

HAVERHILL OLD INDEPENDENT CHURCH



HAUPTWERK™ v.3 SAMPLE SET

MINI SET

USER MANUAL

Version 1.1 - © Lavender Audio 2009



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Thank you for purchasing this sample set which is a cut down version of the full Haverhill OIC set. Although there are significantly fewer stops, every effort has been made to provide a balance of registers which will form a coherent two manual organ and the resulting specification is consistent with the sort of instrument that may be found in many English churches. In particular, there is no compromise in the quality of the samples, which are identical to those presented in the full set.

Although the samples are unchanged, some simple voicing has been carried out to optimise the balance between stops and divisions. Both the Great Suabe Flute and the Swell Mixture are in fact stops taken from the Choir organ of the original instrument.

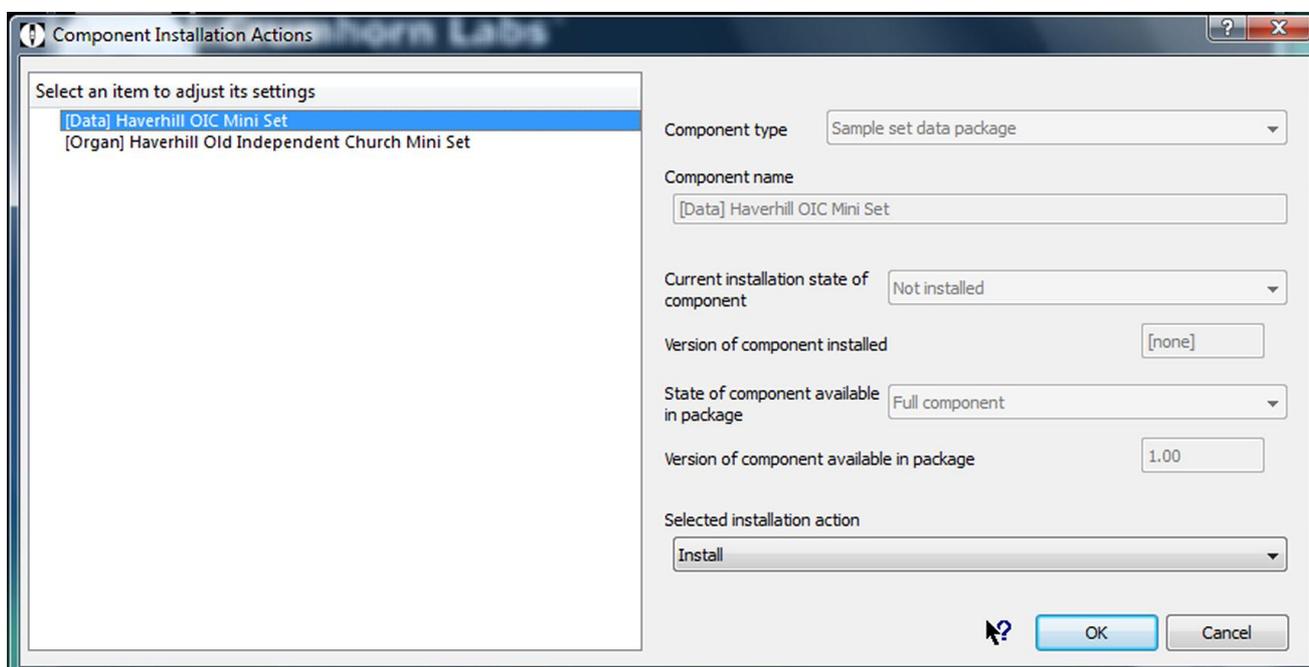
There is an upgrade path to the full Haverhill OIC sample set - please visit www.lavenderaudio.co.uk/oic for further details.

Please take a little time to read this manual to familiarise yourself with the various features this set offers.

NB. At the time of writing, only Hauptwerk version 3.23 upwards is supported. This sample set is compatible with all HW editions, including Hauptwerk Free Edition.

1. Installation

Please use Hauptwerk's component installer to ensure proper installation of this sample set. Start Hauptwerk and insert the DVD into your DVD drive. In Hauptwerk, choose File | Install organ, sample set, temperament or impulse response ... and then navigate to your DVD drive to find the installation package (it's called HaverhillOICMiniSet). Once Hauptwerk has analysed the package you will be presented with the sample set licence which you will need to accept. After a while, the following screen is presented.



Ensure that the Selected installation action for both the [Data] and [Organ] items is set to Install and then click OK. Installation should then proceed and the whole process may take many minutes to complete, depending on the speed of your computer.

Assuming this task completes successfully, the organ is now ready to load for the first time. Further information relating to this can be found in section 3.

2. Specifications and background information

The following information is provided as background to the creation of this sample set. It is by no means required reading but may help when considering the options available as the organ is loaded for the first time as well as helping with the various organ specific settings that Hauptwerk provides.

The Haverhill Old Independent Church organ was recorded using the ORTF mic technique. This was felt to give the optimum balance of direct and reverberated sound whilst maintaining a good stereo image. The organ was recorded from a distance of approximately 4m from the front pipes. All samples are presented at a resolution of 24 bits and a sample rate of 48 kHz.

Multiple releases were recorded, which add greatly to the realism of the sample set. All pipes have a release recorded for both staccato and sustained notes and a third set of releases were recorded for the Swell chorus reeds (not Oboe) and for all Great and Pedal stops. These releases are for notes held for a duration between staccato and sustained (*portato* - typically 200 to 500 mS, depending on pitch). Some of the pedal notes have a total of 4 releases. Despite the relatively modest acoustic of around 1.5 seconds, this extra layer adds noticeably to the realism. It was found that for the softer stops a portato release made no difference to the overall sound.

Please note that the multiple releases are handled automatically by Hauptwerk and that no special hardware is necessary.

Each sample was sustained for an average of 6 seconds and each has been programmed to have either 3 or 4 loops. Having more than one loop imparts some life to the sound and makes long sustained notes sound more realistic.

Up to 16 tremulant samples were taken for the Swell stops and these were processed using a special tool kindly provided by Crumhorn Labs. A limiting factor to the realism of the tremulant model is that the releases are not modulated in any way, so in effect a tremmed sustain has a non-tremmed reverberation. However, the relatively short reverb time of the building tends to minimise this problem.

Likewise a large number of Swell samples were analysed for the level and harmonic differences between the swell box being open and shut and the results of this used to programme accurately Hauptwerk's swell models. Both the tremulant and swell parameters can be further adjusted by using the voicing tools (Advanced edition only).

The organ is tuned to equal temperament at approximately A=450 Hz. All of the samples have been left at their recorded pitch with only the most out of tune being repitched from within the organ definition file. As a result, the normal tuning errors that are found in even the best regulated organs are present here and therefore contribute to the overall realism of the organ. However, it may be considered necessary to use the organ at standard concert pitch (A=440). This is possible and the organ definition file has been carefully programmed to produce appropriate randomised tuning errors when not using the original organ tuning (the strength of these tuning errors can be adjusted within Hauptwerk or even disabled completely so the organ plays in perfect equal temperament). The most realistic sound, though, will be when the original organ tuning is selected.

Note that adjusting the random tuning errors has no effect in original organ tuning mode.

3. System requirements and loading the organ for the first time

Computer requirements aren't too onerous by today's standards. This is largely due to the relatively short reverberation time, which means that polyphony (and therefore processor load) and memory requirements are less than those of similar sized organs in more resonant buildings. The complete sample set was developed on a PC consisting of an Intel Core 2 Duo E6420 processor with 8 GB of system memory running Windows Vista 64 bit and this platform has proven more than adequate to run this organ with all realism features enabled.

The following table gives very approximate figures for the amount of RAM (memory) the organ requires with various different loading options set. None of these figures take into account the RAM needed by the operating system or Hauptwerk itself. Where no figure is given, that particular loading option (although valid) hasn't been tested, generally because it wouldn't make sense to use it. Of course, not all ranks need to have the same settings.

	24 bit	20 bit	16 bit	14 bit
Uncompressed	3105 MB	●	1670 MB	●
Lossless compression	1925 MB	1735 MB	1100 MB	●
Single loops and compression	●	●	850 MB	785 MB
Single loops and releases with compression	●	●	●	645 MB

To achieve best results, the organ should be loaded at 24 bits resolution, no memory compression and with all realism features enabled. If your system doesn't have sufficient memory to allow this, then it is recommended to try the following in order until the set loads reliably (it is wise to allow for a small amount of unused memory to keep the operating system happy !)

- ◆ Use lossless memory compression (audio quality is unaffected although polyphony is reduced by approximately 15%)
- ◆ Load some or all samples at 20 bit resolution
- ◆ Load some or all samples at 16 bit resolution.
- ◆ Only load a single loop on some or all samples.
- ◆ Load some or all samples at 14 bit resolution
- ◆ Only load single releases for some or all samples

It is possible to go a fair way down this list with very little obvious loss of realism or quality – however the last two options should both be avoided if at all possible. Loading single loops means that very approximately only half of the sustain section of each sample will be loaded, leading to a useful saving in memory space.

You can also reduce the load on your computer's processor by disabling the wind model (not appropriate in the US), disabling real time harmonic shaping and disabling interpolation, all of which will affect the realism of the organ.

The first time the organ is loaded the sample cache is built. This takes a considerable time – maybe 5 minutes or more. However, subsequent loads are much quicker.

Once the organ is loaded, you can use Hauptwerk to connect the keyboards, stops, pistons and swell pedals of your MIDI setup as necessary. Default settings for all of the sample set's inputs have been carefully specified, so this process should only take a minimum of time.

For users of **Hauptwerk Free Edition**, please note that there is an overall sample RAM limit of 1.5 GB (approx. 1536 MB) and the sample resolution is limited to 16 bit. Therefore, the sensible loading option is 16 bit, lossless compression with multiple loops, assuming you have at least 1100 MB free system memory. It is advisable only to draw the minimum number of stops when playing more demanding pieces (eg those which are fast moving or have big chords) to avoid the 256 simultaneous note limit becoming too noticeable. Loading the set in mono and/or truncating the releases can help reduce demands on polyphony, although this will result in a slight drop in realism.

4. Haverhill OIC Mini Set Sample Set Screens



The **Console** screen offers the most realistic view of the instrument without the extra features that are seen on the other pages. All of the keys, pedals and stops respond to the mouse as well as providing a visual indication of remote control via MIDI.

The six combination pedals to the left control the Swell and the four to the right control the Great (in each case pedals 1 to 6 (or 4) go left to right). The combination pedal to the far left is simply a reversible acting on the Great to Pedal coupler.

The **Stops + Pistons** page offers a convenient way to control the organ from a single screen. It also offers some extra features that you won't find on the console screen. As well as the Swell and Great pistons, there are 4 pistons for the Pedal and 20 General pistons. They are all fully programmable – select the stops you wish to assign to a piston and then click on the setter piston (labelled 'S') followed by the piston you wish to assign the combination of stops. It's important then to click on the setter again to switch it off after you have finished programming the pistons. The 'C' piston is a general cancel.



This control allows you to couple the piston action. If the “Great and Pedal Combs Coupled” is enabled, then pressing a Great piston will also operate the corresponding Pedal piston (and vice versa). The combination coupler is unaffected by any piston, divisional or general.



Basscouplers offer a way of playing the pedal organ from the manuals. This can be useful in various circumstances, not least if your virtual organ lacks a pedalboard ! The basscoupler is intelligent in that only the lowest manual note sounds on the pedalboard, meaning that only one note is played at a time giving a far more musical result than a simple “Pedal to Manual” coupler. The state of the basscouplers is stored and recalled with the general pistons only – the divisional pistons have no effect.



The **Settings** page allows a quick and convenient way of enabling or disabling stop action noise, key action noise and blower noise as well as setting the relevant noise levels. To set the volume level, simply click on the appropriate LED bar graph and the volume will adjust to the point where you clicked. The calibration of the bar graphs is in decibels. Key action noise on the real organ is quite quiet, the exception being the bottom octave of the Swell which is noticeably louder. It was generally not possible to remove this totally from these samples (although enough has been removed to make the effect of playing this part of the Swell with several stops

drawn acceptable), so even with the key action noise switched off, note on and off noise will still be noticeable to an extent. The swell pedal is perfectly silent in operation, hence there is no noise associated with its operation.

Please note that Hauptwerk Advanced Edition has comprehensive voicing facilities and this is highly recommended if you wish to make changes to the volume, tone or tuning of any of the stops.



5. Acknowledgements

Finally, my thanks go to the following people ...

Brian Swallow, the organist at Haverhill Old Independent Church for his great support and enthusiasm in getting this project off the ground. Karen Knight, the minister of the church and the lay elders and congregation for their hospitality and for agreeing to allow the sample set to be made publicly available.

Peter de Vile, who tunes and maintains the organ to a very high standard.

Martin Dyde and Brett Milan for their help and support in bringing the sample set to fruition.

Appendix – Licence Agreement

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3. Copyright in any musical performance using these samples is vested solely in the licensee. A musical performance is defined as one in which the samples are combined in such a fashion that no individual samples could be re-used by a third party.
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