fusion:VOCODE User Guide

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VOCODER THEORY

Opcode's fusion:VOCODE is a digital recreation of a classic analog vocoder.

A vocoder processes two audio input signals (a modulator and a carrier) into a single output, in which the percussive and tonal qualities of the modulator are applied to the carrier signal.

For example, in a classic vocoder application, speech is used as a modulator. A harmonically rich note or chord is used as a carrier. The resulting output is a "robot" sounding vocal -- one in which the speech characteristics have been impressed on to the carrier waveform, making it sound as if it's "talking." In this example, the voice is used as a very expressive filter control. Sibilant, high frequency sounds (such as "s" sounds) in the modulator cause only the high-frequency portions of the carrier signal to pass through to the output. Plosive sounds (such as "P" or "B") cause only low-frequency portions of the carrier signal to pass through to the output. Various vowel sounds act as mid-frequency filters, passing only the matching carrier frequencies through to the output.

Selecting Appropriate Modulators And Carriers

If you're new to vocoders, you should probably begin your experiments by using dynamic or percussive-type sounds (such as speech or drums) as modulators.

Harmonically rich sounds (such as big, lush synthesizers) work well as carriers. This is because a harmonically rich carrier signal contains many frequencies for the modulator to act on -- the more frequencies that are present in the carrier, the greater the vocoding effect.

Obviously, any type of audio can be used as a modulator or a carrier signal, though the sonic effects will be different depending on the harmonic makeup of the two signals and their dynamic complexity.

Signal Flow

The following page illustrates the vocoder's signal flow and processing structure. The diagram consists of the following type of modules:

- White modules represent digital audio data.
- Yellow modules represent user-definable parameters.
- Green modules represent internal vocoder calculations.
- Gray modules represent intermediary spectral domain data.

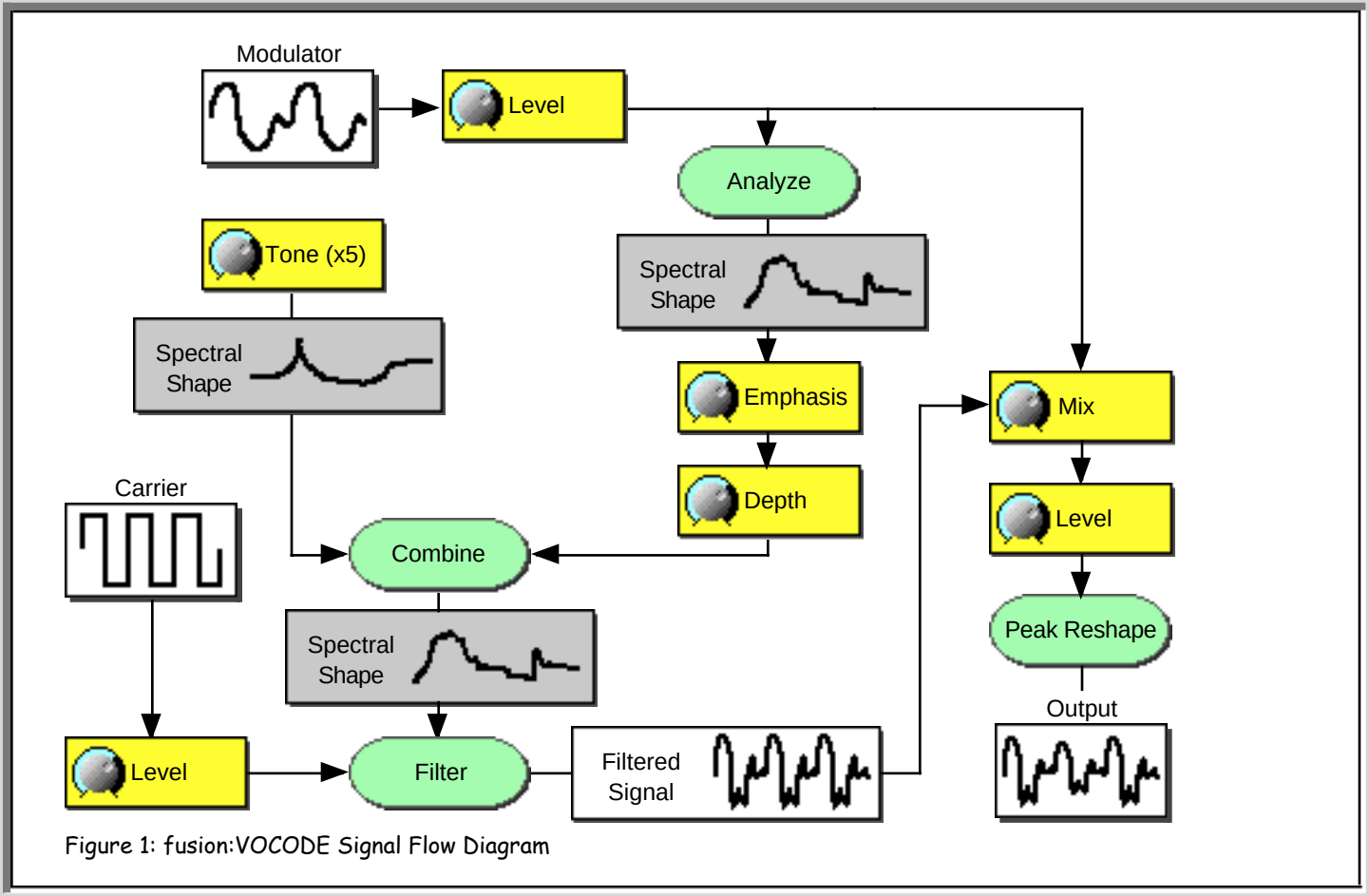


Figure 1: fusion:VOCODE Signal Flow Diagram

BASIC OPERATION

This section discusses basic techniques for setting and selecting parameters.

Knobs

To increase the value of a knob, position the cursor over a knob, then press and hold the mouse button while either pushing the mouse away from you or dragging it to the right.

To decrease the value of a knob, position the cursor over a knob, then press and hold the mouse button while either pulling the mouse toward you or dragging it to the left.

To instantly set the knob to any value, click anywhere along its colored outer arc.

Numericals

Numericals display the exact value of a knob's position. To change the value of a numerical directly, use one of the following techniques:

- Click the small "up arrow" button to the right of the numerical to increment its value. Hold down the button to automatically scroll through increasing values.

- Click the small "down arrow" button to the left of the numerical to decrement its value. Hold down the button to automatically scroll through decreasing values.
- click anywhere within the numerical to select it (highlighting it), type a new value, then hit the ENTER key.

Buttons

Click a button to activate it. If a button has an LED, then that button has an associated on/off state. If the button is ON, then the LED is lit and the button stays down. If the button is OFF, then the LED is dark and the button is up.

Selectors

Selectors are lighter gray than buttons. Use selectors to select an item from a pop-up or pull-down list of choices. The Waveform Selector, which appears when the Carrier module is in Preset mode, is an example of a Selector.

About Box

Open an About box for fusion:VOCODE by clicking the fusion logo in the lower left corner of the window.

QUICK START GUIDE

To use Opcode's fusion:VOCODE plug-in:

1. Select some audio in your host-application.
2. Open Opcode's fusion:VOCODE plug-in from your host application's DSP menu (or equivalent).

   The selected audio automatically becomes your modulator.
3. You can now either select one of the factory patches or you can create your own patch.

To use a factory patch:

1. If you want to start with a factory patch and you're using either the Premiere or AudioSuite versions, select the desired factory patch from the Patch Selector menu in the Control module. To select a factory patch in the Direct-X version, click the **Import** button in the Control module.
2. Preview the effect by clicking whichever button that your host application provides for this purpose. In the case of Adobe Premiere, the **Preview** button is contained within fusion:VOCODE's Control module. In AudioSuite and Direct-X, the Preview button is provided by the host application.

NOTE: The amount of time required to compute a preview depends on the speed of your computer and the length of the audio file. Use the Preview Status display in the Control module to determine if the vocoder preview is currently being processed.

3. If you have a slower computer, the preview playback may be "choppy," or it may take too long to calculate a preview. In this case, click the **Lo Fi** button to preview the vocoder effect faster (but with reduced fidelity).
4. If you're happy with the previewed sound, you can go ahead and process it -- writing it to your hard disk. Process the effect by clicking whichever button that your host application provides for this purpose. In the case of Adobe Premiere, press the **OK** button within fusion:VOCODE's Control module.
5. If you're not happy with the previewed sound, it's time to start tweaking. This is discussed in the next tutorial.

To create your own vocoder sounds:

1. In the Carrier module, click either the **Preset** or **Custom** button. If you click the **Preset** button, use the Waveform Selector menu to select a preset carrier waveform. Use the Pitch Select keyboard to select the note (or chord) at which the carrier sounds. If you click the **Custom** button, click the **Select** button to use one of your own audio files as a carrier.
2. If desired, change the input levels for the modulator and carrier.

3. If you want to hear some of the carrier signal in your output, adjust the carrier's **Depth** control below 100%.
4. If you want the carrier to take on a more exaggerated amount of the modulator's characteristics, set the **Emphasis** parameter above 70. If you want it to be less influenced by the modulator, reduce **Emphasis** to below 70.
5. Use the various **Tone** controls if you want to suppress or accentuate certain frequencies.
6. Use the Output module's **Level** control to set the overall output level of the vocoder. If you want to mix some of the unprocessed modulator audio into the final output, set the **Mix** parameter to something less than 100%.
7. Process the effect by clicking whichever button that your host application provides for this purpose. In the case of Adobe Premiere, use the **OK** button contained within fusion:VOCODE's Control module.

   All of these modules, parameters, and techniques are discussed in detail in the following sections.

MODULATOR MODULE

Use the Modulator module to set the input level of your selected audio.

When you select an audio signal and open the fusion:VOCODE plug-in, that selected audio is ALWAYS assigned to the modulator input. This is because, in general, the vocoder's output resembles the modulator more than the carrier signal.

For example, if you select some speaking or singing, the vocoder's output will sound like a "talking robot" rather than a human, but the speech characteristics will remain basically intact.

Level

Use this parameter to set the input level of the modulator signal. To the left of the Level parameter is the **Peak** indicator, which behaves as follows:

The peak indicator turns green if any portion of the previewed modulator exceeds -24dB. This indicates that the vocoder is "hearing" the modulator well enough to create a vocoded effect.

The peak indicator turns yellow when any portion of the previewed modulator reaches 0dB. Since the vocoder performs its calculations at greater than 16-bit resolution, the modulator can never actually "clip" the vocoder's input. Therefore, don't consider a yellow peak indicator to be a "bad" thing.

Once the peak indicator lights, you can reset it by either:

- clicking the **Peak** indicator.
- setting a new modulator **Level** (using either the knob or the numerical).

CARRIER MODULE

Use the Carrier module to:

- create your carrier signal (or open an audio file to use as a custom carrier).
- set the input level of the carrier.
- set the depth at which the carrier signal is modulated.
- determine how much to emphasize the carrier frequencies that match those in the modulator.

Preset Carriers

To use one of the built-in carrier signals:

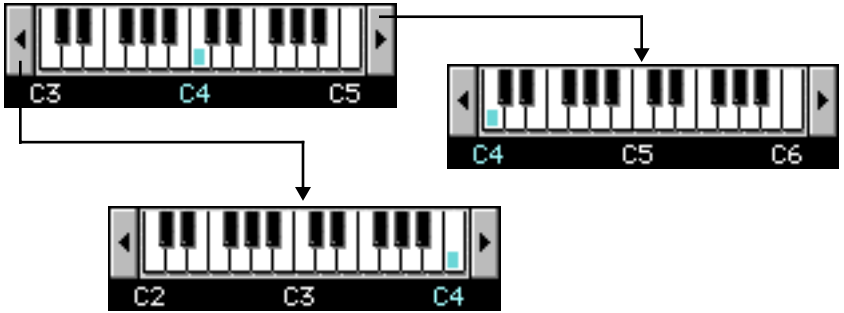
1. Click the **Preset** button to light it.
2. From the Waveform Selector menu, select the waveform you wish to use as a carrier signal.
3. On the tiny Pitch Select keyboard, click the note (or notes) at which you want the carrier signal to play.

Pitch Select Keyboard

The follwoing describes how to use the Pitch Select keyboard:

- To define the pitch at which the preset carrier sounds, click a note on the Pitch Select keyboard.
- Click multiple notes to create chords.

- To turn off a note, click it again.
- Alt-click (or Option-click) a note to turn it on, while turning all other notes off.
- Click the arrow buttons to the left or right of the keyboard to lower or raise the displayed pitch range of the keyboard.



- Click the **Reset** button to turn on middle-C, turn off all other notes, and set the keyboard display so that middle-C is in the middle of the displayed range.

! The note range displayed by the Pitch Select keyboard differs depending on which preset waveform you select. Also, some presets (such as white noise) may be "pitchless." In this case, the keyboard is disabled.

! If you deselect all pitches, then no carrier signal enters the vocoder, and the Preview Status indicator in the Control module says "No Carrier."

Audio Example

This audio example illustrates the effect that different preset carrier pitch selections have on the vocode effect. You must have QuickTime installed in order to hear these audio samples.

Click each speaker to listen to vocoded sounds that use different carrier chords:

Custom Carriers

You can use any audio file as a carrier. To do so:

1. Click the **Custom** button to light it.
2. In the Carrier module, click the **Select** button.

   A standard file dialog appears.
3. Use the dialog box to locate and select the desired carrier audio.

   Carrier files can be any of these formats: AIFF, WAV, UA, or SDII (Mac only).

   The carrier audio will always play back at the same sample rate as the modulator audio. Therefore, you should select carrier files that use the same sample rate as the modulator.
4. The name of the selected audio file appears below the **Select** button.

When you use a custom carrier, it's important to remember that the modulator determines the length of the final vocoded file. This means:

- If the carrier audio length is shorter than the modulator audio, the carrier will "loop" so that it plays for the same length of time as the modulator.
- If the carrier audio length is longer than the modulator audio, the final vocoded file will be only as long as the modulator and use only that amount of the carrier audio.

Other Parameters

The Carrier module contains the following additional parameters, which are independent of the carrier's mode (preset or custom).

Level

Use this parameter to set the input level of the carrier signal. To the left of the Level parameter is the **Peak** indicator, which behaves as follows:

The peak indicator turns green if any portion of the previewed carrier exceeds -24dB. This indicates that the vocoder is "hearing" the carrier well enough to create a vocoded effect.

The peak indicator turns yellow when any portion of the previewed carrier reaches 0dB. Since the vocoder performs its calculations at greater than 16-bit resolution, the carrier can never actually "clip" the vocoder's input. Therefore, don't consider a yellow peak indicator to be a "bad" thing.

Once the peak indicator lights, you can reset it by either:

- clicking the **Peak** indicator.
- setting a new carrier **Level** (using either the knob or the numerical).

Emphasis

This parameter determines how much emphasis (resonance) is applied to those carrier frequencies that match the modulating frequency.

The default value for this parameter is 70, which approximately matches traditional analog vocoders. You can hear this effect by clicking the speaker icon to the upper left.

Values less than 70 tend to sound "less vocoded" since the carrier signal takes on fewer of the modulator's sonic characteristics. You can hear the effect of lesser emphasis by clicking the speaker icon to the lower left.

Values greater than 70 tend to overemphasize those carrier frequencies that match the modulator's. This may or may not produce a desirable effect.

! You must install Quicktime in order to hear audio examples. QuickTime comes with your Macintosh system software. If you're using Windows, QuickTime installation is included on the fusion:VOCODE CD. You can also download QuickTime for Windows from the world wide web.

Depth

This parameter determines how much the carrier signal gets affected by the modulator. To emulate traditional analog vocoders, keep this parameter at 100%. Values less than 100% cause some of the unfiltered carrier signal to appear at the output.

If you set **Depth** to less than 100%, then some of your carrier audio "seeps" though and appears, unfiltered, in the final output. If you're using preset carrier waveforms, this is probably not very desirable. However, in the case of custom carriers, you may sometimes want to hear a little of the carrier waveform in the output (particularly if the waveform is very dynamic). Also, any carrier signal that doesn't get filtered by the modulator may still be filtered by the Tone controls. In an extreme case, you could set **Depth** to 0% and use fusion:VOCODE's Tone controls to alter the tonal characteristics of an audio file defined as the carrier (without producing any traditional vocoder effect).

TONE MODULE

Use the Tone module to alter the tonal characteristics of the vocoded signal.

There are five frequency "bands" as discussed below:

Lo

This is a "shelving" type of control. It uniformly boosts or cuts all frequencies at or below 200 Hz.

Lo Mid

This is a "band pass" type of control. It boosts or cuts all frequencies in approximately a 2 octave band centered around 400 Hz.

Mid

This is a "band pass" type of control. It boosts or cuts all frequencies in approximately a 2 octave band centered around 800 Hz.

Hi Mid

This is a "band pass" type of control. It boosts or cuts all frequencies in approximately a 2 octave band centered around 1.6 kHz.

Hi

This is a "shelving" type of control. It uniformly boosts or cuts all frequencies at or above 3.2 kHz.

! The tone controls affect only the vocoded signal (including any carrier signal that exists from a **Depth** setting less than 100%). Tone controls do not affect the modulator, should you wish to use the **Mix** parameter to include some modulator signal in the final output.

OUTPUT MODULE

Parameters

The Output module contains the following parameters:

Level

Use this parameter to set the overall output level of the vocoder. To the left of the Level parameter is the **Peak** indicator, which behaves as follows:

- The peak indicator turns green if any portion of the previewed output exceeds -24dB.
- The peak indicator turns yellow when any portion of the previewed output reaches or exceeds 0dB. Since fusion:VOCODE contains built-in peak reshaping (see the schematic on page 4), you will not actually "hard" clip the output signal even if it exceeds 0dB by some reasonable amount. Peak reshaping may create some sonic attributes similar to those produced by an "audio maximizer," which may or

may not be desirable in your final processed file. Feel free to experiment. The important thing to remember is that, when the light is yellow, peak reshaping occurs but no part of the previewed output actually "clips."

- The peak indicator turns red when any portion of the previewed output exceeds the limits of the internal peak reshaper, causing "hard" clipping in the output signal. If the LED turns red, either decrease the output **Level** parameter or modify the various vocoder parameters. You can have fusion:VOCODE automatically adjust the output **Level** to create an unclipped, non-reshaped output. This is described on page 23.

Once the peak indicator lights, you can reset it by either:

- clicking the **Peak** indicator.
- setting a new output **Level** (using either the knob or the numerical).

Mix

Use this parameter to mix some of the unprocessed modulator audio into the final output. This is similar to a wet/dry control on an external effects device. At 100%, the output signal contains only vocoder signal, with none of the modulator mixed in. At 50%, the output signal contains equal amounts of vocoder and modulator. At 0%, you will hear only the unprocessed modulator.

It's sometimes useful to use mix percentages less than 100% -- especially when you want some of the original audio's "character" maintained in the processed version.

Auto-Normalizing

Opcode's fusion:VOCODE provides a convenient way to automatically set the output **Level** parameter to create the loudest possible unclipped, non-reshaped audio file. To do this:

1. Tweak some parameters.
2. Wait for the preview to finish processing.
3. Alt-click (or Option-click) the Output module's **Peak** indicator.

   This resets the peak indicator and automatically sets the **Level** parameter to the value that will produce the loudest possible unclipped, non-reshaped output file.

Caveats

There are a few caveats to keep in mind:

- The section you're previewing may be only a small portion of the entire audio file. If this is true, it's possible that some portion of the audio file outside the preview range might still cause the vocoder output to clip.
- If you Alt-click (or Option-click) while the preview is still calculating, fusion:VOCODE may set the wrong output level -- it's best to wait for the preview calculation to finish.

- If you want to use peak reshaping as a sonic effect, simply Alt-click (or Option-click) the **Peak** indicator to set the maximum non-reshaping output level. Then raise the output **Level** knob to induce peak reshaping (indicated by a yellow peak indicator). You can safely raise the output level an additional +6dB without clipping the output file.

AudioSuite Technique

Due to architectural constraints, AudioSuite previews may be inaccurate by 1 or 2dB. Therefore, for AudioSuite, you should use the following auto-normalizing technique:

1. Set up the parameters, preview the audio, and option-click the **Peak** indicator to set an *approximate* output level.
2. Click the AudioSuite-provided **Process** button.
3. After processing finishes, select the **Undo** command.
4. Option-click the Output module's **Peak** indicator, then click the **Process** button again.

   The resulting file will be accurately set to its maximum unclipped, non-reshaped level.

CONTROL MODULE (for Premiere)

The appearance of the Control module changes depending on the plug-in architecture you're using. Not all buttons or options appear for all plug-in architectures. This section discusses the Control module for the Adobe Premiere version of fusion: VOCODE.

Preview Button

Press this button to audition a small, looped segment of audio. The length of the preview is determined by your host application. Preview allows you to hear the effect of your edits before you actually process the audio.

Bypass Button

If you're previewing audio, press this button to listen only to the selected input audio (the modulator), while muting the vocoded (processed) signal.

Lo Fi Button

Press this button to decrease the fidelity of the vocoder algorithm. Lo Fi mode processes your audio at a decreased sample rate. There are two possible reasons for using Lo Fi mode:

- You can preview your edits much faster using Lo Fi mode. Opcode's fusion:VOCODE requires a tremendous amount of internal processing power. On the newest, fastest computers, Lo Fi mode may let you preview your edits in real time. On older, slower computers, Lo Fi mode will make the amount of time you wait to hear a preview much more tolerable.
- Sometimes Lo Fi mode sounds cool. It might seem hard to believe, but with the massive filtering effect provided by the vocoder, Lo Fi mode might actually induce some distortion effects that sound pretty good!

In general, Opcode recommends the following strategy on slower computers:

1. Start with the vocoder in Lo Fi mode.
2. Make edits and preview their effect on the vocoder's output.
3. Once you get a vocoder sound that's close to the desired result, switch out of Lo Fi mode, wait for the preview, then listen to the difference.
4. At this point, either fine-tune the vocoder parameters before processing or, if you prefer the Lo Fi sound, switch back to Lo Fi mode for processing.

! In general, you should refrain from using the **HiMid** and **Hi** Tone knobs when editing in Lo Fi mode -- these parameters have little effect on the Lo Fi sound but, if you switch out of Lo Fi mode, their effects can be extremely pronounced, producing unexpected results. It's best to modify these parameters in Lo Fi mode only if you plan to process the final audio file in Lo Fi mode.

If your computer has a fast enough microprocessor, you may wish to work with Lo Fi mode turned off -- though you may want to consider trying Lo Fi mode as an additional sonic effect.

Preview Status

It takes some amount of time for the vocoder to internally process your edits and apply them to the previewed audio. The faster your computer, the faster this calculation occurs.

Use the Preview Status display to determine whether you're listening to processed or unprocessed audio.

It works like this: The width of the display represents the entire preview length of your audio file. In the top-half of the display, a pointer moves left-to-right to indicate the current play location within the preview time. In the bottom-half of the display is the processed/unprocessed indicator. When you change a vocoder parameter, the computer recalculates the output starting from the point indicated by the pointer. As the vocoder

recalculates the data, a light blue bar indicates that the region has been reprocessed. A dark red bar indicates that the region has not yet been reprocessed.

Therefore, if the pointer is over a light blue bar, it means you're listening to an audio preview that accurately reflects the parameters shown in the vocoder window. If the pointer is over a red area, it means you're listening to an audio preview that does not yet reflect the settings shown in the vocoder window.

Setup/Copy to Buttons

These buttons work as a "compare" feature, allowing you to compare one vocoder setting with another. Basically, the vocoder gives you two memory buffers, labeled **Setup A** and **Setup B**.

Whenever the button says **Setup A**, you are editing the parameters stored in Setup A -- you can copy them to Setup B by clicking the **Copy to B** button. Whenever the button says **Setup B**, you are editing the parameters stored in Setup B -- you can copy them to Setup A by clicking the **Copy to A** button.

Press the **Setup** button to switch back and forth between the two different sets of vocoder parameters.

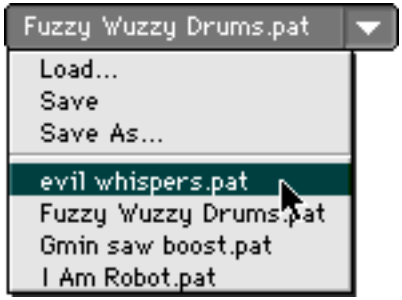
Use the **Copy to** and **Setup** buttons together as follows:

When you first open the vocoder, the buttons read **Setup A** and **Copy to B**. The parameters you first begin editing belong to Setup A. Any changes that you make to these parameters are automatically remembered by Setup A. If you create a vocoder

sound that you like, click the **Copy to B** button, which copies your parameter setup into Setup B. You can continue to make parameter adjustments in an attempt to fine-tune your sound, and these edits continue to be stored in Setup A. At any point, you can click the **Setup A** button to recall the parameter set that you saved when you clicked the **Copy to B** button. You can then switch back to your most recent edits by clicking the **Setup B** button. This lets you compare two different vocoder patches.

Patch Selector

Use this area to you load or save fusion:VOCODE patches. The vocoder ships with a number of factory patches (templates), which you can use as starting-points to build your own sounds. Also, you can save any of your own parameter sets as patches.



To open a patch, simply select it from the Patch Selector menu. Factory patches are stored in "System Folder/ Extensions/Opcode Folder/Audio Plug-ins/Vocode," and must remain here in order to appear in the Patch Selector list.

Aside from containing a list of fusion:VOCODE patches, the Patch Selector menu also has facilities for saving and loading your own custom patches:

- Choose **Load** to open a fusion:VOCODE patch that isn't stored in the "System Folder/Extensions/Opcode Folder/Audio Plug-ins/Vocode" directory.
- Choose **Save** to overwrite an existing patch with the parameters currently displayed in the fusion:VOCODE window.
- Choose **Save As** to name and create a new patch using the parameters currently displayed in the fusion:VOCODE window. For example, to create your own patch:

1. Set the vocoder parameters to their desired values.
2. From the Patch Selector menu, choose the **Save As** command.
3. In the resulting dialog box, type the desired patch name, then click the **OK** button.

   If you wish to share patches with Windows users, be sure to give the patch name a ".PAT" file name extension.

! If your fusion:VOCODE patch uses a custom carrier file and you wish to distribute that patch to others, you must also distribute the custom carrier file with the patch. Exported patches do not embed custom carrier files.

Cursor Help

Cursor help appears in the Control module whenever you move your cursor over any element in the vocoder. You can disable cursor help by clicking the small on/off button at the far left of the text area.

Online Help

Press this button to open a detailed online Help window for fusion:VOCODE.

Cancel Button

Press this button to close the plug-in window and return to your host application, leaving the selected audio file unprocessed.

OK Button

Press this button to close the fusion:VOCODE plug-in and pass its current settings to the host application.

At this point, some host applications immediately process the audio and create a new audio file on your hard disk. Other host applications simply apply the settings to their own internal audio preview and don't write new audio files until later. See your host application manual to learn how it handles Premiere plug-ins.

CONTROL MODULE (for AudioSuite)

The appearance of the Control module changes depending on the plug-in architecture you're using. Not all buttons or options appear for all plug-in architectures. This section discusses the Control module for the Digidesign AudioSuite version of fusion:VOCODE.

Lo Fi Button

Press this button to decrease the fidelity of the vocoder algorithm. Lo Fi mode processes your audio at a decreased sample rate in order to increase the preview and processing speed of fusion:VOCODE. This parameter is discussed in detail on page 26 in the Premiere discussion.

Preview Status

Use the Preview Status display to view the current vocoder status. Specifically: 1) If fusion:VOCODE is currently processing your edits, this area says "PROCESSING." 2) If you've failed to assign a carrier to the vocoder, then this region says "NO CARRIER."

Setup/Copy to Buttons

These buttons work as a "compare" feature, allowing you to compare one vocoder setting with another. Basically, the vocoder gives you two memory buffers, labeled **Setup A** and **Setup B**.

Whenever the button says **Setup A**, you are editing the parameters stored in Setup A -- you can copy them to Setup B by clicking the **Copy to B** button. Whenever the button says **Setup B**, you are editing the parameters stored in Setup B -- you can copy them to Setup A by clicking the **Copy to A** button.

Press the **Setup** button to switch back and forth between the two different sets of vocoder parameters.

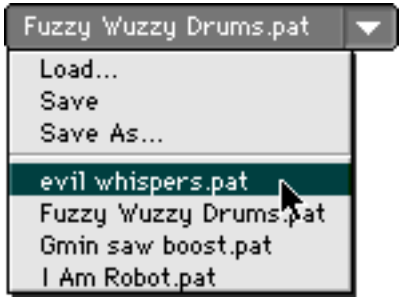
Use the **Copy to** and **Setup** buttons together as follows:

When you first open the vocoder, the buttons read **Setup A** and **Copy to B**. The parameters you first begin editing belong to Setup A. Any changes that you make to these parameters are automatically remembered by Setup A. If you create a vocoder

sound that you like, click the **Copy to B** button, which copies your parameter setup into Setup B. You can continue to make parameter adjustments in an attempt to fine-tune your sound, and these edits continue to be stored in Setup A. At any point, you can click the **Setup A** button to recall the parameter set that you saved when you clicked the **Copy to B** button. You can then switch back to your most recent edits by clicking the **Setup B** button. This lets you compare two different vocoder patches.

Patch Selector

Use this area to you load or save fusion:VOCODE patches. The vocoder ships with a number of factory patches (templates), which you can use as starting-points to build your own sounds. Also, you can save any of your own parameter sets as patches.



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Aside from containing a list of fusion:VOCODE patches, the Patch Selector menu also has facilities for saving and loading your own custom patches:

- Choose **Load** to open a fusion:VOCODE patch that isn't stored in the "System Folder/Extensions/Opcode Folder/Audio Plug-ins/Vocode" directory.
- Choose **Save** to overwrite an existing patch with the parameters currently displayed in the fusion:VOCODE window.
- Choose **Save As** to name and create a new patch using the parameters currently displayed in the fusion:VOCODE window. For example, to create your own patch:

1. Set the vocoder parameters to their desired values.
2. From the Patch Selector menu, choose the **Save As** command.
3. In the resulting dialog box, type the desired patch name, then click the **OK** button.

   If you wish to share patches with Windows users, be sure to give the patch name a ".PAT" file name extension.

! If your fusion:VOCODE patch uses a custom carrier file and you wish to distribute that patch to others, you must also distribute the custom carrier file with the patch. Exported patches do not embed custom carrier files.

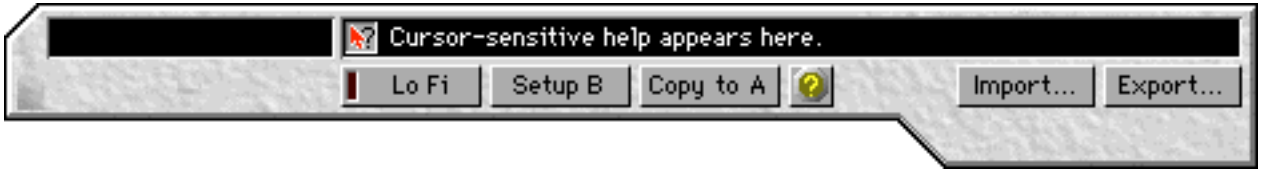
Cursor Help

Cursor help appears in the Control module whenever you move your cursor over any element in the vocoder. You can disable cursor help by clicking the small on/off button at the far left of the text area.

Online Help

Press this button to open a detailed online Help window for fusion:VOCODE.

CONTROL MODULE (for Direct-X Media)



The appearance of the Control module changes depending on the plug-in architecture you're using. Not all buttons or options appear for all plug-in architectures. This section discusses the Control module for the Microsoft Direct-X Media version of fusion:VOCODE.

Lo Fi Button

Press this button to decrease the fidelity of the vocoder algorithm. Lo Fi mode processes your audio at a decreased sample rate in order to increase the preview and processing speed of fusion:VOCODE. This parameter is discussed in detail on page 26 in the Premiere discussion.

Preview Status

Use the Preview Status display to view the current vocoder status. Specifically: 1) If fusion:VOCODE is currently processing your edits, this area says "PROCESSING." 2) If you've failed to assign a carrier to the vocoder, then this region says "NO CARRIER."

Setup/Copy to Buttons

These buttons work as a "compare" feature, allowing you to compare one vocoder setting with another. Basically, the vocoder gives you two memory buffers, labeled **Setup A** and **Setup B**.

Whenever the button says **Setup A**, you are editing the parameters stored in Setup A -- you can copy them to Setup B by clicking the **Copy to B** button. Whenever the button says **Setup B**, you are editing the parameters stored in Setup B -- you can copy them to Setup A by clicking the **Copy to A** button.

Press the **Setup** button to switch back and forth between the two different sets of vocoder parameters. Use the **Copy to** and **Setup** buttons together as follows:

When you first open the vocoder, the buttons read **Setup A** and **Copy to B**. The parameters you first begin editing belong to Setup A. Any changes that you make to these parameters are automatically remembered by Setup A. If you create a vocoder sound that you like, click the **Copy to B** button, which copies your parameter setup into Setup B. You can continue to make parameter adjustments in an attempt to fine-tune

your sound, and these edits continue to be stored in Setup A. At any point, you can click the **Setup A** button to recall the parameter set that you saved when you clicked the **Copy to B** button. You can then switch back to your most recent edits by clicking the **Setup B** button. This lets you compare two different vocoder patches.

Import Button

Press this button to import the settings contained in any vocoder patch into the vocoder window.

Use it to import Opcode's factory-supplied patches, or to import patches created by any version of fusion:VOCODE -- regardless of the plug-in architecture or its host application. Factory-supplied patches contain a ".PAT" file name extension.

Export Button

Press this button to export the current vocoder settings to a standard patch format, which can be shared with fusion:VOCODE customers that use other plug-in architectures (such as Premiere or AudioSuite), or other host applications (Sound Forge, Cakewalk, etc.) Exported patches should be named with a ".PAT" file name extension.

! If your vocoder patch uses a custom carrier file and you wish to distribute that patch to others, you must also distribute the custom carrier file with the patch. Exported patches do not embed custom carrier files.

Cursor Help

Cursor help appears in the Control module whenever you move the cursor over any element in the vocoder. You can disable cursor help by clicking the small on/off button at the far left of the text area.

Online Help

Press this button to open a detailed online Help window for fusion:VOCODE.

Credits, Colophon, and Notices

Credits

The following people were responsible for creating the basic version of fusion:VOCODE:

Engineering (alphabetically): John S. Cooper; Muscle Fish; Daniel Steinberg; Dan Timis; Doug Wyatt

Product Design, Art, and Documentation: Gregory A. Simpson

Additional Art and fusion Logo: Dean Suko

Management: Bruce Nolen; Tim Self

Colophon

This manual was written and produced in Adobe FrameMaker. Graphics were created using a combination of Photoshop, ClarisWorks, and Macromedia Freehand. Audio examples were created in Studio Vision Pro. Adobe Acrobat was used to create this PDF file.

Notices

This program was developed using NeoAccess: ©1992-1998 NeoLogic Systems, Inc.

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