
VST
Instruments
Operation Manual
Eng
HALION
the vst-sampler
steinberg

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Introduction

Congratulations and thank you for your decision to buy HALion. This professional VST Instrument software is a complete 32-bit Sample Player, providing extensive modulation and editing features.

You can load and use a VST Instrument within the framework of any VST 2.0 compatible host application. Cubase VST, for instance, offers facilities for loading up to eight VST Instruments.

Each HALion module that you load adds a high-quality instrument with up to 256 voices and 16 channel Multi mode to your VST 2.0 compatible host application! You can separately make different settings for each of the 16 simultaneously playable channels of a HALion unit.

These are HALion's most prominent features:

- 8-/16-/24-/32-bit file support
- HALion supports Akai S1000/S2000/S3000, EMU 3/3X/ESI/4/4K/E64/E64000/ESynth/Ultra, SoundFonts 2.x, LM4/LM9 and REX file formats (in addition to all standard audio file formats)
- 12 virtual outputs (4x stereo/ 4x mono) per HALion unit
- Drag and Drop support
- 16 Part multi-timbrality and 128 Programs per HALion unit
- Settings can be applied individually for selected sample(s) – or globally for the Program
- Notch/Hi-Pass/Lo-Pass/Band-Pass Filter with selectable 12 or 24 dB slopes
- Extensive, chainable modulation features
- Complete Automation is possible from within Cubase VST or Nuendo
- Includes several professional sample collections

We hope you will have a lot of fun with your new VST Instrument!

The Steinberg Team

Register your software!

Please fill out and send in the registration card that you have received with your software package. By doing so you are entitled to technical support and kept aware of updates and other news regarding HALion.

System Requirements (PC version)

To be able to use HALion you will need at least:

- Pentium 266 MHz (400 MHz recommended).
- Cubase VST 5.0 or higher, Nuendo 1.5 or higher or other Virtual Instrument compatible host software.
- 128 MB RAM (512 MB recommended).
- Windows 95, 98, ME or 2000.
- Approved MME or ASIO compliant Sound Card.

❒ **Please also observe the system requirements of your host application!**

Installation (PC version)

Proceed as follows to install HALion:

1. **Start your computer and launch Windows.**
2. **Insert the HALion CD-ROM into your CD-ROM drive, launch the Explorer or open the "My Computer" window and double click on the symbol for the CD-ROM drive that holds the HALion-CD-ROM.**
   If Autostart is activated the CD contents will open in a new window automatically.
3. **Double click on the HALion Installer symbol to launch a special installation program and follow the instructions on the screen.**

System Requirements (Mac version)

In order to be able to use HALion you will need at least:

- Power Macintosh or compatible system.
- 604e/250 MHz (G3 or better recommended).
- 128 MB RAM (512 MB recommended).
- Mac OS 9.0 or higher.
- Cubase VST 5.0 or higher, Nuendo 1.5 or higher or other Virtual Instrument compatible host software.

❒ **Please also observe the system requirements of your host application!**

Installation (Mac version)

Proceed as follows to install HALion:

1. **Quit all other applications so that you return to the Finder. Disable any system activity monitoring software or init, in particular anti-virus software. Then insert the HALion CD into your computer's CD-ROM drive.**
2. **If needed, double click on the HALion icon to open the CD window.**
3. **Double click on the HALion Installer symbol to load the installation software. Follow the instructions on the screen.**

Setting up HALion as a VST Instrument in Cubase VST

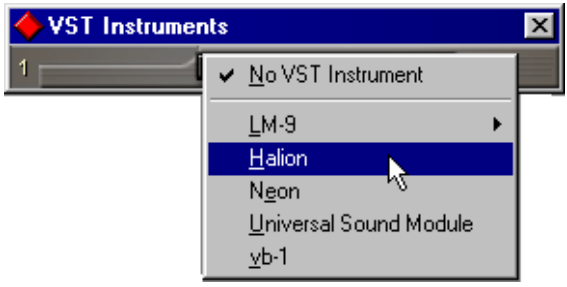
❒ **The information in this chapter refers to using HALion within Cubase VST. We assume that you have correctly set up both Cubase VST and your available MIDI and audio hardware.**
Should you wish to use HALion within another host application such as Nuendo, then please read its documentation.

Proceed as follows to activate HALion:

1. **Make sure that Cubase VST receives MIDI data that you generate with your external MIDI Master keyboard.**

2. **In Cubase VST, open the "VST Instruments" window.**

3. **Select "Halion" from the pop-up menu in the VST Instruments window.**



4. **Activate the VST Instrument by clicking the "Power" switch in the Rack.**

5. **Click on the “Edit” switch to open the HALion window.**
   By default, the “Macro” Page View (“Page Views” are user interface panels containing parameters) is shown, where the parameters affect all the samples in a Program. In addition to this, there are six other Page Views. See the next section, “HALion Overview”, for a brief description of all the Page Views.

The HALion “Macro” Page View.

6. **In Cubase VST, select a MIDI Track and set its Output setting to “Halion”.**
   This way, HALion will receive MIDI data from the selected Track.

- **HALion always receives MIDI data on all MIDI channels. It is therefore not necessary to assign a specific MIDI receive channel in HALion.**
  However, you should make sure that the Channel setting in HALion and the MIDI channel of the currently selected Cubase VST Track are set to the same number.

  When set, you are ready to load some samples and start using HALion! In the next section you will learn how to load programs.

HALion Overview

The following section contains an overview of the basic concepts and operational procedures, including brief descriptions of the different HALion Page Views.

How HALion Plays Samples

Unlike other samplers that have to load the entire samples into RAM, HALion can play back samples of virtually any length, regardless of the amount of RAM installed in your computer. This is because HALion can play back audio direct from hard disk, like hard disk recording systems. But due to the fact that samples can't be triggered instantly from disk (there would be a delay between pressing a key and the sound playing back), the initial portion of the samples (i.e. the start of the sample) is Preloaded into the computer's RAM. This way only a small fraction of a longer sample will reside in RAM, while the rest is streamed directly from disk.

About Program Banks and Programs

For HALion to produce sound, you have to load either one or more audio files (i.e. samples), a Program (a collection of samples) or a Program Bank (a collection of up to 128 Programs):

- **HALion always contains a "Program Bank" which in turn contains 128 Program "slots".**
  Even if only one Program containing samples and parameter settings is currently loaded, there are still 128 Program slots, although in this case, 127 of these slots will be empty. Only one Program Bank can be loaded at a time.

- **A Program is a container for any number of samples, and the samples associated parameter settings etc.**
  Within a Program folder, samples can be arranged in any number of sub-folders, which makes it easy to organize and handle multiple samples.

- **You can load or save Program Banks containing up to 128 Programs but also single Programs from the File pop-up menu in the VST Instruments Rack.**
  The corresponding functions are called "Load/Save Bank" and "Load/Save Instrument". It is also possible to load Banks, Programs or individual samples via drag and drop.

When you save your Cubase VST Song file, the following information is stored:

- The number of HALion units used in the Song.
- The Bank and/or Programs used.
- The changed settings of edited Programs.

❒ **However, if you wish to use the edited version of a Program in another Song, you must save it using one of the Save functions in the File pop-up menu on the VST Instrument Rack.**

Loading a Program Bank

❒ **As explained on page 9, when samples are loaded the initial portion of the samples will be preloaded into RAM. When you load a Bank, all the samples belonging to the Programs assigned to HALion's 16 MIDI channels will be preloaded into RAM. Thus, if you don't intend to use some of these Programs, you should set these to an empty Program (see page 39) or use the "Unload" feature (see page 57).**

A Bank is a collection of up to 128 Programs. The following procedure assumes that you have set up HALion as a VST Instrument in your host application as described on page 7. Proceed as follows to load a Program Bank:

1. **Put the included "CD 1" from the "HALion Content Vol. 1" into your CD ROM drive.**
   For better performance, it is recommended that you copy the contents of the included CDs to your hard disk, but it is also possible to load directly from CD.

2. **In the VST Instruments Rack, click on the "File" pop-up menu and select "Load Bank".**
   A dialog will open where you can navigate to the CD (or to the location of the copied folder - see previous step) and browse through the contents.

3. **Program Banks have the extension ".fxb". On the "HALion Content Vol. 1", there are two Program Banks; Piano and Nylon Guitar. Select one and click "Open".**
   The selected Program Bank is loaded.

❒ **If you get a warning message when loading saying that "Some Audio Files could not be found", you will have to use the "Locate" or the "Search Directory" function to set the correct path to the samples – see page 59.**

Working with Programs

For now, we assume that you have the “Macro” Page View open. This Page View contains parameter controls that are global, i.e. they affect all samples in the currently selected Program.

The Macro page view.

- **Click in the number display of the Program selector and hold down the mouse button. This brings up a pop-up menu with all Program names of the current Bank. The current MIDI Channel of each Program is shown in parentheses.**
  Select the desired Program by clicking on it.

- **Programs can not be selected using the Program buttons in the VST Instruments Rack.**
  Please use the Program selector in the HALion window.

Loading individual Programs

- **You can use "Load Instrument" in the File pop-up menu to load a single Program from disk. Programs have the extension ".fxp". This will wind up in the currently visible HALion Channel and overwrite the previous Program.**
  For better overview, only one Channel at a time is visible in the HALion window.

❒ **Please note that the previous sections about loading Banks and Programs describe just one possibility of loading by using the VST Instrument "File" pop-up menu. There are several alternative ways of loading Banks, Programs and samples into HALion, which are described later in the manual.**

Playing a Program

- **Check out the currently selected Program by playing notes and chords on your MIDI keyboard.**
  As an alternative, you can create a Part on a Cubase VST Track and fill that with notes and MIDI Controller data by using the mouse.

- **If you notice considerable latency times (delay) when you play HALion via MIDI keyboard, then the sound card that you use and/or its driver are the source of the problem.**
  If the problem occurs within your system and you want to record by playing in real time, you should replace your sound card and its driver with a fast audio card and an ASIO driver, that have been optimized for the smallest possible latency time. When playing back HALion data from a Cubase Track, this problem does not exist.

- **The audio signals that are created by a VST Instrument are automatically routed to the VST Channel Mixer. Open any of the VST Channel Mixers (1 or 2). In the Channel Mixer, four stereo channels and four mono channels, named “Hal 1” to “Hal 12”, are assigned to each open HALion module.** By using the Output controls in the HALion window, you can route the Program (or any sample within the Program) to any of these 12 audio channels - see page 76.

- **Record a few Tracks and watch the channel level meters in the Mixer. Play with the volume or EQ settings of the channels that receive a signal.** Using the VST Mixer, you can thus mix the sounds created by HALion and process them in the same way as other Audio Tracks by using Plug-Ins, effects or external studio equipment.
- **If needed, you can transform any or all HALion Tracks into an audio file. To do so, simply use Cubase’s “Export Audio Files” function.**

Saving a Program

Proceed as follows:

1. **Select the desired Program.**
2. **Change the Program settings as desired.**
   Read the following pages of this manual to find out what you can do with the various controls.
3. **When you have finished editing, click the name in the Program display and enter a new one via your computer keyboard.**

   You have three options to save an edited Program:

- You can save it as a single Program file, using the “Save Instrument” function in the File pop-up menu on the VST Instruments Rack.
- You can save it together with its Bank, using the “Save Bank” function in the File pop-up menu on the VST Instruments Rack.
- You can save the Cubase VST Song. If you do this, the changed Program is only available within this particular Song. If this is not what you want, use one of the two options above.

About MIDI Channels and Programs

HALion is 16 channel multi-timbral. This means that each MIDI channel (1-16), can be assigned a separate Program.

- **The Page Views for all 16 channels can be made visible in the same window.** This is done by simply selecting the respective MIDI output channel. In the HALion window this is called “Channel”.

The Channel selector.

- **Each of these 16 Programs separately gets its notes via one of the 16 MIDI channels (Channels).**
- **Remember: The MIDI data that your MIDI Master keyboard sends to Cubase VST (and thus to HALion), is always routed via the MIDI channel of the Track that is currently selected in Cubase.**

- **You should therefore always make sure, that the currently visible HALion Page View is set to the same Channel number as the Track currently active in Cubase's Arrange window. Additionally, the Output setting for this Track must be set to "HALion".**
  By keeping these rules in mind, you make sure that it is the correct channel (of the available 16 channels) that you edit and hear when playing your Master keyboard.

The HALion Page Views

When you open HALion, the afore-mentioned "Macro" Page View is shown by default. In addition to this there are six other Page Views each containing various parameters and controls. These six Page Views have common sections like the Navigation Controller and the Program List (see page 21).

Selecting Page Views

You switch between the different Page Views using the row of buttons always present at the bottom of the HALion window. You can also use the function keys [F6] to [F11] to select the Chan/Prog to Options Page Views, respectively.

The Page View selector buttons.

❒ **All Page Views except the Macro, can apply parameter changes to all or all selected samples.**

On the following pages you find a run through of the different Edit Page Views available in HALion.

Global Commands Context Menu

You can open a Global Commands context menu by right-clicking on the background of the Macro View or on the top or bottom of any of the other Page Views.

Parameter	Description
Clear All	This will remove all loaded programs. A warning message will be displayed.
Help	This brings up the online help for HALion (in pdf-format). To be able to read it, you need to have the Acrobat Reader installed. This software is included on the program CD.
Halion Website	This launches your web browser application and opens the dedicated web site for HALion.
Steinberg on the Web…	This launches Steinberg's Website.
About HALion…	This brings up information about the program.

The Channel/Program Page View

The Channel/Program Page View contains settings for HALion's 16 MIDI channels and the 12 virtual outputs. Here you can set which Program should be assigned to each of the 16 MIDI channels, and to which of HALion's 12 virtual outputs it should be assigned.

- For information about how to make Program/Channel settings see page 39.
- For information on how to make Output assignments see page 40.

The Keyzone Page View

The vertical “strips” indicate the velocity range for each sample, and the horizontal width of each strip indicates the keyzone range for each sample. In the picture above, all samples have a keyzone range of one note. The rightmost group of samples are selected, indicated by the handles at the top and bottom of each strip.

The Keyzone Page View offers a graphic overview of all samples in a Program, their keyzones (the note range across the keyboard which samples are mapped to) and velocity settings. The Keyzone Page View has many powerful features, and is where the majority of sample-oriented editing takes place.

For a full description of the Keyzone Page View, see page 41 onwards.

The Waveloop Page View

In this Page View you can set loop points for a sample. It is possible to set up both a sustain loop, that governs what portion of the sample should loop when a key is held down, and a release loop which governs a separate independent loop activated after a key is released. You can define loops graphically in the sample waveform, or numerically. The Waveloop Page View is described on page 63 and onwards.

The Envelope/Filter Page View

The Envelope/Filter Page View contains two Envelope generators with up to eight stages each, a multi-mode Filter section (DCF) and an Amplifier section (DCA). This Page View is described on page 71 and onwards.

The Mod/Tune Page View

The Modulation/Tune Page View contains an extremely powerful modulation section, where a source modulator can be multiplied by one or several modulators and/or values and finally applied to a destination parameter. In addition to the Modulation section, this Page View contains the two LFOs, a Tune section and a Voice Grouping section. This Page View is described on page 78 and onwards.

The Options Page View

The Options Page View is used for importing external audio file formats, making memory settings and various other options that govern global HALion functions. This is described on page 88 and onwards.

About the Macro Page

The Macro Page View is quite different from the other Page Views. The main difference is that the Macro parameters always affect all samples in a program. Hence, there are no window sections that relate to settings on a "sample level". Also note that the Macro parameters are not separate parameters. The Macro Filter section governs exactly the same parameters as the Envelope/Filter Page View - the difference is solely that all samples in the Program are always affected.

The following section describes the common window sections for all other Page Views (although the Keyboard, the MIDI channel/Virtual Output/Page View selectors are also present in the Macro Page View).

Common window sections

Each HALion Page View is subdivided into several logical sections, common to all Page Views. Here follows a description of all the common window sections. To bring these sections into view you have to first select any Page View (see page 16) except Macro.

The Program List

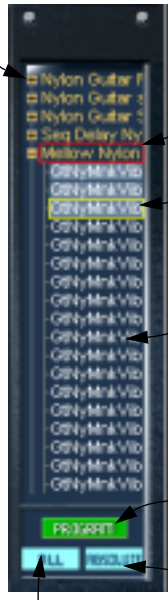
The Program List is located on the right side of the HALion window. This list has many important functions. First and foremost, it is where you decide whether the current Page View parameter should affect all or only the selected samples in a Program.

You can also use it to select samples or Programs, drag samples from the list into the Keyzone window, create subfolders for organizing samples and much more.

The Program List contains the following:

- **The current Program Bank (i.e. 128 Program folders which may either be empty or contain samples).**
  A Program's associated samples reside in the Program folder (or in sub-folders). Empty folders can not be opened.

Program Folders. A plus sign before the name indicates that the folder is closed, a minus sign that it is open, just like Windows directories. Clicking on a Program name selects it and all the samples in the Program. Use [Shift] + click to select multiple samples. [Alt]-clicking on a Program folder will open/close all (loaded) Program folders.



The currently selected Program is indicated by a red border.

The currently selected samples are highlighted. A yellow border indicates the currently "View Selected" sample - see page 44.

These samples belong to the same Program, but are currently not selected. Use [Shift]+click to select a range of samples, use [Ctrl] (PC) or [Command]+click (Mac) to select multiple samples.

This indicator displays whether All or Select mode is active (see below). In Select mode it also indicates whether one or multiple samples are selected - see page 46.

This button toggles between All or Select mode. In Select mode, only the selected samples are affected when editing. In All mode all samples in the Program are affected - see page 46.

This button toggles between Absolute and Relative editing - see page 47.

You can drag the Program List to the left, thus extending the width of the list in order to view longer Program/sample names in full.

Proceed as follows:

1. **Select the Keyzone Page View.**
   This function is only available when this Page View is selected.

2. **Click anywhere on the left border of the Program List and drag it to the left.**

Extending the horizontal view of the Program List.

The Program List can also be “hidden” behind a blank panel. There is no functionality attached to this feature - it is merely a viewing option.

Showing/Hiding the Program List.

For more detailed information about the Program List please refer to the section “The Keyzone Page View”. Other functions, like scrolling the Program List is described in the next section.

The Navigation Controller

The Navigation Controller is used for scrolling or zooming. Besides scrolling up/down and left/right, it also functions a bit like a joystick in certain Edit Views, in that it can move over two axes simultaneously. To use the Navigation Controller, simply click in the middle of the light blue area and drag in any direction.

- **The speed of the scrolling or zooming is determined by the position of the pointer.**
  If you drag it further away from the Navigation Controller, the speed increases and vice versa.

Exactly what is affected is determined by two main factors:

- **The currently selected Page View.**
  The functionality varies depending on which Page View is selected.
- **The status of the “Edit” and “List” buttons located below the Navigation Controller.**
  These determine whether the selected Page View or the Program List is affected by the Navigation Controller.

❒ **Selecting any item in the Program List automatically switches the Navigation Controller to List mode, selecting any item that is zoomable or scrollable in a Page View automatically selects Edit mode.**

Let's take a look at how the Navigation Controller can be used in the Program List, for example:

1. **Make sure List mode is active.**

2. **Click and hold down the mouse button at the center of the Navigation Controller and drag the pointer up or down.**
   This scrolls the Program List. Notice that the Navigation Controller's blue light moves up and down as you scroll. If you move the pointer further away, the list is scrolled faster.

3. **Hold down [Ctrl] and scroll the Program List.**
   This increases or decreases the size of the text in the Program List. This can also be done by typing [H] or [G], respectively (given that List mode is selected).

❒ **What the Navigation Controller controls in different Page Views is described in the relevant Page View section.**

The Keyboard

The Keyboard logically spans the entire range that you can assign samples to, from C-2 to G8. It is used to quickly audition samples by clicking a key with the mouse that a sample is assigned to. A blue dot indicates the key where you last clicked.

- **To scroll up or down the keyboard range, drag the Navigation Controller (set to Edit mode) left or right.**
  This is true for all Page Views except the Macro and the Waveloop. As the Macro Page View doesn't contain a Navigation Controller you can instead use the little arrow buttons to the left of the keyboard to scroll.

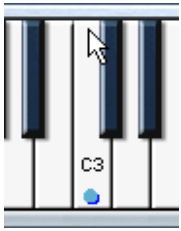
- **By pressing [Ctrl] and dragging the Navigation Controller to the left/right you zoom in/out to change the size of the keys and thus extend or decrease the visible range of the keyboard.**

❒ **This function also affects the visible size of the keyzones in the Keyzone Page View.**

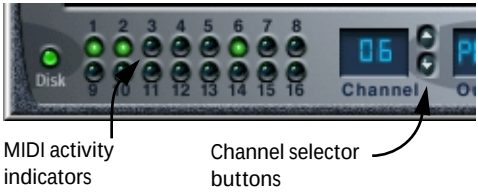
- **You can audition samples with varying velocity values using the mouse.** The further down on a key you click, the higher the velocity value, and vice versa. For more information on Velocity, see page 34.

Click here for maximum velocity.

Click here for minimum velocity.



The MIDI Indicators/Channel Selector Buttons



MIDI activity indicators

Channel selector buttons

The first 16 MIDI channels can each play a separate Program. When you select one of the channels 1 to 16 in HALion, it automatically switches to the Program currently assigned to that channel.

There are several ways you can change the currently selected Channel/Program.

- By using the up/down arrow buttons beside the Channel indicator.
- By clicking the MIDI activity indicators - these function as indicators for incoming MIDI data and channel selector buttons.
- By selecting any Program assigned to Channels 1 to 16 in the Program List.
- By selecting any Program from 1 to 16 from the Program Selector pop-up menu.

The Program Output Selector

The Program Output selector is used for setting which of the 12 virtual outputs a Program is routed to. The options are “PROG”, “St. 1+2”, “St. 3+4”, “St. 5+6”, “St. 7+8 “ and the four mono outputs to “9” to “12”. “PROG” is by default set to “1-2”, and could be seen as the “master” outputs for a Program. As you can set separate outputs for any sample(s) within a Program, having the output set to “PROG” means that all samples that are not specifically routed to “other” outputs will be routed to the set Program Output. Program Output can also be set in the Channel/Program Page View. Setting an output for individual samples and defining where the Program output is routed to is done in the Envelope/Filter Page View, see page 76.

The Program Selector pop-up

This pop-up allows you to select one of the 128 Programs (Presets) in the Program Bank and assign it to the currently selected Channel (MIDI output channel). To rename a Program, click in the name field and type in a new name.

The Sample Selector/Numeric Edit Fields

The Sample selector allows you to select one sample in the current Program and always displays the currently “View selected” sample (see page 44). The fields to the right can be used to set the Keyzone range (LO/HI KEY), the Velocity range LO/HI VEL) and the Root Key. The different parameters and how you can edit them is explained in the section “Editing in the Keyzone Page View”.

Editing in the Macro Page View

The Macro Page View represents HALion's basic operational mode. It is best used when you wish to quickly adjust the basic parameters like filter and envelope settings and apply these settings to the Program as a whole. All parameters in the Macro Page View affect all samples in the current Program. The parameters in the Macro Page View are the same as in the various other Page Views, but some (like the Envelopes) are more basic. Also, the other Page Views contain parameters not found in the Macro Page View.

The Macro Page View contains the following parameters:

The Macro Filter Section (DCF)

❒ **It is worth mentioning that the filter is described as a singular entity. In the Macro Page View this is true - there is only one filter (per channel) that will affect all samples in the Program assigned to the channel. But by using the Envelope/Filter Page View, each sample can have its own filter settings. The same applies to other parameters in this section. So in reality with HALion you have access to an arbitrary number of filters/envelopes etc.**

A filter basically removes certain frequencies from an audio signal. The filter in HALion is a multi-mode filter, meaning that it can be set to operate as one of five filter types.

The Filter section contains the following parameters:

Filter Type

Clicking the “Filter Type” field opens a pop-up menu where you can select one of the following filter types:

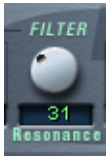
- **Low Pass (24dB/12dB)**
  Low pass filters let low frequencies pass and cut out the high frequencies. This is the most commonly used filter type in synthesizers and samplers. The Low Pass filter in HALion can be set to either 24 dB/Octave or 12 dB/Octave roll-off slope. A 24 dB roll-off slope filters out more frequencies than a 12 dB roll-off slope.
- **High Pass**
  A high pass filter is the opposite of a low pass filter, cutting out the lower frequencies and letting the high frequencies pass. It has a 12 dB/Octave roll-off slope.
- **Band Pass**
  A band pass filter cuts both high and low frequencies, while midrange frequencies are not affected. Each slope in this filter type has a 12 dB/Octave roll-off.
- **Notch**
  A notch filter could be described as the opposite of a band pass filter. It cuts off frequencies in a narrow midrange band, letting the frequencies below and above through. This filter type also has a 12 dB/Octave roll-off slope.

Filter Cutoff

Perhaps the most important parameter for a filter is its cutoff frequency, which is the setting that determines where in the frequency material it should start cutting. If the cutoff frequency in a low pass filter is set to a very low value, only the lowest frequencies will pass through. If you raise the cutoff all the way up, all frequencies will be let through.

❒ **The Filter Cutoff may also be affected by the Filter Envelope Amount setting (see page 32), and the Filter Velocity setting (see page 75).**

Filter Resonance



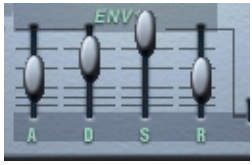
For lowpass filters, raising the filter Resonance value will emphasize the frequencies around the set filter frequency. This produces a sharper filter cutoff sweep, but a thinner overall sound. The higher the filter Resonance value, the more resonant the sound becomes until it produces a whistling or ringing sound. When you use the Band Pass or Notch filter, the Resonance setting adjusts the width of the band. When you raise the Resonance, the band where frequencies are let through (Band Pass), or cut (Notch) will become narrower.

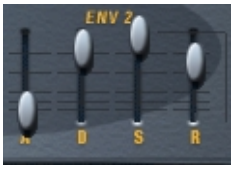
Filter Envelope Amount

This parameter determines how much the filter cutoff should be affected by the Filter Envelope (see below). Raising this value creates more drastic results. The Envelope Amount parameter and the set filter frequency are related. If the cutoff parameter is set to around the middle, this means that the moment you press a key the filter is already halfway open. The set Filter Envelope will then open the filter further from this point. The Filter Envelope Amount setting affects how much further the filter will open.

Both positive and negative percentage amounts can be set. If negative amounts are set, the way the envelope affects the cutoff will be inverted. For example, if a positive value causes the Decay parameter to lower the filter cutoff, a negative corresponding value will instead raise it.

The Envelope Generators





The Filter Envelope and the Amplifier Envelope.

An Envelope determines a chronological sequence for changes that can affect the pitch, timbre or level of a signal. This sequence is triggered by notes that are either played on the MIDI keyboard or sent from a sequencer track.

In the Macro Page View, HALion has two Envelope Generators with controllable Attack, Decay, Sustain and Release (ADSR) per channel. Envelope 1 creates the Filter Envelope which controls the Cutoff parameter. Envelope 2 is assigned to the DCA (Digitally Controlled Amplifier) and affects the volume of the Program.

Parameter	Description
Attack	Controls the time it takes for the signal to reach its highest level.
Decay	Controls the time it takes the signal to decay to the sustain level.
Sustain	Controls the signal after the Decay phase, while the key is still held down on the MIDI keyboard.
Release	Controls the signal after a key is released.

The Macro Amplifier Section

This section controls the volume of the Program.

Amplifier Amount

This parameter determines how much the volume should be affected by Envelope 2 (see above). Normally this is set to 100%. If this is set to 0%, no sound will be produced.

Amplifier Volume

This parameter can be used to boost the volume with up to 6 dB, or lower it down to silence.

Amplifier Velocity

This dial controls how much the volume should be affected by Velocity. Velocity is a value determined by how hard or soft you play notes on your keyboard. With Velocity set to 0%, the volume will be constant no matter how hard or soft you play. Increasing this value progressively will make the volume more and more sensitive to how hard or soft you play.

Tune Section

The Tune section is used to control the tuning of the Program in either Octave, Semitone (“Coarse”) or Cent increments. You can tune the Octave range +/- 5 octaves, the Semitone range +/- 11 semitones and the Cent range +/- 100 cents (1 Cent= 100th of a semitone).

Glide dial

By using the Glide dial, you can set and control a Glissando (up to 3 seconds) between successive notes for the Program.

The LFOs

The parameters in the LFO section allow you to vary the frequency and the waveform of the two LFOs. The LFO section is described on page 84.

The Options pop-up menu

Clicking in this field brings up a pop-up menu with the following options:

- **High/Mid/Low Quality**
  The Quality setting provides a way of balancing audio quality vs. conservation of computer power.

- High Quality provides full bandwidth sample playback, using more computer power as a trade-off.
- Mid Quality uses less CPU power. Depending on the type of sounds you are using, this mode can provide adequate reproduction in many instances.
- Low Quality produces a grainy and somewhat harsh sound, but can actually make filtered down sounds appear sharper (albeit in a lo-fi way).

  Quality can also be set in the Options Page View - it is the same parameter but can be set as a percentage value from 0 to 100% - see page 96.

❒ **The Quality setting is global for all channels in a HALion unit. Programs (or samples) cannot have different Quality settings!**

- **Edit absolute/Edit relative**
  This option determines whether the global settings you make in the Macro Page View should set the changed parameter to an absolute value, or change values relative to the previously set value.

  For example, let's say that some samples in a Program have a Filter Cutoff setting of 75, and other samples in the same program have a Cutoff setting of 60. With Edit absolute activated, changing the Cutoff parameter to 80 would set all samples Cutoff to 80.

  If Edit relative is activated, however, and you increase or decrease the current Cutoff value (from any given value) by 5 increments, this would simply add or subtract 5 increments from the previously set value.

The Channel/Program Page View

This Page View allows you to assign any Program in the Program Bank to any of the 16 channel “slots” in HALion. You can also make output assignments for all Programs currently assigned to the 16 channels.

Selecting a Program for a Channel

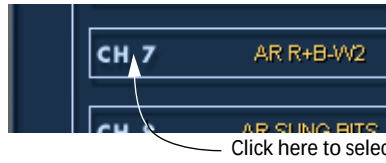
There are three ways to select a Program for a Channel:

- **By using the Program pop-up menu for a Channel slot.**
  Click the arrow in the Program column for the Channel you want to select a Program for, and select a Program from the menu.

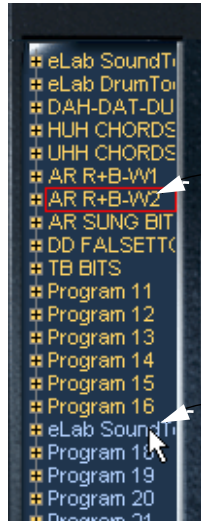
- **By sending a Program Change message via the same MIDI channel.**
  Any Program change message between 1-128 will change the currently assigned Program to the Program with this Program number.

The last example involves two steps:

1. **Click on a Channel number to select the Program assigned to the Channel.** If you look in the Program List (close all open Program folders to hide the samples), you can see that the Program is selected (indicated by a red border).



2. **If you now click on a Program name in the Program List that is currently not assigned to any of HALion's 16 Channel slots, it will be assigned to the selected Channel.**



Selecting the Output for a Channel

Clicking in the Output column for a Channel slot opens the Program Output pop-up menu. This allows you to select which of the 12 virtual outputs the selected Channel/Program should be routed to. This is described on page 28.

The Keyzone Page View

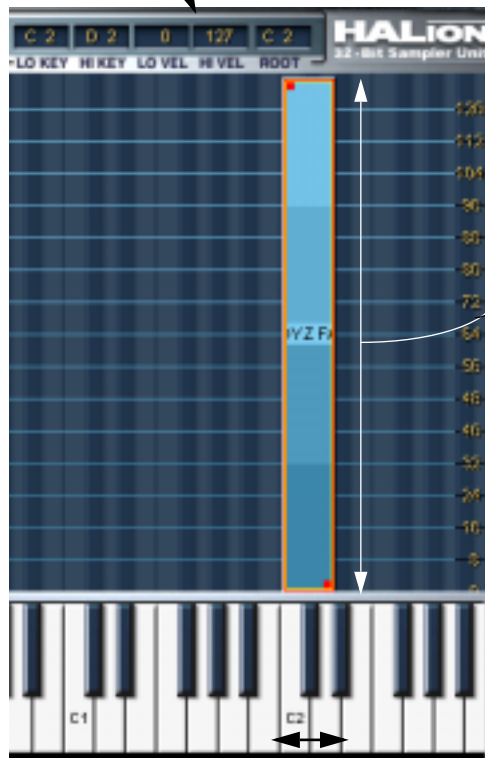
The Keyzone Page View takes care of all your sample mapping, layering and velocity scaling needs. A graphic and intuitive user interface makes it very easy to survey all the samples in a Program. This section covers all the operations possible in the Keyzone Page View, but also all operations involving the Program List, and general file handling issues such as importing samples.

Window Overview

When you have loaded a Program, the Keyzone Page View displays all the samples, mapped out horizontally over the Keyboard so you can clearly see what keys have samples mapped to them. The range across the keyboard that a sample is mapped to is called a key zone.

Both the Keyzone (Lo/Hi Key) and the Velocity range (Hi/Lo Vel) can also be edited in the Edit fields.

The sample in the picture is both selected for editing and View selected, which is indicated by a red/yellow border, and the two red “handles” in the top left and bottom right corner.



The vertical range indicates the Velocity range.

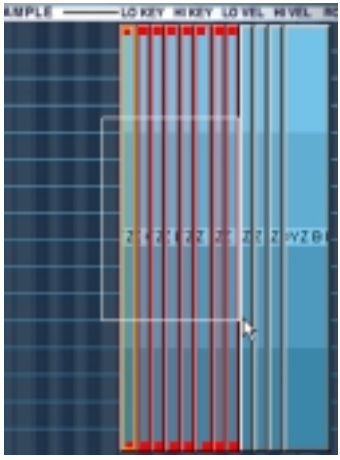
This sample has a key zone range from the C2 key to the D2 key.

A sample in the Keyzone window. Note that each key is superimposed in the Keyzone window background, black keys having a dark blue outline and white keys a light blue outline. This makes it easier to accurately scale and pinpoint ranges.

Selecting Samples

The following methods can be used to select samples in the Keyzone Page View:

- **Clicking on a Sample selects it.**
- **Use [Shift] + click to select several samples.**
  Click somewhere in the window (but not on a sample) to deselect all samples.
- **You can draw a selection rectangle by clicking and holding the mouse button down in the window.**
  All samples encompassed by the rectangle will be selected.



Drawing a selection rectangle.

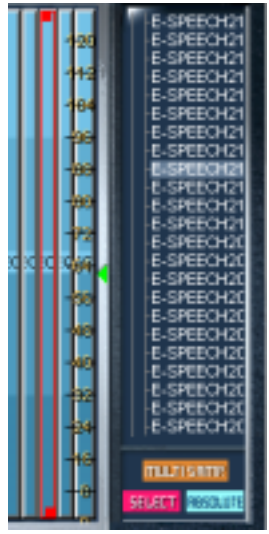
- **You can select samples in the Program List.**
  You can also select samples by using the up/down arrow keys in the Program List.

  See page 22 for a further description of selecting in the Program List.

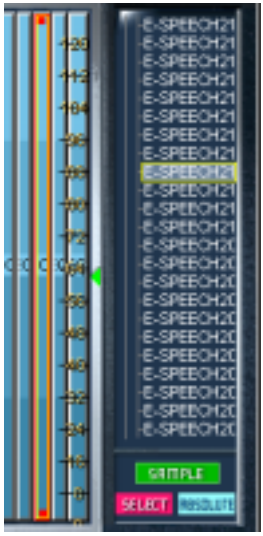
About the “View Selected” Sample

As explained earlier, the Sample selector field in the top strip of all Page Views shows the name of the selected samples. In the Program List or the Keyzone editor, you will notice that one sample has a yellow or red/yellow border. The yellow border indicates that the sample is currently “View Selected”. It is this sample’s parameters that will be shown when viewing any of the Page Views that show the settings for one sample at a time (specifically the Waveloop, Env/Filter and the Mod/Tune Page Views). The following determines which sample will be View selected:

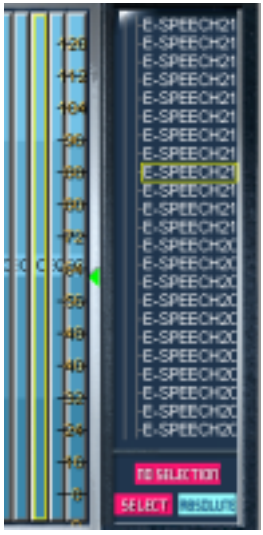
- **When you select samples using [Shift] + click, the last sample you click on will be View selected.**
  If you draw a selection rectangle to select samples, the currently View selected sample will continue to have the focus.
- **If you [Shift] + click on a sample in the Keyzone window that currently has a red/yellow border, it will remain View selected but not edit selected.**
  The sample will then have only a yellow border.



The sample is selected for editing, but not View selected, as indicated by a red border in the Keyzone window, and by being highlighted in the Program List.



The sample is selected and View selected, as indicated by a red/yellow border in the Keyzone window, and by being highlighted and having a yellow border in the Program List.



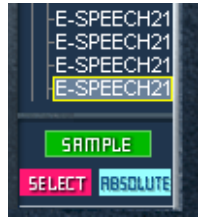
The sample is View selected, but not selected for editing, as indicated by a yellow border in the Keyzone window and in the Program List.

The currently View selected sample name is also always displayed in the Sample selector field. You can also use the Sample selector pop-up to select another sample, but this will in turn deselect all other selected samples.

About the “ALL/SELECT” button

There is one central functionality attached to virtually all editing operations in all HALion’s Page Views (except Waveloop and Macro) that is dependent on whether samples are selected or not. That is the “ALL/SELECT” setting at the bottom of the Program List. You toggle between the two basic modes by clicking the lower left button (it either reads “ALL” or “SELECT”).

In this mode, only selected samples will be affected by parameter changes. “MULTISAMP” indicates that several samples are currently selected.



In this mode, a single selected sample will be affected by parameter changes. “SAMPLE” indicates that only one sample is selected.

In this mode, all samples in the Program will be affected by parameter changes, regardless whether samples are selected or not. “PROGRAM” indicates that the whole Program will be affected.

Edit Absolute/Edit Relative

In addition, by clicking the button (that either reads “RELATIVE” or “ABSOLUTE” you can select between Absolute or Relative editing. This is only meaningful if you have selected “ALL” or have several selected samples, as the “ABSOLUTE”/”RELATIVE” setting doesn’t matter if only one sample is selected.

The “ABSOLUTE”/”RELATIVE” setting determines whether the editing you perform (in any Page View) should set the changed parameter to an absolute value, or change values relative to the previously set value for all or selected samples.

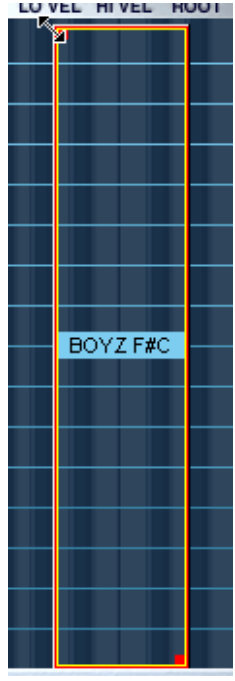
Let’s say that some samples in a Program have a Filter Cutoff setting of 75, and other samples in the same program have a Cutoff setting of 60. With Edit Absolute activated, changing the Cutoff parameter to 80, would set all (or all selected) samples Cutoff to 80.

If Edit Relative is activated, however, and you increase or decrease the current Cutoff value (from any given value) by 5 increments, this would simply add or subtract 5 increments from the previously set value for all (or all selected) samples.

Setting Keyzone and Velocity Range

Using the Handles

The handles can be used to set both the keyzone and the velocity range for a sample. You can only set the Keyzone range for one sample at a time.



Using the top handle. When you click on a handle, the pointer changes to a double arrow, and the sample itself becomes transparent.

You can use the handles in the following way:

- **Click the top handle to either extend the keyzone by dragging to the left, reduce the keyzone by dragging to the right or scale the high velocity by dragging up or down.**
  Clicking on the right side or border of a sample allows you to set the keyzone range in the manner outlined above, but not the velocity.

- **Click the bottom handle to either extend the keyzone by dragging to the right, reduce the keyzone by dragging to the left or scale the low velocity by dragging up or down.**
  Clicking on the left side or border of a sample allows you to set the keyzone range in the manner outlined above, but not the velocity.

- **Hold down [Alt] and drag the handles up or down to set velocity Lo/Hi values between 0 and 127.**
  Velocity can be scaled for all or all selected samples in a Program.

Scaling the Hi Velocity for several selected samples.

Using the Edit Fields

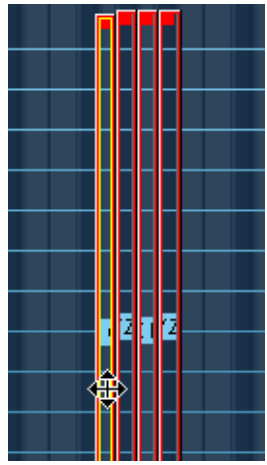
You can also set Keyzone and Velocity by using the Edit fields in the top strip of the window. This only affects one sample at a time: the currently View Selected sample. The following methods can be used:

- Click in one of the Edit fields to type in a new value. Click [Enter] to confirm.
- [Ctrl]-click (MacOS) or right-click (Windows) in an Edit field and drag up or down to change values, like using an invisible fader.
- If you have a wheel mouse, this can also be used to change values by clicking in the Edit fields (PC only).

Moving Samples

Selected samples can be moved around in the Keyzone window:

- **Clicking in the middle of a sample, so that the pointer becomes a four-way arrow (PC only) allows you to drag the selected sample(s) left or right (and up or down if the velocity range has been scaled from the default 1 to 127 range) in the Keyzone window.**
  Note that when you move samples, they will be transposed. To make moved samples play back at the right pitch again you have to change the Root Key setting (see below).



Moving samples in the Keyzone window.

Deleting Samples

You can delete selected samples using the standard commands [Delete] or [Backspace].

Setting the Root Key

The Root key determines the pitch of the sample. Samples can contain Root key information embedded in the file, which means that when loaded, they will automatically be mapped to the corresponding key(s).

The sample collections included with HALion contain both multisampled instrument Programs, with samples of a specific instrument (where often there is one sample for each corresponding note across the keyboard), and "single-shot" sample Programs, where different separate samples are mapped across the keyboard without any key/pitch relationship. In the former case (i.e when samples already have the correct root key and are mapped to the corresponding key), it doesn't generally make any sense to change the Root key settings. But in the latter case, you may want to move samples around, and the same applies to imported pitched samples that do not have Root key information.

If you have moved samples in the Keyzone window, you can easily make them play back at the original pitch:

- **By setting the Root key manually in the Root Edit field.**
  If you set the Root key to the same key a sample is mapped to, it will play back at the sample's original pitch.

  If you have loaded samples refer to the next section "Importing Samples".

- **If the sample is mapped to a Keyzone stretching over several keys, you can decide which key you want to determine to be the root key according to whether it is the low key, the middle key or the high key in the Keyzone.**
  This is explained on page 57.

Importing Samples

Earlier we have explained how to load a Program Bank and individual Programs using the File pop-up. But to make up your own Programs using your own samples, you first have to import the samples into HALion. This can be done in a number of ways:

- By dragging the samples (audio files) and dropping them into the Keyzone window or the Program List (in any Page View) - see page 53.
- By using the Import Sample(s) Program List context menu item - see page 57.
- By using the Import Sample(s) Keyzone window context menu item - see page 57.
- By using the Import Audio File dialog in the Options Page View - see page 89.
- By using the Import External Format dialog in the Options Page View - see page 89.

What Audio File Formats can be loaded?

HALion supports the following File Formats:

Audio File Format/Extension	Description
Wave File/.wav	The standard audio file format for the PC platform.
AIFF/.aif	Audio Interchange File Format. The standard audio file format for the MacOS platform.
AIFC/.aif	Compressed Audio Interchange File Format. Similar to Aiff, but compressed (32-bit float format only).
LM4/LM9/.txt	Script files created by the LM4 or LM9 Drum modules.
REX/.rex	ReCycle Export files. ReCycle is a program created by Propellerhead Software that slices up music loops, and allows them to play back at any tempo. To use the REX file with HALion, you also need a MIDI file (created in ReCycle) to play back the slices correctly.
Sound Designer II/.sd2 (MacOS only)	The native audio file format used by Digidesign software.
HALion Effect Program/.fxp	A Program containing samples and parameter settings.
HALion Effect Bank/.fxb	A Program Bank, containing up to 128 Programs.

❒ **HALion can read 32-bit float files, in all compatible formats that support this resolution, as well as other common bit resolutions (8-bit files excepted). Files may also have any sample rate.**

❒ **By using the Import External Format dialog in the Options Page View you can also import Banks, Programs and samples from Akai- and E-mu format sample CDs and SoundFonts folders - see page 89.**

Importing Samples using Drag and Drop

The following applies when using drag and drop to load samples:

- **You can import samples to a specific key (or key range) in the Keyzone window.**
  Simply select the file(s), and drag them into the Keyzone window. If the samples do not contain Root key information, the key the mouse pointer points to when "dropping" determines the keyzone the sample will be mapped to. If several samples are selected, they will be mapped chromatically upwards from this key.

❒ **If the sample(s) contain Root key information embedded in the file, they will be mapped to the corresponding key(s), regardless of what key they are dropped on!**

- **You can drag and drop samples into any Program folder in the Program List.**
  Simply select the file(s), and drag them into the Program List. Remember that the mouse pointer determines the ultimate destination. Point at the folder, open or closed, that you wish to import the samples to when you "drop".

❒ **When you import several samples in this way, and the samples do not contain any Root key information embedded in the file(s), the samples will be mapped chromatically from the selected key on the Keyboard (marked with a blue dot). If this key is already mapped with a sample, they will be mapped from C1.**

❒ **You can also import Programs or Program Banks using drag and drop.**

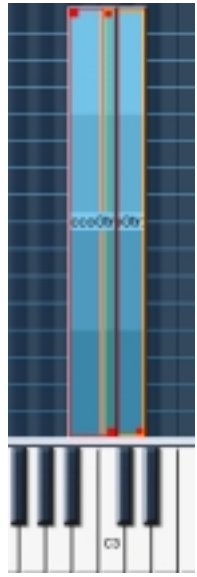
Overlapping Keyzones

A key range can contain more than one Keyzone, as any number of samples (each with its own Keyzone) can be layered on top of each other. This can be done in many different ways:

Playing several samples from one key

You can simply map two or more samples to the same key range.

This will play back all samples mapped to this key (or key range) simultaneously. When samples are layered, the color of the samples change from blue to turquoise (in the overlapping part), and the outline of overlapping sample(s) is visible. However, if layered samples have identical keyzone and velocity ranges and are mapped to the same key(s), then layering is indicated by the turquoise color alone.

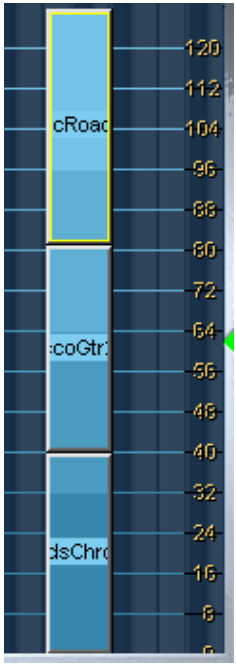


These two samples are layered (overlap) on the C3 key. Sometimes only the keyzone currently “in front” will be accessible, making it impossible to adjust the handles for a underlying keyzone. In such cases you have to use the context menu items “Send To Back” and “Bring To Front”. All context menu items available in the Keyzone Page View are described on page 57.

Velocity Switching

You can use Velocity switching to determine how samples mapped to the same key or key range will play back.

By setting different High/Low Velocity values for several samples, you can determine which sample is played by how hard or soft you play.



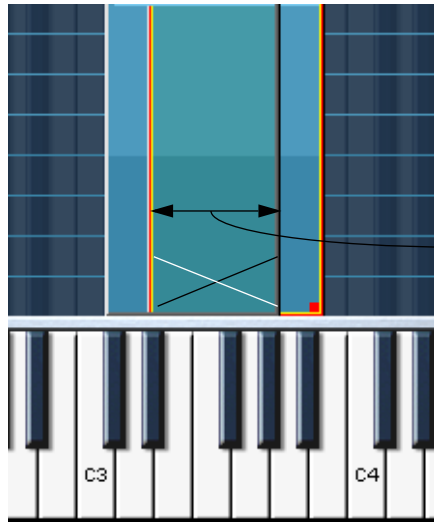
Three samples that are Velocity switched. If you look at the Velocity scale to the right, the lower sample will play back when triggered by velocities between 1 and 40, the middle sample when triggered by velocities between 41 and 80, and the top sample when triggered by velocities higher than 80. Note that the velocity ranges set in the picture are exclusive, meaning that only one sample at a time will ever play back. But you could also have overlapping velocity ranges in which case two samples would be played back in the overlapping range, which can produce a smoother transition between two samples.

Applying Crossfades

❒ **Crossfades are selected from a context menu. All context menu items are described on page 57.**

You can also apply “crossfades” to overlapping Keyzones. There are two methods available:

- **X-Fade Pitch**
  This will crossfade samples by pitch in the overlapping range.



Crossfading according to pitch.

If X-Fade Pitch is applied, samples will be crossfaded according to what key is played in the overlapping range.

- **If the white line (in the picture above) represents the volume/fade curve for sample 1 and the black represents the volume/fade curve for sample 2, you can see how the crossfading is applied.**
  The higher the key (in the overlapping range), the more of sample 2 and the less of sample 1 will be heard, and vice versa.

- **The sample that is View selected when crossfading is applied, will become sample 1 in the example.**

- **If you overlap a third sample, this will have the same volume curve as sample 2 in the example.**
  If you apply a pitch crossfade to the third sample, the volume curve will be reversed.

- **X-Fade Velocity**
  This will crossfade samples by velocity in the overlapping range.

  If X-Fade Velocity is applied, samples will be crossfaded according to how hard or soft you strike a key in the overlapping range. The harder the key is struck (in the overlapping range) the more of one of the samples (determined by which sample is view selected when applying the crossfade) and less of the other sample will be heard, and vice versa.

- **It is also possible to apply pitch and velocity crossfades together.**

Context Menu Items in the Keyzone Window

The Keyzone Page View features powerful context menus, providing many functions and features. Context menus are opened by [Ctrl]-clicking (MacOS) or right-clicking (PC) in the Keyzone window, either directly on a sample or in an empty area of the Keyzone window.

Sample specific context menu

[Ctrl]-/right-clicking on a sample either in the Keyzone window or in the Program List brings up the following context menu items, which are mostly applicable to the currently View selected sample:

Menu Item	Description
Sample Name	The top menu item displays the name of the currently View selected sample. All items on the top half of the menu will apply to the currently View selected sample.
Replace…	This opens a standard file dialog allowing you to replace the currently View selected sample with another. The replaced sample will get the exactly the same properties (i.e. keyzone/velocity range, parameter settings etc.) as the replaced sample. Replace is Undoable.
Rename…	Allows you to rename the currently View selected sample.

Menu Item	Description
X-Fade Pitch	This applies a pitch crossfade in the overlapping range between the currently selected sample and one (or several) other sample(s). This function can be turned on or off at will by selecting or deselecting it from the context menu. Pitch crossfades is described on page 56.
X-Fade Velocity	This applies a velocity crossfade in the overlapping range between the currently selected sample and one (or several) other sample(s). This function can be turned on or off at will by selecting or deselecting it from the context menu. Velocity crossfades are described on page 56.
Exclude from Automation	By selecting this item you can exclude the currently View selected sample from any recorded parameter automation changes. Automation is described on page 97.
Mute	This mutes (silences) the currently View selected sample. Muted samples are displayed in grey in the Keyzone window, and are listed in italics in the Program List.
Solo/Unmute All	This mutes all samples except the currently View selected sample. Deselecting this unmutes all samples.
Bring To Front/Send To Back	This allows you to access samples that may be hidden behind other overlapping samples. Bring To Front will bring the currently View selected sample to the front, Send To Back will send the currently View selected sample to the back, and bring any underlying sample to the front.
Center in Keyzone	This will scroll the view so that the currently View selected sample will be in the middle of the Keyzone window.
Edit in (Host Application)	This will open the currently View selected sample in an external editor, where samples can be edited. If you are using Cubase, this will be the Wave Editor. Please refer to the Host application's documentation for information about what you can do in the corresponding editor.
Unload/Load	This will unload the currently View selected sample. If you open the context menu again you can reload it. Unloaded samples are displayed in dark blue in the Keyzone window, and are indicated by purple text in the Program List.
Undo	This will undo the last performed "destructive" operation in the Keyzone window. Undoable operations are Cut/Delete/Replace.

Menu Item	Description
Cut/Copy/Paste/ Delete	These commands can be used for Cut, Copy, Paste or Delete operations for all selected samples. You can use standard key commands for these operations.
Sample Info	At the bottom of the menu, information about the currently selected sample is shown. In addition to the info presented in the Edit fields on the top strip of the Keyzone window, there is info about the audio file format, length (in time units), size (in bytes), mono/stereo status, sample rate and bit depth. The path to the sample location is also shown.
View	

The “Locate” and “Search in Directories Items”

There are two additional Items that appear at the top of the sample specific context menu only when needed; “Locate” and “Search in Directories”. These items appear when the path to the samples in a Program or Bank cannot be found or hasn’t been established.

If this warning message appears, you have to select a sample in the Program and [Ctrl]-/right-click it, either in the Keyzone window or in the Program List, to bring up the context menu. Proceed as follows:

- **Select “Locate” from the context menu to bring up a file dialog allowing you to locate the folder containing the sample you clicked on. Select it and click Open.**
  All the samples belonging to the Program will now automatically load.
- **Select “Search in Directories” from the context menu to bring up a file dialog allowing you to locate the directory (or folder) that contains the samples belonging to the Program.**
  This function can search in sub-directories inside the directory you selected, in up to four levels. When the samples are located they will load automatically.

Program Specific Context Menu

[Ctrl]-/right-clicking on a sample either in an empty area of the Keyzone window or a Program folder in the Program List brings up the following context menu items, which are mostly applicable to the currently selected Program:

Menu Item	Description
New Folder	This will create a new Folder inside the currently selected Program folder. This can in turn contain samples. In all respects a Folder is the same as a Program, but you can import whole Programs into Folders without replacing the Program the Folder resides in. Organizing samples in Folders (or sub-folders) allows you to load "Programs into a Program". Folders can be used to structure samples in a Program (for example one folder per octave, or per velocity layer). The advantage is that you can handle all the samples in the folder as an entity, select them (directly by selecting the folder), mute them, load them into another Program, save them as a Program (see below) etc. Samples that reside in folders inside Program folders are indicated by having dotted borders in the Keyzone window.
Load Folder…	This brings up the same dialog as using the "Load Instrument" File pop-up item. The difference is that you can load a "Program" (HALion Effect Program) into a sub-folder of the currently selected Program, without replacing it, as explained above. It simply imports all the samples saved in the folder. If this menu item is used with a Program folder selected, it will replace the current Program for that channel, just like when using the File dialog.
Save Folder…	This allows you to save and name the currently selected folder as a ".fxp" (HALion Effect Program) file. This can then be used just like any Program.
Import Sample(s)/ Import Sample(s) (at Mouse position)	This menu item opens a standard file dialog where you can select samples for import. The functionality differs according to whether you bring up the context menu by clicking in an empty area in the Keyzone window, or on a Program folder in the Program List. In the first instance, selected samples will be chromatically mapped from the key position you point at in the Keyzone window. The menu item will then read "Import Sample(s) (C2)" (if that was the key position you pointed to). In the second instance the sample(s) will be mapped chromatically from selected Key on the Keyboard (marked with a blue dot).
Rename…	This allows you to type in a new name for the currently selected Program.

Menu Item	Description
Preload Samples	This allows you to Preload all samples for a Program if they have been unloaded. All Programs that are assigned to the 16 channel slots in the Chan/Prog Page View are automatically Preloaded into RAM, so sometimes you may wish to unload them to save memory.
Always Preload	This allows you to Preload a selected Program even when it is not assigned to one of the 16 Channel slots. This is useful if you use Program Change messages to change Programs, so that the samples can be instantly triggered.
Mute All/Unmute All	This mutes/unmutes all samples in the currently selected Program or folder, respectively.
Set as Active Program	If you [Ctrl]-click (Mac) or right-click (Win) an unselected Program name in the Program List, you can use this item to select the Program without selecting the samples inside the Program folder.
Undo	This will undo the last performed “destructive” operation in the Keyzone window. Undoable operations are Delete, Cut, Expand Selected and Map Chromatic Selected.
Cut/Copy/Paste	Allows you to use Cut, Copy and Paste operations for selected samples, Programs or Folders. Programs can be copied and pasted into other Programs. If the destination Program is empty the Program name will be changed according to the copied Program.
Select All	Selects all samples in the selected Program.
Sort by Pitch	This will sort all samples in the selected Program folder according to which pitch it is mapped to.
Sort Alphabetically	This will sort all samples in the selected Program folder alphabetically.
Refresh Selected	If you edit a file in another program, this may have to be used when you import the file again. This is because audio files hold the loop information, and these may have been reset (deactivated) when editing in an external editor.
Expand Selected	This will expand the selected sample(s) keyzones in the following manner. If one sample is selected, its keyzone range will be stretched across the entire range overlapping all other samples. If all samples are selected their keyzones will be extended to the next adjacent sample, without overlapping.
Map Chromatic Selected	This will remap all selected samples chromatically from the selected key on the Keyboard (marked with a blue dot).

Menu Item	Description
Root Key to Lo key Selected	This sets the Root to the lowest key in the Keyzone range for all selected samples.
Root Key to Mid key Selected	This sets the Root to the middle key in the Keyzone range for all selected samples.
Root Key to Hi key Selected	This sets the Root to the highest key in the Keyzone range for all selected samples.
Parameters to Selected	If you have made parameter settings for a sample (with edit mode selected for this sample only), you can select other samples and copy the parameter settings to these by using this menu item.
Reset Selected	This resets all parameter settings to default values for all selected samples.
Info	This tells you the number of samples and folders contained in the selected Program Folder.
Hide Others (only subfolders)	This hides all other subfolders on the same level of the selected program.
Show Others (only subfolders)	This shows all other subfolders on the same level of the selected program.

The Waveloop Page View

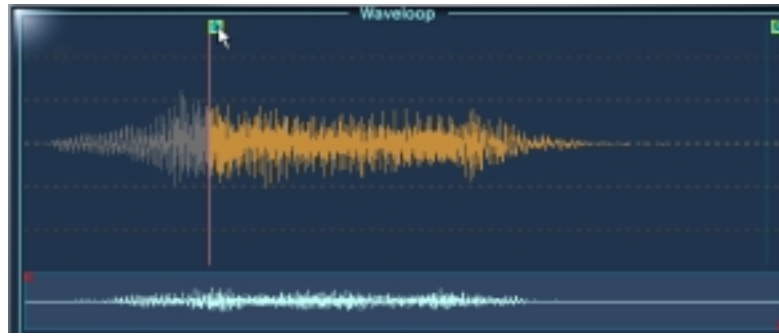
In this Page View you always edit one sample at a time, regardless of the ALL/SELECT setting in the Program List. The Waveloop editor allows you to set start and end points for a sample, as well as a Sustain loop and a Release loop.

The Waveloop Page View always displays the currently View selected sample's waveform and loop settings.

Setting the Start and End Points for a Sample

If you would like to change the Sample Start and/or End Points for a sample, this can be done in the following ways:

- **By moving the Start and End offset handles manually.**
  Simply click and drag the Start handle (marked S) or the End handle (marked E) to where you would like the sample to start and end, respectively.



Changing the Sample Start point. The waveform is greyed out if outside the Start/End range.

This can also be done by [Ctrl]-clicking (MacOS) or right-clicking (PC) the Sample Start or End Point numeric display in the lower left corner of the Waveloop window.

- **Move the pointer up and down with the mouse button pressed down to change values.**
  If you simultaneously press (Shift), values are changed with a finer resolution. A wheel mouse can also be used to scroll values.

- **Click on a value to type in a new value.**

  This functionality applies to all numeric displays in the Waveloop Page View.

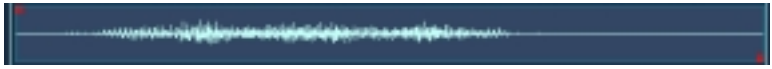
Setting Velocity Start Point

This parameter allows you to determine the way in which velocity affects the playback starting point for the sample. The higher the number, the later in the sample playback will start relative to the velocity (i.e. a high key velocity will start playback further into the sample).

Zooming the Waveform

You can zoom in on the waveform using the thumbnail display or the Navigation Controller.

Using the Thumbnail Display



The thumbnail display contains a small overview of the whole waveform. By dragging the red handles at the start and end of the range you zoom in on the waveform.

- **Dragging the red left handle to the right increases the zoom level and shifts the visible range towards the end of the waveform.**
- **Dragging the red right handle to the left increases the zoom level and shifts the visible range towards the start of the waveform.**
  The smaller the blue area is, the higher the zoom factor.
- **If you click and hold down the mouse button between the handles (the blue area) you can shift the visible range left or right across the waveform.**
- **If you click and hold down the mouse button between the handles and move the pointer up or down you can move both handles at the same time.**
  Moving the pointer up moves the handles further apart, zooming out on the waveform and vice versa.

Using the Navigation controller

- **Click and hold down the mouse button at the Navigation controller center and move the pointer to the right to zoom in, with the visible range shifting towards the end of the sample.**
  If you change the direction to the left, the zoom level remains but now shifts the visible range back towards the start of the sample.
- **By moving the Navigation controller up and down you increase/decrease the vertical zoom of the waveform.**
- **If you point the Navigation controller direction to the left or right but also move the mouse up or down you can simultaneously scroll the current zoom level and increase/decrease the vertical zoom of the waveform.**
- **If you [Ctrl]-click and move the pointer to the right or left you can move the right handle right (to zoom in) or left (to zoom out) to/from the current position of the left handle.**
- **By using the left/right arrow keys you focus the view on either the Start or End of the current loop, respectively.**

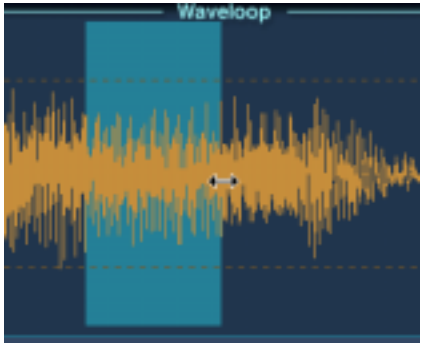
Setting a Sustain Loop

A sustain loop determines which portion of a sample should be looped when you hold down a key. To set a sustain loop, proceed as follows:

1. **Make sure that the Loop button is selected (the box should be displayed in light blue with black text).**
   If it isn't, click it.

2. **Point in the waveform and click.**
   The pointer changes to a double arrow indicating that you can drag in both directions.

3. **Select an appropriate loop range in the waveform.**
   The selected loop area is indicated by a light blue background.

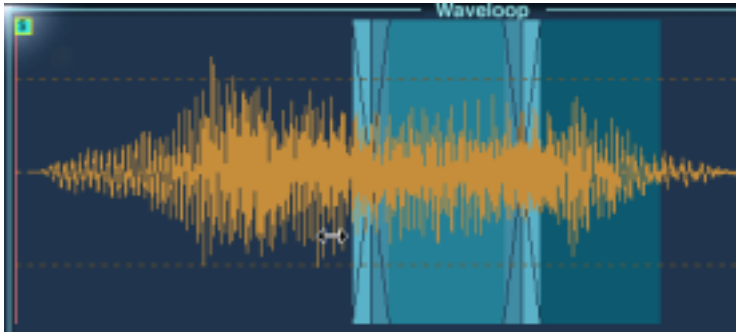


4. **To audition the loop, click the Play button, under the Loop button.**
   The loop will repeat until you click the Play button again.

5. **You can move the loop around by dragging it with the mouse, or change the range by clicking the left or right edges of the loop during auditioning.** The Loop start and end points will automatically snap to zero crossings. A zero crossing is where the wave crosses the zero level axis. This helps to avoid clicks and pops when setting loops. If you, for some reason, don't want the loop to begin and end at zero crossings you can disable this function, by pressing [Command] + [Shift] (Mac) or [Ctrl] + [Shift] (PC) when setting the loop.

Crossfading the Loop (Smooth)

If you press [Alt] while clicking in the loop and moving the mouse pointer out of the loop range at either edge, you will add crossfades at both ends of the loop. This makes the loop seamless and "smooth", which is also the name of the function.



Setting Loop Playback

When you are happy with your loop, you can set how it should play back by clicking the Mode field in the box to the right of the Loop and Play buttons. This opens a pop-up menu with the following items:

- Loop Until Release - this will play the loop for as long as you hold down a key.
- Loop Once - this will repeat the loop once and then stop.
- Play Until End - this has nothing to do with the Loop, it will simply play the whole sample until the set End point.
- Play Reverse - this will play the whole sample reversed.

Setting the Release Loop

The Release Loop determines which portion of the sample should loop after the key is released. Setting the Release Loop is done using the same methods as for the Sustain Loop, except that you should have the Release button activated. When you switch to the Release Loop mode, the Sustain Loop becomes dark blue. The currently selected Loop is always shown in light blue. You can switch selection between the Loop and Release Loop using the [1]/[2] keys (not numeric keypad).

- **The Mode setting allows you to set either a Continuous Release Loop or a Single Release Loop.**
  A continuous loop will repeat for as long as the release portion of the DCA Envelope is audible.

Loop Tuning

You can tune the Sustain and Release Loop independently up or down a semitone by using the Loop Tuning parameters.

Context Menu Items

[Ctrl]-clicking (Mac) or right-clicking (Windows) in the Waveloop window brings up a context menu with the following items:

Option	Description
View Right Channel	For stereo files only. This switches the view between the right and left channel.
Rename…	Allows you to rename the current sample.
Zoom to Loop	Zooms the view to the currently selected loop.
Zoom Full	Zooms the view to the whole sample between the Start and End Handles.
Start/End Offsets to Loop	Sets the Start/End Offsets to the Sustain Loop.
Loop to Start/End Offsets	Sets the Sustain Loop to the Start/End Offsets.
Edit in (Host Application)	This will open the sample in an external audio editor, depending on your host application.

Option	Description
Select Loop	Selects the Sustain Loop.
Select Release Loop	Selects the Release Loop.
Locate Start Loop	Focuses the view on the Start of the current Loop.
Locate End Loop	Focuses the view on the End of the current Loop.
Undo	Allows you to undo the last action.
Select All	Selects the whole sample as the current loop.
Sample Info	At the bottom of the menu, information about the currently View selected sample is shown. In addition to the info presented in the Edit fields on the top strip of the Waveloop window, there is info about the audio file format, length (in time units), size (in bytes), mono/stereo status, sample rate and bit depth. The path to the sample location is also shown.

The Envelope/Filter Page View

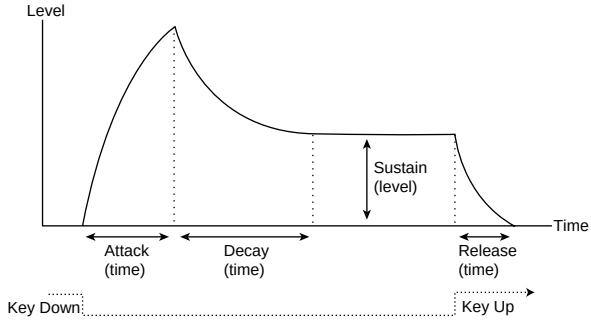
This Page View is used for making Filter and Envelope Settings for all or selected samples. The parameters are largely the same as the parameters described for the Macro Page View, with a few exceptions.

The Envelope Section

The Envelope section offers more complex features than available from the Macro Page View. You can have up to 8 points for each Envelope, and you can also set linear or logarithmic envelope curves.

- Envelope 1 creates the Filter Envelope which controls the Cutoff parameter for all or selected samples.
- Envelope 2 is assigned to the DCA (Digitally Controlled Amplifier) and affects the volume of all or selected samples.

Envelopes - General



The basic Envelope parameters (Attack - Decay - Sustain - Release).

Setting the Envelope

The vertical axis displays the Level, the horizontal axis displays the Time.

The right Slider is used to zoom in on the envelope curve, and the left slider scrolls the view.

Points 1-4 correspond to Attack (Level), Decay (Time/Level), Sustain (Time/Level) and Release (Time/Level).

- **Every stage in the Envelope can be up to 10 seconds long.**

- **You move the envelope points by clicking and dragging them in the desired direction.**
  When you click on a point it displays the current level and duration for the parameter.

Dragging the Decay parameter to the right sets the Attack Time.

- If you [Alt]-click on a point, only vertical positioning can be made (level).
- If you [Ctrl]-click on a point, only horizontal positioning can be made (time).
- If you [Shift]-click on a point, positioning is made with higher resolution.

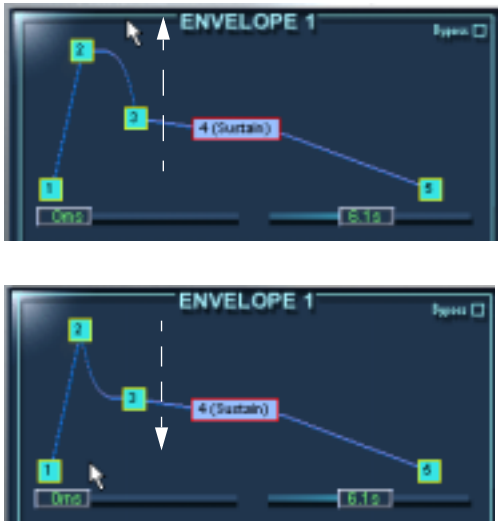
- **You can add or remove points by double-clicking.**
  Add a point by double-clicking on the curve, remove a point by double-clicking the point. Up to 8 points can be added.

Adding a point before the Decay parameter gives you additional control over the Attack/Decay phase of the envelope.

❒ **You cannot remove the Attack, Sustain or Release points!**

- **All points added after the Sustain point will always affect the Release stage of the envelope, i.e. after the key is released.**

- **If you click and hold on a curve, and move the mouse up or down, Logarithmic curves can be set.**
  [Ctrl]-clicking (PC) or [Command]-clicking (Mac) a logarithmic curve resets it to linear.



Creating Logarithmic curves.

By clicking the Bypass button in the upper right corner, the corresponding Envelope is bypassed.

The Filter Section (DCF)

The Filter section has the same basic parameters as described for the Macro Page View - see page 29. The main difference is that in the Env/Filter Page View, you can make Filter settings for all or all selected samples in a Program.

In addition, the Filter section here contains two parameters not present in the Macro Page View:

Velocity

This parameter sets how much the filter Cutoff is affected by Velocity. Normally this is set to 50%. This will produce a brighter timbre if keys are struck harder, like many real instruments.

Fatness

This parameter adds a tubelike distortion to the signal.

Bypass

This bypasses the Filter Section.

The Amplifier Section (DCA)

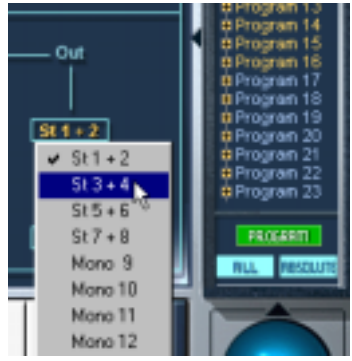
The Amplifier section contains a number of parameters only available in this Page View. Again, all or all selected samples are affected.

- **The Env. Amount, Velocity and Volume parameters are the same as described in the Macro Page View section - see page 34.**

Out

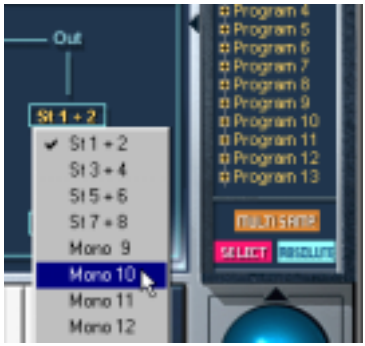
This lets you route all or selected samples to any of the 12 virtual outputs. It also lets you define which output(s) should be the “main” outputs for the Program as a whole.

- **If the main Program Output is set to “PROG”, and you adjust the output setting with Select “ALL” button activated, this will define the main output for the Program.**



This would change the output for the whole Program to 3+4, if selected.

Once you have set the main output, you can route individual samples to separate outputs by using the output menu.



This would route the currently selected samples to output Mono 10, while the remaining samples would be routed to the set main Program output.

Panorama/Spread

The Panorama parameter sets the stereo position for the currently selected samples.

Spread is an automatic Panner. The function distributes the signal of each single note randomly within the stereo spectrum:

- If the dial is turned fully left, the signal is played back at the position defined by the Panorama dial. The more you turn the dial to the right, the wider the signal will be distributed.
- If the Panorama dial is set to its middle position, Spread will distribute the signal across the whole stereo spectrum. If it is set to “10 o’clock”, Spread will distribute the notes between the extreme left and the middle of the stereo spectrum etc.

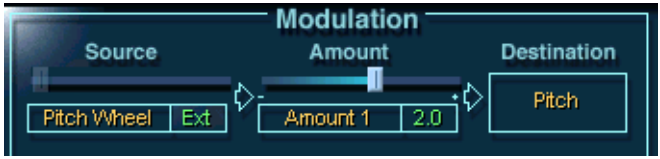
The Modulation/Tune Page View

This Page View offers complex modulation possibilities, as well as LFO, Tuning and Polyphony Grouping settings. All parameters can affect all or selected samples.

The Modulation Section

The modulation possibilities in HALion are as simple or as complex as you want them to be. The basic structure works as follows:

- The **Destination** governs what parameter the modulation is applied to.
- The Destination is modulated by a **Source**.
- How much this Source modulates the Destination is set by an **Amount**.



Here the Source is incoming Pitch Bend data. The Source modulates the destination Pitch, and the Amount specifies the pitch bend range - 2.0 semitones in this case.

- **You can specify up to twelve different modulation routings.** While any combination of these can be active at the same time, only six modulation routings are shown in the window. Use the Page 1 and Page 2 buttons to toggle between viewing modulation 1-6 and 7-12.

The Source column

Clicking the orange label in the Source column brings up a pop-up menu from which you can select a modulation source. The following modulation sources are available:

Source	Description
OFF	No modulation.
Lfo 1-2	One of the HALion's two LFOs.
Velocity	Note-on velocity data. Use this as Source if you want the sound to change depending on how hard you play.
Pitch Wheel	Pitch Bend data, typically sent out by a pitch bend wheel, bend lever or joystick.
Mod Wheel	Modulation data, typically sent out by a modulation wheel.
Aftertouch	Aftertouch (channel pressure) data.
Contr 1-4	One of four assignable MIDI controllers (see page 83).

Source	Description
Output	The output signal of the sample itself, taken before the main volume and pan settings. If the sample is in stereo, the left channel is fed to the Output parameter.
Envelope 1-2	One of HALion's two envelope curves.
Key	The key (note number) of the incoming MIDI note. A typical use for this would be to have the filter track the keyboard.
Note Off	Release velocity data. Note that not all MIDI keyboards send Note off velocity.
Glide	Uses the signal generated by the Glide parameter as a modulation source.
Noise	A built-in white noise source.
Key 2, Velocity 2, Pitch Wheel 2, Mod Wheel 2	These are the same as Key, Velocity, Pitch Wheel and Mod Wheel, respectively, but allows you to set up separate Modulator Adjustments. See below.
Amount 1-12	These are described below.

The "Amount 1-12" options are internal, arbitrary amounts. When you select one of the Amount options, a slider appears above the field in the Modulation section, and the current value of the Amount is shown to the right.

- **To set a value for the Amount, use the slider or click the field to the right of the slider and type in a value.**
  The Amount values can also be modulated by other sources, as described on page 81.

- **If you right-click (Windows) or [Ctrl]-click (Mac) the slider area, a dialog appears in which you can set an Offset and a Range for the Amount.**
  This is most useful if you modulate the Amount by another source. See the section about Adjusting Modulators below for a description of Offset and Range.

The Amount column

The Amount parameter works by "scaling" the corresponding Source by a bi-polar value. One example of this would be to have the Modulation Wheel as Source, modulating the destination Pitch, with an LFO selected as Amount. This would give you standard mod wheel control over vibrato.

Clicking the orange label in the Amount column brings up a pop-up menu, from which you can select an Amount option. The available options are the same as in the Source column (see above).

The Destination column

The Destination column is where you select what to modulate. The options are:

Option	Description
Cutoff	The Cutoff frequency of the filter.
Resonance	The filter resonance.
Volume	The DCA volume setting.
Pan	The stereo panning of the sound.
Pitch	The pitch of the sound.
Amount 1-12	These are the same Amount 1-12 that are available as Source and Amount options. By modulating an Amount, which in turn is used for modulating something else, you can create complex "modulation chains" if you like.

Adjusting Modulators

When an external MIDI data type (e.g. Pitch Wheel, Mod Wheel, Velocity, Key, etc.) is selected as Source or Amount, you can make further adjustments to how the value should affect the modulation:

- **Right-click (Windows) or [Ctrl]-click (Mac) the greyed-out "slider area" just above the orange label in the Source/Amount column.**
  This opens the Adjust Modulator dialog.

The dialog contains the following settings:

Setting	Description
Offset	Allows you to offset the incoming data. For example, if you set Offset to 10, an incoming MIDI Event with the value 20 will result in the value 30 being sent as Source or Amount.
Range	Allows you to scale the incoming values so that they fit within a specified range, set as a percentage. Set this to 100 to use the actual incoming values.
Function/ Curve	This is a pop-up from which you can select a function or curve. The Source or Amount value is scaled according to the selected function or curve, allowing e.g. logarithmic changes. The default option is Linear.

❒ **Any settings you make in this dialog affects all instances of the same Source/ Amount option! For example, if you select a logarithmic curve for the Mod Wheel, this will be reflected everywhere the Mod Wheel is used as a Source or Amount.**
For some of the MIDI data types, there are additional options on the Source/ Amount pop-up menus (Key 2, Velocity 2, Mod Wheel 2 and Pitch Wheel 2). These can have their own Modulator Adjustment settings.

About the Assignable Controllers

If you have selected one of the “Contr 1-4” options as Source or Amount, you need to assign a MIDI Controller:

1. **Right-click (Windows) or [Ctrl]-click (Mac) on the greyed-out slider area above the orange label in the Source/Amount column.**
2. **In the Assignable MIDI Controller dialog that appears, use the slider to select a MIDI controller.**
   The name of the controller is shown below the slider.

3. **Click OK to close the dialog.**

❒ **The assignment you make affects all instances of the Controller.**

LFO Section

HALion features two LFOs (Low Frequency Oscillators). The most common use of an LFO is to modulate pitch to produce vibrato.

The LFOs in HALion have the following parameters:

Parameter	Description
Freq	This controls the frequency of the modulation, i.e. the “speed” of the LFO. The range is 0 to 30 Hz for LFO1 and 0 to 10 Hz for LFO2.
Delay	This allows you to set a delay before the LFO modulation starts. You can also set negative values, in which case this parameter controls the time before the modulation ends. Range is +/- 3 seconds.
Waveform types	This sets the LFO waveform type, which governs the shape of the modulation. The available waveforms are described below.
Sync	This will sync the LFO to the tempo set in HALion’s host application.

LFO Waveform types

The available waveforms have the following characteristics:

Option	Description
Sine	This produces smooth modulation, suitable for normal vibrato or tremolo.
Triangle	This is similar in character to Sine.
Pulse	This produces stepped modulation, where the modulation switches abruptly between two values.

Option	Description
Sawtooth	This produces a “ramp up” cycle. The modulation sweeps up to a set point (governed by the Amount setting), after which the cycle immediately starts over.
SawPulse	Similar to Sawtooth.
Pulse15	This produces stepped modulation, where the modulation switches abruptly between two values. This waveform “holds” longer on one of the values.
Pulse30	This also produces stepped modulation, where the modulation switches abruptly between two values. Similar to Pulse 15.
SineComplex	This produces modulation with a special character.
Log Pos	This produces a logarithmic “ramp up” cycle. The early part of the modulation cycle rises slowly but rises faster higher up in the cycle.
Log Neg	Same as Log Pos but inverted.

Tune Section

This section allows you to tune all or selected samples of the Program in either Octave, Semitone (“Coarse”) or Cent increments. You can tune the Octave range +/- 5 octaves, the Semitone range +/- 11 semitones and the Cent range +/- 100 cents (1 Cent= 100th of a semitone).

If the “No Transpose” option is ticked, samples will play back at constant pitch across the Keyboard.

Glide

This parameter can set a Glissando (up to 3 seconds) between successive notes for all or selected samples.

Grouping

This section lets you assign samples to one of up to 16 Polyphony Groups, and define the number of voices (polyphony) for each Group. One obvious application of Grouping is to assign Open and Closed hihats to a Group with a Voice setting of 1, so that one will cut off the other.

Play Raw/Drum Mode

- **If you activate the “Play Raw” option, selected samples will play without the assigned modulation or applied parameter settings.**
  The Amplifier Envelope parameters are still applied (Velocity, Envelope, Pan and Spread).
- **If you activate the “Drum Mode” option, samples will play in a “one-shot” manner, from start to the end of the sample, regardless of how long you hold down a key.**
  Drum mode is always in Play Raw mode.

The Options Page View

The Options Page View contains a number of global settings. It is also here that you can import External audio Formats (E-mu Akai Sound-Fonts etc.).

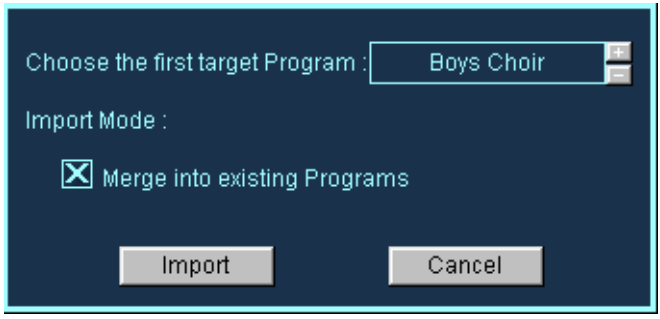
The Options Page View contains the following sections:

Import Options

Import Audio Files

This opens a standard file dialog, where you can select Audio Files or HALion Bank or Instrument files (Programs) for import, into the currently selected Program. You use the “Files of type” pop-up to decide what file formats you wish to import.

- **If the currently selected Program contains samples, and you select a HALion Effect Program (.fxp), the following dialog appears:**

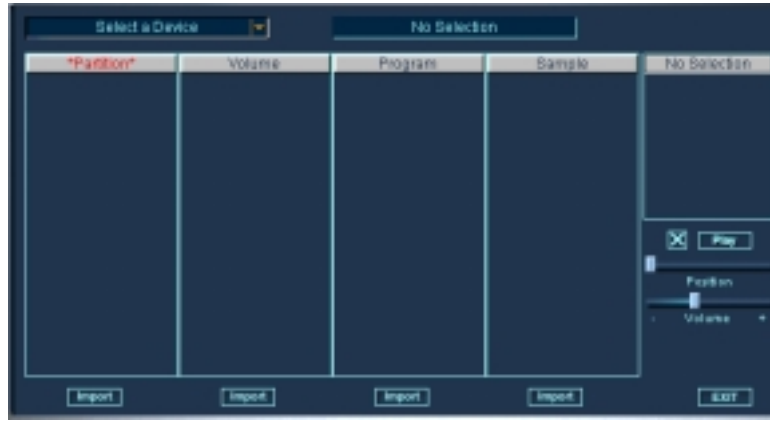


Here you can either select a new Target Program by using the +/- buttons, or import the Program into the current Program. In the latter case, the following applies:

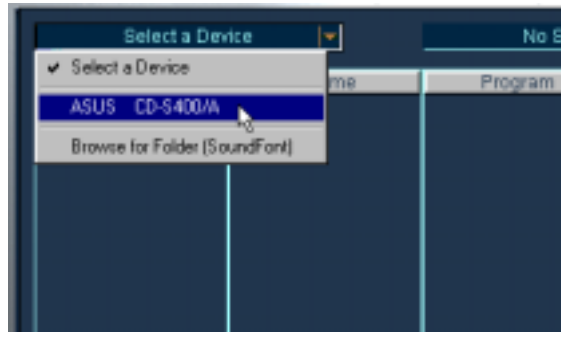
- **If ”Merge into existing Programs” is checked, the samples in the imported Program will be merged with the existing Program, and the existing Program will keep its name.**
- **If this option is unchecked, the imported Program replaces the current Program.**

Import ext. Format

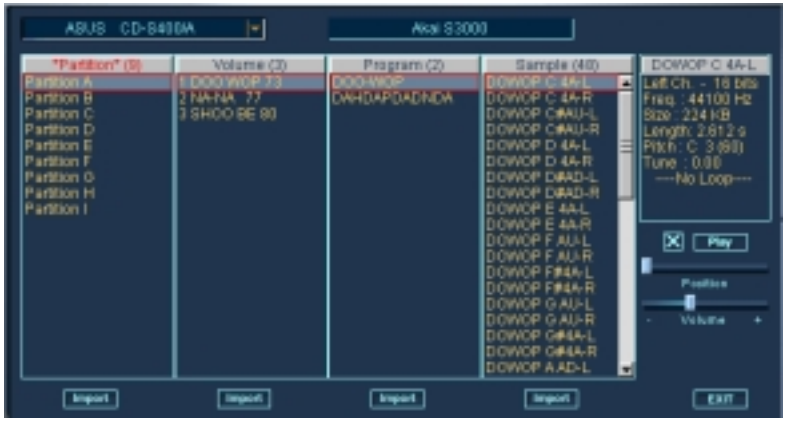
This option will copy selected contents from sample CD-ROMs to a selected hard drive. When this is clicked the window changes to a large Import dialog with 4 main columns.



If you click the Select a Device pop-up, a menu appears allowing you to select any connected or internal CD-ROM drives, or browse to select a SoundFont Folder.



Selecting a CD drive with a compatible Sample CD inserted...



...opens the CD contents (in this case a Akai 3000 compatible CD).

About the Columns

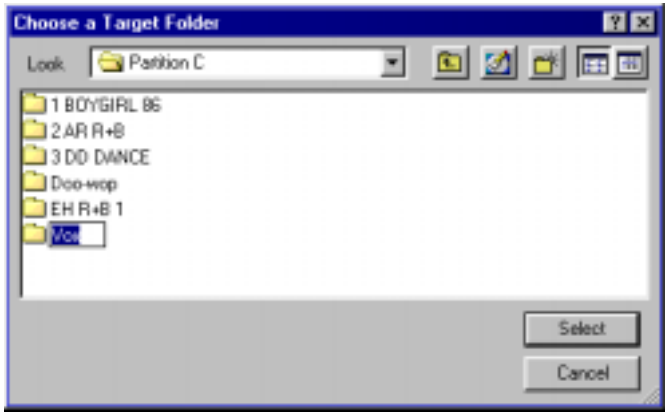
The structure of the CD contents are displayed, from left to right, in the following way:

- **The "Partition" column displays the entire CD contents as separate partitions.**
  Several Partitions can be selected but the contents in the following columns will be the currently View selected Partition (with a red border).
- **The "Volume" column displays the contents of the currently View selected Partition.**
  Each Volume can contain a number of Programs.
- **The "Program" column displays the Programs in the currently selected Volume.**
- **The "Sample" column displays the samples in the currently selected Program.**

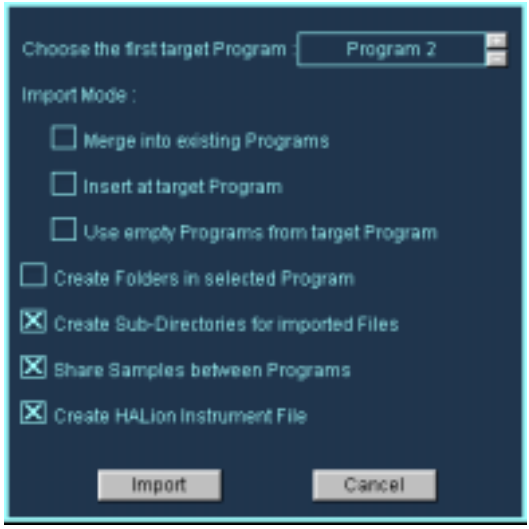
Using Import

Each column has its own Import button. You select what to import using the respective button.

- **When you click Import in any of the columns, a file dialog opens where you can designate a Target Folder.**
  This folder is where the imported CD contents will be copied to on your hard drive. Click (or create) one, and click Select.



- **A new dialog appears.**



This contains the following Options:

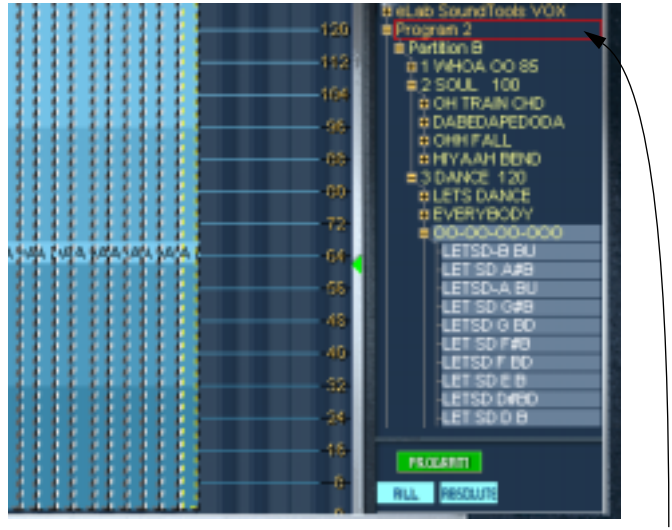
- **Merge into existing Programs**
  This will merge the samples into the Program set as Target.
- **Insert at target Program**
  This will import the samples into the Program set as Target.
- **Use empty Programs from target Program**
  This will select the first empty Program from the designated Target Program.
- **Create Folders in selected Program**
  This will create a new folder for the imported Programs/samples in the currently selected Program.
- **Create Sub-Directories for imported Files**
  This will create a sub-folder structure on your hard-disk that matches the selected item (Partition/Volume/Program etc.).
- **Share Samples between Programs**
  If this is checked, the samples imported from a CD will only be imported once to your drive. If unchecked, all samples will be copied to disk again if you select the same samples for import at some later stage.

- **Create a HALion Instrument File**
  This will create a HALion Instrument file for all imported Programs/samples. One Program will be created, with each separate Volume/Program residing in separate Folders inside the Target Program.

  When you select Import in one of the columns, the selected Programs/samples will be copied to disk, and a progress meter is shown.

  Let's say that you have decided to Import one single Partition from a CD, using the options exactly as set in the picture above. This would end up looking something like this in the Program List:

  In the Keyzone window, samples have dotted borders to indicate that they reside in folders.



  The designated Program Folder. Below it, the imported Partition Folder is shown. It is open to display all Volumes belonging to the Partition arranged in sub-folders. When a Volume folder is opened, Programs are shown as sub-folders within the Volume folders etc.

  In the future, you can load the whole Partition as a HALion Effect Program that was automatically created while importing to disk.

What Formats are supported?

- **The following formats can be imported using the External Format Dialog:** Akai S1000/S2000/S3000, EMU 3/3X/ESI/4/4K/E64/E64000/ESynth/Ultra, SoundFonts 2.x, LM4/LM9.

Master Settings

This allows you to set Tune and Volume globally for HALion. You can tune up/down 200 Cents, and set the Master Volume from silence up to + 6dB.

Preload and Memory Options

Preload into RAM

This sets how many seconds of each sample should be loaded into RAM. It should be set depending on the number of samples that you intend to use, and the amount of ram you want to assign to HALion. The less RAM you assign, the more HALion needs to access the disk, which will also have impact on audio playback of your sequencer which is also "fighting" for disk access.

The Preload Memory Used shows how much RAM memory the currently preloaded samples use.

Voice Buffer

This sets the Disk Buffer size. If you want to play 32 voices at a time, you should set this to at least 32, so that the disk "streams" have sufficient buffers to read the samples into memory.

The red Disk LED in the bottom left corner of the HALion window will get lit when the disk engine fails to load samples in time.

The Voice Memory Used shows how much memory the current Voice Buffer uses. Lastly, the total Memory usage is shown.

Key/Control Options

Key activates sample

When this is checked, playing a sample from your keyboard will automatically select it.

Advanced Navigation Ball

When this is checked, the Navigation Controller acts like a trackball and the moving graphics are shown. If unchecked, the Navigation Controller will directly follow your mouse movements, acting more like a slider.

Receive MIDI Controller

This must be checked if you intend to use external MIDI controllers.

Quality

This is the same setting as the Quality setting available in the Macro Page View, but you can here set it as a percentage value. There is also a "Full Quality during Export" option. When checked, samples will be reproduced with full quality if the HALion Tracks are Exported to file, regardless of the Quality setting.

Automation

If you use HALion within Cubase VST, a number of different automation options are available.

Recording dynamic control settings

Proceed as follows to record dynamic control settings within the HALion window onto a Cubase VST Track:

1. **Open the "MIDI Filtering" dialog in Cubase VST and switch off the "Sysex" Filter.**
   With the Cubase default setting, this Filter is activated. By deactivating it, you enable Cubase VST to record SysEx data.

❒ **If in doubt, please read the document "SysEx Handling". It can be found on the Cubase VST Program CD-ROM and contains detailed information on recording and editing SysEx data.**

2. **Create a separate empty MIDI Track for the automation data that you wish to record.**
   Like this, if something goes wrong, you can simply delete the automation data and try again.
3. **Set the Output of the Track so that it sends to the desired HALion channel.**
4. **Open the HALion window and make sure that you see the correct user interface panel, i.e. the channel that you wish to automate.**
5. **Press the Record button in Cubase VST to start recording. Dynamically change the control settings as desired.**
6. **Stop recording and rewind. Then start playback.**
   The controls in the HALion window should now dynamically move and reflect the settings you have made.

❒ **Note that automated parameters can be applied to all or selected samples in HALion!**

Using MIDI Controllers

You can use MIDI Controller data to completely control HALion, e.g. from an external MIDI hardware control unit or a MIDI Master keyboard. You can also graphically or numerically create MIDI Controller data in an Editor (e.g. List Edit in Cubase VST). The following table shows you the MIDI Controller numbers for each HALion control:

HALion Control	Controller
Cent	09
Glide	05
Octave	28
Semitone	31
Sample Volume	20
12/24 dB Low pass	11
Filter Cutoff	Keyboard Controller Brightness
Resonance	Keyboard Controller Harmonic Content
Filter Envelope Amount	18
Filter Envelope Attack	37
Filter Envelope Decay	38
Filter Envelope Sustain	24
Amp Envelope Attack	40
Amp Envelope Decay	41
Amp Envelope Sustain	42
Amp Envelope Release	43
Filter Velocity Amount	15
Amp Velocity Amount	19
Spread	44

Audio and Effect Automation (Cubase VST)

You can finally automate the HALion audio data and effect settings and export them as a audio file. Please use the Audio Automation and Export Audio functions in Cubase VST.

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