HAUPTWERK VI

VIRTUAL PIPE ORGAN

milan™ | DIGITAL AUDIO

HAUPTWERK VI

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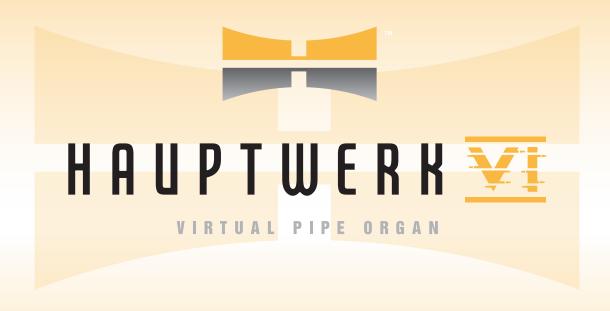
To my eyes and ears the organ will ever be the King of Instruments.

- Wolfgang Amadeus Mozart

Welcome to the king of all virtual instruments. Hauptwerk VI brings the world's greatest pipe organs within reach of musicians everywhere. Used for practice and study at home by professional and amateur organists, organ enthusiasts and music students, Hauptwerk VI is the leading virtual pipe organ software providing ultra-realistic high-quality organ modelling and flexible interfacing with MIDI organ consoles, MIDI hardware, touch-screens, and professional audio/MIDI software applications.

The entire experience of using and setting up a well-integrated, powerful and flexible virtual organ system is quick, easy, and intuitive, even for those with little or no MIDI, computer or technical experience.

Hauptwerk VI®
KEY FEATURES

- The number of 'favorite' organ, combination set, and temperament slots have been increased from 32 to 64.

- Favorite organ, combination set, and temperament lists may now be edited.

- New Utility Functions menu system.

- New General Preferences menu system.

- Extensive Combination System enhancements.

- Improved block size functions.

- All of the new functions in VI may be triggered via MIDI, and/or assigned to piston toolbar pistons.

- New Mini Control Panels.

- New All Pistons Trigger Stepper.

- Midi Port redesign.

- Auto-Detect is now a global feature.

- Audio engine has a new "Higher definition" option.

- Sample Rate now offers 96 kHz for higher audio quality.

- High-performance, and quick-to-configure audio output routing, multi-channel audio output, surround/3D-sound output, per-rank/pipe voicing, and native impulse response (convolution) reverb capabilities (Advanced Edition only).

- Extremely realistic modelling of organs of all types (classical and theatre) on current computer hardware.

- Virtual 30-stop English classical organ included.

- Huge library of hundreds of additional virtual organs available separately.

- Extensive and powerful combination system.

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

- Very high performance and highly optimized for modern computers.

- Stand-alone for live playing, and Hauptwerk VI AU/VST Link (Advanced Edition only) for interfacing with MIDI DAW/ notation software.

- Advanced and Lite Editions of Hauptwerk VI cover a wide range in both features and price to suit your needs.

- Available for Macs and PCs.

HAUPTWERK **VI**

VIRTUAL PIPE ORGAN

NEW AND ENHANCED FEATURES

FAVORITE ENHANCEMENTS

New for VI, the number of 'Favorite' organ, combination set, and temperament slots have been increased from 32 to 64.

In addition, the Favorite organ combination set, and temperament lists may now be edited, so that it's no longer necessary to load another item in order to re-assign it to any given existing entry.

All of the new favorite functions may also be triggered via MIDI, and/or be assigned to piston toolbar buttons.

NEW UTILITY FUNCTIONS MENU SYSTEM

There is a new 'utility functions' menu system, which allows less commonly-accessed functions (such as editor functions) to be selected and performed using just three MIDI pistons/buttons(function selection up/down, execute selected function), with the

currently-selected function being shown on the computer screen and/or on MIDI-controlled LCD panels. These new functions can be found on the following new control panels:

- "Cued favorites (all types) and utility functions menu" large control panel.

- "Cued favorites (all types) list editor" mini control panel.

- "Utility functions menu" mini control panel.

All of those 'favorites list editor (all types)' and 'utility functions menu select/execute' functions may also be triggered via MIDI pistons/buttons, and/or assigned to piston toolbar pistons, thus making it conveniently possible to edit favorites lists (and/or to select/execute other less commonly-used functions) from 'headless' MIDI consoles (without the need for a computer screen, keyboard, or mouse).

" **Version VI is here— your wishlist just got shorter.**

NEW GENERAL PREFERENCES

- There are three new general preferences to define the maximum cued favorite slot numbers before the increment functions/pistons wrap back to 1 (for organs, combinations sets, and temperaments).

- There is a new general preference (which defaults to unticked) "Last-used favorites remain lit if cued favorite numbers changed?". If ticked, (for each of: organ, combination set, and temperament) the last selected/assigned 'favorite' item remains ticked on the menu (and lit/on, if its slot is assigned to be triggered directly from a MIDI piston/button/switch), even if the cued favorite number has since changed.

- There are two new general preferences: "Auto-load favorite combination sets when cued?" and "Auto-load favorite temperaments when cued?"

COMBINATION SYSTEM ENHANCEMENTS

- The combination stepper now allows a full 3-digit frame number to be cued, with new 'cue +/-1',

'cuexxN', and 'trigger xxx' functions available via the menu, control panels, piston toolbars, MIDI pistons, LCD panels, and the MIDI console status output system. This makes it possible to use the stepper to jump directly from one 3-digit frame to another without the need for so many pistons.

- Based on a new general preference "Stepper cue digit +/- pistons wrap to higher digits?" (which default to ticked), stepper 'cue +/-1' and 'cue +/-10' functions optionally increment/decrement the higher digits when the ends of their ranges are exceeded, thus avoiding the need for additional MIDI pistons for the 'cue +/-100' and/or 'cue +/-10' functions.

- MIDI-controllable pistons/buttons have been added for triggering stepper frames x00-x99. They work in the same way as the existing xx0-xx9 trigger pistons, except that there are 100 of them and they trigger the corresponding frame number within the cued 100s digit (ignoring the cued 10s digit).

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Our never-ending quest for virtual perfection lies in the details.

- The number of MIDI-controllable master generals has been increased from 20 to 100. The first twenty are (still) included on the "Registration" large control panel, and all ten banks of ten are available via new mini control panels, and via a new large control.

- New general preference (which defaults to ticked) for last-used master generals and stepper trigger pistons to remain lit (and shown as current on any LCD panels), even if the current registration no longer matches their stored registrations.

- There are new general preferences "Cancel setter (capture mode) automatically whenever capturing to a combination?" and "Cancel scope (range) mode automatically whenever scoping a combination?" for whether to cancel SET and/or SCOPE automatically when capturing/scoping a combination.

- The combination stepper now has a comprehensive set of editor functions.

- There is also a new general preference "Prompt for confirmation before combination stepper edits?", with options for "Never prompt", "Always prompt" (the default), and "Prompt if block size is >1".

- There is also a new organ preference "'All pistons trigger stepper +1' mode only affects master combinations?".

BLOCK SIZE FUNCTIONS

The block size functions allow a block size 'N' to be selected, determining the number of cued frames upon which the various editor functions operate. For example, you could insert 100 blank frames simultaneously at the cued frame number by setting the block size to 100, then using the 'insert ...' function. The copy/cut/paste functions also now make it possible for blocks of frames to be copied/moved (via the stepper editor's new clipboard) from one combination set (file) to another, whilst the organ remains loaded.

ALL OF THE NEW FUNCTIONS MAY BE TRIGGERED VIA MIDI, AND/OR ASSIGNED TO PISTON TOOLBAR PISTONS

They are also available via the following new control panels:

- "Combination stepper (all)" large control panel.

- "Combination stepper 2" mini control panel.

- "Combination stepper editor (all)" mini control panel.

- "Combination stepper editor (basic)" mini control panel.

NEW MINI CONTROL PANEL

There is also an additional new mini control panel:

- Combination stepper xx0-xx9 trigger pistons

For convenient use with the "Combination stepper 2" mini control panel, thus avoiding the need for the "Combination stepper 1" mini control panel also to be used for its xx0-xx9 trigger pistons (which would duplicate many of the functions from "Combination stepper 2" mini control panel unnecessarily, wasting screen space).

ALL PISTONS TRIGGER

There is a new "All pistons trigger stepper +1" function (a.k.a. 'all pistons next'), accessible via MIDI, the "Registration" large control panel, the "Setter, general cancel, hand registration and utils" mini control panel, piston toolbars, and the "Registration" menu.

MIDI PORT REDESIGN

The MIDI ports screens, and the way that MIDI ports are handled internally (and are auto-detected and stored for virtual controls) has been redesigned.

AUTO-DETECT IS NOW A GLOBAL FEATURE

All Hauptwerk master pistons and other menu functions that were previously auto-detected/configured on a per-organ basis may now alternatively be auto-detected/configured globally (for all organs), or per-organ (as before).

AUDIO ENGINE CHANGES

New organ preference "Audio engine | Real-time audio pitch-shifting quality". The "Standard" option uses the same quality pitch-shifting (interpolation) as previous versions, but there is also a new "Higher definition" option.

SAMPLE RATE

There is also a new "Sample rate (for audio engine and audio output)" setting on the "General settings | Audio device and channels" screen, which contains options for 48 kHz (the default), 96 kHz, and "Use organ's default sample rate". The latter gives the same behavior as previous Hauptwerk versions. The new 96 kHz option is more CPU-intensive, sacrificing achievable polyphony (typically about a further 50%) for higher audio quality.

MORE DETAILS CAN BE FOUND IN THE RELEASE NOTICE POSTED IN THE SUPPORT SECTION AT HAUPTWERK.COM

HAUPTWERK VI

VIRTUAL PIPE ORGAN

HIGHLIGHTED FEATURES

SUBSCRIPTION PRICING FOR THE ADVANCED AND LITE VERSIONS.

Hauptwerk VI is more affordable than ever before with subscription pricing for both the Advanced and Lite versions. You can choose either monthly or yearly pricing. The Lite Edition does not offer all the functionality of the Advanced Edition.

HIGH-PERFORMANCE, QUICK-TO-CONFIGURE AUDIO ROUTING, MULTI-CHANNEL AUDIO, SURROUND/3D-SOUND, AND AUDIO MIXING (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. 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.

Hauptwerk VI's 'audio mixer' works like a recording studio mixing desk, allowing you quickly and easily to feed mixed-down signals to sub-woofers, to dedicated speakers for reverb, or for recording audio.

Hauptwerk VI's voicing screen also allows you to 'pan' and mix ranks to multiple stereo pairs of speakers for surround/3D sound. All audio/routing settings changes can be made fully in real-time, take effect and can be heard immediately, and show visual feedback, so that it's easy to see what's being routed where.

You can optionally configure up to 8 'mixer presets' and apply different ones to different organs. The stand-alone version of Hauptwerk VI can drive up to 1024 audio speakers (and the Hauptwerk VI VST/AU Link allows up to 16 stereo channels).

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From reproduction of all sonic details to the virtual console we have truly created a product that virtually mirrors the original instruments.

NATIVE IMPULSE RESPONSE (CONVOLUTION) REVERB (ADVANCED EDITION ONLY)

Hauptwerk VI has a native, very high-performance 'true stereo' (4-channel) impulse response convolution reverb engine built in, allowing high-quality real-time reverb to be added easily and natively, with no additional hardware or software needed.

Hauptwerk VI is designed to be able to handle large numbers of simultaneous instances with low CPU load on modern CPUs. This allows realistic 'virtual acoustics' optionally to be configured (with many virtual sound sources to distribute pipes/ranks within virtual space - even per-pipe convolution for smaller organs).

In itself, Hauptwerk VI's reverb engine adds no additional latency (sound delay). Reverb wet/dry mix, wet level, and wet pre-delay may all be adjusted via the audio mixer screen. An impulse response

reverb may also optionally be faded out to help reduce CPU load and/or to help make it seem 'drier'.

You can also adjust the 'wetness' of any impulse response reverbs you might have applied on the mixer overall, on a per-organ basis, via a control panel. This provides a simple and quick means to tweak reverb wetness, and/or disable reverb, on a per-organ basis.

'Mixer presets' can also be used to set up different reverbs for different organs.

A selection of high-quality impulse response reverbs is included with Hauptwerk VI, and you can install and use other Hauptwerk VI-format impulse response reverbs from third-parties.

HAUPTWERK VI

ADVANCED EDITION FEATURES

COMPREHENSIVE REAL-TIME PER-RANK/PER-PIPE VOICING

Many aspects of the sound can be adjusted for any pipe or rank, individually or in groups, 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.

AUDIO MIXING

Hauptwerk VI's 'audio mixer' works like a recording studio mixing desk, allowing you quickly and easily to feed mixed-down signals to sub-woofers, to dedicated speakers for reverb, or for recording audio.

MULTIPLE TOUCH-SCREEN SUPPORT

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.

REAL-TIME AUDIO SETTINGS SCREENS

Similarly, the various audio routing screens can be open simultaneously, allow settings changes to be made in real-time and to take effect immediately, and show activity indicators so that you can easily see what's being routed where.

> " Hauptwerk brings the world's best pipe organs within reach of musicians everywhere.

WIND SUPPLY MODEL

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 each pipe's 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.

HAUPTWERK VI AU/VST LINK: MAKES IT EASY TO ROUTE MIDI TO HAUPTWERK VI FROM MIDI DAW /SEQUENCER/NOTATION SOFTWARE, AND/OR TO APPLY EXTERNAL AUDIO EFFECTS PLUG-INS

MIDI may optionally be streamed to Hauptwerk VI from AU/VST host (DAW/sequencer/notation) software, and/or audio output streamed from Hauptwerk VI to AU/VST host (DAW/sequencer/notation) software, via Hauptwerk VI's 'Hauptwerk VI AU/VST Link' plug-in.

Hauptwerk VI itself runs outside of your AU/VST host, and you just need to load the 'Hauptwerk VI AU/VST Link' plug-in in your sequencer, then select the AU/VST Link for audio output in Hauptwerk VI (and optionally also select it for MIDI input).

Running outside of the AU/VST host allows Hauptwerk VI 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.

ADVANCED & LITE EDITION FEATURES

HUGE LIBRARY OF VIRTUAL INSTRUMENTS

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

VIRTUAL ORGANS OF ALL SIZES

Hauptwerk VI can model organs of all sizes, from the smallest positif organs to the largest cathedral organs 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, unification, theatre organ second touch, 'toy counter' effects, tuned and un-tuned percussion, sustainers, sostenuto, and reiterators. Hauptwerk VI's realistic tremulant and swell box models make for one of the most life-like sonic and functional models of a theatre organ yet.

DRY INSTRUMENTS AVAILABLE FOR USE IN REVERBERANT SPACES, OR FOR ADDING REVERB

'Dry' virtual instruments contain little or no room acoustic in their samples and can be used in reverberant spaces such as churches, or with additional reverb. (Impulse response reverb capability is available in the Advanced Edition only.)

REPRODUCE 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 VI 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 VI 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.

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 VI, comprising over 3 GB of 24-bit, 44.1 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 noises 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 realistic tremulant, swell box and wind supply models.

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 quick, easy, and intuitive, even for those with little or no MIDI, computer or technical experience or inclination. Hauptwerk VI 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 console 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 VI and each virtual organ set up correctly, quickly and easily.

INTUITIVE USER INTERFACE; EASY AND QUICK TO LEARN AND USE

Hauptwerk VI's user interface is designed from the ground up to be 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, AND FLEXIBLE MIDI IMPLEMENTATION

Hauptwerk VI has full, native support for the MIDI implementations found in most makes/models of digital/MIDI organs, allowing easy, fully-integrated control of Hauptwerk VI's keyboards, pistons, and expression pedals (and optionally also 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.

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.

MASSIVE POLYPHONY

Hauptwerk VI is designed and optimized very efficiently to achieve a massive polyphony from modern computer hardware, potentially 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 should be able to get good polyphony even from older computers.) The Advanced Edition of Hauptwerk VI allows a polyphony up to 32,768 simultaneous pipes, and the Lite Edition up to 1024. Modern multi-core computers will typically manage several thousands of pipes at once – enough even for large cathedral organs.

BUILT-IN MIDI FILE RECORDER/PLAYER

Hauptwerk VI 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.

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 (typically in conjunction with MIDI keyboards and MIDI pistons).

Control panels make all of Hauptwerk VI's key functions readily accessible by touch and give clear visual feedback of associated statuses.

There are many 'mini' dock-able control panels, with all control panel window positions being stored separately for each organ, so that 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 virtual organs (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.

POWERFUL COMBINATION SYSTEMS FOR ALL VIRTUAL ORGANS

Hauptwerk VI 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).

FAST INSTRUMENT LOADING/SWITCHING.

A cached copy is kept of each virtual instrument, specially optimized so that it 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 VI ready to play quickly and making it quick to switch between different virtual instruments.

BUILT-IN AUDIO RECORDER

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

REALISTIC SWELL BOXES

Hauptwerk VI uses specially-designed 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. As an alternative, some virtual organs include and play audio recordings (samples) of the real tremulant-affected pipes directly.

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 VI 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.

TEMPERAMENTS AND ORIGINAL ORGAN TUNING

Many historical tunings and temperaments are available for use with Hauptwerk VI, 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 virtual organ.

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 VI, as the temperature changes. Tuning and temperament are independent and are remembered separately for each virtual organ. Pitch can also be set from external temperature-sensing hardware, to match the pitch of real pipework if using Hauptwerk VI 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 VI.

HIGHLY OPTIMIZED FOR MODERN 64-BIT MULTI-CORE COMPUTERS

Separately optimized versions of Hauptwerk VI are installed for different types of processors, with full native support for recent CPU instruction sets (AVX, AVX2, and AVX-512). Hauptwerk VI's audio and impulse response reverb engines can make very efficient use of multi-core computers.

AVAILABLE FOR APPLE MACS AND WINDOWS PCS

A license for Hauptwerk VI covers both Macs and PCs. We've found the current range of 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 VI and/or audio/MIDI should potentially give the same benefits.

HIGH-DEFINITION AUDIO

Hauptwerk VI supports 16-bit, 24-bit, and 32-bit virtual instruments and has options to load them into memory at 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 virtual 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 virtual instrument in 16-bit, the effective overall resolution is usually much higher, still giving high-definition audio.

'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 diagnose 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.

PER-RANK MEMORY OPTIONS AND MEMORY COMPRESSION

When you load a virtual organ in Hauptwerk VI, you can optionally choose to disable some of its ranks, allowing an organ which wouldn't otherwise fit into memory to be used in part. 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 negligible impact on polyphony, and no loss of audio quality. Other per-rank memory-saving options are available, including: reducing bit-resolution, mono, disabling multiple attack samples, disabling multiple loops, disabling multiple release samples, and truncating release samples.

ADVANCED POLYPHONY MANAGEMENT

Per-organ polyphony limits may be set in Hauptwerk VI. When Hauptwerk VI reaches the limit, no more pipes are allowed to sound, preventing the computer becoming overloaded and the audio breaking up. As the limit is approached, Hauptwerk VI attempts to fade out the least conspicuous release tails intelligently, usually avoiding the limit ever being reached, and avoiding any noticeable loss of realism. 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 VI provides a comprehensive set of standard inter-and intra-manual couplers (16', 8', 4', bass, melody) for all virtual organs, in addition to whatever couplers they include natively.

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.

ALL VIRTUAL ORGAN CONTROLS CONTROLLABLE BY MIDI AND VIA MOUSE/TOUCH-SCREENS

Any virtual organ control may be operated by MIDI. This allows external MIDI pistons to trigger Hauptwerk VI's virtual combination pistons, MIDI draw-knobs to control the organ's 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). This is particularly useful when first exploring a new organ sample set, or when trying out Hauptwerk VI initially. Click and drag on expression pedals/sliders/knobs to move them.

VELOCITY SENSITIVITY AND TRACKER-ACTION ORGAN MODELLING

For virtual organs that 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 to be modified during the attack phase to model the changes in harmonic content, pitch, and amplitude that occur when a tracker-action pipe is played with varying key velocities.

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 virtual organ might 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 in Hauptwerk VI, 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.

SUPPORT FOR CORE AUDIO AUDIO DRIVERS ON MACS, AND ASIO AND DIRECTSOUND DRIVERS ON PCS.

ASIO drivers are usually available for professional audio interfaces, giving superior performance, better resilience to audio glitches, and lower latency on Windows. macOS has reliable high-performance 'pro-audio' support built-in, in the form of Core Audio.

THE CUSTOM ORGAN DESIGN MODULE, AND SQLITE ORGAN IMPORT/EXPORT.

The module makes it possible 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. Custom Organ Design Module organ definitions may also be exported/imported to/from SQLite databases for convenient editing via third-party SQL editors.

BACKWARDLY COMPATIBLE WITH ALL PREVIOUS HAUPTWERK VI SAMPLE SET FORMATS*

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

*Copy-protected sample sets for Hauptwerk VI version 4 and earlier cannot be loaded directly in the current version of Hauptwerk VI, but updated versions should be available from their makers.

CONTROL OF MIDI SOLENOID-ACTUATED/ ILLUMINATED DRAW-KNOBS/TABS, ILLUMINATED PISTONS AND LAMPS

Just as MIDI draw-knobs, tabs, pistons, buttons, or other console switches may be used to control Hauptwerk VI's virtual stops, couplers, tremulants, pistons, and other virtual switches, so Hauptwerk VI's virtual switches can control the states of appropriate MIDI drawknobs, tabs, and lamps, so that, in response to changes from Hauptwerk VI'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 VI has been installed, there is no need for a computer monitor, mouse or keyboard for day-to-day operation if you have suitable controls on a MIDI organ console. All of the core menu functions can be controlled fully by MIDI, and Hauptwerk VI can produce MIDI output to show all of its status information on special LCD status panel hardware. Specific organ sample sets, temperaments, sets of combinations, and other menu functions can all be selected and recalled from MIDI pistons, and Hauptwerk VI 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.

SHOW STATUS INFORMATION ON LCD PANELS

Hauptwerk VI has a fully-integrated LCD panel control system, using custom MIDI system-exclusive messages to control Hauptwerk VI-compatible 32-character LCD panels. Off-the-shelf compatible LCD units are available from third-parties. You can configure Hauptwerk VI to display its status information on such panels for integrating Hauptwerk VI 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 VIRTUAL ORGAN USING LCD PANELS

You can also use Hauptwerk VI-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 VI can also optionally send 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 VIRTUAL ORGAN

Performance settings, such as the polyphony limit, audio level, and options to disable particular processor-intensive audio engine features, are adjustable separately for each virtual instrument. Using these options it's possible to get the maximum possible realism from each organ within the limits of the computer hardware available. For example, you could 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 VIRTUAL ORGAN

(Apart from MIDI settings relating to selecting and loading an organ), all MIDI settings are stored completely separately for each virtual organ. 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 could configure a given MIDI piston to trigger a particular Hauptwerk VI 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 which 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. Hence if you accidentally assigned a given MIDI piston to both a virtual piston and a virtual stop then you could immediately identify and rectify the issue, using the per-object MIDI activity indicators as guides. These make diagnosing any MIDI configuration issues easy.

NATIVE SUPPORT FOR NOVATION LAUNCHPAD MIDI BUTTON CONTROLLERS

Novation Launchpads are a popular means to control Hauptwerk VI's virtual stops and pistons, and Hauptwerk VI can natively auto-detect them, as well as natively controlling the lamps within their buttons to indicate virtual stop states.

FOUR 'CONFIGURATIONS', EACH WITH A COMPLETELY INDEPENDENT SET OF SETTINGS

For example, you might want to set up one of the four configurations as your main system, and another for testing different settings, or perhaps for portable use with a MIDI keyboard whilst away traveling.

SETTINGS BACKUP/RESTORE/ IMPORT/EXPORT

Hauptwerk VI has native functionality to back up and restore your settings and data. You can also use it to transfer your settings seamlessly between different computers.

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Hauptwerk is the world's leading virtual pipe organ software providing high-resolution audio and unparalleled flexibility in MIDI interfacing with digital organ consoles and pro-audio applications.

WORKS WITHOUT A MIDI INTERFACE

Although you'll probably want a MIDI interface to play Hauptwerk VI 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.

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 VI'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.

SECURE INSTRUMENT LICENSING SYSTEM FOR DEVELOPERS

Hauptwerk VI has a secure virtual instrument licensing and protection system, based on the PACE iLok system, which allows a protected instrument to be loaded only if the user has the license for it installed, preventing illegal use of instruments and reverse engineering. Use of the system is an option for developers.

HAUPTWERK VI

VIRTUAL PIPE ORGAN

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