop working.
Meter	Shows the amount of gain amplification.

Notes:

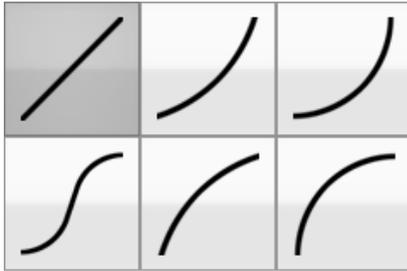
If the compressor doesn't seem to be working, try raising the Threshold.

If it's compressing too much, try lowering the Threshold or lowering the Ratio.

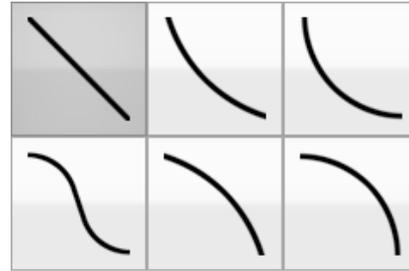
If it doesn't sound natural when the compressor is attacking, try increasing the Attack time.

If it's "pumping" or "breathing", try increasing the Release time.

Fade In/Out



Fade In



Fade Out

The Fade effect gradually fades the level of the audio signal either in or out.

Fade Type The type of fade. In or Out.

Curve Type The type of level curve.

Filter



The Filter effect adjusts the tone of the audio signal by filtering out certain frequencies.

Effect Variation The type of filter. Low pass filter (-24, -18, -12, -6 dB per octave ladder filter), high pass filter, band pass filter, notch filter and comb filter.

Frequency The filter's cutoff frequency.

Resonance The amount of filter resonance (feedback). For the notch filter, it controls the bandwidth.

Overload The amount the filter is overdriven.

Invert

The Invert effect flips the audio signal upside down.

Limiter



The Limiter limits the level of the audio signal by preventing the peaks from hard clipping. It works by reducing the level of the sound when it's above a threshold of 0dB to a level of 0 dB. This makes it possible to increase the input gain to make the sound louder and still keep it from hard clipping.

Input Gain	The amount of gain applied to the input signal.
Attack/Ahead	The time it takes for the limiter to start working. When Look Ahead is enabled, it's also the amount of time it looks ahead and analyzes the input signal. Note: the look ahead time is actually the amount of time the signal is delayed.
Release	The time it takes for the limiter to stop working.
Look Ahead	When Look Ahead is enabled, it functions as a "brick wall" limiter, otherwise some of the signal may be above 0 dB and be clipped.
Soft Clip	How soft the clipping is. It will hard clip when it's set to zero. The LED shows when it's hard clipping. This is only available when Look Ahead is disabled. Note: it's not necessary to make it so it never hard clips. The more it's soft clipped, the more the audio signal below 0 dB is changed.
Output Gain	The amount of gain applied to the output signal.
Reduction Meter	Shows the amount of gain reduction.
Output Meter	Shows the output signal level. When Look Ahead is disabled, it shows the output signal level before the soft clipper. For stereo sounds it shows the loudest channel.

Notes:

If it's limiting too much, try lowering the input gain.

If it doesn't sound natural when the limiter is attacking, try increasing the Attack/Look Ahead time.

If it's "pumping" or "breathing", try increasing the Release time.

Lo-Fi



The Lo-Fi (low fidelity) effect emulates vintage digital hardware by reducing the sample rate and the number of bits per sample. You can also emulate vintage analog hardware by adding noise and adjusting the tone.

Sample Rate	The sample rate. Values lower than the maximum can create alias distortion.
Anti-Alias Filter	The amount of anti-alias filtering. This reduces the aliasing.
Sample Size	The number of bits per sample. Values lower than the maximum can create quantization noise.
Noise Color	The color of the noise. From white to pink.
Noise Amount	The amount of noise added to the signal.
Tone	The tone filter's cutoff frequency.

Modulation



The Modulation effect creates vibrato and tremolo type effects and more. It works by having a filter or other type of effect modulated by an LFO (low frequency oscillator).

Effect Variation	The type of modulation. Amplitude, pan, frequency, low pass filter (-24, -18, -12, -6 dB per octave ladder filter), high pass filter, band pass filter, notch filter and comb filter.
Invert Waveform	Inverts the waveform.
Waveform Type	The type of waveform.
Waveform Shape	The shape of the waveform.
Waveform Phase	The phase of the waveform. Available in the multitrack editor only. Note: LFO Sync must be enabled.
LFO Rate	The speed the effect is modulated.
LFO Sync	Synchronizes the LFO with the tempo. Available in the multitrack editor only.
LFO Depth	The amount the effect is modulated.
Filter Frequency	The filter's cutoff frequency.
Filter Resonance	The amount of filter resonance (feedback). For the notch filter, it controls the bandwidth.
Filter Overload	The amount the filter is overdriven.

Normalize

The Normalize effect sets the amplitude (volume) of the audio signal to a specific level.

Normalize The level the audio signal level is set to. Normalizing it to 100% would set it to the maximum level without going above 0 dB.

Notes:

Some effects can raise the level of the audio signal. If it raises it above 0 dB you can use normalize afterward to bring it below 0 dB. This is possible because Sound Sculptor uses floating point numbers that don't clip like integers.

To adjust the amplitude by a specific amount, use the Amplify effect.

Phaser



The Phaser effect gives a swirling "whooshing" quality to the sound. It works by mixing the original signal with a signal that has its phase modulated by an LFO (low frequency oscillator) which creates notches that move back and forth across the frequency spectrum. It uses all-pass filters to create the phase shift, where a flanger does it by delaying the audio signal.

Effect Variation	1. Has a rate and a right channel phase control. 2. Has left and right rate controls.
Frequency	The pitch of the notches.
Resonance	The amount of the output signal that is fed back into the input. Increases the strength of the phaser effect. Negative numbers invert the feedback signal.
Stages	The number of stages. 4, 6, 8, 10 and 12. It takes two stages to make one notch. So for example, four stages would have two notches.
LFO Rate	The speed the phase is modulated.
LFO Sync	Synchronizes the LFO with the tempo. Available in the multitrack editor only.
LFO Depth	The amount the phase is modulated.
LFO Phase	The phase difference between the left and right LFOs. 90 degrees is common for a stereo effect.
Stereo Spread	The width of the stereo image. Negative numbers swap the left and right outputs.
Dry/Wet	The balance between the dry and wet signals.

Remove DC

The Remove DC effect removes the DC (direct current) offset from the audio signal.

Resample

Resample changes the sound's sample rate up or down. It uses a very high quality algorithm that has virtually no alias distortion or noise.

Sample Rate	The sample rate can be from 1000 to 1000000 hertz. The popup list has some of the most common sample rates.
Resample	If checked it will resample the sound, otherwise it will just change the sample rate.
Quality	Good, better or best. All of them are virtually alias distortion and noise free. They mainly differ by the steepness of the filter's slope. For example, "Best" has the steepest slope, but it is the slowest.

Notes:

The highest frequency a sound can have is half of the sample rate. This is called the Nyquist frequency. So the highest frequency a 44100 hertz sound can have is 22050 hertz. Any frequencies higher than 22050 hertz (that aren't filter out) will cause alias distortion.

It will work as a low pass filter with a very steep slope if you don't change the sample rate and "Resample" is checked. "Quality" will control the steepness of the filter's slope.

You can see a comparison of many different sample rate converters here:
<http://src.infinetwave.ca/?Top=SoundSculpt3>

Reverb



The Reverb effect simulates how sound reverberates in acoustic spaces like a concert hall or room.

Effect Variation	The type of reverb. Hall 1, 2, 3, Room 1, 2, 3, Plate, and Spring 1, 2, 3.
Predelay	An additional amount of time the reverb is delayed. Normally set to zero.
Decay Time	The time it takes for the reverb tail to drop below -60 dB.
Room Size	The size of the room. It also effects the decay time.
EQ	The amount of boost or cut to the low and high frequency bands. Normally you would want to cut the low frequencies some so they don't overpower the reverb.
Modulation	The amount the delays are modulated. This adds a natural, dynamic quality to the reverb. For Hall and Room only.
Damp Low Freqs.	Controls how fast the low frequencies decay. For Plate and Spring only.
Damp High Freqs.	Controls how fast the high frequencies decay.
Diffusion	The amount of diffusion. Lower settings make the early reflections more pronounced, while higher settings smooth out the reverb.
Stereo Spread	The width of the stereo image. Negative numbers swap the left and right outputs.
Dry/Wet	The balance between the dry and wet signals.
Spring	Controls how "springy" the Spring reverb sounds.

Notes:

A plate reverb is a large metal plate with two or more transducers on it. It's normally only found in studios. A spring reverb is a small metal box (tank) with two or three springs inside. Each spring has a transducer at both ends that converts the electrical energy to mechanical energy, then back to electrical energy. It's found in some guitar amps and organs.

Reverse

The Reverse effect turns the sound backwards.

Soft Clipper



The Soft Clipper clips the peaks of the audio signal above 0 dB in a gradual way that sounds better than hard clipping. It can be used as a limiter or to warm up the sound.

Input Gain	The amount of gain applied to the input signal.
Amount	How soft the clipping is. It will hard clip when it's set to zero. The LED shows when it's hard clipping.
Output Gain	The amount of gain applied to the output signal.
Input Meter	Shows the input signal level. For stereo sounds it shows the loudest channel.

Notes:

Vintage vacuum tube audio equipment soft clips loud sounds, where transistor audio equipment hard clips them.

Stereo Imager



The Stereo Imager can widen or narrow the stereo image. It splits the audio signal into low and high frequency bands which makes it possible to narrow the low frequencies (to give it more "punch") and widen the high frequencies.

Invert Left Channel Inverts the phase of left channel. This is for correcting phase problems.

Swap Channels Swaps the left and right channels.

Invert Right Channel Inverts the phase of right channel. This is for correcting phase problems.

Lo Width Adjusts the stereo width for the low frequencies. Positive values widen the stereo image, negative values narrow it.

Crossover Sets the crossover frequency between the low and high frequency bands.

Hi Width Adjusts the stereo width for the high frequencies. Positive values widen the stereo image, negative values narrow it.

Balance The balance between the low and high frequency bands.

Output Gain The amount of gain applied to the output signal. The LED shows when it's over 0 dB.

Notes:

The Stereo Imager only works with stereo sounds. It will not make a mono sound into a stereo sound.

Multitrack Menu

(multitrack documents only)

Realtime Effects

When checked it enables the realtime effects.

Metronome

When checked it enables the metronome.

Calculate BPM

Displays a dialog box where you can tap the space bar and it will show the tempo. It averages your last three taps.

Multitrack

Displays a dialog box where you can set the tempo, time signature and snap to grid settings for the multitrack document.

Sample Rate	The sample rate is always 44100 hertz.
Tempo	The speed of the song in beats per minute (BPM).
Time Signature	The first number is how many beats in a bar. The second number is length of a beat.
Snap to Grid	If checked it will "snap" the region into position based on the Grid Resolution setting.
Grid Resolution	Controls how the regions are "snapped" into position. Note: if you have the grid resolution set to 16th's for example, and it's only zoomed in enough for the ruler to show 8th's, it will snap to 8th's instead of 16th's.

Notes:

You can also double click on the time signature or tempo in the multitrack window to bring up this dialog box.

Song Info

Displays a dialog box where you can enter text about the song.

Insert Bars

Inserts the same number of bars that are selected.

Remove Bars

Removes the selected bars.

Mix Down

Mixes down the multitrack song to a stereo sound and displays it in a new window.

Track

Displays a dialog box for the selected track where you can set the track name, make the track stereo or mono, send the track's output to a submix, and setup the resonant filter.

Name	The name of the track.
Stereo	If checked the track will work in stereo instead of mono.
Submix	If checked the track's output is sent to the submix track.
Submix Track	The track the submix is sent to. The submix track does not play regions, but only what is sent to it by other tracks. This allows you to control multiple tracks with one track (automation, effects, etc.).
Filter	If checked the track's resonant filter is enabled. The filter's frequency and resonance can be automated.
Filter Type	The type of filter. Low pass filter (-24, -18, -12, -6 dB per octave ladder filter), high pass filter, band pass filter and notch filter.
Filter Frequency	The filter's cutoff frequency.
Filter Resonance	The amount of filter resonance (feedback). For the notch filter, it controls the bandwidth.
Filter Overload	The amount the filter is overdriven.

Notes:

You can also double click on the track name in the mixer to bring up this dialog box.

Add Track

Adds a track. There can be up to 99 tracks.

Delete Track

Deletes the selected tracks. There must be at least one track.

Region

Displays a dialog box for the selected region where you can set the region name and choose the sound.

Name The name of the region. The default value is the name of the sound.

Sound The sound used for the region.

Notes:

See the "Add Region" notes below.

Add Region

Displays a dialog box for adding a region where you can set the region name and choose the sound.

Name The name of the region. The default value is the name of the sound.

Sound The sound used for the region.

Notes:

You can duplicate regions by option-clicking a region and dragging.

When a multitrack document is saved for the first time, it creates a "Sounds" folder to store all of the sounds in. Any sound you put into the "Sounds" folder will show up in the region's "Sound" popup menu. Put the sounds in the folder before opening the multitrack file because that's when the folder is scanned for sounds.

Version History

Sound Sculptor Pro 3.0 beta - 9/08/11

Changes for 3.0.1 beta - 10/14/11

Sound editor changes...

- Added ability to select or deselect a track by command-clicking on it.
- Improved the editor's vertical zooming.
- Fixed recording bug that would sometimes cause it to crash when recording was stopped.
- Fixed recording bug that would sometimes disable the record button.

Multitrack editor changes...

- Added "Import Audio Files" to the File menu.
- Added stereo option to the Track dialog box.
- Added ability to change the time signature or tempo by double clicking on them.
- Added ability to change the track name by double clicking on it in the mixer.
- Improved region selecting when clicking and dragging.
- Increased the number of undo levels to 50.
- Fixed bug when changing an effect parameter that could cause it to crash.
- Fixed bug when stretching or moving a region that could cause it to crash.
- Fixed region drawing bug when duplicating a region and dragging it.
- Fixed mute button drawing bug that would sometimes not show it as muted.
- Fixed bug that was not clearing the effects buffers when playing was stopped.
- Fixed paste region bug that was not updating the play position indicator correctly.
- Fixed paste region bug that would sometimes put the region in the wrong track.
- Fixed Region dialog box bug that would sometimes show the wrong region.
- Fixed region selection bug when shift-clicking on a region.
- Fixed "Add Region" bug that would sometimes cause it to play incorrectly.
- Fixed recording bug that would sometimes place the new region incorrectly.
- Fixed recording bug that would sometimes display the new region incorrectly.
- Fixed monitor level bug that would show it incorrectly on tracks with fader level automation.

Changes for 3.0.2 - 6/05/12

- Added documentation.
- Added anti-aliased waveform drawing when zoomed in.
- Improved waveform drawing performance when scrolling.
- Improved the editor's horizontal and vertical zooming.
- Improved the sound quality of the Chorus.
- Improved the sound quality of the Chorus/Flanger.
- Changed the default settings for the Chorus/Flanger to act as a flanger.
- Improved the sound quality of the Filter.
- Improved the sound quality of the Envelope Follower's comb filter.

- Improved the sound quality of the Limiter's soft clipper.
- Improved the sound quality of the Modulated Delay's comb filter and frequency effect.
- Improved the sound quality of the Hall, Room and Plate reverbs.
- Changed the Reverb's damp low frequency range to 20 - 200 hertz.
- Improved the sound quality of the Soft Clipper.
- Fixed waveform drawing bug that would sometimes draw past the end of the sound.
- Fixed command-M menu conflict.
- Fixed menu enabling bug when a dialog box was displayed.
- Fixed dialog box bug that would sometimes cause it draw incorrectly.
- Fixed "Set Loop" bug that would not allow you to clear the loop.
- Fixed Expander graph display bug when it was operating as an upward compressor.
- Fixed Exciter bug that would increase the level of the original signal.
- Fixed Exciter bug that would show the input meter incorrectly.
- Fixed Limiter bug that was showing output meter value after it was soft clipped.
- Fixed Reverb EQ bug that was effecting the dry signal on insert effects.
- Fixed bug in the Soft Clipper that could cause it to crash.
- Fixed shuttle bug that could cause it to crash.

Sound editor changes...

- Added dialog box for "New Sound" for setting the sample rate and number of channels.
- Added preview to the effects.
- Added center line to the waveform display.
- Improved the seconds ruler.
- Improved the sound quality of Resample and gave it more options.
- Improved the sound quality of Fade In/Out.
- Fixed "Zero Crossing" bug that could cause it to crash.
- Fixed paste bug that could change the loop incorrectly.
- Fixed undo/redo bug that was not marking the document as dirty.

Multitrack editor changes...

- Added dialog box for "New Multitrack" for setting the tempo and time signature.
- Changed the "Multitrack Info" to "Song Info" in the Multitrack menu.
- Added 8T, 16T, 32T grid resolutions to the Multitrack dialog box.
- Fixed bug that let you add and delete effects while recording.
- Fixed track number drawing bug when automation was displayed.
- Fixed playhead bug that was showing it in the wrong position after reverting.