PLAY

Quantum Leap Silk
Virtual Instrument

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 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 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: Nick Phoenix

Nick 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. "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. Nick and Thomas Bergersen founded the ultimate trailer music company "Two Steps From Hell" in 2006. www.twostepsfromhell.com.

Nick has also scored numerous TV shows for NBC, CBS, Showtime, and Fox.

The journey as a composer has also 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 10-year partnership with Doug Rogers and East West has yielded countless award winning software titles such as Stormdrum, Symphonic Orchestra, Symphonic Choirs, RA, Voices of Passion, Ministry of Rock, Gypsy, QL Pianos, QL Silk, VOTA, QL Brass, QL Guitar and Bass, Hardcore Bass, Goliath, and Colossus.

Nick's studio is located in Venice, California, and is 100% solar powered.

www.nickphoenix.com

Credits

Producer

Nick Phoenix

Executive Producer

Doug Rogers

Engineering and Mastering

Nick Phoenix

Programming

Justin Harris and Nick Phoenix

Editing

Pierre Martin, Justin Harris, and Nick Phoenix

Art Direction

Steven Gilmore, Nick Phoenix, and Doug Rogers

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

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%.

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 Quantum Leap Gypsy 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 Gypsy library manual and the PLAY System manual open in separate windows so you can refer to them both.

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

PLAY

2. Quantum Leap Silk, An Overview

Quantum Leap Silk, An Overview

The Design Point For the Silk Library

Quantum Leap Silk was conceived as an extension of Quantum Leap RA. It gives users access to rare instruments from across Asia played masterfully by renowned artists. And in conjunction with the PLAY Advanced Sample Engine, it provides users with the means to create authentic and realistic sounding performances of Asian music—or to mix these sounds in inventive ways with music from other cultures.

Extensive scripting capabilities, the access to microtuning, built-in convolution reverb, and the many other features that the PLAY System provides all combine to give the user unparalleled control over the end result.

With its included microtuning and the many examples of actual recorded phrases characteristic of each instrument, Quantum Leap Silk can even teach users how to write for these instruments to achieve authentic-sounding music from these cultures.

All instruments featured in Silk library are multi-sampled with extreme attention to detail, offering the maximum in expression. Quantum Leap Silk contains a large number of articulations, interval sampling (where appropriate), round robin technology (alternate samples), legato scripting, and recorded phrases to give the feeling of smooth effortless performance—like silk.

Quantum Leap Silk was recorded at East West Studios and Capitol Studios. Each musician who played at those sessions is a master of his instrument, providing the best and most authentic sound available. This library also allows users to adapt the instruments using dozens of useful microtunings in the key of their choice. This microtuning system—which it shares with its sister library, RA—is the first of its kind, and is a true breakthrough for the PLAY Engine.

Make sure you try creating music that brings together the ethnic sounds of RA and these patches from Silk to see how well they complement each other. They share the same set of digital controls, the same collection of microtuned scales, the same reverb settings, and the same 64-bit PLAY acoustic engine (compatible with 32-bit environments); therefore, they mix seamlessly and beautifully to achieve a consistent sound.

Nick Phoenix, Producer
QUANTUM LEAP

The Instruments in Quantum Leap Silk

The tables that follow provide a brief but complete listing of all 25 instruments available in Quantum Leap Silk. For a listing of all the available articulations for each instrument, go to Chapter 5, which starts on page 30.

CHINA		
Bawu (Wind)	Jin Hu (Bowed String)	Xiao (Wind)
Dizi Large (Wind)	Pipa (String)	Yangqin (String)
Dizi Small (Wind)	Sheng (Accordion)	Zhung Hu (Bowed String)
Erhu (Bowed String)	Suona 1 (Brass)	
Guzheng (String)	Suona 2 (Brass)	

INDIA		
Bansuri (Wind)	Dilruba (Bowed String)	Tanpura (String)
Breath	Sarod (String)	

PERSIAN EMPIRE		
30pc String Section (Bowed String)	Kemenche (Bowed String)	Tar (String)
Duduk (Wind)	Nay Flute (Wind)	
E Cello (Bowed String)	Qanun (String)	

What's Included

This Quantum Leap Silk library you purchased includes all the following:

- a complete set of sample-based instruments, enumerated later in this manual
- approximately 25 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 Quantum Leap Silk 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. In addition, the available space on the hard drive required for a full installation of Quantum Leap Silk is approximately 25 GB (Gigabytes).

3. The Quantum Leap Silk User Interface

The Quantum Leap Silk 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 the page provides an overview of the entire window in Player View when the current instrument is from the Silk library.

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

- Performance
- Round Robin Reset
- Stereo Double
- Filter
- Microtuning
- ADT
- the graphical representation of the Envelope

Performance

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

- Portamento
- Repetition
- Legato

The fourth button in the group, Round Robin Reset, labeled as "rr reset," is described in its own section below.

See the section on Performance Scripts, starting on page 16, for information on how to use these three scripts.

When you first open an articulation, there are default settings (On or Off) for each of the 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.

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 instruments that are not restricted to playing notes of any specific scale, such as where bending of notes is possible.

Turning on portamento 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.

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.

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 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% call for the maximum spread available. Select between the left and right signal with the buttons on either side of the knob.

Filter Controls

The Filter controls take the sound of the instrument, and modify it by filtering out some of the sound above a certain frequency. This type of effect is commonly called a Low Pass Filter.

The Frequency knob determines where the sound starts to be filtered out. The Resonance knob specifies how much the filter "rings" at the dialed frequency. The higher the resonance knob is set, the more focused this ringing becomes.

The graph gives you visual cues about the frequency distribution you are creating with the settings you select.

Microtuning Controls

The instruments in Quantum Leap Silk have origins all over the Asia. Silk makes it easy to incorporate the various scales from these disparate cultures in your music to provide an authentic feel. Note that the same scales are provided in Quantum Leap RA, making it easy to combine the instruments from the two libraries.

There are two Microtuning controls. The one at the left is a drop-down list of all the scales available in Silk. At the top of the list is "Western," which tunes the 12 notes in each octave to the traditional scale heard in all the other libraries; this choice, in effect, turns off microtuning. The other options in the list adjust the pitch of some—or all—of the 11 non-root notes to achieve the characteristic sound of the chosen scale.

The control at the right is another drop-down list of the 12 note names. This choice tells the PLAY engine which note is the lowest note in the scale, called the "root." All intervals for the other scale notes are relative to this fixed pitch.

In Silk there are dozens of scales available that can be rooted to any of the 12 keys. This makes them very flexible. There are 2 types of scales available.

- Scale Type 1 includes all 12 notes in the octave and applies microtuning to all the notes.

- Scale Type 2 limits the notes that you can play in the octave, giving you the authentic scale intended. Microtuning is also applied. When you play notes that are not in the intended scale, only correct notes are heard. This is a great feature which helps the user to quickly learn about ethnic music in general. Also, the notes that are not part of the scale are doubles or alternate takes for the notes that are part of the scale. Alternate takes make this approach a useful way to play interesting repetitions.

ADT Controls

Artificial Double Tracking is a technique, invented at Abbey Road when the Beatles were recording there, that approximates the effect of double tracking (recording two nearly identical takes of a vocalist or instrument on the same part and laying one on top of the other) without actually taking the time to record two takes. And some would say ADT improves on actual double tracking even beyond the savings in time. The original ADT process was based on magnetic tape; in the PLAY Engine, the effect is created digitally. The software program-

mers, however, added a tape simulator to mimic the slight speed variations of the two analog tape machines that created the ADT effect.

The **Delay** knob specifies in milliseconds, the delay between the original signal and the secondary signal. A delay of around 40 ms is typical, so is often a good starting point when crafting a specific effect.

The **Depth** knob specifies the amount by which that delay is modulated. You don't want a exactly consistent delay; the delay of the secondary signal will vary forward and backward in time by this much.

The **Speed** knob varies the speed at which that delay is modulated.

The **Level** knob specifies the relative loudness of the secondary signal. Set it to 0.0 dB to hear the effect at its strongest, with the same level on both signals; higher or lower gives preference to one of the signals. The overall effect depends on their combination.

The **On/Off** button allows you to kill the ADT effect instantly and then reinstate it with the same settings, as needed.

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 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 Silk Virtual Instrument 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 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 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 the Portamento 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.
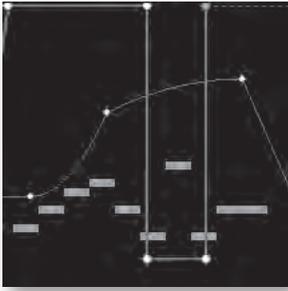
The image at the left shows two envelopes affecting the Portamento script in a host. The nine white horizontal bars are the notes. The light-gray line that jumps from the top to near the bottom and back to the top is CC 65 that turns the script on and off so that only some notes use portamento. The curving 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.

PLAY

4. The Quantum Leap Silk Instruments

The Quantum Leap Silk Instruments

This chapter describes briefly many of the instruments that have been sampled for this library. Here you can learn about the history of these instruments and the kinds of music they have traditionally been called on to play.

The descriptions are grouped by region—China then India, followed by the Persian Empire. Within each region the instruments are listed alphabetically. The page number at the end of each section is a link. Click on it to be taken to the table where the articulations are listed in a table.

The Instruments of China

Bawu

The bawu is a Chinese wind instrument. Although shaped like a flute, it is actually a free reed instrument, with a single metal reed. It is played in a transverse (horizontal) manner. It has a pure, clarinet-like timbre and its playing technique incorporates the use of lots of ornamentation, particularly the bending of tones.

Although the bawu likely originated in the Yunan province of southwest China, it has become a standard instrument throughout the country, used in modern Chinese compositions for traditional instrument ensembles. It is typically used as a solo instrument, and is often featured in film scores. It is sometimes also heard in popular music recordings.

The articulation files are listed in tables starting on page 34.

Dizi

The dizi is a Chinese transverse flute, widely used in many genres of folk music, as well as Chinese opera and the modern Chinese orchestra. Traditionally, the dizi has been popular among the common people of China, partly because it is simple to make and easy to carry. Most dizi are made of bamboo, hence the informal name "Chinese bamboo flute."

The articulation files are listed in two tables: the large dizi starting on page 34 and the small dizi on page 35.

Erhu

The erhu is a kind of violin (fiddle) with two strings. Together with zhonghu, gaohu, sihu, and so on, it belong to the huqin family. Dating back to the Tang Dynasty (618-907), it may have developed from the xiqin, which has its origin in a Mongolian tribe named the Xi. During the Song dynasty (960-1279), the second generation of the huqin family was among the instruments played at imperial banquets. During the Ming and Qing Dynas-

ties (1368–1911), the erhu underwent a great development during what was the golden age of the local operas.

Two famous artists Hua Yanjun (1893-1950) and Liu Tianhua (1895-1932) made an exceptional contribution to the improvement of the erhu, and it was indeed due to the latter that the erhu, an instrument mainly for accompaniment in opera, becomes a solo instrument. After the foundation of People's Republic of China (1949), the manufacture of the erhu, its playing techniques, its repertory, and the musical education of this instrument have undergone an unprecedented development. The repertory has grown rapidly to the point where the erhu has become one of the most popular instruments in China.

The resonating body of the erhu is a small drum-like case, usually made of ebony or sandalwood and snake skins. The case most often has a hexagonal shape with a length of approximately 13 cm. The front opening is covered with skin of a python and that of the back is left open. The function of this case is to amplify the vibrations of the strings. The neck of the erhu is about 81 cm long and is manufactured with the same materials as the drum. The top of the stem is bent for decoration. The two strings of the erhu are usually tuned D and A. The two tuning pegs are found close to the end of the stem. There are no frets and no finger board. The player creates different pitches by touching the strings at various positions along the neck of the instrument. The strings are usually made of silk or nylon. Nowadays, metal strings are commonly used. The bow is 76 cm long and is manufactured of reed which one curves during cooking; it is then arched with horse hair in the same way as the bow of a violin. However, in the case of erhu, the horse hair runs between the two strings; in other words, one cannot separate the bow from the instrument without removing a string.

The articulation files are listed in tables starting on page 36.

Guzheng

The zheng is a plucked string instrument that is part of the zither family. It is one of the most ancient Chinese musical instruments according to the documents written in the Qin dynasty (before 206 BCE). It is the forerunner of the Japanese koto, the Korean kayagum, Mongolian yatag, and Vietnamese dan tranh. Due to its long history, the zheng is often called guzheng, where "gu" means "ancient" in Chinese. It has been a popular instrument for many centuries and is considered one of the main chamber and solo instruments of Chinese traditional music. Since the mid-19th century, guzheng solo repertory has been evolving with an increased reliance on technical complexity.

The Chinese character for "zheng" is composed of two parts: the upper part means "bamboo" and the lower part means to "argue." According to a legend, there was a master of the se, a 25-stringed zither, who had two talented daughters who loved playing the instrument. When the master neared his death, he wanted to bequeath his instrument to one of them; however, both daughters wanted it. The master, eager to please both daughters, split the instrument into two; one got 12 strings, and the other 13. To his amazement, the new instrument sounded mellow and even more beautiful than the original. The happy master gave the new instrument a new name "zheng" by making up

the character with the symbolisms representing "bamboo" and "argue." This legend, should not be taken too seriously.

The modern guzheng is build from a wooden body with strings arched across movable bridges along the length of the instrument for the purpose of tuning. The number of strings has varied from 5 in ancient times to 12 to 13 strings in the Tang Dynasty (7th to 10th centuries) and 16 strings in the Song and Ming dynasty (from the 10th to 15th century). The present day guzheng usually has 21–25 strings.

The articulation files are listed in tables starting on page 40.

Jinhu

Principally used as an accompanying instrument for the Beijing opera, the jinhu is another important two-stringed fiddle in the huqin family. It was developed in the Qing dynasty (around 1790). The pitch of this instrument is the highest among all instruments in the huqin family. Due to its forceful and clarion timbre, the jinhu is suitable almost exclusively for the Beijing opera.

The articulation files are listed in tables starting on page 41.

Pipa

The pipa is a four-stringed lute with a pear-shaped body. Its short, bent neck has 30 frets which extend onto the soundboard, providing the instrument a wide range of three and a half octaves. It appears in texts dating from as far back as the second century BCE. There are many written texts from the Han Dynasty (206 BCE–220 CE) about pipa music and the stories that inspired the compositions. Since the time of the Tang Dynasty (618–907), the pipa is one of the most popular Chinese instruments, and it has maintained its appeal in solo as well as chamber genres.

The pipa technique features spectacular finger dexterity and virtuoso programmatic effects. Rolls, slaps, pizzicato, harmonics, and body noises are often combined into extensive tone poems vividly describing famous battles or other exciting scenes. In addition, the instrument is capable of lyrical effects in pieces inspired by poetry, landscapes and historical themes. A large repertory of traditional pipa music has developed over the centuries. Even though many pieces have been lost, other pieces have been handed down over many generations through the efforts of both individual artists and scholars eager to keep the traditions of this beloved instrument alive.

The articulation files are listed in tables starting on page 42.

Sheng

The sheng is a mouth-blown free-reed instrument in the Chinese orchestra. It consists essentially of vertical pipes.

Traditionally, the sheng has been used as an accompaniment instrument for solo suona or dizi performances, in kunqu and some other forms of Chinese opera, and in small

ensembles. In the modern symphonic Chinese orchestra, it is used for both melody and accompaniment. Its warm, mellow sound expresses lyrical melodies well, while its ability to play chords makes it a highly prized accompaniment instrument.

The articulation files are listed in tables starting on page 44.

Suona

The suona has a conical wooden body, similar to that of the European oboe, but it uses a tubular brass or copper bocal to which a small double reed is affixed. It uses a detachable metal bell at its end.

The instrument is made in several sizes. Since the mid-20th century, modernized versions of the suona have been developed in China; such instruments have keys similar to those of the European oboe, to allow for the playing of chromatic notes and equal tempered tuning (both of which are difficult to execute on the traditional suona). There is now a family of such instruments, including the zhongyin suona, cizhongyin suona, and diyin suona. These instruments are used in the woodwind sections of modern large Chinese traditional instrument orchestras in China, Taiwan, and Singapore, though most folk ensembles prefer to use the traditional version of the instrument. The suona is believed to have been developed from Central Asian instruments such as the sorna, surnay, or zurna, from which its Chinese name probably derives. It was originally introduced into China from central or South Asia. A musician playing an instrument very similar to a suona is shown on a drawing on a Silk Road religious monument in western Xingjian province dated to the 3rd to 5th centuries, and depictions dating to this period found in Shandong and other regions of northern China depict it being played in military processions, sometimes on horseback. It was not mentioned in Chinese literature until the Ming Dynasty (1368–1644), but by this time the suona was already well established in northern China.

The articulation files are listed in two tables: Suona 1 starting on page 44 and Suona 2 starting on page 46.

Xiao

The xiao is a Chinese vertical end-blown flute. It is generally made of dark brown bamboo. It is also sometimes (particularly in Taiwan) called dongxiao,

It is a very ancient instrument usually thought to have developed from a simple end-blown flute used by the Qiang people of Southwest China. The modern six-hole form of the instrument goes back to the Ming Dynasty (1368-1644).

The articulation files are listed in tables starting on page 47.

Yangqin

The Yangqin is a dulcimer played with bamboo mallets. It comes in a variety of sizes. The mallets are the size of a chopstick, with one held in each hand; they are used to hit strings in pairs. This produces a high and tinkling timbre in its top registers, a soft and

beautiful tone in the middle, and a strong, rich sound in the lower registers. The metallic tone resembles the sound of the harpsichord. It has the widest range of scale amongst the Chinese plucked-strings instruments (about 5 octaves). It is a rather new instrument by Chinese standards, first arriving in China from the Middle East at the beginning of the Ming Dynasty (1368–1644).

The articulation files are listed in tables starting on page 48.

Zhonghu

If we call the erhu the Chinese violin, the zhonghu is then the Chinese viola, where zhong means "middle." So it's the mid-pitched erhu. It was developed from the erhu in the 1940s. Both the structure and performing skill of these two kinds of huqin are very similar, but the zhonghu has a deeper-sounding timbre and is not as agile. Being more suitable for singing melodies (particularly some Mongolian melodies), the zhonghu is thus often used as tutti or accompanying instruments, and sometimes also for solos.

The articulation files are listed in tables starting on page 48.

The Instruments of India

Bansuri

Bansuri is a common Indian flute. It is typically made of bamboo or reed. There are two varieties: transverse and fipple. The transverse variety is nothing more than a length of bamboo with holes cut into it. This is the preferred flute for classical music because the embouchure gives added flexibility and control. The fipple variety is found in the folk and filmi styles, but seldom used for serious music. This is usually considered to be just a toy because the absence of any embouchure limits the flexibility of the instrument. The flute may be called many things in India: bansi, bansuri, murali, venu and many more.

The bansuri is used in the North Indian system. It typically has six holes, however there has been a tendency in recent years to use seven holes for added flexibility and correctness of pitch in the higher registers. It was previously associated only with folk music, but today it is found in Hindustani classical, filmi, and numerous other genre.

The articulation files are listed in tables starting on page 49.

Dilruba

Dilruba is a cross between the sitar and sarangi. It is extremely close to the esraj and the mayuri vina. It so close that most people are unable to tell them apart. The difference is to be found in the shape of the resonators and the manner in which the sympathetic strings attach. Still they are so similar that a dilruba player has no trouble playing an esraj or a mayuri vina and vice versa.

The neck has approximately 18 strings. The approach to tuning is somewhat similar to the sitar. Like the sitar, almost all of the playing is performed upon only one string. There are a number of metallic frets, some of which will be moved according to the require-

ments of the rag. It has a series of sympathetic strings which are tuned to the notes of the rag.

The dilruba is popular in north-west India. It is found in Punjab, Uttar Pradesh and Maharashtra.

The articulation files are listed in tables starting on page 50.

Sarod

The sarod is a stringed musical instrument, used mainly in Indian classical music. Along with the sitar, they are the most popular and prominent instruments in Hindustani (north Indian) classical music. The sarod is known for a deep, weighty, introspective sound (in contrast to the sweet, extremely rich texture of the sitar). The tonal quality somewhat resembles the classical guitar, particularly at the lower notes, though in the higher ranges the sound is less rich than the guitar. It is a fretless instrument like almost all other Indian instruments, because Indian music depends extensively (in some cases almost entirely) on continuous slides between notes, known as meend (glissando).

The Sarod is believed to be of Persian descent, as the name Sarod means "beautiful sound" in Persian. Many scholarly and anecdotal accounts also consider the ancestral source of the sarod to be the rubab, a similar instrument originating in Central Asia and Afghanistan. The sarod is essentially a bass rebab. The rebab was modified by Amir Khusru in the 13th century.

The conventional sarod is an 18- to 19-stringed lute-like instrument: four to five main strings used for playing the melody, one or two drone strings, two chikari strings and ten to eleven sympathetic strings. The design of this early model is generally credited to Niyamatullah Khan.

The articulation files are listed in tables starting on page 51.

Tanpura

Tanpura is a drone instrument. It resembles a sitar except that it has no frets. It has four strings tuned to the tonic. The name "tanpura" is common in the north, but in south India it is called "tambura." The tanpura is known for its very rich sound. There are three main styles; the Miraj style, the Tanjore style and the small instrumental version sometimes called Tamburi.

The Miraj style is the typical north Indian tanpura. This is the favorite of Hindustani musicians. It typically is between 3 and 5 feet in length. It is characterized by a pear-shaped, well rounded tabali (resonator face) and non-tapering neck. It usually has a resonator made of a gourd, but rarely one may find resonators made of wood.

The articulation files are listed in tables starting on page 52.

The Instruments of the Persian Empire

Duduk

The duduk is a double-reed instrument with ancient origins, said to be from 1500 to 3000 years old. The earliest instruments similar to the duduk's present form were made of bone or entirely of cane. Today the duduk is exclusively made of wood with a large double reed. Armenian duduks are mainly made from aged apricot wood, although other regional varieties use other materials (*e.g.*, mulberry). The particular tuning depends heavily on the region in which it is played. In the 20th century, the Armenian duduk began to use the standardized diatonic scale and to have a single-octave range. Accidentals are achieved using fingering techniques. The instrument's body has different lengths depending upon the range of the instrument and its region. The reed is made from one or two pieces of cane in a duck-bill type assembly. Compared to other double-reed instruments, the reed is wider, helping to give the duduk both its unique, mournful sound and its remarkable breath requirements.

The articulation files are listed in tables starting on page 53.

Electric Cello

The electric cello is a type of cello that relies on electronic amplification (rather than acoustic resonance) to produce sound. Many electric cellos have bodies modeled after acoustic cellos, while others abandon the design completely, opting for a totally new body shape, or having little or no body at all. Most electric cellos feature a traditional endpin and knee supports, but some are supported in other ways, such as by a tripod stand or a strap system that allows mobility while playing the instrument.

Most electric cellos are driven by a piezo pickup system mounted in the bridge. Many also contain an on-board preamp, which allows the musician localized control over the sound. The number of piezo elements per instrument ranges from one to eight. The electric cello has several advantages over acoustic cellos. One advantage is its capacity for sound effects, such as distortion, wah, and chorus, which allows for the creation of a huge variety of sounds and possibilities matching that of the electric guitar, electric bass and electric violin. Also, five-string and six-string models (not generally available in acoustic cellos) allow for an extended range. An electric cello with no body can be played in the high positions more easily than an acoustic. Lastly, electric cellos have less of a tendency for feedback than amplified acoustic cellos.

The articulation files are listed in tables starting on page 54.

Kemenche

A kemenche is a bottle-shaped, 3-stringed type of rebec or fiddle from the Black Sea region of Asia Minor. "Kamanche" is a Persian name meaning small bow, from which the name of the instrument is taken. In Greece and the Pontian Greek diaspora, it is known as "kementzes" and in the last few decades as "lyra." It is the primary instrument in Pontian music.

The kemenche is played in an upright position, either by resting it on the player's knee when sitting, or held in front of the player when standing. The kemenche bow is called the doksar. Many folk fiddles ranging from Southeastern Europe to the Indian sub-continent are played by the lateral pressure of the fingernails of the player's hand against the strings with the instrument generally facing outwards. In this respect, it is similar to the Indian sarangi and the Bulgarian gadulka.

The articulation files are listed in tables starting on page 57.

Nay Flute

The nay (also spelled "ney") is an end-blown flute that figures prominently in Persian, Turkish and Arabic music. In some of these musical traditions, it is the only wind instrument used. It is a very ancient instrument, with depictions of nay players appearing in wall paintings in the Egyptian pyramids. Actual nays have been found in the excavations at Ur. Archaeological evidence indicates that the nay has been played continuously for 4,500–5,000 years, making it one of the oldest musical instruments still in use. It is a forerunner of the modern flute.

The nay consists of a piece of hollow cane or reed with five or six finger holes and one thumb hole. "Nay" is an old Persian word for any reed from the Arundo donax plant. However, modern nays may be made of metal or plastic tubing instead. The pitch of the nay varies, depending on the region and the finger arrangement. A highly skilled nay player can reach as many as three octaves, though it is more common to have several helper nays to cover different pitch ranges or to facilitate playing technical passages in other maqamat.

The articulation files are listed in tables starting on page 58.

Qanun

The qanun is a string instrument found in Near Eastern traditional music based on Maqamat. It is basically a zither with a narrow trapezoidal sounding board. Nylon or PVC strings are stretched over a single bridge poised on fish-skins on one end, attached to tuning pegs at the other end.

Qanuns used in Turkey have 26 courses of strings, with three strings per course. It is played on the lap by plucking the strings with two tortoise-shell picks, one in each hand, or by the fingernails. It has a range of three and a half octaves, from A2 to E6. The dimensions of Turkish qanuns are typically 95 to 100 cm (37-39") long, 38 to 40 cm (15-16") wide and 4 to 6 cm (1.5-2.3") high. The instrument also has special latches for each course, called mandals. These small levers, which can be raised or lowered quickly by the performer while the instrument is being played, serve to change the pitch of a particular course slightly by altering the string lengths.

The articulation files are listed in tables starting on page 61.

Tar

The tar is a long-necked, Iranian/Persian instrument with a pronounced waist. Other cultures and countries adapted this instrument into their culture, as well, such as Azerbaijan, Georgia, and various areas near the Caucasus. The word "tar" itself means "string" in Persian. This is claimed to be the root of the names of the Persian setar and the guitar as well as less widespread instruments such as the dutar and the Indian sitar. The exact place of origin of the tar cannot be confirmed. However, the tar was invented in the territories of, or influenced by, the Persian Empire: Persia (Iran), Afghanistan, and parts of the former Soviet republics, such as Azerbaijan and Georgia.

Tar is one of the most important Iranian and Azerbaijani musical instruments. The formation, compilation, edition, and inheritance of the most authentic and most comprehensive versions of radif are all worked on the tar. The general trends of Persian classical music have been deeply influenced by tar players.

The tar appeared in its present form in the middle of the eighteenth century in Azerbaijan. The body is a double-bowl shape carved from mulberry wood, with a thin membrane of stretched lambskin covering the top. The fingerboard has 25 to 28 adjustable gut frets, and there are three double courses of strings. It is played with a small brass plectrum. Its range is about two and one-half octaves.

The long, narrow neck has a flat fingerboard running level to the membrane and ends in an elaborate peg box with six wooden tuning pegs of different dimensions, adding to the decorative effect. It has three courses of double "singing" strings—each pair tuned in unison: the first two courses in plain steel, the third in wound copper—that are tuned in fourths (C, G, C). Plus, there is one "flying" bass string—wound in copper and tuned in G, an octave lower than the singing middle course—that runs outside the fingerboard and passes over an extension of the nut. There are also two pairs of shorter sympathetic strings that run under the bass and over two small copper bridges about midway on the upper side of the fingerboard: their tuning is variable according to the piece to be played and with the performer's tastes. Every string has its own tuning peg and they are tuned independently. The Persian tar used to have five strings; the sixth string was added to the tar by Darvish Khan. (This string is today's fifth string of the Iranian tar.)

The articulation files are listed in tables starting on page 61.

5. Instruments, Articulations, and Keyswitches

Instruments, Articulations, and Keyswitches

The full name of this library is "Quantum Leap Silk: Masters of the Silk Road." This collection selects characteristic sounds from the length of this fabled trade route across southern Asia. China, India and multiple parts of the old Persian Empire are all included.

To help you create authentic-sounding and realistic phrasing, many of the Quantum Leap Silk instruments include features such as:
• legato interval sampling
• recorded "performance" phrases that you can incorporate in your work or use as a model to learn traditional uses of the instruments

These features, along with the ability to microtune instruments to non-Western scales, make Quantum Leap Silk a natural way to achieve the correct sound for projects that require the authentic sounds of Asia.

This chapter provides tables that lists each instrument in the Silk library. You might want to print out the pages containing these tables as a reference.

Organization of the QL Silk Instruments

The instruments within this library are organized in a consistent hierarchy of folders and subfolders. At the highest level, the instruments are divided into different regions within Asia:
• China
• India
• Persian Empire

Within each of those folders are listed the instruments native to that region.

Each instrument's folder usually contains 3 subfolders that categorize the articulations, as shown in the Browser image above:

- Elements
- KS, DXF, Legato, and LIVE
- Performances

In a few cases, one or more of these folders are not present. The paragraphs below describe the various types of articulation files.

Elements: These are the basic articulations, those that do not contain the features such as legato detection, cross fades, and keyswitches described below. These are the sample sets from which the other types of articulation files are built.

KS, DXF, Legato, and LIVE: These articulation files include keyswitches, dynamic cross-fades, recorded legato intervals, and "live" articulations that use velocity switches to provide different articulations depending on how forcefully the key is pressed.

Performances: A number of "performances" or phrases were recorded for each instrument in Silk. Some instruments have more than others. Some of these instrumental phrases are so special that they are very difficult to reproduce by playing individual samples. If you like incorporating such phrases in your work, they're available in the Performances folder. If you're not a fan of inserting whole phrases in your own composition, then consider them examples of authentic playing styles from which to learn.

Types of Articulation Files

In addition to the basic articulation files in the Elements directory, these other files provide features that provide more control. Experiment with them to see what's possible.

Live Articulations

Those articulations with "LIVE" in the name allow you to play different articulations at different MIDI velocities in what's called a "velocity switch." That means you can be playing a phrase with, for example, a sustained articulation and then play a bend or a grace note or some characteristic ornament just be pressing harder on the keyboard. These files are designed for playing in real time, hence the name "live," but they can work just as well in a sequencer.

Legato Articulations

Articulation files of this type include both recorded legato intervals and the usual sustained samples. The image at the right shows how the choice of Sus or Legato samples is controlled by both the Mod Wheel value (the numbers in parentheses) and the connectedness of the musical phrase.

You can use the Mod Wheel to control whether or not the legato intervals are played, as described below:

- When the Mod Wheel is pulled down (to a value between 0 and 64), no legato intervals are played. You might choose to do so in a fast passage, or any other place where a legato sound is not appropriate no matter how small the gap between notes.

- When the Mod Wheel is pushed up (to a value between 65 and 127), the PLAY engine looks at the time between notes and plays the legato sample when the gap is short; otherwise the usual sustained sample is played. This approach correctly restricts legato playing to the phrases with very little time—or no time—between notes.

In the following musical phrase, only the notes 2, 3, 5, 6, and 8 will be played with a legato start to each note (and only if the Mod Wheel is pushed to the top half of its range—65 or above). The other notes will use the Sustained samples.

The instruments in the following list contain legato articulation files with sampled intervals, as described above.

China: erhu, zhonghu, jinhu.
India: electric cello, kemenche, duduk, 30-piece string section.
Persian Empire: dilruba, bansuri.

DXF Articulations

A cross-face articulation file loads into memory the samples for two distinct articulations. The PLAY engine can play both at once, and the relative loudness of each one depends on the current position of the Mod Wheel; therefore, a cross fade allows for a smooth transition from one articulation to the other, with intermediate values sounding when a mix of the two sets of samples is heard.

In Quantum Leap Silk, cross-fades are applied to a pair of vibrato and non-vibrato articulations. Use a file with "DXF" in the name if you want to control in real time the amount of vibrato being heard. Just as in a real performance, you can have the amount of vibrato change in the middle of notes.

Performance Articulations

Most instruments have a subfolder named Performances containing one or more articulation files. Each of these contains multiple phrases—one per note—that might range in length from a few notes to an extended passage. You can have the PLAY software play the whole phrase, or stop it at any point by stopping the single MIDI note. If the file name includes "MOD" then you can also use the Mod Wheel to change where the sample starts playing; push the wheel up to make the phrase begin playback at one of several alternate starting points partway through. This ability to extract a piece of a longer phrase multiplies the number of phrases you have available.

Some of the Electric Cello performance files include a tempo in the name, such as "130BPM," because they are very rhythmical and need to match tempo with the piece

they're being added to. And the files for the Erhu specify the key with which the phrase works best.

Many of these recorded phrases are characteristic of the instrument and would be difficult to produce from individual samples. You can add them as they are to your project or you can use them as a reference library to learn from as you train your ear and then emulate the sound yourself.

Other Features of the Articulation Files

Performance Scripts

Many instruments in Silk open with a Portamento script On by default. This is intentional. Each patch has had its portamento script tailored to the characteristics of its articulations. The exception to this rule is the various keyswitch patches, each of which has a Portamento script which is a compromise designed to work well with all its articulations.

The Mod Wheel

All patches in QL Silk use the Mod Wheel to control some aspect of the articulation:
- **Legato patches** use it to turn on and off the legato behavior (as described on page XX).
- **DXF patches** use it to cross-fade between vibrato and non-vibrato samples.
- **Performance patches** use it to change the starting point for playback (as described on page XX).
- **All other patches** use it to control a low-pass filter. This can effectively be used to add expression and "pull the breath" out of wind samples.

The Tables 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). All of these instrument files are listed below. They are grouped into geographical regions: China, India, the Persian Empire. There are up to 3 types of articulation files for each instrument: Elements, Performances, and a collection known as "KS, DXF, Legato, and Live," which are keyswitches, cross-fades, legato intervals, and velocity switches useful for live recordings.

Finally, note that a few tables are quite long and extend across multiple pages.

China

CHINA: BAWU (WIND)

Elements		
	Exp	
	Spit FX	
	Sus Vib	
	Sus Vib 2	
	Sus Vib Acc	

KS, DXF, Legato, and LIVE		
Bawu KS Master & KS Elements	C0	Sus Vib
	C#0	Sus Vib 2
	D0	Sus Vib Acc
	D#0	Exp
	E0	Spit FX
Bawu Live 1	Vel 1	
	Vel 2	

Performances		
	Perf MOD Start	

CHINA: DIZI LARGE (WIND)

Elements	
	Filter
	Grc Dn
	Port NV
	Port Vib
	Sfz Vib
	Sus NV
	Sus Vib Acc
	Sus Vib
	Thrt Sus

continued

CHINA: DIZI LARGE (WIND)

KS, DXF, Legato, and LIVE		
Dizi Large KS Master & KS Elements	**C0**	**Sus Vib**
	C#0	**Sus Vib Acc**
	D0	**Sfz Vib**
	D#0	**Sus NV**
	E0	**Port Vib**
	F0	**Port NV**
	F#0	**Thrt Sus**
	G0	**Fltr**
	G#0	**Grc Dn**
Dizi Large Live 1	**Vel 1**	
	Vel 2	
Dizi Large Live 2	**Vel 1**	
	Vel 2	
Performances		
		Perf MOD Start

CHINA: DIZI SMALL (WIND)

Elements	
	Exp
	Filter
	Grc Dn
	Port NV
	Port
	Sfz
	Stac RR x8
	Sus NV
	Sus Vib
	Trem
	continued

CHINA: DIZI SMALL (WIND)

KS, DXF, Legato, and LIVE

Dizi Small KS Master & KS Elements	C0	Sus Vib
	C#0	Exp
	D0	Sus NV
	D#0	Port
	E0	Port NV
	F0	Sfz
	F#0	Filter
	G0	Grc Dn
	G#0	Trem
	A0	Stac RR x8
Dizi Small Live 1	Vel 1	
	Vel 2	

Performances

	Perf MOD Start

CHINA: ERHU (BOWED STRING)

Elements

	3 Finger Fst
	3 Finger Slw
	Bnd HT Fst
	Bnd HT Slw
	Cres
	Detache NV RR
	Detache Vib
	Exp 1
	Exp 2
	Exp 3
	Exp 4
	Exp 5
	Exp Lyrical
	Exp Slw

continued

CHINA: ERHU (BOWED STRING)

Elements (continued)	
	Grace 1
	Grace 2
	Leg Dn
	Leg Trill
	Leg Up
	Marc F RRx4
	Sautille RR
	Sforz Emotion
	Sforz Exp
	Slide Dn Fst
	Slide Dn
	Slide Up Fst
	Slide Up
	Spiccato RRx8
	Stac RRx8
	String Noise
	Sus NV
	Sus Vib
	Trem Exp
	Trill 3rd Dn
	Trill 3rd Fst Slw 2
	Trill 3rd Fst Slw
	Trill 3rd Slw
	Trill 3rd
	Trill H Cres
	Trill H Dn F
	Trill H Dn
	Trill H Fst Slw
	Trill H Fst
	Trill H Slw
	Trill H
	Trill W Cres
	Trill W Dn F

continued

CHINA: ERHU (BOWED STRING)

Elements (continued)		Trill W Dn
		Trill W Fst Slw
		Trill W Fst
		Trill W Slw
		Trill W

KS, DXF, Legato, and LIVE		
Erhu KS Master & KS Elements	C0	Sus Vib
	C#0	Exp 1
	D0	Exp 2
	D#0	Exp 3
	E0	Exp 4
	F0	Exp 5
	F#0	Exp Slow
	G0	Sus NV
	G#0	Exp Lyrical
	A0	Detache Vib
	A#0	Detache NV RR
	B0	Sfz Exp
	C1	Sfz Emotion
	C#1	Cres
	D1	Bend H Fast
	D#1	Bend H Slow
	E1	3 Finger Fast
	F1	3 Finger Slow
	F#1	Leg Down
	G1	Leg Up
	G#1	Grace 1
	A1	Grace 2
	A#1	Slide Down
	B1	Slide Down Fast
	C2	Slide Up
	C#2	Slide Up Fast
	D2	Tremolo Exp
	D#2	Sautille RR

continued

CHINA: ERHU (BOWED STRING)

Erhu KS Master & KS Elements (continued)	E2	Marcato F RR x4
	F2	Spic RR x8
	F#2	Stac RR x8
	G2	Leg Trill
	G#2	Trill H
	A2	Trill W
	A#2	Trill 3rd
	F5	Trill H Fast
	F#5	Trill W Fast
	G5	Trill H Slow
	G#5	Trill W Slow
	A5	Trill 3rd Slow
	A#5	Trill H Fast Slow
	B5	Trill W Fast Slow
	C6	Trill 3rd Fast Slow
	C#6	Trill H Down
	D6	Trill W Down
	D#6	Trill H Down F
	E6	Trill W Down F
	F6	Trill H Crec
	F#6	Trill W Crec
	G6	String Noise
Erhu Detache Live 1	Vel 1	
	Vel 2	
Erhu Live 1	Vel 1	
	Vel 2	
Erhu Live 2	Vel 1	
	Vel 2	
Erhu Live 3	Vel 1	
	Vel 2	
Legato MOD Exp		
Legato MOD Fst		
Legato MOD		
NV Vib DXF		

continued

CHINA: ERHU (BOWED STRING)

Performances

Perf MOD Start Bb Fst
Perf MOD Start Bb Slw
Perf MOD Start C Fst
Perf MOD Start C Lng
Perf MOD Start C Slw
Perf MOD Start D Fst
Perf MOD Start D Slw
Perf MOD Start F Fst
Perf MOD Start F Slw
Perf MOD Start G Fst
Perf MOD Start G Slw

CHINA: GUZHENG (STRING)

Elements

Arp Chords
Bend Fast
Ben Slow
Double
Harm
Sus NV RR
Sus Vib Hard
Sus Vib Slow
Sus Vib
Trem

continued

CHINA: GUZHENG (STRING)

KS, DXF, Legato, and LIVE

Guzheng KS Master & KS Elements	C0	Sus Vib
	C#0	Sus Vib Hard
	D0	Sus Vib Slow
	D#0	Sus NV RR
	E0	Bend Fast
	F0	Bend Slow
	F#0	Double
	G0	Tremolo
	G#0	Harmonics
	A0	Arp Chords
Guzheng Live 1	Vel 1	
	Vel 2	
Guzheng Live 2	Vel 1	
	Vel 2	
Guzheng Live 3	Vel 1	
	Vel 2	
Guzheng Live 4	Vel 1	
	Vel 2	

Performances

	Perf MOD Start 1
	Perf MOD Start 2

CHINA: JINHU (BOWED STRING)

Elements

	Ornament
	Stac RR x8
	Sus Vib 1
	Sus Vib 2

continued

CHINA: JINHU (BOWED STRING)

KS, DXF, Legato, and LIVE			
Jinhu KS Master & KS Elements	C0	Sus Vib 1	
	C#0	Sus Vib 2	
	D0	Ornament	
	D#0	Stac RR x8	
Jinhu Live 1	Vel 1		
	Vel 2		
Legato MOD			
Performances			
		Perf MOD Start 1	
		Perf MOD Start 2	

CHINA: PIPA (STRING)

Elements	
	Bend WT
	Double
	Fret FX
	Harm Tuned
	Harm Vib
	Luan Fast
	Luan Slow
	Noise
	Octaves
	Slide Down Fast
	Slide Up Fast
	Strum Noise
	Strum Tremolo Down
	Sus Finger
	Sus NV RR
	Sus Vib RR
	Tremolo
	Trill HT
	Triple

continued

CHINA: PIPA (STRING)

KS, DXF, Legato, and LIVE		
Pipa KS Master & KS Elements	C0	Sus Vib RR
	C#0	Sus Finger
	D0	Sus NV RR
	D#0	Octaves
	E0	Luan Fast
	F0	Luan Slow
	F#0	Slide Down Fast
	G0	Slide Up Fast
	G#0	Harmonic Vib
	A0	Harmonic Tuned
	A#0	Double
	B0	Bend WT
	C1	Trill HT
	C#1	Triple
	D1	Tremolo
	D#1	Strum Trem Down
	E1	Strum Noise
	F1	Noise
	F#1	Fret FX
Pipa Live 1	Vel 1	
	Vel 2	
Pipa Live 2	Vel 1	
	Vel 2	
Pipa Live 3	Vel 1	
	Vel 2	
Pipa Live 4	Vel 1	
	Vel 2	
Performances		
		Perf MOD Start

CHINA: SHENG (ACCORDION)

Elements		
	Exp	
	Stac RR x4	
	Sus NV Acc	
	Sus NV	
	Sus Rattle	
	Sus Vib Acc	
	Sus Vib	
	Tremolo Fast	
	Tremolo Slow	
KS, DXF, Legato, and LIVE		
Pipa KS Master & KS Elements	C0	Sus Vib
	C#0	Sus Vib Acc
	D0	Exp
	D#0	Sus Rattle
	E0	Sus NV
	F0	Sus NV Acc
	F#0	Tremolo Fast
	G0	Tremolo Slow
	G#0	Stac RR x4
Pipa Live 1	Vel 1	
	Vel 2	
Performances		
	Perf MOD Start 1	
	Perf MOD Start 2	
	Perf MOD Start 3	

CHINA: SUONA 1 (BRASS)

Elements		
	Bird Calls	
	Bend Up H	
	Bend Up W	
	Double Tongue RR x8	

continued

CHINA: SUONA 1 (BRASS)

Elements (continued)	Exp
	Soft Vib
	Stac Doit H
	Stac Doit W
	Stac Fall H
	Stac Fall W
	Stac RR x8
	Sus Flutter 1
	Sus Flutter 2
	Sus NV
	Sus Vib
	Trill Fast
	Trill FX
	Trill Slow

KS, DXF, Legato, and LIVE

Suona 1 KS Master & KS Elements	C0	Sus Vib
	C#0	Soft Vib
	D0	Exp
	D#0	Sus Flutter 1
	E0	Sus Flutter 2
	F0	Sus NV
	F#0	Bend H
	G0	Bend Up W
	G#0	Trill Fast
	A0	Trill Slow
	A#0	Trill FX
	B0	Bird Calls
	C1	Double Tongue RR x8
	C#1	Stac Doit H
	D1	Stac Doit W
	D#1	Stac fall H
	E1	Stac Fall W
	F1	Stac RR x8

continued

CHINA: SUONA 1 (BRASS)

Suona 1 Live 1	Vel 1	
	Vel 2	
Performances		
		Perf MOD Start 1
		Perf MOD Start 2
		Perf MOD Start 3

CHINA: SUONA 2 (BRASS)

Elements		
		Double Tongue RR x8
		Exp
		Flutter
		Stac Doit
		Stac Fall
		Stac RR x8
		Sus Vib
		Trill HT
		Trill WT
KS, DXF, Legato, and LIVE		
Suona 2 KS Master & KS Elements	C0	Sus Vib
	C#0	Exp
	D0	Flutter
	D#0	Trill H
	E0	Trill W
	F0	Double Tongue RR x8
	F#0	Stac Doit
	G0	Stac Fall
	G#0	Stac RR x8
Suona 2 Live Short 1	Vel 1	
	Vel 2	
Suona 2 Live 1	Vel 1	
	Vel 2	
Performances		
		Perf MOD Start

CHINA: XIAO (WIND)

Elements

	Exp
	Port NV
	Port NV Short
	Port Vib
	Sfz Vib
	Sus NV Acc
	Sus NV
	Sus Vib
	Trill

KS, DXF, Legato, and LIVE

Xiao KS Master & KS Elements	C0	Sus Vib
	C#0	Exp
	D0	Sus NV
	D#0	Sus NV Acc
	E0	Port Vib
	F0	Port Vib Short
	F#0	Port NV
	G0	Sfz Vib
	G#0	Trill
Xiao Live 1	Vel 1	
	Vel 2	

NV Vib DXF

Performances

	Perf MOD Start 1
	Perf MOD Start 2

CHINA: YANGQIN (STRING)

Elements		
	Double	
	Hamr	
	Mute	
	Rev Hamr	
	Sus RR	
	Trem Cres	
	Trem	

KS, DXF, Legato, and LIVE		
Yangqin KS Master & KS Elements	C0	Sus RR
	C#0	Mute
	D0	Hamr
	D#0	Rev Hamr
	E0	Double
	F0	Trem
	F#0	Trem Cres
Yangqin Live 1	Vel 1	
	Vel 2	
Yangqin Live 2	Vel 1	
	Vel 2	

Performances		
	Perf MOD Start 1	
	Perf MOD Start 2	

CHINA: ZHONGHU (BOWED STRING)

Elements	
	Exp
	Ornament
	Sus Vib forte
	Sus Vib piano

continued

CHINA: ZHONGHU (BOWED STRING)

KS, DXF, Legato, and LIVE		
Zhong Hu KS Master & KS Elements	C0	Sus Vib forte
	C#0	Sus Vib piano
	D0	Exp
	D#0	Ornament
Zhong Hu Live 1	Vel 1	
	Vel 2	
Legato MOD		
Performances		
		Perf MOD Start 1
		Perf MOD Start 2

India

INDIA: BANSURI (WIND)

Elements		
		Run Down Up
		Sus Port
		Sus
KS, DXF, Legato, and LIVE		
Bansuri KS Master & KS Elements	C0	Sus
	C#0	Sus Port
	D0	Run Down Up
Bansuri Live 1	Vel 1	
	Vel 2	
Legato MOD		
Performances		
		Perf MOD Start 1
		Perf MOD Start 2
		Perf MOD Start 3
		Perf MOD Start 4
		Perf MOD Start 5
		Perf MOD Start 6

INDIA: DILRUBA (BOWED STRING)

Elements		
	Bend	
	Bend Rd	
	Double Bend	
	Exp	
	Ornament	
	Sus NV 2 Bows	
	Sus NV 3 Bows	
	Sus NV 4 Bows	
	Sus NV 4 Fast Bows	
	Sus Vib 2 Bows	
	Sus Vib 3 Bows	
	Sus Vib 4 Bows	
	Sus Vib	

KS, DXF, Legato, and LIVE		
Dilruba KS Master & KS Elements	C0	Sus Vib
	C#0	Sus Vib 2 Bows
	D0	Sus Vib 3 Bows
	D#0	Sus Vib 4 Bows
	E0	Exp
	F0	Sus Vib 2 Bows
	F#0	Sus Vib 3 Bows
	G0	Sus Vib 4 Bows
	G#0	Sys NV 4 Fast Bows
	A0	Ornament
	A#0	Bend
	B0	Double Bend
	C1	Bend Rd
Dilruba Live 1	Vel 1	
	Vel 2	
Legato MOD		
NV Vib DXF		
continued		

INDIA: DILRUBA (BOWED STRING)

Performances

	Perf MOD Start 1
	Perf MOD Start 2
	Perf MOD Start 3
	Perf MOD Start 4
	Perf MOD Start 5

INDIA: SAROD (STRING)

Elements

	Bend Down H
	Bend Down W
	Bend Up H
	Bend Up W
	Double RR
	Grace Bend BB
	Ornament H
	Ornament W
	Short Vib RR
	Slide Down RR
	Slide Up RR
	Sus RR
	Tremolo
	Vib Fall RR

KS, DXF, Legato, and LIVE

Sarod KS Master & KS Elements	C0	Sus RR
	C#0	Short Vib RR
	D0	Double RR
	D#0	Grace Bend RR
	E0	Ornament H
	F0	Ornament W
	F#0	Bend Down H

continued

INDIA: SAROD (STRING)

Sarod KS Master & KS Elements (continued)		
	G0	Bend Up H
	G#0	Bend Up W
	A0	Bend Up W
	A#0	Vib Fall RR
	B0	Slide Down RR
	C1	Slide Up RR
	C#1	Tremolo
Sarod Live 1	Vel 1	
	Vel 2	
Sarod Live 2	Vel 1	
	Vel 2	
Sarod Live 3	Vel 1	
	Vel 2	
Performances		
		Perf MOD Start 1
		Perf MOD Start 2
		Perf MOD Start 3

INDIA: TANPURA (WIND)

Drone	
Drone Perf	

The Persian Empire

PERSIAN EMPIRE: 30-PIECE STRING SECTION

Elements		
		Marcato RR x4
		Sus
KS, DXF, Legato, and LIVE		
30-pc String Section KS Master & KS Elements	C0	Sus
	C#0	Marcato RR x4
continued		

PERSIAN EMPIRE: 30-PIECE STRING SECTION

Legato MOD
Legato MOD ACC
DXF
DXF ACC

PERSIAN EMPIRE: DUDUK (WIND)

Elements	
	Bend Cres Fast
	Bend Cres
	Bend H Vib
	Double Bend Cres
	Double Cres Fast
	Double Cres
	Double Ornament Vib
	Exp Fast
	Exp Medium
	Ornament Vib
	Sus NV
	Sus Vib Fast
	Sus Vib

KS, DXF, Legato, and LIVE		
Duduk KS Master & KS Elements	**C0**	**Sus RR**
	C#0	**Short Vib RR**
	D0	**Double RR**
	D#0	**Grace Bend RR**
	E0	**Ornament H**
	F0	**Ornament W**
	F#0	**Bend Down H**
	G0	**Bend Up H**
	G#0	**Bend Up W**
	A0	**Bend Up W**
continued		

PERSIAN EMPIRE: DUDUK (WIND)

Duduk KS Master & KS Elements (continued)	A#0	Vib Fall RR
	B0	Slide Down RR
	C1	Slide Up RR
	C#1	Tremolo
Duduk Live 1	Vel 1	
	Vel 2	
Duduk Live 2	Vel 1	
	Vel 2	
Duduk Live 3	Vel 1	
	Vel 2	
Legato MOD Exp		
Legato MOD Vib		
NV Vib DXF		
Performances		
		Perf MOD Start 1
		Perf MOD Start 2
		Perf MOD Start 3

PERSIAN EMPIRE: E. CELLO (BOWED STRING)

Elements	
	Col Legno RR
	Cres FX
	Double Bow UpDown RR
	Det NV
	Det Vib
	Detache Exp
	Ethnic Bend
	Ethnic Trill
	FX 1
	FX 2
	FX 3
	Lyrical
	Marc RR

continued

PERSIAN EMPIRE: E. CELLO (BOWED STRING)

Elements (continued)	Ricochet
	Sfz F
	Spic RR
	Stac Fast RR x8
	Sus Fast Vib
	Sus NV
	Sus Short NV
	Sus Short Vib
	Sus Slow Vib
	Tremolo Hard

KS, DXF, Legato, and LIVE

E.Cello KS Master & KS Elements	C0	Sus Fast Vib
	C#0	Sus Slow Vib
	D0	Sus Short Vib
	D#0	Detache Vib
	E0	Detache Exp
	F0	Lyrical
	F#0	Sus NV
	G0	Sus Short NV
	G#0	Detache NV
	A0	Double Bow UpDown
	A#0	Ethnic Bend
	B0	Ethnic Trill
	C#5	Sfz F
	D5	Col Legno RR
	D#5	Marcato RR
	E5	Spic RR
	F5	Stac Fast RR
	F#5	Richocet
	G5	Trem hard
	G#5	Cres FX

continued

PERSIAN EMPIRE: E. CELLO (BOWED STRING)

E. Cello Live 1	Vel 1	
	Vel 2	
E. Cello Live 2	Vel 1	
	Vel 2	
E. Cello Live 3	Vel 1	
	Vel 2	
Legato MOD Exp		
Lyrical NV Vib DXF		
NV Vib DXF		
Performances		
	Perf MOD Start 120bpm 1	
	Perf MOD Start 120bpm 2	
	Perf MOD Start 130bpm 1	
	Perf MOD Start 130bpm 2	
	Perf MOD Start 140bpm 1	
	Perf MOD Start 140bpm 2	
	Perf MOD Start 150bpm	
	Perf MOD Start C Asian 1	
	Perf MOD Start C Asian 2	
	Perf MOD Start C Asian 3	
	Perf MOD Start C Ethnic	
	Perf MOD Start E Asian	
	Perf MOD Start E Ethnic 1	
	Perf MOD Start E Ethnic 2	
	Perf MOD Start Em Asian	

PERSIAN EMPIRE: KEMENCHE (BOWED STRING)

Elements		
	Exp Vib	
	Marcato RR	
	Sfz	
	Spic RR x4	
	Sus Vib Acc	
	Sus Vib	

KS, DXF, Legato, and LIVE		
Kemenche KS Master & KS Elements	C0	Sus Vib
	C#0	Sus Vib Acc
	D0	Exp Vib
	D#0	Sfz
	E0	Marc RR
	F0	Spic RR
Kemenche Live 1	Vel 1	
	Vel 2	
Kemenche Live 2	Vel 1	
	Vel 2	
Kemenche Live 3	Vel 1	
	Vel 2	
Legato MOD		

Performances		
	Perf MOD Start 1	
	Perf MOD Start 2	
	Perf MOD Start 3	
	Perf MOD Start 4	
	Perf MOD Start Long	

PERSIAN EMPIRE: NAY FLUTE (WIND)

Elements	
Nay 1	
	Bend Down
	Harm
	Marcato RR
	Ornament
	Sus Long
	Sus NV 1
	Sus NV 2
	Portato
	Vib 1
	Sib 2
	Trill
Nay 2	
	Bend
	Exp
	Horror Trill
	Marc RR x3
	Non Vib
	Ornament 1
	Ornament 2
	Ornament 3
	Sus Mys P
	Vib Flutter
	Sus Vib
	Trill
Nay 3	
	Bend Down
	Exp 1
	Exp 2
	Exp 3
	Non Vib
	Ornament 1
	Ornament 2
continued	

PERSIAN EMPIRE: NAY FLUTE (WIND)

Nay 3 Elements (continued)		Ornament 3
		Sus Acc 1
		Sus Acc 2
		Sus NV
		Sus Vib 1
		Sus Vib 2
		Trill 1
		Trill 2
KS, DXF, Legato, and LIVE		
Nay 1 KS Master & KS Elements	C0	Sus Vib 1
	C#0	Sus Vib 2
	D0	Sus Long
	D#0	Sus Portato
	E0	Sus NV 1
	F0	Sus NV 2
	F#0	Ornament
	G0	Bend Down
	G#0	Harm
	A0	Trill
	A#0	Marc RR
Nay 2 KS Master & KS Elements	C0	Sus Vib
	C#0	Sus Vib Flutter
	D0	Sus Mys P
	D#0	Exp
	E0	Non Vib
	F0	Bend
	F#0	Ornament 1
	G0	Ornament 2
	G#0	Ornament 3
	A0	Trill
	A#0	Horror Trill
	B0	Marc RR x3

PERSIAN EMPIRE: NAY FLUTE (WIND)

Nay 3 KS Master & KS Elements		
	C0	Sus Vib 1
	C#0	Sus Vib 2
	D0	Sus Acc 1
	D#0	Sus Acc 2
	E0	Exp 1
	F0	Exp 2
	F#0	Exp 3
	G0	Sus NV
	G#0	Non Vib
	A0	Bend Down
	A#0	Ornament 1
	B0	Ornament 2
	C1	Ornament 3
	C#1	Trill 1
	D1	Trill 2
Nay 1 Live 1	Vel 1	
	Vel 2	
Nay 2 Live 1	Vel 1	
	Vel 2	
Nay 3 Live 1	Vel 1	
	Vel 2	
Nay 1 NV Vib DXF		
Nay 2 NV Vib DXF		
Nay 3 NV Vib DXF		
Performances		
	Perf MOD Start 1	
	Perf MOD Start 2	
	Perf MOD Start 3	
	Perf MOD Start 4	
	Perf MOD Start 5	
	Perf MOD Start 6	
	Perf MOD Start 7	
	Perf MOD Start 8	
	Perf MOD Start 9	

PERSIAN EMPIRE: QANUN (STRING)

Elements

| Double Hit |
| Gliss |
| Sus RR |
| Thumb RR |
| Tremolo Cres |
| Tremolo Sfz |
| Tremolo |

KS, DXF, Legato, and LIVE

Qanun KS Master & KS Elements	C0	Sus RR
	C#0	Thumb RR
	D0	Double Hit
	D#0	Gliss
	E0	Tremolo
	F0	Tremolo Cres
	F#0	Tremolo Sfz
Qanun Live 1	Vel 1	
	Vel 2	

Performances

| Perf MOD Start 1 |
| Perf MOD Start 2 |

PERSIAN EMPIRE: TAR (STRING)

Elements

| Bend |
| Double |
| Mute RR x4 |
| Ornament 1 |
| Ornament 2 |
| Slide Down |
| Slide Up |
| Sus NV RR |
| Sus Vib RR |

continued

PERSIAN EMPIRE: TAR (STRING)

Elements (continued)	Tremolo Cres	
	Tremolo	
	Trill	
	Triple	
KS, DXF, Legato, and LIVE		
Tar KS Master & KS Elements	C0	Sus Vib RR
	C#0	Mute RR
	D0	Sus NV RR
	D#0	Double
	E0	Ornament 1
	F0	Ornament 2
	F#0	Bend
	G0	Slide Down
	G#0	Slide Up
	A0	Triple
	A#0	Trill
	B0	Tremolo
	C1	Tremolo Cres
Tar Live 1	Vel 1	
	Vel 2	
Tar Live 2	Vel 1	
	Vel 2	
Tar Live 3	Vel 1	
	Vel 2	
Tar Live 4	Vel 1	
	Vel 2	
Tar Live 5	Vel 1	
	Vel 2	
Performances		
	Perf MOD Start 1	
	Perf MOD Start 2	
	Perf MOD Start 3	
	Perf MOD Start 4	

Terms and Abbreviations Used in Articulation Names

TERMS & ABBREVIATIONS

Abbreviation	Definition	Notes or Examples
5ths	Perfect 5th interval	A slide or chord sampled in perfect fifth intervals
Acc	Accent	Accent made by bow-biting a string or tongue-tightening on wind hole
Arp	Arpeggio	Broken ascending or descending chord played in sequential order
Bend	Bend of note	An adjustment of the fundamental note without pause
Bow	Horsehair and wood	Stringed instrument performance with bow direction down or up
Bridge	Wooden object supporting the strings	Performed close to the bridge to give a more nasal or harsh timbre
Chrom	Chromatic	Pitched percussive performance; or, where pitches are stretched to accommodate twelve tones in an octave
Dbl	Double	Doubled articulation
DN	Down	A stringed instrument's bow or pick direction
Drn	Drone	A looped fundamental performed by a string or wind
Exp	Expressive	An exaggerated crescendo followed by a decrescendo
f	Forte	An Italian term used to describe a louder dynamic
Fall	Fall	An expressive drop in pitch at the end of phrase
Flutter	Flutter tongue	An expressive vibration created by a fast moving tongue
Fast	Fast	A shorter phrase
FX	Effects	Characteristic or uncharacteristic performance of the non-musical qualities of the instrument
Gliss	Glissando	An Italian term used to describe an ascending or descending musical phrase performed in a rapid and gliding manner
Grace	Grace note	Arrhythmic embellishment above or below the fundamental note
Harm	Harmonic	A frequency integral to the fundamental created by lightly touching a string or overblowing a wind instrument
Hi	Hi	Higher-pitched articulation
Hard	Hard	A more aggressive attack

continued

QUANTUM LEAP SILK VIRTUAL INSTRUMENT

TERMS & ABBREVIATIONS

Abbreviation	Definition	Notes or Examples
HT	Half-Tone (Semitone)	The interval between 2 adjacent tones in the western twelve-tone scale
KS	Keyswitch	A switch between multiple articulations by the stroke of specific keys called keyswitch notes
Leg	Legato	Designed to create quick and smooth musical phrases
Live	Live	A velocity switching program which simulates more realistic and characteristic performances
Lng	Long	A longer phrase of any given articulation
Low	Low	Lower pitched articulation
Lyrical	Lyrical	A sweeter phrase
Med	Medium	A medium dynamic
mf	Mezzo Forte	An Italian term used to describe a moderately loud dynamic
Mldy	Melody	A program consisting of melismas characteristic of the native musical qualities of the instrument
MOD	Modulation crossfade	Modulation crossfades between more than one articulation
mp	mezzo piano	An Italian term used to describe a moderately soft dynamic
Mute FX	Mute Effects	Effects that mute the string
Neck	Neck	An articulation where pick, finger or bow is positioned over the fretboard or neck of the instrument
NV/NVB/Non Vib	Non Vibrato	An articulation where the fundamental maintains consistent pitch for its duration
Oct	Octave	The fundamental stretches one octave higher or lower during the phrase
Open	Open	Most commonly performed articulation of an instrument
Ornament	Ornament	A small embellishment characteristic of the native musical qualities of the instrument
Ovrblwn	Overblown	The wind instrument is overblown to create an overtone or harmonic in place of the fundamental
p	Piano	An Italian term used to describe a softer dynamic
RT/Resonance	Release Trail	Decay of the articulation in the sampled space

continued

QUANTUM LEAP SILK VIRTUAL INSTRUMENT

TERMS & ABBREVIATIONS

Abbreviation	Definition	Notes or Examples
RR	Round Robin	The press of every key alternates between up and down, bow and pick, or left and right hand strokes
Sautille	Sautille	Bowing technique like spiccato, but very close to the string, creating a popping sound
Scrape	Scrape	Pick is scraped across the string creating a harsh timbre
Sft	Soft	Soft articulation
Sfz	Sforzando	An Italian term used to describe a strongly accented note
Sht	Short	A short phrase
Sld	Slide	An uninterrupted transition in pitch from one fundamental to another
Slur	Slur	A smoother transition in pitch from one fundamental to another that the "slide" (above)
Slw	Slow	A longer phrase
Spic	Spiccato	An Italian term used to describe short articulations of the bow bouncing off the string
Spit	Spit	Short accents, course in timbre, created by saliva forced through a wind instrument
Stac	Staccato	An Italian term used to describe stiff and detached performance
Strum	Strum	Designed to simulate the characteristic attack of a pick strumming
Sus	Sustained	A sustained phrase
Trem/Trm	Tremolo	An Italian term used to describe rapid repetition of the fundamental
Trl/Trill	Trill	An Italian term used to describe the rapid repetition between the fundamental and a note above or below
UP	Up	Describes the direction of the bow or pick
VB/VIB	Vibrato	An Italian term used to describe the perpetual but expressive wobbling in pitch of the fundamental
VS	Velocity Switch	A program which uses MIDI velocity to switch between multiple articulations
Western	Western Feel	A feel not necessarily characteristic of the native musical qualities of the instrument
WT	Whole-Tone (Full Tone)	The interval representing one tone (two semitones) in the western twelve-tone scale

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