
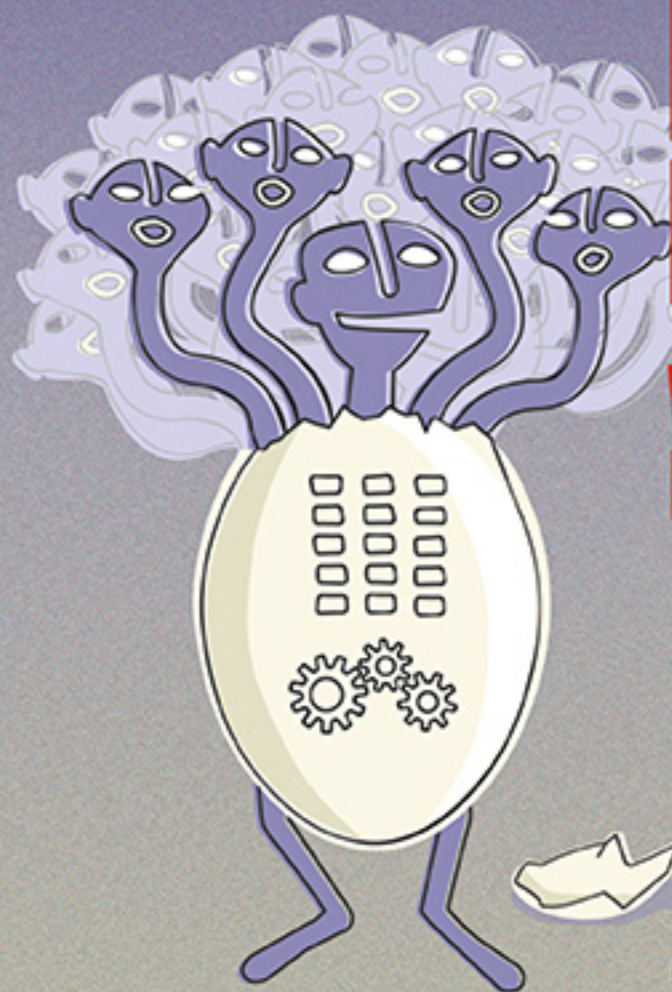


antares 

Vocal Harmony Evolved



Harmony Engine evo

Vocal Modeling
Harmony Generator

Owner's Manual

antares 

Harmony Engine^{evo}

Vocal Modeling
Harmony Generator

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Whew! Now that that's over, let's get on to the good stuff.

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Chapter 1: Getting Started



How to use this manual

Harmony Engine Evo introduces some entirely new concepts to the process of quickly and easily creating realistic harmonies. So to really get the most out of Harmony Engine Evo, we encourage you to read this manual.

Of course, you're welcome to just launch your host and play around with Harmony Engine Evo for a while, but to get a good idea of its capabilities you should at least check out Chapter 4, Factory Presets. We've included a variety of presets that configure Harmony Engine Evo to let you quickly and easily interact with its various modes and functions. Then check out Chapter 5, Tutorial Sessions, where you can see and hear exactly how Harmony Engine Evo was used to create some of the audio demos on our web site. The demos' composers have been kind enough to allow us to include the actual sessions for you to load into your host and experiment with. Open them up. Check out the Harmony Engine Evo settings. Tweak some controls and see what happens.

Finally, when you're ready to learn everything Harmony Engine Evo can do, check out Chapter 3 for detailed descriptions of every function.

The contents of this manual

Chapter 1: Getting Started

The chapter you are reading. Provides information on installing and authorizing Harmony Engine Evo.

Chapter 2: Introducing Harmony Engine Evo

Provides a brief introduction to what Harmony Engine Evo is all about and gives an overview of its key features.

Chapter 3: Harmony Engine Evo Controls

This chapter is reference information for every control used in the Harmony Engine Evo interface.

Chapter 4: The Factory Presets

Descriptions of the factory presets that ship with Harmony Engine Evo.

Chapter 5: Tutorial Sessions

Describes the complete host sessions provided as hands-on examples of how Harmony Engine Evo is used.

Chapter 2: Introducing Harmony Engine Evo



What the heck is this thing?

Harmony Engine Evo is the second generation of our Harmony Engine real-time harmony generating plug-in. Like its predecessor, Harmony Engine Evo puts professional-quality vocal harmony arrangements within reach of any songwriter, producer, musician or engineer.

What's it do?

Traditionally, harmony tools offer two basic operating modes:

On one hand are fully automatic modes based on either parallel or “smart” scale-based intervals. These are relatively easy to set up, but offer very little in the way of creative control.

On the other hand are MIDI modes that provide control of each individual note of each individual harmony voice. While these techniques offer absolute control, they also demand that you be skilled in the intricacies of vocal arranging (as well as having the time and patience to enter every note into a MIDI track).

With Harmony Engine Evo, we set ourselves the task of creating a tool that would let anyone who could hear the harmonies they wanted in their mind quickly and easily create those harmonies in a song or other project. While Harmony Engine Evo offers all of the traditional harmony generation methods, it adds a variety of new operating paradigms that allow you to approach the harmony generation

What's it got?

With four independent harmony voices, a variety of powerful harmony generating modes, humanization features, a flexible real-time preset system for harmony and vocal type, and five integrated channels of Antares' unique Choir Vocal Multiplier, Harmony Engine Evo provides incredibly easy-to-use tools to quickly and easily produce virtually any vocal arrangement you can imagine

Key Harmony Engine Evo features include:

- Four high-quality, formant-corrected harmony voices providing independent vocal character, vibrato, and pan settings
- Antares Throat Modeling technology that lets you process each harmony voice through a physical model of the human vocal tract
- A variety of innovative Harmony Control modes, from fully automatic to individual control of every note:

Fixed or Scale Intervals:

Simply set the key and harmony voice intervals and let Harmony Engine Evo do the rest

Scale Degree or Chord Name:

Define your harmony chord-by-chord, complete with inversions and variable vocal ranges

Chord by MIDI:

Define your harmony in real time via a MIDI controller or pre-recorded MIDI track

MIDI Omni:

Directly “play” the four harmony voices as if they were voices of a synth or sampler.

MIDI Channel:

Use four separate MIDI channels for absolute control over each note of your arrangement.

- Spread and Register controls that allow you to quickly and intuitively set the pitch range and harmony style of your vocal arrangement
- Humanize functions that provide selectable amounts of variation to each harmony voice for realistic, natural sounding results
- A Freeze function that allows a unique variety of backup vocal effects by letting you instantly freeze pitch
- A Harmony Preset matrix that lets you create up to 15 complete harmony settings and instantaneously recall them, in real time or via automation
- A Voice Parameter Preset matrix that lets you create and instantly recall up to 6 different “vocal groups”
- Five integrated channels of our unique Choir Vocal Multiplier, to let you turn the input voice and/or each harmony voice into 2, 4, or 8 distinct individual unison voices, each with its own pitch, timing and vibrato variations. Perfect for creating entire choirs out of a single vocal line.

Whether you're an experienced vocal arranger, a songwriter looking for that perfect backup vocal, or a composer experimenting with unique vocal effects, Harmony Engine Evo gives you entirely new ways to create the harmony parts you hear in your head. In fact, experimenting with different harmonies is so easy, you may find yourself using Harmony Engine Evo to explore harmonic alternatives you may have never otherwise considered.

Chapter 3: Harmony Engine Evo Controls



Setup

The functions described in this section are used to tell Harmony Engine Evo things about the source audio or otherwise affect the plug-in as a whole.

Input Audio

For accurate harmony generation and best modeling performance, Harmony Engine Evo needs to be able to detect the pitch of the original performance. To do that, Harmony Engine Evo requires a clean, pitched, monophonic signal. (In this context, “clean” refers both to lack of noise and lack of processing with effects like chorus, reverb, etc.)

Keep in mind that the input must not only be monophonic, but actually a solo voice or instrument (as opposed to a unison section).



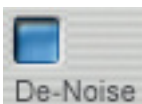
You can have problems with certain solo voices and solo instruments as well. Consider, for example, an exceptionally breathy voice, or a track recorded in an unavoidably noisy environment. The added noise is non-periodic and Harmony Engine Evo will have difficulty determining the pitch of the composite (voice + noise) sound. Luckily, there is a control (the Tracking control, discussed later in this chapter) that will let Harmony Engine Evo be a bit more casual about what it considers “periodic.” Experimenting with this setting will often allow Harmony Engine Evo to track even noisy signals.

Routing

Harmony Engine Evo should typically be instantiated as an insert effect on the track that will supply the source audio. Harmony Engine Evo can be instantiated on a mono or stereo track, but since it processes only a single channel of audio, if you instantiate it on a stereo track, the two channels will be mixed together before being processed.

Effects

The cleaner the input signal, the easier Harmony Engine Evo’s task of reliably detecting its pitch. For this reason, effects designed to improve the quality of the input (e.g., de-essing, noise reduction, etc.) should be applied to the audio before it is input to Harmony Engine Evo.



De-Noise

De-Noise function reduces noise that is inherent in the formant correction/shifting process.



Set Input Vocal Range

Harmony Engine Evo offers a selection of optimized processing algorithms for the most common types of inputs. Choices include Soprano Voice, Alto/Tenor Voice, Bass/Baritone Voice and Instrument (a general setting for anything that isn’t a vocal). Matching the appropriate algorithm to the input results in faster and more accurate pitch detection and more accurate modeling.



Model Glottal

The glottal waveform is created by the vibration of a singer’s vocal chords. While the glottal waveform is largely defined by each singer’s individual anatomy, it is also affected by the specific singing style of a particular performance. For example, singing softly results in a markedly different glottal waveform than does belting a song with great energy and volume.

The Model Glottal control lets you tell Harmony Engine Evo what performance style you would like to model. The options are soft, medium, loud, and intense. (If you want to preserve the stylistic character of the original vocal, start with this control set to Medium.)



Original Input

Gain

The gain fader controls the gain of the original input.



Solo

Engaging Solo Mode causes the original input signal to appear at the output and simultaneously mutes all Harmony Voice channels that are not also soloed.



Mute

Engaging Mute Mode causes the original input signal to be muted from the output.



Pan

Sets the original input's location in the stereo field.

If Harmony Engine Evo is not assigned to a stereo track, this control will be disabled.



Tracking

As previously mentioned, for best performance, Harmony Engine Evo requires a clean, pitched monophonic signal.

Specifically, in order to accurately identify the pitch of the input, Harmony Engine Evo requires a periodically repeating waveform, characteristic of a voice or solo

instrument. The Tracking control determines how much variation is allowed in the incoming waveform for Harmony Engine Evo to still consider it periodic.

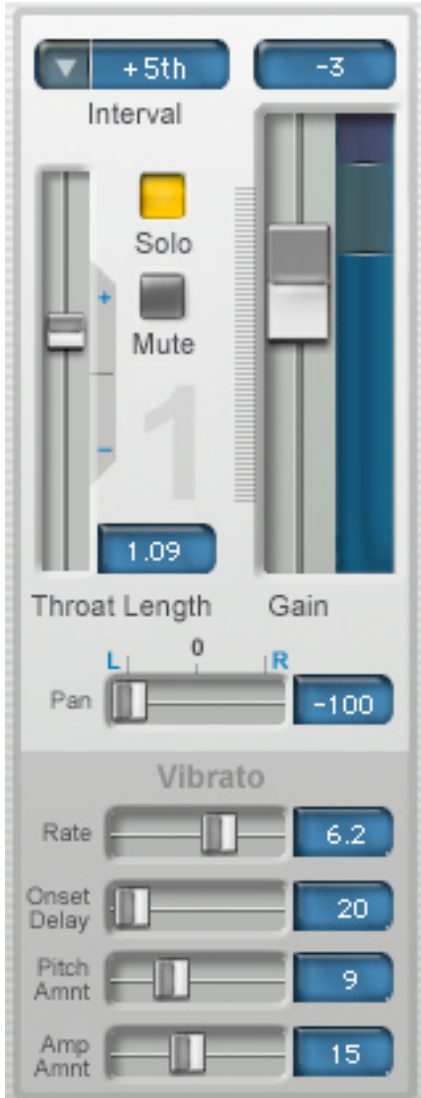
If you are working with a clean, well-isolated solo signal you can typically set the Tracking control to 25 and forget it (hence, that's the default value).

If your signal is noisy or not well-isolated or you are dealing with a particularly breathy or guttural voice, it may be necessary to adjust the tracking for best performance.

There is no hard and fast rule for what settings will work well with what kinds of input. If you're having a problem (such as octave errors or loss of pitch tracking), experiment until you get the best result.



A Tip: One of the things that can cause tracking problems is excessive sibilance and/or other unpitched articulations. De-essing (prior to compression) can often alleviate these problems.



Harmony Voices 1–4

Each of the four Harmony Voice channels are functionally identical and contain identical controls.

It may be useful to think of the four Harmony Voices as being similar to the voices of a four-voice synthesizer. Each voice has independent controls for setting its timbre, vibrato, pan and level. The method by which pitches are assigned to voices varies with the Harmony Modes selected in the Harmony Control section. In this section, we'll describe the Harmony Voice controls.



Gain

Each gain fader controls the gain of its Harmony Voice channel whenever that channel is not muted.

In the various MIDI Harmony Modes, the gain control sets the maximum gain level for its channel (i.e., the gain at MIDI velocity value 127).



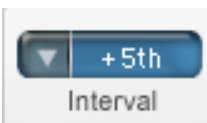
Throat Length

This control is used to define the unique vocal quality of a Harmony Voice by actually varying the geometry of the channel's model vocal tract. It is used in combination with the Model glottal control and the various forms of pitch shifting to define vocal quality.

The Throat Length control allows you to lengthen or shorten its Harmony Voice channel's modeled throat.

The values represent the percentage change in the throat length. For example, a value of 1.20 represents a 20% increase in throat length, while a value of 0.80 represents a 20% decrease in throat length.

In addition to simply changing vocal timbre, increasing throat length is useful when the original input is female and you want the Harmony Voices that are being shifted down to sound male. Decreasing throat length is useful when the original input is male and you want the Harmony Voices that are being shifted up to sound female or childlike.



Interval

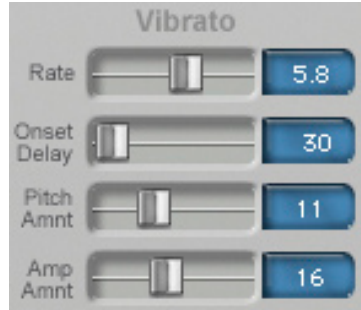
The Interval popup sets a Harmony Voice's pitch interval relative to the original input

in Fixed Interval and Smart Interval modes. In both modes, the range is plus-or-minus two octaves. In Fixed Interval mode, the popup displays half-steps in the range -24 to +24. In Smart Interval mode, the popup displays scale degrees in the range 16va to 16vb. This control is inactive in all Chord Name and MIDI modes.



Pan

These controls set each voice's position in the stereo field. If Harmony Engine Evo is not assigned to a stereo track, they are disabled.



Vibrato Controls

The following four controls are used to add an independently programmable vibrato to each Harmony Voice. In using these controls, it's useful to consider the following principles:

- If the Input Audio does not contain its own natural vibrato, you can feel free to do pretty much whatever you want with the Vibrato controls.
- If the Input Audio does contain its own natural vibrato and the Humanize control has been set to allow it to be present in the Harmony Voices (or you are using Fixed Interval mode), using the Vibrato controls may cause interference between the natural and programmed vibratos, with unnatural-sounding results. This is not to say that this can't be an interesting effect, only that it is unlikely to sound realistic.
- If the Input Audio contains its own natural vibrato and the Humanize control is set to 0 (preventing the pitch component of the natural vibrato from being present in the Harmony Voices), any loudness component of the natural vibrato will still be present in the Harmony Voices. Depending on the amount of loudness variation, there might still be interference with programmed vibrato. However, unless the loudness variation is fairly extreme, it is unlikely to be a problem.

Vibrato Rate

This control sets the rate of the vibrato (in Hz) for its Harmony Voice. The range is from 1.0 Hz to 9.0 Hz.

Vibrato Onset Delay

This control sets the onset delay in milliseconds of the vibrato for its Harmony Voice.

Vibrato Pitch Amount

This control sets the depth of the pitch modulation for its voice.

Vibrato Amplitude Amount

This control sets the amount of loudness variation for its voice.



Humanization

The functions in the Humanize sections allow you to add random variation to each harmony voice and decide how much of the original input's vibrato and pitch gestures will be present.

Each of these controls affect all active harmony voices. However, they affect each harmony voice individually (i.e., if you set a certain range of pitch variation, the actual amount of variation will be a bit different for each active harmony voice).



Naturalize

Selects the amount of the original input's vibrato and pitch applied to each harmony voice.



Pitch Variation

Selects the amount of random variation in pitch applied to each harmony voice.



Timing Variation

Selects the amount of random variation in timing applied to each harmony voice.

Glide



The units are milliseconds and r
get halfway to the destination pitch.



NOTE: Glide only takes effect when successive notes overlap or butt up against each other. If there is any silence between two notes, no glide will be applied.

Freeze



The Freeze functions allow you to freeze the pitches of the harmony voices while the original input continues.



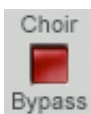
CHOIR

Harmony Engine Evo provides five integrated channels of our unique CHOIR Vocal Multiplier.

CHOIR is a unique processor that turns a single monophonic voice into 2, 4, or 8 distinct individual unison voices, each with its own pitch, timing and vibrato variations.

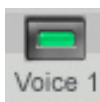
The voices can be spread across the stereo spectrum. When multiple channels of CHOIR are assigned to the input vocal and/or individual harmony parts, the result is a startlingly realistic large vocal ensemble.

CHOIR Controls



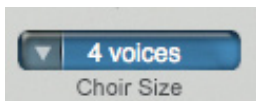
CHOIR Bypass

This control is used to bypass the entire CHOIR section.



CHOIR On Buttons

The Input Voice and each of the four Harmony Voices have their own individual CHOIR On buttons. When a button is green, CHOIR is active on that voice.



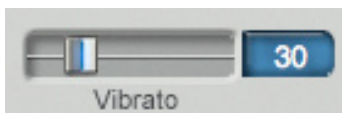
Choir Size

Selects the number of individual voices that will be generated from the input or harmony voice.



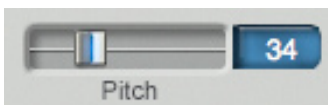
Stereo Spread

Selects the extent to which the generated voices are spread across the stereo spectrum. At a setting of 0, all of the voices appear in the center of the stereo field.



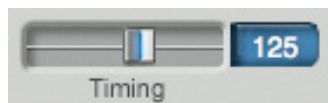
Vibrato

Selects the range of variation in vibrato depth applied to the generated voices.



Pitch

Selects the range of the random variation in pitch applied to each generated voice.



Timing

Selects the range of the random variation in timing applied to each generated voice.



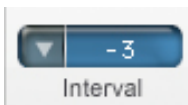
Harmony Control

The controls in this section allow you to choose the method by which Harmony Engine Evo decides which harmony notes are assigned to each voice.

While Harmony Engine Evo offers the usual extremes of automatic fixed and “smart” scale interval modes on one hand (very easy to use, but with little creative control) and the ability to completely specify every note of each harmony voice via MIDI on the other (ultimate control, but requiring solid expertise in note-by-note vocal arranging), it’s the powerful new options in the middle that we believe will provide you with innovative ways of creating the harmony arrangements you hear in your mind.

The desired harmony mode is selected with the Harmony Source popup menu. Depending on which mode you select, various of the other controls in this section will be either activated or disabled as necessary. Rather than discuss each control separately, we’ll look at all of the controls that function in each mode.

Here’s how they all work:



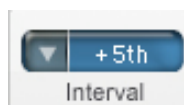
Fixed Interval Mode

When Fixed Interval mode is selected, the Interval popups in the

individual harmony voice channels are enabled and all of the other controls in the Harmony Control section are disabled.

In this mode, each enabled harmony voice tracks the original input at the interval defined by the number of semi-tones up or down selected in the voice’s Interval popup.

This mode is best for drones, chants and other applications where absolutely parallel harmony is desired.



Scale Interval Mode

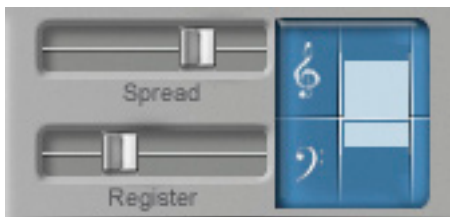
When Scale Interval mode is selected, the Key/Root and Scale popups are

enabled (along with the Interval popups in the individual harmony voice channels) and all of the other controls in the Harmony Control section are disabled.

In Scale Interval mode, each harmony voice tracks the original input at the interval defined by the scale degree selected in its Interval popup in combination with the Key and Scale settings.

Unlike the Fixed Interval mode, this mode always chooses harmony notes that fall in the selected key and scale.

In the case of octave or unison, the harmony voice will track the input note-for-note, regardless of whether they are scale notes or not.



Register and Spread

The Register and Spread controls define the general range and “closeness” of the harmony notes in Chord Degrees, Chord Name, and Chord via MIDI modes.

Since they function identically in all three modes, we’ll describe their use here and then just reference them in the individual mode descriptions that follow.

Register

The Register control sets the general range of the lowest generated harmony note, with the leftmost setting being the lowest and the rightmost setting the highest. As you move the control, you will see the lower boundary of the graphic range display change in response.

Spread

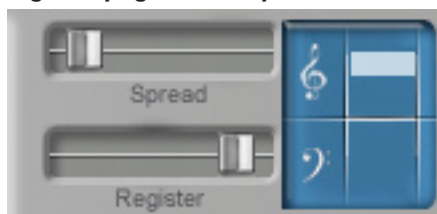
The Spread control sets the “closeness” of the generated harmony notes. Lower settings result in the harmony notes being spaced tightly together, while higher settings result in the harmony notes being spaced progressively farther apart.

Here are some example settings:

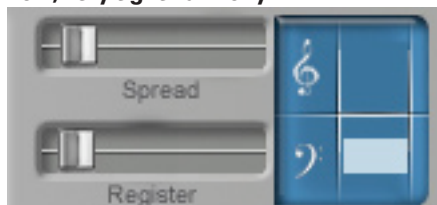
Wide harmony:



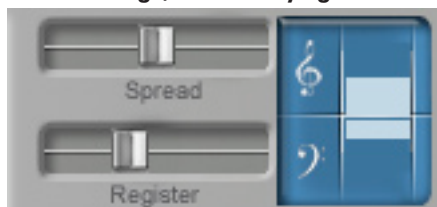
High, very tight harmony:



Low, very tight harmony:



Medium range, moderately tight harmony:





Chord Degrees Mode

When Chord Degrees mode is selected, the Key/Root, Scale, Chord, Inversion, Register, and Spread controls are enabled and the Interval popups in the individual harmony voice channels are disabled.

In Chord Degrees mode, the harmony notes are generated by the combination of the settings of the Key, Scale, Chord, Inversion, Register, and Spread controls. This mode is specifically designed to be used with the Harmony Preset buttons described below. Start by setting the song's Key and Scale in the same way as described above for Smart Interval mode.

For each chord that appears in your song, select the chord from the Chord popup (specified as a degree of the selected key and scale) and the desired inversion from the Inversion popup.

Once you get everything the way you want it, assign the settings to a Harmony Preset button as described below. Repeat the process for each of the chords in your song. If your song modulates, you can either create a new host preset in the new key or use automation to change the Key and/or Scale setting to the new key (which, as mentioned above, will automatically transpose all of the chords to the new key).

When you have programmed all of the chords and any alternative voicings, you're ready to play your song and simply select the various Harmony Presets at the appropriate times, either manually or via automation.

Chord Names Mode

When Chord Names mode is selected, the Key/Root, Chord, Inversion, Register, and Spread controls are enabled, while the Scale popup and the Interval popups in the individual harmony voice channels are disabled.

Chord Names mode is almost identical to Chord Degrees mode, except instead of setting a key and scale and then defining the chords by scale degree, you define each chord by its explicit name, independent of the scale or key.

In Chord Names mode, the Key/Root popup is used to define the root note of the chord.

The Chord popup is used to define the type of chord, and the Inversion popup defines the inversion. As in the Chord Degree mode, assign all the chords and voicings you need to Harmony Preset buttons and harmonize away.

Chord Degrees vs. Chord Names

Why use one versus the other?

The advantages of Chord Names are that if you have a lead sheet with written chord names, it's extremely simple to quickly define and assign all of the chords you need to Harmony Preset buttons. Additionally, the Chord Names mode offers a wider variety of chord types.

The advantages of Chord Degrees are that some people are more familiar with that naming convention. Also, if you are early in the song creation process and the song's final key may eventually change, if you've used Chord Degrees mode it's only necessary to change the Key popup to the new key and all the rest of your work is still applicable.



Chord via MIDI Mode

When Chord via MIDI mode is selected, Register, Spread and the MIDI Velocity control is enabled, while all other section controls and the Interval popups in the individual harmony voice channels are disabled.

Chord via MIDI is very similar to the two preceding modes, except that instead of defining chord names by some combination of popups, they are defined in real time by all “On” MIDI notes appearing on an assigned MIDI channel. These notes are treated as a chord and are re-voiced by the settings of the Register and Spread controls. The MIDI notes can be played in real time from a controller or recorded into a MIDI track that is then routed to Harmony Engine Evo.

The MIDI Velocity Sensitivity control can be used to scale the MIDI velocity messages assigned to harmony channel levels. With this control set to 0, MIDI velocity will be ignored and the channel levels will be defined entirely by the Channel Gain settings. As you increase the value of this control, MIDI velocity will have progressively more effect on the channel levels.

MIDI Omni Mode

When MIDI Omni mode is selected, the MIDI Velocity control is enabled, while all other section controls and the Interval popups in the individual harmony voice channels are disabled.

In MIDI Omni mode, you are in fact directly “playing” the harmony channels (again, either live from a controller or via a prerecorded MIDI track).

MIDI Channels Mode

When MIDI Channels mode is selected, all other section controls and the Interval popups in the individual harmony voice channels are disabled.

This is the mode to use when you want to have absolute control over every note of your harmony arrangement.

In MIDI Channels mode, channels 1-4 of the MIDI bus assigned to Harmony Engine Evo are routed to the matching numbered harmony voice channels. Its main purpose is for executing harmony arrangements where you can be assured that individual harmony lines will always be realized by the desired harmony voice.

About Routing MIDI to Harmony Engine Evo In order to use the MIDI Harmony Control modes described above, you must be able to route MIDI data to Harmony Engine Evo. The method of routing MIDI to a plug-in varies among various hosts. If you are unsure how to do it in your host, you should refer to your host’s manual for instructions. In addition, check the Read Me that accompanies Harmony Engine Evo for a guide to a few of the more obscure routing schemes. Finally, you can open one of the Tutorial Sessions described in Chapter 5 and simply observe how it is done.



Harmony Presets

The Harmony Preset system allows you to assign combinations of harmony control settings to each of 15 buttons for instant recall, either manually or via automation.

Here's how it works:

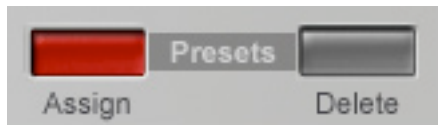
Harmony Presets store the value of the following controls:

Harmony Source	Inversion
Key/Root	Register
Scale	Spread
Chord	
MIDI Velocity Sensitivity	
Harmony Channel Intervals	

Not all of the above controls are available in every mode.

A button with a preset assigned to it is blue and displays the first five or six characters of the preset's name. A button with no preset assigned to it is gray and displays no text.

When you click a button with a preset assigned, the preset's full name will appear in the Harmony Preset Name field and the various harmony controls will be set to their preset values.



To assign a new preset to a button:

1. Set the controls listed above as desired.
2. Click in the Name field below the Harmony Preset buttons and type a name for the preset.
3. Click the Preset Assign button. The button will flash red and all of the Harmony Preset buttons will turn blue.
4. Click on the Harmony Preset button to which you want to assign the preset. The Assign button will stop flashing and all unassigned Preset buttons will once again turn gray. The selected button will remain blue and its preset name text will be displayed.

To edit an existing preset:

1. Click the existing preset's button to call up its control settings and place its name in the Name field.
2. Edit the controls as desired.
3. Click the Assign button and then the preset's button. The updated values will be recorded.

To create a new preset based on an existing preset:

1. Click the existing preset to select it.
2. Edit the controls as desired.
3. Click in the Name field and type a name for the new preset.
4. Click the Assign button and then the preset button to which you want to assign the new preset.

To delete a preset:

1. Click the Presets Delete button
2. Click the button whose preset you want to delete.



Voice Parameter Presets

The Voice Parameter Preset system allows you to assign combinations of voice parameter settings to each of 6 buttons for instant recall. This makes it easy to instantly change the timbre and configuration of your “vocal group” at any point in your song.

Voice Parameter Presets store the values of the following controls:

Naturalize
Pitch Variation
Timing Variation
Glide Transition Rate

Original Input:

Solo	Mute
Tracking	Gain
Pan	

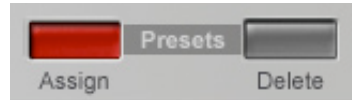
Harmony Voices 1-4:

Solo	Mute	Throat
Gain	Length	Vibrato
Pan	Rate	Pitch
Onset Delay	Amount	
Amplitude	Amount	

CHOIR

Choir Bypass	
Choir Size	Vibrato
Pitch	Timing
Stereo Spread	
Input Voice On/Off	
Harmony Voice 1-4 On/Off	

When you click a button with a preset assigned, the preset’s full name will appear in the Name field and the harmony voice parameters will be set to their preset values.



To assign a new preset to a button:

1. Set the controls listed above as desired.
2. Click in the Name field below the Voice Parameter buttons and type a name for the preset.
3. Click the Presets Assign button. The button will flash red and all of the Voice Parameter buttons will turn blue.
4. Click on the Voice Parameter button to which you want to assign the preset.

To edit an existing preset:

1. Click the existing preset’s button to call up its parameters and place its name in the Name field.
2. Edit the parameters as desired.
3. Click the Assign button and then the preset’s button. The updated values will be recorded.

To create a new preset based on an existing preset:

1. Click the existing preset’s button to call up its parameters and place its name in the Name field.
2. Edit the parameters as desired.
3. Click in the Name field and type a name for the new preset.
4. Click the Assign button and then the preset button to which you want to assign the new preset.

To delete a preset:

1. Click the Presets Delete button
2. Click the button whose preset you want to delete.

Chapter 4: Factory Presets



This chapter provides brief descriptions of the factory presets that ship with Harmony Engine Evo. Since it is unlikely that any factory preset will be immediately useful for any of your personal projects, we have designed the presets to demonstrate

various ways of using Harmony Engine Evo. Simply start with a vocal track whose key and chord progression you know and run through the presets while reading their descriptions below.



NOTE: Unlike synth presets, which will always sound the same for all

Engine Evo presets are heavily dependent on the vocal tracks that you use them on. Consequently, they serve primarily as starting points for various general usages, with the expectation that you will tweak them to work best with your particular track.

The Presets

In experimenting with the presets below, it is important to keep the following points in mind:

- The presets that use Scale Interval or Chord Degrees mode are programmed with the Harmony Preset buttons' Key and Scale parameters set to C Major. Unless your composition is actually in C Major, you must first change the various preset buttons' Key and Scale to the correct settings for your composition.
- Due to the differences in the way various hosts deal with routing MIDI to plug-ins, we have not included any presets that use the various MIDI modes. To experiment with the MIDI modes, use the Tutorial Sessions described in Chapter 5.

CHORD DEGREES 1

This preset provides the root version of all of the available chord degrees on the Harmony Preset buttons, as well as the first inversion of the key's root chord.

The Register and Spread controls are set for fairly wide, mid-range harmonies.

The Voice Parameter Presets provide the following choices:

No Variation: default Throat Lengths and all Humanization settings at 0

Varied: Various amounts of Naturalize, Pitch and Timing Variation and modified Throat Lengths

Vibrato: Similar to Varied, but with the addition of slightly different vibratos to each voice

THINGS TO TRY:

Play your vocal track and manually click the appropriate chord degree button at each chord change in your song.

Experiment with different chord degrees. Does your melody work with any alternate harmonizations?

Use your host's automation system to record the Harmony Preset buttons and automate chord degree changes.

Try changing the Register and Spread settings. Listen to the effect of various ranges and chord spacings.

Pick a part of your vocal where the chord remains unchanged for a measure or two. Click the Formant Only Freeze button at the beginning of that phrase and listen to the result. Then start again and click the Formant + Pitch Freeze button at the same point and note the difference. In both cases, click the respective buttons again at the end of the phrase to return to normal harmonization.

Click the different Voice Parameter Preset buttons to hear their differences. Try modifying one or more of the voice parameters and save your new version onto one of the unassigned Voice Parameter buttons.

Apply CHOIR to one or more of your vocal parts.

CHORD DEGREES 2

This preset is similar to Chord Degrees above, but instead of including all of the degrees on the Harmony Preset buttons, it includes the more commonly used degrees along with a variety of inversions of some of the degrees..

The Register and Spread controls are set for fairly wide, mid-range harmonies.

The Voice Parameter Presets provide the following choices:

No Variation: default Throat Lengths and all Humanization settings at 0

Varied: Various amounts of Naturalize, Pitch and Timing Variation and modified Throat Lengths

Vibrato: Similar to Varied, but with the addition of slightly different vibratos to each voice

THINGS TO TRY:

Pretty much the same things as listed in Chord Degrees above.

COOL CHORDS 1

This preset (along with the following "Cool Chords" presets) can be thought of as a sort of harmonic toy-box. It uses Chord Name mode to give you a variety of chords in a variety of ranges to try with your melody track.

In this preset, four chords are provided, each in a low, medium and high voicing.

The Voice Parameter Presets provide the following choices:

No Variation: default Throat Lengths and all Humanization settings at 0

Vibrato: Various amounts of Naturalize, Pitch and Timing Variation and modified Throat Lengths with the addition of slightly different vibratos to each voice

Low2Hi: Throat Lengths optimized for a low input voice that is generally being shifted up (e.g., the original input is a baritone and the harmony voices are in the tenor and alto range).

Hi2Low: Throat Lengths optimized for a high input voice that is generally being shifted down (e.g., the original input is a soprano and the harmony voices are in the alto, tenor, or even bass range).

THINGS TO TRY:

Just play with the various chords and voicings with your input voice. Do they work?

If the key of the original input is totally incompatible with the chords, mute the original input and listen to just the harmony voices. Since Chord Name mode always generates the correct harmony notes regardless of the input pitch, you can create an entirely re-harmonized version of your input.

Add three new chords of your choice to the three unassigned Harmony Preset buttons.

Customize some (or all) of the Voice Parameters and save them to the unassigned buttons.

Play with the Freeze buttons as described above. Check out their effects when you have complete control of the harmonization.

Try CHOIR on one or more of the voices.

Since all of the Cool Chords presets operate on basically the same principle, we will just describe their differences below:

COOL CHORDS 2

In this preset, we've provided five chords, each in a low, medium and high voicing.

The Voice Parameter Presets provide a No Variation version, along with Low, Medium, and High settings that are optimized for those voicing ranges.

THINGS TO TRY:

Create harmonizations that are entirely in the Low, Medium or High registers. Select various Voice Parameter Presets, both matching and non-matching ranges.

COOL CHORDS 3

Same as Cool Chords 2, but with a different set of chords.

COOL CHORDS 4

Six chords, each with a mid register and low register version.

Voice Parameter Presets include the standard No Variation, Varied, and Vibrato settings.

COOL CHORDS 5

Ten different chords, all in a relatively wide mid-range voicing. Voice Parameter Presets the same as Cool Chords 4.

THINGS TO TRY:

Add up to five additional chords (or inversions) of your choice to the unassigned Harmony Preset buttons.

Change the Register and/or Spread and/or Inversion of the supplied chords and resave the new versions to the same (or a different) button.

DISSONANCE

This preset uses Fixed Interval mode to provide three different special effects. In each case, the original input is muted.

diss 1: Four harmony voices at half-tone intervals two octaves below the input.

diss 2: Four harmony voices at half-tone intervals two octaves above the input.

diss 3: Four harmony voices at half-tone intervals clustered around the input.

The two Voice Parameter Presets demonstrate pan control, offering a contrast between all voices panned center and the spread across the stereo soundstage.

THINGS TO TRY:

Unmute the original input.

Try modifying individual voice intervals

Add various amounts of vibrato to one or more of the harmony voices.

Experiment with various Glide settings.

Try various combinations of Humanize settings.

Try CHOIR.

DUET

This preset uses Scale Interval Mode to provide one harmony voice at a variety of intervals. (Don't forget to change the presets buttons' Key and Scale settings to match your track.) Choices include:

- 5th up or down
- 4th up or down
- 3rd up or down
- Octave up or down

Harmony Channel 1 is used for all presets. The other channels are muted.

The Voice Parameter Presets provide a No Variation version, along with Low and High versions, which add Humanization and Throat Length modifications that accentuate the formant changes associated with shifting up or down.

THINGS TO TRY:

Add vibrato to the harmony voice.

Try different values of Glide.

Unmute one or more of the other channels and experiment with different intervals.

FIXED INTERVALS

This preset lets you explore the effect of using various parallel intervals in Fixed Interval mode. Other than unison and octaves, this is not something you would typically use in conventional diatonic music, but as this preset will show, it can be useful as an effect in sound design.

THINGS TO TRY:

Explore other combinations of parallel intervals.

GROUP

This preset demonstrates how the Harmony Presets and the Voice Parameter Presets can be used together to create variously-sized vocal groups.

Using Scale Interval mode (don't forget to change the Key and Scale popups to match your track), this preset provides four variations of four harmony voices and two variations of two harmony voices.

Up1, Down1, Up2 and Down2 are the four voice presets and are designed to be used with the Voice Parameter presets No Variation, Up and Down.

The Harmony Presets TrioUp and TrioDown are designed to be used with the Voice Parameter presets TrioUp and TrioDown. The Harmony Presets define the proper intervals, while the Voice Parameter presets define the "Trio" by muting harmony channel 3 and 4.

HUMANIZE FUN

This preset is designed to demonstrate the variety of effects available from the Humanize functions, as well show how different Harmony Control modes can be combined in a single preset.

The Voice Parameter presets include one preset with no Humanize functions and five additional presets with various combinations of the three Humanize functions (their names make their settings pretty obvious, but you can also just watch the controls as you select each preset).

Up in the Harmony Presets section, you will see that four different harmony modes are represented. The top three buttons are chords in Chord Name mode. The next 6 are chords in Chord Degrees mode (be sure to set the Key and Scale as necessary). Finally there is a preset in Scale Interval mode (again, set the Key and Scale) and another in Fixed Interval mode.

The point of this is that different parts of a particular project may work best with different harmony modes. For example, Scale Interval mode might work great for an entire song except for one phrase in the bridge where the harmony moves away from the basic scale. In that case, you can have the primary preset be in Scale Interval mode, but still include a few Harmony Presets that specifically define the errant chords in Chord Name mode.

THINGS TO TRY:

Experiment with the various combinations of Harmony Control modes and Humanize presets.

If your track needs some chords that don't work well in Scale Interval mode, add them to the unused Harmony Presets buttons and try switching back and forth between the modes as necessary.

VIBRATOS

This preset demonstrates the use of the Vibrato controls to create special effects. It includes one Harmony Preset that features amplitude-only vibrato (more accurately tremolo) and another that features extreme pitch variation.

In each case the original input is muted and the presets impose their effects on a D7 chord.

THINGS TO TRY:

Adjust the various channels' vibrato settings.

Unmute the original input.

Change Harmony mode to Scale Interval or Chord Degrees and see how the effects work in the context of a song.

Experiment with the Humanize functions (which are turned off by default in this preset).

VOCAL MULTIPLIER

This preset uses Fixed Interval mode and Voice Parameter presets to thicken the original input with one, two, three or four unison voices. In each case the active voices' pan settings are adjusted for best effect for that number of voices.

THINGS TO TRY:

Experiment with different amounts of vibrato on one or more voices.

Click the Formant + Pitch Freeze button to hold the harmony voices in a drone while the original voice continues. Click it again to release the freeze and return to regular doubling.

Try different Humanize settings.

YOU CAN BELIEVE

This preset creates the infamous Auto-Tune Vocal Effect (i.e., the T-Pain/Cher-style effect) on Harmony Channel 1. A couple of things to keep in mind:

- The preset uses Scale Interval mode, so you will need to set the correct Key and Scale for your track.
- Getting this effect requires the right combination of vocal track style and selected scale. If it isn't giving you the effect you want, try a different key or a different scale (or both). And remember that some vocals are just not candidates for the effect under any circumstances.

THINGS TO TRY:

Try unmuting one or more of the other three harmony channels and setting various intervals. The results will be highly dependent on your track and the selected Key and Scale, but you might end up with something pretty cool. Then again, you might not.

Chapter 5: Tutorial Sessions



As mentioned in Chapter 1, the composers who produced some of the Harmony Engine Evo demo compositions have been kind enough to allow us to include the actual sessions for you to load into your host and experiment with.

In each case, we've provided versions of each demo for a number of the most popular host applications. To keep the sessions to manageable size, all accompaniment tracks have been mixed to a single stereo track. Any pre-processing of the vocal tracks (compression, EQ, etc.) was pre-rendered to the tracks. For any post-processing of the vocal track and/or Harmony Engine Evo output (delay, chorus, reverb, etc.), we asked the composers to limit themselves to generic effects that came standard with their hosts (so that they could be easily replicated in other hosts).

MIDI

The method of routing MIDI to a plug-in differs pretty dramatically (both in technique and ease) among the various hosts. For that reason, the sessions that use Harmony Engine Evo's MIDI modes are supplied with all MIDI routings in place. Just press Play and everything should just work.



NOTE: If you plan to use Harmony Engine's MIDI modes, but you're not familiar with your host's MIDI routing scheme, examining the sessions that use MIDI can be instructive. Even easier, you can use those sessions as templates. Simply make a copy of a session, delete the existing audio and MIDI data and replace them with your own.

Stay By Me (Paloma Ramos and Jason Poyner; produced by Brian English)

This pop ballad consists of a lead vocal track by singer/songwriter Paloma Ramos with piano accompaniment by co-writer Jason Poyner. Producer Brian English generated MIDI data from Jason's original keyboard performance and edited it for use as harmony control input to a single instance of Harmony Engine Evo.

Brian used two of Harmony Engine Evo's MIDI modes for different harmony voicing effects. In some sections, he used MIDI Omni mode, which created harmony voices at the exact pitches and ranges of the MIDI data. In other sections, he used Chord via MIDI mode, defining the harmony notes by the MIDI data but controlling the range and voicing of the harmony voices with the Register and Spread controls.

In addition, Brian automated Harmony Engine Evo's Formant Only Freeze function at various points in the arrangement to turn the harmony voices into wordless backup parts.

THINGS TO TRY:

Open Harmony Engine Evo and watch its response to automation as the song plays. Note where it's using MIDI Omni mode and where it's using Chord via MIDI mode. Listen for the different harmony voicing effects.

Note the use of Formant Only Freeze and listen to its effect.

Create alternate harmony voicings by modifying the Register and Spread controls in the Chord via MIDI sections.

Try using the Freeze functions in other parts of the song.

Set Choir Size to 2 voices and engage it on the Input Voice for automatic doubling of the lead vocal. Experiment with the various Choir settings to hear their effects.

Try completely reharmonizing the song:

Mute the piano part.

In Harmony Engine Evo, call up one of the Chord Degrees or Cool Chords presets. Play the song and use the Harmony Preset buttons to experiment with different chord progressions.

To get really wacky, mute the original input in Harmony Engine Evo and go crazy with the chords.

Lift Us Away (Gerry Bassermann)

This country-tinged song features two vocalists, a male and a female, each processed with an instance of Harmony Engine Evo. Between the two parts, gerry uses three different Harmony Control modes as follows:

Male Singer

The male singer's performance is split into three distinct sections:

In the first section, the harmonic structure is relatively simple, allowing four harmony voices to be generated using Scale Interval mode in G Major. The selected intervals are 8vb, -4th, +3rd, and 8va.



NOTE: Because the Key and Scale are not stored in the Harmony Presets when using Scale Interval mode

(see Chapter 3 for the explanation of why it works that way), in addition to automating the Scale Interval Harmony Preset, gerry also uses automation to set the Key and Scale popups to G Major at the beginning of the song.

Leading into the second section, gerry automates Harmony Engine Evo's Bypass function to make the lead-in a solo. Since the second section consists of a more complex harmonic progression than the first, gerry automates a change to Chord Name mode and uses automated Harmony Presets to follow the progression with the Register and Spread controls set to a mid-range voicing.

The third section returns once again to Scale Interval mode and the Key of G Major.

Female Singer

All harmonies for the female singer are generated using MIDI Channel mode. (In most hosts you should be able to examine the MIDI tracks in edit view.)

Notice how the number of female harmony voices changes at various places in the song. In MIDI Channel mode, a harmony voice is only active when MIDI data is present on its channel, so it's easy to have a duet in one section and four part harmony in the next (or even from note to note).

THINGS TO TRY:

Select different intervals in the male singer's Scale Intervals sections.

Try different Register and Spread settings during the male's Chord Name section.

Set Choir Size to 4 voices and engage it on all of the Harmony Voices. Experiment with the various Choir settings to hear their effects.

For textural contrast, use the CHOIR Bypass control to add the CHOIR effect only to selected phrases of the song.

Experiment with the Freeze functions. Try Formant Only during the male singer's second section. Try Formant Only or Formant + Pitch at various places in the female's sections.

Modify the MIDI data and listen to the result.

Let You Know (Erik D and Stacey Dawn)

In this tasty bit of techno from Erik D and Stacey Dawn, the lead vocal and various vocal effects are split onto four separate tracks, each with its own instance of Harmony Engine Evo, allowing the various parts to overlap each other.

Here's what's there:

The first track, intermittent “Yeah”s, uses Harmony Engine Evo set to Scale Interval mode in C Major to create a single harmony part a 5th above the original vocal. All Humanize functions are set to 0.

The next track consists of heavily processed repetitive “Yeah”s used as accents. For this track, Harmony Engine Evo is also set to Scale Interval mode in C Major, but in this case four harmony voices are generated, two voices a 3rd above the original and 2 more a 5th above. Each pair are panned apart from each other and all of the Humanize functions are set to moderate amounts.

The third track is made up of disconnected phrases from what will eventually be the lead vocal. Still using Scale Interval mode in C Major, Harmony Engine Evo creates four voices, all a

3rd below the original. Each of the four voices have different Pan, Vibrato and Throat Length settings. In the Humanize section, Naturalize is set to a moderate amount, with a little bit of Pitch Variation and no Timing Variation.

Finally, the lead vocal uses Harmony Engine Evo to create four harmony voices in Chord Name mode with the chord set to C Sus in 1st inversion. The Register and Spread controls are used to arrange the harmony voices in a medium high, medium tight voicing. Each voice has different Pan, Vibrato, and Throat Length settings, but all Humanize functions are set to 0.

THINGS TO TRY:

Add one or more additional voices at different intervals to the first “Yeah” track.

Set different intervals for one or more of the harmony voices on the third track.

Experiment with different chords on the lead vocal part.

Try various different Register and Spread settings on the lead vocal.

Use either of the Freeze functions at various points on the lead vocal.