1 What's New in Reaktor 4?

1.1. The Browser window

Although you can still use REAKTOR's File menu for disk operations, the new Browser window greatly streamlines file management. It can be used for loading data of any type as well as analyzing any Ensemble's structure and input/output wiring.

1.2. The Snapshot window

REAKTOR's Snapshot management has been greatly enhanced and streamlined as has the Snapshot window, which shares the space of the Browser window. One of the most interesting new features is the ability to morph between two snapshots with a transition time of up to 60 seconds. Another new feature is the ability to randomize snapshot settings, and a third is to have up to 16 banks of 128 snapshots each.

1.3. Sample Map Editor

REAKTOR's sample key-mapping scheme and the Sample Map Editor have been completely revised and updated. The Sample Map Editor is now an independent window, much like, but separate from the Properties window, that displays the sample map for whatever sampler module is selected. The sample map has both graphic and list modes. In graphic mode, samples can be dragged to the window and positioned graphically. Other new features include a pre-listen button, and a built-in loop editor.

1.4. Internal Communication

Internal communication between panel objects has been greatly expanded and simplified, as has OSC communication. Now any panel object can be designated as a source and destination of internal connection. Internal connections are set up in the Proper-

ties window. OSC communication between different, networked computers are set up in the OSC Settings window. Dedicated OSC Send and Receive modules make these messages available within the REAKTOR structure.

1.5. New Modules

REAKTOR 4 contains a number of new modules. The List, RGB Lamp, Multi-Picture, and Module-Text modules give added flexibility to REAKTOR's user interface. A variety of new math modules both speed up and enhance REAKTOR's math ability. The Grain Cloud Delay module brings all the features of the Grain Cloud sampler module to real-time audio processing. The event Iteration module makes it possible to program iterative processes without using and managing data-loops. Finally, the Snapshot module makes all the options available in the new Snapshot window usable from within REAKTOR structures.

Using modules is also simplified by the addition of two new features. Hybrid modules automatically reconfigure themselves as either event or audio modules depending on their wiring. Dynamic modules sprout new inputs and outputs as needed, eliminating the need for similar functioning modules with a fixed number of inputs and outputs.

2 Product Authorization and Copy Protection

Part of the REAKTOR installation is a **Product Authorization** which has to be fullfilled in order to make permanent use of the software. We recommend that you take notice of this chapter first, then proceed with the software installation as described in the following chapters and finally return to this chapter.

Loading older Ensembles

REAKTOR 4 no longer uses the USB key for copy protection, but Ensembles saved with previous versions of REAKTOR will not open without the USB Key. If you have the USB key, simply open the Ensembles with the key installed then re-save them from REAKTOR 4, and the key won't be necessary the next time you open them.

2.1. What is the Product Authorization?

The **Product Authorization** includes a full registration. After having completed the authorization, you can make use of all online services related to the registered product. On the Native Instruments website you can read online tutorials, get technical support, participate in the NI forums, download updates and last but not least have full access to the REAKTOR User Library which contained more than 1100 entries at the time this manual was written.

REAKTOR requires the **Product Authorization** in order to use the software permanently. You can run REAKTOR for 30 days without any limitations. As long as the software runs unauthorized a message at every program start reminds you that the authorization has not been completed yet and indicates how many more days the software is running without an authorization.

The **Product Authorization** is performed by a small application called **Registration Tool**. The **Registration Tool** generates a so called **System ID** which serves as request code for receiving an **Authorization Key**. The **System ID** is based on some hardware components of your computer system, the operating system version and the serial number you have entered at the REAKTOR installation.

Note: Exchanging your audio card, MIDI interface or external equipment will not start the request for a new **Authorization Key**. Only exchanging a basic hardware component in your computer or installing a new operating system might produce a new **Product Authorization** request. In this case the **Registration Tool** will refelect the change by displaying a new **System ID** and you have to repeat the **Product Authorization**.

The **System ID** has to be sent to Native Instruments in order to receive an **Authorization Key** which allows the permanent use of REAKTOR. Since the **Product Authorization** is part of the license agreement REAKTOR will stop launching after 30 days if it was not authorized until then. Of course, it is also possible to complete the **Product Authorization** after 30 days. In this case the software will launch again as soon as the **Product Authorization** has been completed.

Important: The data transfer at the online Product Authorization is done via a secure connection using 128 bit encryption. Native Instruments keeps your personal data like email and postal address in confidence. No data will be passed to a third party.

2.2. Conducting the Product Authorization

Native Instruments has set a high value on making the authorization procedure as easy and comfortable as possible. In the following sections we descibe three methods of conducting the **Product Authorization**. We recommend **Method A** and **Method B** since these result in the easiest and fastest way of receiving the **Authorization Key**.

Method A: Reaktor computer has direct access to the internet

Important: This method requires a valid email address to complete the **Product Authorization**, since the registration code will be sent to you by email.

- **Windows**: Start the **Registration Tool** from the start menu (**Native Instruments Reaktor Registration Tool**) or from the REAKTOR installation folder (default path: **C:\Program Files\Navtive Instruments\Reaktor 4**).
- **MacOS**: Start the **Registration Tool** from the REAKTOR installation folder (default path: **Applications\Reaktor 4**).
- A click on the **Register Now** button opens the Native Instruments registration webpage. Therefore your standard Internet Browser will be opened and an internet connection will be established according to your system settings. Your **System ID** will be automatically transmitted to the registration form.
- The first registration page asks for a valid email address. If the email address you enter is already known by the registration system, the next page will ask you for the password which you have got from an earlier product registration. If the email address is new to the system, a new registration process will be started. Please follow the instructions on the registration website to complete the registration.
- Within one hour you receive an email from the Native Instruments registration system containing the **Authorization key**. The **Authorization key** is available in the email body and addiotionally as text attachment. This email also contains the password which is required for using the online services.
- Start the **Registration Tool** again and either copy the **Authorization Key** from the email and press the **Paste from Clipb.** button in the Registration Tool or use the **Open File** button in the Registration Tool to open the email attachment which you previously have saved to hard disk.
- Click on the **Complete** button.

Now the REAKTOR **Product Authorization** has been completed. The authorization message at every REAKTOR start has disappeared and you can use the software permanently:

Method B: Internet Connection on another computer

Important: This method requires a valid email address to complete the **Product Authorization**, since the **Authorization Key** will be sent to you by email.

- **Windows**: Start the **Registration Tool** from the start menu (**Native Instruments Reaktor Registration Tool**) or from the REAKTOR installation folder (default path: **C:\Program Files\Navtive Instruments\Reaktor**).
- **MacOS**: Start the **Registration Tool** from the REAKTOR installation folder (default path: **Applications\Reaktor 4**).
- A click on the **Save Registration File** button opens a **Save** dialog for saving a HTML file. Save the HTML file to any storage medium.
- Transfer the HTML file to another computer where you have internet access (via floppy disk, CDR etc.).
- Open the HTML file in your internet browser.
- The HTML page contains a link for the registration page on the Native Instruments website. When you click on this link an internet connection will be established according to your system settings.
- The first registration page asks for a valid email address. If the email address you enter is already known by the registration system, the next page will ask you for the password which you have got from an earlier product registration. If the email address is new to the system, a new registration process will be started. Please follow the instructions on the registration page to complete the registration.
- Within one hour you receive an email from the Native Instruments registration system containing the **Authorization key**. The **Authorization key** is available in the email body and additionally as text attachment. This email also contains the password which is required for using the online services.
- Transfer the text attachment to the computer where you have installed REAKTOR.

- Start the Registration Tool again and use the **Open File** button in the Registration Tool to open the email attachment which you previously have saved to hard disk.
- Click on the **Complete** button.

Now the REAKTOR **Product Authorization** has been completed. The authorization message at every REAKTOR start has disappeared and you can use the software permanently:

Method C: No Internet Connection available

Important: Follwoing this method you will have to fill in a form which you send to Native Instruments. You will receive the **Authorization Key** either by email (recommended), by postal mail or by fax. If you do not provide Native Instruments with a valid email address in the form, be prepared to type in the Authization Key manually (about 60 digits).

If you do not have access to the internet or if you do not have a working email address, the **Product Authorization** can also be done via postal mail or fax. Although Native Instruments goes after a fast handling of your authorization requests, it is generally recommended that you prefer **Method A** or **Method B** for shortest return times and most comfortable operation. Please note the following instructions to fullfill the **Product Authorization**:

- **Windows**: Start the **Registration Tool** from the Windows start menu (**Native Instruments Reaktor Registration Tool**) or from the REAKTOR installation folder (default path: **C:\Program Files\Navtive Instruments\Reaktor 4**).
- **MacOS**: Start the **Registration Tool** from the REAKTOR installation folder (default path: **Applications\Reaktor 4**).
- A click on the **Fill Out Form** button opens a local HTML file in the operating system's standard browser or another program which you have defined as standard application for opening HTML files.

- The HTML file contains all information Native Instruments requires for completing the **Product Authorization** and registration. Please fill in the required data and print it out, or write a letter containing the data.

If you write a letter please attend to a legible handwriting to avoid mistakes at the Native Instruments registration team. Not legible email or postal addresses can cause problems with the **Authorization Key** delivery.

- Send the form to Native Instruments using one of the following contact addresses:

Native Instruments GmbH

Registration

Schlesische Straße 28

10997 Berlin

Germany

Fax: +49 30 61103535

Native Instruments USA

5631 A Hollywood Boulevard

Los Angeles

CA 90028

USA

Fax: +1-323-372-3676

- You will receive the **Authorization Key** via email (recommended), fax or mail.

- Start the Registration Tool again and either copy the **Authorization Key** from the email and press the **Paste from Clipb.** button in the Registration Tool or use the **Open File** button in the Registration Tool to open the email attachment which you previously have saved to hard disk. If you have received the Authorization Key by mail or fax, type it in manually.
- Click on the **Complete** button.

Now the REAKTOR **Product Authorization** has been completed. The authorization message at every REAKTOR start has disappeared and you can use the software permanently:

2.3. Registration support

If you run into problems during the **Product Authorization** the Native Instruments registration support team will be happy to help you. In this case write an email to:

register@native-instruments.com

Please describe the occured problem as accurate as possible and provide the registration support team with the neccessary details to solve the problem.

3 Open Sound Control (OSC)

OSC is an open, network-independent protocol developed for communication among computers, sound synthesizers, and other multimedia devices. Compared to MIDI, OSC provides increased reliability, greater user convenience, and more reactive musical control. Open Sound Control is useful in any situation where multiple music applications have to work together on the same computer or on networked computers. While MIDI only has the parameters defined in the standard (note on/off, pitch bend, control change, etc.), OSC lets each program have its own symbolic, hierarchical, and dynamic address space.

OSC can be used with any networking technology, including TCP/IP based LANs and the internet. OSC's time tags and bundles of messages provide for exact timing of musical results even if the network has latency and jitter. OSC supports a variety of argument types which will be successively integrated into future releases of REAKTOR.

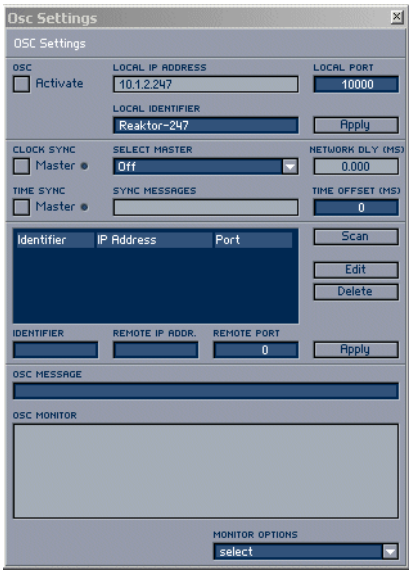
Application areas

The OSC implementation of REAKTOR allows an easy setup of

- Internet-based collaborative international music making
- Sound installations with dozens of computers in a single room coordinating with each other
- Coordinating synthesis between two (or more) computers to increase the total processing power
- Communication between music software applications within a single computer.

The OSC implementation in the current REAKTOR version only serves for transmitting event data between two or more REAKTOR computers, but not audio data. Additionaly to the general REAKTOR requirements you will need an ethernet card to use OSC. Also the TCP/IP and UDP protocol stacks must be installed on your computer.

3.1. OSC system setup



OSC Settings window

REAKTOR's Open Sound Control (OSC) settings are made using the **OSC Settings** window which you can open from the **System** menu. OSC provides communication between media devices and software such as REAKTOR using a variety of network protocols, including TCP/IP and LANs.

Activating OSC

OSC communication can be enabled and disabled at will using the **Activate OSC** button at the top-left of the OSC Settings window. OSC communication is only possible when REAKTOR's audio processing is active, and as a consequence, you need an audio card or built-in audio capability on your computer to activate OSC. The Activate OSC status is preserved between REAKTOR sessions.

OSC Identification

In addition to the Activate OSC button, the top section of the OSC Settings window contains your Local IP Address, Local Identifier, and Local Port settings. The settings in this section are all preserved between REAKTOR sessions.

- **Local IP Address**: This is the current IP address of your computer. It is recognized automatically and can not be edited.
- **Local Identifier**: This name will be used to identify you to other OSC clients. You can choose any name you like.
- **Local Port**: This is sub-network identifier by which other OSC clients recognize your system when they scan the network (see the Scan button below). Only certain ports are scanned, and you should use a number between 10,000 and 10,015.
- **Apply**: When you make changes, you need to click the Apply button to have them take effect.

OSC Synchronization

The second section of the OSC Settings window contains synchronization settings.

- **Clock Sync (Master)**: Click this to have REAKTOR send an OSC clock signal to other OSC clients. OSC clock works exactly like MIDI clock. Clock will be sent to all clients on the Member list (see below).
- **Time Sync (Master)**: Time Sync is a control circuit system. Client constantly poll the master for the time stamp and compares the received time with its own and adjusts it if neccessary.
- **Select Master**: When not operating in Clock Sync Master mode, use this menu to synchronize to an OSC master. Select Clock Sync to synchronize to Clock Sync signals. Select another OSC member to Time Sync with that client.
- **Sync LEDs**: There are small LEDs to the right of the Clock Sync and Time Sync checkboxes. These indicate when a synchonization signal is received or sent.
- **Sync Errors**: This field reports synchronization errors.

- **Time Offset (ms)**: Adds the time offset to each OSC message sent to the clients. If you enter 1000 ms each message will be received one second later by the client. This only applies if the participating clients are in Time Sync mode.

OSC Memeber list

This list contains all REAKTOR OSC clients to whom a connection has been established.

You can edit and delete entries in this list. Therefore select an entry and press the **Edit** button. To apply any changes, click the **Apply** button.

To delete an OSC connection in the OSC member list, just select the entry and press the **Delete** button.

The **Scan** function is able to recognize OSC members within a sub-network automatically. This only works when the following conditions are accomplished:

- The client must be located within the same subnet.
- REAKTOR must be running on this computer (audio engine active).
- OSC has to be activated in the REAKTOR OSC Settings.
- In the REAKTOR OSC Settings a port address between 10,000 and 10,015 must have been entered.

Note: The **Scan** function only works in Windows and MacOS X, but not in MacOS 9.

If you want to connect two computers which are not located in the same subnet (for instance if you want to establish an OSC connection along the internet), you have to enter the **Identifier**, **IP address** and **Port number** of the other computer manually below the member list area and press the **Apply** button.

OSC Monitor

The bottom section of the OSC Settings window is for monitoring OSC activity.

- **OSC Message**: This field is for sending text messages to other OSC clients. It can be used to test OSC connections or as a chat box. First select a recipient in the Member list, type a message and finish the operation with the enter key. The message will then be sent to that client.
- **OSC Monitor**: The monitor displays all received OSC messages.
- **Monitor Options**: Here you can set certain functions for the monitor window.

4 Instrument Header

The **Instrument Header** is used to adjust and control an instrument.

The Instrument Header

The Instrument Header contains the following displays and controls (from left to right):

- The Instrument **Label** which you can enter in the Instrument Properties appears on the left side of the Header.
- Right hand of the label there is an icon displaying the state of the Instrument panel. If you see a screw icon the panel is in **Panel Lock** mode and elements within the panel can be edited but not moved. If you see a screw icon the panel is in **Panel Edit** mode and elements within the panel can be moved but not edited. You can switch between both modes by clicking once on the icon or by choosing the appropriate entry in the Instrument panel's context menu.
- The **Mute** button mutes the selected instrument. All instruments upstream of the selected one are also muted.
- The **Solo** button directly connects the output of the selected instrument to the audio output. All instruments which lie upstream of the selected instrument in the structure remain active. All other instruments in the ensemble are muted. An example: A synthesizer signal is processed by a chorus effect. The chorus effect is switched to **Solo**. Then the synthesizer with the chorus effect is connected with the output, while all other instruments in the ensemble are muted.
- The **Instrument MIDI Activity** lamp shows the reception of MIDI events by the instrument.
- The **Channel** selector displays and changes the MIDI chanel of the instrument. In order to set a different MIDI channel click on the value field and drag up or down while holding down the mouse button. For a numerical entry double click on the value and enter the channel with the computer keyboard. You can also adjust the MIDI chanel in the Instrument Properties.

- With the **Snapshot** button (camera as icon) you open the window for snapshot management (see section *Snapshots* on page 149).
- With this **Snapshot selector** you can choose a snapshot to recall on the instrument.
- The **Voices** selector displays and changes the number of voices of the instrument. The number of voices can also be adjusted in the Instrument Properties.
- The **Unison** selector displays and changes the (maximum) number of unison voices per note. The unison effect is enabled by selecting a value greater than one. The unison voices are detuned by a value which is set with **Unison Spread** in the Instrument Properties. The minimum number of unison voices per note (**Min Unison Voices**) can be set there as well.
- The panel selectors **A** and **B** are for choosing one of two panels for the same Instrument which you can use for two alternative views. You can decide for each panel element in its properties (Appearance tab) wether the control should appear only in one of the two panels or in both.
- The **Minimize** button minimizes the Instrument panel so that only the Instrument Header remains visible. Click on the button again to unfold the Instrument panel again.

5 Order of Audio Processing

Unlike event processing, whose order depends on the order in which they were created, audio modules are processed in an order that depends on their location (left-to-right and top-to-bottom priority) as well as the order in which they are connected to an always-active module. You can see the processing order of audio modules in the structure by selecting **Show Sorting** from the **System** menu. In brief, the top input to the **Audio Out** module is traced backwards, always following the highest audio in-ports of the modules encountered. When the trace comes to an end, that module is labled number one. A similar procedure is followed, choosing lower in-ports and labeling the encountered modules consecutively. The sorting can get quite complex, but in essence, it is from top-left to bottom-right and follows higher wires before lower ones. Whenever the backward-tracing process encounters an event signal or an unwired port, that path is not considered. After all audio in-ports to the Audio Out module have been traced, the audio in-ports to the first-created (if any) always-active module are traced. After that the next-created always-active module is traced, and so on.

The process just described is all well and good until a feedback loop is encountered. Feedback loops are allowed and are useful for physical-modeling instruments, for example. But, REAKTOR must arbitrarily assign a sorting order for such paths. The first module in a feedback loop is indicated by a vertical blue line at the appropriate port. You can set the starting point manually by making use of the **Unit Delay** module.

6 What's included in the upgrade package?

Please note that this getting-started guide only touches on a few of the new features of Reaktor 4. The full manual contains more than two hundred pages of detailed reaktor operation, including the new features of Reaktor 4.

The Reaktor library has also been completely reworked to contain 30 oustanding synths, samplers, effects, and live tools. A separate manual, included with the library, describes the library instruments.

The full manual Reaktor 4 library, manual, and library manual can be purchased for $79 from the NI online shop.

You can find a brief decription of the new instruments in the following section...

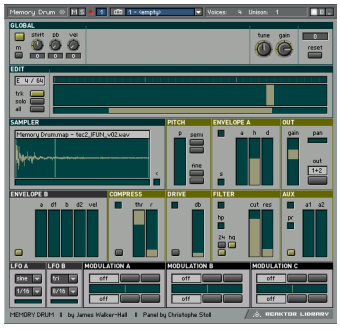
7 Reaktor 4 Library

7.1. Samplers and Transformers

The sampler and transformers included in REAKTOR 4 enable everything from quick and convenient sampling to a full granular workout. Several resynthesis instruments can independently vary speed and pitch independent of each other, while others can completely freeze the sound in time. Samples can easily be loaded via drag and drop into a comfortable, graphical sample mapper.

Memory Drum

Memory drum is a comprehensive MIDI drum sampler that enables the independent configuration of up to 60 drum samples in a single, easy-to-use interface. Specifically designed for drum sampling, it features an Attack-Hold-Decay envelope, compressor, saturator, multimode filter, multiple output channels, 2 aux-sends, and complex modulation possibilities. The simple interface is designed so that kits can be constructed quickly and easily, yet the extensive range of effects and modulation options offer vast creative possibilities for generating new sounds from your existing samples.



Beatslicer

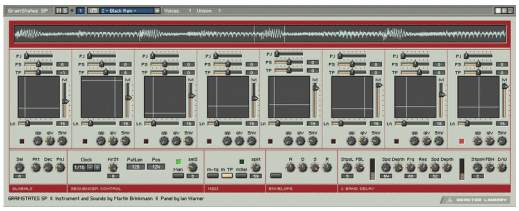
BeatSlicer will separate any loop or soundfile into smaller component ‘slices’, which can then be individually tailored by adjusting pitch, envelope and a range of FX parameters. BeatSlicer is primarily designed for drum-loop manipulation, but the extensive range of parameters offer many creative options with any material.

Travelizer III

Travelizer III is the latest version of the classic granular texture maker. Travelizer lets you scrub through any sample using the grain cloud module. It can be played over MIDI, allowing you to create ethereal pads and leads. Travelizer III differs from its earlier versions because grain length can be quantized to 16th notes, allowing textures and granular rhythms to be synced to MIDI clock.

Grainstates SP

GrainStates is a granular texture maker that works wonders for creating dense, breathing atmospheres. Taking advantage of Reaktor 4's grain cloud delay module, GrainStates lets you create granular soundscapes in realtime. You can even freeze the live audio – imagine playing a guitar into Grainstates, freezing the audio, then playing a counterpoint to the granular texture. Eight scenes – each scene storing information about grain size, density, pitch, pitch spread, and more – are sequentially recalled in sync with the master tempo. A dual-frequency delay adds depth to the sound by letting you specify independent delay and feedback times for the high and low frequencies.



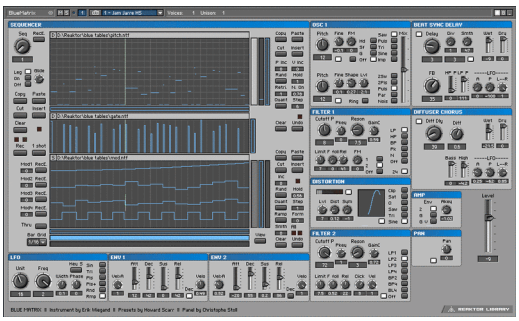
Grainstates consists of two sister ensembles: GrainStatesFX and GrainStatesSP. GrainStatesFX is an effect using the grain cloud delay that works on live input, while GrainStatesSP is centered around the grain cloud sampler module. GrainStatesSP stores the sample with the preset so it can easily be recalled at a later time, but you must first load your sound into the grain cloud sampler

7.2. Sequenced Synths

Along with the other nine REAKTOR synths are four sequenced synthesizers, which are best suited for creating animated and morphing sounds and rhythms.

Blue Matrix

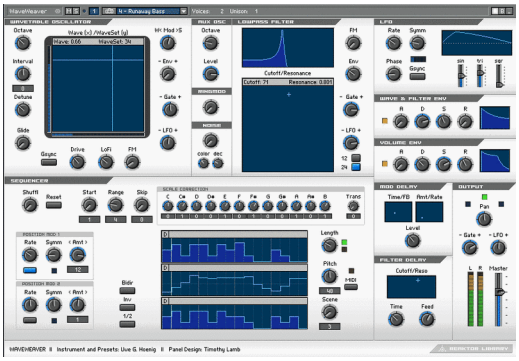
Blue Matrix is an incredible sounding sequenced synthesizer with a classic analog-style sound engine and an integrated pitch, gate, and modulation sequencer whose capabilities rival those of many stand-alone programs. Its sound engine features two multiple-waveform oscillators, a multi-mode filter, multi-mode distortion, and finally a second multi-mode filter. A beat-synced delay and a diffusion delay round out the effects. The full-featured sequencer offers independent control over gate and pitch for smooth pitch glide, and also offers four channels of graphical modulation sequencing. A complete modulation matrix lets you flexibly route the two envelopes, LFO, four channels of sequenced modulation, and the usual MIDI controllers to every important synth engine parameter.



Waveweaver

The WaveWeaver ensemble uses wavetable synthesis to produce a range of subtle or harsh tones and rhythmic pads. The oscillator in WaveWeaver is actually several sets of short, looping soundfiles, each used as an oscillator waveform. The soundfiles in each wavetable can be can be blended into each other, and you can use an XY pad to simultaneously select among them and modify the

loop start point. A built-in sequencer with scale correction allows you to create some unique, shifting grooves.

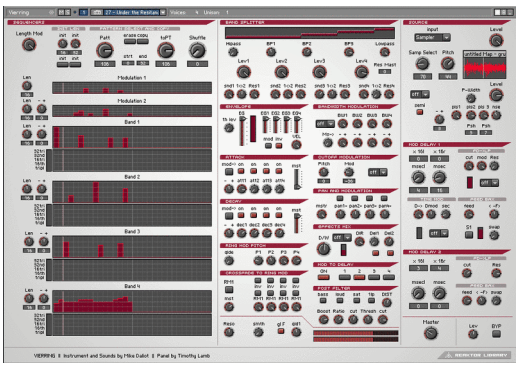


DSQ-32

The DSQ-32 is a virtual drum computer with seven instruments: bass drum, snare, closed and open hi-hats, tom 1 and 2 as well as a crash cymbal. DSQ-32's sequencer uses the popular and intuitive grid sequencer programming method, and the sound generation of the instruments is modeled after classic analog beatboxes.

With a bit of experimentation, however, this instrument reveals itself as a cutting edge groove machine, flexible and funky.

Vierring



Vierring is a creative rhythm generator where you can run any audio through and get percolating percussive patterns. Vierring divides the incoming audio into four frequency bands, and each band can be graphically sequenced for amplitude and ring modulation. Two delay effects enhance the output.

7.3. Synthesizers

The REAKTOR 4 library includes 9 powerful synthesizers covering a broad range of synthesis techniques. These synths were meticulously programmed to be some of the best sounding and flexible instruments available.

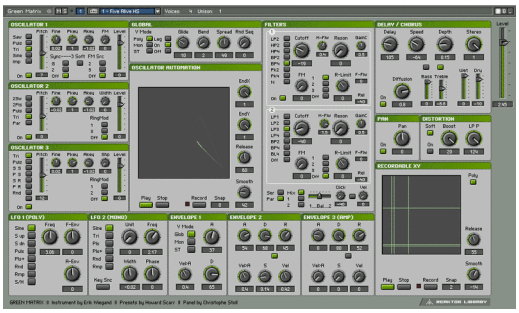
Carbon

The Carbon synthesizer is a fantastic-sounding machine with over a hundred sounds from a different planet. At its heart, Carbon is a powerful subtractive synthesizer with four oscillators, co-

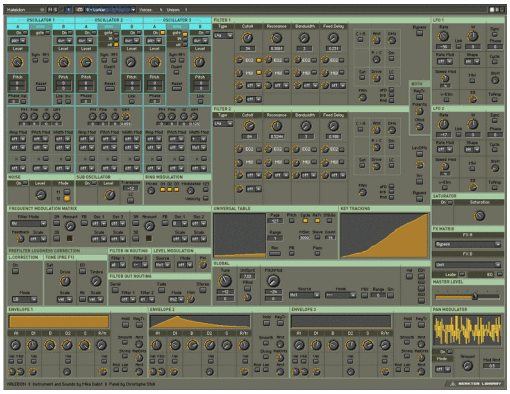
pious modulation, and a filter. We even wouldn't hesitate to say that Carbon has one of the best-sounding digital filters you've heard. In fact, Carbon has a choice of eleven different filter types and designs, each painstakingly shaped for silky smoothness across the entire frequency range. Carbon's LFOs include innovative features such as the possibility to vary their frequency slightly in each voice for an organic, living sound. Each one of Carbon's breathtaking pads, cutting leads, ripping basses, and quivering atmospheres will convince you that all life is based on Carbon.

Green Matrix

Green Matrix is the MIDI-playable brother of Blue Matrix. Both use the same analog-style synthesis engine and modulation matrix to generate some amazing and challenging sounds. Its sound engine features two multiple-waveforms oscillators, a multi-mode filter, multi-mode distortion, and finally a second multi-mode filter. A beat-synced delay and a diffusion delay round out the effects. A complete modulation matrix lets you flexibly route the two envelopes, LFO, four channels of sequenced modulation, and the usual MIDI controllers to every important synthesis parameter.

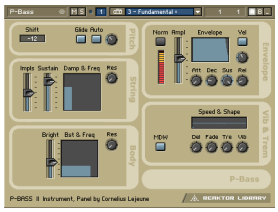


Kaleidon



Kaleidon is the biggest synth in the entire Reaktor Library. Its sounds cover an exceptionally wide range, from realistic mallets, organs, reeds, and saxophones to house chords, techno basses, and otherwordly atmospheres. Its specs are formidable: six oscillators plus noise and sub-osc with sync, FM, and ring modulation; two multimode filters; three feature-rich envelopes; three LFOs (one which lets you draw you own waveforms); graphical key-tracking; and a full effects section featuring many unique effects, from rich reverb and chorus to a graphically sequenced delay line and quad ring-modulator.

P-Bass



P-Bass is a bass synthesizer that uses physically (hence the “P”) modeled string resonance to generate its tones. It sounds like a combination between an electric bass and an analog synthesizer.

Steanpipe

SteamPipe is a physical-modeling synthesizer that uses a tuned resonator to create bowed, blown, and plucked sounds, as well as many strange new and hybrid sounds. SteamPipe effectively models air, or steam, being blown through a tuneable pipe. In addition to a large number of controls for the “shape” of the pipe, and a tuned all pass filter, there is a mod wheel-controlled filter to achieve damping and breath noise effects. Giving dimension to all of this is an excellent-sounding reverb unit.

Sum Synth

Sum Synth is an additive synthesizer with a few tricks up its sleeve. A unique oscillator section makes it easy to control the frequencies of the oscillators and shape of the sound, while an informative graphical display shows the current pitch of each oscillator. The number of oscillators can easily be varied simply by changing the polyphony of the instrument in the instrument title bar.

Junatik

Junatik offers a surprisingly authentic recreation of the still very popular synth. The straight sound architecture of Junatikwas modelled on the original and carefully supplemented with some important functions. Besides an authentic sounding filter Junatik offers an improved oscillator section that can make some detuned and very fat sounds.
It goes without saying that the unforgettable chorus effect of the original has also been implemented - but without the noise.

Nanowave

Nanowave pays homage to the legendary WaveTable synthesizers made by PPG and Waldorf. The sound generation - called "WaveSet" synthesis here - is structured similarly to the classic subtractive synthesis used in analog synthesizers, but it has some special features on the oscillator level that result in a significantly wider variety of sounds.

Uranus

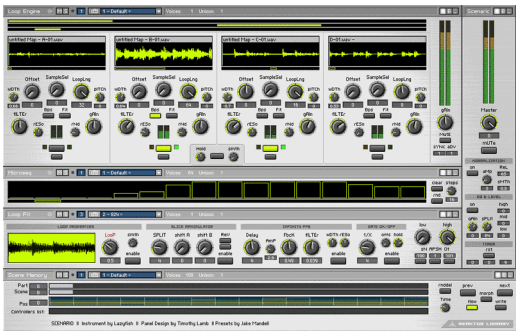
Uranus offers an extensive voice architecture with three oscillators, a shaping/distortion unit, two multimode filters, four envelope generators, two LFOs, and a very "expensive" sounding chorus effect. Uranus is well-suited for the whole range of analog sounds: basses, leads, effects, and especially pads.

7.4. Live Tools

REAKTOR 4 is also a powerful live performance machine - and the library includes two powerful live tools for any music and performance style. Improvise, rearrange, tweak...and control everything live, in real time!

Scenario

Scenario is a complete live-performance environment with real-time timestretching, performance-oriented effects, and memory and instant recall of thousands of scenes. Have you ever played live



with a computer and been frustrated that you don't have enough control over the audio? Or – at the opposite end of the spectrum – have you ever been performing and been overwhelmed with the possibilities? Scenario solves both of these seemingly opposing problems in an elegant and ingenious way.

Scenario consists of a Loop Engine that contains four identical time-stretching loop players that fits each loop to the system tempo. Each loop player lets you perform in real time with the loop length, loop start, pitch, and animated filter. A powerful performance-oriented effects block is also included, which lets you do things never possible before since the scene effects and loop engine are controlled by the same sample-accurate system clock. For instance, you can reshuffle and even reverse the music, rhythmically gate the sound exactly on the beat, create super-tight loops, and more. The Miniseq instrument can shuffle and reorder each loop. Just draw a pattern into Miniseq, then activate the shuffle function by clicking the small button in the Loop Engine at the bottom of each loop player.

And now, the kicker: All of Scenario's settings can be stored into a "scene". You can store more than sixteen thousand scenes in the built-in Scene Memory. Scenes can be recalled sequentially for "one-touch" performance, but you still have full control over all parameters within each scene. That's what makes Scenario so revolutionary – it gives you the power to lay out an entire live set in advance so you're assured that things go smoothly. Not only you determine when to advance to the next scene (this would be quite boring!), but you also have complete control over every scene. You can adjust the pitch of the loops, the loop length, the filtering, and the effects – every single parameter on the screen. When it's time, switch to the next scene, and – Bam! – it comes in perfectly on the beat, every knob perfectly recalled, including the effects.

Go Box

GoBox is a monophonic sampler specially designed for live use. It features several two-dimensional controls for altering patterns, sounds, and modulations during a performance. A series of event tables form an easy to use interface that make it easy to see what's going on. Apart from sample modulation capabilities, there are a tempo-synced Filter Delay, a Mod Delay, and the Sync-ro-nizer module, which can play patterns of short samples metronomically.

7.5. Effects

A wide variety of unique and versatile effects is also included in the Library, with everything from filters to vocoders to surround sound reverbs. Each effect features uncompromising NI sound quality and comes with a selection of fine presets for a variety of musical applications.

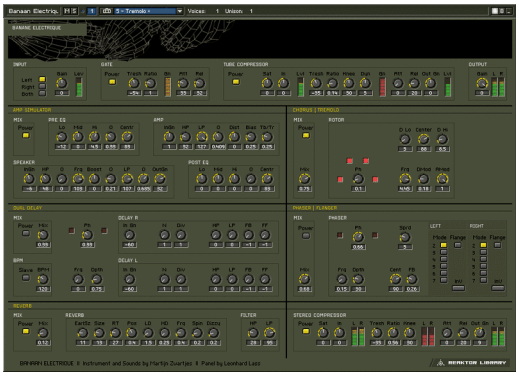
Analogic Filter Box

The Analogic Filter Box sandwiches a rich and meaty distortion unit between two hearty analog-style filters to create a sound-shaping tool for every appetite. Juicy modulation is also provided on the side: An envelope, LFO, and envelope follower can be freely routed to the most impor-

tant filter and distortion parameters. Analogic Filter Box can handle everything from fat disco-loop tweaking to full-on mangling of any sound source imaginable.

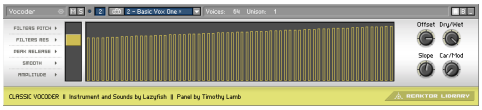
Banaan Electrique Amp Sim

Banaan Electrique is a sophisticated guitar and bass amp simulator with built in effects. It's like having a pedal board full of vintage pedals and a vintage amp, with the added advantages of not needing to cable anything together or risk electrocuting yourself by running too much current through the amp. You can still get shocked by its lush sound, however. Naturally, Banaan is happy to eat whatever types of sounds you feed it, whether they're vocals, drum loops, synths, or scallops.



Classic Vocoder

The Classic Vocoder was designed to faithfully emulate the well-known tones of singing robots made popular in the seventies. The instrument combines a vocoding engine, a vintage-type synthesizer, and a four-band dynamics processor for a warm, smooth sound.

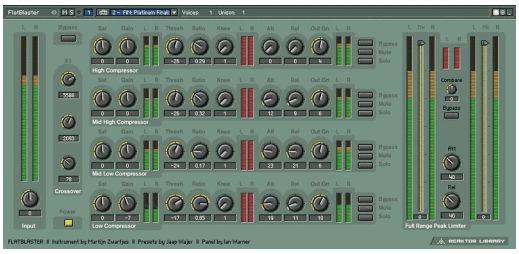


Echomania

Echomania is an advanced and spectacular-sounding delay box that excels at tight, tempo-synced rhythms. It includes two LFOs to modulate the delay time and built-in EQ. The delay time is handily synced to the global MIDI clock, for creating stretchy rhythmic effects. A drive and noise circuit combined with a feedback offset control recreate vintage sounds. Get dubbing!

Flatblaster Multiband Dynamics

Flatblaster is a high-end finalizing and multiband dynamic shaping tool. Flatblaster combines four frequency-specific compressors with a full-spectrum peak-limiter. It is an excellent final-step mastering plug-in, but it can also be used while mixing since it doesn't introduce any delay to the signal. Each of the compressors has a saturator, so you could saturate just the upper-mid frequencies, for instance, without muddying the bass. It also makes an excellent de-esser and sibilant reducer.



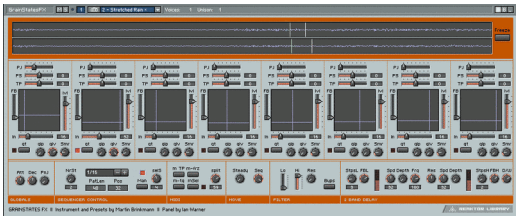
Fusion Reflections

Fusion Reflections is a delay-based effect that can create early reflections, shimmering choruses, fluttering delays, and even ambient reverbs. Two distinct diffusion engines are chained together to create an extremely wide range of effects. Each finely-tuned diffu-

sion engine consists of four stereo modulation delays and an innovative graphical display that shows the actual delay time for each delay. Just five controls control the core parameters of each diffusion engine.

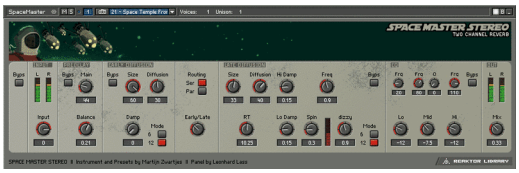
Grainstates FX

GrainStates is a granular texture maker that works wonders for creating dense, breathing atmospheres. Taking advantage of Reaktor 4's grain cloud delay module, GrainStates lets you create granular soundscapes in realtime. You can even freeze the live audio – imagine playing a guitar into Grainstates, freezing the audio, then playing a counterpoint to the granular texture. Eight scenes – each scene storing information about grain size, density, pitch, pitch spread, and more – are sequentially recalled in sync with the master tempo. A dual-frequency delay adds depth to the sound by letting you specify independent delay and feedback times for the high and low frequencies.



Grainstates consists of two sister ensembles: GrainStatesFX and GrainStatesSP. GrainStatesFX is an effect using the grain cloud delay that works on live input, while GrainStatesSP is centered around the grain cloud sampler module. The FX ensemble has the advantages that you can easily process audio without loading anything into a sampler and you can freeze the incoming audio stream – great for live performance! Since the sound passes through the ensemble, however, there's no way to save the sound data with the preset.

SpaceMaster Reverbs (stereo, quad, and surround)



The SpaceMaster series of reverbs breaks new ground in reverb modelers for Reaktor. Spacemaster uses two different Diffusion modules to achieve stunningly convincing room sounds. And to fully exploit SpaceMaster's lushness, there are three versions – SpaceMaster stereo, SpaceMaster Quad, and SpaceMaster 5.1 Surround.

Two Knees Compressor

Two Knees Compressor is a simple compressor with an important quirk – it has two separate adjustable thresholds and ratio controls. 2-Knees Compressor can perform as a precisely accurate compressor/limiter, a distorting sound shaper, a transient modifier, or anything in between. It includes a compression curve display to show the relationship between the amplitude of the input signal and the amplitude of the processed signal.

Unstable Spring Tank

Unstable Spring Tank is not your typical room simulator – instead, it pays homage to the trashy, unrealistic spring reverbs of the past. While Unstable

Spring Tank isn't exactly a physical model of a spring, it goes a long way toward recreating the spring reverb characteristics: dull, transducer-saturated, and boingy, with the familiar nonlinear resonating decay.