VL Editor

a Yamaha VL synth series editor and librarian



User Documentation, v1.0

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Quick Start

The rest of this manual covers everything in detail. To get going straight away:

1. **Install VL Editor.** Run the installer for your computer, and choose the plugin formats you want, if any (see Installation).
2. **Connect the VL both ways:** your MIDI interface's Out to the VL's MIDI In, and the VL's MIDI Out to the interface's In. VL Editor needs to hear the VL's replies, so a one-way connection isn't enough. Switch the VL on.
3. **Open VL Editor and authorize it.** Enter your Registration Name and Code, click **Authorize**, then **Use the App!** (see Authorization).
4. **Tell it how to reach the VL.** On the **Settings** tab, choose the **MIDI Input** and **MIDI Output** connected to the VL, your **VL Model**, and the VL's **Device Number** (on the VL: Utility → System → MIDI Setting). VL Editor then reads the VL's settings and the preset in its edit buffer, and the pages fill with its values. If the header says VL NOT RESPONDING !, see Connecting to the VL.
5. **Get your presets.** On the **Presets** tab, click **Get All Presets** to read the VL's memory into the grid (about 3.5 minutes; VL Editor remembers the grid, so you only need to do this once).
6. **Pick a preset to edit.** Double-click it in the grid: VL Editor sends it to the VL's edit buffer, so you hear it, and switches to the Common tab.
7. **Play.** Use your VL's keyboard or breath controller, or click the keyboard icon at the bottom right of any page for the virtual keyboard (with Breath Mode BC/WX, raise its BREATH wheel first).
8. **Edit.** The **Common** and **Elements** tabs show every value in the preset; **Analog** and **Visual** offer simpler ways to shape it. Changes are sent to the VL as you make them. Hold the mouse over most anything for a tooltip, roll a die to randomize, and press **Cmd+Z** (**Ctrl+Z** on Windows) to undo.
9. **Store it.** Your edits live only in the VL's edit buffer, and are lost if you pick another preset on the VL. Click **Store to VL...**, at the top right of the editing tabs, to save the preset to one of the VL's memory locations (the VL's Memory Protect must be off; see Editing and Storing Presets).

Click the **?** button in the bottom right corner of any page to open this manual.

Overview & History

Yamaha's VL1, released in 1993-1994, was the first commercially available synthesizer built on physical modeling. Rather than playing back samples or shaping oscillators, the VL family uses Yamaha's Virtual Acoustic Synthesis to calculate the behavior of a real instrument: a reed, lips or a bow (the Driver) exciting a tube or a string (the Pipe / String), followed by a chain of modifiers that shape the result. The VL1 was soon joined by the VL1-m rack module and the single-Element VL7, and, played with a breath controller, these machines responded to a player like no other synth before.

That expressiveness came at a price though: the VL is notoriously hard to program. Its front panel shows only part of what's going on, and much of the voice data (the instrument physics in particular) can't be reached from the panel at all. Yamaha addressed this with a set of computer editors for the

Version 2 instruments, each approaching the synth in its own way: the **VL v2 Expert Editor**, which exposed nearly every parameter in the voice; the **VL v2 Analog Editor**, which let you work as if on an analog synth's knobs; and the **VL v2 Visual Editor**, which let you build an instrument by picking a mouthpiece, a body and a set of add-on "patches". All three were written for the classic Mac OS of the mid 1990's, and none of them were ever updated to run on a current Mac OS or on Windows.

VL Editor is my attempt to bring all of that back, and to go further, in a single application for current Mac and Windows operating systems. The application's **Common** and **Elements** tabs re-create the Expert Editor's depth (the flow map on the Elements tab follows Yamaha's own Control & Signal Flow diagram, so you can see where each value lives in the sound), while the **Analog** and **Visual** tabs re-interpret the other two editors. Large parts of these were rebuilt by reading their original documentation, as well as decoding the original applications themselves: their parameter tables, their units, their tuning procedure and their library voices. Along the way I've added things none of them had: a full librarian for the synth's voice memory and for voice files on disk, values shown in the synth's real units, editing of the instrument physics, envelopes and key scaling you can draw, undo and redo, randomization, morphing between the two Elements (inspired by Robert Skerjanc's fantastic hardware controller), a virtual keyboard, and helpful tooltips (largely drawn from Manny Fernandez's excellent VL Programming Guide, with his kind permission). I hope it helps you get more out of these remarkable instruments!

VL Editor supports the **Version 2 VL1, VL1-m and VL7**. Version 1 of these machines isn't supported. Support for the VL70-m and the VL plugin cards may come at a future date.

System Requirements

- **Macintosh:** macOS 11 (Big Sur) or later, on an Apple Silicon or Intel Mac. Runs natively on Apple Silicon.
- **Windows:** Windows 10 (version 1607 or later) or Windows 11, 64-bit (x64).
- **Plugin hosts:** any 64-bit DAW that loads VST3, AU (macOS only) or CLAP plugins.
- **VL synthesizer: VL1, VL1-m or VL7, Version 2 only.** The VL's start-up screen should show "Version 2".
- **MIDI interface, connected in both directions:** the VL's MIDI Out to the interface's In, and the interface's Out to the VL's MIDI In. VL Editor asks the VL for its data and listens for the replies, so a one-way connection isn't enough.

Installation

Run the VL Editor installer for your computer, and follow its steps.

You can choose which plugin formats to install: VST3, AU (macOS only) and CLAP. If you only use the stand-alone application, you can leave them all out.

macOS: the application goes in your Applications folder, and the plugins in the main Library, so they're available to everyone who uses the Mac:

- `/Library/Audio/Plug-Ins/VST3/VL Editor.vst3`
- `/Library/Audio/Plug-Ins/Components/VL Editor.component` (AU)
- `/Library/Audio/Plug-Ins/CLAP/VL Editor.clap`

Windows: the application goes in `C:\Program Files\VL Editor`, with a Start menu shortcut (and a desktop shortcut if you ask for one), and the plugins in the standard shared folders:

- `C:\Program Files\Common Files\VST3\VL Editor.vst3`
- `C:\Program Files\Common Files\CLAP\VL Editor.clap`

The Windows installer isn't code-signed, so Windows may warn you before it runs. If Microsoft Defender SmartScreen says **"Windows protected your PC"**, click **More info**, then **Run anyway**.

After installing the plugins, you may need to have your DAW rescan its plugins before VL Editor shows up in its list.

Uninstallation

macOS: drag the VL Editor application from your Applications folder to the Trash, along with whichever plugins you installed (from `/Library/Audio/Plug-Ins`, as listed under Installation). VL Editor's settings, your Presets grid and the copy of this manual are kept in `~/Library/Application Support/VL Editor/`; delete that folder too if you want to remove everything. (In the Finder, hold down Option and choose Go → Library to see your user Library folder.)

Windows: open Settings → Apps, choose VL Editor and click Uninstall. This removes the application and the plugins. VL Editor's settings, your Presets grid and the copy of this manual are kept in `%APPDATA%\VL Editor\`; delete that folder too if you want to remove everything (type `%APPDATA%` in File Explorer's address bar to find it).

Voice files you've saved yourself (on the Presets tab) aren't touched on either system when uninstalling.

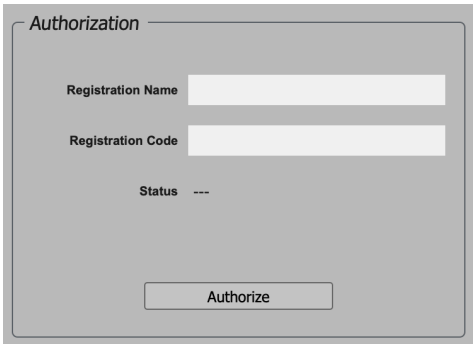
Authorization & Initial Setup

Authorization

The first time you open VL Editor, the **About & Authorization** window covers the app; nothing else can be used, and VL Editor won't contact the VL, until it's authorized. Type your **Registration Name** and **Registration Code** exactly as you received them (spaces are ignored) and click **Authorize**. The Status line shows **Registered** if they're right, or **Failed** if not; in that case, check them for typos and try again. Once registered, the button changes to **Use the App!**; click it to start.

Authorization is saved on your computer and covers both the application and the plugins there, so you only do it once per computer. On a new computer, enter your name and code again.

You can open this window again at any time by clicking the VL Editor logo at the top left. Besides the authorization details, it shows the version number, and has buttons for the VL Editor home page and this manual.

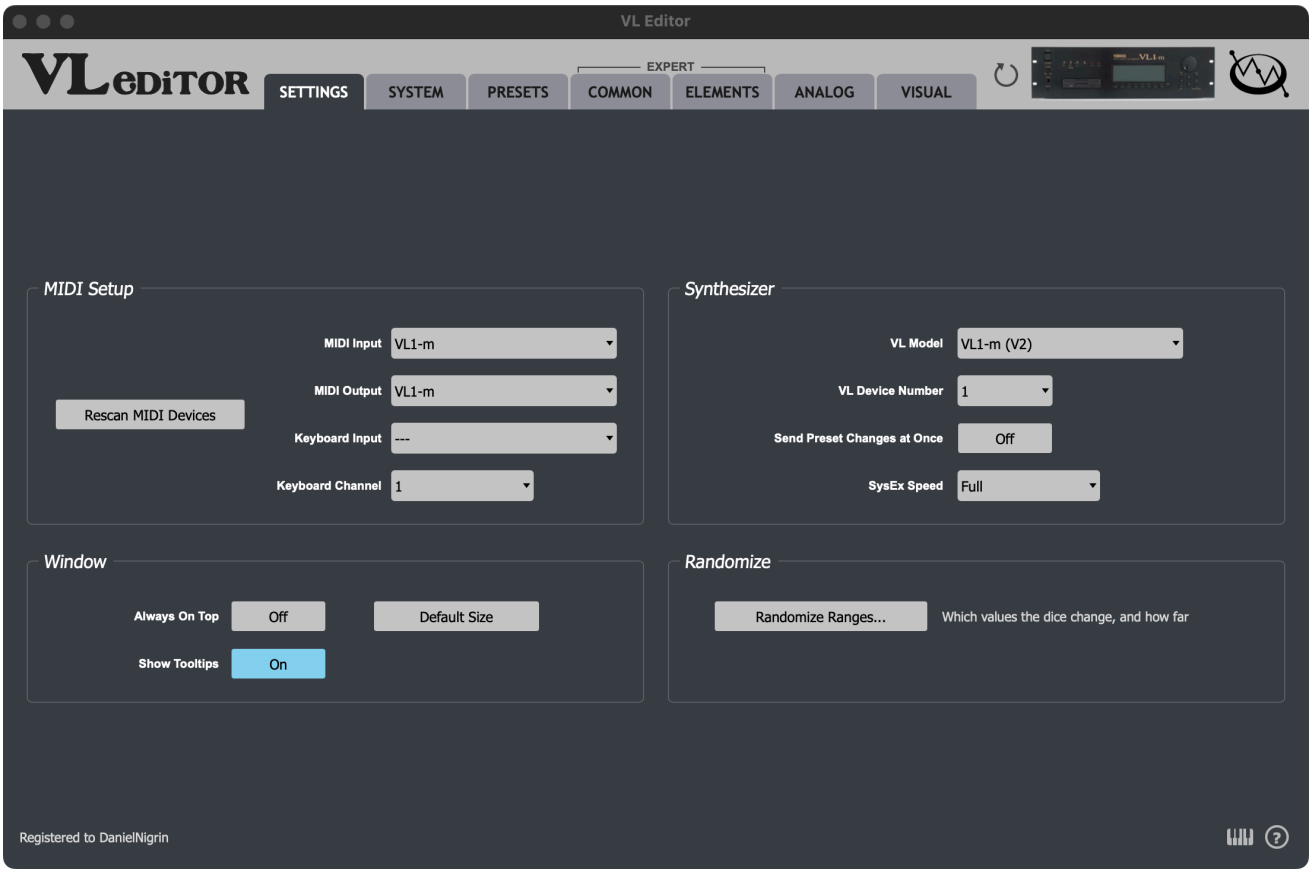


Connecting to the VL

Until it knows how to reach your VL, VL Editor opens on the **Settings** tab, and the header says what's missing, for example "MIDI PORTS AND VL MODEL NOT SELECTED !". Set up the two panels at the top of the page:

1. **MIDI Setup:** choose your MIDI interface's ports as the **MIDI Input** (the one connected to the VL's MIDI Out) and the **MIDI Output** (connected to the VL's MIDI In). If you plug in or switch on an interface while VL Editor is running, click **Rescan MIDI Devices** to see it.
2. **Synthesizer:** choose your **VL Model** (VL1, VL1-m or VL7, Version 2), and the **VL Device Number** set on the synth (1–16; on the VL, Utility → System → MIDI Setting → Device Number). If the VL's device number is set to All, choose 1 here; if it's off, the VL ignores SysEx, so set it to a number.

As soon as everything is set, VL Editor asks the VL for its System settings and the preset in its edit buffer. (The header shows a picture of your model as soon as you choose it.) When they arrive, the pages fill with the synth's current values. From then on VL Editor remembers your settings, and opens on the **System** tab, connecting to the VL straight away.



If the VL doesn't answer within a couple of seconds, the header shows **VL NOT RESPONDING !**, and when the app starts, an alert offers **Try Again** or **Settings**. Check that:

- the VL is switched on and has finished starting up;
- both MIDI cables are connected, and the right way round;
- the MIDI ports, VL model and device number on the Settings tab match your setup and the synth.

Then click Try Again, or the refresh icon in the header (next to the picture of the synth), which checks the connection again and reloads the VL's data at any time.

Only one VL Editor instance at a time can be connected to the VL: the standalone application, or one copy of the plugin in a DAW. If another one already is, the header says **VL IN USE BY ANOTHER VL EDITOR !**, and a **VL In Use** notice covers the editor. Close the other one (quit the application, or remove the plugin from its DAW project), then click **Try Again**.

The other two panels on the Settings tab are described under Settings: Window and Randomize.

Usage

Introduction and Important General Principles

The edit buffer: your edits are temporary until stored

An important thing to understand about editing a VL, with VL Editor or from the synth's own panel, is the **edit buffer**. The VL holds its presets in memory locations (128 on the VL1 and VL1-m, 64 on the VL7). When you select one, the VL copies it into the edit buffer, a working copy, and that's what you hear and what you edit. Every change you make in VL Editor is sent straight to the edit buffer, so you hear it at once, but the preset in memory doesn't change.

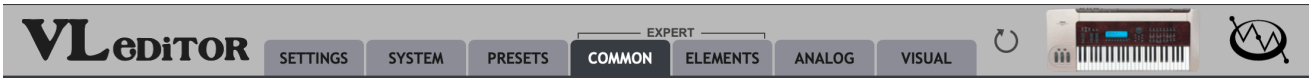
Your edits stay in the edit buffer, even through switching the VL off and on again, until another preset is selected, on the synth or from VL Editor. At that point they're gone, unless you've **stored** them to a memory location first. (The VL's Utility → Edit Recall can bring back only the last edited preset.)

VL Editor helps you keep track: the **Edit Buffer** bar at the top of the Common, Elements, Analog and Visual tabs shows which preset you're editing, an orange **EDITED** badge once it differs from what's stored, and a **Store to VL...** button. If you load another preset, or quit, while there are unstored edits, VL Editor asks whether to store them first. All of this is covered in Editing and Storing Presets.



A **preset** in VL Editor means the whole patch: its Common settings and its Elements (two on the VL1 and VL1-m, one on the VL7).

The header



Across the top of the window:

- **VL Editor logo** (top left): opens About & Authorization (see Authorization).
- **Status line**, above the tabs: what's going on. Alerts are in red (for example "VL NOT RESPONDING !"); other messages, such as the progress of a store, or "Undone", are in grey and disappear after a few seconds. While a preset is being sent to the VL, the status line starts with a progress bar, "Sending" and the time left (a preset takes about a second at full SysEx Speed, up to four at Slowest).
- **The tabs:** Settings, System, Presets, Common, Elements, Analog and Visual. Common and Elements sit under an **EXPERT** bracket: together they're the in-depth editor, showing every value in the preset, while Analog and Visual are two simpler ways of working with it. On the VL7, the Elements tab is called Element, as it has only one.
- **Refresh icon:** reloads the VL's System settings and the preset in its edit buffer, and checks the connection. Changes you make to settings on the synth's front panel show up in VL Editor straight

away, but selecting another preset on the synth doesn't (the VL doesn't tell VL Editor about it), and neither does anything else that replaces the whole edit buffer, such as Utility → Edit Recall. Click the refresh icon after doing that.

- **The picture of your VL model.**
- **Defective Records logo** (top right): opens the Defective Records website.

Values, greyed-out settings and tooltips

VL Editor shows values the way the synth does, in its real units wherever it has them (msec, Hz, dB, cents and so on), and with the same names for each setting.

Most values are shown as a **value bar**: drag across it to change the value (dragging across the bar's full width covers the whole range; hold **Shift** while dragging for fine changes, one step at a time), or click it without dragging to type a value. When typing, you can leave out the unit: "800" on a bar showing "886.0 Hz" means 800 Hz, and VL Editor picks the nearest value the synth can take. You can also scroll over it with the mouse wheel or trackpad. Settings with two choices are shown as a **toggle switch**, and those with more as a **dropdown menu**.

Settings that have no effect, because of how others are currently set, are **greyed out** and can't be changed, as on the synth's own display. For example, the Common tab's Polyphony Ctrl only applies in Poly mode, and a controller's Curve and Depth only when a controller is assigned. Settings the selected VL model doesn't have at all are left out; a panel left with nothing in it says "Not available for this VL model".

Hold the mouse over a setting or a section title for a **tooltip** describing it. Many of them come from Manny Fernandez's VL Programming Guide, and explain not only what a value does but how to use it. If you'd rather not see them, switch **Show Tooltips** off on the Settings tab.

Each page also has a **?** button in its bottom right corner, which opens this manual.

Undo and Redo

Every change you make to the preset can be undone, back to 100 steps: values, menus, drawn envelopes and key scaling, names, randomizing, morphing and so on. Press **Cmd+Z** (Mac) or **Ctrl+Z** (Windows) to undo, and **Cmd+Shift+Z** or **Ctrl+Shift+Z** (also **Ctrl+Y**) to redo. Everything you change in one click-and-drag counts as one step. The status line confirms each undo or redo, or says there's nothing (more) to undo.

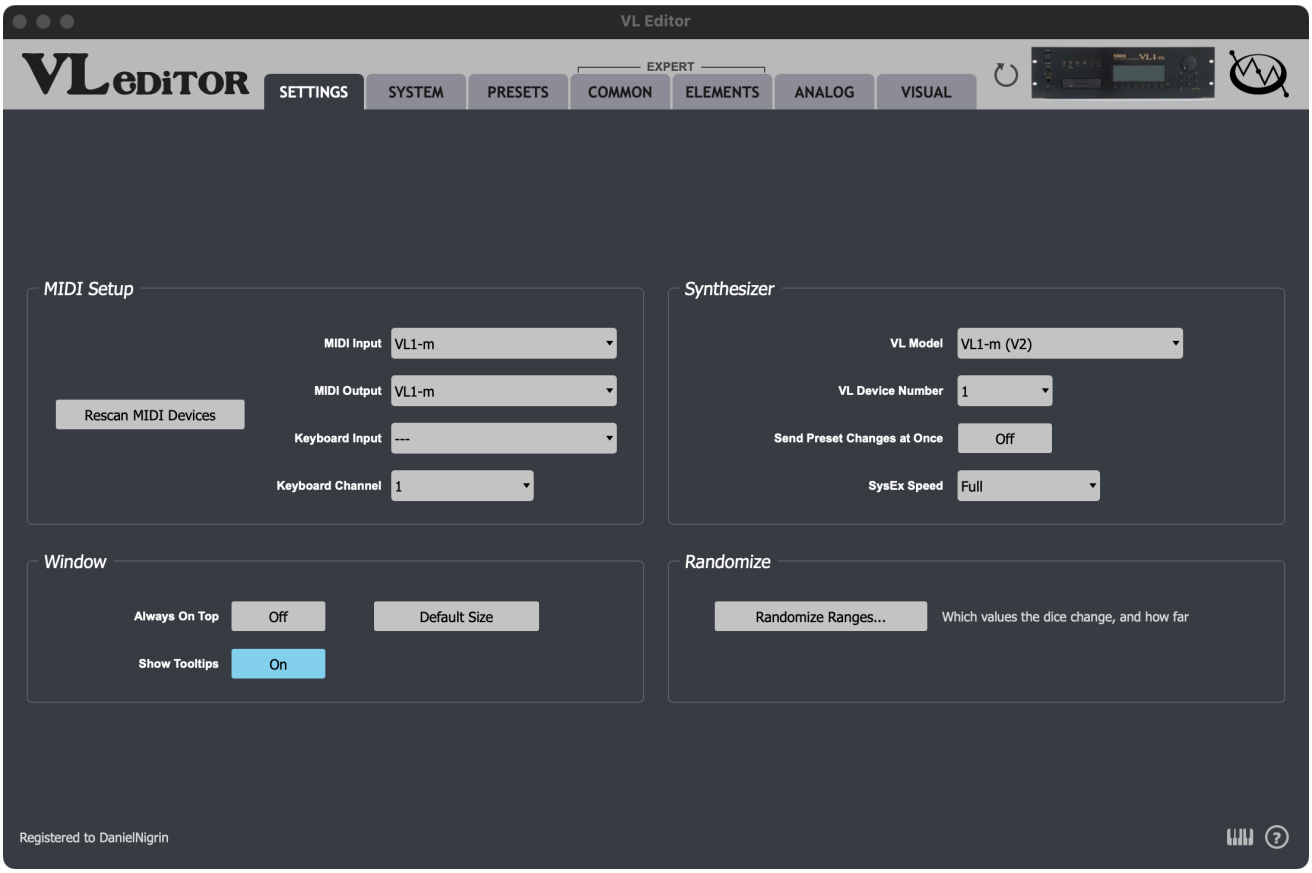
Undo covers the preset only, not the System settings or the Presets tab. Loading another preset into the edit buffer clears the history, as does refreshing when the VL's edit buffer holds a different preset from the one in VL Editor.

Resizing the window

Drag the window's edges or corner to make it larger or smaller: everything scales together, keeping its proportions. The size and position are remembered. To go back to the default size, press **Cmd+0** or **Ctrl+0**, or click **Default Size** on the Settings tab. VL Editor never makes the window larger than your screen: if the virtual keyboard strip is shown at the bottom of a window that's already as tall as the screen, the whole window shrinks to fit.

In a plugin, use the resize handle in the editor's bottom right corner. (Default Size on the Settings tab works there too; Cmd+0 or Ctrl+0 may be taken by the DAW unless the plugin window is in front.)

Settings



The Settings tab holds four panels: how VL Editor connects to the VL (MIDI Setup), which synth you have (Synthesizer), how its window behaves (Window), and how the dice randomize (Randomize). Everything here is remembered between sessions. Once VL Editor is authorized, the bottom left corner shows who it's registered to.

MIDI Setup

- **MIDI Input** and **MIDI Output:** the ports VL Editor uses to talk to the VL: the input connected to the VL's MIDI Out, and the output connected to its MIDI In (see Connecting to the VL).
- **Rescan MIDI Devices:** looks for MIDI ports again, and reopens the selected ones. Click it after plugging in or switching on a MIDI interface while VL Editor is running, or if a port has stopped working.
- **Keyboard Input:** a MIDI keyboard or other controller to play the VL with while you edit (handy on the VL1-m, which has no keys of its own). Its notes, controllers, pitch bend and aftertouch are passed on to the VL through the MIDI Output, along with VL Editor's own messages. Program Changes aren't passed on, as they would select another preset and lose your edits. Choose --- for none. You don't need this if the keyboard is already connected to the VL's MIDI In some other way. (Choosing the same port as the MIDI Input does nothing: VL Editor won't send the VL its own messages back.)
- **Keyboard Channel:** As Received passes the keyboard's messages on unchanged; a channel (1–16) sends them all on that channel, for example the VL's Receive Channel (see System).

Changing the MIDI Input or Output checks the connection to the VL again.

Window

- **Always On Top:** On keeps VL Editor's window in front of other applications' windows, handy when you're playing along in a DAW. (This setting is not available in the plugin, whose window belongs to the DAW.)
- **Default Size:** returns the window to its default size (as does Cmd+0 or Ctrl+0; see Resizing the window).
- **Show Tooltips:** turns tooltips on or off everywhere in VL Editor.

Synthesizer

- **VL Model:** the VL you're using: VL1, VL1-m or VL7 (Version 2). VL Editor shows only the settings your model has, and adapts its pages to it: on the VL7, for example, there's only one Element.
- **VL Device Number:** the device number set on the VL (1–16). It must match the synth, or the synth and editor will not be able to communicate.
- **Send Preset Changes at Once:** when On, presets you change in the Presets tab's grid (by moving or copying them, or loading them from a file) are sent to the VL's memory straight away, without asking. When Off (the default), they're marked with an orange dot on the Presets tab until you send them yourself. Either way, the VL's Memory Protect must be off for presets to be sent (see Presets).
- **SysEx Speed:** how fast presets are sent to the VL. **Full** (the default) sends at MIDI's full speed, about a second per preset. Some MIDI interfaces, particularly inexpensive USB MIDI cables, can't keep up and drop data, which can leave the VL with a silent or broken preset. If that happens, try **Slow** (about half speed, roughly two seconds per preset) or **Slowest** (about a quarter, roughly four seconds), which send presets in small pieces with short pauses in between.

Changing the model or device number checks the connection to the VL again.

Randomize

Randomize Ranges... opens a page where you choose which values the dice change, and within what ranges. (The dice themselves are described under Randomize.)



The buttons on the left choose an area: the Common tab's sections under COMMON, and the Element pages (Driver, Pipe / String and so on) under ELEMENT. On the right are that area's values, grouped by section, each with:

- **Randomize:** On or Off. The dice change only the values that are On.
- **Min** and **Max:** the range a value is drawn from, in the same units the editor shows.

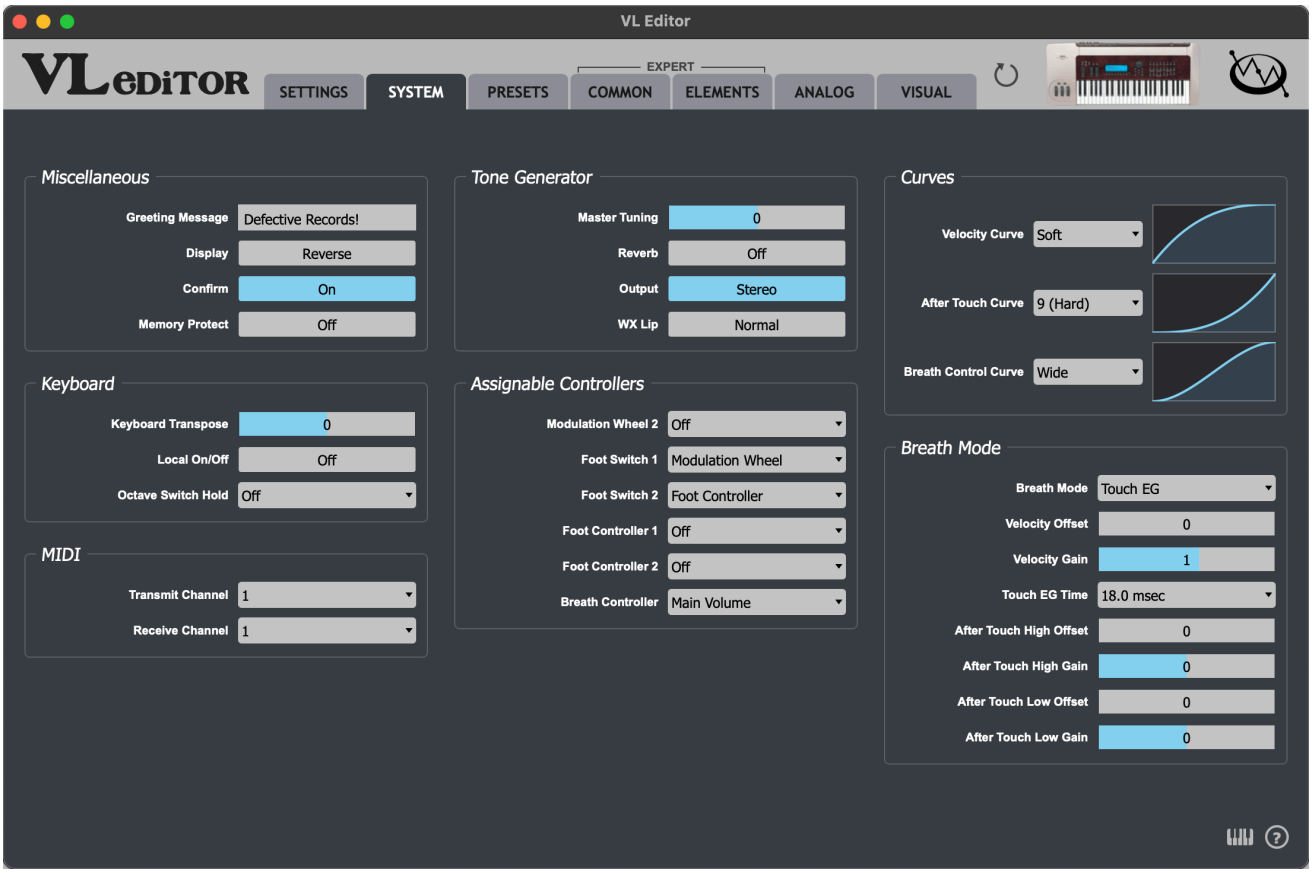
Every value starts out **On**, with its **full range** (Min and Max at the lowest and highest values the synth allows), apart from the few listed below. A dot next to a value's name shows that you've changed it from that starting point: switched it Off (or On), or narrowed its range. For the area shown, **All On** and **All Off** switch every value on or off, and **Defaults** puts every value back to its starting setting (On or Off, and its range); **Reset All** does the same for every value in every area. Click **Done** to go back to the Settings tab. Your changes are kept as you make them.

A few things are worth knowing:

- One range covers both Elements.
- An effect's values have a range for each effect type, as the values mean different things for each.
- Names and key scaling are never randomized.
- Some values are Off by default: the Elements' MIDI receive channels, Micro Tuning and every controller source (so a randomized preset is still played the same way), and the Driver and Pipe / String Physics pages. Turn them on if you want to roll the dice on them too.

- The Element Levels and Amplitude Level have a Min of 64 to start with, so a randomized preset is never too quiet to hear.

System



The System tab holds the VL's System settings: those that apply to the synth as a whole, whatever preset is selected (on the synth, they're in Utility mode). They're read from the VL whenever VL Editor connects and when you click the refresh icon, and a change you make here is sent to the VL at once. Changes made on the synth's own panel show up here straight away too.

System settings aren't part of a preset, so they're not covered by Undo, and they're not stored with presets or in preset files.

The settings are grouped into panels. Each panel shows only what your VL model has: the VL1-m, for example, has no keyboard, foot switch or controller jacks, so the Keyboard panel is shorter, and the Assignable Controllers panel says "Not available for this VL model".

Miscellaneous

- **Greeting Message:** the text the VL shows when it's switched on, up to 20 characters. Type it and press Return to send it.
- **Display:** Normal shows the VL's display as black characters on a light background, Reverse as light characters on black.
- **Confirm:** On makes the VL ask "Are you sure?" before jobs started from its own panel: storing a preset, disk operations, sending bulk data, Edit Recall and loading the demo data. It doesn't affect VL Editor, which asks its own questions.

- **Memory Protect:** On stops anything from changing the VL's internal memory: storing presets, loading from disk, or receiving bulk data. (The VL turns it on itself when its demo data is loaded.) It must be Off for VL Editor to store a preset or send presets from the Presets tab; if it's on, VL Editor tells you so.

Keyboard

- **Keyboard Transpose** (VL1, VL7): shifts the keyboard up or down by up to 12 semitones. It also shifts the note numbers the VL sends over MIDI.
- **Local On/Off:** Off disconnects the VL's own keyboard (on the VL1-m, the breath controller plugged into its BREATH jack) from its tone generator: what you play is still sent over MIDI, and the VL still plays what it receives. Use it, for example, when a sequencer records your playing and sends it back to the VL.
- **Octave Switch Hold** (VL1, VL7): how the OCTAVE buttons left of the keyboard behave. Off: they shift the keyboard an octave only while held. On: press once to shift, again to go back. Half and Full (the synth's Half PB and Full PB): they bend the pitch a semitone or a whole tone while held, for trills. (Yamaha advises not using them while moving the pitch wheel.)

MIDI

- **Transmit Channel:** the MIDI channel the VL sends on (its keyboard and controllers on the VL1 and VL7; its breath controller on the VL1-m).
- **Receive Channel:** the channel the VL listens to, 1–16, or Omni for all of them. (Each Element's own receive channel, used for splits and layers, is set on the Common tab.)

These don't affect VL Editor's connection: SysEx messages reach the VL whatever the channels, as long as the device number matches. The virtual keyboard has its own channel setting (see Virtual Keyboard).

Tone Generator

- **Master Tuning:** fine-tunes the whole synth in steps of about 1.17 cents, from –64 to 63: up or down by almost three-quarters of a semitone.
- **Reverb:** switches the VL's internal reverb on or off for every preset, for example when you'd rather use an external reverb.
- **Output:** Monaural sends the same signal to both the L and R outputs, and panning has no effect; Stereo is the normal setting.
- **WX Lip:** set it to Expand when playing a Yamaha WX7 or WX11 wind controller in its tight-lip mode: it widens the WX's otherwise narrow lip pitch-bend range to the VL's full range. Use Normal with a WX in loose-lip mode, or with a keyboard or other controller.

Assignable Controllers (VL1, VL7)

Which MIDI control number each of the VL's physical controllers produces: **Modulation Wheel 2**, **Foot Controller 1** and **2**, and the **Breath Controller** (Modulation Wheel 1 is always control number 1); the presets' controller assignments then pick these up by number. Off switches a controller off. The **Foot**

Switches 1 and **2** can also be set to **Program Inc**, so that each press selects the next preset (and sends its Program Change), going from the last one back to the first.

Curves

How the VL responds to how hard you play, each with a graph of the curve: input across, output up.

- **Velocity Curve** (VL1, VL7): Normal, Soft, Wide or Hard, or a fixed velocity (Fix 1 … Fix 127) regardless of how hard you play.
- **After Touch Curve** (VL1, VL7) and **Breath Control Curve:** from –16 through 0 (Normal, a straight line) to 16, or Wide. Negative settings give more output for a light touch or breath (–9 is the Soft curve of earlier VLs), positive ones need a heavier touch (9 is the old Hard). Wide gives the widest dynamic range.

Normal is a straight line. Soft makes a wide dynamic range easy to reach with a light touch, and Hard suits a heavy touch. Try them while playing to find the ones that suit you.

Breath Mode

How the VL gets its breath control, which many VL presets depend on for their sound:

- **BC/WX:** from a breath controller, or a Yamaha WX wind controller.
- **Velocity:** without a breath controller, from how hard you play each note. **Velocity Offset** is added to the velocity, and **Velocity Gain** (–7 … 7) narrows or widens its range: the angle of the velocity curve.
- **Touch EG:** each note's pressure starts from its velocity (set by Velocity Offset and Gain), then moves over to the keyboard's aftertouch. **Touch EG Time** sets how long that takes (18 msec to 4.43 sec). **After Touch High Offset** and **Gain** set the top of the aftertouch range, and **After Touch Low Offset** and **Gain** its bottom.

In Velocity and Touch EG modes the VL ignores the breath controller. The panel shows only the settings that apply to the selected mode.

Presets



The Presets tab is a librarian for the VL's preset memory: it gets the presets from the synth, lets you rearrange them, save them to files and load files from disk, and sends them back. On the left is a picture of your VL, in the middle the **grid** of presets, and on the right the buttons, in four panels: Get Presets from VL, Edit, Send Presets to VL and Files. Progress and results show in the header's status line, and while presets are being transferred, arrows next to the picture of the VL show which way they're going, with a **Cancel** button under the panels.

The grid

The grid has a box for each memory location on the VL: 128 on the VL1 and VL1-m (A01 to H16), 64 on the VL7 (A01 to D16), with two banks in each column. Each box shows the preset's location and name, or is empty until a preset has been got from the VL or loaded from a file.

The grid is VL Editor's own copy of the presets, kept between sessions: it's what was last got from the VL, plus any changes you've made since. Changes made in the grid (moving presets around, copying them, loading files) don't reach the VL until you send them. Until then those presets are marked with an **orange dot**, and a legend under the grid says "not on the VL". (To send changes straight away instead, switch on Send Preset Changes at Once on the Settings tab.)

To select presets, click one; Cmd-click (Ctrl-click on Windows) adds or removes a preset, Shift-click selects a run of them, and dragging from an unselected preset selects every preset from there to where you let go. Cmd+A (Ctrl+A) selects them all. Right-click a preset for a menu of the things you can do

with the selection: Edit (send it to the edit buffer), Get from VL, Send to VL, Load from File..., Save to File... and Clear (empties the boxes in the grid; the VL isn't changed).

Getting presets from the VL

- **Get Selected Presets** gets the presets in the selected locations from the VL; the button shows how many are selected.
- **Get All Presets** gets every preset, which takes about 3.5 minutes (less on the VL7, which has half as many).

VL Editor asks the VL for each preset in turn. If one doesn't arrive, it tries once more, then moves on; the status line lists any that didn't arrive. If you're about to replace presets that came from a file and haven't been sent to the VL yet, VL Editor asks first.

Presets the VL sends on its own, from its Utility mode's bulk dump, also land in the grid.

Editing a preset

Double-click a preset, or select it and click **Edit Selected Preset**, to load it into the VL's edit buffer, so you hear it and can edit it. VL Editor sends it to the edit buffer and switches to the Common tab. You can also drag a single preset onto the picture of the VL. (The preset's memory location on the VL isn't changed: see Editing and Storing Presets for how to store your edits.)

If the preset you've been editing has edits that haven't been stored, VL Editor asks first whether to store them, discard them, or cancel.

Rearranging presets: drag and drop

Drag selected presets to move them: white outlines show where they'll land. A move **swaps** presets, so nothing is lost: the presets you drop onto take the places of the ones you moved. Hold **Option** (Alt on Windows) while dragging to **copy** instead; VL Editor asks before replacing any presets with the copies. Presets that are now somewhere new get the orange dot, until you send them to the VL.

Sending presets to the VL

- **Send Selected to:** sends the selected preset to the memory location chosen in the menu next to it. The menu starts at the preset's own location; choose another one to put a copy there (the grid gets the copy too).
- **Send All Presets:** sends every preset in the grid to its own location.
- **Send to VL** in the right-click menu sends the selected presets to their own locations.

Each preset replaces the one stored at that location on the VL, so VL Editor asks you to confirm first. The VL's **Memory Protect** must be off for the VL to accept presets: if it's on, VL Editor says so and sends nothing. Turn it off on the System tab (Miscellaneous panel) or on the VL in Utility mode, then try again.

Each preset takes about a second to send at full speed (longer at a slower SysEx Speed; see Synthesizer).

Saving and loading files

- **Load from File...** loads presets from a file into the grid. You can also drop a file from the desktop or a folder onto a preset in the grid.
- **Save Selected to File...** saves the selected presets as a.syx file; **Save All to File...** saves the whole grid. Each preset keeps its memory location in the file. Dragging presets out of VL Editor's window, to the desktop or a folder, saves them there as a.syx file.

VL Editor reads:

- **SysEx (.syx) and MIDI (.mid) files** holding VL preset dumps, saved by VL Editor or other software;
- the VL1's own **floppy disk files**:.ALL (everything),.AVC (all presets),.1BK (one bank of 16) and.1VC (one preset);
- **VLibrarian** library files (.vll).

A file's presets are loaded one after the other, starting at the first selected preset (A01 if none is selected), or at the preset you dropped the file on, whatever locations the file itself records. A.1BK bank file goes into the whole bank that holds that preset: dropped on C08, it fills C01 to C16. Presets that would go past the last location are left out. Before anything changes, VL Editor tells you which locations the presets will go to, which presets they'll replace, and what's left out, so you can cancel. The loaded presets get the orange dot until you send them to the VL.

Load from File... and the save buttons open in the folder you last used.

Editing and Storing Presets

As explained under The edit buffer, everything you edit goes to the VL's edit buffer, and stays there only until another preset is selected. To keep your edits, **store** the preset to one of the VL's memory locations, or save it to a file on the Presets tab.

The Edit Buffer bar

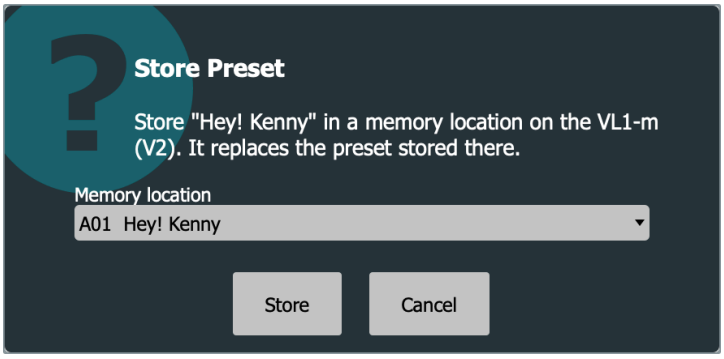


At the top right of the Common, Elements, Analog and Visual tabs, the **Edit Buffer** bar shows:

- **EDIT BUFFER** and the preset being edited: its memory location and its name as it was before you edited it, for example "A05 Vintage VL". If VL Editor can't tell which location it came from, it shows the name and "(location not known)"; before any preset has been read from the VL, it says "No preset read from the VL yet."
- An orange **EDITED** badge, once the preset differs from the one it came from. Change a value back, or undo, and the badge goes away again.
- **Store to VL...**, to store it (see Storing a preset).

VL Editor knows where a preset came from when you load it from the Presets tab (double-click, Edit Selected Preset, or a drop on the picture of the VL), after you store it, and when it connects to the VL or you click the refresh icon: it then looks for the edit buffer's preset in the Presets tab's grid, by its data, or failing that by its name. So the grid needs to hold the VL's presets (Get All Presets on the Presets tab) for VL Editor to recognize a preset that was selected on the synth. When it can't find one, the location is "not known": EDITED then compares with the preset as it was read from the VL, and Store to VL... starts at A01.

Storing a preset



Click **Store to VL...** and choose a **memory location** from the menu: it lists each location with the name of the preset stored there (from the Presets tab's grid), and starts at the location the preset came from. Click **Store**. If you chose a different location, VL Editor asks you to confirm, naming the preset you're about to replace.

VL Editor sends the preset to the VL, then reads it back to check that it arrived intact. The status line shows the progress and the result, for example "Stored to A05 Vintage VL". The Presets tab's grid gets the stored preset, and from then on the Edit Buffer bar shows the new location, without the EDITED badge.

A few things to know:

- The VL's **Memory Protect** must be off: if it's on, VL Editor says so and stores nothing. Turn it off on the System tab (Miscellaneous panel) or on the VL in Utility mode, then store again.
- Storing replaces the preset at that location on the VL. To keep the original too, store to an empty or unused location, or save the original to a file first.
- You can't store while presets are being sent or received on the Presets tab: wait for it to finish, or cancel it.
- If the status line says the VL didn't send the preset back, or that some bytes differ, check the MIDI connection (and try a slower SysEx Speed on the Settings tab), then store again.

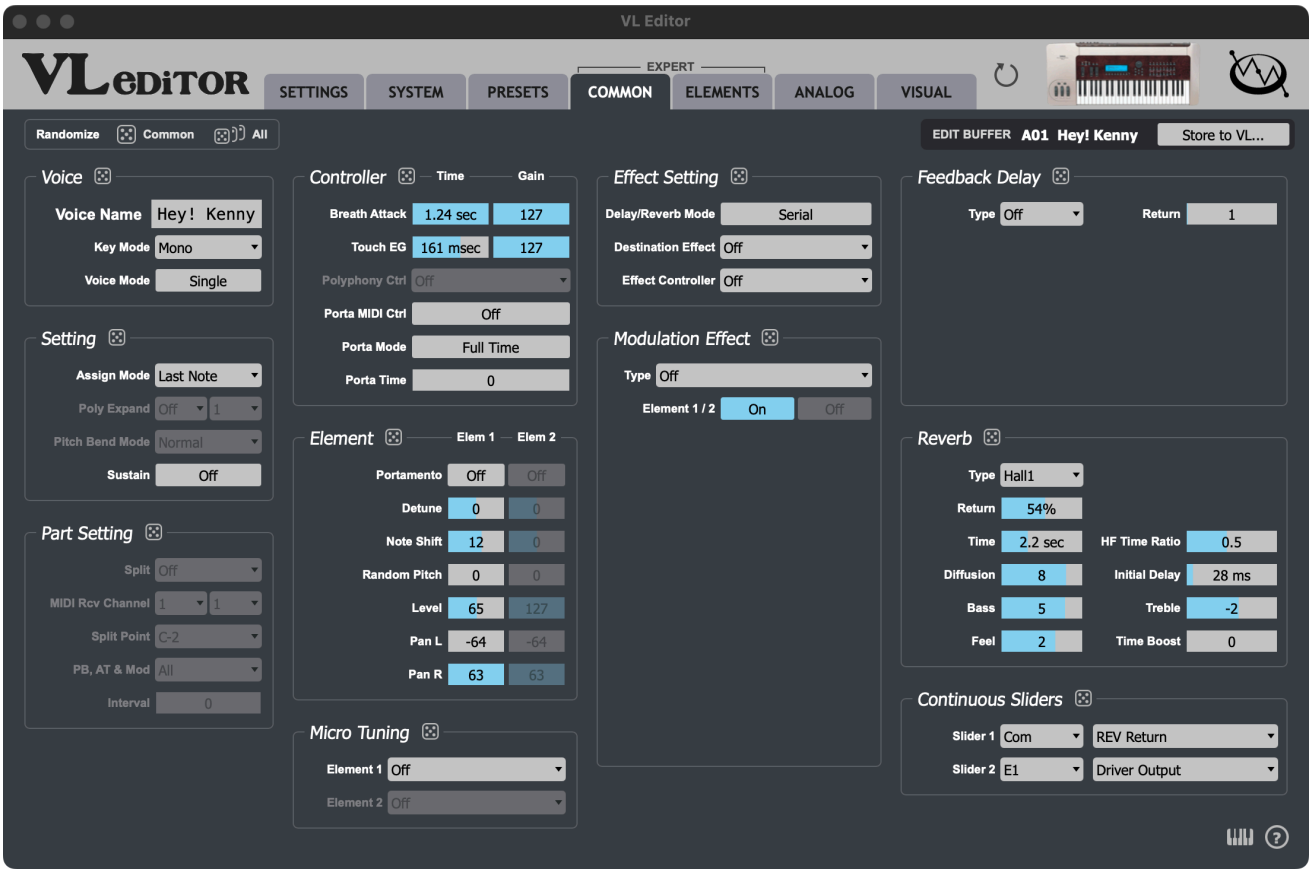
Protection against losing edits

If the preset has unstored edits (the EDITED badge is showing), VL Editor asks before doing anything that would throw them away:

- **Loading another preset** into the edit buffer, from the Presets tab, or by starting a new preset on the Analog or Visual tab: choose **Store...** to store your edits first (the new preset is loaded once the store has been checked), **Discard Edits** to go ahead without them, or **Cancel**.
- **Quitting** VL Editor: **Store...**, **Quit Anyway** or **Cancel**. If you quit anyway, the edits are still in the VL's edit buffer, until another preset is selected on the VL; if the VL isn't connected, they never reached it and are lost.

VL Editor can't protect edits from things that happen on the synth itself: selecting another preset on the VL's panel (or by a Program Change from another device) discards the edit buffer without VL Editor knowing. If that happens, the VL's Utility → Edit Recall can bring back the last edited preset; click the refresh icon afterwards.

Common



The Common tab holds the settings that apply to the preset as a whole rather than to one Element: how the Elements are played (Key Mode, Voice Mode, splits), each Element's pitch, level and pan, the controllers, Micro Tuning, the Continuous Sliders, and the three effect stages. Together with the Elements tab it makes up the **EXPERT** editor, showing every value in the preset. (The Element's own sound is set on the Elements tab.)

The settings are grouped into panels, much as on the synth's own Common pages. Each panel's die randomizes that panel's values, and the Randomize panel at the top left holds a die for the whole Common tab and one for the whole preset (see Randomize). The Edit Buffer bar is at the top right (see Editing and Storing Presets).

On the VL7, which has one Element, the settings that need two Elements (Key Mode, Voice Mode, Poly Expand, Pitch Bend Mode, Polyphony Ctrl, Element 2's values and the Part Setting panel) are left out.

Voice

- **Voice Name:** the preset's name, up to 10 characters. Each letter goes to the VL as you type it.
- **Key Mode:** how notes are played: **Mono** (one note at a time), **Poly** (two notes at once, one per Element), **Unison** (each key plays two notes in unison) or **Part** (the Elements are played as two parts: a split keyboard, or on separate MIDI channels; see Part Setting).

- **Voice Mode: Single** (one Element sounds at a time) or **Dual** (both Elements can sound together). In Single mode, the settings that only concern Element 2 are greyed out.

Setting

- **Assign Mode:** which note sounds when more are held than can be played: **Bottom Note**, **Top Note** or **Last Note**. Not used in Unison, which always plays the lowest and highest notes.
- **Poly Expand:** chains two or more VLs over MIDI for more polyphony. The first value is the polyphony of the whole system (Off, 2 … 32), the second which note of a chord this VL plays. It applies in Poly mode with Assign Mode set to Last Note.
- **Pitch Bend Mode:** in Poly and Unison, whether the pitch wheel bends both notes (**Normal**), only the lower one (**Bottom**) or only the upper one (**Top**).
- **Sustain:** Off ignores sustain from a foot switch or MIDI for this preset; On lets it work.

Part Setting

These apply when Key Mode is Part.

- **Split: Off** plays each Element from its own MIDI channel (see MIDI Rcv Channel). **Static** splits the keyboard at the Split Point: Element 1 plays it and the keys below, Element 2 the keys above. **Dynamic** moves the split point as you play, according to the Interval.
- **MIDI Rcv Channel:** with Split Off, the channel each Element plays from (Element 1, then Element 2). Program Changes, the Continuous Sliders, effect control and volume still come in on the VL's own Receive Channel (System tab).
- **Split Point:** the key where a Static split falls (C-2 … G8).
- **PB, AT & Mod:** with a split, whether the pitch wheel, modulation wheels and aftertouch affect the whole keyboard (**All**), only the lower part (**Lower**) or only the upper part (**Upper**).
- **Interval:** with a Dynamic split, where the split point falls: how many notes back from the last note played, counting toward the first (0 … 24).

Controller

- **Breath Attack** (Time and Gain): how the preset responds to changes in breath pressure. Time sets how quickly it follows them (5 msec, the fastest, to 1.24 sec); Gain how much it changes with them (127, the usual setting, for the most).
- **Touch EG** (Time and Gain): when the System tab's Breath Mode is Touch EG, how long each note takes to move from its velocity to the keyboard's aftertouch (Time), and how high the lower limit of that range is (Gain).
- **Polyphony Ctrl:** in Poly mode, a controller that switches the preset between Mono and Poly as you play. Off for none.
- **Porta MIDI Ctrl:** On lets the portamento time follow MIDI control number 5 (Portamento Time), for example from a wheel or foot controller assigned to it on the System tab; Porta Time is then not used.
- **Porta Mode:** in Mono mode, **Full Time** slides between every two notes, **Fingered** only when the first note is still held as the next is played. (Poly and Unison always use Full Time.)

- **Porta Time:** how long the portamento slide takes (0 is the fastest).

Portamento itself is switched on for each Element in the Element panel.

Element

Each row has a value for Element 1 and one for Element 2 (only one on the VL7):

- **Portamento:** switches portamento on or off for that Element.
- **Detune:** a slight pitch shift up or down (–7 … 7, a few cents a step), to detune the Elements against each other.
- **Note Shift:** shifts the Element's pitch in semitones (–64 … 63).
- **Random Pitch:** a slight random variation in pitch from note to note, as on an acoustic instrument (0 for none, 7 for the most).
- **Level:** the Element's output level (0 … 127).
- **Pan L** and **Pan R:** each Element's output is in stereo, so its left and right channels are placed separately, from –64 (left) to 63 (right). –64 and 63 keep the Element's full stereo width; the same value for both makes it a mono source at that position. (Pan has no effect when the System tab's Output is Monaural.)

Micro Tuning

The tuning each Element plays in: **Off** (equal temperament), the VL's two internal tunings **I-1** and **I-2** (shown with the names the VL gives them), or one of Yamaha's 84 preset tunings: Pure Major, Pure Minor, Mean Tone and Pythagorean in each key (P-1 … P-48), and historical, world and other tunings from Werckmeister to Thai (P-49 … P-84). The VL's Feature Reference and Version 2 manual describe each one. VL Editor doesn't edit the internal tunings themselves.

Continuous Sliders

The VL's two Continuous Sliders (MIDI control numbers 16 and 17; on the VL1-m, its Quick Edit) can change any of a long list of values in real time while you play. For each slider, choose a **Class**, which part of the preset it controls: **Com** (a Common value), **E1** or **E2** (a value of one Element), **Both** (the same value in both Elements) or **Off**; then the value itself, from the menu to its right. The list of values depends on the class, and on the preset: a controller's Curve and Depth, for example, are listed as "No Assign" when the controller is Off.

Effects

The VL has three effect stages: the **Modulation Effect**, the **Feedback Delay** and the **Reverb**. The Modulation Effect comes first; the Feedback Delay and Reverb follow it.

Effect Setting:

- **Delay/Reverb Mode: Serial** passes the Feedback Delay's output through the Reverb; **Parallel** feeds both from the Modulation Effect and mixes their outputs.
- **Destination Effect** and **Effect Controller:** a controller (any MIDI control number, aftertouch, pitch bend or velocity) that changes one effect value in real time while you play: the Modulation Effect's

main value (its name depends on the Modulation Effect type), the Feedback Delay's send level or the Reverb's send level. An effect stage that's Off "isn't used".

Modulation Effect: choose its **Type**: Flanger, Pitch Change, Distortion, Chorus, Phaser, Symphonic, Celeste, Dist+Flanger or Dist+Wah, or Off. **Element 1 / 2** sends each Element through the Modulation Effect or past it (Element 2 only in Dual presets). The rows below are that type's own values, and change with it.

Feedback Delay: Type Mono (one delay, in the center), L/R (separate left and right delays) or L/C/R (left, right and center delays), or Off; **Return** sets how much of the delayed sound is mixed in. The values below are that type's.

Reverb: Type Hall1, Hall2, Room1, Room2, Studio, Plate, Space or Reverse, or Off, followed by its values, starting with its **Return**.

The values are shown in the synth's own units (Hz, msec, %, dB). When you change an effect type, the VL resets that effect's values to its own defaults without telling VL Editor, so VL Editor reads the preset back from the VL: the effect's values are greyed out for a moment until they arrive. The VL's Feature Reference and Version 2 manual describe each effect type and value in detail.

Greyed-out settings

As on the synth, settings that have no effect with the preset's other settings are greyed out:

- **Polyphony Ctrl** only in Poly mode; **Pitch Bend Mode** in Poly and Unison; **Poly Expand** in Poly with Assign Mode set to Last Note; **Assign Mode** not in Unison; **Porta Mode** only in Mono.
- The **Part Setting** panel only in Part mode, and within it the MIDI Rcv Channels only with Split Off, Split Point and PB, AT & Mod only with a split, and Interval only with a Dynamic split.
- **Element 2**'s values, and the Modulation Effect's Element 2 switch, only in Dual presets.

Elements

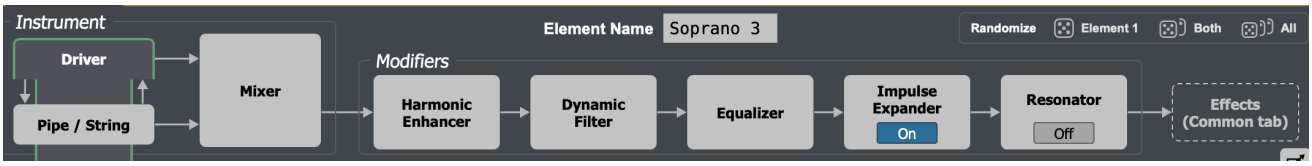


An **Element** is one complete physical model of an instrument: something that excites it (the **Driver**: a reed, lips, or a bow), the body that resonates (the **Pipe / String**), and a chain of **Modifiers** that shape the sound afterwards. The VL1 and VL1-m have two Elements, the VL7 one (its tab is called Element). How the two are played together, and their levels and pans, are set on the Common tab.

The Elements tab is laid out like Yamaha's Control & Signal Flow diagram:

- **Element 1 / Element 2** tabs, at the top left, choose the Element you're editing. Everything below them belongs to that Element.
- **Element Name:** each Element has its own name, up to 10 characters, sent to the VL as you type it.
- **The flow map:** the Element's blocks in the order the sound passes through them. The **Instrument** panel holds the Driver and Pipe / String, which work together (the Driver excites the Pipe / String, which pushes back on the Driver), and the **Mixer**, which mixes their outputs. The **Modifiers** panel holds the Harmonic Enhancer (**HE**), Dynamic Filter (**DF**), Equalizer (**EQ**), Impulse Expander (**IE**) and Resonator (**RSN**). Last comes **Effects**, the Common tab's effect stages: clicking it opens the Common tab.
- **The detail area** below the map shows the settings of the block you click. The selected block is outlined in green, joined to the detail area.

The Impulse Expander and Resonator can be switched on and off right in their boxes on the map.



Copying, randomizing and pop-out windows

- The **Copy** icon right of the Element tabs copies the whole Element to the other one: every value, its key scaling, its name, Physics and tuning table. Each section in the detail area also has a Copy icon, after its die, which copies just that section to the same section of the other Element. (Not on the VL7.)
- The **Randomize** panel at the right of the Element frame has dice for **Element n** (the Element shown), **Both** Elements (not on the VL7) and **All** (the whole preset); each section's own die randomizes that section. See Randomize.
- **Pop Out**, the icon at the top right corner of the detail area, opens the selected block in a window of its own, so you can see and edit several blocks, or the same block of both Elements, at once. Pop-out windows edit the same preset as the main window, and have the same keyboard shortcuts (undo, redo).
- **Morph...**, right of the Copy icon, opens the Morph window (see Morph; not on the VL7).

Controllers

Most blocks begin with their **controller assignments**: which controller changes one of the model's inputs while you play. For each one:

- **Controller:** Off, a MIDI control number (Modulation Wheel, Breath Controller, Foot Controller and so on), Aftertouch, Pitch Bend, Velocity, or the VL's Breath Attack or Touch EG.
- **Depth:** how much the controller changes it, –127 … 127; negative values turn the effect around.
- **Curve:** –16 … 16. 0 is a straight line; positive values make the controller do little at first and more towards the top of its range, negative values the opposite.
- **Value** (Scream, Breath Noise, Growl, Throat Formant): the fixed amount used when the Controller is Off.

Embouchure and Pitch have **Upper** and **Lower** depths instead (the change at the controller's top and bottom), and a **Mode**: **Center Base** gives the normal embouchure or pitch with the controller in its center, so it can go both up and down; **Minimum Base** with the controller at its minimum, so it only goes up (Lower Depth is then not used).

When a Controller is Off, its other values are greyed out. A few things worth knowing, from Yamaha's manual: the VL plays exactly in tune only at full Pressure (a Pressure controller that's Off means full pressure all the time), medium Embouchure, and with the Pitch Mode at Center Base.

Driver

The Driver is what sets the instrument vibrating: a reed or the player's lips on a mouthpiece, or a bow on a string. It has three pages, chosen with the buttons at the top left of the detail area:

- **Main:** the controllers for **Pressure** (breath pressure, or bow speed: it changes both the loudness and the tone), **Tonguing**, **Scream** (drives the whole model into chaotic oscillation), **Breath Noise**, **Growl** and **Throat Formant**, and **Embouchure** (how tightly the lips press on the reed or each other, or the bow on the string: it changes both pitch and tone). Then the settings of **Growl** (its depth to pressure and breath noise, speed and randomness), **Breath Noise** (its level, filters and how it's driven), the **Throat Formant** (the resonance of the player's throat: its pitch, intensity and filters), and the **Excitation** (an extra pulse fed into the Driver and the Pipe / String, with velocity sensitivity).
- **Pressure EG:** an envelope that shapes the pressure of each note, drawn as a graph, with its **Mode** (**ADSR**, **AR** or **Disable**, which turns it off), its rates and levels, and offsets and velocity sensitivity. The pressure the model gets is the pressure from the controller multiplied by this envelope.
- **Physics:** the model of the reed or bow itself, as on Yamaha's VL v2 Expert Editor's Instrument page: the **Driver**, **Parent Reed** and **Child Reed**, **Beat**, **Embouchure Control** (Min and Max values for the range the Embouchure moves through), **Pressure Control** and **Pitch Compensation**.

Pipe / String

The Pipe / String is the instrument's body: the air column of a wind instrument, or a string. Its length sets the pitch. It has two pages, Main and Physics, and a **Tuning...** button, which opens the Tuning window (see Tuning):

- **Main:** the **Pitch** controller (normally the pitch wheel), the controllers for **Vibrato**, **Damping** and **Absorption**, and the **Note Transitions**: **Trigger Mode** (Single plays no new attack when you play legato, Multi always does), **Crossfade Speed** (how slowly one note moves to the next, like the slight slur between notes on a wind instrument) and **Interpolate Speed** (how quickly the model follows changes from the controllers). Then two envelopes, drawn as graphs: the **Embouchure & Pitch EG**, which moves the embouchure and pitch at the start of each note, and the **Vibrato**, with its delay, attack, depths (to embouchure and to pitch), speed and randomness.
- **Physics:** the shape of the pipe or string, as on Yamaha's Expert Editor: the lengths and ratios of its straight and conical sections (with **Straight Horn Insertion** off, the horn settings are greyed out), **Short Length**, **Absorption & Damping** (how its high frequencies are lost, and how quickly it decays) and **Harmonics**.

The Physics pages use the Expert Editor's names for a wind instrument. **Pipe Term** and **String Term**, on either Physics page, switch to the names for a bowed string instead (Pressure becomes Bow Velocity, Slit becomes Friction, and so on), as the Expert Editor's Change Term menu does. Only the names change; the values are the same.

The Physics pages hold the deepest part of the model. Changes there can easily make an Element silent, or unplayable, and they mostly change how the instrument responds to changes in breath pressure, so try them with a breath controller (Breath Mode BC/WX on the System tab) rather than from a keyboard's velocity. Undo is your friend.

Mixer

The Mixer mixes the model's three outputs: the **Driver** (the sound at the mouthpiece or bow, without the body's resonance), the **Pipe / String**, and a **Tap**, a signal taken from a point along the pipe or string. **Tap**

Sign sets the tap's phase. **Tap Setting** chooses where the tap is taken: at the **Driving Point** (the mouthpiece or bow), or at the **Tap Location**, either a fixed time along the pipe or string (**Fixed**) or a percentage of its length, which follows the key played (**KeyTrack**). Fixed (Straight) and KeyTrack (Straight) are Version 2 additions. Then the **Amplitude** controller, which changes the level without changing the tone (unlike Pressure), and the Element's overall **Level**.

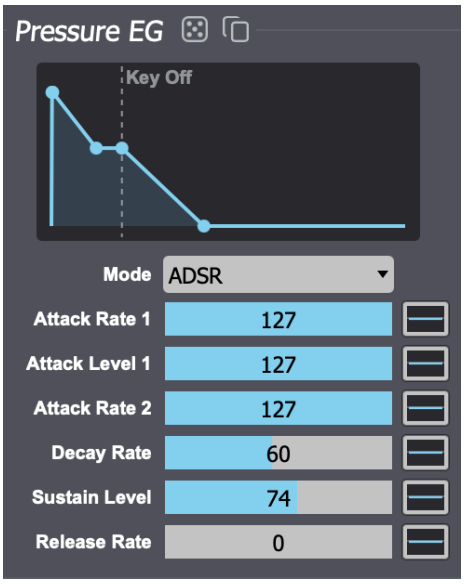
Modifiers

- **Harmonic Enhancer (HE):** changes the sound's harmonics by modulating one signal (the **Carrier**) with another (the **Modulator**), each chosen from the model's signals (the normal output, breath noise, flow rate saturation, beat, slit / friction, or reed), with its own filter, overdrive and level; **Balance** mixes the result with the sound that came in. It has its own controller. It behaves differently with each instrument model: experimenting is the way to learn it.
- **Dynamic Filter (DF):** a filter (low-pass, high-pass, band-pass or band-elimination) whose **Cutoff** can follow the keyboard (**Cutoff Tracking**), a controller, and the **Amplitude & Filter EG**, an envelope drawn as a graph that also shapes the Element's amplitude. **Balance (Dry/Wet)** mixes the unfiltered (dry) and filtered (wet) sound.
- **Equalizer (EQ):** an input gain, high- and low-pass filters, a five-band equalizer (frequency, Q and level for each band) and **Post EQ Boost**.
- **Impulse Expander (IE):** with the Resonator, imitates the resonant body of an instrument, or the room it's played in. Tends to give the sound a metallic quality.
- **Resonator (RSN):** five delays that resonate together, giving a more woody resonance. **IE & RSN Dry Level** (in both blocks) sets the level of the sound that passes neither.

Switch the Impulse Expander or Resonator Off, and its settings are greyed out.

Envelopes

The envelopes (Pressure EG, Embouchure & Pitch EG, Vibrato and Amplitude & Filter EG) are drawn as graphs above their values. Drag a point sideways to change the rate or time of the segment that ends there, or up and down to change its level; the values below follow, and you can edit them there too.



Key scaling

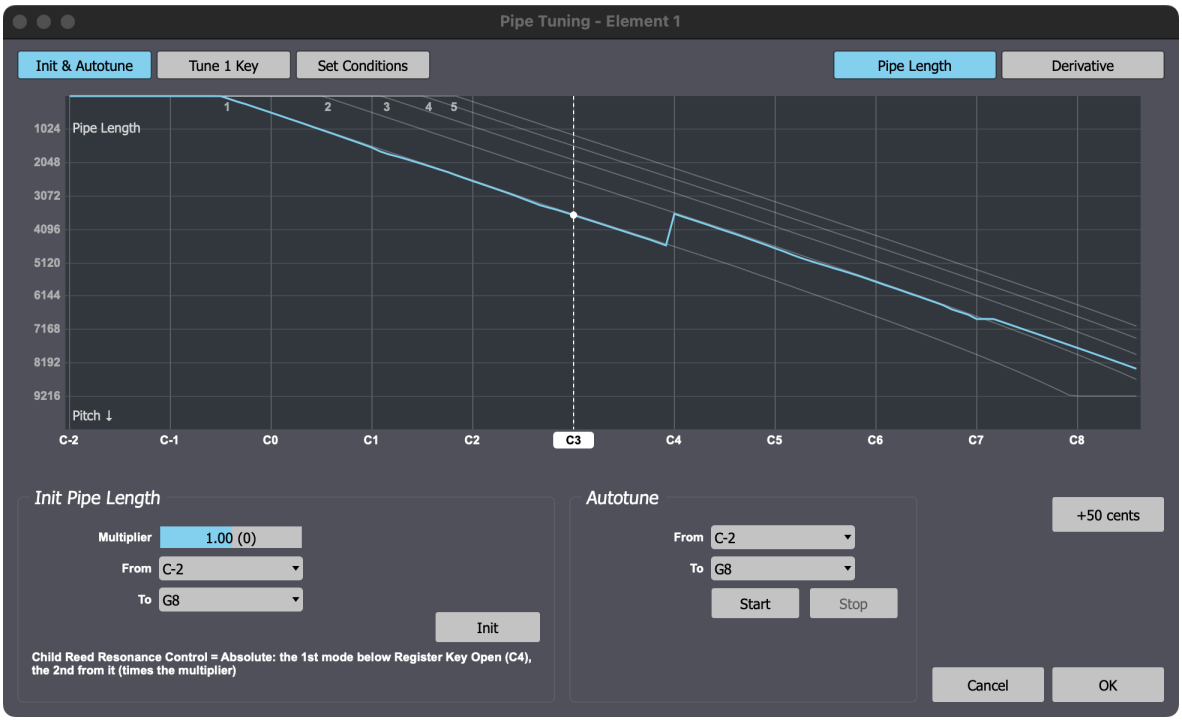
Many values can vary across the keyboard, as they do on an acoustic instrument: a reed is stiffer, or a body resonance different, from the low notes to the high. These values have a small **KS** button beside them, drawn as a tiny graph of the curve. Click it to open the key-scaling editor: a graph of the keyboard, with two to eight **breakpoints**, each a key and an **offset** (–64 … 63) added to the value at that key; the value changes smoothly between breakpoints. Drag a breakpoint, or set its Key and Offset exactly below the graph.

Some values come in pairs whose breakpoints share their keys: the **Min** and **Max** of each Embouchure Control value (Driver, Physics page) and **Damping** and **Decay** (Pipe / String, Physics page). The pair's KS button (right of Max; Damping and Decay each have one) draws both curves and opens one editor showing both curves (Min in blue, Max in orange), with a row of offsets for each. Here the graph shows real values: each curve is the value with its key-scaling offsets added, and the Min and Max values themselves are dashed lines. Point at a breakpoint to see its key and values, each with its offset in brackets. Three buttons at the top right set what moving a breakpoint does:

- **Separate:** only that curve's breakpoint moves.
- **Both:** the other curve's breakpoint moves the same way, so the range between Min and Max keeps its width while its centre moves.
- **Width:** the other curve's breakpoint moves the opposite way, so the range widens or narrows around the same centre.


VL Editor
VL EDITOR
EXPERT
SETTINGS
SYSTEM
PRESETS
COMMON
ELEMENTS
ANALOG
VISUAL
Element 1
Element 2
Morph...
EDIT BUFFER E01 Haze
EDITED
Store to VL...
Instrument
Driver
Pipe / String
Mixer
Element Name Purple
Randomize
Element 1
Both
All
Modifiers
Harmonic Enhancer
Dynamic Filter
Equalizer
Impulse Expander
Off
Resonator
Off
Effects (Common tab)
Main
Pressure EG
Physics
Pipe Term
String Term
Driver
Bow Velocity Input Gain
Bow Velocity Level to Reed
Friction Sign
Additional Friction Force
Friction Transition FB Balance
Graham Function Argument
Driver Output Shut Off
Driver Output Level
Child Reed Resonance Amount Key Scaling
Separate
Both
Width
15.67
1.00
Max 9.73
Min 1.19
C-2
C0
C2
C4
C6
C8
BP 1
BP 2
BP 3
BP 4
BP 5
BP 6
BP 7
BP 8
BP 9
BP 10
BP 11
BP 12
Key G#-2 E-1 D0 C#1 G1 D2 A2 G3 E4 D5 C6 E7
Min 18 36 41 42 56 63 38 26 32 63 24 17
Max -1 -6 -16 -23 -10 -4 -4 -19 -13 -20 -17 -8
High Frequency Emphasis
31.1 Hz

Tuning



Each Element's Pipe / String holds a table of lengths, one per key, that sets the pitch each key plays. The Tuning window edits that table: it can calculate starting lengths, have the VL tune the keys by itself, or let you tune them one at a time by ear.

Click **Tuning...**, on the Pipe / String's page buttons on the Elements tab, to open it for the Element shown. While it's open, the VL is in tuning mode: the header's status line says TUNING MODE ACTIVE, and the VL's front panel doesn't respond.

The window has three pages. Its graph shows the **Pipe Length** of each key, or its **Derivative**. The selected key is the dotted line, with its name below the graph; while the VL is tuning, the key it's on is the orange line, also named below.

Init & Autotune

- **Init** sets a range of keys (**From** … **To**) to calculated starting lengths, times a **Multiplier**. How they're calculated depends on the Driver Physics page's Child Reed Resonance Control: with Absolute, from the Register Key Open key; with Relative, from three mode boxes you drag on the graph.
- **Start** then has the VL tune each key in the range that has a length, by itself, reporting as it goes. This takes from a second or so per key in the middle of the keyboard to several at the extremes: about two and a half minutes for the whole range on a VL1-m. Keys the VL couldn't tune are marked on the graph. **Stop** stops it.

Tune 1 Key

Select a key and move its length up or down by 1 or 10 steps, by ear or by using an external tuner. **Hold** plays the key (velocity 127) while you tune it; **Autotune Key** has the VL tune just that key.

Set Conditions

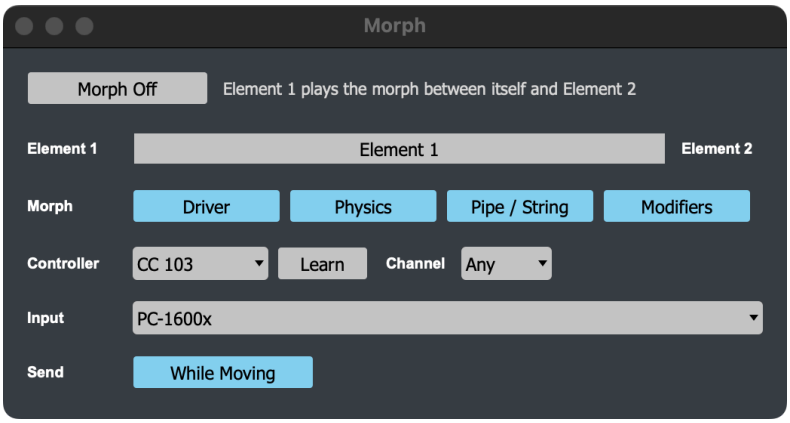
The VL's autotune settings: **PLL Gain**, **Integrator Gain**, **BPF Input Gain** and **BPF Resonance**. **Defaults** sets them back to their recommended settings.

Finishing

For an accurate result, set the Element's Detune, Random Pitch and similar settings to 0 while you tune, leave the pitch bend wheel in the center, bypass the effects, and keep breath pressure at its maximum (tuning is based on full breath; Compensation then corrects the pitch at lower pressures).

+50 cents raises the VL's Master Tuning by 50 cents while you tune, and puts it back afterwards. This is recommended for presets that use Detune or related settings: tune them 50 cents higher. **OK** keeps the result, sends the table to the VL and leaves tuning mode; **Cancel** puts the table back as it was when the window opened. Tuning changes are part of the preset, so they can be undone, and need storing like any other edit.

Morph



Morph, inspired by Robert Skerjanc's VL1 Expert Controller, blends one Element into the other as you play: **Element 1 plays the mix** between itself and Element 2. Set up two related instruments, or two versions of one, in the two Elements, then move a controller to travel from one to the other.

Click **Morph...**, right of the Copy icon on the Elements tab, to open the Morph window (VL1 and VL1-m only; the button is blue while Morph is on).

Morphing

- **Morph On** takes Element 1 as it is now as the starting point. The bar (0 … 127) then moves Element 1 toward Element 2: 0 is Element 1 as it was, 127 is Element 2. Moving the bar also turns Morph on.
- **Morph Off** keeps the mix in Element 1, as one step you can undo. Undo, loading a preset or refreshing turns Morph off first.

Groups

Which parts of the Element are morphed, each On or Off: **Driver** (its Main and Pressure EG pages), **Physics** (both Physics pages and the tuning table), **Pipe / String** (its Main page and the Mixer) and **Modifiers**. Numbers move smoothly; menus and switches change halfway. The Element's name never changes.

Controller

A MIDI controller that moves the morph while Morph is on: choose its control number, or click **Learn** and move the controller. **Channel** limits it to one MIDI channel (or Any), and **Input** chooses where it comes from: the VL's MIDI In (the MIDI Input on the Settings tab), or another MIDI input. The virtual keyboard's wheels can move it too.

Sending

While Moving sends the changes to the VL as the morph moves, so you hear it; **When Stopped** waits until the morph has been still for a moment, which is gentler on the MIDI connection.

A morph between two very different instruments changes hundreds of values, which takes the VL a moment to catch up with; morphs between related sounds, or with fewer groups on, follow more

smoothly.

Analog



The Analog tab re-creates Yamaha's Analog Editor: the VL as an analog synthesizer, with knobs for two oscillators, a filter, envelopes and pitch. Behind each knob are one or more of the preset's real values, the same ones the Common and Elements tabs show, so it's a quick way to rough out a sound before refining it on the Expert tabs.

A knob doesn't hold a value of its own: it **adds to or takes away from** the values behind it. For example, turning Cutoff Freq up two steps raises each Element's filter cutoff by 8 from wherever it was. So the knobs work on any preset in the edit buffer, not just the analog ones, and a value changed on another tab is simply the new starting point for the knob.

- Drag a knob up / down or across (hold **Shift** for fine changes), or use the scroll wheel. The box below it shows its position; click it to type a position (a value beyond the knob's range is set to the nearest end).
- Double-click a knob to return it to its starting position.
- Each knob's tooltip says which values it moves, and by how much.
- Knob turns can be undone, one step per drag. Undo puts the preset back, but not the knob's position.
- The knob positions and Wave switches are remembered between sessions.

Starting a new analog preset

Each VCO has a **Wave** switch, Saw or Square, which picks one of four Yamaha templates (Saw / Saw, Saw / Square, Square / Saw, Square / Square), each with the VCOs in the two Elements. Clicking a switch loads its template into the edit buffer with the knobs applied where they are. **New Analog Voice** loads the template the switches pick, with every knob back at its starting position.

Either one replaces the preset in the edit buffer, so if it has unstored edits, VL Editor asks first (see Editing and Storing Presets). The new preset's location isn't known, so EDITED then compares with the template; store it with **Store to VL...** to keep it.

VCO1 / VCO2

Each VCO is one Element (VCO2 isn't available on the VL7, which has one Element):

- **Freq:** the Element's Note Shift, one semitone a step (±16).
- **Detune:** the Element's Detune.
- **Wave:** Saw or Square (see Starting a new analog preset).
- **Level:** the Element's Level.

VCF / VCA

These act on both Elements alike:

- **Cutoff Freq:** the Dynamic Filter's Cutoff (and, turned up, its key scaling, so higher notes open up too).
- **Resonance:** the Dynamic Filter's Resonance, lowering its Input Gain as it goes up to keep the level in check.
- **Filter EG Amount** and **Amp EG Amount:** how much the Amplitude & Filter EG moves the filter and the level.
- **Attack**, **Decay**, **Sustain** and **Release:** the Amplitude & Filter EG. Attack, Decay and Release are rates, so turning them down makes that stage slower; they start at their fastest.

Pitch

- **Portamento:** the Portamento Time. At 0, portamento is Off for both Elements and their Trigger Mode is Multi; above 0, it's On, with Trigger Mode Single.
- **PEG Initial Level** and **Decay:** the Embouchure & Pitch EG, for a pitch that starts above or below the note and settles on it.
- **Vibrato Speed** and **Depth:** the Elements' vibrato.

Visual



The Visual tab re-creates Yamaha's Visual Editor: build an instrument by picking a mouthpiece and a body, then add "patches" (pickups, filters, body resonances, effects) and shape the result with a few simple controls. Like the Analog tab, it works on the preset in the edit buffer, so everything it does shows on the Common and Elements tabs too.

Synthesis: choosing an instrument

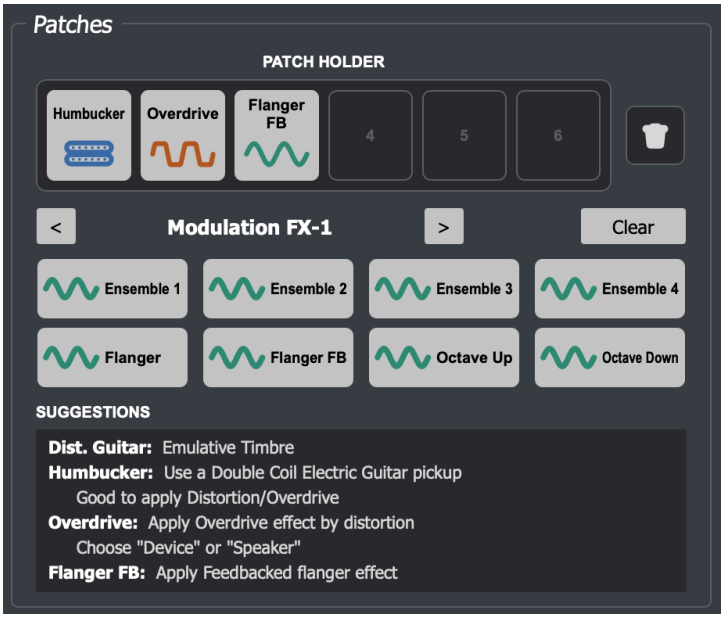
- **Driver:** what sets the instrument vibrating: **Single Reed**, **Double Reed**, **Lip Reed** (brass), **Jet Reed** (flutes), **Bow** or **Pluck**.
- **Pipe / String:** what it vibrates: **Conical (large)** (saxophone), **Straight (single-ended)** (clarinet), **Conical (small)** (oboe), **Flare** (brass), **Straight (double-ended)** (flute) or **String**.
- **Preview** shows the pair you've picked. Every one of the 36 pairs is available, including hybrids such as a bowed pipe or a blown string; each tile's tooltip describes it.
- **Variation:** two to eight instruments for the pair, each one of Yamaha's library presets (for Lip Reed and Flare: Trumpet, Trombone and others). Clicking one loads it into the edit buffer, with the patches in the holder applied.

Picking a Driver or Pipe / String only shows its Variations; nothing is sent to the VL until you click a Variation. Loading a Variation replaces the preset in the edit buffer, so if it has unstored edits, VL Editor

asks first (see Editing and Storing Presets). The new preset's location isn't known, so store it with **Store to VL...** to keep it. Loading a Variation also puts the Envelope, Control and Tweak rows back to 0.

With **Audition** on, the VL plays a short phrase each time a Variation is loaded (it sets the Breath Controller and Volume high first, so you hear it without blowing).

Patches



The patch palette has eight menus, chosen with **<** and **>**: **Pickup**, **Filter**, **Resonator**, **Modulation FX-1**, **Modulation FX-2**, **Delay FX**, **Reverberation** and **Combination**. Each patch copies a group of settings from one of Yamaha's library presets into yours:

- **Pickup:** like changing a guitar's pickups, or where a microphone is placed on a wind instrument (the Harmonic Enhancer and EQ).
- **Filter:** a basic low-pass filter (the Dynamic Filter and its envelope), with its frequency and resonance on the Tweak rows.
- **Resonator:** the body of a violin, guitar and so on (the Impulse Expander and Resonator).
- **Modulation FX**, **Delay FX** and **Reverberation:** one of the preset's effects, with its type and settings. **Combination:** a set of effects for a style of music.

To add a patch, double-click it, or drag it into the **Patch Holder** (onto a patch already there to replace it). The holder has six places. A Pickup always goes first and a Filter next, and there can be only one Pickup, one Filter and one Resonator: adding another replaces it. Drag patches within the holder to reorder them; drag one to the trash can, or right-click it, to remove it. **Clear** removes every patch and puts the Envelope, Control and Tweak rows back to 0.

The patches are applied left to right over the Variation, so where two set the same values, the one further right wins. Not every effect works with every combination. Each change can be undone.

Suggestions shows Yamaha's notes on the Variation and on each patch in the holder.

Envelope

From -16 to 16, 0 leaving the preset as it is; higher is faster:

- **Attack Rate:** a faster or slower attack.
- **Decay:** how fast the string dies away (Pluck only).
- **Release Rate:** a faster or slower release.

Some Driver / Pipe / String combinations don't respond to some of these.

Control

How the Breath Controller plays the preset:

- **Control Depth** (0 … 127): how far it reaches, by scaling the depth of every controller the Breath Controller drives.
- **Control Curve** (-16 … 16): those controllers' curves; up is softer, down harder.
- **Breath / No Breath:** whether they come from the Breath Controller, or, with No Breath, from the Touch EG (velocity and aftertouch), for playing from a keyboard.

Tweak

Up to ten rows (in two columns, Tweak 1 and Tweak 2) from -16 to 16, such as Brightness or Thickness, brought by the Variation and by the patches in the holder. Each row's tooltip lists the values it moves.

Like the Analog knobs, the Envelope, Control and Tweak rows add to or take away from the preset's values, so a value changed on another tab is the new starting point, and moving a row back to where it was gives the value back.

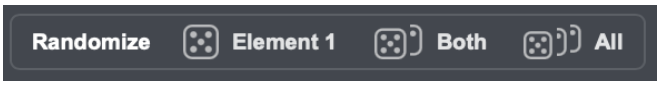
Randomize

Randomizing is a quick way to find sounds you wouldn't have thought to make: roll the dice on part of a preset, listen, and undo if you don't like it. Each die draws new values for its part of the preset, within the ranges set on the Settings tab (see Settings, Randomize).

The dice

- **On a panel or section:** every panel on the Common tab and every section on the Elements tab has a die just after its title (in the pop-out windows too). It randomizes just that panel's or section's values. On an effect panel, that includes the effect type: the new type's values are drawn for that type.
- **The Randomize panel** on the Common tab (top left) has **Common** (every Common value) and **All** (the whole preset, Common and Elements).
- **The Randomize panel** on the Elements tab (at the right of the Element frame, level with the Element Name) has **Element n** (the Element shown), **Both** (both Elements, each drawn separately; not on the VL7) and **All**.





In the Randomize panels, the number of dice on a button shows how much it covers: one die for this tab's part, two for both Elements, three for the whole preset.

Good to know

- Only values that are **On** in Randomize Ranges (on the Settings tab) change, and only within their Min and Max. Names and key scaling are never randomized.
- Some values set the range of others (a controller's source decides what its depth means, an effect type which values it has, a Tracking setting its cutoff's range). These are drawn first, and the values that depend on them then stay within what the new setting allows.
- A randomize is one step you can undo, however many values it changes, and it makes the preset EDITED like any other edit. If you find something you like, store it (see Editing and Storing Presets).
- A small randomize operation gets sent to the VL as individual parameter changes; a large one (a whole Element or the whole preset) is sent as a complete preset, which takes about a second (longer at a slower SysEx Speed).
- Random values don't always make a playable sound, especially with the Physics pages turned on: the instrument may be silent, squeal or play out of tune. Roll again, or undo.

Virtual Keyboard



The virtual keyboard lets you play the VL while you edit, without leaving your chair. It's most useful with a VL1-m, which has no keys of its own, but it's handy with any model. (To play from a real MIDI keyboard through VL Editor instead, see Keyboard Input under MIDI Setup.)

Click the **keyboard icon** in the bottom right corner of any page, left of the **?**, to show or hide it (the icon is blue while it's shown). It appears as a strip under the pages: the window grows taller to make room, keeping its width and position. Click **Pop Out** to move it into a window of its own, which stays in front of VL Editor's windows; **Dock** (or closing that window) puts it back. The keyboard's settings, and whether it's shown, docked or in its own window, are remembered.

Playing

- **Keys:** 49 keys, four octaves as on a VL1. Click a key to play it: the higher up the key you click, the higher the velocity (see VEL under Velocity and channel).
- **–** and **+** shift the keyboard down or up an octave.
- **Hold** keeps a note sounding after you let go, until you play it again or play another. Computer keys pressed together hold a chord; a key pressed on its own then replaces it.

- **Panic** stops every note on the keyboard's channel and centers the pitch bend, for a note left hanging. (It sends a Note Off for every note, as the VL ignores All Notes Off.)

Wheels

- **BEND:** pitch bend; it springs back to the center when you let go.
- **MOD:** the modulation wheel (control number 1); double-click it to set it to 0.
- **BREATH:** sends the VL's Breath Controller (the control number set on the System tab), and stays where you leave it. With the System tab's Breath Mode at BC/WX, the VL plays only while there's breath, so raise it before you play.

Velocity and channel

- **VEL:** the lowest and highest velocities. Clicking at the bottom of a key plays the low one, at the top the high one, and in between, a velocity in between. Set both the same for a fixed velocity.
- **Channel: Ch n (VL)** follows the VL's Receive Channel from the System tab (channel 1 when the VL receives on all channels), or choose a fixed channel, 1–16.

Playing from the computer keyboard

While the keyboard is shown, the computer's keys play it too, in the main window, the pop-out windows and the keyboard's own window. Each key on the virtual keyboard shows its letter:

- **A** plays the C an octave above the lowest key, and the row continues up: **A S D F G H J K L; '** are the white keys, and **W E T Y U O P** above them the black keys, up to the F an octave higher.
- **Z** and **X** shift the keyboard down or up an octave.
- They play the highest velocity set in VEL.

The keys don't play while you're typing in a text field (a name, for example), or while Cmd / Ctrl or Alt is held, so keyboard shortcuts still work.

In the plugins, some DAWs keep some keys for themselves. If the keys don't reach VL Editor, click its window first, or look in your DAW's settings for an option to send keyboard input to plugins.

Using the Plugins

The VL Editor plugin (VST3, CLAP and on MacOS, AU) is the same editor as the application, inside your DAW, so you can edit the VL alongside the project you're working on. Everything in this manual applies to it, with the differences below.

Adding it to a project

Insert VL Editor on an instrument track (it's listed as a plugin instrument, from Defective Records). Its audio output is silent, and it ignores the MIDI on its track: the plugin talks to the VL over its own MIDI ports, chosen on its Settings tab, exactly as the application does. That's deliberate: most DAWs handle SysEx from plugins unreliably or not at all, and the editor needs to hear the VL's replies.

To play the VL from the DAW, record and play back a separate MIDI track sent to the VL's port as usual.

One VL Editor at a time

Only one VL Editor at a time can be connected to the VL, whether the application or a plugin, in any DAW (see Connecting to the VL). A second copy of the plugin in the same project shows a note saying another VL Editor in the project is connected; a VL Editor in another program shows the **VL In Use** notice, with **Try Again** for when the other one has closed.

What the project saves

The project remembers the plugin's MIDI ports, VL model and device number, and sets them when it's opened. Opening a project sends nothing to the VL.

The preset being edited is **not** saved with the project. Keep it on the VL with **Store to VL...**, or save it as a file from the Presets tab.

The plugin window

- Resize it with the handle in its bottom right corner; it keeps its proportions. **Default Size** on the Settings tab (or Cmd+0 / Ctrl+0) puts it back. The size is remembered.
- The Always On Top setting isn't available as in the standalone version, as the plugin window "belongs" to the DAW. Pop-out windows, Tuning, Morph and keyboard windows stay in front of the DAW while it's in front.

Troubleshooting

The header says VL NOT RESPONDING !

VL Editor asked the VL for its settings and got no answer within two seconds. Check that the VL is switched on and has finished starting up, that both MIDI cables are connected the right way round (your interface's MIDI Out to the VL's MIDI In, and the VL's MIDI Out to your interface's MIDI In), and that the MIDI ports, VL model and device number on the Settings tab match your setup and the synth (see Connecting to the VL). Then click the refresh icon in the header.

The header says MIDI PORTS NOT SELECTED ! or VL MODEL NOT SELECTED !

Choose them on the Settings tab. If your MIDI interface isn't in the list, connect it, then click **Rescan MIDI Devices**.

The header says VL IN USE BY ANOTHER VL EDITOR !

Another VL Editor (the application, or the plugin in a DAW) is connected to the VL. Only one at a time can be. Quit the other one, or remove the plugin from its project, then click **Try Again** (see Connecting to the VL).

Sending presets fails, or the VL is left with a silent preset

Some MIDI interfaces, particularly inexpensive USB MIDI cables, can't keep up with presets sent at MIDI's full speed and drop data. Set **SysEx Speed** on the Settings tab to **Slow**, or **Slowest** if that's not enough, and send again.

Storing presets doesn't work

The VL's **Memory Protect** must be off for it to accept presets into its memory. VL Editor says so when it's on; turn it off on the System tab (Miscellaneous panel) or on the VL in Utility mode. If the store check says the VL didn't send the preset back, or that some bytes differ, check the MIDI connection, try a slower SysEx Speed, and store again (see Editing and Storing Presets).

A preset I picked on the VL doesn't show in VL Editor

VL Editor doesn't follow presets chosen on the VL's front panel. Click the refresh icon in the Editor's header to read the preset now in the VL's edit buffer.

I hear nothing when I play the virtual keyboard

- If the System tab's **Breath Mode** is set to BC/WX, the VL plays only while there's breath: raise the virtual keyboard's **BREATH** wheel, or blow into your breath controller.

- Check the virtual keyboard's channel matches the VL's Receive Channel (choose **Ch n (VL)** to follow it).
- If the preset itself is silent (after randomizing, for example), undo, or load another preset.

Effect values changed by themselves after I chose a new effect type

That's the VL: choosing an effect type resets that effect's values on the synth. VL Editor reads the preset back a moment later, so it shows the new values (they're greyed out until they arrive).

The VL's front panel doesn't respond

While the Tuning window is open, the VL is in tuning mode (the header says TUNING MODE ACTIVE) and ignores its front panel. Click **OK** or **Cancel** to close the window, and to disable tuning mode on the synth.

VL Editor asks for my registration code again

Authorization covers only the computer it was made on. On a new computer, VL Editor fills in your name and asks for your code again (see Authorization).

The plugin doesn't show up in my DAW

Have the DAW rescan its plugins. Check that you installed the format your DAW uses (VST3, AU or CLAP; see Installation).

Documentation & Help

This manual is built into VL Editor, the application and the plugins alike, so it's always at hand, opening in your computer's PDF viewer:

- The **?** button in the bottom right corner of every page opens it.
- So does **Documentation** in the About & Authorization window (click the VL Editor logo at the top left).

Within VL Editor itself, hold the mouse over a setting or a section title for a **tooltip** describing it; switch **Show Tooltips** off on the Settings tab if you'd rather not see them.

For anything this manual doesn't answer, see Contact & Support.

Acknowledgments & Thanks

VL Editor wouldn't exist without the help and generosity of many people. My thanks to:

- **Manny Fernandez**, for his work in the development of the Yamaha VL synth series, and for his VL Programming Guide and Tutorial (https://www.patchmanmusic.com/VLProgrammingGuide.html), from which many of VL Editor's tooltips are drawn, with his kind permission, and for his help as a beta tester. And thanks to Patchman Music for hosting the guide.
- **Robert Skerjanc**, whose VL1 Expert Controller inspired the Morph feature, and for his help as a beta tester. I also looked at Robert's legacy SoundDiver editor for tips as well.
- **Daniel Forró**, as a longtime Yamaha demonstrator, for his sharing of documentation I was in search of, and for work as a beta tester.
- **Jannis Tzikas**, whose suggestion first got me interested in exploring the VL series, and for his help as a beta tester.
- **Yamaha Corporation**, for the VL instruments themselves, and for their original VL v2 Expert, Analog and Visual Editors, on which much of VL Editor is based.

Contact & Support

Dan Nigrin

- dan@defectiverecords.com

When you report a problem, please include VL Editor's version and build (shown in the About & Authorization window: click the VL Editor logo), whether you're using the application or a plugin (and which DAW), your computer's operating system, and your VL model.

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Version History

Version 1.0 (November 6, 2026)

- Initial release: the standalone application for macOS and Windows, and VST3, AU (macOS) and CLAP plugins.
- Built with JUCE 9.0.3.

Version 1.0 Beta versions 1-5 (October 21 - November 1, 2026)

- Versions for external beta tester testing

Version 1.0 Alpha versions (September 2026)

- Original internal Max-based versions, prior to switching to C++