Symphonic Choirs

MENS, WOMENS AND BOYS CHOIRS

USER MANUAL

IMPORTANT COMPATIBILITY NOTE!

Our Revolutionary New Opus Software Engine

Our brand new Opus software engine has been years in development, and replaces the Play engine. All EastWest Libraries (with the exception of the original Hollywood Orchestra, the original Hollywood Solo Instruments, and the MIDI Guitar Series) are supported in Opus, allowing them to take advantage of a faster, more powerful, more flexible, and better looking software engine.

Opus comes with some incredible new features such as individual instrument downloads, customized key-switches, new effects for the mixer page, scalable retina user interface upgrades for legacy products, a powerful new script language, and many more features that allow you to completely customize the sound of each instrument.

It's one of the most exciting developments in the history of our company and will be the launching pad for many exciting new products in the future.

Using Opus and Play Together

Opus and Play are two separate software products, anything you have saved in your projects will still load up inside the saved Play version of the plugins. You can update your current/existing projects to Opus if you so choose, or leave them saved within Play.

After purchasing or upgrading to Opus you do not need to use Play, but it may be more convenient to make small adjustments to an older composition in your DAW loading the instruments saved in Play instead of replacing them with Opus. For any new composition, just use Opus.

A Note About User Manuals

All EastWest Libraries have their own user manuals (like this one) that refer to instruments and controls that are specific to their respective libraries, as well as referencing the Play User Manual for controls that are common to all EastWest Libraries.

For EastWest Libraries supported for use within Opus, we highly recommend taking advantage of all the powerful new features it has to offer.

Reference this user manual for details related to the instruments and controls specific to this library and, in place of the previously mentioned Play Software Manual, refer to the Opus Software Manual from the link below instead.

OPUS SOFTWARE MANUAL: https://media.soundsonline.com/manuals/EW-Opus-Software-Manual.pdf

East West Sounds, Inc.
6000 Sunset Blvd.
Hollywood, CA 90028
USA

For questions about licensing of products: licensing@eastwestsounds.com

For more general information about products: info@eastwestsounds.com

http://support.soundsonline.com

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Welcome

About EastWest

EastWest (www.soundsonline.com) has been dedicated to perpetual innovation and uncompromising quality, setting the industry standard as the most critically acclaimed producer of Sample CDs and Virtual (software) Instruments.

Founder and producer Doug Rogers has over 30 years experience in the audio industry and is the recipient of many recording industry awards including "Recording Engineer of the Year." In 2005, "The Art of Digital Music" named him one of "56 Visionary Artists & Insiders" in the book of the same name. In 1988, he founded EastWest, the most critically acclaimed sound developer in the world, and recipient of over 50 industry awards, more than any other sound developer. His uncompromising approach to quality, and innovative ideas have enabled EastWest to lead the sound-ware business for 20 years.

In 1997 Rogers partnered with producer/composer Nick Phoenix and set up Quantum Leap, a wholly owned division of EastWest, to produce high-quality, no-compromise sample libraries and virtual instruments. Quantum Leap virtual instruments are mostly produced by Nick Phoenix. Some of the larger productions, such as Symphonic Orchestra, Symphonic Choirs and Quantum Leap Pianos are co-produced by Doug Rogers and Nick Phoenix. As a composer, Phoenix began scoring film trailers and television commercials in 1994. To date, he has either scored or licensed music for the ad campaigns of over 1000 major motion pictures including Terminator 3, Lord of the Rings Return of the King, Harry Potter 5, Wall-E, Star Wars Episode 2, Spiderman 3, Pirates of the Caribbean 3, Blood Diamond, Night at the Museum, 300, and The Da Vinci Code. Quantum Leap has now firmly established itself as one of the world's top producers of high-end sample libraries and virtual instruments.

Producer: Doug Rogers

With over 30 years experience in the audio industry, founder and producer Doug Rogers is the recipient of over 60 industry awards, more than any other sound developer. His uncompromising approach to quality, and innovative ideas have enabled EastWest to lead the sound-ware business for more than 22 years. "The Art of Digital Music" named him one of "56 Visionary Artists & Insiders" in the book of the same name.

He released the very first commercial Drum Samples CD in 1988, and followed it with the multiple award-winning "Bob Clearmountain Drums" sample collection which he co-produced. In the years that followed he practically reinvented the sound-ware industry. EastWest introduced loop sample libraries to the market in the early nineties, followed closely by the first midi driven loops collection (Dance/Industrial). He released the first library to include multiple dynamics, followed by the first sample library to stream from hard disk, an innovation that led to the detailed collections users expect today.

His recent productions are Symphonic Orchestra (awarded a Keyboard Magazine "Key Buy Award," EQ Magazine "Exceptional Quality Award," Computer Music Magazine "Performance Award," and G.A.N.G. [Game Audio Network Guild] "Best Sound Library Award"); and Symphonic Choirs (awarded Electronic Musician "2006 Editor's Choice Award," G.A.N.G. "Best Sound Library Award," and Keyboard Magazine "Key Buy Award"). Most recently, his productions include Quantum Leap Pianos, the most detailed virtual piano collection ever produced; and Fab Four, inspired by the sounds of the Beatles, a M.I.P.A Winner and judged the most innovative instrument by 100 music magazines.

Over the last decade he has partnered with producer/composer Nick Phoenix and set up the Quantum Leap imprint, a subsidiary of EastWest, to produce high-quality, no-compromise virtual instruments. EastWest/Quantum Leap virtual instruments are considered the best available and are in daily use by the who's who of the industry.

Producer: Nick Phoenix

Nick began scoring film trailers in 1994. To date, he has scored or licensed music for the ad campaigns of over 1000 major motion pictures. “Star Trek,” “Tron,” “Percy Jackson,” “Twilight,” “2012,” “WALL-E,” “Indiana Jones 4,” “Harry Potter 6,” “Inkheart,” “Tales Of Despereaux,” “300,” “A Christmas Carol,” “Watchmen,” “Angels and Demons,” “Night at the Museum,” and “Young Victoria” are a few recent examples. Nick founded “Two Steps From Hell” with Thomas Bergersen in 2006. **www.twostepsfromhell.com**

The journey as a composer has inspired Nick to record and program his own sounds and samples. Nick founded Quantum Leap Productions in 1997 and Quantum leap has since grown to be the world’s top producer of high-end virtual instruments. A 13-year partnership with Doug Rogers and EastWest has yielded award winning software titles such as Stormdrum 1 and 2, Symphonic Orchestra, Symphonic Choirs, Silk, RA, Voices Of Passion, Ministry Of Rock, Gypsy, Quantum Leap Pianos, Goliath, Hollywood Strings, and many others.

“Hollywood Strings is the culmination of years of experience and the input of a really strong and diverse team. It is, by far, the best virtual instrument I have been involved with.”

Recording Engineer: Prof. Keith O. Johnson

Prof. Keith O. Johnson has spent over 30 years developing a reputation for innovative thinking, technical achievement and musicianship which has elevated him to a position in the audio industry occupied by only a handful of visionaries. His intensive investigation of electronic behavior and acoustic perception have led most recently to his development (with digital engineer Michael Pflaumer) of the revolutionary High Definition Compatible Digital encoding process, produced and marketed by Pacific Microsonics (and acquired by Microsoft). HDCD is widely considered to be the most accurate recording process ever invented. His 90-plus recordings have long been considered the standard for high fidelity, and include three Grammy award-winners and eight additional Grammy nominations.

SOME REVIEWS OF HIS RECORDINGS:

"How Johnson got that huge climax at the end of the Dances cleanly onto tape transcends engineering and goes into the realm of magic." -- Harry Pearson, THE ABSOLUTE SOUND.

"Keith Johnson's engineering, mastering and production have, in this case, produced the finest orchestral recording I have ever heard..." -- Russell Lichter, SOUNDSTAGE

Credits

Producers

Doug Rogers and Nick Phoenix

Recorded by

Prof. Keith O. Johnson

Custom recording equipment built and designed by

Prof. Keith O. Johnson

Assistant Recording Engineer

Rhys Moody

Engineering and Mastering

Nick Phoenix

Editing

Nick Phoenix, Jared Selter, Justin Harris, Jonathan Marmor,
Pierre Martin, and Arne Schulze

Art Direction

Steven Gilmore and Doug Rogers

WordBuilder concept by

Nick Phoenix and Nuno Fonseca

WordBuilder software by

Nuno Fonseca

Software

Doug Rogers, Nick Phoenix, Klaus Voltmer, Klaus Lebkucher, Patrick Stinson,
Stefan Kersten, Toine Diepstraten, Thomas Merkle, Ezra Buchla,
David Kendall, Nick Cardinal, and Jonathan Kranz, and Justin Harris

Manual

John Philpit

How to Use This and the Other Manuals

All documentation for the EastWest PLAY Advanced Sample System and its libraries is provided as a collection of Adobe Acrobat files, also called PDFs. They can be viewed on the computer screen or printed to paper.

Each time you install one of the PLAY System libraries, two manuals are copied to the file system on your computer:

- The manual that describes the whole PLAY System. This, the largest of the manuals, addresses how to install and use all aspects of the software that are common to all libraries.
- The library-specific manual, such as the one you are currently reading. This smaller document describes aspects that differ from one library to the next, such as the list of included instruments and articulations.

Using the Adobe Acrobat Features

By opening the Bookmarks pane along the left edge of the Adobe Acrobat Reader, the user can jump directly to a topic from the section names. Note that some older versions of Acrobat Reader might not support all these features. The latest Acrobat Reader can be downloaded and installed at no cost from the Adobe web site. (As an example of a hyperlink, you can click on the last word of the previous sentence to be taken directly to the Adobe site.)

When reading this and other manuals on the computer screen, you can zoom in to see more detail in the images or zoom out to see more of the page at once. If an included picture of the user interface, or a diagram, seems fuzzy or illegible, then zoom in using one of several means provided in the Acrobat Reader software. Note that images are clearest and screen shots most legible at 200% and next best at 100%.

Online Documentation and Other Resources

For the most up to date information, visit the support pages at EastWest's web site. There you can find:

- information made available after these manuals were written
- FAQ pages that may already list answers to questions you have
- suggestions from EastWest and other users of the EastWest PLAY System
- news about upcoming releases

The address is:

http://support.soundsonline.com

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EWQL Symphonic Choirs, An Overview

The Design Point For the Symphonic Choirs Library

The EastWest/Quantum Leap Symphonic Choirs virtual instrument is the result of years of planning, scoring, recording, editing, and programming by over 100 creative professionals. Our goal was to create a Symphonic Choirs virtual instrument that would blend perfectly with the multiple-award-winning EastWest/Quantum Leap Symphonic Orchestra—and could be reproduced in surround sound—recorded where choirs and orchestras sound most natural, in a state of the art concert hall.

First, we had to find the right team to execute the plan. To capture the sounds, we needed someone with an impressive history of recording choirs and orchestras live. The answer was Prof. Keith O. Johnson. His 90-plus recordings have long been considered the standard for high fidelity, and include two Grammy award winners and eight additional Grammy nominations. All of the recording equipment used in the project was either hand-built or extensively modified by him to optimize fidelity. Prof. Keith O. Johnson had previously recorded EastWest/Quantum Leap Symphonic Orchestra, so it was an obvious choice.

Next, we had to find the right concert hall in which to record EWQLSC. Fortunately, his experience was invaluable here as well. He had recorded in most of the "critically acclaimed" concert halls throughout the world, and had a short list of favorites. After the success of EWQLSO we decided to use the same concert hall to record EWQLSC.

Once the recording was completed, the post-production team was put to work, which included some of the finest sound designers and programmers in the business. Special software was developed to edit the multiple tracks simultaneously, and keep them in phase. An advanced version of our revolutionary WordBuilder™ software for both PC and Mac was developed specially for EWQLSC. Nearly a year of post-production was necessary to achieve the final result—a result we are all extremely proud of.

We hope you enjoy EWQLSC as much as we do—and we would love to hear what you create with it. Explore the many sections of this Guide, especially the sections on the WordBuilder™ software where we expect you will spend most of your time, and use it to spark the endless creative possibilities of this ground-breaking virtual instrument!

Producers Doug Rogers and Nick Phoenix

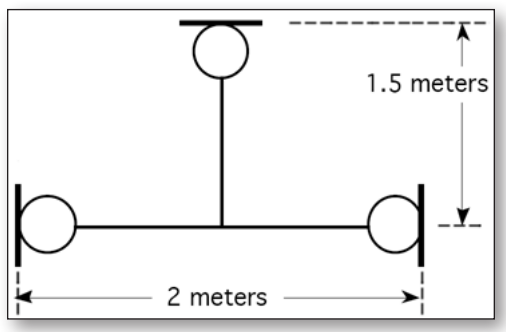
Recording Notes

EWQLSC is a sample library that can produce full multi-channel sound like that from a good recording session in a concert hall. The user can manipulate multi-channel files within each sample to move a section of the choir, create fully diffused or highly focused sound, as well as offstage effects that have the same acoustic character as having microphones on stage and mixing them.

Each choir sample contains high-resolution components recorded in a state of the art concert hall from microphone groups placed to achieve close, full, and ambient sound. Microphone placement is modeled after traditional Decca setups. The choir and soloists are placed on stage as they would perform, so that signals from these microphone groups can be mixed and have the general technical feel and acoustic properties of a live session.

In addition, the placement of the choir correlates with the orchestral instruments recorded for EastWest/Quantum Leap Symphonic Orchestra, achieving a unified choral and orchestral mix when the two libraries are used together. Consistent microphone placement for the two sets of samples allows them to work together perfectly whether building stereo or surround sound recordings.

ADVANCED: A "Decca tree"—for those interested—is an arrangement of three microphones originally designed at the English Decca Records, and still used for orchestra recordings, especially when recording movie scores. The mics are arranged as in the diagram at the right. Because of the 2-meter spacing between the left and right mics, the audio provides the intensity cues necessary for detailed stereo imaging while including sufficient phase information to produce an open and spacious sound. In addition, the middle microphone generates a solid central image.



Much post-production work and active DSP is mandatory to align the multiple time-phase paths from all of the sample groups. In addition, a large concert space was required to avoid claustrophobic wall sounds and to capture the choir sound we hear at an appropriate distance. These ultimately achieve overall mix clarity.

To provide process headroom for this work, a super resolution recording chain was used. FM microphone responses extended to at least 26 kHz, all signal paths had minimal discrete circuit electronics, and conversions and files were at least 24-bit, 88.2kHz. (We also recorded everything at 176.4kHz for future updates). Hence the Gigabytes of data needed to access the sounds of instruments from different angles, placements and distances. The six-channel high-resolution files containing close, full and reverberant feeds can produce a real 3D orchestral sense like that from a good recording. To do this,

simplified user commands or pre-setable instrument placements replace outmoded pan and gain controls functions. The new controls make complex adjustment of direct-to-reflected sound, time-phase relationships, and equalizations to track a section's placement. In this manner, a section can be accented within the whole choir, brought forward in the mix, or moved off stage and the acoustic sound will correlate.

Recording Practice

A good recording setup often requires a close mic accent pickup to assist the ear in focusing on an important phrase in the polyphonic mix. Once used, the accent is often removed, as only a few of these spots are effective at any one time. Sometimes, a reverberation pickup is added or increased to restore a correct sense of hall response to instrumental and choral power. Generally, a good recording setup for a concert hall has accent capability and will be much like early big sound Decca setups: omni- or non-directional pickups at front; a center tree, often of directional microphones; several close placed accents; and a hall sound microphone group. Combinations of phase interferences, sonic bleeds to microphones, time arrivals, and special energy convey a "best seat" perceptual experience even though the microphones are much closer to the performers than is the listener in the hall. The sense of vocal directionality and its effect on stage and hall sound is evident.

Post Production

The EWQLSO and EWQLSC samples originate from this Decca setup. The user can manipulate or mix file perspectives to work a composing project with the same mix capability available in most soundstage and classical recordings. Microphone pickups are selectable, allowing the user to mix and create a complex full sounding performance. External equalization adjustments can make soloists be very soft yet have pinpoint resolution in a lush full ensemble. Offstage singers can sound diffuse and merge into 5-channel surrounds without creating distraction. Stereo accents with time-phase control can extend near field images beyond the speakers, a useful effect for computers and gaming.

Three-Dimensional Samples

Three file groups operate in conjunction for each choral section, soloist, or sample. They provide:

- a full soundstage
- a close, focused sound
- the hall response

All three pickup signals are synchronized to the choir's position for correct time-phase arrival, as well as pre-equalized so they will fit into a traditional large-scale mix, with both other sections and instruments from EWQLSO. In this manner, other preset synchronization and mix variations can be made to modify the placement of a section or soloist within the full sound of all choral parts and instruments. Such automatic options are not only convenient but they perform very well and reduce processing requirements to help allocate computer resources to create the complex real sound of a good recording.

One-Dimensional Samples

Note that a one-dimensional sample, even with extensive electronic support, doesn't create the varying spatial energy relationships that occur when singers sing different notes. The reflected sounds from all the surfaces of a concert hall mix audibly in a good space to provide the whole listening experience. Small room and anechoic samples lack this complexity, a serious problem when attempting concert hall reality. Convincingly complex—and therefore, realistic—sound radiation cannot be achieved with current sound processing software; the EWQLSC sample library was made in a big space, where multiple paths for reflections achieve the sense of space appropriate to a concert hall.

Recording Engineer Prof. Keith O. Johnson

Two Revolutionary Concepts

The first of these revolutions actually began with the companion library, EastWest/Quantum Leap Symphonic Orchestra, but bears repeating here: the recording of 3 microphone positions to achieve concert hall realism unparalleled in sampled orchestras. This feature is described in detail starting on page 69.

The second revolution, unveiled with EastWest/Quantum Leap Symphonic Choirs, is WordBuilder, an application that lets the composer type sentences that the choirs sing. A large part of this manual is devoted to various aspect of WordBuilder, with an in-depth look at how to use the application starting on page 29.

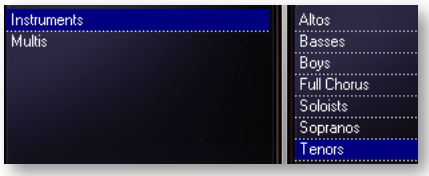
The Instruments in EWQL Symphonic Choirs

IMPORTANT NOTE: This manual applies to both the basic Symphonic Choirs library and the Choirs Expansion add-on. The information that applies only to those who bought the license for the add-on is clearly marked as being "Expansion only."

Symphonic Choirs contains two basic types of patches, which are grouped into 2 separate folders called Instruments and Multis. The latter is short for "multi-instruments."

The **Instruments folder** contains the patches that do not use WordBuilder to create patterns of sung speech. Each patch is a single sound per instrument (usually). Examples are "oo" and "ah" sounds, as well as individual consonants and vowels. There are also some shouts, whispered words, and other effects. See the list of instruments starting on page 84 for more details.

These patches are grouped in 7 subfolders (8 if you have a license for the Choirs Expansion). The image on the next page shows these 7 subfolders as they appear in the Browser.

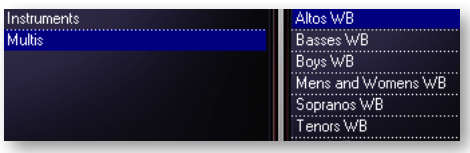


These 7 groups include:

- the 4 standard choral sections (Sopranos, Altos, Tenors, Basses)
- a Boys choir
- a Full Chorus (men and women together)
- Soloists (a Soprano, an Alto, a Boy)

The **Multis folder** contains the patches that Use (and require) WordBuilder to create sung speech. The patches are not really useful on their own; the notes within these patches are designed to be called from WordBuilder, as specified by the "WB" in the name.

These patches are grouped in 6 subfolders (7 if you have a license for the Choirs Expansion). The image below shows these 6 subfolders as they appear in the Browser.



These 6 groups include:

- the 4 standard choral sections (Sopranos, Altos, Tenors, Basses)
- a Boys choir
- separate Women's Choir and Men's Choir*

* The "Women" voice type creates a single range of female voices using the Alto samples at the bottom and Soprano samples at the top. Likewise, the "Men" voice type combines Bass and Tenor samples to create a single range of male voices.

For specific information about these patches, see the chapter called Instruments, Articulations, and Keyswitches later in this manual, starting on page 80. (Or click on the page number to jump there, if reading this on a screen.)

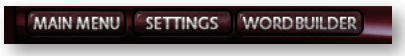
WordBuilder

This software tool is the primary interface for constructing a choral performance. It is here that the composer or orchestrator literally spells out the words that the choir sings and specifies the fine details of the performance. The user is given complete control over how long the choir holds each consonant and vowel within a syllable as well as the constantly changing dynamics that can give a choral track added realism (if that's the goal). Or the user can accept the default settings and get less polished but faster results, perhaps for a preliminary mock-up.

When setting English words, one has a choice of typing the text with any of the following alphabets:

- standard English spelling
- an easy-to-learn phonetic alphabet
- Votox, a phonetic alphabet that EastWest/Quantum Leap created specifically to match WordBuilder's sung speech capabilities

WordBuilder includes a 100,000-word dictionary (from Carnegie-Mellon University) for translating American English spelling to a phonetic spelling. When typing with one of the phonetic alphabets listed in the second or third items above, the symbols are listed on the screen to assist the memory. When setting text in languages other than English, or with pseudo-words, like "be-bop-a-doo," one must specify the sounds in one of the two phonetic alphabets listed above.



WordBuilder appears in a separate screen within the PLAY window—whether you're working in the plug-in or in the standalone version. The Player view (for the Choirs UI only) includes a button near the top that can take you to the WordBuilder page. WordBuilder is describes in more detail later in this manual.

What's Included

This EastWest/Quantum Leap Symphonic Choirs Virtual Instrument you purchased includes all the following:

- a complete set of sample-based instruments, enumerated later in this manual
- approximately 38.5 Gigabytes of 24-bit, 44.1 kHz samples
- the EastWest PLAY Advanced Sample Engine
- the unique authorization code that identifies the license you bought
- manuals in Adobe Acrobat format for both the EastWest PLAY System and the EastWest/Quantum Leap Symphonic Choirs Virtual Instrument
- an installation program to set up the library, software, and documentation on your computer
- an Authorization Wizard for registering your license in an online database

For those users who install The Symphonic Choirs Expansion instruments this size of the samples on the hard drive grows from 38.5 GB to 40 GB.

One required item *not* usually included is an iLok security key. If you already have one from an earlier purchase of software, you can use it. Otherwise, you need to acquire one. They are available from many retailers that sell EastWest and Quantum Leap products, or you can buy one online at www.soundsonline.com.

Hardware Requirements

See the Play System manual for a complete list of the Hardware and Software Requirements for installing and running any PLAY System library. In addition, the available

space on the hard drive required for a full installation of EastWest/Quantum Leap Choirs is approximately 39 GB (Gigabytes), or 40 GB if the Expansion instruments are installed.

3. The EWQL Symphonic Choirs User Interface

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The EWQL Symphonic Choirs User Interface

Each library presents its own interface when one of its instruments is the current one, as specified in the Instruments drop-down in the upper right corner. The image at the bottom of this page provides an overview of the entire window in Player View when the current instrument is from the Symphonic Choirs library.

Much of this interface is shared by all PLAY System libraries, and the common features are described in the PLAY System manual. The Choirs-specific controls described later in this section are those listed on the next page. If you don't see a control described in this chapter, look at the PLAY System manual; that's the other manual installed on your hard drive during program setup.

The controls described in this manual are:

- Channel Source
- Tune
- Master Pan, Volume, Mute, Solo, and Audio Channel Output
- Microphones
- Performance (Portamento, Repetition, Legato, and Round Robin Reset)
- Stereo Double
- Reverb Master
- Voice Limit
- Articulations
- the graphical representation of the Envelope

Important Note for the "Multi" Choirs

Anytime you open an instrument from the Multi" folder in the Symphonic Choirs browser, PLAY opens more than one—up to 6 or even 12—instruments. If you open the Instrument drop-down in the upper right corner, you will see all the currently open instruments. They work together to play all the phonetic sounds it takes to generate sung words.

When you make any change to one of the instruments in the controls described below, it is important that you make the same change to all the other instruments in the multi. For example, if you pan left the instrument on MIDI channel 1 and do not repeat that change on the other instruments in the multi, when you play a phrase in WordBuilder, you may hear some of the phonetic letters sung in the center and others sung from the left.

Master Controls

The Master controls are presented in a strip along the right side of the EWQLSC interface. They affect the overall output for the selected voices.

Channel Source

In the upper right corner is the Channel Source drop-down list. Use this list to choose how you want to use the two stereo channels of the output:

Stereo uses the two stereo channels as they were originally recorded, with no added processing.

Mono (Sum) combines the left and right channels into an output that is identical in both channels, approximating the sound of a single microphone at the center of the stage.

Mono From Left copies the left channel of the audio to the right output channel, discarding the audio from the right channel.

Mono From Right copies the right channel of the audio to the left output channel, discarding the audio from the left channel.

Stereo (Swapped) uses both stereo channels but reverses the left and right audio. Because of the natural positioning of the choirs on the concert stage in Symphonic Choirs, this choice appears to reverse the natural layout in effect when these Choirs were originally recorded.

Most applications will use the Stereo setting to achieve the natural stereo ambience. One of the Mono settings might be used to bring a single voice to center-stage, to create the feel of a pre-stereo recording, or for other special effects.

The Tune Controls

These controls include two buttons to select between Coarse tuning and Fine tuning as well as a knob and two digital readouts that allow the user to change the Coarse and Fine tuning settings. When set at 0,0 the instruments play at concert pitch. Coarse tuning adjusts the pitch up or down in semitone increments. Fine tuning, measured in "cents," moves the pitch up or down in increments of 1/100th of a semitone. One possible use is to move Symphonic Orchestra up or down to the same pitch as live recordings or other sample libraries.

Adjustments can be made by turning the knob (moving up or down with the mouse button held down) or by selecting one of the two digital readouts and entering a new value (by typing a number or by using the Up Arrow and Down Arrow keys on the computer keyboard). Double-clicking the knob returns the value to 0 for whichever mode is selected, Coarse or Fine.

ADVANCED: In PLAY, there are two ways to transpose a musical phrase—the Transpose control and the Tune control—but they work very differently. (1) The Transpose control can only move notes up or down in semitone increments, nothing smaller. It does not change the audio data; instead, it replaces the incoming MIDI note with a higher or lower value. For example, if the Transpose control is set to +2, playing MIDI note 60 (Middle C) will cause PLAY to play back the audio for note 62. (2) The Tune control allows adjustments as small as 1/100th of a semitone. The audio data is stretched over time (to lower the pitch) or compressed (to raise the pitch). For small changes of less than a quarter tone, the effect on the timbre is negligible; the larger the change in pitch, the more noticeable the distortion. Note that only the Tune control can let an instrument play above or below the range of provided samples. Finally, transposing has almost no effect on CPU usage; adjustments in tuning require significant CPU processing.

Pan Control

The Pan knob moves the apparent position of the sound source left or right in the audio field by adjusting the relative loudness of the signal in the left and right output channels. It preserves the relative panning for the individual panning knobs in the Microphones control.

The choir voices are already located in their correct position on stage as captured in the Stage and Surround mics. The Close mics were recorded with the singers directly in

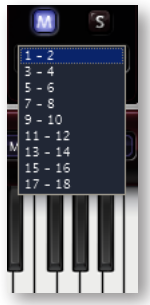
front of the stereo microphones (so in the center), but the Close instruments have their Pan control adjusted to sound in the same location as the other mic positions. It is not necessary to adjust the Pan control of individual singers or sections, but you can use this control to achieve a more personal sound or special effects.

Master Volume Control and Meters

This vertical slider adjusts the volume of the final output. It preserves the relative mix of volumes specified in the individual sliders within the Microphones control.

The two vertical volume meters—for the left and right audio channels—display the real-time volume of the output signal.

Mute and Solo Buttons



The Mute button temporarily silences the output for the selected articulation file without affecting other open articulation files. (Note that the Mute button—like all the Mute buttons in PLAY—does not stop PLAY from processing the MIDI and audio data for received note data; therefore, using the Mute button does not reduce the load on the computer's CPU. If you want to temporarily turn off the processing for this articulation file, uncheck the Active checkboxes for all loaded entries in the Articulations control.)

The Solo button temporarily silences the output for all articulation files that are not currently soloed. (The same note about CPU load from the previous paragraph applies here, as well.) Use this button to listen to the sound of one voice—or just a few—without the distraction of others playing at the same time.

Output Channels Control

This drop-down list at the bottom of the Master controls (as show in the image at the right, above) allows the user to select the pair of stereo audio channels to which the output will be sent. This control can be used to send the audio output from each loaded instrument to separate audio tracks in the system's sound cards (when in standalone mode) or in the host sequencer (when in plug-in mode).

In the case of Symphonic Choirs, you should not separate the audio output for the 6 instruments that PLAY loads for the WordBuilder voices (or the 12 instruments for the Men and Women instrument types). The 6 (or 12) instruments are acting as a single instrument and need to have their audio directed to a single output.

If two or more voices within the same instance of PLAY share the same output channels, then their audio signals will be mixed into a single stereo pair of audio channels.

Microphones Controls

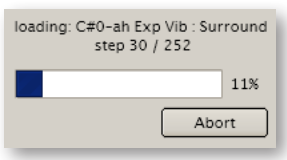
When EastWest/Quantum Leap recorded the voices in Symphonic Choirs, it used three sets of microphones in different parts of the concert hall:

- **Close:** directly in front of each choral section
- **Stage:** centered at the front of the stage
- **Surround:** high above the back of the house

Details about the three microphone positions are provided starting on page 69.

The Microphones controls, shown at the right with an Output drop-down list open, allow the user to select the microphones from which to use the recorded audio and how to mix them when generating audio tracks. The knobs at the top can pan the audio separately within the sound space. The volume sliders can adjust the individual loudness of each microphone in the mix.

The three lights above the word "Loaded" indicate whether the samples for that microphone position have been loaded. Clicking on any of the lights toggles it, loading or unloading the indicated samples from memory. Note that when you click on a light to load samples for a new microphone position, a small window, like the one at the left, appears to show you the progress and let you abort the loading of samples if you change your mind.



At the bottom is a Mute button (with the letter M) and an output button (with three dots on it). The Mute button temporarily silences the output for that microphone. The Output button allows the user to specify the stereo track to receive the audio output from this microphone. Note that "Default" sends the output to whichever output pair is selected in the main Output button in the lower right corner of the user interface.

In the case of the WordBuilder voice types, each multi loads either 6 or 12 instruments at once. If you plan to send, for example, the Close and the Stage mics to separate audio channels, you need to change that setting individually in all 6 (or 12) of the instruments within the multi.

Performance Controls

There are four buttons grouped together in the Performance section. They include three buttons for turning on and off scripts specific to Symphonic Choirs that control performance parameters,

- Portamento
- Repetition
- Legato

and one button for resetting the Round Robin counters. See the section on Performance Scripts, starting on page 63, for information on how to use these scripts.

When you first open an articulation, all three scripts are in the default state set by East-West. If you want them to open with a different default, you will need to save the .ewi file that way and load your new version.

Portamento Button

Portamento, also sometimes called glissando, is the technique of a continuous slide in pitch from one note to the next note in the phrase. Portamento, as used in this virtual instrument, is usually a short, anticipatory movement between the pitches of two adjacent notes. This technique is most common in strings, the trombone, the human voice, and several other instruments that are not restricted to playing notes of the diatonic scale. The effect of turning on portamento in a phrase is a subtle way to increase a sense of realistic singing.

Repetition Button

Repetition, in this context, refers to the playing of a single pitch more than once with no different notes played between them in the same phrase. Turning on this button causes repeating notes to sound slightly different, avoiding the sense of mechanical repetition.

Legato Button

Legato is the style of playing notes in a phrase with no significant silence between them in order to produce a smooth and flowing melodic line. Use this button to turn on a legato effect for the articulation.

Round Robin Reset Button

A round robin articulation is one in which several different samples are recorded with all parameters, such as volume, speed of attack, and so on, being essentially constant. The PLAY Engine then knows to alternate between the two or more samples during playback. The goal is to avoid what's often called the "machine gun effect," in which playing the same sampled note repeatedly causes the unnatural sound of consecutive notes being mechanically identical.

Any articulation with "RR" in its name uses round robin technology. Those with an "x3," "x4," or the like in the name, use 3, 4, or more different samples for each note

There's one potential problem with round robin technology, and the way to solve it is the Round Robin Reset button. The PLAY Engine remembers which sample should be played the next time the note sounds. If, for example, a round-robin patch contains two samples, A and B, and a piece uses that note 7 times, the PLAY Engine plays A B A B A B A. If the piece is played again from the beginning, the engine will play starting with B, because that's next in order. The second rendition will be subtly different. Being able to reset all round-robin articulations to the beginning of the cycle allows for consistent playback.

You can use this button to reset all round robin articulations on demand. Or use your choice of a MIDI note or MIDI control code to reset them one instrument at a time from a MIDI keyboard or the data stored in a sequencer project. See the description of the Settings dialog (in the PLAY System manual) for more information about this articulation-specific approach.

Stereo Double Controls

This knob, with its three buttons, gives the user the option of using exclusively the left stereo signal or right when "Stereo" is selected from the Channel Source drop-down. For any other setting, this control has no effect.

The knob lets the user determine the spread of the signals, how far apart the ear perceives the stereo channels to be. Turning it all the way to the left brings the two channels together at the center (unless the Pan knob positions the output differently), and is the equivalent of turning off the controls with the On/Off button. Turning it all the way to the right calls for the maximum spread available. Select between the left and right signal with the buttons on either side of the On button.

Reverb Master

The Reverb control is described in the main PLAY System manual, but Symphonic Choirs—and a small number of other EastWest virtual instruments—include a Master button as part of the group. When the button is pressed and the On light is illuminated, the Reverb for this instrument applies to all the other instruments in this instance of PLAY, including instruments from libraries that do not include a Master button.

If the Master button is already engaged in another instrument in the current instance of PLAY, and the Master button is pressed in a new instrument, then the settings in the UI of the new instrument become the settings for all instruments in this PLAY instance.

The processing of high-quality reverb can be very CPU-intensive and it is often the case that you want to use the same reverb on all the instruments in an audio track. Engaging the Master Reverb button allows you to run a single instance of the reverb processor and have the effect apply to multiple instruments.

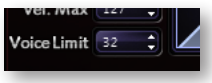
Voice Limit Control

The Voice Limit control allows the user to specify the maximum number of voices to reserve space for in the computer's RAM. Note that a "voice" in this context is the number of samples being played at once. Some EWQLSC "instruments" routinely play more than one sample at a time. And the release trail for each note also uses its own voice. It is not uncommon for a monophonic line to require 10 to 20 voices, especially when playing rapidly (so that multiple release trails are playing simultaneously). The best way to see how many voices are required is to play the piece and watch the Voices display (just above the right side of the keyboard). The voice limit can be set to any whole number

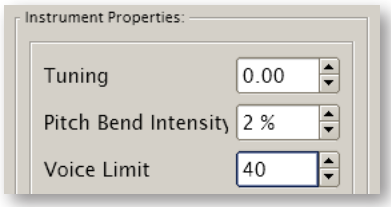
from 1 to 999. The default value is set by EastWest for each "instrument" and can vary by library and instrument.

Setting the Voice Limit too low causes notes to end too soon when PLAY is forced to stop already playing notes in order to start a new note. If you hear notes being clipped, check to see whether you need to raise this setting (as described in the previous paragraph).

Setting the Voice Limit too high reserves unnecessary data buffers in RAM. The total number of voice buffers that can be reserved is limited by the amount of computer memory (RAM). The larger the project, the more likely it is you will run out of RAM; in such cases, you may want to check the Voice Limit of each instrument to determine whether you can reduce the value.



The image at the left shows the Voice Limit spin control in the PLAY user interface set to 32 simultaneous voices. It is also possible to modify this value in the Current Instrument Properties dialog box, which can be opened from the main menu and selecting Current Instrument > Advanced Properties. The image at the right shows part of that dialog with the Voice Limit set to 40.



Articulations Control

This control is much larger and more prominent than in some other EastWest and Quantum Leap virtual instruments. Where others show a maximum of 4 articulations at a time, EWQLSC shows up to 16 at once.

The first 3 columns within the Articulations control allow you to do the following tasks:

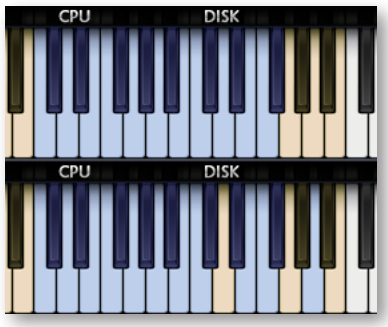
- **Activate and De-activate an articulation:** Click in the first column; a visible check mark means that the articulation will sound when played.
- **Load and Unload samples**: Click in the second column to release the samples from computer memory and click again to reload them into memory. Use this facility to unload any samples you will not be using to save CPU resources. A visible check means the samples are loaded.
- **Change the loudness of the individual articulations:** Click and drag up or down to make that articulation louder or softer (without affecting the other articulations).

The fourth column lists the name of the articulations or other components of the playback, such as release trails.

Be sure to read the discussion on page 70 about using the Articulations control to manage the release trails.

Changing Keyswitch Notes in the Articulations Control

When viewing a keyswitch file, the fourth column includes the keyswitch note as a prefix. The "C#0" at the beginning of the "QLeg" name in the second slot in the image at the left indicates that the note C#0 can be used to initiate that articulation. The control lists the default keyswitch note for each articulation, but these notes can be changed.



If within the list of articulations you right-click (on a PC) or Control-click (on a Mac), you will open a context menu listing all the available notes to which you can move a keyswitch. The image to the left show part of the context menu that opens for the articulation "G#0-Exp Fst." The check mark next to G#0 shows the current keyswitch note. Select any different note to change the keyswitch. The image at the right shows how the D1 keyswitch can be moved to A1.

This feature provides very few restriction on which note you select, so be aware of the following:

- If you assign an articulation to a note that is already a keyswitch (and don't move the other keyswitch) then that note will trigger both the old and the new articulation, effectively playing two articulations at once. That might sometimes be useful and at other times a problem.

- If you assign an articulation to a playable note (in white on the onscreen keyboard) then playing that note will also change the articulation. (The articulation will be changed after the start of the note, so the note itself will not be in the new articulation; it only starts with the next note.)

- If you change the keyswitch note for the currently selected articulation, then all the notes temporarily stop being playable until you select a new articulation by selecting a keyswitch note. Visually, this means all the white keys on the onscreen keyboard turn the darker tan color. (Remember that the lowest keyswitch note—usually C0—is the default keyswitch, so it is considered "currently selected" until another keyswitch note is selected.)

- If you open the context menu on a slot that does not contain a keyswitch, the value "None" will be selected and you will not be able to assign a keyswitch note.

- This feature does work on the older keyswitches in the folder "6 Old Keysw," but because these files are included to provide compatibility to projects begun in earlier versions of EWQLSO, there are probably fewer reasons to do so than with the Master keyswitches.

Note that changing the keyswitch note for any given slot in the list does not change the name in the list. For example, if you change the D#0 keyswitch to F1, a "D#0-" will still appear in the name. The only way to know the currently assigned keyswitch note is to open the context menu and see which note is checked.

If you use this feature often, you might consider creating your own detailed mapping of what notes have been moved and to where. And you might want to save the .ewi file under a new name so you can recall your customized mapping for this and future projects.

The Graphical Representation of the Envelope and the Curve Knob

The Envelope Controls are described in the main PLAY System manual because they are common to all PLAY System libraries. Only some libraries include the graph, as shown here, so it is included in the manuals for those libraries only.

The Envelope has an extra knob compared to the same control in the UIs of other libraries: the Curve knob. It affects the curve of the attack (but is not displayed in the graph just above). Turn the knob to the left (toward 0%) to have the attack start slowly, with most of the rise late; turn it to the right (toward 100%) to have most of the rise in volume near the beginning. This difference can be heard most distinctly with longer, slower attacks.

Note that the total width of the graph represents the total length of all phases of the envelope. Therefore, when you change something in one part of the graph, for example, the decay, you may see the slopes of other components, the attack and the release, change as well because those phases become a larger or smaller percent of the whole; this is as expected.

The Browser View

The Browser behaves identically among all PLAY System libraries. Read the main PLAY System manual for information about how to use that view.

4. WordBuilder

30 Running in Legacy Mode
30 WordBuilder Runs Within the PLAY Window
31 How WordBuilder Interacts with PLAY
31 Voices in Symphonic Choirs and WordBuilder
32 Starting a New WordBuilder “Voice”
34 The Text Editor
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51 The Tools
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53 Notes from the Producers

WordBuilder

WordBuilder is a tool for approximating the sound of sung speech. Its effectiveness in reaching that goal depends on your craft in shaping a series of phonetic material into realistic patterns that the listener perceives as language. Where some projects require intelligibility, others may need only the perception that people are singing, without the need for conveyed meaning. The care you need to take with WordBuilder depends on where your project falls in that spectrum.

The success of WordBuilder in creating recognizable words and meaningful phrases relies on the programming of phonetic cues. Consonants often require the most care; their duration and their volume relative to the nearby vowels are often the keys to clearly enunciated and understandable words. The use of small gaps between phonetic elements—especially before an initial consonant—can sometimes make consonants stand out more clearly. Or the opposite technique—overlapping the end of one segment with the start of the next—can integrate the sounds into more recognizable patters.

The duration and loudness of a consonant are interdependent. Often the longer the consonant lasts, the louder it will seem, and vice versa. You should experiment to see how this works on real words. Also, the type of attack chosen for a vowel after a consonant will have a noticeable effect on the sound of a word.

There is no fixed rule except always to listen to the words spoken and then emulate what you hear. Be prepared to adjust any aspect of each phonetic component, especially if intelligibility is one of your requirements. You will soon learn many tricks that will improve realism. Also, look for hints in the Symphonic Choirs/WordBuilder forum at: http://www.soundsonline-forums.com.

Although WordBuilder features automatic translation from English to phonetic alphabets, it is possible to create an approximation of the sound of other languages using the phonetic alphabets directly. The more similarity there is between the sounds of the vowels and consonants of English and of your intended language, the more realistic the possible speech can be. And note that WordBuilder comes with a set of pre-packaged Latin phrases with many uses, including the recreation of the sound of traditional liturgical scores.

This section of the manual describes how to use the various features of WordBuilder in pursuit of those goals, including how to set the parameters that control its operation. After reading this chapter when learning the program, you should consider the section as a reference guide any time you need to delve more deeply into a technique.

Running in Legacy Mode

Before describing the features of WordBuilder, it's important to mention that this manual documents the features of the WordBuilder that comes with PLAY versions released in September 2010 and later. Older versions of WordBuilder always ran in a separate window from PLAY, and that was true whether running standalone on the desktop or inside a sequencer.

This newer WordBuilder can run inside the PLAY window, and it is recommended that you take the newer approach. But note that it is still possible to run this WordBuilder in the old way, that is, in a separate window. Here are some reasons you might want to take this earlier approach:

- You'll need to run in Legacy Mode if you have data in choir files (with extension .cho), because they are not supported when running WordBuilder integrated inside PLAY. A choir file stores the WordBuilder data of more than one concurrent voice, for example, the sopranos, altos, tenors, and basses in a four-part choir. When WordBuilder runs inside PLAY, it can only affect one voice at a time so choir file no longer work. If you need to open a choir file, you have to run in Legacy Mode.
  - › You can import the data from a choir file while running in Legacy Mode and export the individual voice files (with extension .voi). Then, when running WordBuilder inside PLAY, you can import each voice file into a separate instance of PLAY.
  - › Or, you can work on your existing project indefinitely in Legacy Mode and continue to use the choir files.

- If you have a project that you do not want to convert to the new architecture (for any reason), you can work in Legacy Mode. You are not losing an functionality this way, but you will not be able to use the tighter integration available with this newer architecture.

When you run the WordBuilder application in its own window in what's called Legacy Mode, it is exactly the same program that runs when you open WordBuilder inside PLAY. To do so, open PLAY and WordBuilder as you used to and use the same means to connect the two programs as you used to. Do not click on the WordBuilder button in PLAY's user interface. You can run WordBuilder in Legacy Mode for both standalone and sequencer projects.

For documentation about running in Legacy Mode, continue to use the manual you received with the original version of Symphonic Choirs, or contact EastWest customer support to receive the older manual.

WordBuilder Runs Within the PLAY Window

Starting with PLAY version released in September 2010, the WordBuilder user interface and the Symphonic Choirs user interface both run in the same window. You can move back and forth between these two UIs with the WordBuilder and Player buttons near the top of the window, as shown below.

If you do not see the WordBuilder button in the Symphonic Choirs UI, go to the Updates page on the www.SoundsOnline.com website to acquire the latest version of the PLAY software.

The first time in any given PLAY session that you click on the WordBuilder button, you may see a small menu open directly below the button with the single option "Insert." If that appears, click on the word "Insert" to load WordBuilder into PLAY and open the WordBuilder interface.

It does not matter whether PLAY is running in standalone mode on the desktop, or inside a sequencer; either way, whenever the Symphonic Choirs interface is visible, you can open WordBuilder with the WordBuilder button.

How WordBuilder Interacts with PLAY

You can think of WordBuilder as a module that inserts itself into PLAY and captures the incoming MIDI data before it gets to the main PLAY engine and the instrument you have opened. Once WordBuilder has been inserted, it modifies the incoming data in a major way. Therefore, you need to remember the following important restrictions every time you insert WordBuilder:

- An instance of PLAY that runs WordBuilder should not have open an instrument from any other PLAY library. All data directed to this instance of PLAY—on every MIDI channel—will be processed by WordBuilder. Instruments from other libraries do not know how to interpret data from WordBuilder.

- Any one instance of PLAY should have open only one WordBuilder multi. That multi will open 6 or more instrument files, which is OK. But do not then attempt to open a second multi. If you're building a choir using several multis, put each voice in its own instance of PLAY. And that's true even if you want them to sing exactly the same text as each other.

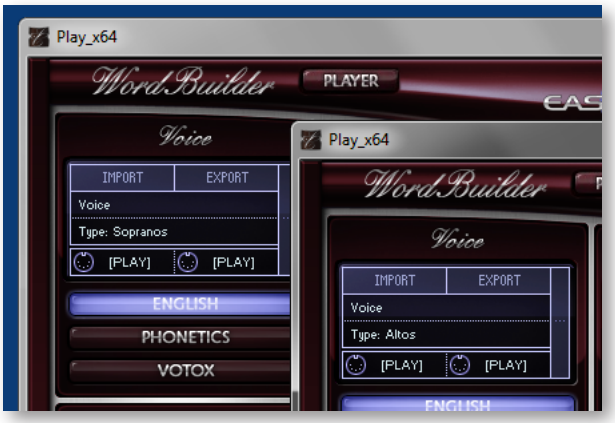
- WordBuilder should not be used with the patches in the Instruments folder. They are not designed to work with WordBuilder.

- All these restrictions apply whether you are running PLAY as a standalone program or as a plug-in inside a host.

Voices in Symphonic Choirs and WordBuilder

A "voice" is the text to be sung by one vocal part and all the other timing and dynamic information the user enters in WordBuilder. These various components create together what you can think of as a single vocal part in the full choir. For example, if you're creat-

ing a project for an SATB choir, there will likely be four Voice files, each with its own text and with its own user-controlled programming.



It is required that you open each voice in its own instance of PLAY. This is true whether you're running PLAY standalone or in a host. Each PLAY window can run a single instance of WordBuilder. The image at the right shows two standalone instances open on the desktop, one with a Sopranos voice open and the other with an Altos voice.

All this WordBuilder data for a voice can be stored on the hard drive as a voice file, with a .voi extension. This file can be created by clicking on the "EXPORT" text in the WordBuilder UI. And a saved voice file can be opened by clicking on the "IMPORT" text. Those buttons are shown in the image above.

Note that importing a saved voice file overwrites anything currently in WordBuilder, and it does so without asking whether you want to lose the previous information.

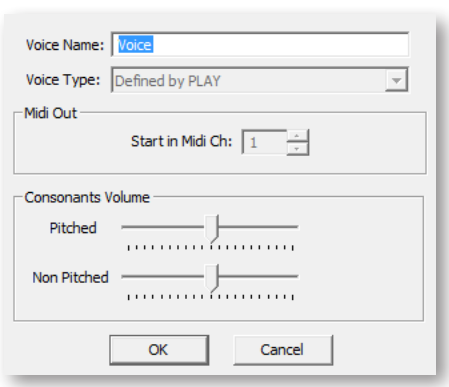
When using PLAY and WordBuilder inside a sequencer, saving the project saves the voice data along with the instruments. While it is not required that you export the voice data separately to the file system, you can do so. One possible reason to export a voice file is so that you can reuse it in a different project.

Starting a New WordBuilder "Voice"

The design of WordBuilder, when it runs within the PLAY window, requires you to use a separate instance of PLAY for each voice. In the PLAY window, load the multi from the Browser or the Main Menu, and in the WordBuilder UI add the text the voice will sing.

Note that everything in this chapter applies whether you're running PLAY standalone or in a host. Everything works the same in both environments.

The first task to do within WordBuilder when creating a new "voice" (which you can think of as a new part within a choir, for example, the Alto part) is to set the voice parameters. In the upper-left corner of the WordBuilder UI, where it's labeled "Voice," click on the column labelled "..." at the right. This will open the Voice Properties dialog box, as shown in the image at the right.



Name the Voice with any text that tells you which voice you're looking at when you have more than one instance of WordBuilder open at once. For example, if you have two separate Alto parts, you might want to call one "First Altos" and the other "Second Altos."

The Voice Type and Midi Out controls are not used when WordBuilder runs within the PLAY window. They are disabled as a reminder that both settings are now controlled within PLAY (though they used to be set here in older versions of WordBuilder, and still are when WordBuilder runs in Legacy Mode). "Voice Type," which you can see in the image at the left above is one of: Sopranos, Altos, Tenors, Basses, or Boys. When WordBuilder runs inside PLAY, this parameter is determined by the multi you have opened.

The section of the dialog called Consonants Volume allows you to raise or lower the loudness of all consonants relative to the vowels. For example, if you find that the words are hard to understand because the consonants are getting lost among the vowels, try boosting one or both of these values. Or lower the settings if you want a smoother, more vowel-emphasizing sound. Pitched consonants are those that are supported by the breath, so they can be sung at any given pitch: b, m, and z are examples. Non-pitched consonants use no breath to activate the voice box: p, t, and s are examples.

Data Flow Into and Out of WordBuilder

When you play a note on a keyboard, or a sequencer plays a note, and that note is directed to PLAY running WordBuilder, here's the path that the MIDI data takes:

1. The original note—or Control Code data—enters PLAY and is immediately routed to WordBuilder.

2. WordBuilder looks at the next syllable in the text to be sung. For each phonetic element in that syllable (*i.e.*, for each Votox symbol), WordBuilder generates a new MIDI note, and it determines when to send each of these new MIDI notes back to PLAY. For example, if the next syllable is the word "sly," which in Votox is spelled, "SlaE," WordBuilder creates 4 MIDI notes, one for each Votox letter. And it determines how many milliseconds to wait before sending each of these new notes. Understand that all 4 notes in this case have the same pitch.

3. The MIDI data for the new multiple notes are sent from WordBuilder back to PLAY, which generates the audio output corresponding to each Votox symbol at the time specified in the WordBuilder UI.

In general, many more MIDI events flow out of WordBuilder than flow in.

The following sections describe how WordBuilder gives you control over the various aspects of the outbound MIDI data so that you can shape the performance. For the most part you are working in terms of words, syllables, and letters, leaving it up to WordBuilder to translate your intentions into MIDI data the PLAY sample player can understand.

The Text Editor

Near the top of the PLAY window is a large control known as the Text Editor. This is where you enter the text you want sung. The following sections describe the many ways you can fine tune how this text will be sung.

The Text Modes

To the left of the Text Editor are three buttons labeled English, Phonetics, and Votox. The button lit in bright blue (the Phonetics button in the image) indicates which of the three text layers appears in the Text Editor. Click on one of the other two buttons to change the text display to that mode. (These are called "layers" because all three versions of the text are always available, but only one layer at a time is brought to the top in the Text Editor window where it becomes visible.)

When you type English words in the English layer, WordBuilder automatically translates any word it finds in its 100,000-word dictionary into the other two layers (though they remain hidden until revealed by clicking on the button for that layer). When you type correctly formatted text into either the Phonetics or Votox layer, it gets translated into the other of those two, but not into English.

Typing English

When English words are typed into the Text Editor, they are color coded to indicate their status.

medium blue: the word was found in the dictionary

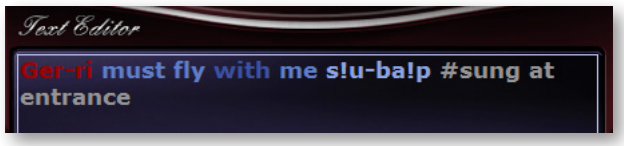
dark blue: the word has more than one entry in the dictionary; this happens when the word can be pronounced in two or more ways

dark red: the word was not found in the dictionary; if it is misspelled, correct it; or if it is not a common word, you will need to enter the word phonetically

light blue: the word was typed into the Phonetics or Votox layer, and is displayed here phonetically, even in the English layer

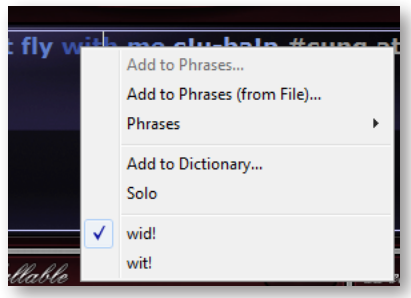
dark red: there is an error in syllable separation, or WordBuilder cannot find the word in the dictionary. For example, if you separate an English word into syllables, WordBuilder may have to set the word in red to indicate it cannot make good automatic phonetic separations. In this case, make the syllable separations in the Phonetics layer.

gray: a comment; the number sign, #, and all text after it on a line are considered comments and not sung



The screen shot above shows many of these colors. If you're reading this in black and white only, then try typing it yourself.

The proper name "Gerri" is not in the dictionary, so it's in dark red. The words "must fly" and "me" were found, so they're in medium blue.



When WordBuilder looked for "with" in the dictionary, it found two possible pronunciations. Although the word is usually pronounced with the same "th" sound as in "thigh," in certain phonotactic situations, it can be pronounced with the voiced "th" sound in "thy." Decide how you want it to sound in your piece, and make your choice by right-clicking (in Windows) or control-clicking (on a Mac). You'll see the context menu you see here. The choices at the bottom are the two possible pronunciations:

- wid! for the voiced th-sound in "thy"
- wit! for the unvoiced th-sound in "thigh"

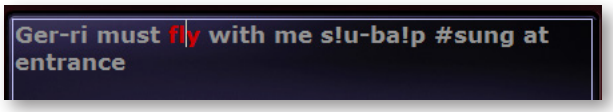
If the one with the check is not the one you want, click on another choice.

In the example text above, because the scat syllables "she-bop" are not in the dictionary, they were entered by changing to the Phonetics layer and typing them in phonetically. Returning to the English layer, they appear in light blue, as in the image above. When writing in languages other than English, all text is entered this way.

Finally, the text "# sung at entrance" is a comment. It is not sung. It appears in gray.

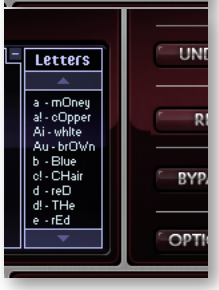
Note that you can also insert the #-symbol to remove text temporarily from what's being sung. Then delete the # and WordBuilder will sing that text again. The effect of the # ends at the end of the current line, i.e., until the next carriage return (which may be different from where the phrase automatically wraps to the next line).

The last color you might see is bright red for soloed words (described on page 41). The image below shows the word "fly" soloed.



Typing Phonetically

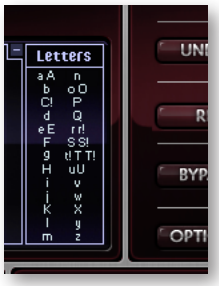
It is also possible to enter text using one of the phonetic alphabets. You have a choice of either traditional Phonetics or WordBuilder's own Votox symbols.



Many users at the beginning may find it easier to use the traditional Phonetics alphabet, partly because the UI provides examples of English words that contain each symbol in the Phonetics "alphabet." Next to each symbol is an English word; the capitalized letter in the word spells the sound of the phonetic symbol. As shown in the 3 images at the left, you can open the list of letters by clicking on the plus sign when working in those modes.

Note that some symbols are two characters long; for example, "Au" is the vowel sound in the English word "brown." These two-part vowel sounds are called diphthongs. The information in these on-screen lists—and more—is repeated starting on page 75 in this guide.

To type using the Phonetics (or Votox) symbols, click on the Phonetics (or Votox) button at the left. Whichever language has the highlighted button is what you're typing in.

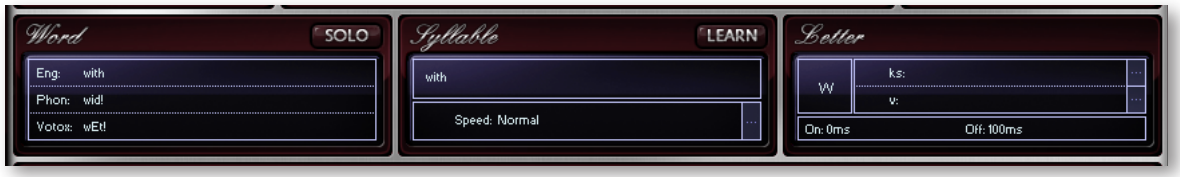


At the right is an example of a word typed in Phonetics. It defines the sounds of a Latin word common in liturgical music: "lacrimosa," which means, "weeping." Note that the syllables are separated with spaces.

And when you click on the Votox button, you can see the same Latin word spelled in Votox, as shown in the second image (on the next page).

You are most likely to start a project in the Phonetics or Votox layer if you are writing lyrics in another language, or have lots of extra syllables in the setting, such as, "I love you-hoo when the moo-hoon is bri- i- i- ight, be-bops-a-doodle."

You might also start in English, let WordBuilder translate the text to one of the phonetic alphabets, then make adjustments phonetically to get the exact performance you want. If you plan to use WordBuilder a lot, then learning to work entirely in Votox is strongly recommended; that will give you much more control, and it's easier than it might seem at first.



Component Controls

There are three levels of phonetic components, as shown in the image above:

- Word
- Syllable
- Letter

When you place the cursor in the Text Editor, information about the selected word, syllable, and letter appears in the three controls across the middle of the window, as shown above, where the word English word “with” was selected. At the same time, in the lower left corner the Phonetics and Votox symbols are stacked one above the other, creating horizontal lanes (in this case 3 symbols, 3 lanes). Because WordBuilder uses the Votox layer when dividing a syllable into its sung sounds, it’s the Votox symbols that are mapped to the colored bands to the right of the letters; each band represent the duration of a sampled sound.

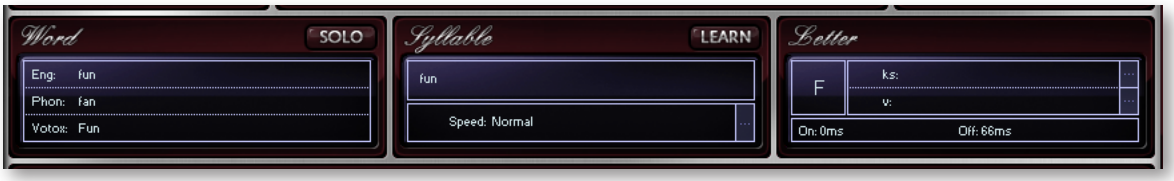
The user controls in this section of the interface are discussed in much more detail in the section on the Time Editor, starting on page 41.

Setting Velocities for Letters

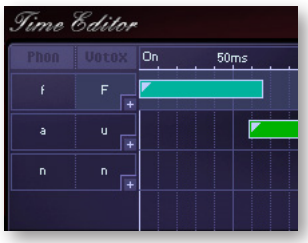
The incoming note from the sequencer or keyboard has a MIDI velocity parameter, and that velocity will be passed through to the sample the PLAY Engine plays for each Votox letter; that is, unless you ask WordBuilder to change some or all of them. If the English word “fun” is being sung on a single note, there are three letters being played to enunciate the syllable; WordBuilder gives you the control to adjust the velocities on the Votox “F” and “u” and “n” separately.

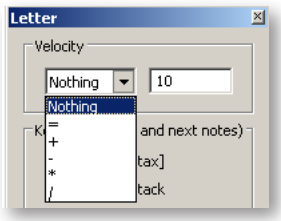
Set the velocity for a Votox letter by following the steps below:

Select the word by clicking anywhere in the word in the Time Editor; the flashing cursor indicates the word has been selected as seen at the right. This step displays parts of the “fun” in the Word, Syllable, and Letter controls across the middle of the window, as shown on the next page.



Select the letter you want to work on by clicking anywhere in the horizontal lane for that letter in the Time Editor. That will cause the lane to appear a little lighter than the others. Make sure the letter also appears in the Letter display at the right end of the image above. The image at the left shows the Votox letter "F" selected in the Time Editor.





As you can see in the Letter control at the right in the image above, there are two numerical settings you can modify, labeled "ks:" and "v:" for "keyswitch" and "velocity," respectively. For now, we are looking at the velocity, so click on the 3 dots (ellipsis) inside the small square to the right of the "v:" name. This will open the small dialog box you see at the right. The top half is shown here with the drop-down list of 6 possible operations open.

Selecting Nothing leaves the note's velocity unchanged, that is, leaves it the same as the velocity of the original MIDI note sent from the sequencer or keyboard. Selecting the equal sign sets the velocity to the exact value specified in the box at the right. For example, selecting "= 85" sets the velocity of the "F" segment to 85, no matter what the velocity of the played note is. Remember that values for velocity range from 0 (silent) to 127 (played with maximum force).

The other 4 symbols are the arithmetic operations plus, minus, times, and divided by. Consider an incoming note with velocity of 50. Here are examples of how the settings in this dialog affect the outgoing velocity for the individual segment.

VELOCITY ARITHMETIC

Setting in Dialog Box	Result
+ 12	62
- 30	20
* 2	100
* 1.2	60
/ 3	17

All results are rounded to the nearest whole number between 1 and 127, inclusive. If you use these relative settings (instead of absolute instructions, such as "= 60"), it allows you to change the velocity of notes in the sequencer or at the keyboard and have WordBuilder adjust the segments' velocities proportionately.

Controlling Segment Transitions with Articulations

When setting lyrics, it is important to specify how the sounds flow into each other—or don't. Singing the word "alone" might need to be noticeably different than singing the phrase "a loan" (to make the meaning clear), even though the sounds of the letters are the same, and even though the notes on the staff are identical. As in all musical lines—instrumental or vocal—the performers need to make choices about how connected, or disconnected, the consecutive notes should be. WordBuilder distinguishes between staccato and legato, as well as other styles.

Not only was each sung note recorded with all the various phonetic sounds, but also with four different attacks for each vowel:

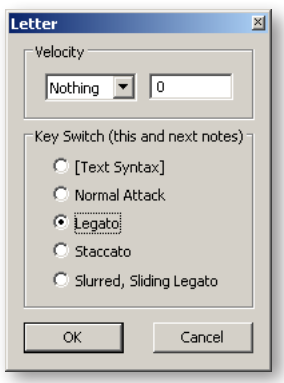
- Normal
- Legato
- Staccato
- Slurred, Sliding

WordBuilder uses the concept of a keyswitch to move among these four articulations. Instead of writing extra notes in your score (as in most other PLAY virtual instruments) keyswitching can be managed with per-segment settings in WordBuilder.

There are two ways to specify articulations: in a dialog box, or directly in the Text Editor.

ADVANCED: Actually, there is a third way, more consistent with other PLAY libraries: You can send the keyswitch notes directly, instead of having WordBuilder translate your instructions into MIDI note events. The note numbers are 24, 25, 26, and 27 respectively, or think of them as note names C0 to D#0.

To open the dialog, select the letter whose articulation you want to specify. This is done in the same way as in the previous section on Velocities. Then click on the 3 dots (ellipsis) to the right of "ks:" in the Letter control at the right of the WordBuilder user interface.



In the image at the right, you can see it's the same dialog box as for velocities, but here we use the bottom half. That means you can change both parameters at once, if you choose to. There are 5 options available for keyswitches. Based on what you choose here, WordBuilder will send the appropriate keyswitch automatically and at the right time. The choices are:

- **[Text Syntax]**, use symbols in the text to specify the articulation of this segment. This is the default. (Look for more on this option below.)
- **Normal Attack**, the natural articulation of sung speech
- **Legato**, smoothly connected to the following segment
- **Staccato**, disconnected from the following segment
- **Slurred, Sliding Legato,** a transition between segments in which the voices slide upward into the note

Click "OK" to save your selection.

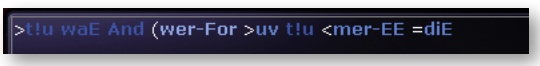
When the articulation in the dialog is set to "[Text Syntax]," which is the default, WordBuilder looks to symbols in the Text Editor to know which articulation to use. There are 4 symbols that can be typed anywhere in the text to affect the transitions:

TRANSITIONS

Symbol	Articulation
=	Normal
(	Legato
>	Staccato
<	Slurred, Sliding

Here is an example of text whose articulation is specified with the Text Syntax symbols:
"**>**the why and **(**where-fore **>**of the **<**mer-ry **=**day"

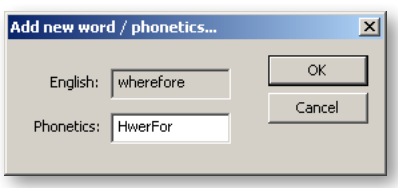
And the image below shows the same phrase in the Text Editor, but using the Votox letters.



As with all keyswitches, remember that each one continues to affect all notes (or, in this case, all segments) until a new keyswitch overrides the previous one.

Adding New Words and New Pronunciations

If an English word is not found in the dictionary, and you intend to use it again, then you can add the word and its phonetic spelling so that next time it will get translated automatically. When a word is shown in red inside the Text Editor (meaning that it is not found in the dictionary), right-click on the word (in Windows) or control-click (on a Mac) to open the context menu, then select "Add to Dictionary."



A dialog appears that lets you enter the Phonetics layer for the word (not Votox). Do not type in hyphens to separate syllables.

The same facility can be used to add new pronunciations of existing words. This way, you can even teach your choir to sing in regional accents. Although, you need to be careful not to replace a traditional phonetic spelling if you may need the traditional pronunciation again. You might consider making up your own "English" spelling of words in a specific dialog and then provide the phonetic spelling for WordBuilder to use. For example, if you will sometimes use a different pronunciation for "maybe" you can save it under "xmaybe" or "MyMaybe." If, though, you're sure you always want to use your new pronunciation, you can save it under "maybe," which replaces the standard pronunciation.

This facility can also be used to some degree to teach the WordBuilder program some words from other languages, but be aware that only English phonetic sounds are available, so you will have to use approximations for many non-English sounds.

Soloing a Word

Sometimes when you're making changes to the sounds of a word, you would like to hear it over and over while you tweak the settings. You can do that with the operation known as "soloing."

In the Word control at the left side of the WordBuilder window is a button named Solo. Click on that button while the cursor is within the word in question. The word will turn to red to indicate it is soloed, and the button will turn light blue.

Now every time you send notes into WordBuilder it will cycle through only this one word. If playing the word with a sequencer, you can set the sequencer to loop through only the appropriate note(s).

Click on the same Solo button to turn off soloing.

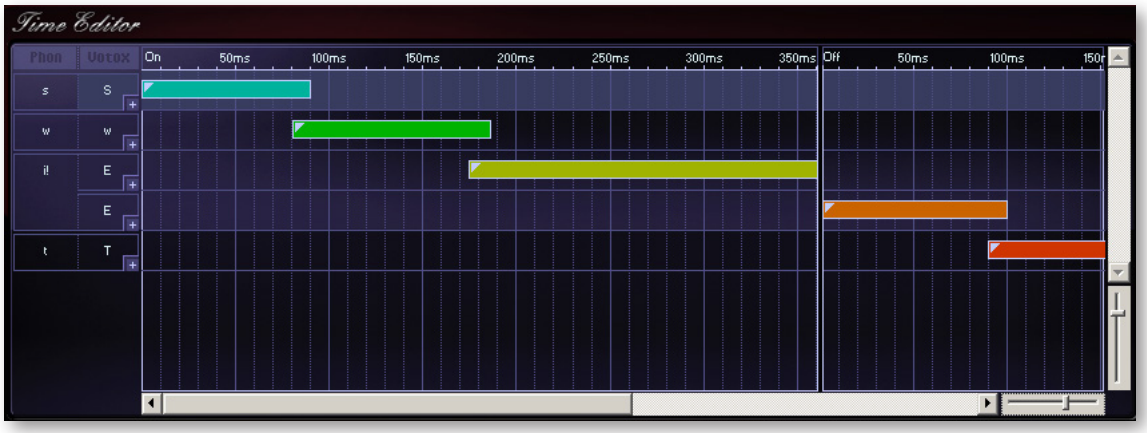
The Time Editor

In the same way the Text Editor gives you total control over the sounds within each of the words, the Time Editor allows you to fine-tune how these sounds move from one to the next during the playback of each note in the melody.

Consider a syllable like "sweet." Vocalists may move from the "s" to the "w" quickly or slowly or at any rate in between. A careful choral director may give the chorus direction to hold the "w" or to get into the long "e" as soon as possible. With the Time Editor, you have control over such decisions.

Some of the long "e" may need to continue after the end of the MIDI note because human singers take a finite amount of time to get the tongue in position to close the "t." With the Time Editor, you have control of that, too.

The Time editor looks like the following image when the syllable “sweet” is selected in the Text Editor:



Note that the 5 Votox “letters” have been arranged down the left side, one per row. Across the top is a time line with a marker every 50 milliseconds. The heavier vertical lines just before the word “Off” divide the display into the sounds that take place during the note itself and the sounds heard during the release trail (that is, after the MIDI note ends). The five colored bars represent the duration of each Votox symbol: three during the note and two at the end of the note. From this display, it looks as if the “s” will be heard for about 90 ms; the “w” will start a little before the “s” ends, at about the 80 ms point; the long “E” sound will start about 175 ms into the melody note.

The “E” bar may look as if it ends at 360 ms, but if you drag the heavy vertical separator to the right (with the mouse) you’ll see that it continues indefinitely. That is, it continues until the MIDI note-off event. You do not need to specify in WordBuilder the duration of the note in the melody. The MIDI notes in the sequencer specify that. Or the keyboard player specifies that, when playing in real time.

The two horizontal bars (light and dark orange in the image) after the vertical separator are the sound of the syllable being closed, so they are triggered by the note-off event. The “E” persists until the tongue can move into position to pronounce the “T” sound.

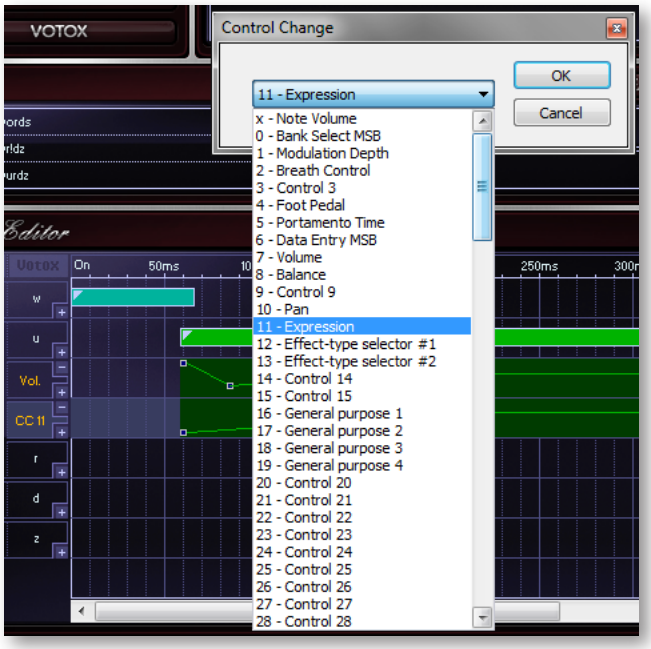
When you enter text in the Text Editor, WordBuilder uses default setting for how long to make each bar. You can use the mouse to drag the ends of the bars and change the start time and duration of each sound in the syllable.

Even though the melody in the sequencer—or the keyboard—played only one note, WordBuilder triggered 5 samples in the PLAY engine. And you are given total control over when each sample begins and ends as well as how much they overlap.

Dynamic and MIDI Envelopes

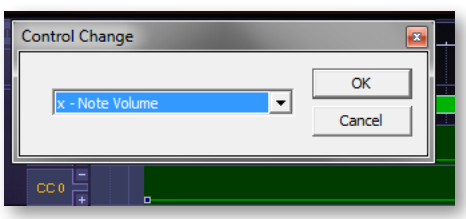
When people sing words, they do not always keep the volume exactly constant through the duration of each syllable. They may get a little louder or softer in order to be expressive, or maybe just because the common pronunciation causes one sound to die out

while another grows in loudness. The Time Editor gives you control over continuous loudness changes and all MIDI Control Codes.



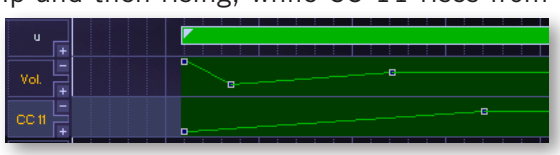
In the image at the right, one of the horizontal lanes (for the Votox letter "u") has been opened to show 2 extra bars that allow you to adjust parameters for continuous control. The small plus signs next to the Votox symbols are used to open one bar at a time. The upper bar showed the volume, as indicated by the abbreviation "Vol." Clicking the plus sign again opens a bar for a Control Code, which can be done as many times as you need new Control Codes.

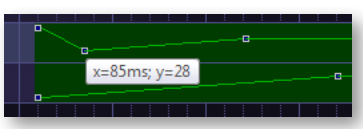
In the image, the Control Code bar was originally labeled "CC 0" when it opened. Click on the yellow text "CC 0" to open the Control Change dialog shown in the image. The drop-down control originally said "0 – Bank Select MSB," but was changed to "11 – Expression" by selecting one of the items. Once you click OK, the label changes to "CC 11." You can likewise set the Control Code to 10 to control the pan or to any other standard MIDI CC value. But do be aware that the Symphonic Choirs instruments do not respond to all Control Codes.



To specify volume as the parameter being affected, select "x - Note Volume" in the Control Change dialog box, as shown in the image at the left.

The thin lines within the colored bars control the value of the specified MIDI control code. You can double-click anywhere along the line to create a new node, shown as a small square. (You can also delete nodes by double clicking with the right mouse button in Windows, or double-clicking with the Command button held down on the Mac.) Then drag the node with the mouse to create increases and decreases in the value. The image at the right shows Volume doing a sudden dip and then rising, while CC 11 rises from 0 to about 70% of the maximum where it stays. The line is a visual representation of an "envelope" for either the volume or a MIDI Control Code.





When dragging a node, a small Tool Tip rectangle opens to show its exact location. This feature allows you to control both the time

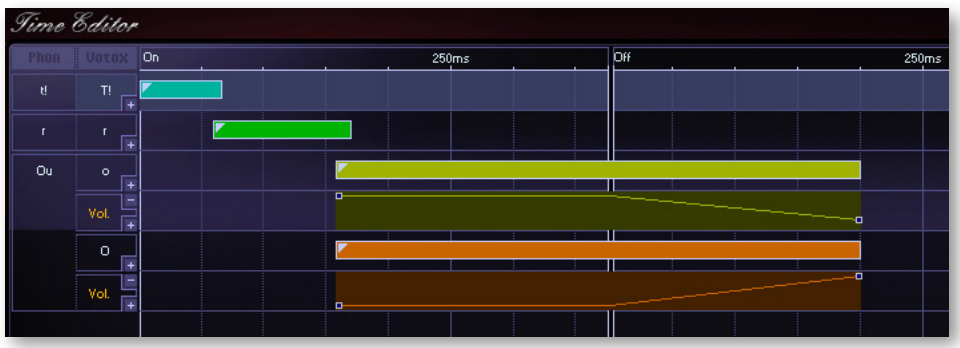
in milliseconds (x-coordinate) and value (y-coordinate on a scale from 0 to 127) of each node as you position it.

To hide any of these bars and remove the envelope, click on the minus sign associated with the bar you want to remove.

Note that these envelopes are interpreted by the PLAY sample engine in the same way that envelopes in a sequencer get processed in PLAY—except that the duration of these WordBuilder envelopes is usually very short, sometimes lasting only 100 to 300 milliseconds. But they can be very effective in increasing the expressiveness and realism of the output.

Cross-Fades Between Phonetic Letters

Sometimes the sounds of a syllable don't exactly follow one another in sequence; instead, one sound fades out as the next one fades in. This is known as a cross-fade. If you consider the ending of the word "throw," the sound shifts slowly from mostly "o" to mostly "w" with no clear break between the two. WordBuilder handles this situation by controlling the relative volume of the two sounds.



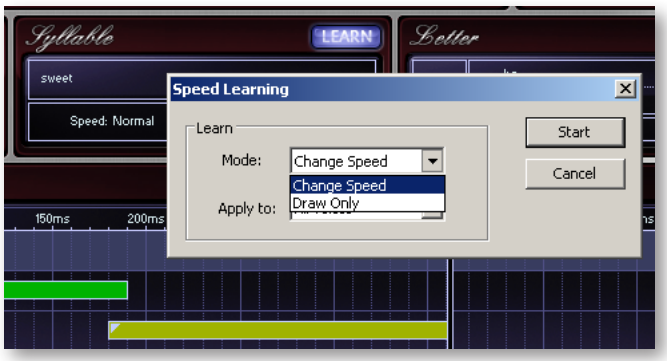
Note in the image above that WordBuilder has automatically added volume envelopes to both sounds, causing the o sound to disappear slowly while the w sound (Votox letter O) becomes louder. You can, of course, modify or eliminate these envelopes (as described above) if you're looking for a different effect. In this example, the volume envelopes were added automatically when WordBuilder constructing the Phonetics layer.

How WordBuilder Learns Timings

When you first type text into the Text Editor, WordBuilder uses default lengths for each sound that makes up a syllable. As was shown in the example on page 42, WordBuilder assigns the "ee" of "sweet" to start at about 175 milliseconds after the start of the note. But if the tempo is fast, the note could be over by then, or the "sw" could take up most of the note's duration, making it sound unnatural. You could, of course, compute the number of milliseconds for each note and adjust the lengths of the sounds manually. But there's a much easier way.

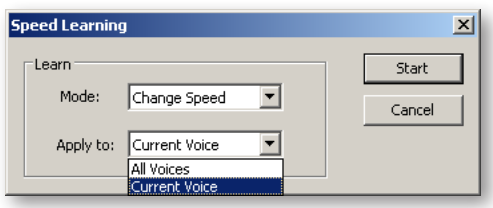
The Learn button opens a dialog box where you can set two options. The first option specifies whether you want WordBuilder to adjust the duration of the phonetic segments,

called Change Speed mode, or only to indicate the length of each syllable in the time line at the top of the Time Editor, called Draw Only mode.

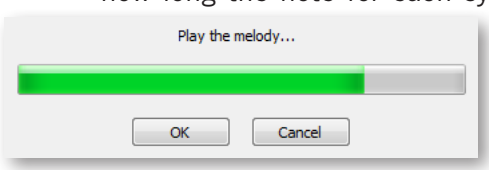


The second drop-down list, Apply To, is really only applicable when WordBuilder is being run outside PLAY, i.e., in Legacy Mode. In that case, there are two options: All Voices or Current Voice. Select All Voices if this WordBuilder is managing more than one voice and you want WordBuilder to learn durations for the syllables in all those voices.

Otherwise, when WordBuilder is running inside the PLAY window, there can only be one voice, so the only item in the drop-down list is: Current Voice.



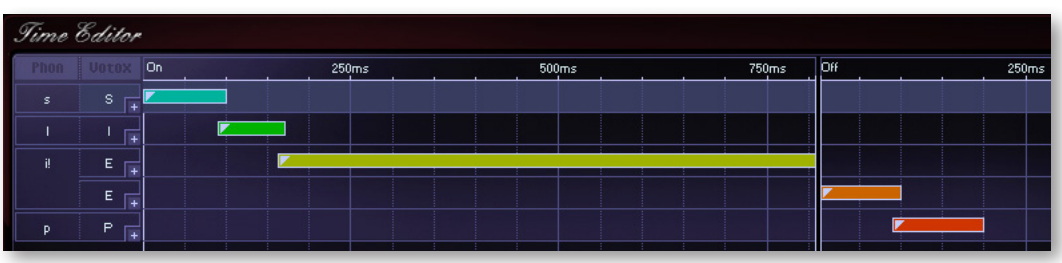
Once you pick the options you want and click on Start, another dialog box opens and asks you to play the melody, as shown below. Begin playing the notes for this part, whether from the sequencer or on the keyboard. WordBuilder keeps track of how long the note for each syllable lasts. When the color in the progress bar fills it completely, WordBuilder has received as many notes as there are matching syllables. Click on the OK button to return to the program's main interface. Cancel discards the learned information.



What you see after running the Learn operation depends on which option you selected: Change Speed or Draw Only.

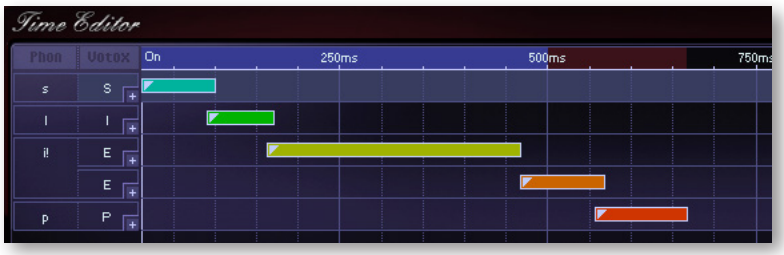
The Change Speed Option

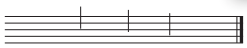
If you asked WordBuilder to Change Speed on the notes, then the horizontal bands that represent each phonetic sound's duration (in milliseconds) will change. For example, consider lyrics that include the word "sleep." Before the learning process, the Time Editor looks like this.



After the learning operation, as shown in the following image, the timing of the five phonetic segments is quite different, though the relative fraction of the overall time

is preserved. In the time line at the top, the lighter blue interval is the duration of the note itself. The dark red interval is the time for singing the consonants and glides that close the syllable. In our example, this takes place in the sixteenth note rest. The very dark blue-black shows where the next note starts. And the 800 ms for the main note is reduced to a little under 500 ms.





In this example, the syllable is sung on a dotted eighth note with a sixteenth note rest before the next note. The tempo is 90 bpm. (If you do the math, you'll see that the duration of a dotted eighth at 90 bpm is 500 ms, which agrees with the image.) The staff at the left shows this configuration.

Setting those same words to quarter notes with no rests between the notes would yield similar—but not identical—results. Here the "P" that closes the syllable occurs during the rest (after the 500 ms of the note itself). With no rest between notes, all the phonetic segments happen within the duration of the note itself (or might overlap the start of the next note by a small amount). When writing a score for real singers to read, simplicity of the notation is important, but in WordBuilder and Symphonic Choirs fine-tuning the duration of the MIDI notes by 10 or 20 ticks can have an impact on the sound and enunciation of the syllables. When trying to fix a syllable that doesn't sound quite right, ask yourself whether lengthening or shortening the rests between notes can improve the result.

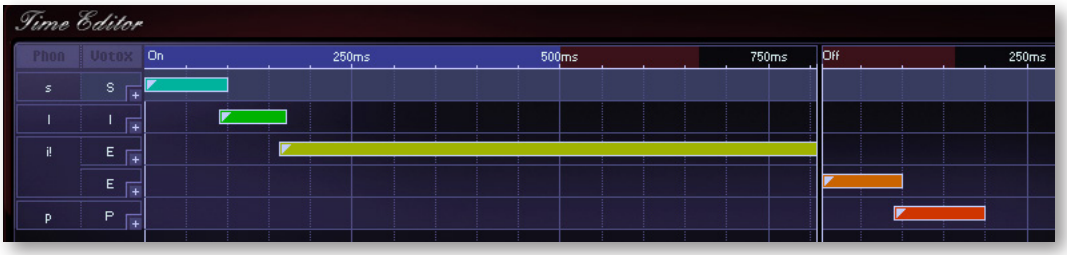
After running the Learn operation, click on each word in the Text Editor to see how WordBuilder has modified the timings of all the segments to match the music to which the phrase will be sung.

Once WordBuilder has "learned" the note-on and note-off events of a musical line, you can manually tweak the timings to fine-tune the performance to your tastes.

If you change the tempo or the rhythm, you may want to rerun the "Learn" feature to conform the phonetic segments to the shape of the new melodic line. Changing pitches does not require rerunning "Learn."

The Draw Only Option

If you choose Draw Only mode when starting the "Learn" feature, WordBuilder writes the length of notes and rests into the gray, red, and blue regions of the timeline at the top, but does not change the actual lengths of the phonetic letters (the colored bands next to each phonetic letter in the Time Editor). You can then manually drag the ends of the bands to achieve the desired effect.



The above screen shot shows the Time Editor for the syllable “sleep” after running Learn in Draw Only mode. No manual adjustments have been made to individual segments. The 3 colors in the time line have the same meaning as in Change Speed mode (as described above).

The last two segments are still timed to the Note Off event, as seen by their position to the right of the double line. If you want them timed to the Note On event, then drag them into the left pane. Their timings will change from negative values to positive ones. Use the bands within the time line so you know where you’re placing segments in relation to the end of the current note (beginning of the dark red) and to the start of the next note (end of the dark red).

Whether to Use “Learning”

This “Learn” function is a way to automate some of the precision work needed to adjust letter timings to match note durations. It does not achieve with a single mouse-click perfect enunciation of the sung letters; you still need to listen to the result and fine tune the performance.

Because Draw Only mode makes no changes to the output, it can provide information about how the notes’ timings relate to the default letter timings within the syllables. Even for those who prefer to adjust the timings of the phonetic segments themselves, this extra information can be useful.

Change Speed mode provides the greatest benefit when used on fast-moving music, where the default durations of phonetic segments may not have time to play out before the notes end.

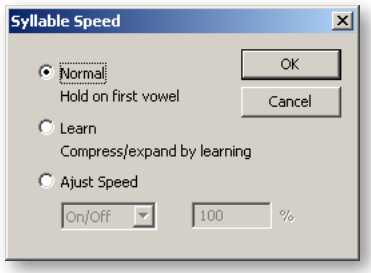
Making Changes to “Learned” Text

To remove all modifications made by the “Learn” feature, place the cursor in the syllable you want to revert to its default timings—or select several syllables—and then choose Normal in the Syllable Speed dialog (shown below, in the next section). This action has the side effect of removing any change you made to the affected syllables, the same as if you deleted the syllable and then re-added it.

Other Ways to Adjust Timings

In the Syllable control of the WordBuilder interface, directly below the Learn button, is a field marked “Speed:” with 3 dots (ellipsis) to the right. Clicking on the 3 dots opens

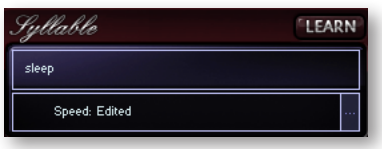
a dialog box for adjusting the speed of the selected syllable (by adjusting the duration of its segments).



There are three options to choose from. The first, "Normal: Hold on first vowel" lets you use the default settings. That is, it removes any adjustments previously made to the syllable. It also removes any Control Changes that had been applied. It has the same effect as removing a syllable and adding it in again.

The second option, "Learn: Compress/expand by learning," is grayed and not available unless the "Learn" functionality has already been applied to this syllable. It is useful when a syllable has been "learned" in Draw Only mode. Selecting this option and clicking Okay completes the action that would have been done had Learning been done in Change Speed mode. You might also use this after changing a word in the text (leaving the notes as they are but changing "nice" to "sweet," for example) and you want WordBuilder to learn timings for the new phonetic segments.

The third option is Adjust Speed. If selected, the controls below it become active. In the left drop-down list, you can choose whether to apply changes to only the On pane (the left half of the Time Editor), only the Off pane, or both panes. The right text box allows you to enter a number that specifies how long the new notes should be, compared to the old. Setting it to "50%" cuts all lengths in half. Setting it to "250%" makes all durations 2.5 times as long as before; a bar that beforehand lasted 80 ms now lasts 200 ms (80 times 2.5).



For each syllable in the Text Editor window, the Syllable section lists its speed in the UI. After the word "Speed:" appears one of:

- **Normal**, if the default lengths are still in effect
- **Learned**, if the lengths have been learned from either the Learn button or the Syllable Speed button
- **Edited**, if lengths or start times have been modified with the mouse
- **Adjusted**, if the Syllable Speed dialog box was used to "adjust" the lengths

Resetting the Syllable Cursor

As WordBuilder receives each note event, it has no way of knowing whether the sequencer is playing the next note in the musical phrase or the melody has been restarted. WordBuilder always makes the assumption that it is being requested to sing the next syllable unless it receives a Reset command.

There are three ways to tell WordBuilder to start again at the beginning of the text:

- Click on the Reset Position button in the array of buttons in the upper-right corner of the WordBuilder window.
- Send a MIDI message; see page 59 to learn how to specify the message WordBuilder looks for.

- Only when running standalone in Legacy Mode, select Reset Position from the Voice menu. (Menu options are only available when running standalone in Legacy Mode.)
- Press the F5 key.

In either case, the Reset command performs three actions:

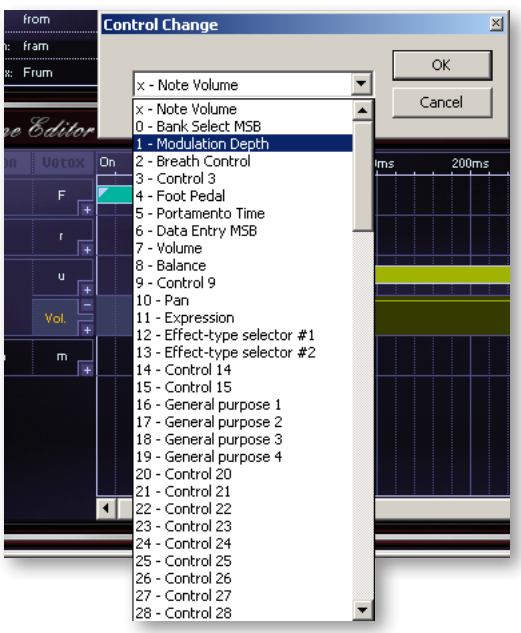
- repositioning the syllable cursor to the beginning of the text
- resetting any open keyswitch files back to "normal attack," the default keyswitch (C0)
- resetting the Mod Wheel to a zero value

It is also possible to reset the cursor to anywhere you want in the text. Use the mouse to position the cursor in the syllable you want to start with. Then press the F4 key.

Using Cross-Fade Instruments

The EastWest / Quantum Leap Symphonic Choirs includes cross fades in some of its choral "instrument" (.ewi) files. Each instruments of this type includes "MOD" in its name. These voice files respond to changes in the Mod Wheel by changing the mix between two contrasting sets of samples. There are two ways you might want to control the Mod Wheel and, therefore, which of the sample will predominate:

- For control over a time span greater than single words, you will likely want to use the Mod Wheel on your keyboard or to use a CC 1 envelope in a sequencer.
- If you want to effect the sound for the duration of a word or syllable, you can, instead, use the Time Editor in WordBuilder, as described above in the section Dynamic and MIDI Envelopes, starting on page 42.



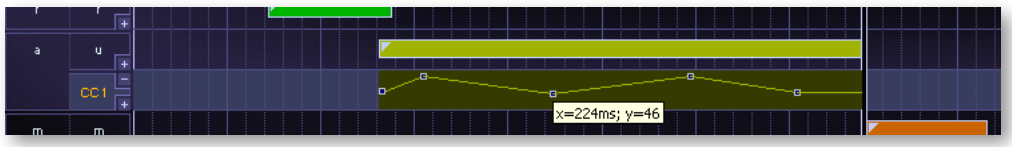
Here is an example of how cross-fades are useful. A Sopranos multi is used in this example, but this functionality is available in all of the vocal ranges. The vocal file named "SOPR WB HARD MOD" uses the Mod Wheel to move smoothly from a value of 0 (medium volume, medium vibrato samples) to 127 (loud, heavy vibrato samples). This cross-fade can create realistic swells—either within a note or over a phrase—in which more vibrato is added at the same time as the volume increases. See more information about specific instruments later in this manual, starting on page 82.

This description focuses on using WordBuilder to send the Mod Wheel data but, of course, you can also send this data from the keyboard or the sequencer.

To send Mod Wheel Control Changes you first need to set up an envelope on any phonetic segment affected, which usually means on a vowel. Click on the small plus sign to the right of the Votox letter in the Time Editor. A new lane will open with a button for selecting the Control Change number. The default setting is Volume, as shown in the image at the left.

Click on the hyperlink titled "Vol." to open the small dialog in the image at the right. Select "1 - Modulation Depth" from the drop-down list. Click on OK to effect the change. The orange link now says "CC 1." Or, if you want to keep the Note Volume bar and add a Mod Wheel bar as well, then click on the small plus sign.

There's a graph inside the long box to the right, as shown in the image after this paragraph. You can create new nodes by double-clicking with the left mouse button and drag nodes with the mouse. You can also delete nodes by double clicking with the right mouse button in Windows, or double-clicking with the Command button held down on the Mac. Add as many nodes as you need to draw in the desired changes.



It is unlikely that you will want to draw complicated curves (like the one above) inside a single phonetic segment (unless the choir is holding the note for a very long time). Instead, you may only be matching the position of the Mod Wheel as the choir progresses from one note to the next.

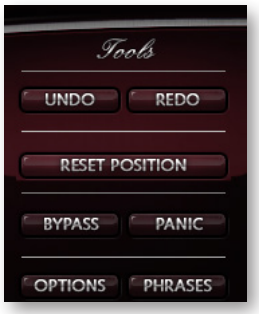
When dragging a node, a small rectangle, called a tool tip, opens on the screen. The x and y values locate the exact position of the node as it moves. The x-coordinate locates the node in time, measured in milliseconds after the start of the note. In the accompanying screen shot, the x-value is 224 ms. If you see negative values that only indicates that the time is in the right pane (controlled by the MIDI Note Off event), and so negative values do not signify a time before 0 ms.

The y-coordinate specifies the value of CC1 on a scale from 0 to 127. In the screen shot, the node in the upper envelope is being dragged with the mouse (not visible in the image). The Mod Wheel at the third node is at a position of 46, about 36% of the maximum 127.

You can use these y-coordinates to match the position of an envelope at the end of one phonetic segment to the position at the start of the next one, if desired.

It's also possible that you may want to set the position at a fixed value and leave it there. For example, if you like the sound of the tenors at a Mod Wheel position of 40 in the TENR WB SOFT MOD instrument, then you can set it to that level consistently. But be aware that you will get more realistic results if nothing in a performance remains static for too long. Real choirs never retain an exact dynamic or a consistent level of vibrato over every note in a composition.

The Tools



In the upper-right corner. This is an array of seven buttons that provide access to several important functions.

The **Undo** button removes the most recent change made in the WordBuilder interface. Clicking repeatedly on the button removes more and more consecutive changes. Up to 100 of the most recent changes can be removed.

The **Redo** button undoes the Undo operation. For example, clicking on the Undo operation 8 times in a row, and then the Redo button 8 times in a row, returns you to the state of the UI before you started clicking on the Undo button.

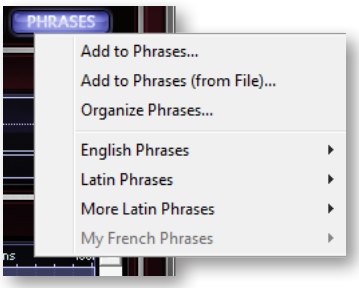
The **Reset Position** button tells WordBuilder that the next MIDI note should "sing" starting with the first word in the text. That is, it resets the syllable position back to the start of the text, but it does not affect which MIDI note will next be played.

The **Bypass** button sends the MIDI input data directly to an output port without any WordBuilder processing. When in Legacy Mode, the Advanced MIDI Out dialog controls to which MIDI port the data is sent.

The **Panic** button turns off every MIDI note on every channel within this instance of PLAY. This is an effective way to turn off a "stuck" note if, for any reason, the sample player does not receive a MIDI Note-Off message and a note starts playing indefinitely.

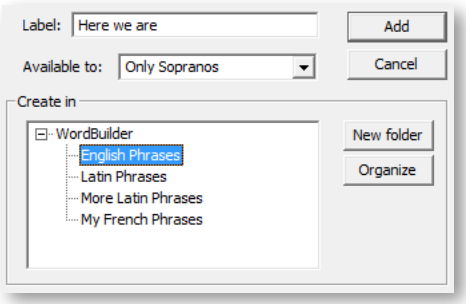
The **Options** button displays a dialog box in which the user can set values relating to timers, voice defaults, events, and general data. See page 57 for more detail on this dialog box.

The **Phrases** button opens a menu that allows you to manage a list of reusable phrases or to select a phrase to insert in the Text Editor. (Note that in the image the option My French Phrases is grayed because it does not currently contain any phrases. That folder will not appear in your menu unless you add it.) See more information about this feature below.



Using a Library of Phrases

If there are phrases you plan to use more than once, WordBuilder provides a way to store in a phrase file on the hard drive all the information about the phrase (phonetic letters, timing, cross fades, and so on). The phrase can then be quickly recalled each time it's needed without having to reconfigure all the settings.

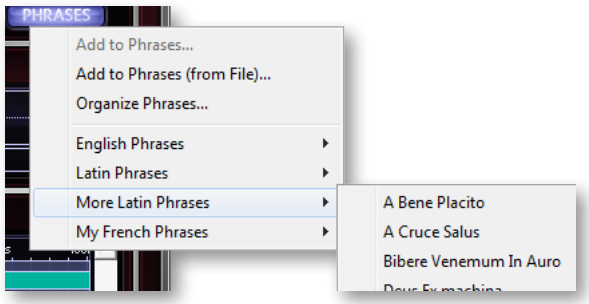


Phrases can be organized into folders in any way you like. In the dialog box shown at the left, which opens when you select Add to Phrases from the pop-up menu, the Create In control displays a list of 4 folders. The first 3 folders are provided when you install WordBuilder. The last folder, My French Phrases, was created by clicking on the New Folder button, so you will not see that folder unless you add it yourself with the New Folder button.

Clicking on the Organize button opens your operating system's File System Browser, so you can make any changes you like to the folders and subfolders.

Included Latin Phrases

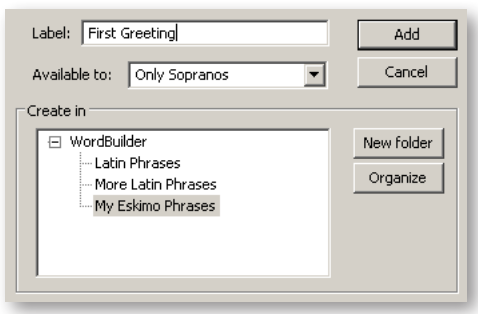
WordBuilder includes a selection of Latin phrases in two folders. If you need to use one of them, open this menu and find the phrase in one of the folders. You may need to adjust the timings and other features to suit your piece, or you may be able to use it as is. The image at the right shows the More Latin Phrases menu open and the first few entries in that menu.



Included English Phrases

WordBuilder also includes some English phrases already set up for you. Feel free to use these if they fit into your project. But you may also want to explore these phrases to see what they look like in Votox. The phrases do not necessarily use the default Votox spelling but, instead, many have been adjusted to create a more singable phonetic spelling. They are, therefore, a good learning tool as you get familiar with Votox.

Adding Your Own Phrases



If you have created phrases in another project, and want to import them into your list of stock phrases for this project, click on "Add to Phrases (from File)" in the pop-up menu. You will be prompted for a Voice file (extension .voi) or Choirs file (extension .cho). Once you open a file, the Add Phrase dialog appears, allowing you to name the phrase and indicate the folder where it should be stored. You can also specify whether the phrase is for only the original voice type or all voice types. The entire contents of the Text Editor in the opened file is stored as a new phrase.

You can also create a new phrase file from the current contents of the Text Editor by selecting "Add Phrases" from the pop-up menu. The procedure is the same as in the prior paragraph except that you are not asked to select a file; instead, before opening the dialog box, use the mouse to highlight the section of text you want to save in a phrase file.

Loading Phrases into the Current WordBuilder Project

Hover the mouse over one of the folder names at the bottom of the pop-up menu to see the phrases and sub-folders inside that folder. Select whatever file you want to include in your current project, and it will appear in the Text Editor control, starting at the mouse cursor.

Notes from the Producers

This software was an enormous undertaking, but it is not something we plan to release and then forget about. Please check the EWQL forums at

http://www.soundsonline-forums.com

for a forum called "Symphonic Choirs/WordBuilder." Here you can find hints and discussions about WordBuilder and how to get the most from this software.

Hints

We want to mention a few things about the choir samples that may not be obvious. These hints are the sort of thing you can find being posted on our forum, so please contribute there anything you find that may help others.

Hint 1: Normal Attack and Legato Attack vowels in the 4 adult choirs all have a hard, staccato accent that kicks in at velocity 102 and above. This means that independent of everything else, if you hit the keys hard, you will get a strong attack. This can be very useful for fast, accented passages. When writing smooth lines, avoid these higher velocities.

Hint 2: Unusual and non-English vowel or consonant sounds can be created by layering vowels or consonants in WordBuilder. For example: the French word "Louvre" can be created in Votox with this text:

lOU vrgU

In the first syllable overlap "O" and "U" so that they play together until note off. (To accomplish this overlap, drag the ends of the horizontal bars in WordBuilder's Time Editor.) In the second syllable, overlap "r" and "g" for a French R. Experiment to find your own combinations and post what you find on the WordBuilder forum.

Hint 3: The Latin word "maximus" can be written either like this in Votox:

maX E mOS

or like this:

maX SE mOS

In the second example, the S-sound within the "maX" syllable gets connected to the next syllable because the S-sound is triggered again at the beginning of the next syllable.

Hint 4: Many words work better if you repeat a vowel twice. The word "drum" is usually written like so in Votox:

drum

But it can also be written like so:

druum

Now, when you let go of the note, "u" is triggered again for a short period of time before the "m." You can overlap and cross-fade the second "u" and the "m" for a smooth realistic effect.

Hint 5: Consider a word like "rain," which can be written like so in Votox:

reEn

The realism of the vowel sound can be enhanced by adjusting the curve on the "eE" cross-fade. Have the "e" decrease from 127 down to y=50, instead of near 0. This detail makes for a more convincing diphthong.

Hint 6: Generally, the slurred legato is best for a rolling legato line. The regular legato is good for fast, clean connected notes. The legato attack is the least natural and most perfect sounding of all the attacks. In the Boys choir, the normal attack has a lot of the character of the boys and the legato attack is more perfect and synthetic. Nice lines can be created by mixing the two styles, for example: Normal, Legato, Legato, Legato, Normal, Legato, etc.

Hint 7: When consonants are even slightly too loud, it can sound unnatural. Real choirs in a hall are hard to understand. Consonants that are too soft are preferable to consonants that are too loud.

Hint 8: Use the Mod Wheel and CC 11 for expression. It really helps. See the sections starting on page 65 for more details.

Hint 9: The preset, default relationship in volume between the vowels and consonants in all the multis is supposed to be consistent. That means that if you load the soft multi and create some text, then decide to switch to the hard multi, the vowel consonant relationship should be the same. In reality, though, there may be slight differences. For this reason, we recommend that you don't do any final tweaking in WordBuilder until you have loaded the multi you plan to use in the final version.

Hint 10: If your choir is sounding fake:
Maybe you need to leave more space between consonants, or perhaps make each consonant longer.

Try overlapping certain consonants and possibly cross-fading them.

Sometimes legato attacks can make things sound better or worse. Sometimes you need to use slurred legato on the vowel to improve a consonant-vowel transition.

Sometimes an accent on a certain syllable is crucial to realism. Hit the keys on the keyboard hard for an accent.

Sometimes it's a good idea to fix MIDI velocity in your sequencer at a single value. This can improve smoothness and make editing in WordBuilder easier. Use CC 11 and the Mod Wheel to inject dynamics.

Hint 11: We really recommend using Votox exclusively. Once you get good at sounding things out and you learn the letter symbols, it's powerful stuff.

Look for more hints like these—and contribute some of your own—in the "Symphonic Choirs/WordBuilder," section online at:

http://www.soundsonline-forums.com

Enjoy,
Nick Phoenix and Doug Rogers

5. The WordBuilder Options Dialog

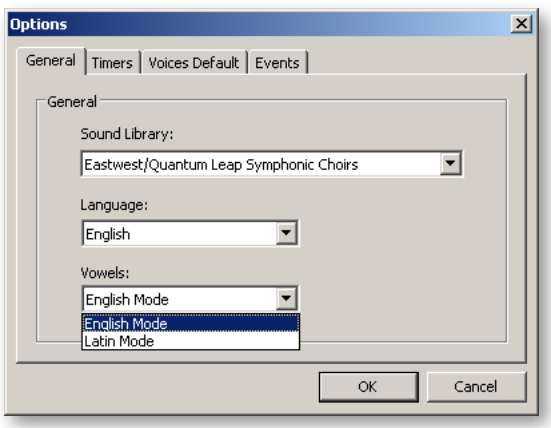
57 The General Tab
57 The Timers Tab
58 The Voices Default Tab
59 The Events Tab

The WordBuilder Options Dialog

Among the buttons at the right side of WordBuilder's window is one named Options. Clicking it opens the dialog box shown below. From here you can change a number of parameters that affect the ways the program operates.

The General Tab

The first drop-down list on this tab, Sound Library, defines the library of samples that generates the sounds. At the time of this writing, EastWest/Quantum Leap Symphonic Choirs is the only library available.



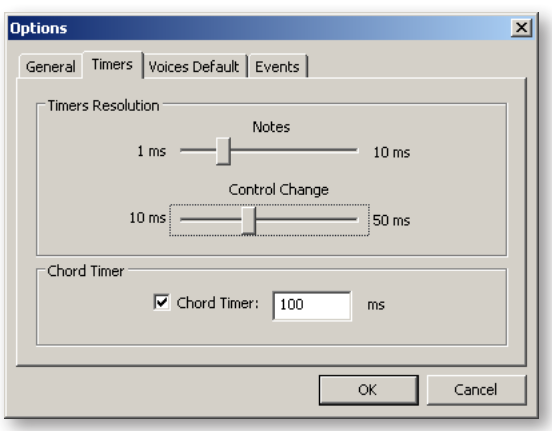
In a second drop-down list, called Language, you can specify from what language the dictionary will translate to Phonetics. The only dictionary available at this time is English.

There are two modes in the Vowels drop-down list: English Mode and Latin Mode. They affect the symbols used for Votox sounds, but do not affect the sounds themselves. See page 75 for more information about these two modes, when to use each of the two modes, and charts comparing the two sets of vowels.

The Timers Tab

The upper section of this tab, Timers Resolution, provides two slider controls. For Notes, you can set the resolution to any value between 1 and 10 milliseconds.

A similar setting can be made for the resolution of Control Changes: any value between 10 and 50 milliseconds.



Fine-tuning these two settings allows the user to specify how often the internal engine will convey note and Control Change data through the MIDI output. You should normally leave these settings at the minimum value, but they can be raised when it is necessary to conserve CPU processing or MIDI connection overhead.

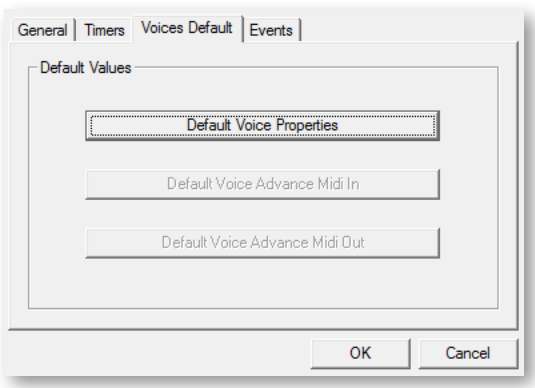
For example, when a cross-fade is in progress the ear cannot really hear a small change in dynamics every 10 ms. Therefore, Note Volume (and other CC) data can be sent less often to conserve the processing power in the computer.

The Chord Timer, set at the bottom of the tab, permits the user to specify how far apart in time notes can be and still be considered a chord (that is, referring to the same syllable of text). Using this feature is especially helpful when playing melodic lines on a keyboard in real time. If you're not 100% accurate in hitting all the notes of a chord at once, you could end up triggering different syllables for what are supposed to be several notes singing the same syllable. You can turn this feature on and off by clicking on the small checkbox at the left and, when on, you can specify the tolerance in milliseconds. You can turn this feature off if you never use chords within a single choral voice.

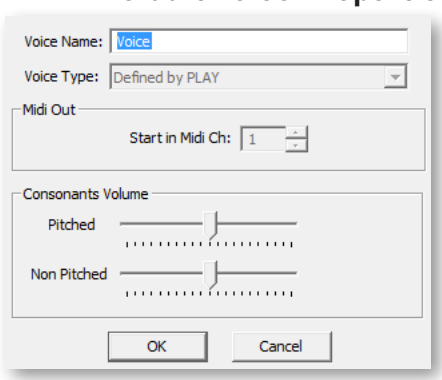
If you need to leave this feature on, then you may have to experiment to determine the value that works best for your playing style.

The Voices Default Tab

There are three dialog boxes that open from this tab. Each is used to set the defaults that first appear when those dialog boxes are presented. If ever you want to change the values that you have set in these dialog boxes to apply to a specific project, you should do that in the project-specific dialog boxes, not here. Details of this process are presented in the paragraphs below. Note that the lower two buttons are only available in Legacy Mode. See the older manual for details on how these buttons work.



Default Voice Properties Dialog Box



This is the same dialog box that appears each time you start WordBuilder in stand-alone mode. If you never set values as the defaults in this dialog, then you will always see the same values as shown on page 32. But let's say you usually want to adjust the volume of the consonants to the same value. Then you can preset those choices (and others) here and not have to reset them every time you start the program.

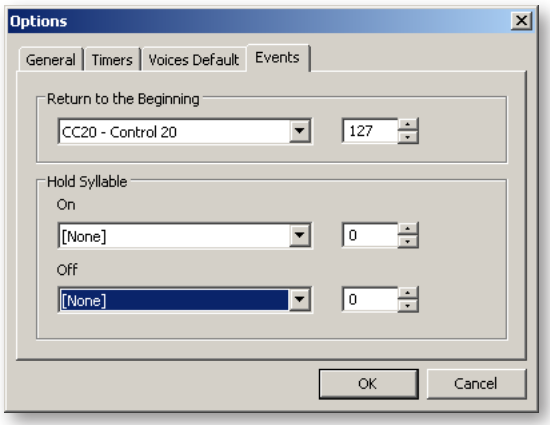
The screen shot at the left shows these values entered into the Default Voice dialog box. And this dialog, filled in the same way, is exactly what then appears each time you start WordBuilder.

Important: You must save the current voice file to the file system before these choices become the working defaults.

The Events Tab

The fourth tab in the Options dialog box lets you set event triggers—MIDI messages—that control the position of the performance cursor while the vocal lines are being played.

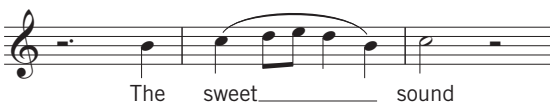
At the top of the tab, you can specify the MIDI Control Change code (and its value) that tell WordBuilder to reset the syllable cursor to the beginning. This MIDI event is the way for a sequencer to tell WordBuilder that it has stopped and gone back to the beginning. For example, without this setting, if you played the first 4 measures, stopped the sequencer, then started again from the beginning, WordBuilder would pick up at the words from measure 5.



The default setting is CC 20 with a value of 127. It is recommended that you insert this message—or whatever you change it to—before the first note in your sequencer (in all channels connected to WordBuilder voices). That way WordBuilder always knows when the sequencer starts over. If you need to, check the documentation for your sequencer to find out how to add such a message to the event list.

In this dialog, you can reset the default to any CC code, but if you do change it, it is recommended that you use one of the unused codes. The drop-down shows you not only the numbers of the codes, but their usual meaning as well. Those with names that include "General Purpose" or "Control" are unassigned and good choices.

The lower half of the tab allows you to specify CC codes and values whose meaning to WordBuilder is to start holding the syllable and stop holding the syllable. If you want the "ee" sound of the word "sweet" to hold over five notes, as in the example below, send the Hold On event from the sequencer before the "ee" has started on its first note, and send the Hold Off event after the start of its fifth note.



6. Using Symphonic Choirs in PLAY

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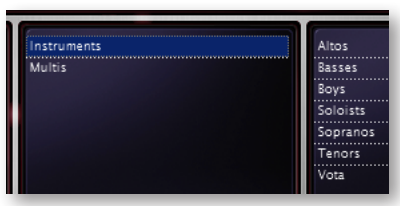
Using Symphonic Choirs in PLAY

The EastWest/Quantum Leap Symphonic Choirs Virtual Instrument (to use its full name) comprises two main parts: WordBuilder and the PLAY software that actually creates the sound of the phrases set up in WordBuilder. The last few chapters have been devoted to WordBuilder. This Chapter turns the focus to PLAY.

Playing Music with Symphonic Choirs

This section of the manual describes how to take advantage of the musical and technical features of this sound library to create choral music that is expressive, varied, and realistic. Without this control of the available parameters, music created on a computer can sound static, lifeless, and dimensionless. Using the features described below is akin to a singer controlling dynamics, phrasing and technique to interpret the music. In other words, there's more to music making than perfecting the pitch, loudness, and duration of each note.

Instruments and Multis



The various "instruments" in Symphonic Choirs fall into two types:

- Individual instruments: these include both soloists and selections of choral sounds that cannot be used with WordBuilder to form sung phrases
- Multi-instruments: these are the choirs in 6 different folders that work with WordBuilder (and a seventh folder, Vota, if you own a license for the Choirs Expansion product)

See the chapter that describes all these instruments and multis starting on page 80.

Full SATB Choirs: 2 Approaches

There are 2 standard ways to create a full choral sound with EWQLSC. They trade off the speed with which you can achieve your results against the realism of the final recording. Another deciding factor may be how demanding each approach is in its use of computer resources.

One: For the most realistic results, use one of the complete multis for each part: Sopranos, Altos, Tenors, Basses, and Boy Sopranos. As with live singers, the five ranges overlap. This gives you the flexibility to create vocal lines in which, for example, Sopranos maintain their distinctive timbre in every part of their range, even below the top of the Altos' range.

This approach can use so many computer resources that only with a powerful computer can you record all 4 lines at once on a single machine; you may have to split your parts across two or more computers, or else "freeze" some lines to audio while playing the samples for other lines.

Two: For a more homogenous sound, EWQLSC provides "Full Men's" and Full Women's" Choruses. The voices in these multis are range-limited, meaning there is no overlap between the Sopranos and Altos, and also none between the Tenors and Basses. If a single vocal line passes the split point, the samples change from, for example, Tenors to Basses. If that's not a problem in your project, then this approach is a good choice.

You're still using WordBuilder, so you have all of its power at your disposal. In addition, the computer resource requirements may be reduced enough that you can load the entire SATB Choir in a moderate amount of RAM.

The Soloists

Three soloist voices are provided: soprano, alto, and boy soprano. Like the choirs described above, the soloists are available in all three mic positions. The soloists are not available from WordBuilder.

Cross-Fades and the Modulation Wheel

A cross-fade uses two or more different samples on the same MIDI channel and provides a means to lower the volume of one sample while simultaneously raising the volume on another sample. This fading between the two concurrently playing samples creates a smooth transition from the sound of one to that of the other.

In EWQLSC, the Mod Wheel controls cross-fades that affect the sound of the virtual singers. The parameters controlled include the amount of vibrato and the dynamics.

The basic Choirs package (without the optional Choirs Expansion) provides three types of cross fades in the choir multis:

- DYN MOD (3-way dynamic modulation): an all-in-one collection of dynamic range.
- SOFT MOD (2-way soft modulation): the lower two-thirds of the dynamic range in DYN MOD. From soft volume without vibrato to medium volume with vibrato.
- HARD MOD (2-way hard modulation): the upper two-thirds of the dynamic range in DYN MOD. From medium volume with medium vibrato to loud volume with heavy vibrato.

The first of these gives you the most flexibility to adjust volume with the Mod Wheel through the entire gamut of recorded dynamics, so it requires the most computer power and resources. The other two options use less memory and, therefore, may be better choices on hardware-constrained systems.

There are, of course, other ways to control dynamics, including MIDI velocity and expression parameters. (These controls are discussed later in this chapter.) There are two main advantages of dynamic cross-fades (DXFs) over other means.

First, a DXF controls not only the volume, but also the timbre of the sound. The sound of a soprano section singing loud is different from them singing softly, even if the volume knob on the stereo is adjusted to normalize their output level. Because a DXF is shifting between samples and not only changing the volume, that change in timbre is preserved. As mentioned above, the vibrato also increases as the volume goes up.

Second, unlike velocity, which is fixed for the entire duration of any given MIDI note, the position of the Mod Wheel can be adjusted continuously to achieve swells and other expressive details mid-note.

Performance Scripts

Symphonic Choirs includes three built-in scripts that can provide extra realism to phrases that take advantage of their benefits:

- The Portamento script provides a sliding pitch between consecutive notes in a phrase. This can be used to emulate the subtle portamento that occurs, for example, when a singer's voice moves upward or downward toward the next note at the end of a sounding note (but not a full glissando).

- The Repetition script changes the quality of the notes when a single pitch is sung multiple times in quick succession. Although similar to what can be achieved with the Round Robin patches found in other EastWest and Quantum Leap libraries, the effect here can be used on any articulation.

- The Legato script creates a more flowing and connected sound for notes in a continuous phrase.

Note that this Legato script mentioned here is not the same as the Legato attacks described earlier, starting on page 39. They have a different sound and can be used separately or together. Try experimenting with both to see what works best in your project.

The scripts themselves are not modifiable by the user, but one important parameter can be adjusted using a MIDI control code. See details of how to use the control codes in the descriptions that follow.

In order for a script to actively affect the notes in an articulation file, the script must be activated in the PLAY user interface. The image above shows two of the scripts turned on and the Repetition script left off. In addition, the appropriate MIDI Control Code must not be turned Off; that means if MIDI values are being generated for the On/Off code on this channel, as in the table below, they must currently be in the range 64 to 127; if MIDI CC values are not being generated, the Control Code is considered On (as long as the light in the user interface is On).

The effect of engaging the Portamento or Legato effect is subtle. The goal is the sound of smooth, connected playing and not anything so pronounced that it will draw attention to the effect itself. These two scripts share many features in the ways they affect the sound; that is, the Legato script includes a small portamento component and vice versa.

MIDI Control Codes

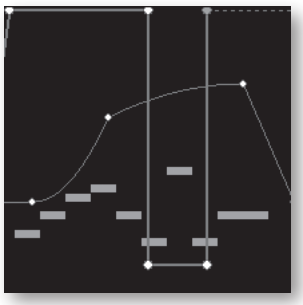
These MIDI values can be controlled in standalone mode by adjusting the controls (knobs or sliders) on a "control surface" or MIDI keyboard. When run as a plug-in inside a sequencer or other host, you can create a controller envelope to automatically adjust values during playback. See the documentation from your hardware or software for information about how to change the values of control codes.

The following table lists the codes that affect these scripts. Note that the MIDI Control Codes have no effect unless the corresponding script is turned on in the PLAY interface.

Code	Portamento	Repetition	Legato
5	Time		Time
65	On/Off		
68			On/Off
69		On/Off	

The three On/Off control codes all work the same way: a value 64 or higher turns the script on and any other value (0–63) turns the script off.

CC 5 affects the duration of the portamento or legato. The possible values are 0–127. The higher the value the longer the effect takes to complete; that is, you should set higher values to make the sound more pronounced. Use your ear to find the right values for each note in the phrase.



The image at the left shows two envelopes affecting the Portamento script in a host. The nine white horizontal bars are the notes. The light-gray line that jumps from the top to near the bottom and back to the top is CC 65 that turns the script on and off so that only some notes use portamento. The curving line near the middle is CC 5, setting the effect's "Portamento time" parameter for each note individually. (Note that the middle section, when the CC 65 line is near the bottom, CC 5 actually has no effect because the script is turned off at that point.)

Monophonic Behavior

Both the Portamento and Legato scripts change the instrument (.ewi file) so that it can play only one note at a time whenever the script is turned on. If a note is still playing when a new note starts, the first note will end at that moment. This behavior allows for no ambiguity in how the notes form a phrase.

One consequence of this behavior is that if you want two concurrent legato lines—or one legato and one non-legato line—sung with the same voice, you need to open the same voice type more than once and turn on the Legato script where appropriate. Of course, the same rule holds for the Portamento script.

Release Trails with Legato and Portamento Scripts

When either of these two scripts is turned On, release trails for that articulation are automatically turned off. To leave them on might interfere with the portamento and/or legato effect.

Because the release trails will be turned off, you may then want to turn on some reverb; the choice of one of the "EW Hall" convolution reverbs in the PLAY engine will most closely match the natural reverb of the rest of the library.

Repetition Script

When singing consecutive notes of the same pitch, the use of a single sample over and over in quick succession can sound mechanically identical, which is called the "machine gun effect." The Repetition script solves this problem. For any voice file, this script uses one or more of three randomly selected options to keep the sound a little different on each repetition:

- Use the sample for a nearby note (for example, a half step higher or lower) and retune it to the needed pitch.
- Start the note a tiny amount before or after the specified start time.
- Detune the sample a few cents (hundredths of a semitone) higher or lower.

This variability gives the sound a more human, less robotic, feel. After all, what human sings every note exactly on pitch and at exactly the notated time?

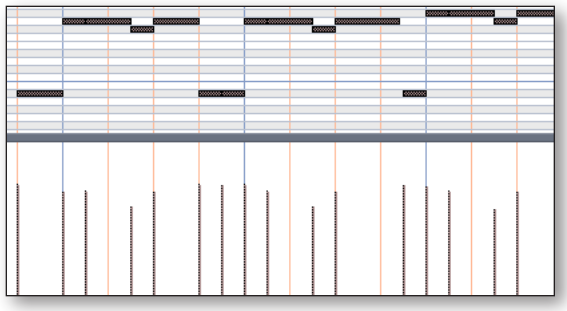
The EWQLSO producers have selected which of these three approaches will be used for each vocal patch—and how much variability to allow—to achieve the most realistic behavior. That is, some patches randomly use all three approaches, while others may use only one or two of them.

Volume, Velocity, and Expression

There are at least four ways to make sampled voices sound louder, or at least make the real notes seem to have been sung louder. One of these, the dynamic cross fade, was discussed on page 62 above.

Volume is just the loudness of the generated sound. Changing volume is basically the same as turning the volume knob on your audio system. A soprano singing softly can be cranked up; a soprano belting a note can be turned way down.

Volume can be adjusted mid-note; that is, the listener can experience a crescendo or diminuendo for a held note. And as with a live choir, the various parts are changing their loudness independently, something you cannot do with the stereo's loudness knob.

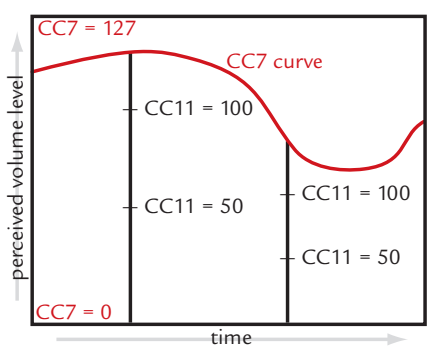


Velocity, a term based on how fast a keyboard player hits the keys, controls how forcefully the note is sung. Adding force changes not only the loudness of the notes, but usually also changes the notes' timbre. With a piano's action, the velocity cannot affect what happens to the sound after the hammers hit and leave the strings, and velocity works the same way. In the current implementation of MIDI, velocity is usually designated by a number between 1 and 127. And most software sequencers display velocity as vertical bars, something like the diagram at the right.

Many modern sample players, PLAY included, play different samples for different ranges of velocity. For example, the team creating the samples recorded the alto section's Middle C at ***pp***, ***p***, ***mp***, ***mf***, etc. The team then assigns the ***pp*** samples to, say, velocities 1–25, the ***p*** samples to velocities 26–45, and so on. Because each dynamic level of a voice has its own timbre, a note's velocity affects not only its loudness but also its timbre.

Velocity changes are, therefore, a much better way than volume changes to achieve natural-sounding dynamics. The disadvantage of velocity is that it cannot be changed mid-note. Using the two together gives the orchestrator control over more aspects of the dynamics.

In MIDI, velocity is an attribute of the Note-On message; it can only be transmitted at the onset of a note. Volume, in contrast, is a control change (CC7); it can be transmitted at any time. Likewise, the parameter called "Expression" is represented by another MIDI control change (CC11). In EWQLSC, CC11 is used to control dynamics. It is possible to shape the dynamics of a line either by "playing" a CC11 controller in real time, or by drawing an envelope in a sequencer. Most MIDI keyboards and control surfaces have programmable knobs and/or sliders that can be set to send CC11 messages to a specific MIDI channel. (Sliders are generally more sensitive for real-time control.) If your sequencer supports automation, it can record your movements of the knob or slider and save them as part of the project. Such manual control over the shape of a vocal line is usually more efficient than drawing in an envelope, and often achieves more convincing results.



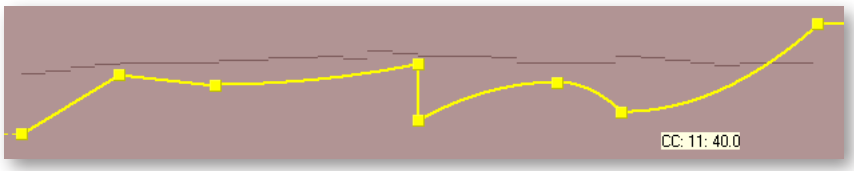
EastWest's and Quantum Leap's choice to use CC11 allows CC7 (volume) to be used in other ways. For example, you can use the volume slider in your sequencer to adjust the overall volume level of each track in the mix. The ability to do this is especially helpful when using more than one mic position. If you want to experiment with how much Close, Stage, and Surround mics for a given choral section or solo-

ist to include, record them in different audio tracks and then use CC7 to do adjust relative overall volumes. CC11 is somewhat independent of CC7 and can adjust dynamics to shape phrases within the tracks.

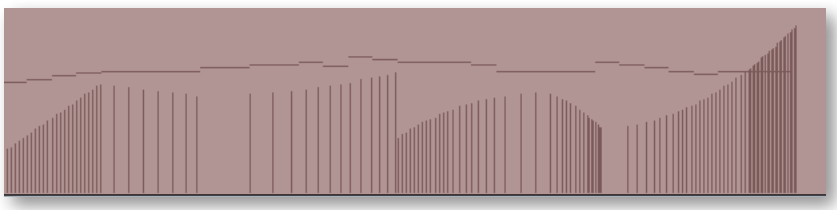
Although the volume and expression controls can be adjusted separately, the volume setting does change how expression affects perceived volume. Think of CC7 as setting an upper limit on the dynamics at any moment, as in the diagram at the right. Expression, like most continuously changeable values in MIDI, takes values between 0 and 127. CC7 specifies how loud a sound to generate for the maximum CC11 value, 127, and for other CC11 values proportionately.

MIDI Envelopes and Control Data

Most modern sequencers let you draw an envelope for the most common MIDI control codes. The diagram with the light-colored curve at the end of this paragraph is an example of an envelope for CC11. Notice how the values are constantly changing, the same way a singer modulates his or her breath and tone to shape the musical line. (The horizontal lines near the top are the notes.)



When saved as MIDI data, this same envelope appears as a finite set of commands. In a sequencer track, these often appear as vertical lines, each line being a command to change the value—in this case to change CC11.



The other way—and many say the better way—to send CC11 events to the sample player is with a MIDI controller, either a keyboard or a control surface. As long as you have an extra hand—or foot, if you use a pedal—you can enter these control codes while playing the notes into the sequencer. This allows you to hear the interchange among the notes, their velocities (how hard you're hitting the keys), and the expression being added with CC11.

This process can also be done in two passes—notes first, then control data—if your setup allows you to record automation data to a track that already contains other MIDI data.

Everything written about CC11 in this section also applies to CC1 (Mod Wheel) and all other MIDI control codes. Learning to shape musical lines the same way a singer does

will give your work a more natural musicality. By combining velocity control, expression, Mod Wheel, and volume, you change digital samples into real, living music.

Release Trails in Symphonic Choirs

The EastWest/Quantum Leap Symphonic Choirs is an ambient library complete with release trails for the Stage and Surround samples. (Note that the close C samples do not include release trails, partly as a measure to conserve computer resources. A small amount of artificial reverb can be added to make them mix appropriately with the other samples. And because the close samples are the one with the least natural reverb relative to the loudness of the sung notes, the lack of release trails on this component should not significantly degrade the mix.)

Release trails capture the sound of the hall from the moment the note ends. (As is evident in the Time Editor within WordBuilder, Symphonic Choirs includes some of the phonetic content of a syllable in the release trails. This is the small but non-zero time it takes the singers' vocal apparatus to close the syllable, and may include the consonant(s) at the end of the syllable.) And the release trails also include the natural sound of each note's decay within the ambient space of the concert hall. The complex and subtle nature of the reflected sounds off the walls, ceiling, and other surfaces is nearly impossible to generate accurately after-the-fact with an artificial reverb.

The release trail samples are triggered by the MIDI Note-Off event. Their parameters can be adjusted in PLAY, or even turned off, if you want.

The release trails are amplitude-matched to the wave form of the playing note, no matter where the playback is in the AHSDR envelope when the note ends. The software analyzes the amplitude of the note's waveform at the time of the Note-Off event, then activates the release trail, automatically adjusting the release trail amplitude so the two samples blend seamlessly. The result is very natural.

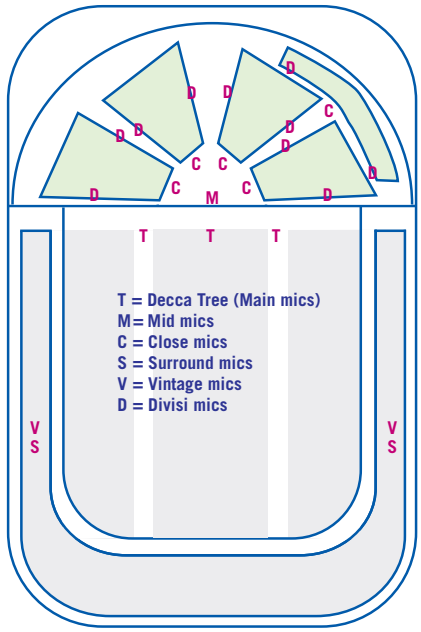
Panning

Panning is not usually necessary. Every section in the library has been recorded in its proper place on stage using custom equipment built by recording engineer Prof. Keith O. Johnson. The full and surround ambiences reflect the positioning perfectly: sopranos on the left down to basses on the right, as on a typical concert hall stage.

The close mics do not reflect the positioning on stage, because they are close to each section or soloist. These have been pre-panned in programming to match their true place on stage. You will notice that the close mics have panning values and the full and surround mics do not. You can of course, easily change any panning setting, but to do so may make less realistic the apparent natural positioning of the singers within the concert hall.

The 3 Mic Positions

Much has been written about extra efforts of the East-West/Quantum Leap team to record all samples from three separate microphone positions within the hall: both in Symphonic Orchestra and Symphonic Choirs. To understand how the three mic positions work, let's perform a quick thought experiment. Imagine yourself in any large concert hall with an entire a capella chorus on the stage. The diagram at the right shows the concert hall stage at the top, with the letters indicating the placement of the various mics.



First, you're invited to sit directly in front of the tenor section while they sing their part. What you hear approximates the sound recorded in the Close mic position. The sound coming directly from the singers is so much louder than the reflections off the walls and other surfaces that these reverberations make up a very small part of what you hear.

Next, you're placed in a chair at the very front of the stage—or maybe the front row of the house—and you listen to the same tenor melody. Now you hear more of the natural reverberation of the hall because your ears are not so overpowered by the sound coming directly from the chorus. This sound is captured by the Stage mics (also called Far mics, hence the F in the diagram), a cluster of microphones near the front of the stage.

Finally, you're asked to sit nearer the back of the house and high up, maybe in the middle of the Balcony. The same tenor melody is played. From this perspective, the full acoustics of the hall are most evident because you hear clearly the sound bouncing off the ceiling, the walls, all the reflective surfaces, in front of you and even behind. It can be a very lush sound, though perhaps lacking in the immediacy of a closer position; however, adding in a little of this sound (either in a stereo mix or in the rear speakers of a surround-sound recording) can add dimension to the recording. This mic position was used to create the Surround samples.

This is the first choral sample library to include user control of three simultaneous stereo microphone setups (Close, Stage and Surround) for the soloists and sections. You can mix together any combination of these microphone positions to control tone and ambience. It's like virtually repositioning the listener by incrementally moving out from the close mics, to the stage mics, to the hall mics (known as audio zoom), all in real-time!

Note that the several choirs available in the optional Choirs Expansion are built on samples from an earlier library called Voices of the Apocalypse (VOTA). These voice types were recorded only with mics that correspond to the Stage mics, those near the front row

of the audience. Therefore this text about the 3 mic positions does not apply to those choirs: Angels, Demons, and Frankenchoirs.

All three sets of samples were recorded simultaneously for each note in the library. Therefore, there are predictable and natural delays in the time it take the music to reach the further mics. This latency is part of the natural reverb of the hall and produces a pleasing fullness to the sound when the samples are mixed. If you want to tighten up the reverb from the S samples, it is possible with modern sequencers and mixers to adjust the audio track from the S samples a little forward in time. Either perform a calculation using the speed of sound at sea level (approximately 340 meters/second; 1100 feet/second, if you prefer) or let your ears decide what works best.

The close mics, of course, have virtually no latency: only a small amount necessary to retain the sonic perspective of the choirs in the concert hall. If you don't use the close mics, and you play something that requires very quick and punchy attacks, you may notice some small delay, which can be cured by adding in some of the close mics. In most cases you would want to use the close mics to add definition to a section. The idea is to experiment until you find a combination that works.

During sampling, the simultaneous recordings from all three positions were phase-locked. This attention to detail ensures that the samples can be bounced down to a single audio track without introducing phasing problems.

Many composers still work in stereo only. You can mix all three ambiences together without any phasing issues. You will actually hear a lot of dimension in your stereo mixes. Consider this: if you render a close mix, a full mix, and a surround mix of every piece you write, you will have an archive that can be used to create surround mixes in the future. And you know it will work—perfectly! This technique also allows you to do quick wetter or drier remixes in the future.

Controlling Ambiance with the 3 Mics

Controlling the natural reverberation of the concert hall can be as easy as adjusting the level of Surround mics, and turning on or off the Close mics. If you require more control, the volume of the release trails can be altered in the Articulations control. The image at the right shows the level of the release trails lowered by 2.5 dB relative to their original loudness. Just be sure to make the same adjustment in all the 6 to 12 instrument files when you load a multi.

Some Sound Advice

Generally, in our opinion, the Stage mic has the best overall sound if you will be using only one mic position, but a combination of the three mics usually creates the most impressive sound. Although it may vary with the type of choral music being recorded, the sections often sound best with the Close mics turned down in volume (leaving only enough of the close mics to add definition).

Try this: Boost the Close mics up to 6db (bell shape with a fairly wide Q) between 5K and 10K. Then roll off the frequencies below 800Hz so you are down about 10db at 50Hz. Then mix the Close track into the Stage track at a low volume to add clarity and sheen to the stage mics. (Be careful not to use too much of the close mics with this EQ curve.) Other styles may sound just right using an equal blend of all ambiences. The idea is to experiment until you find a combination that works.

Various Ways to Combine the Samples

Using Close and Surround Mics Sparingly

One possible approach when using EWQLSC to create a stereo mix is to use primarily the Stage mics and then blend in just enough of the Close samples to provide more immediacy, plus enough of the Surround samples to create a more natural reverb to the overall sound. There's no reason to keep the mix constant for the duration of the piece. Maybe you'll want to add in a little extra Close mics to a section that has the most important lyrics at the moment. Or give the altos the extra punch to stand out when they carry the melody, or push up the Surround perspective to make the chorus of townspeople sound more distant when they first arrive on the scene. Use your ear and your imagination to find the best mix for both you and the piece you're working on.

Blending All Three Mics

Another approach is to create three mixes of a piece that are identical except that they were "played" with the three separate sets of samples. Each of the three "takes" (Close, Stage, and Surround) is bounced down to a stereo track. In a final bounce-down, the volume levels of the three perspectives are adjusted to achieve a single track with the desired sound. This approach can generate either stereo tracks or any of the surround sound formats (4.0, 5.1, LCR+LFE, Matrix UHJ, and many others). More on surround sound can be found on page 72.

Go for the Intimate—or the Expansive—Sound

Note that some musical styles can benefit from using the Close or Surround sound as the starting point. A recording of a Renaissance motet—or other chamber ensemble—might benefit from the sound of using mostly the Close samples. And a dreamy or mysterious film score might be more effective when based on the Surround samples. Such decisions may also apply with religious music, or if you are looking for a "Lord of the Rings" type of sound. Let your ears decide.

Beyond the Panning Controls

All EWQLSC voices take their traditional position on the concert hall stage. And the panning position is reinforced by tiny differences in the arrival of sounds to the left and right mics. Not only do the sounds directly from the different sections have different arrival times, but so also do the reverberations from the left and right walls. This is true, though, only for the Stage and Surround mics on the center line of the concert hall; for the Close mics, any difference in timing is imperceptible.

To fit properly in the soundscape, the Close samples are programmatically panned left or right to simulate their respective positions on the stage (you can see that in the PLAY interface). But panning only affects relative volume of the two channels.

If you want to pin down perceived location even more strongly when using the Close mics, it's possible to time-adjust the left and right channels separately to move the singers where you want them. To reinforce panning the listener's left, first remember that the direct sound in the C mics is stronger than the natural reverb. Therefore, take its EQ'ed left channel audio and move it earlier a few milliseconds; this will simulate the instrument's sound arriving at the left mic first. Also, move its EQ'ed right channel later, as if it took longer for the sound to get to the right microphone. Reverse those directions to pan the sound to the right.

Surround Sound Samples

Stereo Mixing

When using the Surround samples for two-channel mixes, adding in a little of the lush sound of the S mics can convincingly convey the feeling of a live recording in a concert hall: well, at least as much as any stereo recording can do that. If you want a realistic concert hall sound, do not over-add the Surround samples; a little in the mix may be all you need. Those looking for other types of recordings (film scores, audio tracks for games, etc.) should feel free to experiment.

Surround Sound Mixing

This discussion focuses on the most popular format, 5.1, but the guiding principles apply to other standards as well.

Here's a starting point for creating the 6 channels you need to create a 5.1 recording. Feel free to experiment with variations.

Front Center: Take either the left *or* right signal from the stereo Close mics—but not *both* left and right. Use this to create the immediacy needed for the front center.

Front Left & Right: The Stage mics (left and right) are assigned to the front speakers (left and right). Add in a little of the Surround mics here for a lusher overall sound.

Rear Left & Right: The two rear channels accept input from the two stereo Surround mics exclusively. Use your judgment about how much signal to send here, based on the type of recording you're creating.

LFE: Unless you're creating a mix for a hardware environment with a discreet LFE channel, the system that plays your music can best determine its own crossover frequency between the sub-woofer and the other channels based on the characteristics of the hardware. Therefore, none of the music from the EWQL libraries should be added to the LFE channel. Only non-musical effects, such as explosions and dinosaur footsteps, should be added to this track directly. Note that this is a change from earlier advice about surround sound mixing.

If you are writing for specific hardware that does not provide its own crossover, then use the older advice, as follows. The low frequency and effects channel should be pulled from a mix of all the other channels; that is, the relative volume of the various mics (including any time delays and EQ applied separately to discreet channels) should be proportionally applied to the LFE channel. Be sure you use a crossover filter that removes from the other 5 channels the exact same range of frequencies added to the LFE. Not excluding the low-frequency sounds from the other channels results in inappropriate doubling of those frequencies.

7. The Phonetic Alphabets

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The Phonetic Alphabets

How WordBuilder Uses Phonetics

This chapter of the manual compares the various phonetic alphabets available with WordBuilder. It also provides examples of English words that use them to assist the reader in understanding the sound each symbol represents.

The sounds in WordBuilder and Symphonic Choirs are based on the sound of natural speech, not the way words are spelled on a page. Therefore, WordBuilder uses a phonetic alphabet to notate the sounds that will be sung. The Votox phonetic alphabet was designed specifically for the task of representing the sound of sung words. This chapter presents what you need to know about Votox to help you get the most out of WordBuilder.

Lists of The Phonetic Symbols

The tables on the next few pages list the symbols from the Phonetics alphabet and compare each one to the corresponding Votox symbol. Two English words are provided to give examples of each symbol's sound.

There are two table because WordBuilder provides two sets of Votox symbols that differ only in their vowels. In the Options dialog box, the user has a choice between "English Mode" and "Latin Mode" (see page 57). The choice does not affect the sounds, only the symbols used to represent those sounds in Votox. Speakers of Romance languages may feel more comfortable using Votox in Latin Mode, as the symbols more closely reflect spellings in Romance languages. English speakers will most likely prefer the English symbols. In the Vowel Comparison table below, read aloud each of the words in the right-most column and decide which of the vowels to the left seems more natural to you. Then work in the mode (*i.e.*, the column) that most often felt more correct.

Here are two tables that compares the two sets of Votox vowels. First, the table of simple vowels. Note that in the first three rows, the English and Latin versions of the vowels are the same. In the rest of the rows, they differ.

VOTOX VOWEL COMPARISON

English Mode	Latin Mode	Example English words
a	a	m**o**ney, r**ou**gh
e	e	r**e**d, st**ea**dy
o	o	**o**range, n**augh**ty
u	A	m**o**ney, r**ou**gh
A	a!	bl**a**ck, **a**fter
E	i	**i**ndex, f**i**nger
i	E	*never used alone, only in diphthongs*
0	u	p**oo**l, bl**ue**

And here is the table of diphthongs, the sounds made up of two vowels sounds in a row.

VOTOX VOWEL COMPARISON

English Mode	Latin Mode	Example English words
aE	ai	wh**i**te, s**igh**
u0	Au	br**ow**n, m**ou**se
iE	Ei	gr**ay**, sl**a**te
EE	ii	gr**ee**n, sk**i**
oE	oi	**oi**l, b**oy**
o0	ou	yell**ow**, **o**cean
ur	Ar	p**ur**ple, low**er**

Because of the close relationship between the symbols of the Phonetics and Votox "alphabets," you should only need to learn one. The EWQLSC team recommends always using Votox, sounding out the words to achieve the desired sound. Use the other two modes to help you learn Votox, but once mastered, Votox gives you more direct control because you're working in the same alphabet as WordBuilder, with no conversion necessary.

The tables are on the next two pages, positioned one per page, in case you want to want to print out a page to use as a reference guide while you learn your phonetic alphabet of choice.

Phonetic Alphabet with English Vowels

PHONETIC ALPHABETS: WITH ENGLISH VOWELS

Phonetics	Votox		Phonetics	Votox	
a	u	m**o**ney, r**ou**gh	m	m	**m**oney, ha**mm**er
a!	a	c**o**pper, w**a**nder	n	n	gree**n**, s**n**ug
Ai	aE	wh**i**te, s**igh**	o	o	**o**range, n**augh**ty
Au	uO	br**ow**n, m**ou**se	Oi	oE	**oi**l, b**oy**
b	b	**b**lue, sla**b**	Ou	oO	yell**ow**, **o**cean
c!	C!	**ch**air, cat**ch**	p	P	**p**ink, u**pp**er
d	d	re**d**, can**d**or	r	r	**r**ed, ca**r**
d!	t!	**th**e, nei**th**er	r!	ur	p**ur**ple, low**er**
e	e	r**e**d, st**ea**dy	s	S	**s**ilver, la**c**e
e!	A	bl**a**ck, **a**fter	t	T	whi**t**e, **t**rue
Ei	iE	gr**ey**, sl**a**te	t!	T!	**th**eme, slo**th**
f	F	**f**ile, enou**gh**	u	U	p**u**t, c**ou**ld
g	g	**g**reen, le**g**	u!	O	bl**ue**, p**oo**l
g!	ng	pi**ng**, ha**ng**ar	v	v	oli**v**e, a**v**ert
h	H	**h**at, a**h**ead	w	w	**w**ait, a**w**ash
i	E	**i**ndex, f**i**nger	x	X	fi**x**, e**xc**ess
i!	EE	gr**ee**n, sk**i**	x!	S!	fle**sh**, na**ti**on
j	j	oran**g**e, fi**dg**et	y	y	**y**ellow, **y**onder
k	K	bla**ck**, **c**oal	z	z	**z**ero, poi**s**on
l	l	bl**u**e, **l**ess	z!	zj	vi**si**on, a**z**ure

Phonetic Alphabet with Latin Vowels

PHONETIC ALPHABETS: WITH LATIN VOWELS

Phonetics	Votox		Phonetics	Votox	
a	A	m**o**ney, r**ou**gh	m	m	**m**oney, ha**mm**er
a!	a	c**o**pper, w**a**nder	n	n	gree**n**, s**n**ug
Ai	ai	wh**i**te, s**igh**	o	o	**o**range, n**augh**ty
Au	Au	br**ow**n, m**ou**se	Oi	oi	**oi**l, b**oy**
b	b	**b**lue, sla**b**	Ou	ou	yell**ow**, **o**cean
c!	C!	**ch**air, cat**ch**	p	P	**p**ink, u**pp**er
d	d	re**d**, can**d**or	r	r	**r**ed, ca**r**
d!	t!	**th**e, nei**th**er	r!	Ar	p**ur**ple, low**er**
e	e	r**e**d, st**ea**dy	s	S	**s**ilver, la**c**e
e!	a!	bl**a**ck, **a**fter	t	T	whi**t**e, **t**rue
Ei	Ei	gr**ey**, sl**a**te	t!	T!	**th**eme, slo**th**
f	F	**f**ile, enou**gh**	u	U	p**u**t, c**ou**ld
g	g	**g**reen, le**g**	u!	u	bl**ue**, p**oo**l
g!	ng	pi**ng**, ha**ng**ar	v	v	oli**v**e, a**v**ert
h	H	**h**at, a**h**ead	w	w	**w**ait, a**w**ash
i	i	**i**ndex, f**i**nger	x	X	fi**x**, e**xc**ess
i!	ii	gr**ee**n, sk**i**	x!	S!	fle**sh**, na**t**ion
j	j	ora**ng**e, fi**dg**et	y	y	**y**ellow, **y**onder
k	K	bla**ck**, **c**oal	z	z	**z**ero, poi**s**on
l	l	b**l**ue, **l**ess	z!	zj	vi**si**on, a**z**ure

8. Instruments, Articulations, and Keyswitches

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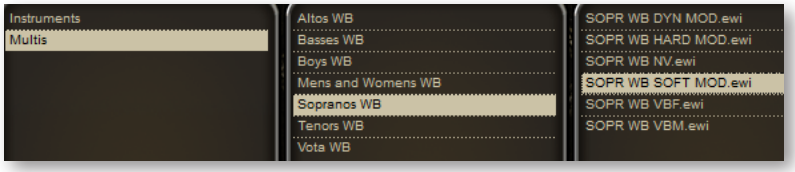
Instruments, Articulations, and Keyswitches

EastWest/Quantum Leap Symphonic Choirs, consists of both the standard Choirs product and an optional Expansion product. This manual includes information about both standard and expansion patches, but clearly marks which instruments are only available to those who bought a separate license to the Expansion product.

Using the Symphonic Choir Instruments

The Browser displays two types of patches: those designed to work with the speech-building capabilities of WordBuilder, and those that do not interact with WordBuilder. The former are in the Multis folder and the latter are in the Instruments folder. As you can see in the image below, the subfolders in the Multis folder include "WB" in the names as a reminder that they can only be used with WordBuilder.



Expansion Only: The subfolder "Vota WB" that you see in the image above only appears if you have a license for the Choirs Expansion product.

These subfolders fall into 4 types of choral parts:

- The traditional SATB parts: sopranos, altos, tenors, and basses.
- A boys' choir.
- A men's choir (which uses tenor samples at the top of the range and bass samples at the bottom to achieve a choral part with a wider range. Likewise, a women's choir (soprano at the top of the range and alto at the bottom).
- **Expansion Only:** Extra samples for the men's and women's choirs, as described in more detail on page 84.

Note that all these are choral parts, that is, the sounds of multiple people singing together in unison, not those of soloists. There are solo samples available but not in the Multis folder. See page 88 for details on the soloists.

How WordBuilder Uses Multis

To accommodate the large number of separate phonetic sounds associated with each note of the scale, a single section, for example, the Alto section, uses 6 instrument files in a single collection known as a multi. Certain rules must be followed to let the Word-

Builder software work properly, with this collection of related "instruments," but PLAY and WordBuilder set up most of what you need automatically.

The Choirs "instruments" are divided into Instruments and Multis in the browser, as shown in the screen shot above. Those in the folder called Multis all load more than one instrument (.ewi file) into PLAY and assign each instrument a unique channel number (usually from 1 to 6, sometimes from 1 to 12). After loading one of these multis into PLAY, if you look at the list of open instrument at the left of the Browser view, you see that either 6 or 12 instruments have been loaded for you, as in the image at the left. And the numbers in the parentheses are the MIDI channel numbers. (By the way, if you have not already changed the setting to Auto-Increment MIDI Channels in the Settings dialog box, you should probably do so; otherwise, you may have to assign the separate channels to all 6 (or even 12) instruments individually.

These multiple MIDI channels are not the channels you set up in your sequencer or on your keyboard. These are internal, the channels WordBuilder uses to send data to PLAY. Feel free to set up the one channel assigned to this instance of PLAY any way you want.

WordBuilder will automatically use the type of voice (in this example, Sopranos) when you insert WordBuilder into this instance of PLAY. But if you are running WordBuilder in Legacy Mode, you need to make sure the voice type of the multi matches the voice type you set up in WordBuilder.

Do be aware that if you change this carefully set up connection between the open multi and WordBuilder—such as changing the internal MIDI channel assignments—you may expect to hear, for example, a "z" sound on the note E3, but what you get may be an entirely different sound on an entirely different note.

Like most other instruments in the EastWest PLAY System libraries, the choirs do contain multiple articulations selected by keyswitch. Each of the multis (except Boy Sopranos) provides a choice among 4 separate articulations:

- normal: a natural attack
- legato: a fast, smooth attack
- staccato: short, level-3 velocity
- slurred: subtle and quick sliding up to the pitch

These articulations are selected in the WordBuilder UI and, therefore, they are described in the chapter call Using WordBuilder, in a section called Controlling Segment Transitions with Articulations, starting on page 39.

The Boy Soprano multis contain only 2 articulations:

- normal: a natural attack
- legato: a fast, smooth attack

Tables of the Multis in Symphonic Choirs

The following tables list the names of the multis and a brief description of their sounds. The names that include HARD MOD, SOFT MOD, and DYN MOD warrant further explanation than what fits in the tables:

- DYN MOD multis are a 3-way dynamic cross-fade: soft through medium to hard, with more detail in the two items directly below.
- HARD MOD multis are a 2-way dynamic cross-fade between medium volume, medium vibrato samples and loud, heavy vibrato samples; the loudest two-thirds of the DYN MOD patch.
- SOFT MOD multis are a 2-way dynamic cross-fade between soft volume, non-vibrato samples and medium volume, medium vibrato samples; the softest two-thirds of the DYN MOD patch.

SOPRANOS	
SOPR WB DYN MOD	3-way Mod Wheel cross-fade
SOPR WB HARD MOD	2-way vibrato Mod Wheel cross-fade
SOPR WB SOFT MOD	2-way non-vibrato/vibrato Mod Wheel cross-fade
SOPR WB NV	non-vibrato
SOPR WB VBF	vibrato, forte
SOPR WB VBM	vibrato, medium

ALTOS	
ALTO WB DYN MOD	3-way Mod Wheel cross-fade
ALTO WB HARD MOD	2-way vibrato Mod Wheel cross-fade
ALTO WB SOFT MOD	2-way non-vibrato/vibrato Mod Wheel cross-fade
ALTO WB NV	non-vibrato
ALTO WB VBF	vibrato, forte
ALTO WB VBM	vibrato, medium

TENORS	
TENR WB DYN MOD	3-way Mod Wheel cross-fade
TENR WB HARD MOD	2-way vibrato Mod Wheel cross-fade
TENR WB SOFT MOD	2-way non-vibrato/vibrato Mod Wheel cross-fade
TENR WB NV	non-vibrato
TENR WB VBF	vibrato, forte
TENR WB VBM	vibrato, medium

BASSES	
BASS WB DYN MOD	3-way Mod Wheel cross-fade
BASS WB HARD MOD	2-way vibrato Mod Wheel cross-fade
BASS WB SOFT MOD	2-way non-vibrato/vibrato Mod Wheel cross-fade
BASS WB NV	non-vibrato
BASS WB VBF	vibrato, forte
BASS WB VBM	vibrato, medium

BOYS	
BOYS WB DYN MOD	2-way non-vibrato cross-fade
BOYS WB HARD	non-vibrato, forte
BOYS WB SOFT	non-vibrato, piano

Full Men's and Full Women's Choruses

Symphonic Choirs creates a voice type known as "Women" by using the Altos samples for the lower half of the range and Sopranos samples for the upper half. If you load this voice type in WordBuilder and PLAY, you have a single voice that can sing notes over a range of F2 to E5, almost 3 octaves.

Likewise, a voice type of "Men" combines Bass and Tenor samples to create a voice that covers the notes from B0 to D4, more than 3 octaves.

As you might expect, there is a somewhat discernible change in timbre at the point near the middle of the range where the underlying voice type changes, so evaluate whether this will be a problem for your project before deciding to use either Men or Women as a voice type.

EastWest achieves this wider range by using 12 MIDI channels (instead of the 6 channels for the other voice types). And note that Men and Women use special, range-restricted versions of the instruments for Sopranos, Altos, Tenors, and Basses. This smaller range makes sure, for example, that each note in the Men's voice type plays either a Tenor sample or a Bass sample, but not both.

These two types of multis are available in the folder "Mens and Womens WB."

WOMEN	
WOMENS WB HARD MOD	2-way vibrato Mod Wheel cross-fade
WOMENS WB SOFT MOD	2-way non-vibrato/vibrato Mod Wheel cross-fade

MEN	
MENS WB HARD MOD	2-way vibrato Mod Wheel cross-fade
MENS WB SOFT MOD	2-way non-vibrato/vibrato Mod Wheel cross-fade

Expansion-only Multis

These multis are not available in the basic Symphonic Choirs library. You can purchase this separate add-on, which requires its own license. When you install the Expansion Module and run the authorization routine, an extra subfolder appears in the Multis folder, as shown at the left. It's called "Vota WB," which stands for Voices of the Apocalypse. These samples were originally released in an EastWest product of that name.

Within Symphonic Choirs, these "Vota" samples are added to the "hard" Men's and Women's choirs to add the option of very loud vowels (***fff***) with extra vibrato. Keep the Mod Wheel near the bottom of its range to hear a sound like the basic Men's and Women's "hard" choirs, or push the Mod Wheel up to incrementally increase the loudness and vibrato.

MEN	
MENS WB VOTA SC	2-way vibrato Mod Wheel cross-fade, moderate to very loud

WOMEN	
WOMENS WB VOTA SC	2-way vibrato Mod Wheel cross-fade, moderate to very loud

Note that the Expansion samples are only available with the Stage mics, not the Close or Surround mics.

Memory Considerations When Choosing Multis

Note that the DYN MOD multis use a large amount of memory and, therefore, require a high-powered computer. Use other multis, DYN SOFT or DYN HARD, when dynamic cross-fading from the softest to the loudest is not crucial or when the computer's power and/or memory is too restricted to handle so many samples at once.

The Vota instruments also require more RAM usage than the DYN HARD patches on which they are based.

The Component Instruments

The multis listed in the previous section are designed to be used only with Word-Builder. EWQLSC also provides individual "instrument" files that you can open

in PLAY to hear any single phonetic components directly. These files are documented below.

The "Instrument" files for the four adult choirs—Soprano, Alto, Tenor, Bass—all have the same patterns of consonants, vowels, and vocal effects. To save space, only the bass articulation files are listed below. The others use "TENR," "ALTO," "SOPR" in their names.

The first group listed is vowels. These are all dynamic cross-fades. The keyswitches provide access to the same four articulations available through WordBuilder:

KEYSWITCHES

Articulations	Keyswitches
normal	C0
legato	C#0
staccato	D0
slurred, sliding	D#0

The table below lists the vowels and some example English words that use those sounds. The third column provides the Votox equivalent.

VOWELS

File names	Sample words	Votox
BASS uh DXF C0-D#0	money, rough	u
BASS ee DXF C0-D#0	green, ski	E
BASS oo DXF C0-D#0	blue, pool	O
BASS ih DXF C0-D#0	index, finger	i
BASS eh DXF C0-D#0	red, steady	e
BASS oh DXF C0-D#0	yellow, ocean	o
BASS eu DXF C0-D#0	put, could	U
BASS ah DXF C0-D#0	copper, wander	a

Note that none of the effects listed below is available in WordBuilder. To generate one, you have to load the individual file listed here directly into PLAY.

EFFECTS

File names	Description of the effects
BASS cluster oh	The voices sing notes close in pitch but not the same
BASS whiswords	Each MIDI note is a different unpitched, whispered word
BASS ahiheh	A slowly evolving sound through 3 vowels: ah, ih, eh
BASS falls	A held note with falling pitch
BASS cluster fx	Clustered slides, evolving shouts, etc.
BASS eeoheh	A slowly evolving sound through 3 vowels: ee, oh, eh
BASS shouts	Various short, unpitched shouted vowels

The whispered words are real words, such as “blood,” “dream,” “evil,” “silence,” and “Hallelujah!”

CONSONANTS

File names	Sample words
BASS b	blue, slab
BASS d	red, candor
BASS g	green, leg
BASS j	orange, fidget
BASS l	blue, less
BASS m	money, hammer
BASS n	green, snug
BASS r	red, car
BASS rr	a “rolling R”
BASS th	the, nether
BASS v	olive, avert
BASS w	wait, awash
BASS y	yellow, yonder
BASS z	zero, poison
BASS non-pitched	*see table below*

The non-pitched consonants are those that carry no breath; in linguistic theory they are called “unvoiced.” The following table enumerates them. Because they have no pitch, only a single note is required to play any one of these consonants, and those note names are listed in the table below. (The meaning of note names can vary with implementation; here C4 is MIDI note 72, one octave above Middle C.)

NON-PITCHED CONSONANTS

Consonants	Sample words	Notes
ch	chair, catch	C4
f	file, enough	C#4
h	hat, ahead	D4
k	black, coal	D#4
p	pink, upper	E4
q	quick, acquaint	F4
s	silver, lace	F#4
sh	flesh, nation	G4
t	white, true	G#4
th	theme, sloth	A4
x	fix, excess	A#4

The individual "instrument" files for the Boys choir are similar, but not exactly the same. Here's how they differ.

The vowels have only two notes used as keyswitches. Therefore, all the file names end in "C0-C#0" to indicate that. Use the C0 (MIDI note 24) for Normal Attack and C#0 for Legato. In every other way, the same 8 cross-faded program files exist for the boys choir samples.

The Boy Sopranos' vocal effects are a different list than for the adults. See the following table.

The consonants are identical to those of the adult choirs.

The sample set includes the following four vocal effects for the boys choir.

EFFECTS

File name	Description of the effects
BOYS cluster	Pitch-clusters on various vowels and "m" and "n" sounds
BOYS ah staccato	The "ah" syllable sung staccato
BOYS oh slur DXF	The "oh" syllable with a small upward slide at the start
BOYS shouts	Various group shouts

Expansion-only Instruments

These instruments are not available in the basic Symphonic Choirs library. You can purchase this separate add-on, which requires its own license. When you install the Choirs Expansion product and run the authorization routine, an extra subfolder appears in the

Instruments folder, as shown below. It's called "Vota," which stands for Voices of the Apocalypse. These samples were originally released in an EastWest product of that name.

The instruments in this folder are of two type: Angels and Demons. These choirs sing only vowel sounds, so they cannot be used with WordBuilder.

The Angels are a choir of Sopranos singing the sounds of "ah," "oh," and "oo." They have an angelic clarity, especially when they sing above orchestral instruments.

ANGELS	
Angels ah	Sopranos singing an "ah" sound
Angels oh	Sopranos singing an "oh" sound
Angels oo	Sopranos singing an "oo" sound

The Demons are a choir of Basses singing the sounds of "ah" and "oh." They have a demonic quality, especially at the low end.

In addition, the Demons sing in a "cluster effects" instrument. It contains only a single sample in which the Basses sing a cluster of notes close to each other in the scale. As you hold the note the sound evolves over time to create a menacing effect.

DEMONS	
Demons ah	Basses singing an "ah" sound
Demons oh	Basses singing an "oh" sound
Demons cluster fx	Basses singing a close cluster of notes

The Soloists

The soloist samples are not designed to work with WordBuilder. Instead they are provided as expressive voices. Such usage is common in film scores and ambient music.

Three soloist voices are provided:

- Soprano
- Alto
- Boy Soprano

There is no Tenor or Bass soloist because those men's solo voices are less popular and rarely appear in film scores.

Each of these three voices is provided as a keyswitched articulation file.

SOLOISTS
SOP Solo KS C0-F#0
ALTO Solo KS C0-A#0
BOY Solo KS C0-A0

Tables of the Soloist Instruments

Each of the soloist files uses keyswitches to control the syllable that is sung and the style of singing. The following tables describe the effect of each keyswitch.

SOPRANO SOLO KS C0-F#0		
Keyswitch note	**Sound**	**Description**
C0	ah	Non-vibrato
C#0	ah	Expressive, vibrato
D0	mm	Expressive, vibrato
D#0	oh	Non-vibrato
E0	oh	Expressive, vibrato
F0	oo	Non-vibrato
F#0	oo	Expressive, vibrato

ALTO SOLO KS C0-A#0		
Keyswitch note	**Sound**	**Description**
C0	ah	Expressive, vibrato
C#0	ah	Non-vibrato
D0	ah	Expressive, vibrato slur
D#0	oh	Expressive, vibrato slur
E0	ee	Expressive, vibrato
F0	mm	Expressive, vibrato
F#0	oh	Expressive, vibrato
G0	oh	Non-vibrato
G#0	oh	Expressive, vibrato 2
A0	oo	Non-vibrato
A#0	oo	Expressive, vibrato

BOY SOLO KS C0-A0		
Keyswitch note	**Sound**	**Description**
C0	oh	2 boys, non-vibrato
C#0	ah	Non-vibrato
D0	ah	Slurred up, non-vibrato
D#0	oh	Non-vibrato
E0	oh	Slurred up, non-vibrato
F0	oo	Non-vibrato
F#0		Random syllables
G0		Random syllables
G#0		Random syllables
A0		Random syllables

The last 4 keyswitches for the boy soloist (F#0 – A0) generate common Latin syllables. Stringing these together on a melody makes it sound as if the boy is singing words in Latin or some language the user does not understand. You have 4 syllables to choose from for each note in the melody.

As an example, play the lowest B in the boy soprano's range four times, and precede each note, in turn, with the keyswitches A0, G#0, G0, and F#0. That creates the text "noo-mah-nah-fee." If you do the same process on the C just above that, you'll get a different pattern of 4 syllables: "nah-fee-vih-ee."

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