VIENNA SYMPHONIC LIBRARY

Press Information

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An Orchestra
for the 21st Century

"You are crazy. Not only is something like that financially unfeasible, but there are almost certainly no computers powerful enough to play all that stuff. Forget it!"

C. F., Vienna, September 1995

Such well-intended advice did in fact go some way to initiating the success story of the Vienna Symphonic Library. In the mid-nineties founder Herb Tucmandl, former cello player and substitute member of the Vienna Philharmonic, went from working as a camera man to being a successful director in his own right. For his various award-winning productions Tucmandl even produced his own orchestral scores with computers and sample libraries. The available resources at that time, however, were nowhere near

Herb Tucmandl, CEO and founder of the Vienna Symphonic Library

satisfactory for his needs. "Composing with sample libraries is 1% creativity and 99% damage control", complained Tucmandl. As a result of this frustration, and with a clear need for something new, he created a new concept for a truly authentic orchestral sample library.

His approach was fascinatingly innovative, as Herb not only wanted to record single notes but also note transitions, which would allow for a living and authentic performance for the very first time. Furthermore, the recordings would include repetitions, trills and fast runs in a wide variety of articulations such as legato, staccato and pizzicato. While the largest conventional sample libraries at that time offered a mere 6,000 samples to replicate an entire orchestra, Herb developed a structure of more than one million single notes and short phrases!

It quickly became clear that a project of this scale was going to push the boundaries of computer processing power and disc space. Unfortunately, computers at the time simply would not have been able to deal with such an enormous undertaking.

Regardless of all the doubts surrounding the project Herb Tucmandl took his cello to a studio and recorded several thousand samples himself. After creating the first demo production he managed to convince insiders and experts alike.

Company Foundation in 2000

Despite Tucmandl developing a sophisticated business plan for his vision, an Austrian bank withdrew their financial backing at short notice. The very same bank that had indeed awarded him first prize for his layout in a business plan contest! The Vienna Symphonic Library GmbH was, however, finally founded in the fall of 2000 thanks to a daring financial investor.

Quite extraordinarily the next obstacle facing the project turned out to be that of finding exceptional orchestral musicians in Vienna, the world capital of music! The problem was that the sheer physical and psychological demands of such an endeavor differed significantly from those of well-rehearsed repertoire played in concerts and on tour. Sitting in a recording booth for months on end only playing single notes and short phrases at the highest possible level of perfection requires not only perfect control of the instrument, but also outstanding stamina.

On top of all of this, though, was the fact that no recording facility could guarantee constant acoustic conditions over an extended period. This, however, was remedied through the creation of a custom-made recording hall built in the south of Vienna. Since then, more than 200 musicians and singers have been performing there, with Artistic Director Michael Hula acting as a merciless but very patient conductor. Since a recording session of 3 hours results in about 30 hours of editing, several dozen sound engineers were confined to editing suites for days and nights, plodding their way through terabytes of sound data and working meticulously to hone a perfect, authentic sound.

"Vienna Symphonic Library has been the center of my orchestral sample library for several years now. I go to their library first every time I create an orchestral template when I'm beginning each film I score. And my demos sound great. I recommend this library to anybody getting into film scoring."

Danny Elfman

Danny Elfman

World Market Leader with 2 Millions of Samples

Since the foundation of the company in October 2000 nearly every instrument of the symphonic orchestra has not only been recorded as a solo instrument but also as part of its respective ensemble. The portfolio is constantly being expanded and now even includes the *Vienna Choir*, a large, mixed choir library to complement the symphonic orchestra.

Using Vienna Symphonic Library's products, music professionals can accurately and authentically recreate orchestral pieces on their computers. This enables composers to produce not only a printed score, but also an audible rendering of their works. Now a composer has a much easier way of convincing producers, directors, publishers and organizers to perform or record a new opus, without necessarily having to book expensive orchestras, concert halls or recording studios. Furthermore, any changes of instrumentation, tempo, length or key can be dealt with quickly and easily. Even pieces that have until now been considered "unplayable" can be realized with the use of this new technology. Aside from TV and film music composers from around the world (which count as VSL's main clients) more and more recording studios and particularly educational institutions are discovering this all-new approach to orchestral music.

What are Virtual Instruments and Sample Libraries?

A **virtual instrument** or **software instrument** is a software application that enables users to produce and play sounds on a computer. Programs of this kind can be run as plug-ins hosted by so-called sequencer software (e.g., Steinberg's *Cubase*, *GarageBand* or *Logic* by Apple, etc.) or as stand-alone applications. Similar to a multi-track tape recorder, a sequencer allows recording, editing, playback and storage of music on the computer, offering endless opportunities of manipulation compared to conventional tape recorders.

There are two kinds of virtual instruments. The first type generates sounds by creating and modulating (synthetic) waveforms like a synthesizer. The second type are sample-based, i.e., they trigger recorded tones that have originally been performed by musicians. These "samples" are assembled for use in a **sample library.**

As opposed to virtual instruments, pure sample libraries consist of a sound database, which depends on so-called software samplers (e.g., *Apple Logic's EXS24, Native Instrument's Kontakt, Steinberg's HALion*). The user has to load his or her sound libraries into these samplers in order to be able to play the sampled instruments.

Vienna Instruments are sample-based software instruments that combine sound data and their sequential arrangement (which is determined by the musical context) with the player software. They enable the user to arrange his or her composition on the computer so that, for the most part, the results cannot be distinguished from a real orchestral recording. Even a selection of musical experts was not able to identify the "computer version" of a Beethoven symphony, played by *Vienna Instruments*, out of three different recordings – two of them played by a real orchestra (Wall Street Journal, May 5, 2007, p.W6).

Recording a violin section at the Silent Stage

"It's fair to say that Vienna Instruments are pushing the boundaries of how sampled instruments sound and play. Offering unprecedented control over articulations and expression, Vienna Instruments afford professional composers and mockup masters with one of the most comprehensive and sophisticated instruments on the market."

John Krogh, US Keyboard Magazine

In 2015, the Vienna Symphonic Library celebrated its 15th anniversary, with a total of more than 2,5 million published samples, available as *Vienna Instruments* for download and on various media. This is by far the largest orchestral sample database ever created by a single company. The Vienna Symphonic Library has become the world market leader of virtual orchestral music production and is constantly expanding its market position. Over the last years, in addition to its unique production of samples, VSL has also focused on developing innovative and universal music software tools (e.g., for audio processing and mixing).

Highest demands for audio recordings

In order to ensure acoustic consistency for thousands of samples (including the vast spectrum of technical nuance and articulation, not to mention volume levels) each instrument has to be recorded at an accurate and constant distance from the microphone. This fixed distance combined with an ultra-amplified signal – used especially for pianissimo sounds – will therefore often lead to the presence of environmental noise, such as birdsong, wind, rain or traffic.

No existing professional recording studios could offer a noise absorption that is necessary for these kinds of sample recordings. That's why a customized recording facility with an isolation of more than 90db was built in Ebreichsdorf, 25 kilometers south of Vienna. In the meantime, all sample recordings are carried out in the refurbished *Synchron Stage Vienna* (see page 7).

Users from all over the world

The list of Vienna Symphonic Library users includes musicians, composers, arrangers and studio owners on all continents. Well known TV- and film music composers like Alan Silvestri, Danny Elfman, David Newman, Alexandre Desplat and many others use their "Vienna Libraries" (as some like to call them) to create mock-ups of their movie scores, or even to combine virtual orchestra sounds with live orchestral recordings in the final mix. TV series such as CSI Miami, Dexter or commercials are almost exclusively created "inside the box". Tight production schedules and limited budgets usually don't allow for recordings of real orchestras.

Herbie Hancock with his *Symphonic Cube*

"Using Vienna Instruments live puts authenticity into your pallet of sounds."

Herbie Hancock

World renowned artists such as Beyoncé, Celine Dion, Herbie Hancock, Lenny Kravitz, Massive Attack, RZA, Babyface or Pete Townshend trust in the authenticity of Vienna Instruments, in the studio and on stage alike. Rock bands such as Korn and Nine Inch Nails as well as top German artist Herbert Grönemeyer or musical composer Sylvester Levay are also known for using the products of the Vienna Symphonic Library.

Last but not least, numerous educational institutions, such as the Berklee College of Music, the Academy of Arts University San Francisco, the Beijing Film Academy and the University of Cape Town take advantage of Vienna Symphonic Library's huge sample database of instruments and software tools to teach music classes.

THE PRODUCTS

Vienna Instruments

Recording all possible notes of an instrument to include all technical nuances and articulations, as well as capturing the interaction between these notes, would result in an endless amount of data. That is why the secret to the realism of the Vienna Symphonic Library lies in the intelligent combination of single notes with short phrases, so-called *Performance Elements.*

The *First Edition*, the company's very first sample library, was published at the end of 2002 and, besides samples, also contained a software innovation called *Performance Tool* that handled these note combinations in real-time. Six months later the four modules of the *Pro Edition* were released. At that time, with more than 360,000 samples and 240 GB of data, it was the largest existing sample library on the market. Just a few months later both libraries were awarded numerous prizes and awards.

Sample Database with Real-Time Performance Control

The *Performance Tool* software initiated the company's transition from sound to software development. Since then developers have focused on improving the usability of the products. A proprietary software sample player was designed in order to simplify the usage of the sound database. While the products *Pro Edition* and the additional *Horizon Series* enjoyed worldwide success, Herb Tucmandl invited several international software developers to join the team.

The groundbreaking result they came up with was a dedicated software player based on a powerful streaming audio engine that may control up to 3,000 articulations ("Patches") on a single MIDI channel. Sophisticated algorithms not only detect playing speed, velocity, and intervals but repetitions or trills in real-time and trigger the corresponding sound samples automatically. This allows for a quick and intuitive workflow, making it easy even for the inexperienced user to create authentic and impressive orchestral pieces.

Modular Product Structure

All instruments of the orchestra, from the bass tuba to the piccolo flute, are available as solo instruments as well as in ensembles. This allows users to set up and expand their virtual orchestra step-by-step according to their budget and needs. The Symphonic Cube, with a data size of 550 GB includes all the instruments of

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Vienna Super Package – Collections

Solo Strings I & II, Chamber Strings I & II, Appassionata Strings I & II, Orchestral Strings I & II, Vienna Dimension Strings I & II, Harps, Woodwinds I & II, Special Woodwinds, Recorders, Brass I & II, Special Brass, Vienna Dimension Brass I & II, Saxophones, Historic Winds I & II, Vienna Konzerthaus Organ, Vienna Imperial, Bösendorfer Imperial, Special Keyboards, Percussion, Elements, Vienna Choir, Vienna Solo Voices.

Vienna Super Package on hard drive

a large symphonic orchestra. In the same year the product was released it was honored with, amongst others, the most prestigious award of the audio industry – the TEC Award 2006 by American Mix Magazine.

The *Vienna Super Package* includes virtually the whole palette of *Vienna Instruments* with a stunning 2.5 millions samples, available for just over € 12,000. In addition to the instruments of the large symphony orchestra, it contains various keyboard instruments, such as harmonium, harpsichord and the *Vienna Imperial* (a sampled Bösendorfer Imperial 290-755 grand piano that has been equipped with the manufacturer's famed CEUS technology), saxophones, historic wind instruments such as cornett (zink), serpent or crumhorn as well as the *Vienna Choir*, a large mixed choir covering the full range of the human voice.

"The Vienna Symphonic Library's value lies beyond its commercial price tag. In the mad clamour of the technological marketplace, many of today's musical products become obsolete almost overnight, but this library is surely destined to be around for years to come."

Dave Stewart & Mark Wherry, Sound On Sound

different host and slave computers, regardless of 32-bit or 64-bit operating systems and without any additional audio hardware.

Vienna Instruments Pro

The latest development effort has focused on embedding the "human factor" of a live performance into the software. With **Vienna Instruments Pro** users may now adjust the performance accuracy of the virtual musicians in terms of timing and intonation. Even the best orchestras in the world won't ever play constantly "perfect", like a machine – the most common criticism of a computer performance. The opportunity to simulate these tiny imperfections of individual musicians playing together is just another step towards a more unique and even more authentic sound of the virtual orchestra.

Vienna Ensemble Pro

The production of orchestral music on a computer is not only a question of musical skills. The complexity of the technical specifications of computer systems is a constant challenge for music professionals and hobbyists alike. The Vienna Symphonic Library team has tackled the problems of many users by developing a network-compatible mixing and host software that can connect Macs and PCs with a simple Ethernet cable. What many engineers vainly tried for many years has become a reality – using **Vienna Ensemble Pro**, MIDI and audio data can be transfered between

User interface of the mixing and host software *Vienna Ensemble Pro*

Vienna Suite Pro 64-Bit Audio-Plug-ins

Vienna Suite Pro

In the fall of 2008 Vienna's software team created **Vienna Suite**, a bundle of high-end tools for audio processing, running – then for the very first time – under 32-bit and 64-bit operating systems. The easy-to-use plug-ins offer an outstanding sound quality as well as numerous presets tailor-made for *Vienna Instruments*. *Vienna Suite Pro* that was released in fall 2015 comes with additional surround features, supporting formats up to 12.2.
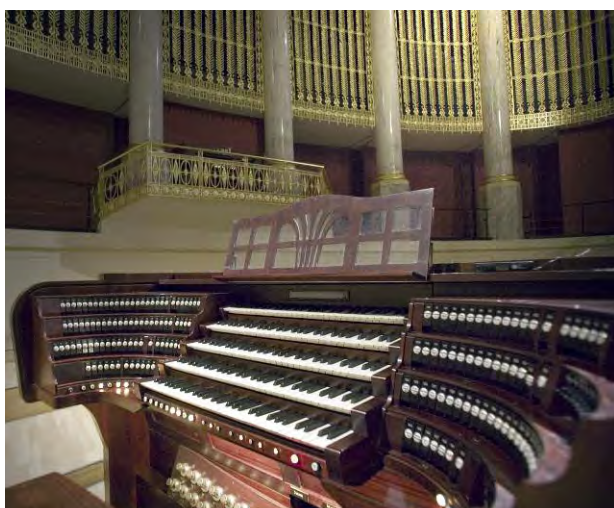
Vienna Suite Pro includes 14 plug-ins in the formats VST/VST3/AU/AAX Native:

- Analyzer Pro
- Compressor Pro
- Equalizer Pro
- Exciter Pro
- Goniometer Pro
- Hybrid Reverb Pro
- Imager Pro
- Limiter Pro
- Loudness Pro
- Matrix Mixer Pro
- Multiband Pro
- Power Pan Pro
- Surround Balance Pro
- Surround Pan Pro

The "Rieger Organ" in the Great Hall of the "Wiener Konzerthaus"

Viennese Collaborations

In cooperation with the venerable piano manufacturer Bösendorfer Klavierfabrik, the Vienna Symphonic Library created the *Vienna Instruments* Collections *Bösendorfer Imperial*, *Vienna Imperial* and a Prepared Piano following the specifications of John Cage for the *Special Keyboards* Collection.

The *Vienna Imperial* with its unrivaled attention to detail is in a class of its own. The Imperial 290-755 that the Vienna team hosted at the Silent Stage for two months was equipped with Bösendorfer's CEUS technology, which allowed for the most precise and by far most extensive piano sample recordings ever conducted in the history of music technology. 1,200 recorded samples in 100 different velocities per key make the *Vienna Imperial* the most comprehensively sampled piano on the market.

Another "first" is the release of a sampled organ in a concert hall. In cooperation with the "Wiener Konzerthaus", the famous "Rieger Organ" in the Great Hall was recorded and released as *Vienna Konzerthaus Organ*.

The great hall of the Wiener Konzerthaus is also famous for its acoustics, and the Vienna Symphonic Library team spent a considerable amount of time in this building researching for another major project. Every hall of the Wiener Konzerthaus was sonically analyzed and calibrated to add yet another dimension to virtual orchestral music – space.

« La Vienna Symphonic Library s'impose sans conteste comme la Rolls des banques d'orchestre. »

Pierre Estève, Recording Musicien

"My goal is never to think about technology, but only about the music. Vienna Symphonic Library is definitely coming from a music point of view."

David Newman

Viennese Space Research: Vienna MIR

In 2009, after several years of research and development and for the first time in music technology, *Vienna MIR* enabled composers to reproduce the ambiences of concert halls authentically in real-time on a single computer.

The idea was simple. Just as it is possible to sample musical instruments and all of their different facets, there is a way to digitize rooms and their acoustic characteristics. The "response" of any room to a strictly defined acoustic impulse can be recorded and imprinted on any other "dry" signal by a mathematical process called convolution. The audible acoustic result is the same as if the signal were recorded in that very room.

A virtual concert hall in *Vienna MIR Pro*

The recent versions *Vienna MIR Pro* and *Vienna MIR Pro 24* not only seamlessly integrate *Vienna Instruments* but even allow for external audio signals to be placed on the virtual stage of a given concert hall and to be shaped with utmost flexibility.

Various *RoomPacks* contain impulse data of a great variety of selected venues for their use within *Vienna MIR Pro*. A staggering 11,000 recorded impulse responses of the four halls and the foyer of the "Wiener Konzerthaus" provide for an absolutely authentic acoustic ambience for the virtual orchestra. Further *RoomPacks* offer impulse data from the Austrian Broadcasting Corporation (ORF), Teldex recording hall in Berlin, UK's landmark building "The Sage Gateshead" near Newcastle, Vienna's famous "Steinhofkirche", built by Otto Wagner and the Pernegg monastery curch.

Refurbished Synchron Stage Vienna

By acquiring the landmark protected "Synchronhalle" adjacent to Rosenhügel-Filmstudios (formerly known as "Film City Vienna") the Vienna Symphonic Library is all set to turn the historic building into a high-end production location for international film music and orchestral recordings. The original facility was built in the 1940s for recording "music synchronized to picture". A remnant of the building's designated use is the preserved "Lenkwil" theatre organ with three manuals that was supposed to provide not just music but also sound effects to film soundtracks, such as rolling thunder, clopping horses, twittering birds, ocean waves and car horns. In the 1960s, eminent classical artists such as Karl Böhm, Herbert von Karajan, Yehudi Menuhin, Sviatoslav Richter and Mstislav Rostropovich discovered the outstanding acoustics of the facility and used it for their now-legendary recordings.

After a reconstruction period of three years and a 10 million Euros investment the revitalized *Synchron Stage Vienna* opened its doors officially in summer 2016, setting international standards with cutting-edge recording technology. The combination with Vienna Symphonic Library's proprietary software innovations unleashes a wealth of unprecedented sonic and creative possibilities that can't be found in any other scoring stage.

Covering an area of over 3,000 m^2 (32,300 sq ft.), the premises accomodate several studios, control rooms, iso booths, editing workstations as well as two instrument storage rooms. Other amenities include music preparation offices, lounges and regeneration areas for composers, producers, editors, guests and staff.

Synchron Stage Orchestra

The *Synchron Stage Orchestra* is the large in-house ensemble of the *Synchron Stage Vienna*. Its 300 members were recruited from renowned Viennese orchestras (Vienna Symphony, Vienna Philharmonic, Vienna Chamber Orchestra), and are specifically trained to meet the special demands of media music and studio recordings, especially when it comes to sight reading on all levels of difficulty and in various musical styles. In order to achieve absolute synchronicity to picture, musicians hear a "click track" in their earphones, but it is still essential to individually respond to the conductor.

Synchron Stage Orchestra – Extended Horn Ensemble

Control Room A

> *"I use VSL because it transcribes most precisely,*
> *accurately what an instrument could play.*
> *I didn't find that anywhere else."*
>
> *Gabriel Yared*

International Productions

Already in its first year, Hans Zimmer's Remote Control Productions chose *Synchron Stage Vienna* to record a whole slate of productions, including music for "Inferno", starring Tom Hanks, the Netflix series "The Crown", Volvo and Mercedes commercials, video games and many more projects. The *Synchron Stage Orchestra* played for clients from the US, UK, France, Germany, Austria, Japan and China. Other artists who performed and recorded at *Synchon Stage Vienna* include Anna Netrebko, the Vienna Piano Trio, the Vienna Chamber Orchestra and the Vienna Radio Symphony Orchestra.

Genius Loci and musical dreams of the future

Over the centuries Vienna has become renowned as a significant center of musical tradition, driven by trend-setting innovations. The Vienna Symphonic Library team draws from an unlimited resource of cultural heritage in a city where music is omnipresent, each member passionately aiming to incorporate that DNA into tomorrow's technology. Further innovations from Vienna are to be expected. In the future, intelligent algorithms will make it possible to control virtual instruments by live musicians in real-time. The dedicated software application is based on "Multi Impulse Response" Convolution Technology (*Vienna MIR*, p. 6). The new technology provides composers and conductors with utmost flexibility in terms of instrumentation and the required sonic result.

Vienna Instruments

Technical Specifications
- Single note samples and Performance Elements in 44,1 kHz/24 Bit
- Practically no noise-floor (90-100 dB signal to noise)
- Extremely powerful audio streaming engine, with a capacity of up to 8192 stereo voices per instance
- More than 3,000 Articulations (Patches) can be controlled on a single MIDI channel
- Extremely short loading times using pre-caching and RAM preload
- Lossless real-time decompression for using less hard disk resources; optimized for Solid State Drives (SSD)
- RAM Optimizer kicks unused samples out of RAM
- Plug-in (VST, AU, AAX Native, RTAS) and stand-alone

System Requirements
- PC Windows 7 (latest Service Pack, 32/64-bit), Intel Core 2 Duo or AMD Athlon 64 X2
- Mac OS X 10.8 (latest update), Intel Core 2 Duo
- 2 GB RAM (4 GB recommended)
- *ViennaKey* (Vienna Symphonic Library USB protection device or other *eLicenser*, formerly Syncrosoft)
- *eLicenser Control Center* (the latest available version from www.elicenser.net is highly recommended)

Recommended:
- Fast separate hard drive (7200 rpm or SSD drive)
- AU/VST/AAX Native/RTAS compatible host software (also works stand-alone)
- 88 key master keyboard

CV Herb Tucmandl, CEO

- Music studies at the University of Music and Performing Arts, Vienna
- Cello player (i. a. substitute at the Vienna Philharmonic), camera operator and director
- Composer of film and TV music
- 2000 Foundation of the Vienna Symphonic Library GmbH
- 2011 Austrian Film Award (Category "Best Music" for "Atmen", directed by Karl Markovics)
- 2013 Acquisition and refurbishment of the *Synchron Stage Vienna* (formerly known as "Synchronhalle"), adjacent to Rosenhügel-Filmstudios

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