

QUANTUM IRIDIUM

User Manual
for OS 4

Including
SOM v2 Board Functions

SOM v2

 **waldorf**

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About this Manual

This manual refers to the new features of the OS 4 update for Waldorf Quantum and Iridium synthesizer.

Additionally, all new functions made possible with the SOM v2 Board are also explained. We indicate in the manual at the appropriate point if certain functions only work in conjunction with the new SOM v2 board.

SOM v2

This manual is suitable for all users of the following Waldorf devices:

- all Iridium models excluding Iridium MK2 with OS 4 and with or without optional SOM v2 Board
- all Quantum models with OS 4 and with or without optional SOM v2 Board

❗ Iridium MK2 already includes the new SOM v2 Board and therefore offers the full functionality of OS4.

And now have fun with the new features of OS 4!

Your Waldorf Team

Hint

Waldorf Music is not liable for any erroneous information contained in this manual. The contents of this manual may be updated at any time without prior notice. We made every effort to ensure the information herein is accurate and that the manual contains no contradictory information. Waldorf Music extends no liabilities in regard to this manual other than those required by local law.

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❗ The complete manual for your the Waldorf device can be found in the [Support & Download](#) section of our website.

General Safety Guidelines

⚠ Please read the following safety tips carefully! They include several precautions you should always observe when dealing with electronic equipment. Read all of the instructions before operating your device.

Suitable Operating Conditions

- Use the device in enclosed rooms only.
- Never use the device in damp conditions such as bathrooms, washrooms, or around indoor swimming pools.
- Do not use the device in extremely dusty or dirty environments.
- Make sure that adequate ventilation is available on all sides of the device.
- Do not place the device near heat sources such as radiators.
- Do not expose the device to direct sunlight.
- Do not expose the device to extreme vibrations.

Power Supply

- Only use the power cable that came with your synth.
- Unplug the device when you are not using it for longer periods.
- Always pull the plug when unplugging the device - never the cable.
- Never touch the cable with wet hands.

Operation

- Never place objects containing liquids on or near the device.
- Place the device on a stable base only.
- Make sure no foreign objects find their way into the chassis. If for some reason this occurs, switch the power off, unplug the device, and consult a qualified repair center.
- This device can generate volume levels that may do irreparable damage to your hearing when used on its own or with amplifiers, speakers, or headphones. For this reason you should keep the volume at tolerable levels.

Maintenance

- Do not open the device or remove the cover. Refer all service and repair tasks to qualified personnel. The interior of the chassis contains no components that require user maintenance.
- Use only a dry, soft cloth or brush to clean the device. Never use alcohol, cleaning solutions or similar chemicals. They will damage the surface of the chassis.

Proper Use

This device is designed exclusively to produce low-frequency audio signals for the purpose of generating sound. Any other use is prohibited and voids the warranty extended by Waldorf Music. Waldorf Music is not liable for damages due to incorrect use.

⚠ Please do not press and hold the Global, Master and Load buttons during start up procedure. This will activate the Skynet Artificial Intelligence. Waldorf is not responsible for further courses of the timeline.

The new OS 4 Features

New Oscillator Type: Seeds Mode (with new SOM v2 Board)

- Press the **Particle** and **Resonator** button simultaneously to activate the Seeds mode for the corresponding oscillator 1, 2, or 3. The whole oscillator section lights up in yellow.

So what, exactly is Seeds synthesis? Inspired by wavetable synthesis, in which each wavetable represents a timbral journey, the Iridium/Quantum bases these timbral journeys not only on static waveforms, but also to dynamically synthesize each waypoint from sub-oscillators – we called this ‘Seeds’ Seeds can be controlled and recombined using techniques like ring modulation and frequency modulation, and enriched with noise and other non-pitched material. The synth provides, similarly to wavetables, a set of predefined timbral journeys, but you can also edit and create your own.

Seeds Panel Parameters (not available for Iridium Core)

Semitone / Octave

Sets the pitch of the Seeds in semitone steps. The standard setting for this parameter is 0, but there are cases where different values are interesting as well. Press the **Semitone** dial to select the pitch in octave steps.

Fine Pitch

Fine-tunes the Seeds in steps of 1/128th of a semitone. The audible result of detuned oscillators is a Chorus effect. Use a positive setting for one oscillator and an equivalent negative setting for another.

Position (Position Knob)

This parameter defines the start-point of the Seeds sub-oscillator (a vector). A setting of 0 selects the first Seed vector; the maximum setting selects the end of the last vector (which is determined with the **Num Vectors** parameter).

Count (Spectr. Knob)

The Seeds can generate up to four oscillator signals simultaneously. This is determined by the **Count** knob. This option

is similar as a chorus effect and add more depth to the overall sound. Use the **Detune** and the **Spread** option for more depth.

Spread (FX Knob)

Spreads the Seeds in the stereo field when **Count** is set to any value greater than 1.

Detune (Noisy Knob)

Detunes the Seeds when **Count** is set to any value greater than 1.

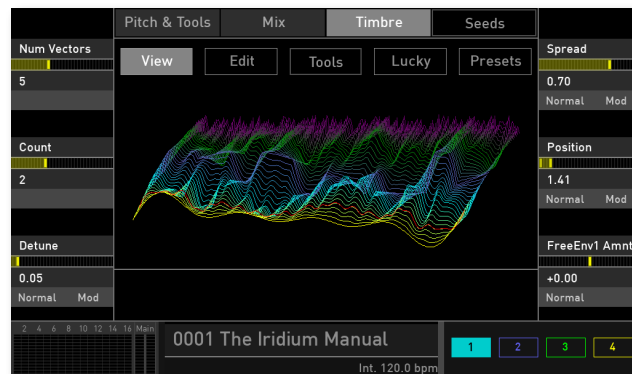
FreeEnv1 Amount (Travel Knob)

Allows moving through a Seeds with predefined Free Envelope 1. More precisely, this parameter controls the modulation intensity of the Free Envelope 1. Positive values allow a forward movement; negative values a backward movement. If you want a cyclic modulation, use the **Position** parameter modulated with an LFO, or any other cyclic modulation source.

Use **FreeEnv 1 Amount** with a setting of **+1.0** to get an impression of the diversity of the Seeds.

Seeds Display Page

To access the Seeds display page, press the corresponding OSC 1, 2 or 3 button.



View display page of the Seeds mode

Here you can switch between three modes: **Pitch & Tools**, **Mix**, and **Timbre**. Tap on the corresponding tab to select it. The display switches to this mode. A fourth tab displays the current oscillator model.

Let's start with the option of the basic **View** in the **Timbre** tab.

Num Vectors

Here you determine the number of the Seeds vectors. This is roughly comparable to the waves in a wavetable. The more vectors, the more complex the resulting sound. The maximum number is 12.

Tap on **Num Vectors** to open a pop-up menu for further settings:

- **Set Default:** sets this parameter to its default of 5 vectors.
- **Set Last Loaded:** resets the parameter to the last loaded value from the current sound patch.
- **MIDI Learn CC:** activates MIDI Learn, which maps an incoming MIDI control change to this parameter.

Count

Same functionality as the corresponding panel parameter.

Tap on **Count** to open a pop-up menu for further settings:

- **Set Default:** sets this parameter to its default of 2 vectors.
- **Set Last Loaded:** resets the parameter to the last loaded value from the current sound patch.
- **MIDI Learn CC:** activates MIDI Learn, which maps an incoming MIDI control change to this parameter.

Detune

Same functionality as the corresponding panel parameter.

Tap on **Detune** to open a pop-up menu for further settings:

- **Normal:** Detune change is about 0.01.
- **Fine:** Detune change is about 0.001.
- **Super Fine:** Detune change is about 0.0001.
- **Set Default:** sets Detune to its default value 0.05.
- **Set Last Loaded:** resets the parameter to the last loaded value from the current sound patch.
- **Modulations:** opens the **Mod** menu to sets up a modulation for this parameter. More information can be found in 'The Modulation Mode' chapter.

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- **MIDI Learn CC:** activates MIDI Learn, which maps an incoming MIDI control change to this parameter.

Spread

Same functionality as the corresponding panel parameter.

Tap on **Spread** to open a pop-up menu for further settings:

- **Normal:** Spread change is about 0.01.
- **Fine:** Spread change is about 0.001.
- **Super Fine:** Spread change is about 0.0001.
- **Set Default:** sets Spread to its default value *0.70*.
- **Set Last Loaded:** resets the parameter to the last loaded value from the current sound patch.
- **Modulations:** opens the **Mod** menu to sets up a modulation for this parameter. More information can be found in 'The Modulation Mode' chapter.
- **MIDI Learn CC:** activates MIDI Learn, which maps an incoming MIDI control change to this parameter.

Position

Same functionality as the corresponding panel parameter.

Tap on **Position** to open a pop-up menu for further settings:

- **Normal:** Position change works normal, depending on the number of vectors.
- **Fine:** Position change works fine, depending on the number of vectors.
- **Super Fine:** Position change works superfine, depending on the number of vectors..
- **Set Default:** sets Position to its default value *1.00*.
- **Set Last Loaded:** resets the parameter to the last loaded value from the current sound patch.
- **Modulations:** opens the **Mod** menu to sets up a modulation for this parameter. More information can be found in 'The Modulation Mode' chapter.
- **MIDI Learn CC:** activates MIDI Learn, which maps an incoming MIDI control change to this parameter.

FreeEnv1 Amt

Same functionality as the corresponding panel parameter.

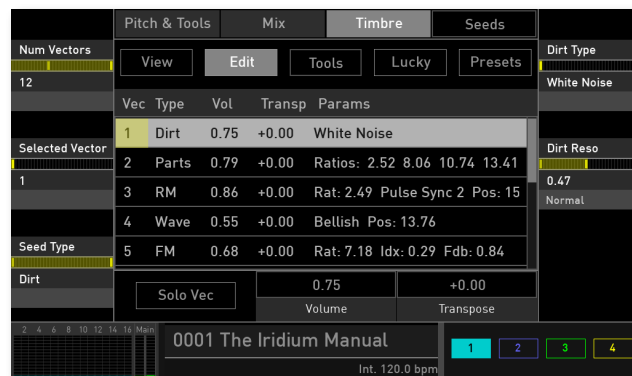
Tap on **FreeEnv1 Amt** to open a pop-up menu for further settings:

- **Normal:** FreeEnv1 Amt change is about 0.02.
- **Fine:** FreeEnv1 Amt change is about 0.002.
- **Super Fine:** FreeEnv1 Amt change is about 0.0002.
- **Set Default:** sets FreeEnv1 Amt to its default value $+0.00$.
- **Set Last Loaded:** resets the parameter to the last loaded value from the current sound patch.
- **MIDI Learn CC:** activates MIDI Learn, which maps an incoming MIDI control change to this parameter.

Edit Button

Tap on the **Edit** button to open a display page for setup and editing the Seeds sub-oscillators.

Here you can setup your Seeds from the scratch, if desired.



The Seed Edit mode display page

❗ If this is your first time trying Seeds, we recommend starting with one of the included templates (found under **Tools**).

The basic concept of creating and editing Seeds is:

- 1) Choose your desired number of vectors.
- 2) Select the vector, you want to edit (with **Selected Vector**).
- 3) Select your desired **Seed Type** for this vector.
- 4) Edit the specific parameters on the right for your vector.
- 5) Finally, determine the volume (**Volume**) and transposition (**Transpose** option in semitones/cents) for your vector.

During editing, you can solo the current selected vector for a more precise adjustment (with the **Solo Vec** button).

The Seed Types

Parts

Parts offers a simple additive synthesis with up to four partials. For each partial (selectable with **Selected Part**), the level can be set (**Vol**) and a tuning ratio to the fundamental can be defined (**Ratio**). By using the *Fine* and *Super* modes of the encoder, non-integer ratios can be set.

Wave

Wave offers a simple wavetable synthesis using the same **Wavetables** as the dedicated wavetable oscillator. **Wave Pos** allows you to set the position of the start wave within the wavetable.

FM

FM offers a simple frequency modulation with feedback. **FM Ratio** sets the frequency relationship between the FM operators. By using the *Fine* and *Super* modes of the encoder, non-integer ratios can be set. **FM Index** set the amount of the FM modulation from modulator to the carrier, and **FM Feedback** adds FM modulation of the carrier to itself.

RM

RM is a classic ring modulation with an adjustable frequency ratio (**RM Ratio**) of the two input signals, based on a wavetable oscillator and a sine oscillator. The wavetable oscillator offers the same operating options as the Wavetable Seed Type (**Wavetable** & **Wave Pos**). By using the *Fine* and *Super* modes of the encoder, non-integer ratios can be set.

Dirt

Dirt resembles a noise generator and produces different types of noise, which are selected using **Dirt Type**. Besides *White Noise* and *Pink Noise*, each with adjustable resonance (**Dirt Res**), there are two other, more exotic noise types: *Crackle* and *Geiger* generate short noise pulses; the speed of these noise pulses can be changed with the **Dirt Speed** parameter.

 **Dirt Tip:** Use the **Resonance** parameter to give the noise a pitch-like timbre in order to play it melodically.

The Tools Button

Tap on the **Tools** button to open a pop-up window for loading Seeds templates with predefined settings and selectable options for basic edits.

- *Load Templates*: Opens a display page with 5 selectable Seeds (with **Template** knob).
- *Shuffle*: Mixes the current selected Seeds vectors randomly.
- *Reverse*: Reverses the current selected Seeds vectors.
- *Rotate*: Rotates the current selected Seeds vectors one step forwards.
- *Rotate Back*: Rotates the current selected Seeds vectors one step backwards.
- *Copy Vector*: Only available in Edit mode. Copies the current selected vector into the clipboard.
- *Paste Vector*: Only available in Edit mode. Pastes vector from the clipboard to the current selected vector.

The Lucky Button

Tap on the **Lucky** button to open a new display page. Lucky sounds a bit like the name of a slot machine in Las Vegas. The comparison isn't entirely far-fetched. Here, we offer five pre-defined Seeds options with random generation. For example, tap the **Crazy** button and start the fun. Each subsequent tap generates a new crazy seed. You can control the number of vectors at any time using the **Num Vectors** option.

Instead of describing all five buttons in detail, we encourage you to simply try your luck yourself.

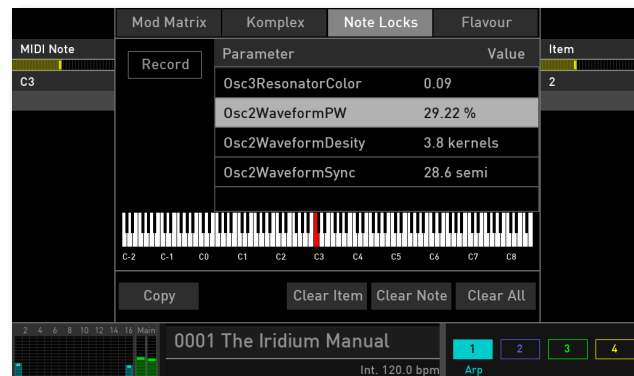
New Wavetable Tool Option

A new tool is available for the Wavetable oscillator. Tap the **Tools** button in the **Timbre** tab to access it.

- *Generate Lucky*: creates random waves with complex waveforms. This option is perfect for happy little accidents.

Note Locks (only with new SOM v2 Board)

To access the Note Locks display page, press the **MOD** button above the display. Tap on the **Note Locks** tab to select the corresponding display page.



This special feature called Per Note Parameter-Locks is the result of a collaboration with the legendary British musician Aphex Twin, a long-term Waldorf Iridium user. With this feature, each of the 128 notes of your keyboard can be assigned up to 16 individual parameter variations. This system allows each note to have a different set of parameters. You

can even change the synthesis mode of oscillators for each note or change effect parameters. This feels like adding a whole new dimension to your music. Per Note Parameter-Locks are saved with each patch and can be inspected and edited on this display.

How to record Per Note Parameter-Locks

The process for assigning individual parameter variations for a note on your (master-)keyboard is very easy:

- 1) First, tap on the **Record** button to activate the parameter recording function.
- 2) Now, select the note for which you want to record parameter variations. You can do this with the **MIDI Note** selection knob or simply play the desired note on your master keyboard. In the keyboard graphic below, a selected note lights in red.
- 3) Turn any parameter knob to record its setting into the first Item slot. A recorded setting is displayed by its parameter name and value.
- 4) Repeat the last step and record up to 16 parameter settings, if desired.
- 5) Tap on **Stop** to finish your recording.
- 6) Repeat the process for other notes, if desired.

We have included some useful utility option buttons:

Copy

Tap on the **Copy** button to copy the parameter changes of the current selected note into the internal clipboard.

Paste

Only available, when a slot was copied before. Tap on the **Paste** button to paste the parameter changes from the clipboard to the current selected note.

Clear Item

Select a desired item entry by using the **Item** option. Tap on the **Clear** button to delete this item entry.

Clear Note

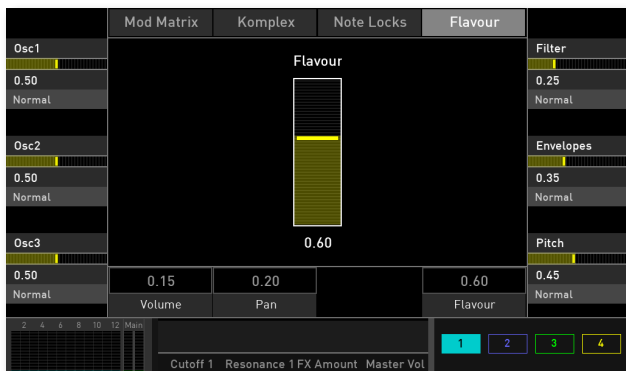
Tap on this button to delete all parameter recordings for the current selected note.

Clear All

Tap on this button to delete all parameter recordings for all notes.

The Flavour Option (only with new SOM v2 Board)

To access the Flavour display page, press the **MOD** button above the display. Tap on the **Flavour** tab to select the corresponding display page.



The further you move the center based **Flavour** slider, the more you influence sonic variations of the current sound. These changes do not happen completely randomly, but are methodical.

But why the endless explanations? Just turn it and enjoy!

On the **Flavour** display page, you can set up what and how the **Flavour** knob do with the current sound.

! **Flavour** adds all sort of micro variations to the sound. This includes small pitch variations on the flavour value. A parameter value of 0 won't add any sound variations.

Osc 1 / Osc 2 / Osc 3

These are subtle oscillator parameter variations, primarily in timbral parameters of the various synthesis engines.

Filter

These are subtle filter parameter variations, primarily for the cutoff frequency and resonance.

Envelopes

These are subtle envelope parameter variations for all timbral and level aspects of the envelopes.

Pitch

These are subtle parameter variations for the oscillator pitch configurations.

Volume

These are subtle parameter variations for the sound volume.

Pan

These are subtle parameter variations for the sound panning.

Flavour

A counterpart to the center based **Flavour** slider.

Tap on the corresponding parameter to open a pop-up menu for further settings:

- **Set Default:** sets the value to its default setting of *0.00*.
- **Set Last Loaded:** resets the parameter to the last loaded value from the current sound patch.
- **MIDI Learn CC:** activates MIDI Learn, which maps an incoming MIDI control change to this parameter.

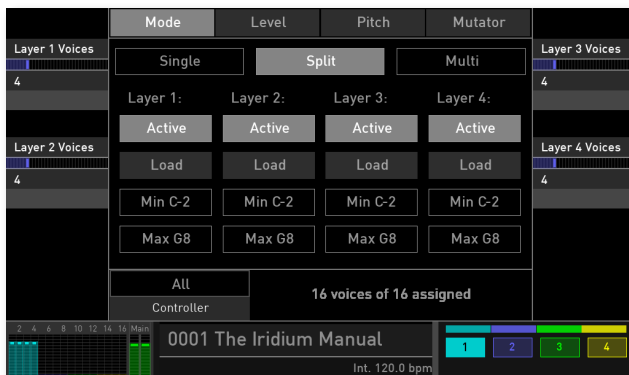
ⓘ On Iridium Desktop, the Envelope **Velocity** knob left to the Master Volume works now as physical **Flavour** knob.

New Options on the Master/Layer Pages

- ⓘ Devices with the new SOM v2 board offer four layers, while devices without this board still only offer two layers.

The Mode Tab (only with new SOM v2 Board)

Here you determine the behavior of the 4 layers. You can also load sound presets for split and multi layers.



Mode page in Split mode with SOM Board

Timbre Modes

Iridium/Quantum offers three different modes for the sound layers:

- **Single:** all 4 Sound layers have individual settings and cannot be played together. You can switch between the 4 layers by tapping on the **Layer 1..4** buttons in the touch screen display.
- **Split:** Layer 1 to 4 use a dedicated keyboard range for playing. A typical situation is that a bass sound is played in the lower range (for Layer 1) of the keyboard while a lead sound is played in the upper range (for Layer 2). Layer 3 could add an overall sub pad layer, while Layer 4 is not in use. Use the **Layer Voices** and **Min Key/Max Key** parameters for the corresponding Layer to set the desired keyboard ranges for the split sounds. In addition or alternatively, each layer can be assigned an individual MIDI channel which is done in here: *Global -> MIDI -> In*.
- **Multi:** all Sound layers are played simultaneously over the whole keyboard range – in different playback modes. Use this option to combine sounds, such as pads, drones and keys.

- ⓘ Depending on the selected Timbre mode, the display representation differs.

Voice Allocation (only available for Quantum)

This option determines how the 16 voices should be used in conjunction with the 8 analog filters when used in Single, Split, or Multi mode.

Layer 1...4 Voices (only for Split Mode)

Here you determine, how many voices the corresponding sound layer is able to play. Keep in mind that Iridium/Quantum offers an overall polyphony of 16 voices. If you set the sum of all active layer voices to more than 16, an overuse message is displayed in the bottom area of the display page.

Layer 1...4 Active/Off (only for Split and Multi Mode)

Here you can activate/deactivate the corresponding layer. The number of an inactive layer is shown in brackets in the bottom right layer overview in the display

Layer 1...4 Load (only for Split and Multi Mode)

From here, you can call up the Loading page to load a sound patch for the corresponding layer.

Min / Max Key (only for Split Mode)

Here you determine the keyboard range for the corresponding layer when in **Split** mode. The lowest setting is note C-2; the highest is note G8.

Tap on the corresponding **Min Key** or **Max Key** button to open a pop-up menu. Here you can change the key with the main selection encoder or directly via your MIDI master keyboard. Please keep in mind that the MIDI channel settings for each layer in the *Global -> MIDI -> In* screen also apply.

Controller (only for Split and Layered Mode)

Determines which Layer will be affected by incoming Mod wheel, Pitch bend, Aftertouch, Pads and Modulation pad data.

- *All*: wheels and play controls affect all layers.
- *Layer 1...4*: wheels and play controls affect the chosen layer only.
- *Selected*: wheels and play controls affect only the current selected layer.

Multi Mode

The Multi mode allows you to play up to 4 sound patches in different ways:

- **Layered:** all active sound layers are played simultaneously over the whole keyboard range. Use this option to combine up to 4 sounds, such as pads, keys and drones.
- **Round Robin:** with every new triggered note, the active layers are played repeatedly one after the other from lowest to highest layer number, and so on.
- **Random Robin:** same as Round Robin, but the layers are played repeatedly one after the other in a random way.

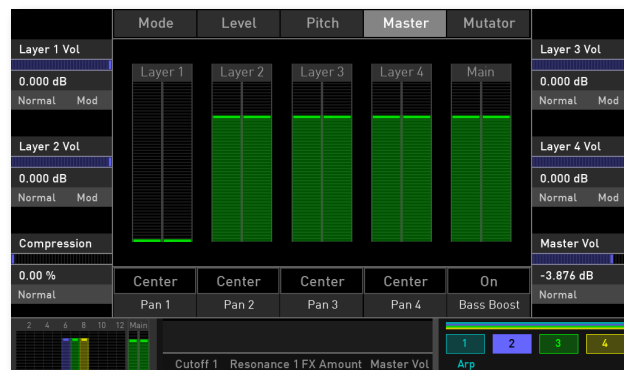
Arp/Seq Mode (only for Multi Mode)

Determines which Layer will be affected by the arpeggiator and/or sequencer.

- *Individual Layer:* each active layer uses its own Arp/Seq settings.
- *Global by Layer 1...4:* the Arp/Seq settings of the selected Layer are used for all other active layers.

The Master Tab

On the Master page you can setup panning and level for each of the 4 layers (when new SOM v2 Board is installed), as well as the master volume. The remaining functions are identical to those of older operating systems.



Layer 1...4 Vol (Volume)

Determines the volume for the corresponding layer.

Pan 1...4

Determines the panning for the corresponding layer.

Mutate All

Clicking on this button creates a mutation for all sections simultaneously.

Undo Last

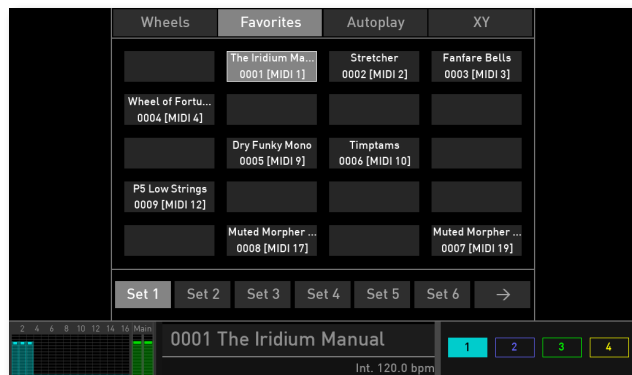
Unhappy with your mutation? Simply click the **Undo Last** button to reset the last made mutation. Note that this undo option only offers one undo step.

ⓘ There is an unconfirmed rumor that entire sound sets were created using the Mutation option.

New Option on the Perform Page

Favorites Tab

This is a special perform mode for live musicians. Here you can set up 20 sound patches per **Set** for faster selection. You can define up to 12 Sets, which means faster access to 240 sound patches with just two taps.



You can also access the **Favorites** tab by pressing the selection dial. This is valid from every location except when on the **Load** display page.

Here is how it works.

- 1) Select the desired sound patch by using the **Prev/Next** buttons or tapping on the sound name in the lower display section.
- 2) Tap and hold on one of the 20 blocks. After a little while a pop-up window will be shown. Here you can **Assign** the current sound patch to the selected block. You can also **Clear** the selected block or **Cancel** any action.
- 3) Repeat step 1 and 2 until you have filled the matrix with your favorite sound patches. You can tap on Set 1 to 6 to select a new favorite matrix. Tap on → to switch to Sets 7 to 12. With ← you can switch back to Sets 1 to 6.
- 4) To call up a favorite sound patch just tap on the desired matrix block or use the **Selection** dial to scroll through the sound patches of the current Set. If you want to load a sound patch, press the **Selection** dial.
- 5) One Set can contain only one sound patch at any given time. This means that if you want to add the same sound patch as previously added, the older one disappears when saving the new one to a desired location.

New Option on the Arpeggiator Page

Mono / Poly Button

Normally, the arpeggiator plays its notes one after the other when the **Mono** button is displayed. We have also included some polyphonic playback options. Simply tap on the **Mono** button and select the desired option. Depending on the selected Poly option, additional buttons are available:

- The **Voices** button selects the number of additional arpeggiator voices from 1 to 4.
- The **Follow /Skip** button determines how the additional voices will follow or skip the original played voices.
- The **Transpose** button (only for the *Poly Trans* options) determines the transposition in semitones from 1 to 12 (one octave).

New Options on the Global MIDI Page

Once the new SOM v2 board is installed, you will find additional **MIDI In & Out** channel settings for the two additional layers, for DIN MIDI, USB controller and USB computer options.

The new **Arp/Seq** button in the **MIDI Out** tab lets you specify whether the MIDI data from the arpeggiator or sequencer should be sent via the MIDI output (*On*) or not (*Off*).

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