CHOOSING AND USING SAMPLE LIBRARIES
Hints and Tips

Introduction

There are a huge number of sample libraries available on the market covering a wide range of solo instruments and ensembles. On the Wersi HD series instruments these libraries can be used in two different ways, for *Composition* or for *Performance.* For a composition application we would run the sample player inside a Digital Audio Workstation (DAW) and use this to construct a backing track that could then be used as an accompaniment in a live performance. For a performance application we would run the sample player either in stand-alone mode or in a VST/AU host, and use this to play our HD instruments in a live performance. The requirements for these two modes of operation are different, so the choice of sample library will need to be appropriate to whether we wish to use one or the other or both of these applications.

Types of Sample Library

Sample libraries can be characterised by the instruments that they contain, and how these are arranged. The three basic types are *Orchestral*, *Instrument Groups* and *Solo Instruments*.

Orchestral Libraries

An Orchestral Library would typically contain all the instruments in an orchestra or band, and generally these would be divided into their various individual sections.

So for example in a concert orchestra, we might have separate sections for Ist and 2nd violins, violas, cellos and basses. In a big band we might have separate sections for trumpets, trombones, saxophones and clarinets. We might also have ensembles, for example the entire string section of the orchestra playing together. There may also be ensemble combinations, for example flutes playing together with oboes. And any or all of the instruments could be featured as solo instruments.

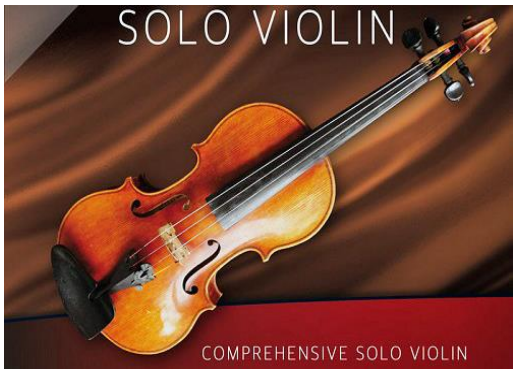
Instrument Group Libraries

An Instrument Group Library would typically contain a number of variants of the same type of instrument.

For example, we might have a library that features a number of different types of guitar, such as nylon, steel, electric and jazz, and also a banjo and mandolin. Or a violin library that contains different makes of violin. In general because these libraries are more orientated towards a specific type of instrument, they will offer a wider range of playing modes, articulations and tonal adjustments than the Orchestral Libraries.

Solo Instruments

A Solo Instrument Library would generally specialise in just one single instrument.



Whilst an Orchestral Library will offer high quality instruments, these tend to be those normally played by the members of the orchestra being sampled. An Instrument Group Library by contrast will often include instruments with specific characteristics, for example a Stratocaster guitar, but a Solo Instrument Library can offer top end prestige instruments such as a Steinway concert grand piano or a Stradivarius violin, and will also have the most comprehensive set of playing modes, articulations and tonal adjustments.

Choosing a Sample Library

As we have seen, we can utilise a sample library for either Composition, Performance or both. The following considerations are useful in making an appropriate choice.

Sample Libraries for Composition

In constructing a backing track we would use the sample player to generate our instrumental sounds and then assemble these on to different tracks in the DAW.

This process provides complete flexibility in what instrumentation we choose to place on each track. If we wish to construct a complete orchestral score then we would typically be using orchestral sections and solo instruments. So in this case we might place the 1st violins, 2nd violins, violas, cellos and basses all on separate tracks since they will be playing different parts, and our solo instruments on the other tracks.

Alternatively, if we wish to play these instruments as ensembles and solo instruments, then each track would typically contain an ensemble or a solo sound. So in this case we might place the strings ensemble on one track, the brass ensemble on another, the woodwind ensemble on a third and so on. And again our solo instruments would be on the other tracks. And of course all other combinations of orchestral sections, ensembles and solo instruments are possible.

Example: Suitable sample libraries for strings in a composition application:-

Symphonic Strings Library	-	For the individual string sections
Albion One Library	-	For the string section ensembles
Solo Strings Library	-	For the solo string instruments

Note that we have the option to do what most musicians who use sample libraries for composition will do which is to install a number of different vendor's libraries in Kontakt and then select particular instruments from these to obtain a specifically required sound.

Sample Libraries for Performance

A Composition application is a *serial* process. The composer doesn't have to play the notes for more than one part at a time, and most of the time these parts will not be particularly complex. In a Performance application however we are not able to replicate the same complex orchestral arrangements that can be achieved in a DAW because in a live performance we only have two hands and two feet to create all the necessary sounds. So in our string example if we layer together the various string instruments, we don't get a full bodied string section sound, just the rather thin sound of a number of string instruments playing in unison. The same would be true for the other orchestral sections. The essential characteristic of this mode of playing is that it is a *parallel* process. We have to play all the required parts simultaneously. So in a live performance we will be using mostly ensemble sounds and solo instruments.

This can be done in a number of ways. We could play an ensemble sound (e.g. strings) as an accompaniment on one manual and a solo instrument (e.g. clarinet) on the other. We could play an ensemble sound (e.g. strings) on one manual and another ensemble sound (e.g. brass) on the other. We could play a solo instrument (e.g. guitar) as an accompaniment on one manual and an ensemble or solo sound on the other. And we could play an ensemble sound with both hands on the same manual.

Example: Suitable sample libraries for solo and ensembles in a performance application:-

Chris Hein - Horns Pro	-	For solo and section instruments
Albion One Library	-	For string, brass and woodwind ensembles

Combining Composition and Performance

We can use a backing track composed in our DAW in a live performance either by playing this directly from the DAW, or by creating a midi or audio file in the DAW, loading this into the Wersi and then playing it as an accompaniment from the OAS/X. Note that if we play the track directly from the DAW, we can simultaneously play a style or other accompaniment from the OAS/X.

The instruments used in our live performance can be any of the HD instruments from Kontakt, or from any other of our installed HD software players. And any of these HD sounds can be layered together in any combination by using the OAS/X selectors. Additionally, any of the HD sounds can be layered together with any of the sounds from the OAS/X sounds database, again by using the OAS/X selectors. This makes for a very comprehensive and versatile playing environment.

Using a Sample Library

Any of the commercially available sample players can be installed and run on the Wersi HD Series instruments, but Kontakt is the most popular and the Kontakt Player will run the majority of sample libraries designed for this platform. The full version of Kontakt however will run all of these libraries and also provides a comprehensive set of sample processing features. These are primarily intended for users who wish to import their own samples and so create their own sample libraries. For this purpose Kontakt can import files in a number of different formats (wave being the most popular) either as sample loops from commercial vendors, or files in the public domain or even recordings made by the user. Once input, these files can then be assembled by a set of editors into a sample set, and then processed by a comprehensive set of sound controls in an effects section to customise their tonal qualities. Wersi HD Series owners may wish to explore this option further. All of these features however can also be applied to any of the commercial samples libraries that we have been discussing, and there are three effects that are of particular use in obtaining the best possible quality from our HD instruments.

Accessing the Sample Processing Features

In the Kontakt Player, selecting the *Cogwheel* icon at the top left of the Instrument Header will display a set of general instrument options.

In the full version of Kontakt this icon changes to a *Spanner*.

Now selecting this icon will display all the sample processing features as shown below.

At the top of the display are the sample editors. Clicking on any one of these editor buttons will open the corresponding editor, and clicking on the button again will close it. At the bottom of the display are the effects racks which contain the sound controls. The *Insert Effects* section enables sound controls to be applied at the instrument level. We shall be applying three of these, *Equalisation*, *Stereo Width* and *Reverberation*

Click on the ▼ button to the left of the Insert Effects label to display the Instrument Insert Fx rack as shown below.

There is provision for a total of seven effects in this rack. The screenshot above shows all seven are empty. This will not necessarily be the case if you are using a commercial sample library. Some of these slots may have been allocated by the library designer for particular functions, and these must be left intact. However, any that have the **B** button at the top left of the slot highlighted in red can be deleted. This indicates that the effect has been bypassed and is therefore inactive. The effect in that slot can be deleted by clicking on the **X** button at the top right of the slot. To add our three effects we will need to allocate three adjacent empty slots at the end of the effects chain immediately before the *Sends* effect. The effects chain is a serial arrangement where one effect feeds into the next, so we wish to have these effects applied in a particular order and after all the other effects. If one or more of the occupied effects slots need to be moved to achieve this, a slot can be can be shifted left or right along the chain by holding down the left hand mouse button in the slot to be moved then dragging it to the space before the slot that you wish to move it to. Be careful to maintain the ordering of any occupied slots to maintain the correct sequential processing.

Adding Equalisation

The instruments in sample libraries are primarily voiced for use in a recording studio setup where they would be played through reference quality monitor speakers and headphones that have a flat, neutral frequency response. When played on a Wersi, the organ's amplification system, speakers and mixer settings can substantially colour the sound, and so some degree of tonal compensation in the form of equalisation may be necessary in order to hear the true authentic sound of these instruments. Kontakt enables us to apply this equalisation at the instrument level, and therefore this can be a different setting for each individual instrument if required. It also enables us to play the HD sounds simultaneously with the OAS/X sounds without having to make any adjustments to the organ's Input and Output Mixer settings.

To add the Equalisation effect, click on the **+** icon in the fifth effects slot from the left, scroll down to the *EQs* entry on the drop down list and select one of the four equaliser units. The display below shows the 4 band equaliser **Solid G_EQ**.

You can now either adjust the various parameters manually or select one of the unit's presets by clicking on the ▼ arrow to the right of the lower *Preset* label, selecting the **Factory** option and then the preset of your choice from the drop down list.

Note that some sample libraries may also feature a built-in equalisation unit. This is useful in creating different tonal variations for the instruments. The controls on this can vary in nature from a simple bass and treble arrangement to a full multi-band parametric unit. If this is the case there will already be an equalisation or filter effect located in one of the slots of the effects chain, and its controls will be linked to those of the equalisation unit in the instrument's main menu. The effect could also be located in the *Group Insert Fx* rack or the *Instrument Buses* rack. Since we are replacing this with our own customised equalisation setting, this effect is not required. You can delete it from its effects slot using the procedure previously described.

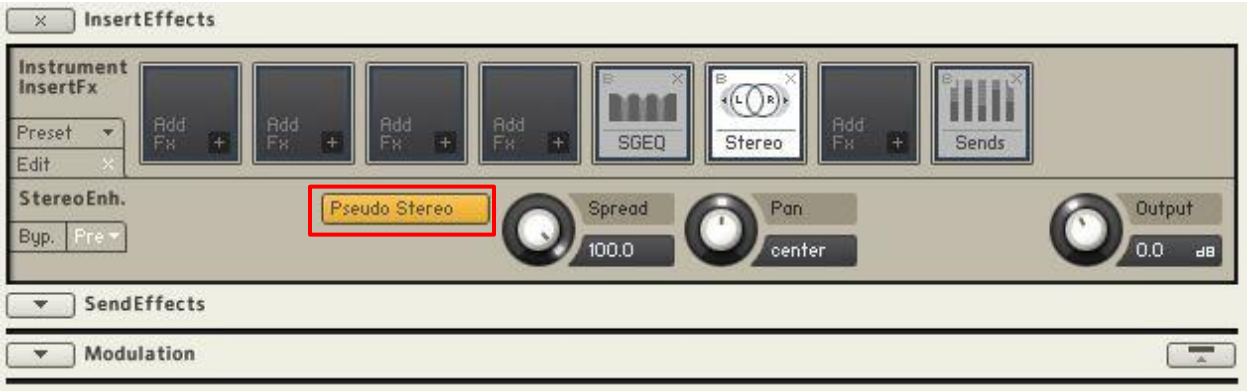
Adding Stereo Width

Typically the solo sounds in sample libraries will be stereo signals recorded in mono, i.e. the same signal appears in both the left and right channels. This enables a composer to create a complete stereo soundfield for an arrangement by panning the instruments to different positions in the stereo image. When played on the Wersi, these instruments will appear in the centre of the stereo image and can of course can be panned anywhere in the soundfield using either the pan controls in the OAS/X or in Kontakt. Typically though, instruments in the OAS/X sounds database are true stereo signals and as such are spread across the soundfield. We can achieve the same effect for the HD sounds by using the Kontakt Stereo Width effect. In this way the HD sounds appear more widely dispersed and blend in better with any OAS/X sounds that we may wish to play them with.

To add the Stereo Width effect, click on the **+** icon in the sixth effects slot from the left, scroll down to the *Utilities* entry on the drop down list and select the **Stereo Modeller** entry. The display should now be as shown below.

Generally, the ensemble sounds in a sample library will be presented in true stereo because they include instruments that are located in different physical positions in the room that they have been recorded in. So to widen the stereo image of these sounds, simply adjust the **Spread** control to the right for a wider image or to the left for a narrower image.

For the solo instruments we can convert their mono signal into a stereo image by selecting the **Pseudo Stereo** button and as before adjusting the **Spread** control to the required stereo width as shown below.



As described previously for the built-in equalisation unit, some sample libraries may also feature a built-in Stereo Width control. If so, there will already be a stereo width effect located in one of the slots of the effects chain, and its controls will be linked to those of the Stereo control in the instrument's main menu. The effect could also be located in the *Group Insert Fx* rack or the *Instrument Buses* rack. Since we are replacing this with our own customised stereo width setting, this effect is not required. You can delete it from its effects slot using the procedure previously described.

Adding Reverberation

As with the equalisation effect, most sample libraries will include some sort of reverberation control, which can be anything from just a simple level control to a full parametric unit with presets. Kontakt offers a very comprehensive set of reverberation functions, again applicable at the instrument level. This enables an appropriate type of reverberation to be selected for each individual instrument, and also alleviates the need to use the reverberation units in the OAS/X which are only of a single type and lower in quality.

To add a Reverberation effect, click on the **+** icon in the seventh effects slot from the left, scroll down to the *Reverb* entry on the drop down list and from the four types of reverberation listed, **Convolution**, **Plate Reverb**, **Reverb** or **Legacy Reverb**, select the **Reverb** option.

The display should now be as shown below.

As with the equalisation effect, you can adjust the reverberation parameters manually or select one of the presets by clicking on the ▼ arrow to the right of the lower *Preset* label, selecting the **Factory** option and then the preset of your choice from the drop down list. The same procedure applies for the reverberation types *Plate Reverb* and *Legacy Reverb* on the list.

The *Convolution* reverberation has a different structure to the other three reverberation types in that it needs a convolution waveform. To see how this works, delete the Reverb effect from the seventh effects slot using the procedure previously described, and add the Convolution reverb to the slot by clicking on the **+** icon, scrolling down to the *Reverb* entry on the drop down list and now selecting the **Convolution** option. The display should now be as shown below.

There will currently be no waveform displayed in the waveform window. If the library includes a reverberation feature, then the library designer will have supplied a convolution waveform for the instruments. This will usually be a reverberation sample taken from the same room that the instruments were recorded in. If this is the case there will already be a reverberation effect located in one of the slots of the effects chain, and its controls will be linked to those of the reverberation control in the instrument's main menu.

The effect could also be located in the *Group Insert Fx* rack or the *Instrument Buses* rack. Since we are specifying our own reverberation type, you can delete this from its effects slot using the procedure previously described.

To select a particular convolution reverberation type, click on the ▼ arrow to the right of the lower *Preset* label, select the **Factory** option then the general reverberation category of your choice from the drop down list, then scroll across to the subsequent drop down list and select a specific reverberation type of your choice. The following display shows the *Concert Hall A* reverberation selected from the *Real Rooms* category.

You can change the values of any of the parameters of the preset if required by adjusting their corresponding controls. In particular you will probably need to set a different value for the reverberation level which is controlled by the *Wet* slider. Move this slider right for more reverberation or left for less.

Controlling the Effects

All the effects that we have added, and all the values of their associated controls, will be saved when the instrument is saved. This works well if all these values are required to be fixed. If however one or more of these values is required to be variable, then we need to link the control in question to a suitable MIDI CC (Continuous Controller) on the Wersi instrument.

To do this, right click on the control and the message "*Learn MIDI CC# Automation*" will be displayed. For OAS instruments you can assign a control to any one of the MIDI CC parameters *Reverb*, *Chorus* or *Delay* located on the *Selectors* page. All of these appear on the organ's external MIDI outputs. For OAX instruments the external CCs are located on the *Routing* menu of an external sound. More information on how to access and configure these is available in Chapter 3 of the OAX Upgrade Manual. In both cases simply change the value of the relevant CC control up and down, and its CC number is captured. You can then set an appropriate value on this control in a Total Preset.

Adding Other Effects

In this article we have been primarily concerned with adjusting the essential parameters of the sample library instruments to obtain optimum sound quality and authenticity when played on the Wersi. There is however a whole range of other effects that we could apply that would enable us to both generate different variants of a particular sound and also to create completely new sounds. An example of the former would be the application of a filter effect to a standard trombone sound to produce a soft trombone. An example of the latter would be the application of a phaser effect to a string sound to produce a synth pad. OAS owners who purchased the Sound Factory activation will be familiar with the power and versatility that this kind of facility provides.

Note also that all these effects can also be applied to any samples that are imported into Kontakt for the purpose of creating a user sample library. In this way you can significantly expand the range of sounds available on the instrument by adding new sounds that are customised to your own particular requirements.

Commercially Available Sample Libraries

The following are some useful links to a selection of commercially available sample libraries.

Native Instruments Kontakt Libraries - Instruments developed by NI for use in Kontakt

Native Instruments Third Party Libraries - Instruments from other vendors for use in Kontakt

Best Service Libraries – A huge range of instruments for Kontakt and other sample players

Spitfire Audio Libraries – A full set of orchestral instruments for use in Kontakt

ProjectSAM Libraries – A set of orchestral and big band instruments for use in Kontakt

Realitone Libraries – A variety of individual specialised instruments for use in Kontakt

Orange Tree Samples – A set of different guitars and other instruments for use in Kontakt

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Jeff Ormerod - March 2020