

Nemo Release Notes & User Guide

Operating System version 5.30

Introduction

Dear GenoQs community,

We are delighted to share with you a pristine Nemo OS CE 5.30 "Minnow". As a part of this passionate sequencing community the CE team championed GenoQs central design dream - To conceive of the ultimate hardware sequencer!

This release offers inspiring performance features, helpful UX improvements and many stability and quality improvements.

We hope that you will find these additions inspiring and enjoyable! Any feedback, issues or thumbs up please let us know on the forum!

Happy sequencing,
CE Team

Disclaimer

The Software is provided "as is," with all faults, defects and errors, and without warranty of any kind.

Current CE Contributors

- Wilson Stockman
- Eric Ellis
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Feedback

We are a small group putting our best efforts together to code, test and document the OS development. Your feedback and involvement are most welcome so please join us on the forum if you have any issues, questions or suggestions. We thank all of you who have taken the time and trouble to get involved!

Installation

- Download the Nemo v5.30 OS, update instructions and user reference guides

<http://genoqs.net>

- Visit the Genoqs forum:-

<http://forum.genoqs.net/>

New Features

On-The-Measure operations for Mute, Solo and Record

On-The-Measure Mode

On-The-Measure mode (OTM) allows certain actions that previously could only be effected instantaneously to now be programmed to occur 'on-the-measure'.

A measure is defined as 16 steps at x1 speed, or if a page has a Page Length of less than 16 then the Length of Measure will be equal to the Page Length.

Activate On-The-Measure Mode

In Page View with the Track Mode led Green, click the Track Mode button and the led will change to orange indicating that On-the-Measure mode is engaged.

On-The-Measure Track Mute Toggle

To mute/unmute a track press its 'Mute' button in the usual way - the action will take effect at the beginning of the next measure.

The Track Mute led will flash red indicating that the track will toggle 'on-the-measure'.

The operation can be cancelled at any time before the measure occurs.

The above operation applies to individual track mutes and to mute patterns using the Main MUT button.

On-The-Measure Track Solo Toggle

To solo a track double-click its Mute button - the action will take effect at the beginning of the next measure.

The Track Mute led will flash green indicating that the track will Solo toggle 'on-the-measure'. The operation can be cancelled at any time before the measure occurs.

To turn off track solo click the Mute button of the track or the main Mut button.

The track can also be Solo'd in the 'legacy' manner by clicking the Solo button when in either Track Zoom, or when the track is selected using the Sel button

On-The-Measure Note-Stream Record

In Page View, arm a Track for Record then with the sequencer playing, click the transport Record button - the led will Shine_Red indicating that the sequencer will commence recording at the start of the next measure. Once recording commences the record led will (as usual) flash red.

If the sequencer is currently recording then click the transport Record button to stop recording at the end of the current measure (the record led will again Shine_Red until the record operation ends).

New Cluster operations (Move, Copy / Paste & Clear)

Page Cluster Move*

In Grid Edit Mode view press the first page in a page cluster and while holding it down press the second page to select the entire cluster - all pages of the cluster will flash indicating its selection.

Whatever page in the grid you press next will move the first page of the cluster to that position.

Page Cluster Copy*

In Grid Edit Mode view press the first page in a page cluster and while holding it down press the second page to select the entire cluster - all pages of the cluster will flash indicating its selection.

To copy the cluster, press Copy button then click the required Paste location for the first page of the cluster by clicking the relevant matrix button.

**Caution: These operations will overwrite existing pages.*

Page Cluster Clear

In Grid Edit Mode view press the first page in a page cluster and while holding it down press the second page to select the entire cluster - all pages of the cluster will flash indicating its selection.

To delete the cluster, press the Clear button followed by pressing any page in the selected cluster to confirm the delete.

Track-Across-Cluster operations for Mute and Solo

This mode is used to toggle a Mute or Solo condition across all pages of the current cluster. In Track-Across-Cluster Mode both the individual Track Mute/Solo buttons and the main MUT button influence all pages within that cluster.

In Grid mode the Cluster select button now has three states:-

Cluster Mode **Off** - led Red (*v5.00 & earlier*)

Cluster Mode **On** & Track-Across-Cluster **Off** - led Green (*v5.00 & earlier*)

Cluster Mode **On** & Track-Across-Cluster **On** - led Flashing Orange

In Grid mode to activate Track-Across-Cluster double-click the Cluster select button - the led will flash orange indicating that the banks' Pages are operating in Cluster mode and that Track-Across-Cluster is also in operation.

A single click will turn off cluster operation, or a double click will switch back to Cluster mode On (led Green) and Track-Across-Cluster Off.

Please note that when Track-Across-Cluster mode is active, any changes to Mute (or Solo) 'pattern' on the current page will arbitrarily apply to current mute pattern to all other pages in the cluster.

Using Track-Across-Cluster with On-The-Measure

Both Track-Across-Cluster and On-The-Measure may be used at the same time....

When Track-Across-Cluster is engaged in Page View the Track Mode led will flash Orange if On-the-Measure mode is also engaged.

Additionally, the Track Mute leds will Shine_Red (armed for mute/unmute) or Shine_Green (armed for Solo) when both modes are active.

Both Track-Across-Cluster and On-The-Measure conditions are saved to the Grid and thus may be exported/imported via sysex

On-The-Measure Condition is relevant to Page Banks

Once a Page is set the On-The-Measure working all other Pages in that Bank will also be set to On-The-Measure working.

Miscellaneous

Once armed all On-The-Measure operations may be cancelled before the Measure using the Track Mute or Main Mute buttons.

Enhanced Grid-Track Mode

Toggle Page Mute Pattern in GridTrack Live & Edit Modes

If a Page has a stored Mute Pattern then step 16 of the GridTrack row will be lit either Red or Green depending on whether the Track Mutes are active or not. Clicking the step 16 button will toggle the Mute Pattern in the same way as clicking the Main Mut button when in Page View.

Global Toggle of Mute Pattern(s) in GridTrack Live & Edit Modes

Clicking the Main Mut button in GridTrack Mode will Toggle the Mute Pattern of all concurrent Pages. The action will occur either instantaneously, or On-The-Measure, depending the respective Pages' OTM status.

Solo / Un-Solo Tracks in GridTrack Live Mode

In addition to Track Mute toggles, a Track may be Solo'd by double-clicking the relevant Track button. Single click to Un-Solo. The Track led will be shown Orange when a Track is Solo'd, or if the Page is in OTM Mode the Track led will flash Orange when armed for Solo. As in the legacy OS, double-clicking a Track button in GridTrack Edit mode will enter Track Zoom.

Global Tempo Chase-light View

In GridTrack mode 'Sound Control' leds A, B, C, & D will show the global (x1) tempo progress throughout the measure.

Double-click a 'Sound Control' button to show the running chase-light in the matrix, buttons A to D will change the display row and 'lock' the running chase-light view on.

Step Selection enhancement

Select All 'On' Steps

With a Step Selection active, double-click on the current Selection Slot button (flashing orange) to add all Steps that are toggled 'On' to the current Step Selection.

Delete Step Selection.

If all 'On' Steps are currently Selected within the Step Selection, then double-clicking the current Selection Slot button (flashing orange) will un-select all Steps and remove the current Selection Store.

Effector enhancement

Listener Step Mask

If a Listener Step AMT attribute has a value of -127 then any Feeder offsets from the Effector pool are ignored.

Dynamic Step Performance features

Step Shift

When zoomed into a Step, click the DIR attribute button in row 2 - with the DIR led flashing purple, turning the Main Rotary encoder will either advance all steps to the right of the step flashing in row 4 one complete step, or will move all steps to the right on the held step one complete step closer to the held step (provided the first step to the right of the held step is toggled off and not a Skip Step or Step Event).

Any steps that are advanced beyond Step 16 will be lost unless an 'over-run track' is configured.

In Preview Perform mode, a single click & hold of a Step button will show the legacy view, however, double-click & hold of a Step button will show the matrix steps in 'Page View' and turning the Main Rotary encoder will either advance all steps to the right of the held step one complete step, or will move all steps to the right on the held step one complete step closer to the held step (provided the first step to the right of the held step is toggled off and not a Skip Step or Step Event).

Any steps that are advanced beyond Step 16 will be lost unless an 'over-run track' is configured.

Step Shift 'Over-run Track' considerations

An Over-run Track is always lower in the matrix.

If a Track has an AMT attribute value of '100' then any steps that are advanced beyond Step 16 will 'over-run' to the next track lower in the matrix.

Hence, if all tracks are set to value '100' then the 'overrun' will flow through all tracks in the matrix.

Step Swap

In Page View with a Step Selection active, and provided that all Step(s) in the Selection are on just one Track, turning the Main Rotary encoder will swap the Step(s) in the Selection with the step(s) either in the Track above or the Track below.

It should be noted that if the Step Selection or the swap destination contains a Hyperstep, then that Step will be automatically removed from the current Step Selection (if the Main Rotary encoder is turned).

Swap Step Considerations

It is possible to move the Selected Step(s) vertically through all Tracks in the matrix, however, as the 'swap' passes through multiple Tracks it does not restore them to their previous state.

For example: If a Step Selection on track 3 is swapped with track 4, and then again with track 5, the steps from track 3 are now on track 5 - however, the steps previously on track 4 remain on track 3.

For non-adjacent Tracks, or where the above behaviour is not desirable, the user can specify which Tracks are to be available for Step Swap. If two or more Tracks have an AMT attribute value of '0' they will only 'swap' with each other.

Note: A Step Selection on a Track with an AMT attribute value other than '0' can still be independently 'swapped'. It will not 'swap' with a Track whose AMT attribute is '0'.

Step Event Track Toggles

By using Step Event Track Toggles certain Track conditions can be controlled on a per step basis, toggle options are Mute, Solo, Record, Pause and Rotate. It should be noted that unlike Step Events which effectively 'scale' an attribute, Track Toggles are a 'one time' toggle of the relevant track condition.

Creating Track Toggle Events

To create an event, double click on a step to zoom into it, click the Event button, then click one of the track select buttons in the SEL column (lit green) as follows:-

- Track 1 button will activate a Track Mute Toggle
- Track 2 button will activate a Track Solo Toggle
- Track 3 button will activate a Track Record Toggle
- Track 4 button will activate a Track Pause Toggle

When activated the relevant led will be orange and subsequently the chosen Event values will be used to set the Event to either an 'On' toggle (e.g. Mute On) or an 'Off' toggle (Mute Off).

Alternatively, the Track Toggle Event may be configured to 'flip-flop' mode, whereby each time the Toggle Event is triggered the Track will Toggle to the opposite condition. To activate 'flip-flop' mode double-click the relevant track select button - once activated in 'flip-flop' mode, the relevant led will be flash orange.

Track Rotate

Track Toggle Rotate is not mentioned above as it works in a slightly different manner, it is simply a Rotate Event which is applied to the Track ('On', 'Off' & 'flip-flop' concepts are not applicable).

To create a Track Rotate event, double click on a step to zoom into it, click the Event button, then double-click the POS attribute button once selected it will shine green. To clarify, a single click of the POS attribute button will setup a Step Event POS (led will show orange), or a double-click will activate a Track Rotate Event (led will show shine green).

A Track Rotate Event will move all steps (including Step Events & Track Toggle Events) with the exception of Skipped Steps or Hypersteps.

Additionally, steps can be 'masked' (excluded) from the Track Rotation !

Steps included in the Track Rotation will 'hop-over' Steps that are excluded, thus the sequence will change to a greater or lesser amount depending on the number of 'excluded steps'.

To 'mask' a step from the Rotate Event, set its Amount (AMT) attribute to -127 (as in the Effector Step Mask option).

Track Skip Rotate

Track Skip Rotate works in a similar way to Track Rotate, except only the skip condition will Rotate, not the steps themselves.

To create a Track Skip Rotate event, double click on a step to zoom into it, then double-click the DIR attribute button once selected it will shine green.

Note: When double-clicking the DIR button to switch between Step Event DIR & Track Skip Rotate the AMT attribute will reset to default.

When rotating the Step(s) Skip condition it is possible to apply Step Mask in two ways, firstly, a Step whose AMT attribute is -127 will not have the Skip condition applied, and

secondly, if a Skipped Step has its AMT attribute set to -127 will not rotate. Additionally, Step Events can also be 'Masked' by setting their VEL attribute to -127

Track Toggle Event Values settings

The amount (AMT) value of the step determines which track the Track Toggle Event will be applied to - thus the Event Track Toggle can be applied to tracks' other than itself. In the case of Mute/Solo/Record & Pause track toggle, a positive value is an 'On' toggle and a negative value is an 'Off' toggle. For example, a Track Toggle Mute Event with a value of +3 will Mute Track 3, likewise a Track Toggle Mute Event with a value of -4 will Un-Mute Track 4.

In the case of a Rotate track toggle, a positive value will rotate the track in a forward direction and a negative value will rotate the track in a backward direction.

Track Toggle Event Range settings

The Range attribute is used to configure the number of tracks that will be toggled by the chosen Event. For example, a Track Toggle Mute Event with a value of +3 & Range value of 2, will Mute Track 3 & Track 4.

Range has a maximum value of 8.

Please note that Range value will 'wrap' to higher tracks in the matrix, therefore if a Track Toggle Mute Event has an AMT Value of +7 & Range value of 4, then Tracks 7 & 8 and Tracks 1 & 2 will be Muted.

Range is a track attribute, and as such, it is only possible to set one Range value per track per Track Toggle type.

Note: In a change to legacy behaviour Step Event POS can be applied to additional tracks using the Range Value.

Controlled Muting of Track Toggle Event(s)

Track Toggle Events occur whether or not the track is muted. There is however, one exception that enables extended control of Track Toggle Events, as follows:- If the Toggle Events on a Track only influence other tracks in the matrix (i.e. the Track containing the Toggle Event(s) is not within the Range value of the Event) then muting the Track will effectively prevent the Track Toggles from being applied to the target tracks.

To Pause or not to Pause

A Paused Track cannot be Un-Paused by itself, it can only be switched back to the Play condition by either a Track Toggle Un-Pause Event by a track which is playing, or manually (keyed).

Understanding Event execution

Another detail that may be of interest is that events will always execute exactly on the beat and not be influenced by the step's STA value to be pulled or pushed against the time line.

Additionally, a Track Toggle Event is executed before the step plays - which means that if a Track Toggle Mute 'On' Event is placed on Step 5 then the Mute Toggle occurs before the step plays, so no note will be sent (provided the note itself has not been pulled against the timeline).

All tracks are processed by the sequencer in a top-down manner, this means that when a Track Toggle Event is applied to tracks higher in the matrix it will be executed on the following step.

Clearing events

Events may be cleared from a track by zooming into the step and pressing the flashing SEL attribute button so it is green again (or setting its Event value to 0).

Track Rotate of Step Skip condition

Using the MIX block to rotate the Step Skip condition

By selecting the POS attribute all Steps of the Tracks may be rotated using the Mix knobs. With the MIX button held and the POS led flashing orange, click the POS button again and the led will change to Shine Red - this indicates that the Mix knobs will now only rotate the Skip condition of the Tracks (and the position of the actual Steps will not rotate).

Note: When saving the Page the MIX block is stored as the POS attribute not as Skips 'rotate'.

Other Features

Edit Step LEN Multiplier

Steps have a LEN multiplier, allowing them to play up to 8 times their actual length. The step LEN multiplier value is in the range 1-8. 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 remarkably large degree. To edit the Step LEN multiplier zoom into a Step then click LEN attribute (it will flash orange)

With the LEN attribute selected the SEL led will also flash green, now hold the SEL button, the LEN attribute led will change to flash green and the Step LEN multiplier value is shown in row 1.

The current value is shown red, adjust the multiplier value with the row 1 buttons.

Identify the Hyperstep associated with Hyped-Track

When there are multiple Hypersteps on the page, or if a Hyperstep is skipped, it is possible to identify the location of a Hyperstep - in Page View simply click & hold the Hyped-Track select button and the associated Hyperstep will Shine Red.

Track Pause/Play Alignment

In a change to legacy behaviour - when moving a track from Pause to the Play condition, the track will commence to play on the next 1/16 beat of the global clock. This ensures that the track remains synchronized with the other tracks without the need to explicitly align the track after the change.

Advancing a paused track by re-trigger (via the pause button) remains immediate.

Reset any Paused Track(s) to Play

With the sequencer stopped, double-click the Pause button to un-pause any paused track(s) ready for the next sequencer Play operation.

Anti-Echo - Disable MIDI Note and MCC Playback During Recording

In Grid mode, to disable MIDI Note & MCC playback whilst Recording press the SEL button. If MIDI Note & MCC playback whilst Recording is disabled the SEL led will flash red. This condition is global to all pages and is saved with the machine state.

Toggle Step Skip in Step Zoom

In step zoom, the selected step may have its Skip condition turned On or Off by clicking the Main Mute button. The LED of a skipped step is shown red. If a selected step is set to "skipped" then the Main Mute button led will show the condition of the underlying step, as follows:-

Step Status	Selected Step LED	Main Mute LED
Off	Flash Red	Off
Off & Skip	Flash Red	Red
On	Flash Green	Off
On & Skip	Flash Red	Flash Green
Chord/Event	Flash Orange	Off
Chord/Event & Skip	Flash Red	Flash Orange (*Orange)
Hyperstep	Shine Red	Off
Hyperstep & Skip	Flash Red	Shine Red

**If Event & Skip but the underlying step is toggled off*

Quick Step Attribute edit via matrix keys

When in Step zoom it is possible to edit Step attribute value with either their respective edit knob or via entering values with the matrix keys.

For attributes that have integer values (VEL, LEN, AMT, MCC) a double-click will set a 10's value & a single-click will set a 1's value. Additionally, the following 'quick keys' are available:-

	Step 13	Step 14	Step 15	Step 16
Attribute	<i>Click</i>	----- <i>Double-click</i> -----		
Velocity	Invert value	Clear	Clear	Clear
Pitch	Invert value	Default	Octave - (8vb)	Octave + (8va)
Amount	Invert value	Clear	Clear	Value -127 (mask)
MCC	-	Clear	Clear	Clear

Keyboard Transpose

Tracks can now be Transposed using a keyboard or another sequencer, transposition maybe absolute or relative to the Tracks' Pitch attribute.

Setup Transpose Midi channel and an associated Track

On a Midi keyboard set the output Midi channel you wish to use to transpose the Nemo. In Page mode, hold main SEL button and Select one or more Tracks to be available for Transpose.

With the Track Selection active, turn the bottom left Mix encoder to set the Midi channel, shown in row 1, so it corresponds with the Midi keyboard.

Led green is midi port 1 (1-16), and led red midi port 2 (1-16) - turning the encoder left will turn off transpose listen and step 1 led will momentarily flash red.

Choose Transpose Mode

Transposition may be either Relative to the Pitch Offset of the Track, or Absolute - which forces the Track Pitch offset to the pitch of the incoming note.

With the Track Selection still active you will see the Scale led flashing, click the Scale button to chose between Relative Transpose (Led Red) or Absolute Transpose (Led Green).

Start the sequencer, now press a note on the keyboard to transpose the track.

Restore Original Track Pitch Offset

When a track are first Selected the Pitch Offset is stored so that if any key (on keyboard) is struck harder (Velocity >88) it will toggle the Track back to its original Pitch Offset prior to any transpose.

Saving State:

The Transpose Midi input channel of each Track is stored with the page.

Keyboard Scale Compose Mode

Scales can now be composed using a midi keyboard.

In Grid Mode click the Scale key, notice the MIX button Led is Green as we are listening for midi keyboard scale input on Midi Channel 1 (default.) .

To change the keyboard input Midi channel rotate the bottom left Mix encoder.

The MIX button may used to toggle between enable/disable keyboard scale mode.

Device Mode Options

Device View

Enter Device View as before, reboot Sequencer holding the Esc button. The matrix will show the OS version number and from default the Grid Mode led will be Red and the Scale led will be Green.

Start-up Mode*

To change the Sequencer boot-up mode the Grid Mode click the Grid Mode button and the led will change to Green, now click the flashing Red Record button to confirm the change. The Sequencer will now start in Grid Mode.

Midi Port Priority*

If the Scale led is Green Midi Port 1 will have priority, clicking the Scale button will give Midi Port 2 priority and the Scale led will change to Red, confirm the change by clicking the Record button.

Changing the Midi Port priority can be useful if the machine is running as a MIDI slave controlled by a DAW. The DAW can send the MIDI clock to Midi Port 2. Additionally, the MIDI clock and transport events can be sent from Midi Port 2 to 'timing sensitive' machines such as a drum machine.

It should be noted that having either Midi Port 1 or 2 as the priority does not imply that the machine introduces clock or event jitter, or is in any way unstable. This is simply a way to manage event-queue growth and delay as new steps and MCC events are added to a song. You may want your clock and percussion to play consistently at the same predictable time, regardless of what you record and play on the machine.

***Changes made in Device View will reset the Grid to default, any custom settings will need to be re-loaded via sysex.**

Imported Page Conversion

When a Octopus Page is imported into the Nemo, and Step Event(s) PIT or Step Event(s) VEL exist on the page transferred then the Event(s) themselves will be reversed due to the differences in the user interface (UI). Additionally, Step Event Track Toggles (v5.30) Event values will potentially point to incorrect tracks.

Once a Page has been imported, the above values may be converted to match the sequencer UI, as follows:

In Grid Edit mode, click & hold matrix Page key, click Mix Master key once to arm 'Import Convert' (led will show shine_red), then click a second time to effect Conversion - when complete Mix Master led will shine_green.

Note: When the Nemo converts an imported Octopus page the following rules are applied:-

- (i) Step Event Track Toggle attribute AMT values greater than 8 are changed to 0 (off)
- (ii) Step Event Track Toggle Range values 9&10 reduced to 7&8 respectively
- (iii) Tracks 9 & 10 are Cleared

Observations

Legacy changes

To accommodate On-The-Measure Mode there have been the following changes to legacy behaviour (v5.00 & earlier):-

View/Mode	Legacy	Version 5.30	Relevant to Feature(s)
Page View	Track Mode led Off	Track Mode led Green	On-The-Measure Mode
Track Zoom	When Track Solo'd - Main MUT flash Green	When Track Solo'd - Main MUT led Green Main MUT flash Green when armed for Solo (OTM)	On-The-Measure Solo & Track-Across-Cluster Solo
Page View	All Track's Chain Solo'd when any track in chain Solo'd	Now only possible using main SEL button	On-The-Measure Solo & Track-Across-Cluster Solo
Page View	Inversion of Track Chain Solo's when partial chain solo used	No longer available via matrix keys but... Possible using Step Event Track Toggles	

Bug Fixes

The following bug fixes have been implemented in v5.30.

- Chord stacking using a keyboard can loose notes when inverting the root
- Effector Note Pool computations incorrect when using multiple Feeders
- Hypertrack Step VEL values inverting when offsets take their values below zero
- Using x1.5 Track Speed within a Track Chain causes timing errors
- Restarting a Paused Track with a Speed multiple of >1 will Play the Track at x1 speed.
- Skipped Steps & Hypersteps not displaying properly in Step Zoom.