

# genoQs Machines

## Octopus and Nemo

Operating System Release Notes



# Release 1.62

Release with an initial focus on robustness and issue fixes but introducing new groundbreaking functionality and desired workflow improvements

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## NEW FEATURES

### Hypersteps

Hypersteps are steps that do not trigger notes, but trigger tracks in their respective page. Therefore, if a track is linked to a hyperstep, once the hyperstep is played, the track is being triggered to play at a speed corresponding to the step length (in 1/192 intervals), and taking over the hyperstep's velocity and pitch offset.

To engage the hyperstep function go to page mode, hold a track selector down, and at the same time designate the hyperstep in the matrix, in a row other than the track's (by pressing it down as well). You will see that the track selector and hyperstep start "shining".

A track can only have one associated hyperstep. To disengage the hyperstep of a hypered track, hold the selector pressed and press a step button in the matrix row of the track.

### Preview Perform

A new operating mode introduced in Page mode, Preview Perform is very similar to EDIT mode but does not send MIDI notes like in EDIT mode, allowing for "Berlin School" type performance.

From the default page mode, engage Preview Perform by pressing the EDIT button twice (again, "twice", and not double-click!).

## BUG FIXES

### Recording the first note in a chained track

Fix for the the bug related to recording on the first step in chained tracks. Recording function now performs as expected.

### Copy and paste in Page EDIT mode

Copy and paste steps works as expected in Page EDIT mode.

### EDIT LED color inconsistency

EDIT LED blinks orange when activated in PAGE and GRID-TRACK mode.

### **Responsiveness of keys in GRIDTRACK mode**

GRIDTRACK mode matrix key presses are now as responsive as they should be. Multiple concurrent key presses are possible.

### **Page locator reset done correctly across chained tracks**

Upon sequencer stop or page switch all chains are reset to play the chain head track.

### **Program Change send optimizations**

Program Changes inside clustered pages are being executed before that page is actually toggled on. This allows for use of program changes as triggers to pattern changes in external devices such as the Elektron Machinedrum.

### **Double clicking on page buttons in the grid always zooms in**

Double-click in GRID mode zooms into the page without changing the page toggle state. This is a lot more live-safe than the previous implementation.

### **Shift of tracks containing step phrases**

Step phrases are now shifted correctly along with the rest of the data in shifted tracks.

### **Recording in chained tracks with head-oriented tracks**

Recording in chained tracks when chains play with the head track data now records the correct pitch of the steps.

### **Blinking frequency of the LEDs**

Blinking frequency of LEDs is lower and hence easier on the eyes.

### **Long chord length played correctly**

Long chords (longer than 192/192) are played with the correct length.

### **Step skip optimization**

Step skips will keep the step state after an un-skip operation.

### **Step un-skip in EDIT and PREVIEW PERFORM modes**

Un-skip function is now active in the EDIT and PREVIEW PERFORM mode.

### **Step skip operation available in two ways**

Step skipping is possible in two ways: hold MUT and press the steps, or hold the step buttons and press MUT.

# Release 1.60

Feature release with an initial focus on infrastructure but delighting with fresh musical functionality and dramatically increasing system performance.

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## NEW FEATURES

### Step Phrases

Phrases are small sequence templates that are easily assigned to steps, by which they are triggered.

A phrase holds up to 8 notes with individual PIT, STA, VEL, LEN attributes offsets, and is of one of the types forward, reversed, random-pitch (pitch only shuffled), random-all (all attributes shuffled, wobbles).

Step polyphony (described earlier) may be combined with phrases as well. Phrases may be time stretched in real-time from straight to triad to dotted timing.

### Step Phrase attribute editing

The step's GRV attribute, which defines the phrase number, can be edited in the expected ways, which includes selecting several steps in a track with SEL and turning the GRV rotary.

### Step Phrase pool

A pool of 48 phrases is available. These phrases are populated with factory presets that can be redefined by the user on machines that support the phrase editor (Octopus only, at the time of writing).

### Step Phrase editor (Octopus only)

Octopus has a full phrase editor on board that allows the user to completely redefine the phrases in the user phrase pool.

Note that the strum editor on Octopus is no longer available and has been super-ceded by the phrase editor.

### Explicit step polyphony

Step polyphony is introduced as an explicit step attribute.

When a step's polyphony is set to differ from the number of notes that a step is set to trigger, such as in a chord for example, a random

selection from the notes to be played generates extremely musical results at playtime.

### **Record re-channeling**

Record input is automatically re-channeled when only a single track is armed. When multiple tracks are armed, re-channeling is not active.

### **Record monitoring**

We now have live monitoring of the incoming note, CC, bender and pressure data on record-armed tracks. Before, only note data was echoed, but not the other MIDI data.

### **Record Monitoring in Stop mode**

When in Stop mode, record-armed tracks monitor the record input signal (for notes, CC, bender and pressure).

Very nice, since you can now browse through tracks in pages by selecting them one by one and have the record selection move along.

Together with re-channeling you can use a single MIDI keyboard to play and hear all tracks, in both Stop and Record mode.

### **Individual page save/restore.**

Pages may now be individually saved and restored.

To load (restore) the current page in Page mode, press PAGE + ESC.

To save the current page in Page mode, press PAGE + Program. When saving a page make sure the sequencer is not running.

## **TECHNOLOGY ENHANCEMENTS**

### **Clock resolution maintained in MIDI slave mode**

When Octopus is acting as a MIDI clock slave, the resolution of the sequencing engine is maintained at 1/192 of a note.

### **Persistent data survives OS updates**

Page and grid objects are now saved such that they are able to survive OS updates, which was not the case previously.

### **Factor 2 more CPU power unleashed**

Due to optimized compilation and a highly optimized load measurement and monitoring system the CPU can now deliver more performance to the play engine. That means, at lower tempos the CPU can do more. Another nice addition is an even tighter overload protection of the sequencer engine.

### **SYS-EX and Flash data persistent across OS versions**

The sys-ex code now uses the sam data format that is also used for flash, and actually uses the same code to encode and decode sys-ex data. This is a cleaner and more efficient implementation providing additional robustness to the platform but most of all, allowing for data interchange across OS versions later than and including v1.60.

### **Sys-ex mode tweaks**

The sys-ex page (GRID + EXC) is now much more fun.

When transmitting data over MIDI (which can take minutes for a full grid of pages), the inner circle now reflects the status with orange LEDs (supported on Octopus only). Also, the green page LEDs in the grid turn orange the moment they are processed by the sys-ex code.

As a nice sidetrack, you may activate an amount of pages in the grid, press GRID+EXC on Octopus, or GRID+Play on Nemo, to switch the sys-ex mode, and press EDIT to save all pages and the grid. Enjoy the light show!

### **Sys-ex silent intervals**

There is a short silent interval between page data sets in the sys-ex stream. When the exported data is sent back to the machine again, this interval allows for smoother processing of the incoming objects.

### **Display of negative values**

Negative attribute offset values (such as in step mode) are shown without blinking - the convention is that a negative number will have three green LEDs, lit in columns 14-16.

### **Further technical improvements and optimizations**

There are many more technical tweaks that were done with the purpose to make platform development even more modular and easily accessible to users who may want to take advantage of the system being open source and contribute to further development.

## MISCELLANEOUS IMPROVEMENTS

### **External clock tempo follow**

We now measure the external clock MIDI clock signal and derive tempo from it. Therefore, when locking to external clock, internal tempo is now updated and shown. When external clock stops, the machine is left at the clock derived from the external clock signal.

### **Original step GRV attribute replaced**

The original step GRV attribute has been replaced by the new phrase select functionality. By selecting one of the wobbles in the phrase pool, a similar (and much more powerful) effect is available.

### **Inverted MIX attribute editing now restricted.**

When editing attributes of one or more selected steps using the EDIT block rotaries, there has been the option to edit the same attribute of the non-selected steps using the corresponding rotary of the MIX block.

Originally, all of the non-selected steps in the page were touched, but this has been restricted now to only the non-selected steps of those tracks that are involved in the selection.

### **Load/save indicator tweaks.**

The load- and save indicator (the inner circle on Octopus, the top row on Nemo) has been given a higher resolution (2 LEDs at a time) to give the load-all-pages and save-all-pages action some more visual support. Nice to see when starting the machine!

### **Step velocity editing**

During birds-eye view of a step (either selected, or grabbed in EDIT mode), the big knob now modifies the step's velocity attribute, shown in the tempo area.

### **Strums can fire all notes**

Strums, like phrases, now play all of the strum pattern notes if the associated step does not have chord data defined.

### **Step skipping operation optimization**

Skipping steps is done by pressing and holding the corresponding step key(s), and while they are held down, click the MUT button.

This removes the dependency between the step skip operation and changes to the track mute pattern.

### **Track selections on the Octopus are now sticky**

This means, once a track selection is invoked, it will remain active without having to keep selector buttons pressed for as long as the selection is non-void (i.e. at least one track is selected), or the SEL button is not pressed to un-call the track selection.

This is useful for example in the scenario where you transpose selected tracks using a keyboard - a practice much used in “Berlin School” type of performances.

### **Track GRV optimization**

The GRV value determines how the shuffle applied to the track – in the range 0 - 16. Shuffle means that the steps with an even index in the track (i.e. 2, 4, 6 ... 16) will be played with a delay.

The odd GRV values will produce steady shuffle delays, while the even GRV values will produce delays that are variable within one 1/192 and which are determined at runtime. As before, the higher the track GRV value, the greater the shuffle effect.

### **Virtual MIDI channels temporarily disabled**

The virtual MIDI channel functionality has been temporarily disabled. It will be re-enabled in the next release, where it will be connected directly to musical functionality.

### **Inverted MIX attribute editing now restricted**

When editing attributes of one or more selected steps using the EDIT block rotaries, there has always been the option to edit the same attribute of the non-selected steps using the corresponding rotary of the MIX block. Originally, all of the non-selected steps in the page were touched, but this has been restricted now to only the non-selected steps of those tracks that are involved in the selection.

### **Load/save indicator tweaks**

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### **Streamlined CC MIX Map operation**

The CC MIX Map component has been streamlined to operate more transparently. The switch between local and global CC maps is obsolete, as now the 6 CC maps are all global.

### **MIDI CC generating tracks visible in PAGE mode**

The chase light on tracks that have a valid MIDI CC value set is shown orange. This makes tracks that potentially produce MIDI CC output directly visible in the matrix at playtime.

## **BUG FIXES**

### **Fixed velocity (VEL) offset bug**

A bug was reported where changing the pitch in the mixer map also touched the velocity. This is now fixed.

### **14-bit bender bug fixes**

The 14-bit bender messages did sometimes not make it properly through the engine. Along with this fix, a few more fixes affecting intermediate values of CC and bender messages.

### **Track chain play disruption**

When modifying chains at runtime, i.e. removing one or more tracks from a chain, the locator of the playing chain does not change position or track as it used to.

### **PLAY mode disruption of chains**

When exiting PLAY mode chains locators could get thrown off. This is now fixed.

### **Recording into slow tracks**

Recording MIDI data into tracks playing at speeds other than global clock used to compute faulty note lengths. This is now fixed.

### **Negative STA values and track speeds**

Tracks with speeds other than global clock and a STA factor of 0 (zero) used to not apply the 0 factor correctly to steps with negative (before the beat) STA values. This is now fixed.

## UPLOAD INSTRUCTIONS

### How to upload the OS file onto your machine

Probably the first improvement that you will notice with the new OS is that the OS file for version 1.60 does not require any intermediary steps, as veteran users may know it from the past.

The OS file may be sent directly to the machine and received there accordingly by the incumbent OS. *Note however that it will not recognize your stored sequence data!!!* Now follow these steps:

1. **Boot your machine in System mode.** Boot the machine while you hold the ESC key pressed. You should see the System screen, which is characterized by all LEDs in the MODE block (inside the circle) being lit orange. The number displayed in the numeric field of the circle denotes your existing OS version. For example, a 140 will denote the OS version 1.40.
2. **Send the OS file to the machine.** Use your favorite SYS-EX handling device or software to play the SYS-EX file provided. As soon as transmission starts you should see how the machine interface gets cleared and behaves like a progress bar indicator.
3. **Acknowledge successful transmission of the OS file.** Once transmission is complete, make sure you are seeing a clear display, with only a red blinking Program LED. This indicates that transmission was successful. If you are seeing an orange blinking Program LED it means that something went wrong and you need to retransmit. Most of the times it helps if you reduce the transmission speed on the sender's end.
4. **Write the new OS file to flash.** If you see the red blinking Program LED, you may press the Program button and wait for the machine to write the new OS file to flash. The process is usually indicated by another progress bar. Make sure to let the machine complete this operation, or you may render it inoperable! (That is not the same as non-recoverable however, just in case you were worried that you may have to part with your baby for a while..)
5. **Boot without loading your data from memory.** OS version 1.60 does not understand machine state data generated by previous versions of the OS (however, we expect further OS versions to understand data generated by OS version 1.60 and later). In order to not fill the memory with non-understandable data, you have to boot the machine with the CLR button (3rd from top in the MUT column) pressed. Now you have a clean machine, and you should write this clean state to memory by pressing GRID + Program. From here you may resume normal operation of the machine.

Congratulations! You have successfully updated your instrument to what we consider the best operating system there ever was.

# Release 1.42

Maintenance release spiced up with a few spot-on functional additions.

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## Three-octave step chord range

Step chords are no longer restricted to one octave and may now range over three octaves. The chord display shows how far from the base pitch the chord notes are.

The base pitch of the step blinks orange. Notes within one octave of the base pitch light orange. Notes in the second octave up light green, and notes in the third octave up light red.

Notes may not be part of the chord at the same time in several octaves. To toggle the notes manually in and out of the chord following toggle sequence is now in place: off > orange > green > red > off.

## Dynamic step polyphony from chord pool

Step polyphony is now explicitly selectable, opening up an entirely new playground for dynamic pitch generation, especially when the polyphony doesn't match the number of chord notes (chord size).

When step polyphony and chord size are the same, the result is a chord in the traditional sense.

When polyphony and chord size are different, the number of played notes is always the smaller of the two (chord size or polyphony). The actual notes are chosen at random from a pool composed as follows:

When chord size is greater than polyphony, the note pool is made up by all notes that make up the chord.

When polyphony is greater than the chord size, the note pool is made up by the chord notes plus a number of rests ("empty" notes). The number of rests is given by the difference between the polyphony and the chord size.

Example: chord is C-E-G (chord size is 3). A polyphony of 3 will consistently play the chord C-E-G. A polyphony of 2 will randomly play two notes of the pool C-E-G. A polyphony of 5 will randomly play 3 elements of the pool C-E-G-rest-rest.

## Scale MOD transposition

When in the MOD mode of a selected scale, transposing the base of a scale will also transpose the scale, by carrying over the scale signature to the new base.



# Release 1.40

Adding new functionality, optimizing the operating workflow, and further increasing performance.

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## **EDIT mode replaces Preview mode**

In PAGE mode, pressing the EDIT button from default state activates the EDIT mode (previously Preview mode). In EDIT mode you can hold a step button pressed and directly edit its VEL, PIT and LEN via the circles and the matrix respectively.

The velocity is shown and editable in the numeric quadrant of the outer circle, the pitch in the inner circle. The length can be adjusted in the matrix, by pressing another button at a distance to denote the length in 1/16th intervals.

## **GRID EDIT mode added**

In GRID mode, there is now the notion of an Edit state that is toggled via the EDIT button. The Edit state contains the traditional functionality of the GRID.

When not in Edit state, the matrix buttons will act as toggles for the respective pages. This provides more immediate and intuitive handling of material in live situations.

## **GRID-TRACK edit mode added**

In GRID-TRACK mode, there is now the notion of an Edit state that is toggled via the EDIT button. The Edit state contains the traditional functionality of the GRID-TRACK mode.

When not in Edit state, the matrix buttons will act as toggles for the respective tracks. This provides more immediate and intuitive handling of material in live situations.

## **MIDI CC map resolution**

Per default, MIDI CC messages are sent on each step, according to the respective track and step MCC values. In addition, intermediate CC messages may be sent between CC steps. This effectively increases resolution of the CC stream, resulting in smoother flows.

In MAP mode, with MCC as the selected attribute, the resolution for the current track may be selected by using the chord button block. The minimum (and default) value is 1, meaning that one CC message is sent per step.

A value of 5 for example, denotes that 5 messages will be sent for this step. The first one right on the step, the other 4 distributed evenly across the interval of time until the next step is triggered. The intermediate values automatically create a linear slope to the next value.

### Bank mute toggles

In GRID mode, the buttons in the MUT column act as bank mute toggles. Pages in muted banks will continue playing in sync with all active ones, but their output will not be sent out to MIDI.

This provides more immediate and intuitive handling of material in live situations.

### Step selection stores

In PAGE mode, active step selections are stored for later recall in one of 5 stores available per page. This allows to group steps and modify them at once beyond track boundaries.

The stores 1-5 are accessible while a step selection is active via the buttons labeled 1,2,3,4,5 in the MIX TARGET row below the matrix.

### Inverse step selection editing

In PAGE mode, active step selections are edited using the EDIT encoders for the respective attribute. Additionally, when a step selection is active, the steps that are not selected in the page may be edited as well, using the MIX encoders of the respective attribute.

For example, assuming a step selection is active, the EDIT encoder PIT modifies all steps in the step selection, while the MIX encoder 8 will modify the pitch of all steps that are not currently selected.

### Step LEN multiplier

Steps now have a LEN multiplier, allowing them to play up to 8 times their actual length. Multiplier value is in the range 1-8. The step multiplier value is shown (and editable) in STEP mode in the transport area, using the pattern used for track clock multipliers.

The maximum step length is therefore 8 full notes at master clock speed. The multiplier can be adjusted manually, and is computed automatically when recording notes in a track. This allows for recording long-holding notes to a much larger degree as before.

### Step LEN representation

In STEP mode, increasing the LEN of a step will show a wrap every 12/192, increasing the step LEN to the next 1/16. In the past the representation was skewed to have the value wrap at 16.

### **MIDI Clock may be echoed in slave mode**

MIDI clock that is received while the machine is in MIDI slave mode can be sent out to the MIDI out, so other devices can be slaved along the same chain.

When switching to slave mode using the 200 key, the default color of the 200LED is green. Pressing it once toggles it to red, with a red setting meaning that the clock information is passed through.

Note that the color of the 200 LED is no further used to show which port the clock signal is coming from.

### **Step VEL and PIT attribute range increased**

The available range for VEL and PIT offsets of steps is now -127 to 127. Previously the range was much smaller.

### **SYSEX dump of all pages and full machine state**

Two more options for SYSEX dump: dump all pages at once via the SEL key, and dump the full machine state at once via the EDIT key.

The same results used to require several partial dumps in the past.

### **Track clock multiplier queued for change on next 16th**

In TRACK mode, changes of the track clock multiplier are effective on the next 1/16th beat of the master clock and not immediately.

This provides better track alignment and improves the general feel of the sequence without the need to explicitly align.

### **Step focus shifting with step**

In STEP mode, a POS event will not cause the step in focus to change, but the focus will be shifted together with the step.

This provides for easier step editing on a track that is shifting.

### **Step event reset by amount of 0 (zero)**

Setting the offset caused by a step event to 0 required disabling the step event. A step AMT of 0 will now achieve the same result. This means that AMT events become more consistent with the model.

### **ALL NOTES OFF message**

When the sequencer is not running but is defined as MIDI master or slave (the 200 LED is lit either orange or green), pressing the Stop button will send out an ALL NOTES OFF message (controller 123) on each of the 32 MIDI channels.

# Release 1.02

Developed in relative silence and mainly with user friendliness in mind, OS release 1.02 adds a few functions and addresses some minor bugs.

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## Multi track recording

Octopus may now record on more than one track at once in a single page. The process is similar to recording on a single track. This means that the channel of the incoming MIDI data and the track channel need to correspond in order to record the data.

Normally you would set the recording tracks to different channels, so that multi-channeled data can get sorted accordingly. If more than one recording track are set to the same channel, the data for that channel will simply get recorded multiple times.

## Channel pressure handling

MIDI channel pressure can now be recorded, edited and played back. It is implemented and accessible as an additional parameter in the MIDI CC map, and denoted by two red LEDs, just one beyond the pitch bend selection.

## Pitch bend 14 bit recording

Incoming pitch bend data is now recorded and replayed using the full 14 bit resolution, and not using a quantization to 7 bits any longer.

## Throughput recorded MIDI data

Recorded MIDI data is now played through to the MIDI out port, as it gets played in. This accommodates better MIDI controller keyboards, but may require respective adjustment if you work with a synthesizer keyboard, such as turning off local control.

## MIX map functional adjustments

Some additions were made to the MIX map mode: The master tempo is now visible and adjustable; the MIDI clock status is visible and adjustable; track chain mode status is visible and adjustable, between head and chain mode.

In the VEL map, the buttons will adjust the 10's values. This is to give better live control of the values. Also, pressing the keys of column 16 will set the values to 0.



# Release 1.00

Highly anticipated, OS release 1.00 brings to Octopus loads of new features that users have been asking for since the release 0.98, few months earlier.

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## Free track chaining

In addition to the preset chain patterns, Tracks in a Page may also be chained according to any other configuration desired or required by the user. This includes “overlapping” track chains, or structuring a page as a chain of 10 tracks for a total of 160 steps.

Note that this involves moving the MIDI Clock select functionality to a different position – refer to the section on MIDI Clock for latest information.

## Embedded track program change

Tracks now retain the MIDI program change information as a track specific value.

The program change message is sent whenever the Program key is pressed, or once – whenever the page of the PC-containing tracks is enabled for play.

## Editable track directions

Directions 6-16 are now available and freely editable by the user, including re-trigger and randomize options.

## Step groove attribute

A step may be delayed at playtime by a random amount of time in multiples of 1/192 of a note. This is controlled via the step groove attribute.

## Grid-track mode

The GRID mode can additionally be used to operate directly on the tracks belonging to pages that are playing in the Grid. Up to 90 tracks are mapped to buttons in the Matrix and act as virtual track selectors, allowing including mute/un-mute and editing of track attributes.

## Step-note recording

Notes may be recorded directly on pre-selected positions in a page, irrespective of timeline and chase-light position. Works nicely with chords, too!

### **Page scale CAD**

Changes to a scale may be set to affect the pitch values of the tracks in the page. Whenever the scale is modified, the track pitches are aligned to the new scale, modifying the harmonic structure of a page in a musical way.

### **Extended MIDI IN control**

Apart from recording MIDI data, MIDI IN ports can be used to control various functions of the machine via MIDI IN signals. This includes selecting grid sets and toggling grid pages via program change messages, or even creating and modifying scales on the Octopus.

### **Virtual MIDI channels**

Provide an internal wiring of tracks to the Octopus MIDI in. In this way, Octopus tracks may be used to leverage the capabilities of MIDI IN control, right on the Octopus.

### **MIX map utilities**

The MIX MAP mode has been extended to include CLR, RND and ALN functionality. This is an efficient way of operating on the same attribute of all tracks at once, or changing the order of tracks according to values of a selected attribute.

### **Machine interface lock**

The machine may now be locked from curious, unauthorized button pressers. It will hide all visual feedback, not accept any key presses (with one exception) but play as normal.

### **Map factors**

Each relevant attribute map now has a map factor, which indicates the amount to which that map is applied to the current output.

### **Export memory content as MIDI system exclusive data**

Memory content may now be exported as MIDI system exclusive streams, providing a means to store machine state data outside of the Octopus.

### **STA / LEN factors**

The STA and LEN attribute values of Tracks are now assigned to influence the effect of LEN and STA maps on the steps played in a Track. They are now factors. The old functionality can be easily achieved by skipping steps.

### **Step event and factoring**

Step events modify the map factors for the tracks, and not the actual track attribute values.

### **Pitch bend handling**

Now pitch bend data can be recorded and worked with, similarly to any other MIDI controller data.

### **Record channel awareness**

Recording MIDI in a track is restricted to the MIDI channel specified to the track that is being recorded on. This is more restrictive than in previous OS versions.

### **Track pitch assignment via MIDI IN**

Tracks may be assigned pitches directly from an external controller. Saves time when you are trying to make a certain note mapping.

### **Track flattening**

The FLT mutator has evolved to new semantics. It is now applied to two or more tracks to create a „stacked“ version of that track selection into a single track.

### **New Effector state**

Tracks can now take on an additional state with regard to the Effector. In addition to being unaffected, a sender, or a receiver, tracks may now be receiving senders.

### CC map learning

In addition to programming CC maps, you can now have them learn by listening to MIDI IN input. Saves time and comes in handy.

### Step attribute tweak value display

When editing a step attribute in map mode, the exact value for the edited step is shown in the numeric quadrant of the outer circle. This is particularly useful for visual fine tuning.

### MX map mutators

The mixer attribute maps of a page can now be cleared, randomized, sorted, and copy-pasted across pages.

### Force MIDI input to scale

Externally played notes can be passed through the Octopus and forced to the scale of the current page.

### Additional track speed multipliers

Octopus now features additional track speed multipliers. These include: 1.5 (for direct creation of triplets), as well as the following: 1/1.5, 1/8, 8, 1/16 and 16.

### Send bank change messages

In addition to sending program change messages Octopus is now able to also send bank change messages.

### Page scale prioritization

Page scales are now prioritized over the grid scale, when both are in effect. This means that any page can now be exempted from being forced to the grid scale by simply activating its scale, and for example set it to chromatic, if need should be.

### MIX attribute assignment

The MIXER BLOCK can now be assigned an attribute in a much more direct way: hold the attribute to be assigned while pressing the MIX button.

### **Recording discards off-range notes**

Notes from MIDI IN recording that were not in the proper data range are now ignored, as opposed to being ceiled to the range boundary.

### **Grid cursor removed**

The grid cursor has been removed. This is easy on the eyes – it makes one blinking LED less.

### **Page attribute values**

These are not new, but were hidden and not documented. The VEL attribute is a scaling factor applying to all page output, and PIT is another means of transposing an entire page.

### **Page mode: single step selection parameter display**

When only one step is selected in a page (in page mode), the VEL and PIT attribute values for the step are shown in the circles.

### **System mode**

There is an additional system mode, used to view the version of the OS, as well as to upload new OS versions onto the machine. It is entered by holding the ESC key pressed during the power-up of the machine.



# Release 0.98

This release has enriched the initial OS release with a large set of new functionality that was on our agenda, but did not make it into the initial version.

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## Step chords

The chord functionality has been revised and reworked according to user input. Chords may now be directly programmed or recorded (see MIDI IN RECORDING) into a Step. The way it works is to simply double click on a step, hold the chord button down and dial in the pitches that should make up the chord.

## Strumming

Programmed chords may be strummed up or down using one of nine global, freely configurable strum levels. Along with the obviously required setting for note start, a strum level includes settings for velocity and pitch as well as length.

## Step repeats

Step repeats are special case of strummed chords (in that there is no variation in pitch) and hence handled in a very similar fashion to how step chords are handled. There is one flag to be set to indicate when a step should play a chord or just repeat.

## Step events

An event is a programmed change of the attributes of a track and is attached to a step. All track attributes, except for Start and Length, may be modulated by events. To program an event, double click on a step, and select one of the attributes in the SEL column. The amount value of the step determines the change in the track attribute. Changes are currently made using modulo addition.

## Recording MIDI

Octopus now features the capability of recording incoming MIDI note and controller data onto its tracks. Recording is polyphonic so that for example chords may be recorded in from an external keyboard onto a track. Also, MIDI Controller data is recorded as it is coming in, and the Track's MIDI CC parameters are auto-sensing the controller and the associated data.

### **MIX block timeout**

When operating the MIX encoders in PAGE mode you will notice that the edited value will be displayed in its corresponding row for a brief period of time, after which a timeout mechanism will restore the regular content of the track. This is for better control of your value changes.

### **Grid CC maps**

It is possible to use GRID CC Maps directly from within pages. This is particularly useful when you have assigned some contextually “global” mappings to your GRID CC maps and want to use them at any time during operation, without switching to GRID.

### **Undo functionality via PLAY mode**

The PLAY mode provides the capability to try new things in a non-destructive way. Setting Octopus (and hence all playing pages) in PLAY mode is equivalent to taking a snapshot of it for later recall, should the results of your editing not be up to your expectations. Therefore, exiting the PLAY mode will restore the old state of the playing pages, and pressing Program will make the changes permanent.

### **Page length**

When in GRID mode, clustering pages is a way to create structures spanning more than one page. The switch mechanism between or across the pages relies on an internal variable that we term the “page length”. In previous versions of the OS the page length was computed internally and not visible to the user, but user feedback suggested that greater flexibility may be achieved by user visible and configurable page lengths. Tried out, agreed, and made it just that.

### **Grid scales**

By popular demand, the GRID now has the notion of a scale. The scale may be selected and composed in the same way as page scales. Activating it (hence forcing Octopus into the GRID scale) means that all note data generated will be in that scale.

# Known issues

Below is a list of known problems at the time of writing. Having them on this list implies that -where applicable- we are working on remedy which may appear in coming OS releases.

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## **Tracks in a clustered page always starts from step #1.**

If the track is shorter than 16 steps and/or has a DIR of 2, 3, 4, or 5, the last known position will not be maintained when the page is exited and then re-entered during cluster play.

Workaround: n.a.

This is a question of whether to have musical structures generally play what is expected of them every time they get triggered or something that may be unexpected. There are for both pros and cons.

## **Pages automatically activate if they are part of a cluster.**

Normally, a Page needs to be activated after entering steps to have it play. However, if you enter a page at the end of a cluster and start adding steps, it automatically activates and plays as part of the cluster.

Workaround: use a remote / unpopulated area of the GRID to compose your new page, and then use CPY and PST to add it to the cluster in the ready-to-play state.

## **Different offsets for objects may not be maintained.**

If a group of objects are selected and the values started out different, the difference is maintained while adjusting the VEL knob. However, once all objects reached the maximum value, the differences are not re-established when the VEL knob was adjusted counter-clockwise. In other words - the original offsets were lost as soon as the values reached a maximum (or minimum). This holds true for other attributes as well.

Workaround: n.a.

## **When Octopus is turned on or reset, there is some scrambled MIDI data coming out of MIDI port 2.**

Workaround: n.a.

This is something related to the way the boot-loader and the hardware interact with each other. We have not yet investigated, but it does not indicate a malfunction of the Octopus per se.



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