EastWest/Quantum Leap Hollywood Strings Virtual Instrument

Silver Edition

Users' Manual

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PLAY

1. Welcome

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 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.

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, Quantum Leap Pianos, and Hollywood Strings 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 Tomb Raider 2, Terminator 3, Lord of the Rings Return of the King, Harry Potter 2, Star Wars Episode 2, Spiderman 3, Pirates of the Caribbean 3, Blood Diamond, Night at the Museum, 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.

In 2006, EastWest purchased the legendary Cello Studios (formerly United Western Recorders) on Sunset Boulevard in Hollywood, re-naming it EastWest Studios. The 21,000 sq. ft. facility, since remodelled by master designer Philippe Starck, houses five recording studios and is the world headquarters for EastWest.

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."

Producer: Thomas Bergersen

Thomas Bergersen holds a composition and orchestration Master's degree, and has worked in the capacity of composer, orchestrator, or music arranger on many Hollywood productions.

He founded Two Steps From Hell (**www.twostepsfromhell.com**) with Nick Phoenix in 2006 and has since written music for countless movie trailers. "Star Trek," "Harry Potter 6," "Tales of Despereaux," "The Dark Knight," "Valkyrie," "The Hulk," "Rendition," "Spider-Man 3," "Golden Compass." "The Assassination of Jesse James," "Pirates of the Caribbean 3," "Babel," "Hitman," "I Am Legend," "300," "No Country For Old Men," "Harry Potter 5," "The Brave One," "Wall-E," "Blood Diamond," "Speed Racer," and "Night at the Museum" are a few recent examples.

Thomas is also a trumpetist and has performed on major TV productions including NBC News. In his pursuit of the ultimate realism in samples, he has produced a great number of orchestral sample libraries for his own use. With Hollywood Strings, it was time to join forces with veteran producers Doug Rogers and Nick Phoenix, and to share this knowledge with the rest of the world.

Thomas' studio is located in Santa Monica, California. **www.thomasbergersen.com**

Sound Engineer: Shawn Murphy

Shawn Murphy is an Academy Award, C.A.S. (Cinema Audio Society), BAFTA, and Emmy award-winning sound engineer who has recorded and mixed the scores for more than 300 feature films including: "Indiana Jones and the Kingdom of the Crystal Skull," "Star Wars: The Phantom Menace," "Star Wars: Episode II - Attack of the Clones," "Star Wars: Episode III - Revenge of the Sith," "Star Wars: A Musical Journey," "Jurassic Park," "Jurassic Park, The Lost World," "Harry Potter and the Prisoner of Azkaban," "Titanic," "The Curious Case of Benjamin Button," "The Bourne Ultimatum," "Minority Report," "Saving Private Ryan," "Munich," "The Passion of the Christ" (score mix), "X-Men: The Last Stand," "Memoirs of a Geisha," "Ice Age 2," and "Ice Age 3."

Hollywood Strings is the first virtual strings collection he has engineered.

Credits

Producers

Doug Rogers, Nick Phoenix, Thomas Bergersen

Sound Engineer

Shawn Murphy

Production Coordinator

Rhys Moody

Programming

Justin Harris, Nick Phoenix, Thomas Bergersen

Scripting

Patrick Stinson, Thomas Bergersen, Klaus Voltmer

Editing

Arne Schulze, Pierre Martin, Justin Harris, Michael DiMattia

Art Direction

Steven Gilmore, Thomas Merkle, Doug Rogers, Nick Phoenix, Thomas Bergersen

Software

Doug Rogers, Nick Phoenix, Rhys Moody, Klaus Voltmer, Klaus Lebkucher,
Julian Ringel, Patrick Stinson, Adam Higerd, Ezra Buchla,
David Kendall, Nick Cardinal, Jonathan Kranz

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 words of the previous sentence ("Adobe web site") 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%.

The Master Navigation Document

Because the EastWest PLAY System is a collection of components, each with its own User's Manual, a Master Navigation Document (MND) is provided to allow users to jump quickly between these PDFs when being read on the computer screen. This MND is a one-page file with hyperlinks to the PLAY System documentation and to all the library manuals. Hyperlinks to this Master Navigation Document are found on the title page of each chapter in each document. From there, you can open any other document in the collection.

For example, if you're reading something in this documentation for the EastWest/Quantum Leap Hollywood Strings library, and need to open the manual for the PLAY System as well, go to any chapter title page and click on the link that says, "Click on this text to open the Master Navigation Document." It will open in a new window on the screen. In that document, click on the icon for the PLAY System and its manual will open in the same window, hiding the MND. You now have both the Hollywood Strings library manual and the PLAY System manual open in separate windows so you can refer to them both.

Separate Diamond, Gold, and Silver Manuals

The EastWest/Quantum Leap Hollywood Strings virtual instrument is available in three versions: Diamond, Gold, and Silver. And each has a manual slightly different from the other, so it is important that you use the correct version of the manual. This is the manual for the Silver Edition. If you have the incorrect version of the manual, contact Technical Support at EastWest.

Important Note for Users of the Silver Edition

Much of the description of this virtual instrument refers to the full products available as the Gold and Diamond Editions. The Silver Edition is designed as a smaller library for those who want or require a product that uses fewer computer resources. To that end, it contains a small subset of the most useful articulations from the larger editions. Some references to the size of the library are included here to give readers a sense of the scope of the full Gold or Diamond Edition.

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**

You can also visit the EastWest online forums. There you can read comments and questions from others who use EastWest products and post your own. The many forum participants are a good source of helpful information about both the technical and musical aspects of this software.

The address of the forums is:
> **http://www.soundsonline-forums.com**

If you visit the forums to receive support from EastWest (instead of going directly to the support site listed above), make sure you post your support request in the Support forum and not in the General Discussion forum.

PLAY

2. Hollywood Strings, An Overview

Hollywood Strings, An Overview

The Design Point For the Hollywood Strings Library

Hollywood Strings was designed to be the most detailed collection of string orchestra instruments ever assembled. And with their long history of creating virtual instruments, writing and scoring the music for hundreds of actual Hollywood trailers and films, co-producers Doug Rogers, Nick Phoenix and Thomas Bergersen already understood what was needed to create the authentic Hollywood sound.

Another factor in defining the sound of this library is that it was recorded in EastWest Studio 1, formerly Western Recorders and then Cello Studios. The recordings created in this building have, for decades, received more engineering awards than any other studio.

Producers Doug Rogers, Nick Phoenix, and Thomas Bergensen,
with (2nd from left) Sound Engineer Shawn Murphy

The combination of the right producers, an actual Hollywood recording studio, the best mics and other recording hardware available, and string players familiar with the Hollywood sound all came together to capture the authentic sound you can hear in this virtual instrument.

When designing this library, the producers decided to take advantage of the recent advances in computer technology that make possible instruments of greater complexity to achieve more realistic results than libraries of even two years ago. For example, for over

20 years libraries have been recording multiple dynamics for each articulation and layering them to capture the different timbres heard at different dynamic levels. These libraries usually used the MIDI Velocity parameter to select which layer to play back. While this approach achieved excellent results, it meant that typically 2 to 5 distinct layers were available, and timbre could not change mid-note.

Those libraries would use cross-fades for a small number of patches where mid-note changes were beneficial. But they kept the number of those cross-fades small to prevent their greater use of the computer's memory from becoming overwhelming. In Hollywood Strings, the producers greatly expanded the use of cross-fades, both in their numbers and in how many concurrent voices participate in the cross-fades within a given patch. This approach results in instruments that capture the way string instruments can vary the sound during a crescendo or swell, or as the depth of vibrato changes, like a live musician playing an acoustic instrument.

Studio 1 at EastWest Studios, during setup for the Hollywood Strings recording sessions

The EastWest sample player software, known as PLAY, had to undergo a few improvements in version 2.0 to make these larger instruments possible, especially to improve the efficiency of the software when loading and playing back large numbers of samples in a single instrument.

When all these factors come together, they create a virtual instrument of unparalleled detail and power. With almost 2,900 instruments and over 800,000 sample files, the library captures the great variety of sounds possible in a lush string orchestra. (These numbers refer to the Diamond Edition; the Gold Edition numbers are smaller, and the Silver Edition smaller still.) The PLAY Sample engine lets you create performances that will excite your creativity.

Comparison of the Diamond, Gold, and Silver Editions

The Gold Edition is mostly a subset of the Diamond Edition. It is intended for those with smaller or less capable computer systems, and for those looking for most of the features and power of the Diamond Edition but at a smaller price. Here are the differences:

- **Bit Depth:** the samples in the Diamond Edition are 24-bit; those in the Gold Edition are 16-bit.
- **Delivery:** the Diamond Edition is provided on a hard drive; the Gold Edition is provided on a set of DVDs.
- **Mic Positions:** The Diamond Edition includes samples from 5 independent mic positions that can be mixed together to achieve control over both acoustic vantage and spaciousness of the sound; the Gold Edition provides a single mic position.
- **Legato:** The Diamond Edition includes several types of legato transitions, including what's called "Bow Change Legato"; the Gold Edition does not include "Bow Change Legato."
- **Divisi:** The Diamond Edition includes separate samples to accommodate Divisi passages; the Gold Edition does not.

The list of articulations for the two libraries are the same, except as described above.

The Silver Edition has all the attributes of the Gold Edition above, but it has a much smaller set of articulations.

Those with a Silver Edition license can upgrade to the Gold or Diamond Edition license (and receive the extra content) by contacting EastWest. Details about upgrading are also available on the SoundsOnline.com website.

What's Included

This EastWest/Quantum Leap Hollywood Strings library (Silver Edition) you purchased includes all the following:

- a complete set of sample-based instruments, enumerated later in this manual
- approximately 11 Gigabytes of 16-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 (.PDF) format for both the EastWest PLAY System and the EastWest/Quantum Leap Hollywood Strings 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

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.

The Gold and Silver Editions include the following suggestion:

"Because both the size and complexity of many of the Hollywood Strings instruments are greater than in other PLAY libraries, you will likely need an even more capable system than is recommended for those other libraries:

• Intel or AMD quad-core processor, or higher, running at a minimum of 2.66 GHz
• 8 GB of RAM or more
• a 64-bit operating system; and a 64-bit host when running PLAY as a plug-in

Note that this is a recommended system, and is more powerful than the minimum of what is required."

If you're thinking of upgrading at some point to one of the larger editions, you'll need to keep that recommendation in mind. But when using the Silver Edition you can probably follow the recommendations for a minimal system provided in the main PLAY System manual.

Requirements for Sample Storage

The required space on the hard drive for an installation of EastWest/Quantum Leap Hollywood Strings (Silver Edition) is approximately 11 GB (Gigabytes).

3. The Hollywood Strings User Interface

The Hollywood Strings User Interface

Each PLAY 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 the page provides an overview of the entire window in Player View when the current instrument is from the Hollywood Strings library.

Much of this interface is shared by all PLAY System libraries, and the common features are described in the PLAY System manual. The Hollywood Strings-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.

Here are the controls described in this manual (and not in the PLAY System manual):
• Performance
• Round Robin Reset
• Stereo Double
• the graphical representation of the Envelope

Performance

There are six buttons grouped together in the Performance section, together with the Finger Position knob. They include three buttons for turning on and off scripts specific to Hollywood Strings that control performance parameters:

• Portamento
• Repetition
• Legato

A fourth button turns on the sound of:

• Con Sordino

A fifth button lights up to show that one or more of the "hidden scripts" are in effect for this instrument (and the button should not be turned off):

• Other

The sixth button in the group, Round Robin Reset is described in its own section below.

See the section on Performance Scripts, starting on page 21, for information on how to use the three scripts that have user-modifiable parameters: Portamento, Legato, and Repetition. You can also read there about using MIDI control codes to turn these scripts on and off.

When you first open an articulation, there are default settings (On or Off) for each of these three scripts, as chosen by the EastWest sound designers. If you want a different set of defaults, you will need to save the .ewi file that way and load your new version when you need it.

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. This script-based effect is separate from the actual Legato instruments included in Hollywood Strings. For information on how the Legato script compares with the Legato instruments, see the discussion starting on page 40.

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 available with this script, is usually a short, anticipatory movement between the pitches of two adjacent notes. This script-based effect is separate from the actual Portamento instruments included in Hollywood Strings.

Turning on the Portamento script in a phrase is a subtle way to increase a sense of realistic playing.

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. See a more complete description of the repetition script, starting on page 22, for more on how to use this feature.

Other Button

This button controls whether a hidden script is turned on or off. This script, if present, manages some important features of a wide variety of articulations: from scripting that selects the correct staccato sample based on the speed with which notes are played to scripting that manages release trails for legato patches. Do not turn off this button when it's lit (unless you know how that action will affect the audio output). Turning it on when an instrument contains no script has no effect.

Con Sordino Button

The term "con sordino" means "with mute." On string instruments, a mute attaches to the strings near the bridge and dampens the vibration, creating a sound with its higher overtones reduced. Turn on this button to hear the "con sordino" sound.

You can also specify whether "con sordino" is in effect with MIDI CC 15. When this control code is 65 of greater, "con sordino" is turned on; when 64 or less, it is turned off. Use the control code for turning on and off this effect note-by-note during playback. Or use the button instead when it should be always on or always off for any given MIDI track.

Finger Position Knob

In the Gold and Diamond Editions, this knob allows the user to control the string on which a note is played and, therefore, where on the strings the fingers make contact. In the Silver Edition, this knob performs no function.

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

PERFORMANCE
RND ROBIN RESET There's one potential problem with round robin technology, and one 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 main 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.
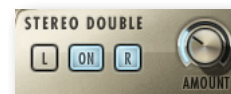
The knob lets the user determine the spread of the signals, how far apart the ear perceives the stereo channels to be. A value of 0% brings the two channels together at the center (unless the Pan knob positions the output differently), and is the equivalent of turning off the controls with the button below the knob. A value of 100% calls for the maximum spread available. Select between the left and right signal with the L and R buttons, respectively.

The Master Button and Pre-Delay Knob in the Reverb Controls

The common features of the Reverb Controls are explained in the main PLAY System manual, but the Hollywood Strings user interface includes two feature not in all PLAY libraries:

The Master Button
When this 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.

When you engage the Master button, PLAY puts up a warning message, as shown above, to remind you that the reverb settings in this instrument will now apply to all instruments in this instance.

The Pre-Delay Knob

Increasing this level delays the onset of the reverb so that the initial section of the sample is unaffected. This feature allows the sound of each attack to maintain its true color while the rest of the note still gains the benefit of the reverb effect.

The Graphical Representation of the Envelope

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.

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 length of 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.

Performance Scripts

The Hollywood Strings Virtual Instrument includes three user-modifiable, 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 string player's finger moves along the string at the beginning or end of a sounding note.

- The Repetition script changes the quality of the notes when a single pitch is played multiple times in quick succession. Although similar to what can be achieved with Round Robin patches, the effect can be used on any articulation, not only those with "RR" in the name.

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

The scripts themselves are not modifiable by the user, but important parameters can be adjusted using MIDI control codes. 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 the Legato script turned off and the other two scripts turned on. 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.
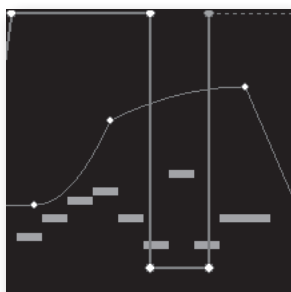
The image at the left shows two envelopes affecting the Portamento script in a host. The nine white horizontal bars are the notes. The light-gray line that jumps from the top to near the bottom and back to the top is CC 65 that turns the script on and off so that only some notes use portamento. The curving 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 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—played with the same articulation, you need to open the same articulation file more than once and turn on the Legato script where appropriate. Of course, the same rule holds for the Portamento script.

Repetition Script

When playing 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 Round Robin patches are one way to fix this problem. The Repetition script solves the same problem in another way. For any articulation, 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 instrumentalist plays every note exactly on pitch and at exactly the notated time?

The producers have selected which of these three approaches will be used for each articulation file—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.

Note that Repetition scripts do not have the equivalent of the Round Robin Reset button to ensure an identical sound every time the same track is bounced to audio. The randomness of the results is a feature. You need to decide how important exact repeatability is when selecting either a round robin patch or the Repetition script.

The Articulations Control and Keyswitches

In the center of the Player view is a control that lists the articulations available in the current window. Often this list is short, containing only the one articulation given in the instrument name, and perhaps its release trails on a separate line. The image at the right shows the control for the 2nd Violins Flautando instrument.

When the current instrument file includes a keyswitch, the list of articulations is much longer. The image at the left shows the control that contains 7 articulations and their 7 release trails (an "RT" in the name indicates it's a release trail).

Each of the main articulations (but not their release trails) includes the name of the keyswitch note at the beginning (for example, the third line indicates that the Sustain Up Bow is turned on with the C#0 keyswitch.

The checkboxes at the left of the control allow you to deactivate any articulation (turn it off while leaving its samples in memory) or, separately, to unload the samples from memory. The small knobs in the third column allow you to adjust the loudness of each articulation without affecting the loudness of the others. In the image at the left, all of the Détaché articulations have been unloaded; the Half Tone Trill articulation has been deactivated.

Remapping Keyswitch Notes

If you want to change which note is assigned to any articulation in the keyswitch, you can do so in this control. Right-click (on a Windows PC) or Ctrl+Click (on a Mac) to open
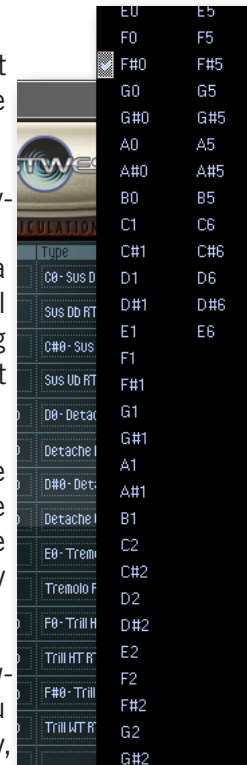
a context menu of all possible keyswitch notes. In the image at the right, the context menu for F#0 Trill WT is shown. The check next to F#0 indicates the current keyswitch note. Click on any other note name in the list to remap the articulation to a different keyswitch note.

In the image at the right, only the center section of the very tall list is shown; it continues to the top and bottom of the screen on the computer monitor.

Here are a few details you need to be aware of when reassigning keyswitch notes:

- If you assign an articulation to a note that is already assigned 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 contains a release trail, you will see it is assigned the same keyswitch note as its main articulation (even though there's no keyswitch note listed). It is important that the main articulation and its release trails be assigned the same keyswitch note. So, when you change one, be sure to change both to the same value.

- 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.

PLAY

4. Instruments, Articulations, and Keyswitches

Instruments, Articulations, and Keyswitches

The EastWest/Quantum Leap Hollywood Strings virtual instrument is a library designed to create string orchestrations of the kind heard in movie soundtracks—but, of course, it can be used for many other types of string music, as well. And it mixes well with other virtual instruments from EastWest/Quantum Leap, so feel free to add in brass, guitars, percussion, voices, whatever you can imagine.

Most of the library contains instruments that capture the sound of the 5 string sections (1st Violins, 2nd Violins Violas, Celli, and Basses) playing in the multitude of articulations strings are capable of. All of this is described in detail later in this chapter.

The following pages include a table that lists each instrument in the Hollywood Strings library. You might want to print out the pages containing this table as a reference.

The Table of the Instruments

The sounds of each instrument are provided in the form of one or more instrument files (with extension .ewi in the Browser view), often representing separate articulations. Within some instrument files may be several articulations that can be selected in one of several ways:
- through the UI
- with keyswitch notes
- by moving the Mod Wheel

Most of the rest of this chapter documents the instruments and articulations for this library.

The Orchestral Sections
The Hollywood String orchestra, like most large string ensembles, comprises 5 sections:
- 1st Violins
- 2nd Violins
- Violas
- Celli
- Basses

A Note on Dynamics in Hollywood Strings Instruments
As discussed in multiple places within EastWest manuals, there are several ways you can affect how loudly an instrument is playing:

- MIDI Velocity
- Volume, CC 7
- Expression, CC 11
- the Mod Wheel, CC 1

Hollywood Strings includes a lot of instruments that rely on cross fading between samples instead of selecting which sample to play based on the MIDI Velocity parameter of each note. And these cross-fades can be controlled by the Mod Wheel, or CC 11, or both at once. Such an approach gives the composer much more in the way of continuous control over both the loudness and the timbre.

The descriptions below sometimes specify that, for example, the instrument does not respond to MIDI velocity, or that you should use a specific approach when controlling dynamics and timbre. In general, if you find that an instrument is not responding to one of the ways of specifying loudness, even in instruments where it's not mentioned, investigate using other means to get the dynamics you're looking for.

"Niente" Instruments

These instruments have the abbreviation "Ni" near the end of the file name. All these instruments allow you to take the loudness down to zero, or, to use the Italian musical term, "*al niente*."

Overview of the Instruments in Hollywood Strings

The following table lists the instrument files available in each of the 5 orchestral sections. A check mark indicates that the section includes a .ewi file as named at the left of the row.

When one section does not include an instrument or articulation you're looking for, you may be able to try one of the following approaches to get an approximation of the sound you want:
- Use that same patch from a different section. You may be able to mask differences in timbre with the use of EQ, and/or by doubling with a different patch from the correct section.
- Use a similar patch from the correct instrument. Then experiment with changing the AHDSR envelope and/or other parameters to bring the sound more into line with the sound you want.

You may find that the sound is close enough to what you wanted in the first place that no one will notice, especially in the middle of multi-part writing.

INSTRUMENT OVERVIEW: SILVER EDITION

	1st Vns	2nd Vns	Violas	Celli	Basses
Sus 2 NV VB	✓	✓	✓	✓	✓
Sus 2 VB VB	✓	✓	✓	✓	✓
Flautando		✓			
Harmonics		✓			
Col Legno RRx4					✓
Marcato Short RRx4	✓	✓	✓	✓	✓
Pizzicato 3 RRx4	✓	✓	✓	✓	✓
Spiccato RRx4	✓	✓	✓	✓	✓
Staccato Slur	✓				
Tremolo 2	✓	✓	✓	✓	✓
Tril 2 HT					✓
Trill 2 HT WT	✓	✓	✓	✓	
Legato Slur LT 3 Ni	✓	✓	✓	✓	✓

Instrument Types

The following paragraphs explain some of the various types of instruments (.ewi files) available in Hollywood Strings, Silver Edition. The principles described here apply across all sections from 1st Violins to Basses.

Sustain

Sustain instruments (abbreviated "Sus" in the table) continue to play a note audibly as long as the note is held; this is achieved by looping the samples. They are a good choice for slow-moving lines that need a consistent sound no matter how long the notes are held.

The Sustain instruments give you control over the vibrato. In one patch per orchestral section, the vibrato varies between:
- non-vibrato (abbreviated NV)
- vibrato (VB)

In the Silver Edition, loudness and vibrato depth are linked in the articulations with "NV VB" in the instrument name: as the loudness increases, so does the amount of vibrato. And it is the Mod Wheel—not the MIDI Velocity—that determines how loud the notes are played and how much vibrato is played. This linking of dynamics and vibrato is common in some styles of playing.

In contrast, the "Sus 2 VB VB" uses vibrato over the whole range of loudness (still controlled by the Mod Wheel, not MIDI Velocity).

Legato Slur

The Legato Slur patches are sustained notes that also provide a true legato sound, including a subtle slur between notes when the phrase satisfies two criteria:

- There is no significant time delay between the end of one note and the start of the next. To be sure you get a slur between notes, you can overlap the MIDI notes and the monophonic behavior (see below) will terminate the first note just as the second note starts.
- The interval between the notes is no more than an octave. A jump from A4 to A5 generates a slur, but not when the jump is from A4 to A#5.

Note that the "slur" is not a full glissando that covers every pitch between the played notes. It conveys the sound of the finger beginning to move toward the next note and then jumping there. As such, it captures the sound of real instrumentalists playing a legato phrase.

By default, this patch is monophonic. By allowing only one note to play at a time, PLAY makes sure that there is no ambiguity about what two notes should have a legato transition between them.

It is possible to turn off the monophonic behavior with MIDI Control Code 22. When in the top half of its range, 64–127, the controller preserves the default behavior. But whenever CC 22 is in the range 0–63, polyphonic behavior is turned on. You do need to listen to the output carefully to see whether there are unwanted legato glides between notes in different polyphonic voices. If so, one remedy is to move those two voices to separate MIDI tracks.

Flautando

Only the 2nd Violins include a Flautando patch. You may find, though, that the Sustain patch in other sections, when played **𝑝𝑝** with no vibrato (*i.e.*, with the Mod Wheel pulled all the way down), achieves a similar sound.

This is a style of string playing that uses the point of the bow above the fingerboard to create a breathy, ethereal, non-vibrato sound with a flute-like quality.

This instrument does not include control of finger position or vibrato, nor does it include round robin samples, as do the other instruments mentioned earlier in this section.

Harmonics

Only the 2nd Violins include a Harmonics patch. This high and whistling sound is generated when the light touch of a finger at a harmonic node (for example, at exactly half, a third, or a fourth of the sounding length of the string) causes the bowed string to vibrate at a natural harmonic of the fundamental tone.

In Hollywood Strings, all harmonics are two octaves above the fundamental, meaning that the lowest note to sound is G4, two octaves above the open G string, G2.

This instrument does not include control of finger position or vibrato, not does it include round robin samples, as do some instruments mentioned earlier in this section.

Pizzicato

Pizzicato is the act of plucking one or more strings at a time to create the characteristic sound. Although the sound is very brief it can have the power to cut through the loudest of orchestrations.

All 5 sections include a Pizzicato instrument. In each case, it is a round robin instrument with 4 distinct samples for each note. In the instrument names, "RRx4" specifies that there are 4 distinct samples are in the round robin.

The Pizzicato instruments do not include release trails.

Col Legno

With this style of playing, the bow strikes the string with the wood (instead of the horse-hair) and immediately bounces off. This causes a percussive and distinctive sound of short duration. Col Legno is Italian for "with the wood."

This is always a Round Robin instrument with 4 sets of samples in rotation.

The Col Legno instrument does not include release trails.

Marcato

When used in a score, the term "marcato" indicates that every note is to be accented. This articulation contains notes of a short duration that begin with a strong accent.

This is a Round Robin instrument with 4 sets of samples in rotation.

Spiccato

In this style of playing, notes of very short duration are created by bouncing the bow so that it is in contact with the string for a very short time.

This is a Round Robin instrument with 4 sets of samples in rotation for the Spiccato patch.

Staccato Slur

Present only in the 1st Violins, this patch generates a bit of a slur between short notes in a phrase. And the script that is part of this patch makes sure that the slur occurs only when the time that passes between consecutive notes is relatively short. This patch is intended to create fast runs, emulating the sound of the finger staying on the string for a moment as it begins its movement to the next note in the run.

Tremolos

A tremolo is a rapid back and forth of the bows on the string, creating multiple very short notes of the same pitch. This is an unmeasured tremolo, meaning that the tempo of the piece has no effect on how fast the bows change direction.

The loudness of this patch is controlled by the Mod Wheel, not the MIDI Velocity parameter.

Trills

A trill is the rapid alternation between 2 notes either a half tone or a whole tone apart. On a string instrument, the two notes are played on the same string.

All the string sections (except the Basses) include an instrument that allows the user to select between a half tone trill and a whole tone trill with a keyswitch: Play C0 in advance of the trill to get a half tone trill, or C#0 to get a whole tone trill. The Trill instrument for the Basses includes only a half tone trill.

The loudness of this patch is controlled by the Mod Wheel, not the MIDI Velocity parameter.

5. Orchestral Technique in Hollywood Strings

Orchestral Technique in Hollywood Strings

This chapter discusses ways to use EastWest/Quantum Leap Hollywood Strings to achieve the traditional sound of a studio string orchestra. The first section is advice from the producers about setting up templates.

Setting Up Templates

An ideal way to work with a string orchestra of this size is to set up templates once you have gotten to know the sounds and how all the features of PLAY work. You might, for instance, have a comedy template that has a lot of staccato articulations, pizzicato, and percussive string playing (such as col legno); and/or an epic template that has a lot of legato ensemble programs. Obviously, the more computers you have and/or the more capable the computers, the bigger your templates can be.

One thing to keep in mind when setting up a template is that you should always try to keep articulations that might use the same samples in the same instance of PLAY. For example, the MOD Combo called
• 1st Violins Spic Marc MOD.ewi
uses the same list of samples as these two:
• 1st Violins Marc Shrt RRx4.ewi
• 1st Violins Spic RRx9.ewi
Therefore, if you open the first instrument and either of the two (or even both), you're not loading any extra samples beside what is in the first one, <u>as long as they're in the same instance of PLAY</u>.

Likewise, keyswitches load the same patches as the referenced individual patches. Therefore, if you open both, it's best to open them in the same instance.

Once you have decided on what patches will go inside your template and have made sure they will all fit into your available RAM, you should load everything and save the setup for each instance of PLAY to its own .ewi file or, if you have multiple instances of PLAY loaded inside a sequencing program or VST host, it is as simple as saving the sequence or VST host file. This will remember everything inside. If you are using multiple computers, make sure you have created a track in your sequence for every program on every computer.

One last thing to consider when deciding which computer will load which sounds is the amount of work each computer will have to do. Make sure to spread the sounds that you use most onto different computers so one computer doesn't end up carrying a majority of the load.

Remember that if you're running Hollywood Strings on more than one computer concurrently, you will need an iLok security key and a license for each computer.

The next stage is crucial and highly subjective. EWQLSO responds to two different volume controllers: CC7 (volume) and CC11 (expression). It is highly recommended you record a CC7 message at the beginning of every track. Spend some time to set the initial volume of every track at a level in natural balance with the rest of the orchestra. This is tricky and will never be perfect, but the more time you spend the less hair you'll lose later. If you will be using Hollywood Strings exclusively, the balance of section is easier than if you're bringing in other, non-string instruments. If, for example, you're using the winds and percussion of EWQLSO, then start by playing the timpani, horns, and big string ensemble really loud and at the same time; that will give you a reference of what the loudest passages will be like. Together, they should be at least 3 db below 0. Then adjust the other instruments to blend with these loudest instruments.

It's recommended you not use MIDI volume (CC7) for any other purpose than this initial volume setting. Use CC11 to change volume and breathe life into your compositions. This way, CC7 acts as a limiter and keeps everything from getting out of whack. Also, you can easily change the prominence of an entire track in the mix by adjusting this single CC7 level at the start of the track.

At this point, you should save the sequence before moving on. Then go to your matrix editor (or whatever it's called in your sequencer) to set up windows that display CC7, CC11, and CC1 (Mod Wheel) information. You will be editing these last two a lot, so it's a good idea to make these windows easy to access. Save your templates and you're ready to go.

Opening Multiple Instances of PLAY

With the PLAY 2 software, it's possible to open more than one instrument in each instance you run—and this is true whether running PLAY in standalone mode or within a host. But there are often compelling reasons for spreading instruments across multiple instances. (An "instance" is each open window running PLAY. So, if, for example, you see exactly 3 PLAY windows inside your sequencer—or on your desktop when running standalone—then you have opened 3 instances.)

The main reason for opening the PLAY software more than once—especially when using PLAY as a plug-in within a sequencer or other host—is to be able to take full advantage of the multiple cores available in today's high-end computers. If, for example, your computer's CPU has 4 cores, then each of the 4 cores can be independently running separate parts of the software, each part called a "thread."

Sequencers typically assign all the processing in any given instance of a plug-in to a single core. So, in one case, if you load all your instruments into a single instance of PLAY, the work of running all those instruments will be restricted to a single core, which is less efficient than spreading the work across all the cores. But, in another case, if you create at least as many instances of PLAY as there are cores in the CPU, the sequencer

can assign the instances across all the cores, which most likely means you can open more instruments and play them back without problems.

As a general rule, if you're using more PLAY instruments than you have cores in your computer, then it's best to open at least as many instances as you have cores. Let's say you have a 4-core computer and are planning to open 10 PLAY instruments. You could open 4 instances of PLAY and spread out the patches 3, 3, 2, and 2 per instance. Or you could open 10 instances with one instrument each. Or some arrangement in between. The exact arrangement that's best for you depends on which instruments, how consistently each is heard through the piece, the complexity of the instruments (cross-fades are often using more CPU resources at once than other patches), and other factors. If you come up with an arrangement in which each instance is using about the same number of voices as the other instances, then you're likely using your instances efficiently.

Prepping the MIDI Controllers

It is recommended that you tell PLAY what MIDI Control Codes to look for by sending some Control Code messages after loading the patches and before the first notes are played. When playing live, that can mean tweaking each of the knobs, sliders, and wheels enough to send some data to PLAY. In a sequencer, you can draw a short sloped envelope for each controller before the first notes. This advice applies to the Mod Wheel (CC 1), CC 7, CC 11, CC 22, and any other Control Codes in your project.

Creating a Soundscape

Whether listening to an orchestra live on a stage or from a stereo recording, we're all used to hearing the sounds of the various instruments coming at us from different directions. In a traditional symphonic layout for the strings, we expect the violins to be on our left, and the cellos and basses on our right. There are two reasons we might want to continue this practice. The first is to trick the listener's ear into perceiving a recording of a live performance. Even when everyone understands that the piece was created inside a computer, emulating a traditional sound can have its benefits. The second reason is that it's easier for the human ear to hear two similar sounds as separate when it perceives them as arriving from different locations. If the second violins and the violas are doubled, or even playing an octave apart, they will stand out from each other better when they seem to be in separate locations in the soundscape that surrounds us.

Panning

As was done with EastWest's ground-breaking Symphonic Orchestra, Hollywood Strings is different from most other collections of orchestral samples in that the panning of the various instruments to the traditional locations on the sound stage is built in to the stereo samples. The double basses, for example, are already louder in the right channel. Therefore, one can leave the panning level at "center" for all instruments and they will be correctly placed on the stage in the final mix. Of course, if you want to adjust the panning to achieve your own sound and/or a non-traditional placement of instruments, that can be accomplished either in the PLAY interface or in the host sequencer.

ADVANCED: The previous paragraph has one exception: the Close microphones. These samples were recorded with the stereo mics directly in front of each instrumental section. The Close mic articulation uses the Pan control to move the playback of those samples to the same perceived space as the Main, MId, and Surround samples. The diagram at the right shows the 4 microphone-specific Pan controls for one of the Double Bass articulations. The bass players sits on stage way to the audience's right. This image shows the way the file opens with no user changes. Note that the Main, Mid, and Surround Pan controls are in the center because those samples were recorded with the stereo mics centered at the center of the studio; no panning adjustment is necessary. The Pan control for the Close mics (at the far left) is turned to the right so that when all four sets of samples are played together the sound cues position the basses in a consistent location.

The "spread" of the sections in Hollywood Strings is smaller than in Symphonic Orchestra. If you want a wider feel, you can pan the instruments a little to achieve that effect.

Note that the natural panning within the Hollywood Strings samples has one subtle feature that reverb plug-ins do not offer: correctly timed reflections from all surfaces. To understand this concept, consider a double bass player who is 5 meters from the wall to our right and 45 meters from the wall to our left. We are seated half way between the walls. The reflection from the right wall, which will be louder in our right ear, travels 30 meters (5 plus 25); the reflection from the left wall, louder in our left ear, travels 70 meters (45 plus 25). That 40-meter difference means that the reflection arrives in our right ear approximately one-ninth of a second sooner than in our left ear, a significant difference. And the other instruments all have their characteristic left/right delay based on where they sit on the stage. It is impossible for a single digital reverb to achieve that level of realism.

Proximity Clues

Panning left or right is not the only way to separate instruments. It is also possible to move them forward and backward. This can be achieved in three ways:

1. Dynamics relative to timbre
2. Delay
3. Presence

1. When most musical instruments change from being played louder to softer the timbre of the sound changes. Even if you let someone else adjust the volume control on your stereo, you can still tell whether the cello you're hearing was played loud or soft based on the instrument's tone; most instruments have a harsher sound when played louder. So, in an orchestral mix, if the cellos seem to be played loud, but the volume level of that instrument compared to others is softer, then the ear assumes the cellos are farther away. Adjusting independently the timbre—with velocity parameters and/or a cross fade using the Mod Wheel or CC 11—and the volume of the sound, you can move individual instruments forward or backward.

2. Because sound travels at a fixed speed of approximately 340 meters per second (1100 feet per second), the ear uses very small time delays to judge relative distance. If two violins play pizzicato notes simultaneously, and one is 15 meters (50 feet) further away, the note from the more distant violin arrives 0.044 seconds later. That's about one twenty-third of a second, a short time but noticeable to the ear. It's very easy in a sequencer to delay a track by a specific time—either with a Delay plug-in or by shifting the notes in the sequencer's Piano Roll view—and thereby achieve this effect.

3. As discussed in the section covering the 5 mic positions, the farther you are from an instrument in a concert hall the more the natural reverberation of the hall contributes to what you notice. (You still hear the echoes from the walls when you're close by; you only notice them less because of how loud the instrument is. It's harder to hear the crinkle of a cough drop wrapper standing near a roaring jet engine than in a hushed concert hall, even though the wrapper makes the same sound.) This "presence" of the sound is another distance clue. Mixing in more of the Close samples for an instrument makes it seem closer to the listener.

By combining all three principles, you can achieve quite convincing front/back positioning in your string orchestra mix. Giving the ear contradictory signals can confuse it, achieving either a good or bad effect, depending on your intentions.

And then, of course, there's multi-channel surround sound, but that discussion is out of scope in this section.

Volume, Velocity, and Expression

There are at least three ways to make a sampled instrument sound louder, or at least make the real instrument seem to have been played louder. The skilled MIDI orchestrator uses all three.

Volume is just the loudness of the generated sound. Changing volume is basically the same as turning the volume knob on your audio system. The violas played softly can be cranked up; a loud cello section 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. Even un-natural sounds can be created, such as a crescendo for a single pizzicato note.
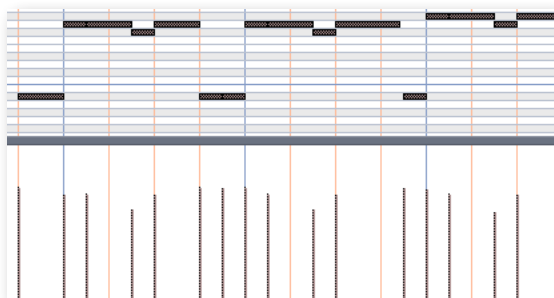
And, as with a live orchestra, the various instruments are changing their loudness independently, something you cannot do with the stereo's loudness knob.

Velocity, a term based on how strongly a keyboard player hits the keys, controls how forcefully the note is played. 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 here. In the current implementation of MIDI, velocity is usually designated by a number between 0 and 127. Many software sequencers display velocity as vertical bars, something like those at the bottom of the image above.

Most modern sample players, PLAY included, can play different samples for different ranges of velocity. For example, the team creating the samples record Middle C with the violin section for *pp*, *p*, *mp*, *mf*, etc. The team then assigns the *pp* samples to, say, velocities 0–25, the *p* samples to velocities 26–45, and so on. Because each dynamic level of a violin has its own timbre, a note's velocity can affect 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 loudness and velocity together gives the orchestrator more control over all aspects of 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 code (CC7); it can be transmitted at any time.

Expression is represented by another MIDI control code: CC11. The usual way to use CC11 is for continuous control of the loudness. That is, while Velocity cannot change mid-note, and it is recommended that CC7 be set only once at the beginning of the piece—or at least only at the start of major sections—CC11 can provide the kind of dynamic shaping of notes that give music its expressive life (hence the name "Expression" for this Control Code). Use it to create swells in the middle of a note or of a phrase. With CC11, you create the crescendos and fluid dynamics of expressive music.

In Hollywood Strings, CC11 is often used to control cross-fades—especially when the Mod Wheel is already being used to control some other aspect of the notes, such as the depth of the vibrato. In these cross-fades, CC11 still provides the same continuous control of loudness that was described above, and it also controls timbre. In such a cross-fade, Velocity is usually turned off; that is, the selection of which dynamic layer should provide the samples is taken away from Velocity.

In a CC11 cross-fade, all the dynamic layers (for example, *pp*, *mp*, *mf*, and *ff*) play at once and CC11 controls how much of each to mix into the output. In this approach both the loudness and the timbre change continuously and together, giving a much more realistic sound. You will generally find CC11 cross-fades on those Hollywood Strings instruments that can benefit from mid-note changes in dynamics because they are often held for long times.

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 the movements of the knob or slider and save them as part of the project. Such manual and real-time control over the shape of an instrumental line is usually more efficient than drawing in an envelope, and often achieves more convincing results.

EastWest's choice to use CC11 allows CC7 (volume) to be used in other ways. The usual convention is to use the volume slider in your sequencer to adjust the overall volume level of each track in the mix.
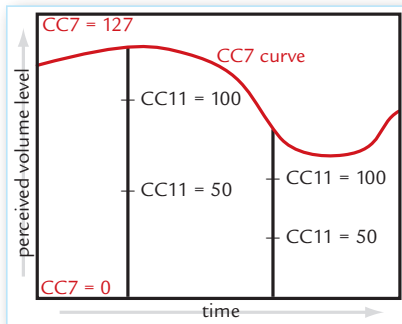

Although the volume and expression controls can be adjusted separately, the volume setting does change how expression affects perceived volume. Think of CC7 as setting an upper limit on the dynamics at any moment. Expression, like most continuously changeable values in MIDI, takes values between 0 and 127. CC7 specifies how loud a sound to generate for the maximum expression, 127. The diagram seen here shows that when volume decreases the fixed changes in expression represent smaller changes in perceived loudness. Changing from an expression level of 50 up to 100 represents a smaller change in loudness when the volume control (CC7) is reduced.

MIDI Envelopes and Control Data

Most modern sequencers let you draw an envelope for MIDI control codes. The diagram below with the yellow curve is an example of an envelope for CC11. Notice how the values are constantly changing, the same way a cello player adds musicality and interest to a phrase by changing the bow's pressure on the strings moment to moment. (The dark horizontal lines near the top are the notes.)
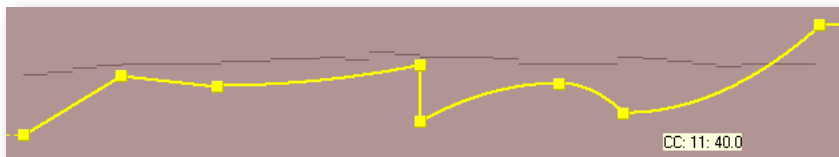
When saved as MIDI data, this same envelope appears as a finite set of commands, as in the next image. In a sequencer track, these often appear as vertical lines, each line being a command to change the value—in this case to change CC11.
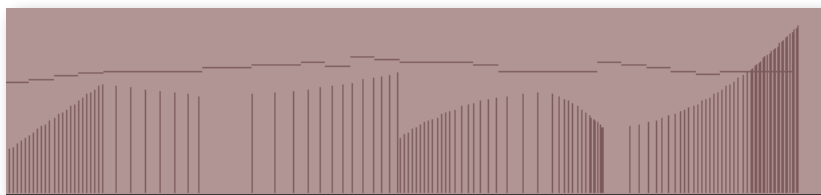
The other way—and many say it's the better way—to send CC11 events to the sample player is with a MIDI controller, either a keyboard or a control surface. As long as you or your group has an extra hand—or foot, if you use a pedal—you can enter these control codes while playing the notes into the sequencer. 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 an instrumentalist 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.

Using Cross-Fades

Hollywood Strings makes extensive use of cross-fading, more than any EastWest library that was created before it.

The basic idea of a cross-fade is that 2 or more samples of the same instrument—but that differ in some aspect, such as loudness, timbre, and/or vibrato—are played back simultaneously. And the mix of how much of each sample makes it into the audio output is controlled by some MIDI control code. Traditionally, that has been Control Code 1 (the Mod Wheel). Hollywood Strings uses these Mod Wheel cross-fades even more often and now with a second option: Control Code 11 (Expression).

Part of the reason for using more cross-fades is that they provide a more continuous and gradual change from one sound to another. Also, they modify timbre along with loudness, even mid-note, just like an acoustic instrument. And a third reason for using more cross-fades in this library is that recent improvements in hardware and software make this much more realistic approach possible.

In Hollywood Strings, look for cross fades in articulations that can be sustained, such as
• the basic sustain programs
• tremolos
• legato instruments
• the sustained notes in playable runs
and also instruments where you can move between 2 or more short articulations, as in the MOD COMBOS folders.

Directing the Audio Output

The output from PLAY is one or more stereo audio signals. The image at the right shows 9 stereo pairs of outputs in the drop-down list from the Master Output control. Each instance of PLAY has its own outputs separate from those of every other instance.
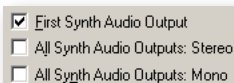
If you are using PLAY as a plug-in in a host, you can usually specify whether you want the output audio to be captured in a single track or maintained as separate tracks. The image at the left shows how one sequencer (Sonar) gives you a choice. The first checkbox creates a
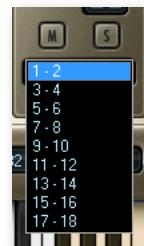
single track to hold all the audio output (with the assumption it will be the first stereo pair: "1-2"). The second checkbox creates 9 audio tracks, one for each of the stereo pairs in the drop-down list shown at the right. The third creates 18 mono tracks, in case you want to keep the left and right tracks separate. See the documentation for your sequencer to learn how that selection is made in the host software you use.

If you've selected to set up a single track to hold all the audio output from one instance of PLAY, and you open multiple instruments in this instance, then all the instruments will be mixed in the PLAY audio engine and written to the track as a single stereo signal.

If, instead, you've selected to set up multiple tracks, then you can select the track for each individual instrument and possibly each individual microphone position. Outputs that share the same channel are mixed in the PLAY audio engine and written out as a single track. Outputs on different channels are written independently to different sequencer tracks, and available to be mixed within the sequencer at a later time.

ADVANCED: Note that the sequencer may be able to generate a monophonic track from the stereo output, but that will happen in the sequencer; PLAY always outputs a stereo signal. See the sequencer's documentation if you want to generate a monophonic track.

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