wavestate

WAVE SEQUENCING SYNTHESIZER

New in wavestate 2.0

KORG

Contents

New in wavestate 2.0

New features in software version 2.0

- Support for the wavestate Editor/Librarian.
- Support for Sample Builder, for loading up to 4 GB of your own samples.
- Performance-level **Hold** function, accessed via **SHIFT-ARPEGGIATOR** (see page 4).
- Pitch Lane **Fit To Scale** feature (see page 6).
- The new **Vector Volume Curve** parameter lets you control the way that Vector Volume crossfades between points (see page 7).
- Front-panel Category selection: in selection dialogs, press the **1-16** buttons to select Categories (see page 5). A new Category, "User," lets you quickly find your custom sounds.
- All database items (Performances, Programs, Wave Sequences, Lanes, Multisamples etc.) now support two simultaneous Category assignments. For instance, a sound can be in both the "Strings" and "User" Categories.
- Select Set List and Wave Sequence Step banks by double-pressing buttons **1-4** (as an alternative to holding **SHIFT**).
- In selection dialogs, press **SHIFT-PERFORM** to show the list of Categories on the display. Outside of a selection dialog, press **SHIFT-PERFORM** to jump directly to the Performance Category Select screen.
- Front-panel control of Envelope Curve parameters via **SHIFT-ATTACK**, **DECAY**, and **RELEASE**.
- **SHIFT-EFFECTS TYPE** selects the Effects Preset parameter.
- Pressing **TAP TEMPO** button shows the Tempo parameter on the display.
- Additional gain-scaling options for the MS-20 and Polysix filters, for easier control of resonance (see page 4).
- The maximum fade time for LFOs is increased to 9.9 seconds.
- NCM networking support for Windows 10. Note that RNDIS is still required for the initial installation of wavestate software version 2.0.
- Many other improvements and bug-fixes. For more information, see "Other improvements" on page 8.

wavestate Editor/Librarian

The wavestate Editor/Librarian includes all of the functionality of the Sound Librarian, and adds the ability to edit Performances, Programs, Scales, Wave Sequences, and Wave Sequence Lanes. You can also edit all internal effects parameters (over 60 for some effects!), and create your own Effects Presets. Use your MacOS or Windows computer to get a quick overview of your sounds, with graphical editing for Wave Sequences, ADSR envelopes, the Vector Envelope, LFOs, and more. Create modulation routings simply by dragging a mod source onto a destination. Wave Sequences are animated as you play, and knobs and sliders show the results of modulation in real-time.

The wavestate Editor/Librarian is available as a free download from www.korg.com. For more information, please see the documentation included with the download.

Old wavestate Sound Librarian not compatible with 2.0

✏ *Important:* wavestate software version 2.0 is not compatible with the old wavestate Sound Librarian; please use the new Editor/Librarian instead. The Editor/Librarian can read all files & backups created by the Sound Librarian. If you try to use the Sound Librarian with the new wavestate software, it will show the message "Connection Error."
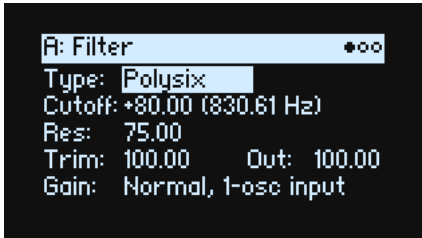
Sample Builder

Load up to 4GB of your own samples into the wavestate using Korg's Sample Builder, an application for MacOS and Windows computers. Import mono or stereo .wav files, including .wav metadata for loop points and root keys, at practically any sample rate. Sample Builder also includes basic tools for editing start points and loops. Arrange the samples across the keyboard to create Multisamples for the wavestate. Group Multisamples into Banks; the wavestate can have one user sample bank loaded at a time, with up to 4,000 mono samples (2,000 stereo) in up to 4,000 Multisamples. Multisamples use unique identifiers, so Programs and Wave Sequences keep track of them even if they are loaded in a different bank, or if the bank order or name changes.

Sample Builder is available as a free download from www.korg.com. For more information, please see the documentation included with the download.

New Gain settings for MS-20 and Polysix filters

The Filter page **Gain** parameter now has four values, and the two original values have been renamed for clarity. The old *High* is now *Loud, Less Resonance*, and the old *Normal* is now *Unity, Less Resonance*.

```
A: Filter                ●○○
Type: Polysix
Cutoff: +80.00 (830.61 Hz)
Res:  75.00
Trim: 100.00     Out:  100.00
Gain:  Normal, 1-osc input
```

Gain

[Loud, Less Resonance; Unity, Less Resonance; Normal, 1-osc input; Normal, 2-osc input]

Gain is available only when **Type** is *MS-20 LP, MS-20 HP,* or *Polysix*. These filter types include saturation, which interacts with resonance. With anything other than very low resonance settings, input volume can have a strong effect on their character. The **lower** the input gain, the more headroom remains for the resonance to bloom. Use **Gain** to set the basic input level, and then fine-tune with **Trim** if desired.
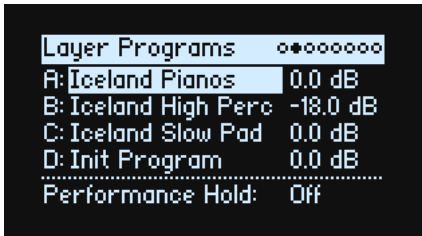
Normal, 2-osc input: This is the lowest input gain. It will produce the classic resonant sounds of these filters even with extremely loud input signals.

Normal, 1-osc input: This will produce the classic resonant sounds of these filters with a single oscillator playing at full volume. When input is louder than a single full-volume oscillator, the resonance effect will be less pronounced.

Unity, Less Resonance: Volume is unattenuated. This leaves less headroom, so resonance will be less prominent.

Loud, Less Resonance: This provides a slight volume boost on input. This makes it easy to reach saturation with the input level alone, leaving very little headroom for resonance.

Performance Hold

```
Layer Programs      ○●○○○○○○
A: Iceland Pianos     0.0 dB
B: Iceland High Perc -18.0 dB
C: Iceland Slow Pad   0.0 dB
D: Init Program       0.0 dB
Performance Hold:   Off
```

Performance Hold (SHIFT-ARPEGGIATOR)

[Off, On]

Use **Performance Hold** to hold notes or chords, leaving your hands free for knobs and modulation. This works differently from the Damper Pedal and the Program-level **Hold** parameter. When **Performance Hold** is *On*, notes or chords are held indefinitely until you play a new note or chord, at which point the previous notes are cut off and the new ones will sound.

Performance Hold applies only to Layers on the **Global MIDI Channel**.

Note: The front-panel shortcut, SHIFT-ARPEGGIATOR, replaces the previous shortcut to control Arpeggiator **Latch**. If the Arpeggiator is *On*, **Performance Hold** works similarly to **Latch**, except that it applies to all Layers at once. If you need to control **Latch** separately for individual Layers, use the on-screen **Latch** parameter instead.

The ARPEGGIATOR button LED shows both Arpeggiator On/Off and Hold On/Off, as shown below.

Arpeggiator button LED and Hold

	Hold Off	**Hold On**
Arpeggiator Off	LED Off	LED Blinks
Arpeggiator On	LED On	LED Blinks Slowly

Using buttons 1-16 to select Categories

You can filter the lists of Performances, Programs, Multisamples, Wave Sequences, etc. by sound category. To do so:

1. **While the list is on-screen, press buttons 2 to 16 to select from the first 15 Categories.**

The button for the selected Category is brightly lit; other valid buttons are dimly lit. Some data types (such as Motion Sequences) may have fewer than 15 Categories; in this case, only the valid buttons will be lit.

For Performances, Programs, and Multisamples, these first 15 Categories are designed to include all of the other Categories; see the tables below for details.

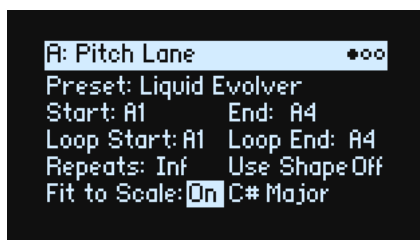2. **To show all sounds again, press button 1.**

Performance and Program Categories and buttons 1-16

Button	Category	Also shows these Categories
1	All	Shows everything, regardless of Category
2	Bass	
3	Lead	
4	Pad	Soundscape
5	Synth	Fast Synth
6	Bell/Mallet	
7	Gtr/Plucked	
8	Percussion	
9	Piano/Keys	
10	Brass	
11	Woodwind	
12	Strings	Orchestral
13	Vocal/Airy	
14	Seq	Arpeggio, Just 4 Fun, Rhythm Hard, Rhythm Soft
15	SFX	
16	User	

Multisample Categories and buttons 1-16

Button	Category	Also shows these Categories
1	All	Shows everything, regardless of Category
2	Bass	Ac Bass, E Bass, Bass FX
3	Lead	
4	Pad	
5	Synth	
6	Bell/Mallet	
7	Gtr/Plucked	Ac Guitar, E Guitar, Guitar FX, Plucked
8	Percussion	Kick, Snare, Drum, Cymbal
9	Piano/Keys	Ac Piano, E Piano, Keyboard, Organ
10	Brass	Brass Ens, Brass Solo
11	Woodwind	
12	Strings	String Ens, String Solo
13	Vocal/Airy	
14	Seq/Attack	Attack
15	SFX/Hits	Hits, Effects
16	User	

Pitch Lane Fit To Scale

```
A: Pitch Lane          ●○○
Preset: Liquid Evolver
Start: A1       End:  A4
Loop Start: A1  Loop End: A4
Repeats: Inf    Use Shape Off
Fit to Scale: On  C# Major
```

Fit to Scale

[Off, On]

This lets you constrain the Pitch Lane's output to a specific scale and key—especially useful when playing polyphonically.

Off: Pitch offsets will be played exactly as they are entered in the sequence.

On: Pitches will be constrained to the specified scale and key.

(Scale Key)

[C…B]

This sets the root note of the scale. For instance, if **Scale Key** is set to *E*, and the **Scale Type** is set to *Minor*, all notes generated by the Pitch Lane will be confined to notes in the E Minor scale: *E*, *F#*, *G*, *A*, *B*, *C*, or *D*.

Scale Key only applies if **Fit To Scale** is *On*.

(Scale Type)

[Major, Minor, Hrmnic Maj, Hrmnic Min, Melodic Min, Dorian, Phrygian, Lydian, Mixolydian, Locrian, Penta Maj, Penta Min, Diminished, Half Dim, Augmented, Whole Tone, Tritone, Blues, Bebop Dom, Flamenco, Romani, Hungarian, Persian, Harmonics, Acoustic, Enigmatic]

This selects the scale to which the generated notes will be confined. It only applies if **Fit To Scale** is *On*.

Scale	Notes generated by Pitch Lane (if Scale Key = C)											
	C	C#	D	D#	E	F	F#	G	G#	A	A#	B
Major	C	C	D	E	E	F	G	G	A	A	B	B
Minor	C	C	D	D#	D#	F	G	G	G#	G#	A#	A#
HarmonicMajor	C	C	D	E	E	F	G	G	G#	G#	B	B
HarmonicMinor	C	C	D	D#	D#	F	G	G	G#	G#	B	B
MelodicMinor	C	C	D	D#	D#	F	G	G	A	A	B	B
Dorian	C	C	D	D#	D#	F	G	G	A	A	A#	A#
Phrygian	C	C#	D#	D#	F	F	G	G	G#	G#	A#	A#
Lydian	C	C	D	E	E	F#	F#	G	A	A	B	B
Mixolydian	C	C	D	E	E	F	G	G	A	A	A#	A#
Locrian	C	C#	D#	D#	F	F	F#	F#	G#	G#	A#	A#
MajorPentatonic	C	C	D	D	E	E	G	G	G	A	A	A
MinorPentatonic	C	C	D#	D#	D#	F	F	G	G	A#	A#	A#
Diminished	C	C	D	D#	D#	F	F#	F#	G#	A	A	B
HalfDiminished	C	C	D	D#	F	F	F#	F#	G#	G#	A#	A#
Augmented	C	C	D#	D#	E	E	G	G	G#	G#	B	B
WholeTone	C	C	D	E	E	F#	F#	G#	G#	A#	A#	A#
Tritone	C	C#	C#	E	E	F#	F#	G	G	A#	A#	A#
BluesScale	C	C	D#	D#	D#	F	F#	G	G	A#	A#	A#
BebopDominant	C	C	D	E	E	F	G	G	A	A	A#	B
Flamenco	C	C#	C#	E	E	F	G	G	G#	G#	B	B
Romani	C	C	D	D#	D#	F#	F#	G	G#	G#	A#	A#

HungarianMinor	C	C	D	D#	D#	F#	F#	G	G#	G#	B	B
Persian	C	C#	C#	E	E	F	F#	F#	G#	G#	B	B
Harmonics	C	C	D#	D#	E	F	G	G	G	A	A	A
Acoustic	C	C	D	E	E	F#	F#	G	A	A	A#	A#
Enigmatic	C	C#	C#	E	E	F#	F#	G#	G#	A#	B	B

Vector Volume Curve and Speed

The Vector Setup page now has a new parameter: **Vector Volume Curve**. Also, **Time Scale** has been renamed to **Speed** (for consistency with Timing Lane), and now supports both *Time* and *Tempo* modes.
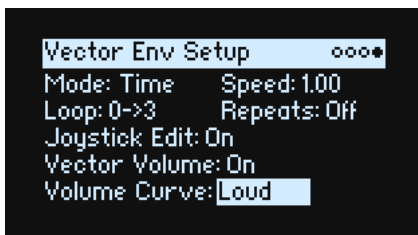
Vector Volume Curve

[Loud, Smooth]

This controls how Vector Volume crossfades when you move the Vector Joystick, and between points on the Vector Envelope. For maximum volume, use *Loud* (the original wavestate behavior); for more gentle crossfades, use *Smooth* (the original Wavestation behavior).

Speed

[Mode = Time: 0.01…100.00]

[Mode = Tempo: 1/4…4x]

This speeds up or slows down the envelope as a whole.

When **Mode** is set to *Time*, you can vary this continually from *0.01* (1/100 of the original speed) to *100.00* (100 times the original speed).

When **Mode** is set to *Tempo*, you can select tempo-locked ratios from *1/4* to *4x* of the original Speed.

Arpeggiator

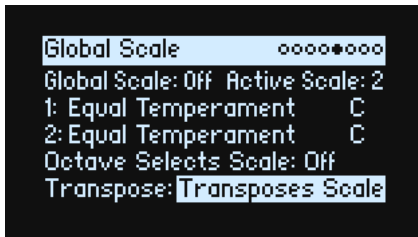Arpeggiator On/Off is now shown on the display, in addition to the front-panel button LED.

Arpeggiator (ARPEGGIATOR)

[Off, On]

This duplicates the functionality of the front-panel **ARPEGGIATOR** button.

Global Scale Transpose

The Global Scale page **LayerTranspose** parameter is renamed to **Transpose**, since it affects both Program and Performance Transpose.

```
Global Scale          ooooⵂooo
Global Scale: Off  Active Scale: 2
1: Equal Temperament       C
2: Equal Temperament       C
Octave Selects Scale: Off
Transpose: Transposes Scale
```

Transpose

[Transposes Scale, Within Scale]

This parameter determines how the Performance and Program **Transpose** parameters interact with the **Scale** and **Key**. For more information, please see the Owner's Manual.

Available Storage

The System Stats page now includes a new read-only parameter, **Available Storage**.

Available Storage

[Amount in GB or MB]

This shows the amount of internal space available for saving sounds and samples.

Other improvements

In addition to the changes described above, wavestate software version 2.0 includes a number of other improvements and bug fixes.

Improvements

Sounds

"Init" sounds now have leading spaces before their names, so that they appear at the top in selection lists.

Validates and fixes, if necessary, any Performance/Program structure issues on recall. This includes issues such as disallowed modulation routings, as detailed in other fixes below.

Performance Liquid Evolve now has complete Mod Knob assignments.

Multisample metadata is now updated, with Multisamples assigned to two categories when appropriate, and arranged to match the front-panel **1-16** Category buttons.

User Interface

Double-pressing the Wave Sequence Lane buttons (**TIMING**, **SAMPLE**, etc.) now jumps to the Lane's page when on the Performance Home page, without requiring **ENTER**.

If the Mod page is not already active, pressing **MOD** returns to the last used subpage. If it is already active, then another press of the **MOD** button goes to Main page.

TEMPO switch now selects Tempo as destination in the Add New Modulation popup.

Pressing **WSEQ STEPS** now selects Step Pulse in the Modulation Source select screen and the MOD+> "Select a mod source" popup.

Add a separate entry for EQ in Show In Mod List.

Added Filter Key Track knob detents at +/-20, +/-30, +/-40, and +/-60 semitones (for ⅓, ½, ⅔, and full pitch tracking).

Added Tune knob detents at +/-4.00, +/-5.00, and +/-7.00 semitones.

Improved the taper of the Pitch LFO **INTENSITY** knob.

The **TUNE** knob has increased resolution near 0.

Knob behavior improvements, including reduced margins at edge of travel.

Improved VALUE dial acceleration behavior.

The Wave Sequence display now shows the newest voice, instead of the oldest.

Other improvements

If the Editor/Librarian is connected, Auto Power-Off shutdown is prevented.

The default **Clock** setting is now *Auto*.

The USB MIDI in/out port names now include the product name. This helps some Windows-based applications to differentiate between the wavestate and other Korg instruments.

Librarian search by keyword now also searches the Collection name (affects use with Editor/Librarian only).

Damper pedal state is now preserved across performance changes involving tracks on channels other than the global channel.

Added display during firmware update, advising user to not power off the instrument while update is underway.

Renamed Global Scale page "LayerTranspose" parameter to Transpose (since it affects both Program and Performance Transpose).

Bug fixes

Sounds

Performances Alien Baby Talk, Liquid Evolve, Rhythm Redux, and the Programs Trancey and Trancey Stretch, used a disallowed routing for Mod Wheel to Tune LFO Modulation. This meant that the routing did not appear in the UI. The routings have been corrected so that they now appear in the UI. Programs derived from these Performances were also corrected.

Wah effects presets now have correct Effects Edit knob assignments.

Performances Acid BPFs, Arpeggiator Pops, Auto Techno, Bowing in Many Colors, Bro Time Groov Split, Candy For Elly's Shoes, Comm Center Activity, Dance Like Skippy, Double Unpredictability, Endless Horizon Sadness, Mood Swings, Polypop Adventures, Pops Arps and Pads, Ready Set Action, Reykjavik 6AM, Rhythm Redux, Tea Ceremony, Vega Star Surfer, Unbearable Tension, Warp3d Action, and Wasted Hip Hop previously had used disallowed modulation routings for effects parameters, and lacked assignments for some of the Effects Edit knobs. This meant that the mod routings did not appear in the UI, and Effects Edit knobs may not have worked as expected. These have been corrected to include Effects Edit knob assignments and to use the proper method of parameter modulation, maintaining the previous modulation functionality. Programs and Effects Presets derived from these Performances were also corrected.

The effects in Performances Pops Arps and Wasted Hip Hop now properly match their slots (PRE FX and MOD FX).

The Sample Step **Start Offset** parameter is now set correctly when loading a sound.

In Stereo mode, the Vintage Chorus output channel assignment now matches that of the Kronos.

When using the Editor/Librarian to Import with the Make Unique option, if an item with same uuid already exists with a different name, the newly imported item is no longer renamed.

Modulation

Mod Processors no longer appear twice in the Modulation Source List.

The Mod List now automatically refreshes when a new Effect Preset is selected.

After adding a new modulation routing, **Show In Mod List** is reset to *All*, but the Mods page title bar was not reset to show *All*. The title bar now correctly shows *All* in this case.

In Add New Modulation, pressing SHIFT + VECTOR ENV now correctly shows "Sorry - this parameter can't be modulated."

In the Modulation Source selection dialog, Mod knob movements are now ignored when the modulation target is a performance mod knob value.

Pressing the OCTAVE -/+ and PERFORMANCE MOD KNOBS switches no longer causes the Modulation Source or Show In Mod List dialogs to close.

Selecting a mod source at a lower level than allowed (e.g., a voice-level mod source to control a Program-level destination) now shows an error message, "Channel Sources Only," instead of leaving the page or (in the case of pressing the Step Seq lane button after having viewed a voice-level modulation) showing an incorrect result.

The "Modulation Deleted" popup message now shows for a longer time.

Wave Sequence and Vector

Previously, if a Wave Sequence tried to play an empty zone in a Multisample, the Wave Sequences would stop. This has now been fixed.

Previously, lane button LEDs could show incorrect values when switching between Single Multisample Layers and Wave Sequence Layers. This has now been fixed.

If **MASTER** is pressed while a Step or Lane Utility page is displayed, the Master Lane page now displays correctly.

Previously, **Note Advance** and Step **Probability** could interact incorrectly; this has now been fixed.

The Pitch Lane **Tune** parameter no longer affects sample selection.

Random Order now works correctly with the Gate Lane.

The Release segment of the Vector Envelope now works correctly.

Vector Envelope pages no longer show the Layer prefix (A/B/C/D) in the title bar.

MIDI and Synchronization

When MIDI **Clock** is set to *External* or *Auto*, behavior is now improved when the external clock stops (for example, pitch-sweep effects are reduced on tempo-sync'd delays).

MIDI synchronization is improved for Effects LFOs.

Previously, voices with **Sync Notes** *On* may have gone out of sync after other voices were stolen. This has now been fixed.

When **Unison Voices** is greater than *1*, and LFO **Sync Notes** was enabled, random LFOs could sometimes produce different values for the individual unison voices. This has now been fixed.

Previously, receiving the MIDI Reset command or specific malformed MIDI data could cause a crash. This has now been fixed.

Other bug fixes

When playing multiple layers with a high number of Unison voices, a crash could occasionally occur. This has now been fixed.

Scale selectors on the Global Scale page now appear properly after using the Librarian's Restore Global Settings command (previously, this required a restart).

After using Save as New for a Set List, the Set List selected on the System Setup page is now shown correctly.

Stuck notes no longer occur if you hold notes, turn on the Arpeggiator and engage the damper pedal, and then release the notes.

If the Arpeggiator was on, ***and*** the damper pedal was held, stuck notes could occur when changing to a Performance or enabling a Layer. This has now been fixed.

Previously, Compare could cause a crash if a Performance had been saved with **PERFORMANCE MOD KNOBS** off. This is now fixed.

Previously, changing a Program to *Single Multisample* mode, after setting Lane Utility **Scope** to *All Lanes*, could have caused a crash. This has now been fixed.

Previously, after using Compare, the Program name field became blank, and a subsequent Write operation would crash. This has now been fixed.

Previously, canceling out of the sound selection list on the Delete From Database page could cause a crash. This has now been fixed.

In a selection list, rapidly turning the **VALUE** knob could cause flickering, and scrolling could continue after the knob stopped. This has now been fixed.

It is now possible to press **ENTER** while moving the wheels or vector joystick.

Pressing **SET LIST** or **SEQ STEPS** now closes any modal dialog.

Other improvements to functionality and stability.