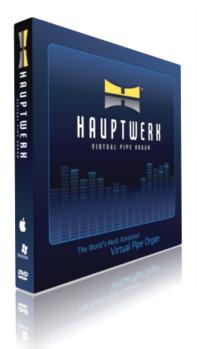# HAUPTWERK ⁴

VIRTUAL PIPE ORGAN

The World's Most Advanced Virtual Pipe Organ x 4!

Hauptwerk 4 brings the world's greatest pipe organs within reach of musicians everywhere. Used for study and practice at home by professional and amateur organists, organ enthusiasts and music students, Hauptwerk is the leading virtual pipe organ software providing ultra-realistic organ modeling, high quality audio and flexible interfacing with organ consoles, MIDI hardware, touch-screens and pro-audio applications. The entire experience of using and setting up a well-integrated, powerful and flexible virtual organ system is now extremely quick, easy, and intuitive, even for those with little or no MIDI, computer or technical experience.

Key features:

• Extremely realistic modeling of organs of all types on current computer hardware.

• Huge library of more than 100 organs available.

• Free, Basic and Advanced Editions of Hauptwerk offer a wide range in both features and price to suit your needs.

• Natively compatible with most models of digital/MIDI organ hardware, with automatic configuration and no MIDI experience needed.

• Stand-alone live playing and MIDI sequencer integration possible simultaneously, with full AudioUnit and VST support to route audio easily to a sequencer or to apply real-time reverb.

History captured: huge library of virtual instruments available.

An extensive library of historic classical and theatre organs is available (not included) for Hauptwerk, spanning countries all over the world from the finest cathedrals, churches, and theatres. Whether your musical interests are of the Baroque, Romantic, or Modern genre, you will be sure to find an instrument that suits your needs.

Virtual organs of all sizes possible on modern computer hardware.

Hauptwerk can model organs of all sizes, from the smallest positf organ to the largest cathedral organ on modern computer hardware. It's built around the philosophy of at least one audio recording (sample) per pipe (or note per stop), and long samples, each of several seconds. This allows for incredibly realistic virtual organ models, with the size of the instrument being limited only by the computer's memory and processing power.

Functional details of organs of all types modelled accurately, including theatre organs.

For example: stops, couplers of all types (including melody and bass couplers; very useful if you don't have a MIDI pedalboard), combination systems (of any complexity), crescendos, sforzandos and unification are modelled., All functions found on theatre organs can also be modelled, such as unification, second touch, 'toy counter' effects, untuned and tuned percussion, sustainers and reiterators. Hauptwerk's superbly realistic tremulant and swell box models make for one of the most life-like sonic and functional models of a theatre organ yet.

Reproduce organs' original acoustics accurately.

The acoustic is a vital, integral part of an organ's sound. Real pipe organs are usually designed and voiced for the acoustic in which they're installed. 'Wet' sample sets capture and reproduce the natural acoustic and spatial characteristics of the original organ's room, from each pipe's position separately. Real key-release samples capture the natural decay of each pipe's sound, as well as the important pipe transients as the pipe ceases to speak. In particular, historical organs can be captured and played virtually in the full majesty of their original acoustic environment. Hauptwerk allows several release samples per pipe to be used so that when a pipe stops speaking the release sample is selected according to how long the pipe has been sounding. This gives an extremely realistic virtual acoustic when playing rapidly, since the character of the pipe sound changes considerably during the early parts of its speech, and multiple release samples allow the reverberation tail to respond accordingly. Release samples are automatically phase-aligned with the main pipe samples so that no dip in volume should occur when Hauptwerk joins the main samples to the release samples when keys are released. The level of a release sample is also automatically adjusted so that it matches that of the main sample at the point that the key is released, giving a natural decay. Wet sample sets are suitable for use at home, on headphones, or in acoustically-dry listening rooms.

Dry instruments available for use in reverberant spaces.

'Dry' instrument s contain little or no room acoustic in their samples and can be used in reverberant spaces such as churches, or with artificial reverb.

Top-quality 30-stop English classical organ included.

A virtual organ based on the 1907 Brindley and Foster organ of St. Anne's, Moseley, Birmingham, England is included with Hauptwerk, comprising over 3 GB of 24-bit, 48 kHz stereo samples recorded separately from every note on every stop on the organ and with multiple release samples for a very realistic virtual acoustic. It also includes blower noise, stop action noise and other details, a photo-realistic console display, numerous playing aids (divisional and general pistons, crescendo pedal, FF and PP pistons, combination programmer panels and more) and a superbly realistic tremulant, swell box and wind supply model.

Extremely easy and quick to set up, with automatic configuration and no understanding of 'MIDI needed.

We've made the entire experience of using and setting up a well-integrated, powerful and flexible virtual organ system extremely quick, easy, and intuitive, even for those with little or no MIDI, computer or technical experience or inclination. Hauptwerk automatically detects and configures MIDI settings for most makes and models of MIDI/digital organ console and MIDI hardware. If you're using a theatre organ, it will even set up second-touch for you! Right-clicking on a virtual control or control panel button/slider allows its MIDI settings to be detected and configured automatically (or adjusted manually if you wish). Wizards help you to get Hauptwerk and each virtual organ set up correctly, quickly and easily.

Intuitive user interface; easy and quick to learn and use.

Hauptwerk's user interface is designed from the ground up to be ultra-intuitive, with clearly laid-out control panels bringing all related functions together so that it's immediately obvious how functions are used, how they relate to each other, the functions that are available, and how to configure those functions for MIDI operation.

Natively compatible with most digital/MIDI organ consoles and MIDI hardware, flexible MIDI implementation.

Hauptwerk has full, native support for the MIDI implementations found in most makes/models of digital/MIDI organs, allowing easy, fully-integrated control of Hauptwerk's keyboards, pistons, expression pedals and bi-directional control of stops, for hardware that supports it. The MIDI implementation is extremely flexible, to cater for almost all available MIDI hardware. It's very quick and easy to set up, with no understanding of MIDI needed.

Massive polyphony.

Hauptwerk is designed and optimized very efficiently to achieve a massive polyphony from your computer hardware, allowing thousands of pipes to sound at once, and long 'wet' release samples to be played. All samples are kept in memory to give the highest possible polyphony. By disabling various 'audio engine' features, you can get about three times the polyphony, even from old computers. The Advanced Edition of Hauptwerk allows a polyphony up to 32,768 simultaneous pipes, and the Basic Edition up to 1024. Modern dual/quad-core computers will typically manage several thousands of pipes at once; enough even for large cathedral organs.

Photo-realistic organ console display.

Each instrument can display a native, multi-tabbed display of its organ console and other functional parts using high-resolution graphics. The controls on the display move and can be interacted with. It feels like you are actually sitting at the console of the pipe organ in question.

Natively optimized for touch-screens, with intuitive control panels and tool-bars.

The user interface is optimized throughout for touch-screen use. Touch-screens are a popular, convenient, intuitive and cost-effective way to control multiple virtual organs (most often used in combination with MIDI keyboards and MIDI pistons). Control panels make all of Hauptwerk's key functions readily accessible by touch and give clear visual feedback of all associated statuses. There are many 'mini' dock-able control panels, with all control panel window positions being stored separately for each organ, so you can lay them out optimally according to the features and layout most appropriate for each particular virtual organ. Similarly, there are also customizable, dock-able 'piston toolbars', which remember the functions you assign to them, and their positions, separately for each organ.

Full-screen mode, automatic zoom and multiple screen orientations.

You can view the virtual console screen(s) in full-screen mode and consoles automatically zoom to make most efficient use of the screen space available. Some sample sets (including St. Anne's) support multiple orientations for their virtual consoles, for example allowing you to display virtual stop jambs conveniently on touch-screens mounted in portrait-format.

Multiple touch-screen support (Advanced Edition only).

If you have several computer monitors you can open up to four virtual console windows and drag them onto different monitors. The St. Anne's virtual console includes pages for the left and right stop jambs for this purpose.

Powerful combination systems for all virtual organs.

Hauptwerk has an enormously powerful and flexible, fully-programmable combination system that works for all virtual organs. There's a 999-frame fully random-access stepper, 20 'master generals', 60 'master scoped combinations' (you can configure each of them to affect any range of stops you wish, so you can make them behave as divisionals, generals, or perform any other special functions you wish, such as 'all trems off', for example), a 4-bank 31-stage master crescendo, and a basic set of common 'master couplers' that can complement the couplers a virtual organ has natively. Virtual instruments often include native (and independent) combinations of their own too (for example, general and divisional combinations and crescendos).

Comprehensive real-time per-pipe voicing (Advanced Edition only).

Many aspects of the sound can be adjusted for each pipe individually using an intuitive graphical interface in real-time. This 'voicing' information is stored separately for each instrument and allows an instrument to be fine-tuned for the acoustic environment in which it will be played.

Multi-channel audio output (Advanced Edition only).

With an appropriate multi-output audio interface and amplification, ranks of pipes, or parts of ranks, can be routed and amplified separately, and even pipes within a rank can be distributed across many audio channels, providing a three-dimensional sound-field and minimizing distortions within the amplification system. The stand-alone version of Hauptwerk can drive up to 256 stereo or 512 mono audio channels (or 16 stereo channels via VST/AU).

Built-in audio recorder.

The audio output stream from Hauptwerk can be captured natively to .wav files with no loss of quality using robust disk streaming.

Built-in MIDI file recorder/player and integration with third-party MIDI sequencer applications.

Hauptwerk can natively record and play back MIDI files, completely independently of any MIDI settings or hardware. You can record a MIDI performance using whatever MIDI or touch-screen hardware you have and send it to any other user of the same virtual organ, and it will play back exactly as intended, regardless of his or her hardware or settings. It uses a specially-designed, fixed, hardware-independent MIDI implementation for its MIDI files to make that possible. It also records stop/coupler/tremulant on/off messages directly, so its MIDI files will play back correctly, regardless of what combination set you have loaded. You can also use third-party MIDI sequencer software in place of the native MIDI recorder/player, with all of the same benefits and MIDI implementation.

Fast instrument loading/switching.

A cached copy is kept of each virtual instrument , specially optimized so that sample sets can load extremely rapidly, typically in just a few seconds (depending on the speed of your hard-disk and size of the instrument), making Hauptwerk ready to play quickly and making it quick to switch between different virtual instruments.

Realistic swell boxes.

Hauptwerk use specially-designed high-speed filters to shape the sound of each enclosed virtual pipe separately in real-time. This allows the effect of a swell box to vary from pipe to pipe, and for natural reverberation recorded into a pipe release sample to be unaffected by sudden movements of the swell shutters during playback of the release. The inertia of the shutters themselves can also be modelled, so that some flexibility is present in the virtual linkage from the pedal to the shutters. Even the very slight rise in air pressure inside a closed swell box can be modelled, with its subtle acoustic effects on the pipes.

Realistic tremulants.

Using special waveform samples extracted by analysis of the effects of the real tremulant on the recorded pipes, the sound of each virtual pipe is shaped individually in real-time by modulating its pitch, amplitude and harmonic content with separate waveforms. Allowing unique modulating waveforms to be applied to every pipe allows the effect of a tremulant to vary naturally across the compass of a rank, whilst perfect synchronization is maintained for all pipes.

Action noises and effects.

Any types of creaks, clunks, squeaks, and other noises can be modelled. For example, the St. Anne's, Moseley organ sample set included with Hauptwerk models key action noise, stop action noise, blower noise, the noise of the tremulant pneumatic motor and the creaking of the swell box shutters. Of course, you can disable such noises if you prefer.

Wind supply model (Advanced Edition only).

A complex real-time physical model, using fluid dynamics principles and equations, is used to model the air pressures and air flows within the parts of the wind supply system of an organ, and the movements of mechanical parts which interact with it. The resulting air flow rates, calculated separately for each organ pipe, modulate their pitch, amplitude and harmonic content in real-time. Thus every pipe on the organ interacts with every other pipe, and effects such as 'wind sag', wind instability and regulator table oscillation are modelled very accurately. If you regard such aspects of an organ's sound as imperfections that you would prefer not to hear, you can easily disable the wind supply model for any sample set. (Please note: the wind supply model is not currently available to customers in the U.S.A.)

Temperaments and original organ tuning.

Many historical tunings and temperaments are available for use with Hauptwerk, and can be recalled instantly from the organ console or via the control panels or menus. You can also play an organ with its original recorded tuning, complete with any imperfections. Temperaments don't affect overall organ pitch and are remembered separately for each organ (unlike older Hauptwerk versions).

Adjustable pitch.

The overall pitch of the organ can be adjusted from MIDI pistons on the organ console, control panels or menus, allowing the organ to be tuned to other acoustic instruments, or adjusted to match that of any real organ pipes driven by Hauptwerk as the temperature changes. Tuning and temperament are independent and are remembered separately for each organ (unlike older Hauptwerk versions). Pitch can also be set from external temperature-sensing hardware, to match the pitch of real pipework if using Hauptwerk for digital augmentation of a pipe organ.

Transposer.

The keyboards can be transposed up or down in increments of a semitone, controlled from the screen or MIDI pistons, allowing easy accompaniment in any key. Because the transposition is applied at the incoming MIDI keyboard level, it automatically applies to any external voice modules or real pipework controlled by Hauptwerk.

Highly optimized for modern 64-bit, multi-processor/multi-core computers.

Separately-optimized versions of Hauptwerk are installed for different types of processors, with full native 64-bit support for 64-bit capable computers (Intel Macs and 64-bit Windows). Hauptwerk's audio engine can make very efficient use of multi-core and/or multi-processor computers, and even supports NUMA natively.

Available for Apple Macs and Windows PCs.

A license for Hauptwerk covers both Macs and PCs. We've found the current ranges of Intel Macs to be particularly good for reliable audio/MIDI performance 'out of the box', without compatibility, hardware or driver issues to troubleshoot, but buying a PC from a company that builds, tests and supports PCs specifically for Hauptwerk and/or audio/MIDI should give the same benefits.

Pristine audio: up to 24-bit, 96 kHz samples and 32-bit signal processing.

Hauptwerk handles 16-bit, 24-bit and 32-bit instruments and has options to load them into memory at 14-bit, 16-bit, 20-bit or 24-bit resolutions to let you choose the optimum balance of audio definition to memory usage for your hardware. Output sample rates of 44.1, 48 and 96 kHz are supported, depending on the instrument, the audio hardware, and its drivers. All audio processing and mixing happens in the 32-bit floating point format. Final audio output is always provided in the highest resolution that the audio interface and its drivers can support, usually 24 or 32-bit for professional audio interfaces. Because of this high internal resolution, even if you load a sample set in 16-bit, the effective overall resolution can be much higher, still giving crystal-clear high-definition audio.

Hauptwerk VST/AU Link makes it easy to apply reverb/convolution effects and route MIDI/audio to sequencers.

The Hauptwerk 3 Windows VSTi has been replaced with a new 'Hauptwerk VST Link' for Windows and OS X and a 'Hauptwerk AU Link' for OS X. Hauptwerk itself runs outside of your VST/AU host/sequencer and you just load the 'Hauptwerk VST/AU Link' in your sequencer. It's very easy to use and configure: in Hauptwerk you can just select the VST/AU link for audio output (you can optionally also select it for sequencer MIDI input/output). There are no separate MIDI settings needed for sequencing, and you don't need to route MIDI from your MIDI console through the VST/AU host. MIDI from your console goes directly to Hauptwerk. The VST/AU Link makes it especially easy to apply real-time reverb/convolution to Hauptwerk's audio output: just select the 'Hauptwerk VST/AU Link' entry as the audio output in Hauptwerk, then load the Hauptwerk VST/AU Link plug-in and a reverb/convolver plug-in in your VST/AU host. The link can work across 32-bit/64-bit boundaries, so you can now use 64-bit Hauptwerk with any 32-bit VST/AU sequencer and with 32-bit convolvers. That's useful because there are relatively few native 64-bit VST/AU hosts and convolvers available currently. Running outside of the VST/AU host also allows Hauptwerk to perform better, offer a richer user interface, integrate more tightly with MIDI/digital organ consoles, work fully via touch-screens and for MIDI files to be independent of MIDI hardware and MIDI settings.

'Audio, MIDI and Performance' control panel makes it quick and easy to get good performance from your computer.

This control panel shows audio CPU load, RAM usage, sound delay, polyphony usage, audio levels, sample rate and MIDI channel activity indicators and allows you to adjust polyphony limits and audio levels in real-time, making it quick and intuitive to get the best performance from your computer and to diagnosing and resolve any performance issues.

Use organs with more virtual keyboards than you have physical keyboards, or swap keyboard assignments in real-time.

'Master floating divisions' allow you to flip up to five MIDI keyboards between multiple virtual organ keyboards in real-time. They can take divisional pistons and expression pedals with them, you can include any given virtual division in multiple routes, and you can even use them to switch the orders of virtual keyboards assigned to your MIDI keyboards on the fly. For example, this allows you to use a two-manual MIDI console to play a three-manual virtual organ conveniently.

Advanced polyphony management.

Polyphony limits may be set in Hauptwerk. When Hauptwerk reaches that limit, no more pipes are allowed to sound, preventing the computer becoming overloaded and the audio breaking up. Real-time meters show the polyphony being used, when polyphony clipping (limiting) is occurring, and allow the limit to be fine-tuned in real-time for each organ separately.

Full complement of standard couplers for all virtual organs.

Hauptwerk provides a palette of standard inter- and intra-manual couplers (16', 8', 4', bass, melody) for all virtual organs, in addition to whatever couplers they include natively.

All virtual organ controls controllable by MIDI, via mouse/touch-screens.

Any virtual organ control may be operated by MIDI. This allows external MIDI pistons to trigger Hauptwerk's virtual combination pistons, MIDI draw-knobs to control its virtual draw-knobs, or MIDI expression pedals to control its virtual swell or crescendo pedals, for example. Just right-click on the virtual control to configure it automatically for MIDI. A virtual organ control can also be controlled fully with the computer's mouse or touch-screen(s); even keys and expression pedals. This is particularly useful when first exploring a new organ sample set, or when trying out Hauptwerk initially. Click and drag on expression pedals/sliders/knobs to move them.

Per-rank memory options and memory compression.

When you load an organ sample set, you can optionally choose to disable some of its ranks, allowing an organ to be used in part that wouldn't otherwise fit into memory. The disabled ranks still behave normally except that they produce no sound and their samples aren't loaded into memory. You can also choose to use loss-less memory compression on some or all ranks, typically saving between 30 and 45 percent on memory, with only a 10 to 15 percent impact on polyphony, and no loss of audio quality. Other per-rank memory-saving options are available, including: reducing bit-resolution, mono/stereo, disabling multiple attack samples, disabling multiple loops, disabling multiple release samples, and truncating release samples.

Audio output mixing and routing (Advanced Edition only).

Hauptwerk has its own virtual mixer, allowing the sound from its audio outputs to be mixed down to other output channels via auxiliary buses. It is possible, for example, to provide 'dry' output to the main sets of pipe amplifiers, whilst also mixing all of the pipework down to one or more further amplifiers to which external reverberation may be applied providing separate reverberation outputs. Similarly, mixed-down headphones, recording and monitor speaker outputs can be provided alongside the main amplification channels.

Multiple sample loops.

When multiple loops are defined in a sample, they are played back in a specially-designed sequence so that the overall repetition time of the sample is very much longer than for any single loop. This, together with the turbulence and wind models, almost eliminate the predictable, repetitive character often associated with sampled sounds.

Multi-layered samples.

Virtual pipes can be composed of several layered samples. Attack/sustain and release samples can be chosen randomly or according to complex criteria within each layer. Thus, for example, a sample set can optionally separate the 'chiff' of a pipe from the main body of the sound, and allow its characteristics to be controlled separately.

Randomization models impart liveliness and movement to the sound.

An air flow turbulence model allows any air flow through a virtual organ pipe or part of the wind supply system to be randomized using a physical model, simulating the effects of turbulence within flow through a tube. This causes the speech of each pipe to vary subtly and constantly, imparting movement and life to the sound of the organ. No pipe organ is ever perfectly in tune, and small imperfections in tuning between the pipes give liveliness to the sound. Each time a virtual organ is loaded into Hauptwerk, a small randomized detuning is calculated separately for each pipe, based on defined probability parameters. A further randomization model varies the depth of modulations applied by each tremulant to each pipe constantly and subtly, so that the sound of the tremulant is always evolving, whilst synchronization remains perfect. All of these randomizations can be disabled if you wish.

Velocity sensitivity and tracker-action organ modelling.

For instruments which support it, the velocity with which a key is pressed can determine which of a set of samples is triggered when a pipe speaks, allowing for the pipe response of tracker-action organs to be recorded and simulated. An additional dedicated model allows the speech of the pipe sample to be modified during the attack phase to model the differences in harmonic content, pitch and amplitude changes that occur when a tracker-action pipe is played with varying key velocities.

Support for ASIO and DirectSound audio drivers on Windows, Core Audio on Mac OS X.

ASIO drivers are available for most professional audio cards, usually giving superior performance, better resilience to audio glitches and lower latency on Windows. DirectSound drivers are available for almost all sound cards on Windows. OS X has reliable high-performance 'pro-audio' support built-in, in the form of Core Audio.
The Custom Organ Design Module.
The module makes it straightforward for users with a moderate level of technical inclination to create their own custom organ specifications from ranks of samples provided by third-parties. Most of the complexities of the organ model, such as the wind supply model, internal 'relay wiring', are handled automatically.

Backwardly compatible with all previous Hauptwerk sample set formats.

Hauptwerk is seamlessly backwardly-compatible with instruments created for all previous Hauptwerk versions and they will sound at least as realistic and perform at least as well as they did in previous versions.

Three editions of Hauptwerk available to cater for all budgets.

There are three editions of Hauptwerk: the Advanced Edition, which contains all functionality, the Basic Edition, intended as an affordable option for those on a budget and the Free Edition. The Basic edition has all of the features listed here except those identified with 'Advanced Edition only'. The Free Edition has all features of the Basic Edition with some further limitations. Unlike older Hauptwerk versions, MIDI output is now enabled in all editions, allowing easy bi-directional integration with MIDI/digital organ consoles.

Control of MIDI solenoid-actuated or illuminated draw-knobs, tabs or lamps.

Just as MIDI draw-knobs, tabs, buttons or other console switches can be used to control Hauptwerk's stops, couplers, tremulants, pistons and other virtual switches, so Hauptwerk's virtual switches can control the states of appropriate MIDI drawknobs, tabs and lamps, so that, in response to changes from Hauptwerk's combination system or virtual controls, the states of external MIDI switches remain perfectly synchronized to the virtual switches to which they are connected.

Full 'headless' operation.

Once Hauptwerk has been installed, there is no need for a computer monitor, mouse or keyboard for day-to-day operation if you have suitable MIDI controls on the organ console. All of the core menu functions can be controlled fully by MIDI, and Hauptwerk can produce MIDI output to show all of its status information using on special LCD status panels. Specific organ sample sets, temperaments, sets of combinations, and other menu functions can all be selected and recalled from MIDI pistons, and Hauptwerk can be configured to load automatically when the computer is turned on, optionally loading a default organ sample set, temperament and set of combinations. The computer can even be shut down safely from a MIDI piston.

Native control of external voice modules and real pipework.

Via the Custom Organ Design Module, you can define external MIDI voice modules and pipe ranks, and integrate them fully into Hauptwerk's virtual console, so that they are controlled natively alongside its internal virtual ranks. Thus coupling, stop control, combination memory, transposition and so forth, all apply correctly to the external ranks.

Show all status information on LCD panels.

Hauptwerk has a fully-integrated LCD panel control system, using custom MIDI system-exclusive messages to control Hauptwerk-compatible 32-character LCD panels. Off-the-shelf compatible LCD units are available from third-parties.
You can configure Hauptwerk to display any of its status information on such panels for integrating Hauptwerk neatly and easily into home-built MIDI consoles. 5-7 LCD panels should be sufficient to display most of the commonly-used information.

Label MIDI draw-knobs and other console controls separately for each organ using LCD panels.

You can also use Hauptwerk-compatible LCD units to label drawknobs, tabs, pistons and any other console controls separately for each virtual organ with user-defined text. If the hardware supports it, they can be illuminated in up to four colors to show logical groupings of the console controls at a glance.

Dedicated MIDI status output protocol for MIDI console builders.

Hauptwerk can also optionally send all of its status information in a raw form using a fixed MIDI sys-ex implementation. MIDI console builders can use that information to drive custom hardware to provide feedback to the player in whatever format they wish.

Performance options adjustable separately for each instrument.

Performance settings, such as the polyphony limit, audio level and options to disable particular processor-intensive audio engine features, are adjustable separately for each instrument. Using these options it is possible to get the maximum possible realism from each instrument within the limits of the computer hardware available. For example, you can enable all features for smaller organs, giving maximum realism, but disable some features for very large instruments so that they can still be used in full on older computer hardware.

MIDI controls configured separately for each organ.

Apart from MIDI settings relating to selecting and loading an organ, all MIDI settings are stored completely separately for each organ (unlike earlier Hauptwerk versions). This gives maximum flexibility because you can configure the MIDI hardware you have optimally for the distinct functionality and style of each organ. For example, you can configure a given MIDI piston to trigger a particular Hauptwerk master general combination for one organ, but instead to trigger a virtual combination piston included natively within a different organ. MIDI settings for any given virtual control are adjusted in just one place, making configuration more intuitive and eliminating mistakes. Since all MIDI settings can be detected automatically, the process of configuring MIDI for each organ takes just a few minutes.

MIDI activity indicators for easy diagnosis of MIDI configuration issues.

Real-time MIDI activity indicators are included in the status bar, on the 'Audio, MIDI and Performance' control panel and next to each virtual control's entry on settings screens to make it quick to identify when MIDI messages are being received or sent, and what virtual controls are responding to them or triggering them. For example, the activity indicators make it easy to see whether you have accidentally configured two virtual controls to respond to the same MIDI piston.

Real-time MIDI settings screens.

MIDI settings screens work in real-time: you can open several at once and see and test the effects of changes instantly, with real-time MIDI activity indicators showing which virtual controls or functions are being triggered. So if you accidentally assign a given MIDI piston to both a virtual piston and virtual stop then you can immediately identify and rectify the issue, using the per-object MIDI activity indicators as guides. These make diagnosing any MIDI configuration issues easy.

Up to four completely independent sets of settings.

For example, you might want to set up one of the four configurations with audio routing to headphones or near-field monitors, suitable for use with wet sample sets, and another with multi-channel audio and convolution reverb (via the Hauptwerk VST/AU Link) for use with dry sample sets.

Settings backup/restore/import/export.

Hauptwerk has native functionality to backup and restore your settings and data. You can also use it to transfer your settings seamlessly between computers or hard-disks.

Secure instrument licensing system for developers.

Hauptwerk has a very secure hardware-based instrument licensing and protection system, which allows a protected instrument to be loaded only if the user has the license for it installed on his or her Hauptwerk USB key, preventing illegal use of instruments and reverse engineering. Use of the system is an option for developers.

Interface to third-party MySQL Server database for sample set developers.

A separately-licensed bi-directional interface to the third-party MySQL Server database server allows the full power of an SQL-compliant relational database to be used for manipulating instrument data. (A commercial licence for the MySQL Server software is required.)

Works without a MIDI interface.

Although you'll probably want a MIDI interface to play Hauptwerk in real-time, you can run it with no MIDI interface attached, allowing you to try it out by clicking on the virtual controls, or to use it for playback of MIDI files, for example.