SWAM Solo Brass
User Manual

v1.0.0

Audio Modeling

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Before you start

Although these instruments are intuitive and easy to play "out-of-the-box", getting excellent results requires a certain amount of practice and experience. Please read this user manual carefully. It contains very important information that will help you achieve the best results in a much shorter time.
Also listen to the demos on the Audio Modeling website audiomodeling.com/media

The latest version of all SWAM manuals can be found at audiomodeling.com/manuals

All SWAM instruments are designed to be PLAYED in real time by shaping the sound like a real instrumentalist would.
They will function on any modern computer (see Specifications), by using a suitable host such as a sequencer (Cubase, Logic, Pro Tools, etc.), DAW (digital audio workstation), a host application supporting the plugin format VST, VST3, Audio Units or AAX, or running as Standalone.
These instruments use Audio Modeling's proprietary SWAM (Synchronous Wave Acoustic Modeling) technology conceived by Stefano Lucato, combined with Physical Modeling, and provide an exceptional playability and realism. These are not samples, using pre-recorded articulations, but complex virtual instruments, capable of shaping almost any kind of articulation and phrasing in real time. They can be played using any MIDI device such as a keyboard, breath or wind controller.
(It is, however, essential that the instruments are suitably controlled using an appropriate MIDI device, as described

> **WARNING: Expression controller not received.**
> **Please move your expression controller.**

Note: As with a real musical instrument, all of our SWAM instruments allow continuous transition across the full range of dynamics — from pp to ff — free from any phasing artifacts.
To accomplish this, it is absolutely necessary to use a suitable continuous physical MIDI controller such as an expression or volume pedal (usually CC11 or CC7 MIDI messages), a breath or wind controller (usually CC2 MIDI messages) or any other expressive MIDI controller.
WITHOUT SUCH A CONTROLLER, THE INSTRUMENT WILL NOT WORK, if played in realtime. Instead, it will display the warning "Expression controller not received. Please move your expression controller."

Other physical MIDI controllers, like sliders, knobs or a mod wheel, though not recommended, can be used for this purpose. Please refer to other sections of this manual for further details.

When used for studio production, it is necessary to provide either a MIDI Expression curve or Automations.

Note: the MIDI note naming convention we use is based on Middle C = C4, corresponding to MIDI note number 60.

Licensing

The License Key we provide can be activated on up to four computers at the same time. Refer to the Installation paragraph for instructions on how to authorize SWAM products.
For moving an authorization to a different computer, go to the Customer Portal at my.audiomodeling.com and delete it from the activations list of the corresponding License Key.
The full terms and conditions can be found in the End User License Agreement (EULA) provided with the product. Please refer to the "Installation Path" paragraph of this user manual to locate the EULA on your system.

Specifications

Mac OSX 10.11 (El Capitan), macOS 10.12 (Sierra) – 10.15 (Catalina)
- Standalone, Audio Units, VST, VST3, AAX 64bit
- NKS (Native Instruments Komplete Kontrol)

Windows 7, Windows 8, Windows 10
- Standalone, VST, VST3, AAX 64bit
- NKS (Native Instruments Komplete Kontrol)

Required space after installation: 25 MB per single product, 125 MB for the complete bundle.
RAM occupancy: about 15 MB for each instrument instance.

Installation

Product Registration
1) login to our Customer Portal (https://my.audiomodeling.com); create a new account if you have never signed up
2) select "Register a new product"
3) type the License Key or Redeem code provided, select "Next"
4) the system will send an email. Click the confirmation link on the email.
5) select "Licenses & Download" to get the latest installer, User Manual and to manage your activations.
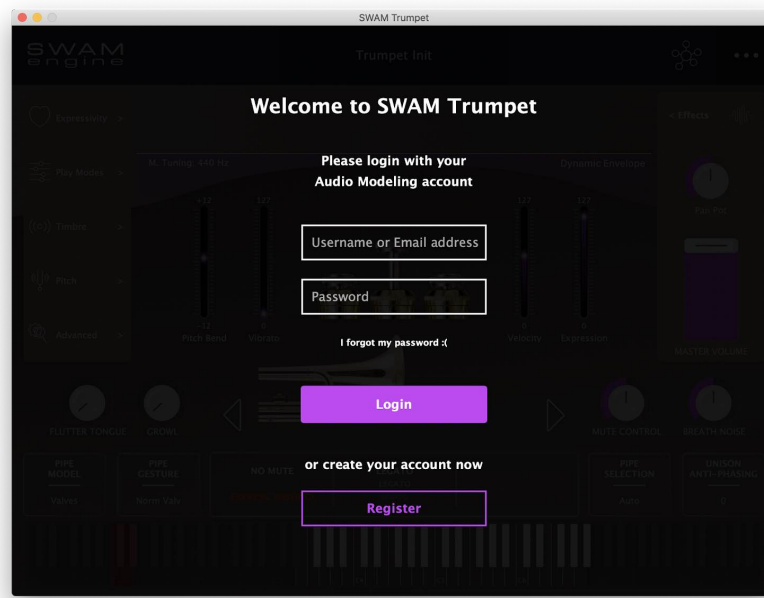
If you installed a previous version
macOS users: you can safely run the installer without launching the uninstaller.
Windows users: you must run the uninstaller before launching the new installer.

Activation
After the installation use your Customer Portal credentials and press "Login" to authorize the product.

NOTE: the product can be activated "**online**" only, i.e. connected to the Internet. If you need to work offline, just connect to the Internet for the time required for the authorization, then you can disconnect again.

Installation paths

macOS
- **Standalone app**, End User License Agreement, Uninstaller are located under: /Applications/Audio Modeling/(Product name)
- **Audio Units plugins** are located under: /Library/Audio/Plug-Ins/Components
- **VST3 plugins** are located under: /Library/Audio/Plug-Ins/VST3
- **VST plugins** are located under: /Library/Audio/Plug-Ins/VST
- **AAX plugins** are located under: /Library/Application Support/Avid/Audio/Plug-Ins
- **Default presets** and impulse responses are stored under: /Users/Shared/Audio Modeling/SWAMv3

Windows
- **Standalone app**, End User License Agreement, Uninstaller are located under: C:\Program Files\Audio Modeling\(Product name)
- **VST3 plugins**: the installation path will be asked for during the installation
- **VST plugins**: the installation path will be asked for during the installation
- **AAX plugins** are located under: C:\Program Files\Common Files\Avid\Audio\Plug-Ins
- **Default preset** and impulse response are stored under: C:\Users\Public\Documents\Audio Modeling\SWAMv3

Hardware Requirements

Audio interface (sound card)

A good quality audio interface with suitable low-latency drivers (like ASIO) is required. Recommended settings for buffer size are 128, 256 samples, or 512 samples (higher latency, but less CPU load). Onboard audio devices are often suitable on modern computers.

MIDI devices

SWAM instruments (like any other virtual instrument) can be successfully used without the need for any additional hardware by drawing the controller curves and programming the notes directly in the host sequencer. However, a much more "human" and interactive configuration is recommended — especially when playing in real time — using external MIDI devices: a MIDI keyboard with at least 5 octaves, mod wheel & pitch bend, connected to the computer via USB or an external MIDI interface, equipped with a set of physical continuous MIDI controllers (usually knobs or sliders) to control effects like growl, flutter tongue, mute distance, etc.

Although the dynamics can be controlled by another physical controller (knob, slider, ribbon, XY-pad), a pedal is highly recommended. As an alternative, a breath controller, such as a Yamaha BC3, TEControl or Hornberg Research HB1, can be used. Woodwind or brass players may prefer to use a wind controller such as a Yamaha WX, Akai EWI (USB, 4000S or 5000), Aodyo Sylphyo or an EVI (Electronic Valve Instrument); all of them provide excellent results. Multi-expressive devices like the Seaboard or the LinnStrument are supported.

Software Requirements

Standalone
We provide a Standalone version of each instrument, please check the Installation Path paragraph of this User Manual to locate the applications.

Plugins
A DAW (Digital Audio Workstation) or a Host capable of running VST2.4, VST3, Audio Units or AAX plugins is needed to run the SWAM instruments. If you do not have a host application capable of running VST or AU plugins, you can install a free host application such as Camelot (camelotpro.com).
A list of compatible hosts and DAWs can be found on our Knowledge base: audiomodeling.com/support.

Using an appropriate range of Expression

This is an extremely important aspect for getting the optimal expressiveness and realism with virtual instruments.

All real instruments require a much greater degree of effort to achieve the highest possible dynamics for that instrument. This is not the case for most physical MIDI controllers; it is indeed very easy to push an expression pedal, or a slider, to the maximum and leave it there forever. Oddly enough, even breath and wind controllers tend to jump very easily to the highest dynamics (unless carefully set), so that the most expressive range (mp to mf) is seldom exploited. This results all too often in the virtual instrument being played in an excessive range of dynamics, leading unavoidably to a poor, unrealistic performance.

Please keep in mind that the key to expressiveness and realism is a proper use of dynamics. Always monitor the input expression value on the main display and adjust the dynamics accordingly. A useful trick is to set the overall monitoring volume fairly high. This automatically prevents any inclination toward over using dynamics.

It is also important to optimize the general volume of your loudspeakers/headphones at an average value of Expression. Too low an output level would easily induce the user to use high Expression levels, usually yielding excessively "biting" sounds.

Introduction

SWAM Solo Brass is a collection of solo brass instruments conceived and developed by Stefano Lucato and the Audio Modeling team. These instruments are based on Physical Modeling technology and do not make use of any samples.

SWAM Solo Brass collection includes **fifteen brass instruments**, grouped in three product families:
- <u>SWAM Trumpets</u>:
  - Flugelhorn (E♭), Flugelhorn, Trumpet, Trumpet (C), Piccolo Trumpet.
- <u>SWAM Trombones</u>:
  - Double Bass Trombone, Bass Trombone, Tenor Bass Trombone, Tenor Trombone, Alto Trombone.
- <u>SWAM Horns and Tubas:</u>
  - Bass Tuba, Tuba (E♭), Euphonium, French Horn (F), French Horn (B♭).

SWAM Solo Brass instruments comes as a Standalone application for Desktop and iOS, as VST, VST3, Audio Units and AAX plugins for Desktop, and AUv3, IAA plugins for iOS.

Any SWAM Solo Brass product can be set to emulate both Valves and Slide (i.e. Coulisse) instruments. Have you ever wanted to play a French Horn with a slide? With Physical Modeling that's possible!
Of course, the default settings at startup set the instrument to its traditional configuration.
In addition to standard SWAM controls such as staccato / legato (with velocity- or CC-controlled portamento time), dynamic expression and vibrato depth and frequency, there are several additional parameters to control the instrument behavior which are specific to the brass instruments.

Each instrument has three "Pipe Gestures" for each "Pipe Model":

Valves	1. Normal Valve (transitions emphasize overtones).
	2. Half Valve Transitions.
	3. Half Valve.
Slide (i.e. Coulisse)	1. Fixed Slide (transitions emphasize overtones).
	2. Slide Follow Real (bend).
	3. Slide Follow +/-7 (extended).

Pitch-bend

The pitch-bend controller modifies the emulated lip-tension, which adjusts the pitch of the generated tone, whilst notes control either the Valve combinations or Slide position, depending on the Pipe Model in use.

For example, if "Pipe Gesture" is set to "Fixed Slide", a large variation of pitch-bend will produce a large pitch sweep within a fixed pipe (the typical "elephant" effect).

Note that the emulated brass player can achieve much wider pitch bend ranges than any physical player can!

Valve/Slide Speed

It is possible to control the speed of transition for Valves and Slide through the parameter "Valve/Slide Speed". This time is measured in milliseconds.

One can also set the amount of Half Valve "contamination" during valve transitions using the parameter "Half Valve Amount".

Finally, it is possible to control the Valve combinations and Slide position manually (of course, this requires much more knowledge of how the instruments behave) through the parameter "Pipe Selection". By default this is set to "auto" and the correct Valve combination or Slide position is obtained from the current MIDI note).

Legato priority

On brass instruments it is possible to play the same note with different Valve combinations or Slide positions. If "Legato priority" is ON, the Physical Model will maintain the same combination or position as long as the target note is compatible with the currently selected position.

Pedal notes
On brass instruments

Timbre adjustments
It is possible to adjust timbre through a variety of parameters on the "Timbre" page: "Bell Resonance", "Breath Noise", "Dirtiness".

"Dynamic Sens." adjusts the amount that the Expression level changes the spectral character of the sound in the higher harmonics. The higher this parameter is set, the more "Brassy" the sound will be.

Mutes
Mutes and cups are represented within the instruments by physical models, rather than impulse response presets which means that you can tweak, build and reshape them to find the desired character!

On the Timbre page you can control the "Mute/Cup Size" and "Mute/Cup Tone".

Vibrato
With these totally physically-modeled instruments it is possible to play three different vibrato styles by simply combining the Vibrato Amount (which is by default assigned to the ModWheel) and Expression:
- Classical Vibrato: use a low Vibrato Amount for the whole Expression range.
- Jazzy Vibrato: use a high Vibrato Amount during Expression diminuendo at the end of a note, just before release, for the low to mid note range.
- Shake Vibrato: use a high Vibrato Amount during high Expression for mid to high note range.

Instrument parameters

All parameters have been grouped in six categories:
- Expressivity: parameters that allow the physical player's expressivity to affect the instrument.
- Play modes: parameters that act on the details of how the emulated player plays the instrument.
- Timbre: parameters that affect the instrument's timbre.
- Pitch: Master Tuning, Pitch, Transposition and microtonal settings.
- Advanced: additional parameters, especially for expert users.
- Effects: audio signal processing applied at the final stage.

The most common and important parameters are presented in the main GUI.

Main window

Main controls
- <u>Mute</u> (left/right arrows)
  - No Mute: there is no mute in the instrument's bell.
  - Straight Mute: adds a straight mute into the instrument's bell.
  - HarmWah Mute: adds a harm-wah mute in front of the instrument's bell.
  - Cup Mute: adds a cup mute in front of the instrument's bell.
  - Hand Mute: simulates a hand in front (or inside) the instrument's bell.

    The HarmWah, CupWah and Hand Mutes can be controlled in real-time through the "Mute Control" parameter on the Expressivity page.
- <u>Mute Control</u>: controls the typical 'wah' effect when the Mute is set to HarmWah, CupWah or Hand Mute. This parameter can be controlled in real time from a MIDI device by mapping it to MIDI CC, After Touch or NRPN messages.
- <u>Pipe Model</u>
  - Valves: the instrument model is controlled by Valves.
  - Slide: the instrument model is controlled by a Slide (aka Coulisse).

- **Pipe Gesture**
  The Pipe Gesture is selected by the Pipe Model switch, available on the main page or in the Play Modes page.
  - Valve:
    - Norm Valve: standard valve playing mode.
    - Half Valve Trans. (Half Valve Transitions): standard valve playing mode, with half-valve transitions. This emulates a slow-moving transition between the valve states.
    - Half Valve: half valve playing mode. This emulates the player not completely opening or closing the valves.
  - Slide:
    - Fixed Slide: fixed slide control during pitch-bend changes. Pitch is altered only by the player's lips, using a fixed slide position.
    - SlideFlw Real (Slide-following, realistic): realistic control of the slide during pitch-bend. The pitch of the player's lips is tuned to a multiple of the pipe length, until it reaches the maximum or minimum slide position. Additional bending will be made by lips only.
    - SlideFlw +/-7 (Slide following, enhanced) enables the player to move the slide up to +/- 7 semitones during pitch-bend, without taking into account the real, physical, limitations of minimum and maximum slide position that are present in a physical instrument. Beyond this range, additional bending will be made by lips only.
- **Pipe Selection**
  - Manual: the valves or slide must be controlled by correct use of MIDI CC controls. The MIDI CCs used can be assigned to "Valve 1", "Valve 2", "Valve 3", "Slide Position" parameters in the Controller Mapping page.
  - Auto: valves and slide position are selected automatically at each note-on
- **Unison Anti-Phasing** (for unison ensembles): when playing two or more of the same instrument simultaneously this value must be different for each instrument in order to avoid phasing effects.
- **Valves** / **Slide**: shows a graphical representation of the instrument Valves / Slide position.

IMPORTANT NOTE: The fingering for the valves and the slide position displayed on the GUI is our CUSTOM fingering/position, it does not necessarily coincide with the real one, as our current math model is based on straight pipes, rather than cylindrical pipes.

Audio section

- **Effects :** open the onboard FX section on the final stage.
- **Pan Pot**: pans the output signal left and right.
- **Volume**: main output volume.

Header section

- <u>Controller Mapping icon</u> : open MIDI mapping management section.

- <u>Main menu icon</u> : opens the main menu page that provides access to:
  - Presets selection and management (rename, save, duplicate, export, import, reset/reload, delete).
  - Panic Button.
  - System Audio and MIDI Settings.
 - Window size and orientation options.

Expressivity
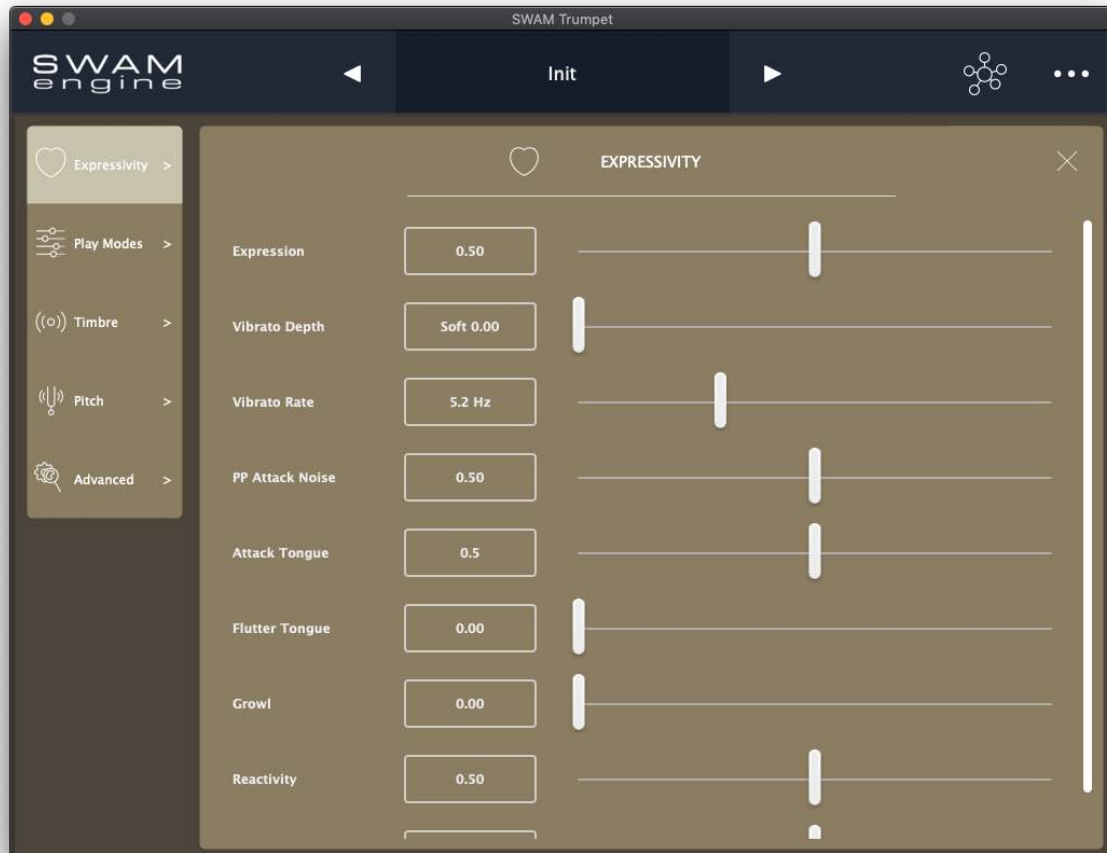
- <u>Expression</u>: main expressive control. This model set/show how hard the player is blowing into the physical model, i.e the breath intensity.
- <u>Vibrato Depth</u>: controls the amount of vibrato or shake. Vibrato is modelled as rapid changes to the shape of the lips of the player (the embouchure) or their contact with the mouthpiece, and of the breath intensity:
  - Soft vibrato (< 0.5).
  - Shake (>= 0.5).
- <u>Vibrato Rate</u>: controls the average frequency of the Vibrato applied to the model.
- <u>PP Attack Noise</u>: controls the amount of attack noise audible on very low dynamic.
- <u>Attack Tongue</u>: the amount of percussive tonguing on mid- to high-velocity note-on events. It is ignored when Attack Control is set to Expression (see Advanced section).
- <u>Flutter Tongue</u>: controls the intensity of flutter-tonguing - a technique where the player moves their tongue rapidly, producing a growling or 'rolling-rrrrr' effect.
- <u>Growl</u>: controls the growl intensity, which models the player producing growling noises within their windpipe.

- **Reactivity**: amount of harmonic transitions enhancement. For example, natural pipe subharmonic fluttering during valve transitions, attacks or fast dynamic changes.
- **Mute Control**: controls the mute applied to the instrument, as in the Main GUI.

Play Modes
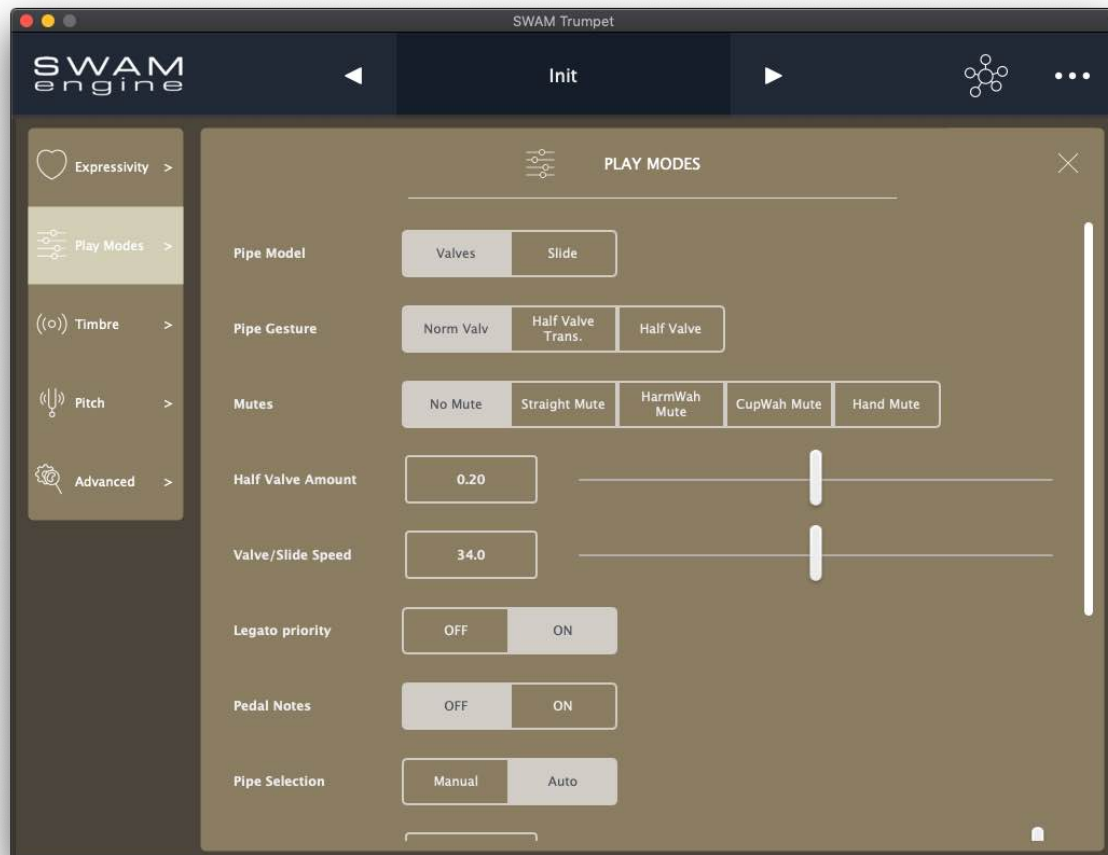
- **Pipe Model**: same as in the Main GUI.
- **Pipe Gesture**: same as in the Main GUI.
- **Mutes**: same as in the Main GUI.
- **Half Valve Amount**: the amount (from 0 to 1) of pipe "contamination" when Pipe Gesture is set to "Half Valve" or "Half Valve Trans."
- **Valve/Slide Speed**: speed at which the Valve or Slide changes position.
- **Legato Priority**
    - OFF - no priority - always changes the valve combination or slide position to best suit the note being played.
    - ON - when possible, maintains the same pipe length (valve combination or slide position) during legato passages.

- Pedal Notes
  - OFF
  - ON = Makes it possible to play pedal notes one octave below the lowest nominal note of the instrument. This is possible by modelling an additional Valve.
- Pipe Selection: same as in the Main GUI.
- Valve 1: controls the position of the first valve (when Pipe Selection = Manual).
- Valve 2: controls the position of the second valve (when Pipe Selection = Manual).
- Valve 3: controls the position of the third valve (when Pipe Selection = Manual).
- Slide Position: control the position of the slide (when Pipe Selection = Manual).

IMPORTANT NOTE: The fingering for the valves and the slide position is our CUSTOM fingering/position, it does not necessarily coincide with the real one, as our current math model is based on straight pipes, rather than cylindrical pipes.

Timbre
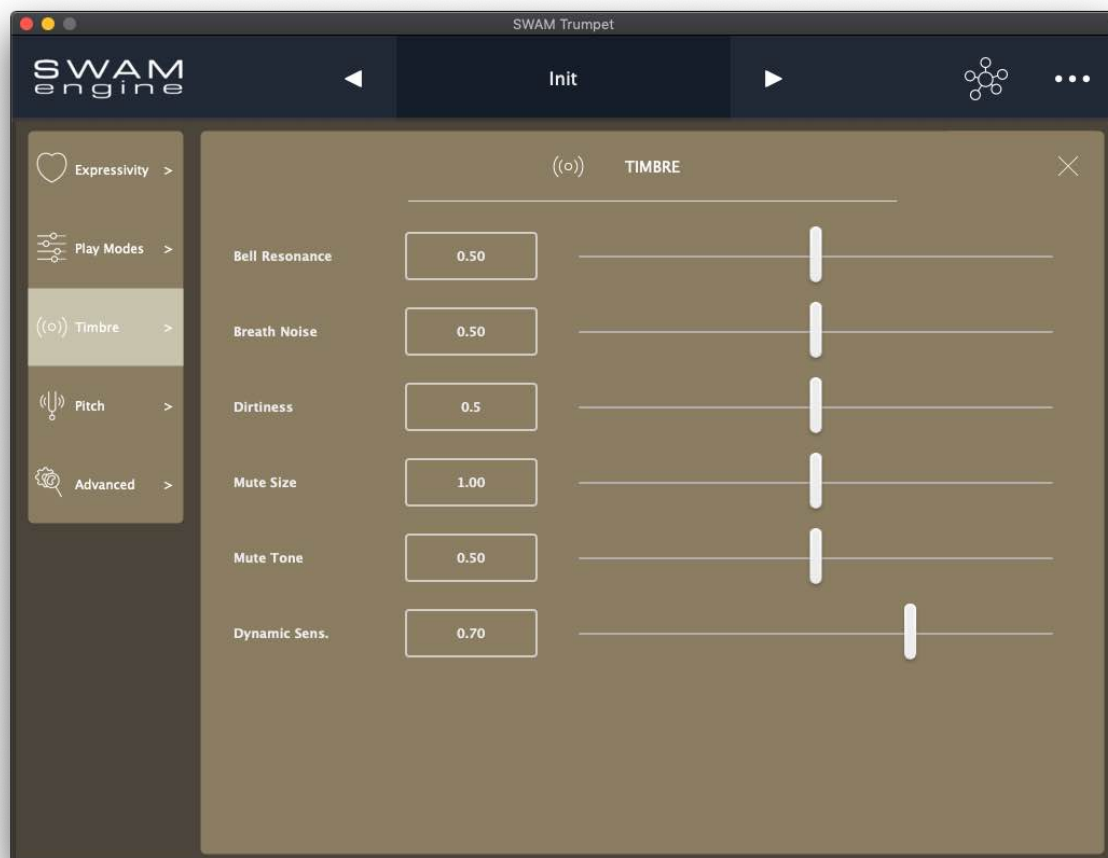
- Bell Resonance: the resonance gain of the bell.

- <u>Breath Noise</u>: the amount of breath noise (this becomes more audible when notes are played with low Expression values.)
- <u>Dirtiness</u>: the amount of sound jitter produced by a random component of the modeled lips' vibration (this is more audible when notes are played with high Expression values).
- <u>Mute Size</u>: the size of the mute/cup, if selected (see "Mutes").
- <u>Mute Tone</u>: the tone of the mute/cup, if selected (see "Mutes").
- <u>Dynamic Sens.</u>: Dynamic Sensitivity - this controls the scaling of the overall dynamic of the sound produced, which is affected by the Expression, the strength of the attacks, and other elements. Note that this is different to simply rescaling the Expression using a MIDI remapping, as Expression does not affect the attacks (unless "Attack Control" is set to "Expression") and some transitions.

Pitch

Master Tuning
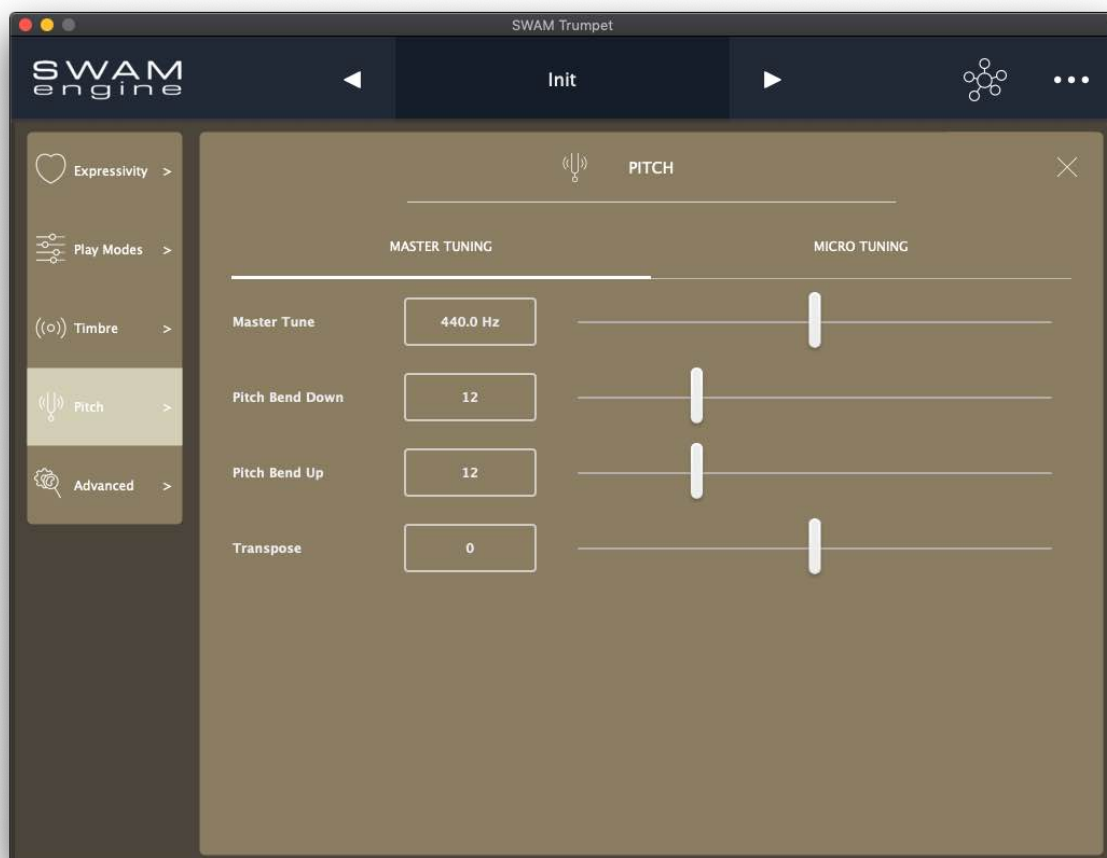
- <u>Master Tune</u> (Hz): master tuning of the instrument.
- <u>Pitch Bend Up</u>: the maximum amount of upwards pitch bend, in semitones.
- <u>Pitch Bend Down</u>: the maximum amount of downwards pitch-bend, in semitones.
- <u>Transpose</u>: the amount to transpose the instrument, in semitones.

Microtuning
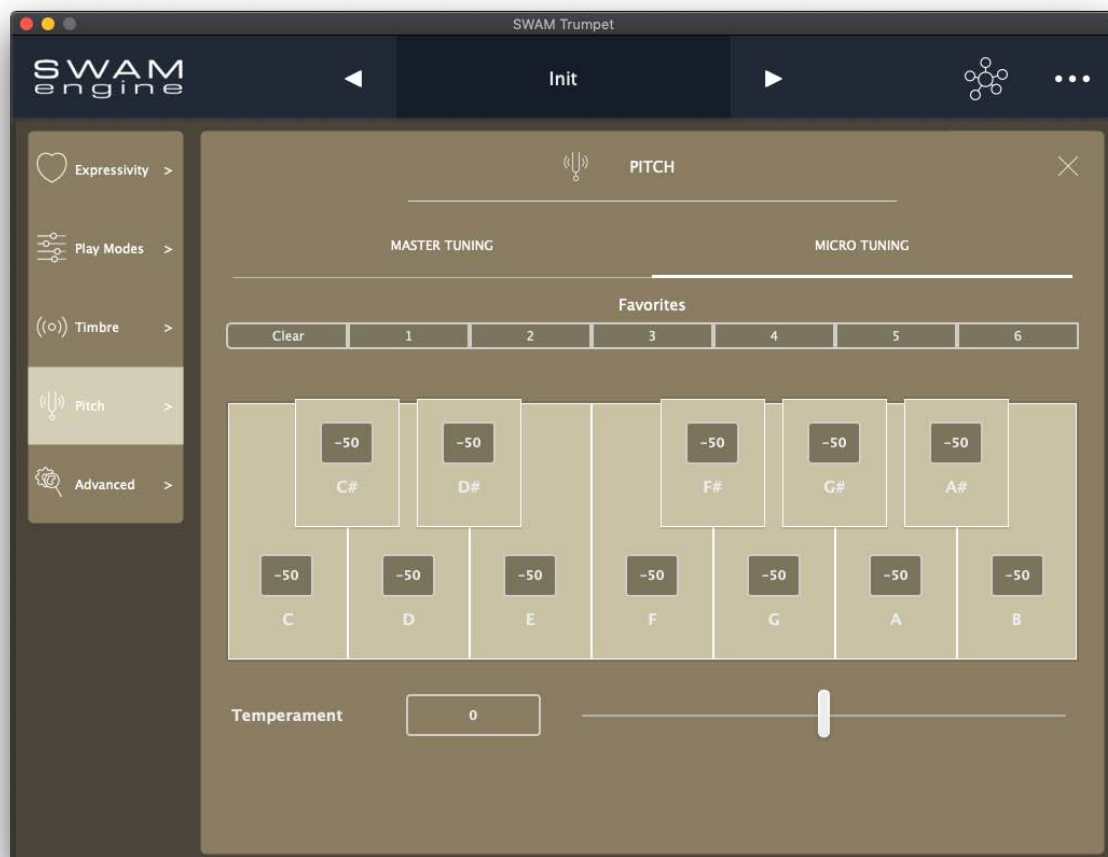
- <u>Activation</u>: Click on any key to toggle the detune, by the amount shown on the button.
- <u>Edit</u>: Click on the detune value to adjust. The value is presented in cents (hundredths of a semitone).

- <u>Favorites</u>: it is possible to store up to 7 different settings. Click and hold the preset slot to store the current configuration; click on any preset slotto recall the preset. Click on the Clear button to reset the current configuration to the default state.
- <u>Temperament</u>: if set higher than zero, this applies a kind of "spread intonation":
  - it does not affect the pitch in the middle of the instrument.
  - the higher the pitch, the more upward detuning is applied.
  - the lower the pitch, the more downward detuning is applied.

This means that the overall intonation of the instrument can be "spaced apart".

Advanced
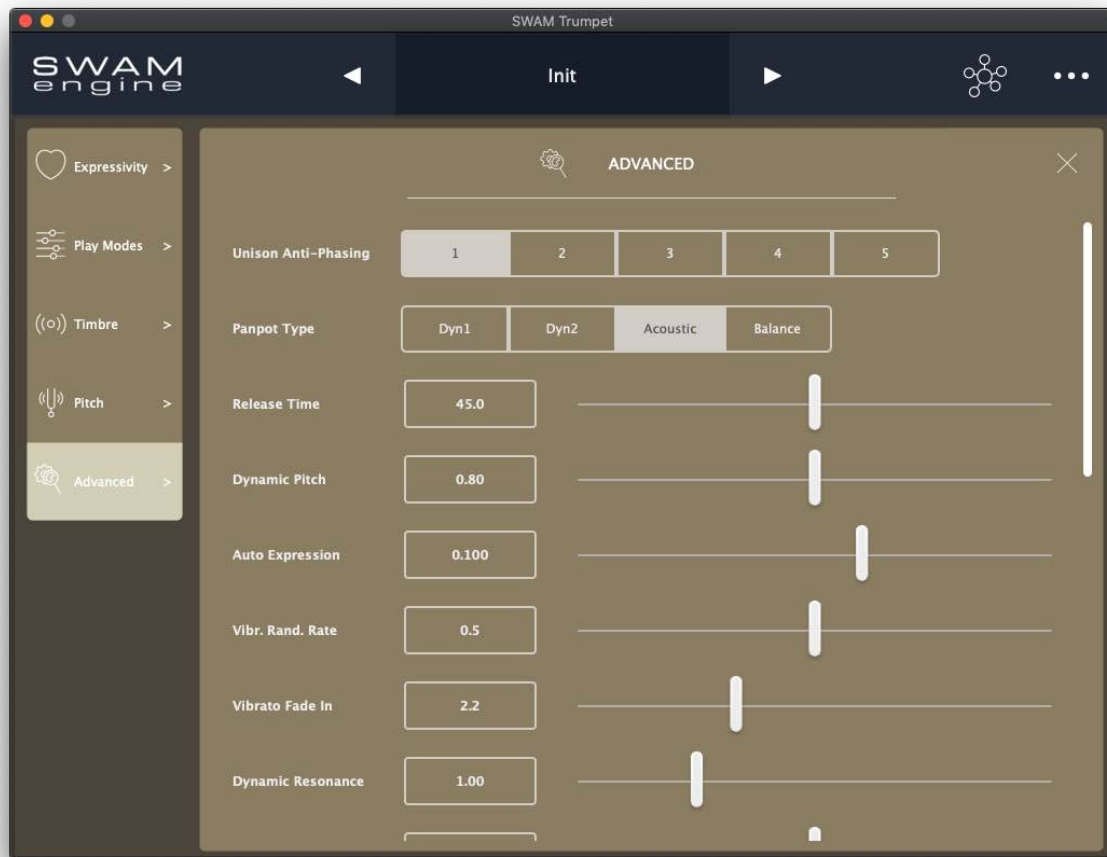
- <u>Unison Anti-Phasing</u> (for unison ensembles): same as in the Main GUI.
- <u>Panpot Type:</u>
  - Dyn1, Dyn2 - emulates small movements of the player.
  - Acoustic - adjusts the position of the instrument in the sound field, but does not affect the reverb.
  - Balance - affects both the instrument and the reverb.
- <u>Release Time</u>: the time (measured in milliseconds) that breath continues for after note-off.
- <u>Dynamic Pitch</u>: how much the pitch varies during a fast change of expression.
- <u>Auto Expression</u>: controls the amount of automatic expression applied during transitions between notes.
- <u>Vibr. Rand. Rate</u> (Vibrato Random Rate): controls how much randomness is applied to the rate of vibrato.
- <u>Vibrato Fade In</u>: how long (in milliseconds) it takes for the vibrato to reach the final amount after each note-on.
- <u>Dynamic Resonance</u>: main dynamic resonance.

- Random Lips: controls how much randomness is applied to the tuning and tension of the player's modeled lips.
- Portamento Max Time: controls the portamento time, set to OFF to disable portamento (no portamento when this value is < 1,5).
- MIDI Profile:
  - MPE: for MIDI Polyphonic Expression compatible devices.
  - Legacy: MIDI 1.0 devices.
- Attack Control - how the attack of the note is controlled:
  - Vel. Hard - controlled strongly by the note-on velocity.
  - Vel. Soft - controlled weakly by the note-on velocity.
  - Expression - controlled by the shape of expression control.
- Portamento Control:
  - Velocity: the portamento time is controlled by the note-on velocity of overlapping notes.
  - CC: the portamento time is controlled by a MIDI Continuous Control (such as Control Change, AfterTouch, NRPN).
- Breath Ctrl Mode (Breath Control Mode):
  - OFF
  - ON: suitable for Breath Controllers, allows the player to produce another note attack, using the breath envelope, while holding a note.
- Breath Ctrl Attack Sens.: (Breath Control Attack Sensitivity) controls the sensitivity of the note-on attack strength for notes triggered in Breath Control Mode.
- Pitch Bend Curve
  - ON: non-linear pitch-bend, for better pitch control especially when using a physical controller which is separate to the playing surface, so there is no correspondence between the controller and the note positions.
  - OFF: linear pitch-bend (recommended for devices which integrate the pitch bend control with the playing surface, so the pitch-bend movements on the surface correspond directly with notes. Many current MPE devices fall into this category).
- KS MIDI Channel (Key Switches MIDI Channel): select which MIDI channel will be used to receive key switch information. Select from channel 1 to 16 or ANY.
- KS Octave (Key Switches Octave Transpose): allows you to transpose the Key Switches to begin in the octave from C-1 to C2, or turn off key switches (OFF).
- KS Velocity Remap (Key Switches Velocity Remapping): since some Key Switches are velocity-dependent, this parameter controls the distribution of the thresholds between states.
- Receive MIDI Channel: is the MIDI channel the sound generator receives notes and controllers that affects the sound (default is ANY). Note that this can be different from Key Switches MIDI Channel, so it is possible to control Key Switches from a different device. For MPE Devices this is forced to ANY.

Effects
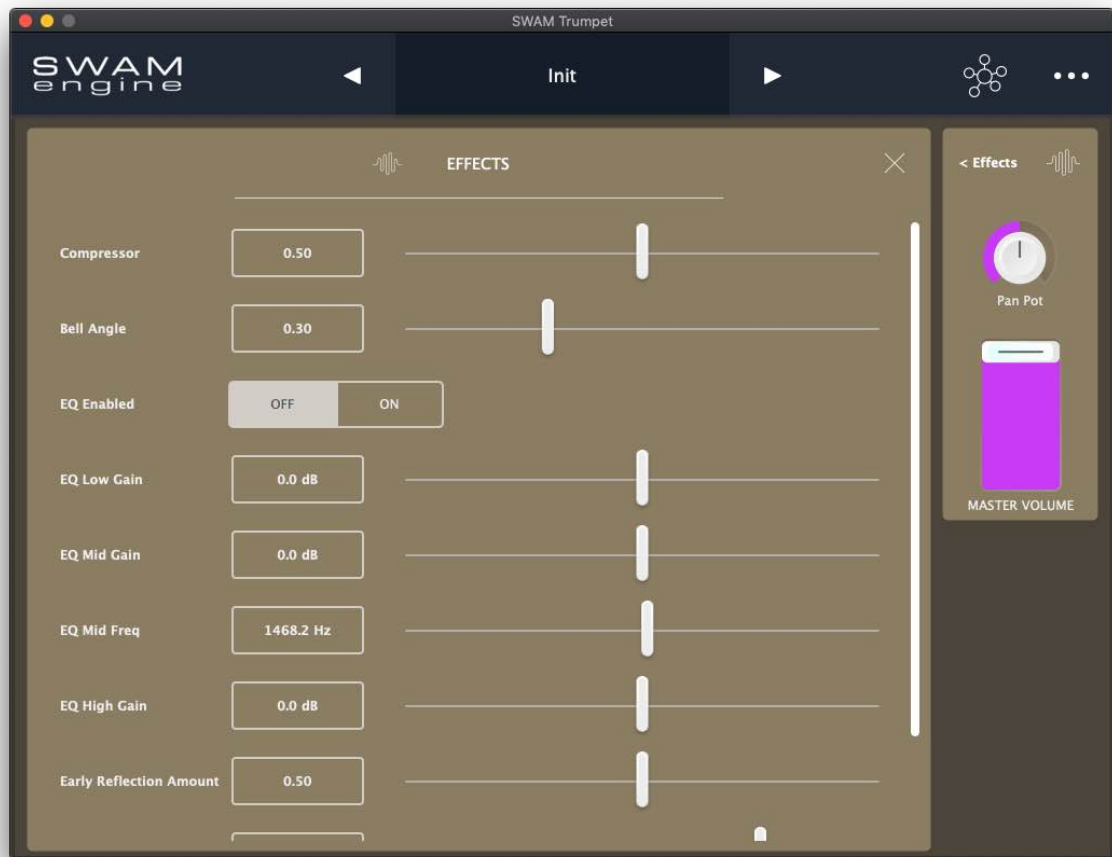
- <u>Compressor</u>: controls how much the dynamic compressor will change the volume output.
- <u>Bell Angle</u>: controls the angle of the bell direction relative to the listener.
- <u>EQ Enabled</u>: enables or disables the Equalizer (see next).
- <u>EQ Low Gain, EQ Mid Gain, EQ Mid Freq, EQ High Gain</u>: Equalizer parameters. Note that ranges are different for each instrument. They have been calibrated for the harmonic contents of each instrument.
- <u>Early Reflection Amount</u>: amount of Early Reflections, useful especially for Horns.
- <u>Reverb Mix</u>: controls the amount of reverb added to the dry signal.
- <u>Reverb Time</u>: controls how long the decay time of reverb tail is.

Controller Mapping

The Midi Controller Mapping section allows the user to manage the mapping between an external MIDI controller and the instrument parameters.

To access this page, click on the mapping icon on the top header
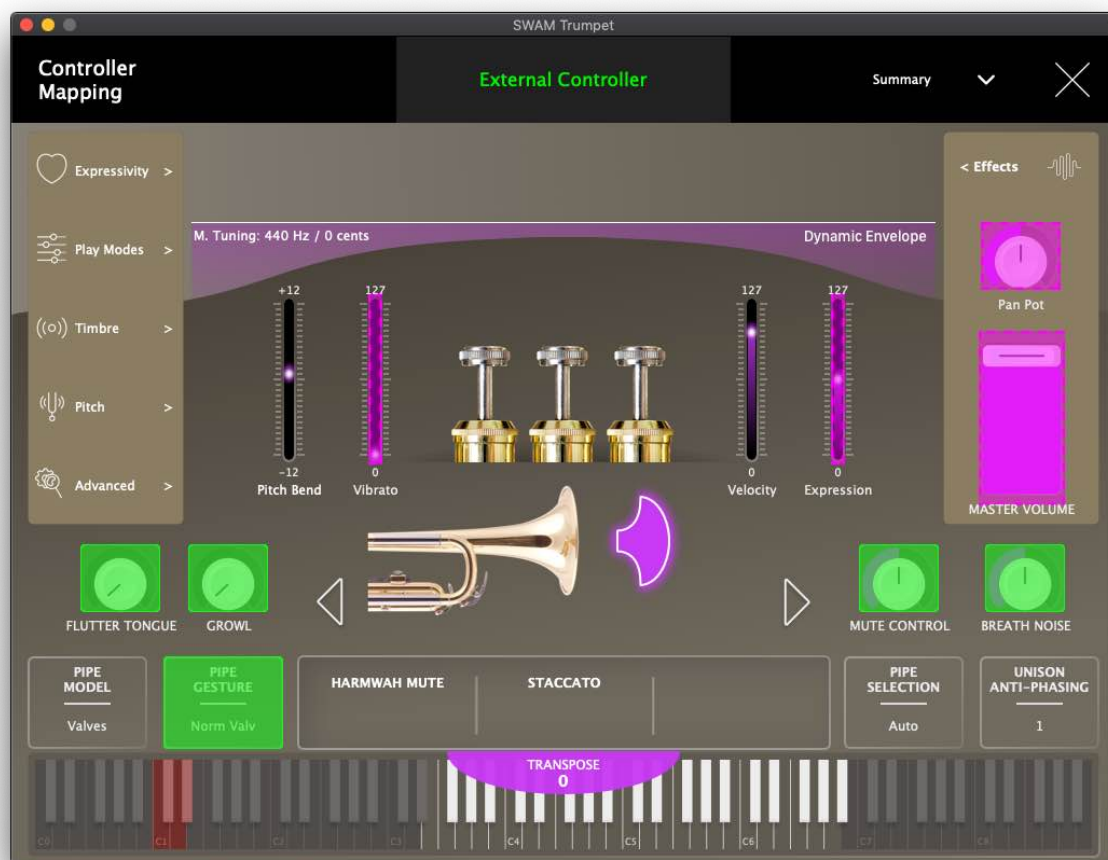
In this view/context, the parameters assigned to a controller are highlighted with a purple area with dashed borders; parameters which are not assigned are highlighted with a green area. Parameters not highlighted are not available for mapping. It is possible to browse the entire interface in this mode to select and manage any parameter for mapping.

- To map or edit a parameter mapping, click directly on the parameter to access the mapping screen for that parameter.
- Click on the "Summary" button in the top header to view the list of all parameters, their mapping status and to manage the sound engine parameters that have a direct effect on playability results with different controller types.
- Click on the "X" button in the top header to exit from Controller Mapping mode.

Mapping Screen

Assigned parameter status
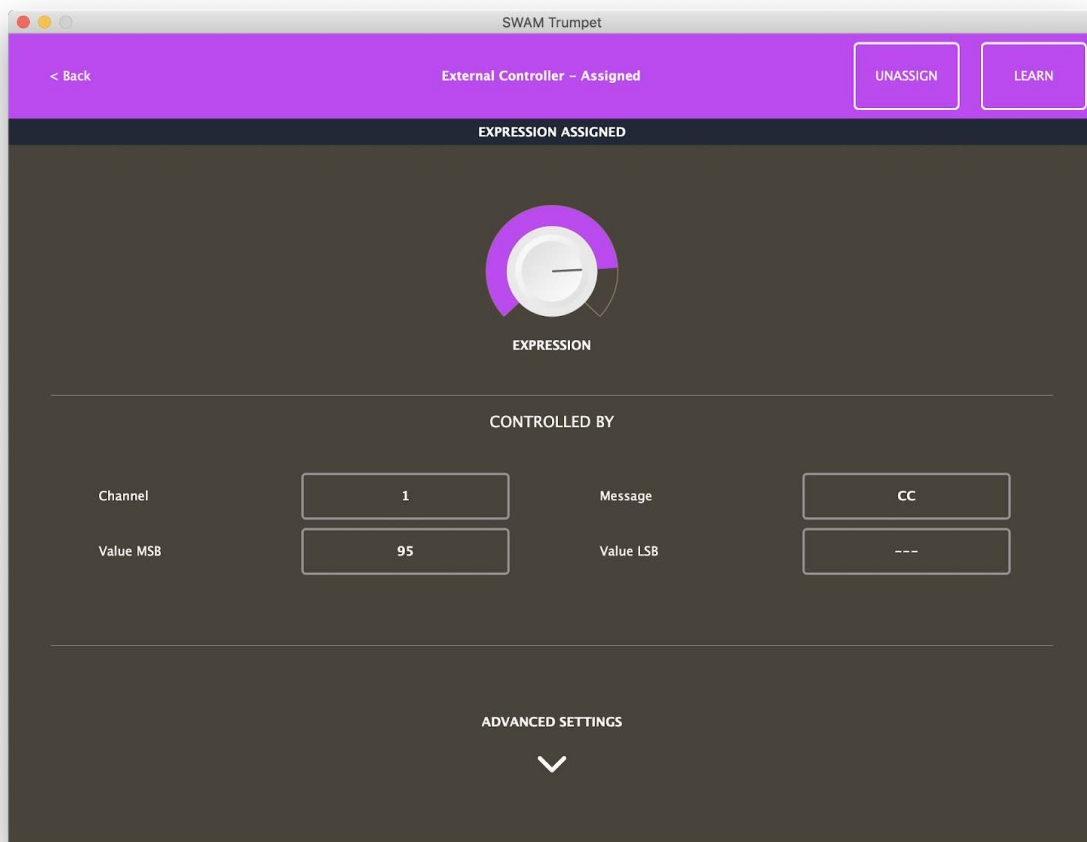
- <u>Back:</u> goes back to the previous screen.
- <u>UNASSIGN:</u> removes the current mapping and goes back to MIDI Learn mode.
- <u>LEARN:</u> turns ON/OFF the MIDI LEARN to edit or remap the current parameter.

- Controlled By section:
    - Channel: change which MIDI channel this controller will be affected by, from 1 to 16, or ANY.
    - Message: MIDI message type:
        - CC: Control Change (1 byte value).
        - CC-HIRES: two coupled Control Change messages, MSB and LSB.
        - AT: Aftertouch (1 byte value).
        - NRPN: Non-Registered Parameter Number.
    - CC# MSB: available only for Message = CC, CC-HIRES, NRPN:
        - if Message = CC, MSB is the CC number.
        - if Message = CC-HIRES, MSB is the Most Significant Byte of the two-byte hi-resolution message, from CC0 to CC31.
        - if Message = NRPN, MSB is the Most Significant Byte of the two-byte NRPN message.
    - CC# LSB: available only for Message = CC-HIRES, NRPN:
        - if Message = CC-HIRES, LSB is the Least Significant Byte of the two-byte hi-resolution message, from CC32 to CC63.
        - if Message = NRPN, LSB is the Least Significant Byte of the two-byte NRPN message.

NOTE: for details on what MSB, LSB and NRPN are, please refer to MIDI specifications at https://midi.org

- **Advanced Settings** : click on the button to show the mapping curve. The curve can be used to adjust the controller behaviour with:
  - **Input Min**: the minimum threshold on the controller input value. Values below this value will produce the "Out Min" value (or the "Out Max" value, if the curve is "inverted").
  - **Input Max**: the maximum threshold on the controller input value. Values above this value will produce the "Out Max" value (or the "Out Min" value, if the curve is "inverted").
  - **Output Min**: the minimum output value.
  - **Output Max**: the maximum output value.
  - **Shape**: controls the shape of the remapping curve (be aware, small changes can produce high variations, depending on the Symmetry parameter).
  - **Symmetry**: controls the symmetry of the remapping curve.
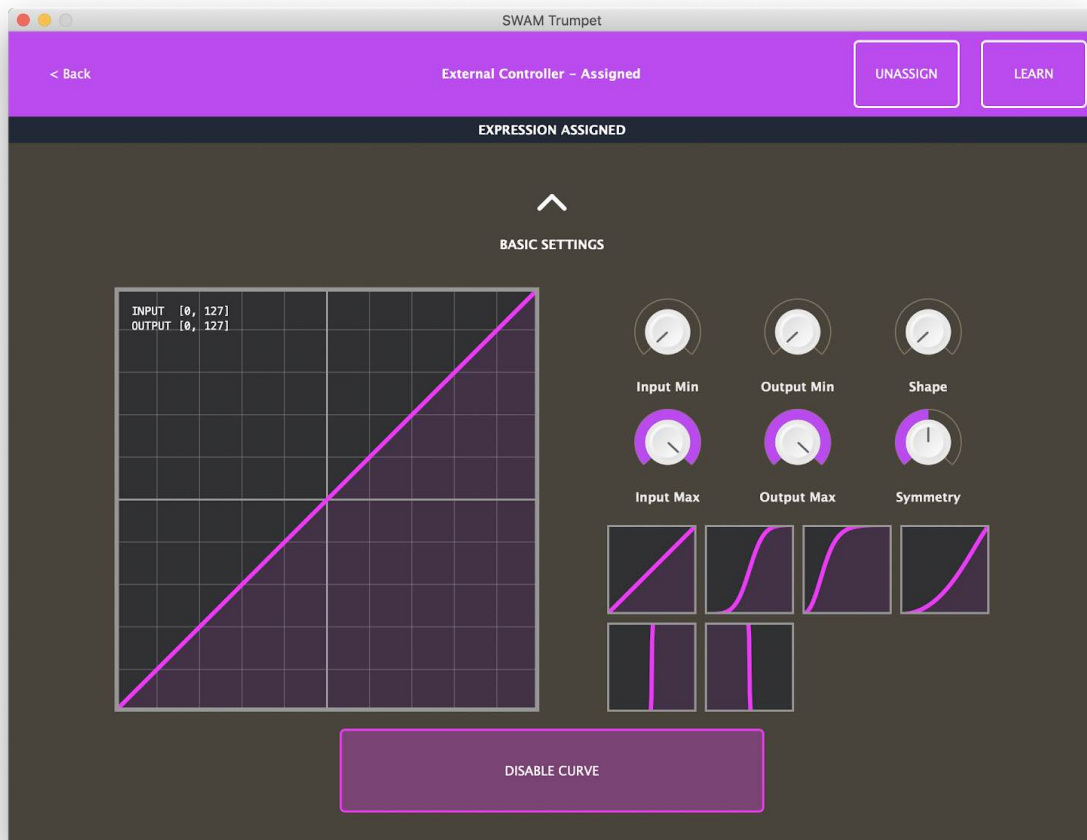
Un-assigned parameter status
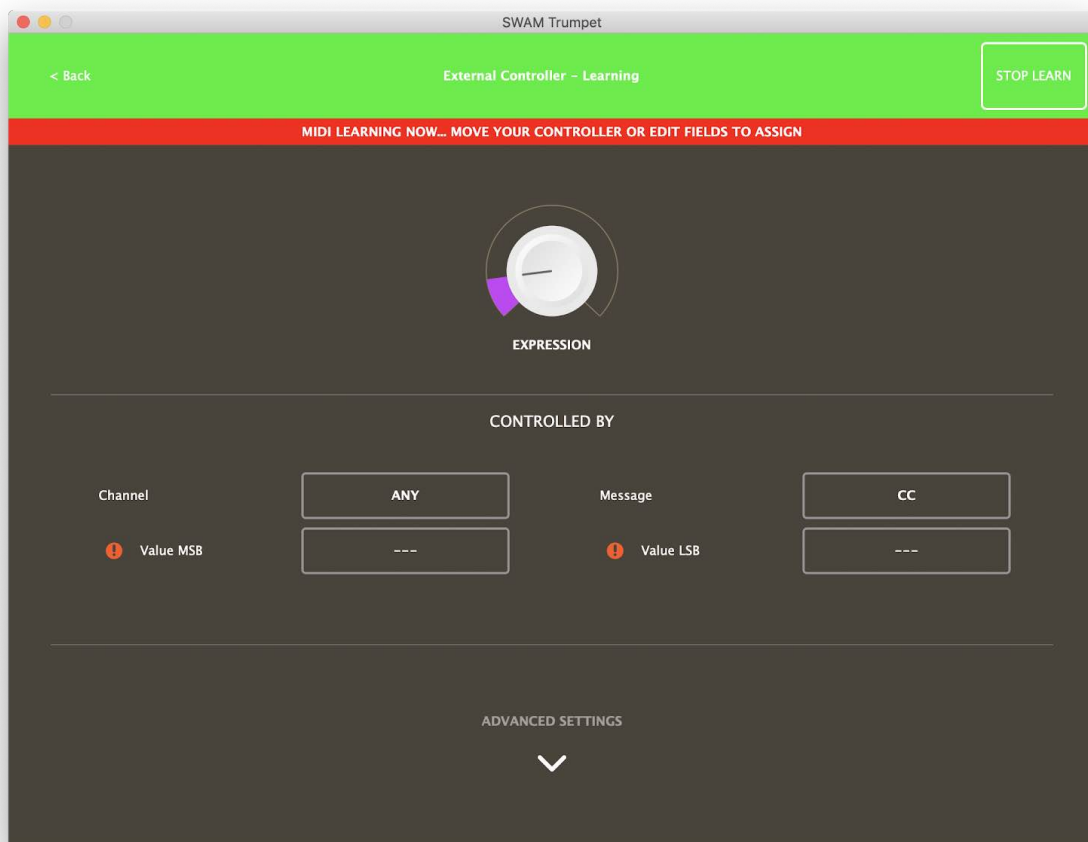
Any click on an unassigned parameter goes to this screen. SWAM is automatically listening for MIDI input messages while in LEARN MODE. Move the controller you want to connect, to automatically complete the mapping.

The area "Controlled by" will be automatically filled in by MIDI Learn but can still be edited by manual input as well.

Summary

The Summary screen recaps all the mapping settings providing the big picture of all mappings and the configuration of auxiliary parameters.
It is organized in two tabs:

- <u>External Controller Mapping</u>: this is the list of the all the parameters that can be mapped individually by the process described above. Click on any row to create a new assignment, or to edit the existing assignment.

●
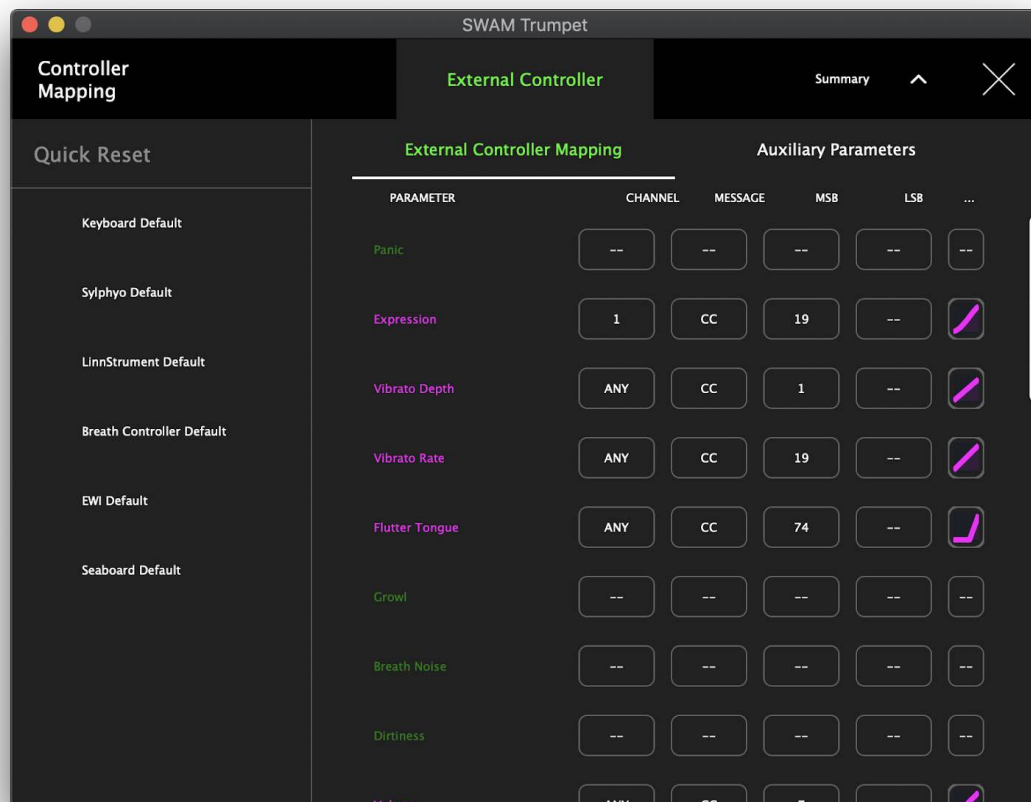
- <u>Auxiliary Parameters</u>: settings and parameters that have a key role in managing the sound engine's response to different controllers. Most of the entries can be found in the "Pitch" and the "Advanced" sections as well. These parameters are saved along with the External Controller mapping entries to ensure consistent controller presets.
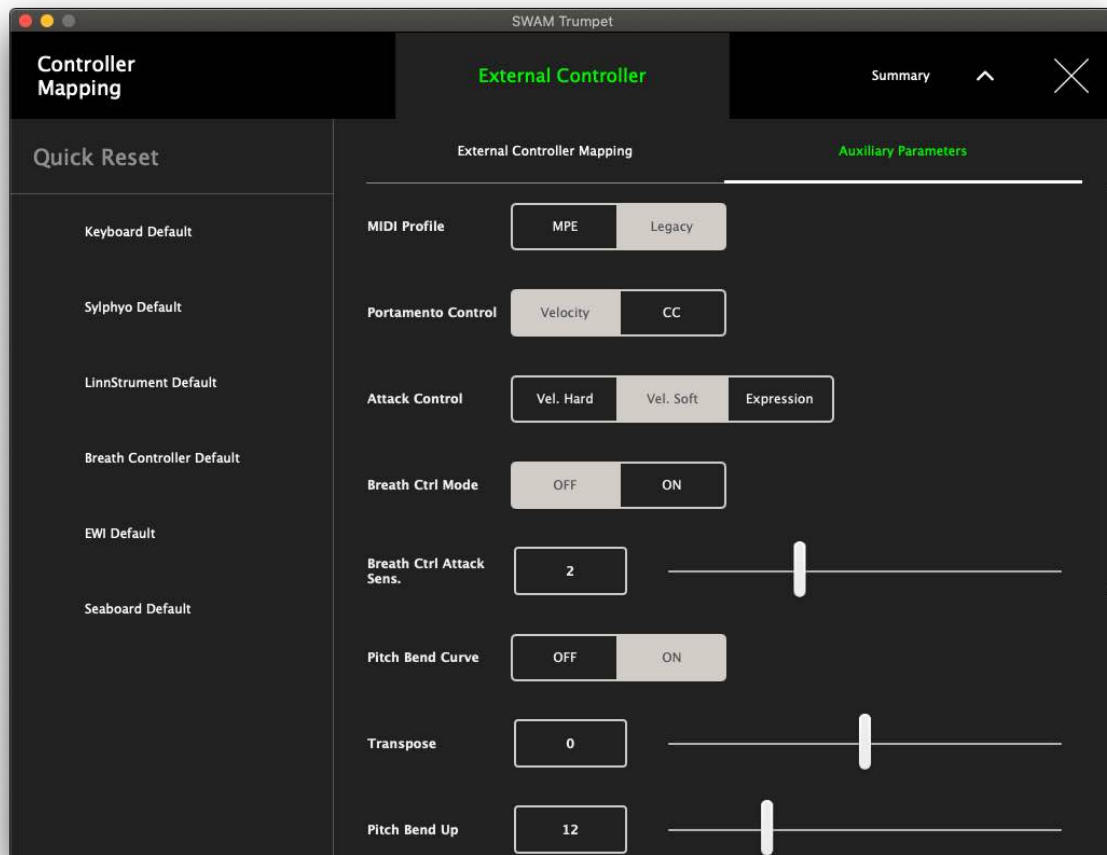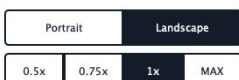
Main menu
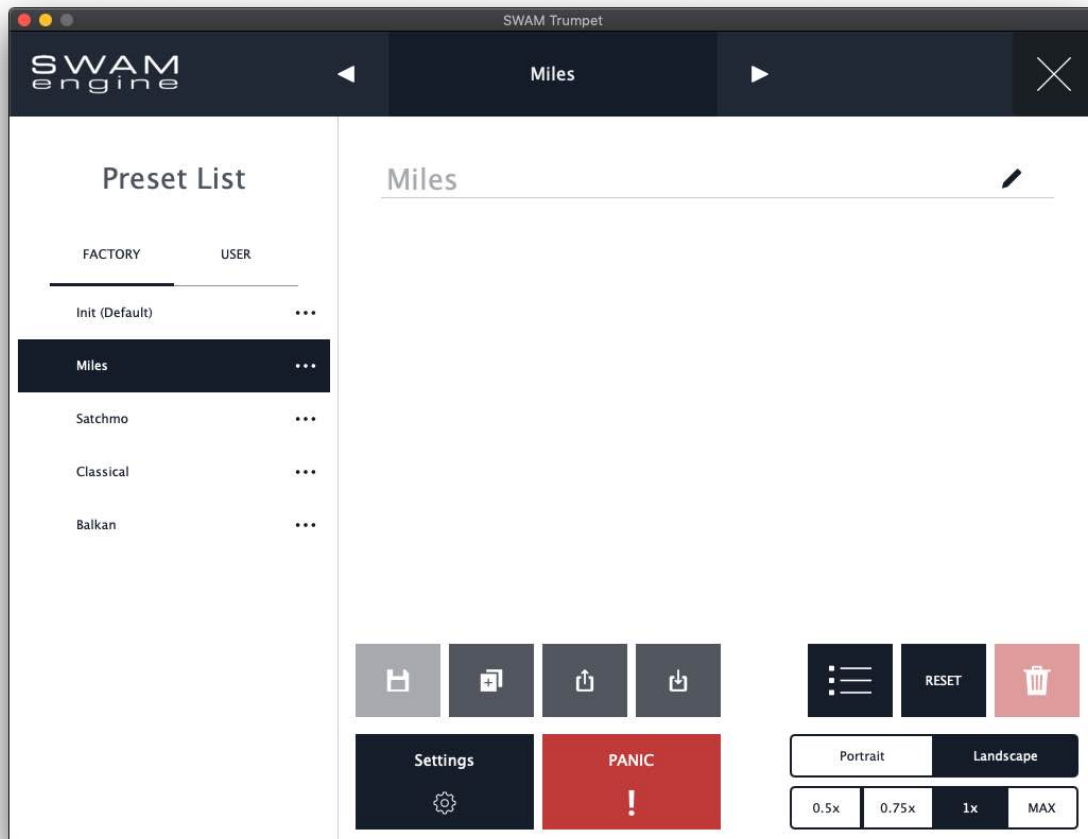
- <u>Preset List</u>: on the left hand side it is possible to select presets. The SWAM presets are organized into two groups: Factory and User. User presets can be added, edited and deleted. Factory presets cannot be edited or deleted; any save action performed on a Factory preset generates a User preset. Any preset can be selected to become the "default" one, i.e. the one loaded at startup: just click on [...] and choose "Set as default".

- 🖫 <u>Save</u>: save current preset.

- 🗗 <u>Duplicate</u>: duplicate current preset to create a new one.

- ⤒ <u>Export preset</u>: save the current instrument state as a .swam preset file.
  NOTE: compatibility of preset exports with future releases is not guaranteed. It is strongly recommended that users archive custom presets in a custom folder at a different location to the default preset folder.

- <u>Import preset</u>: load a .swam preset file.

- <u>Advanced preset manager button</u>: shows the preset components, such as Sound engine parameters, Controller Mapping and Micro Tuning settings. From this area it is possible to import or export only subsets of the SWAM presets.
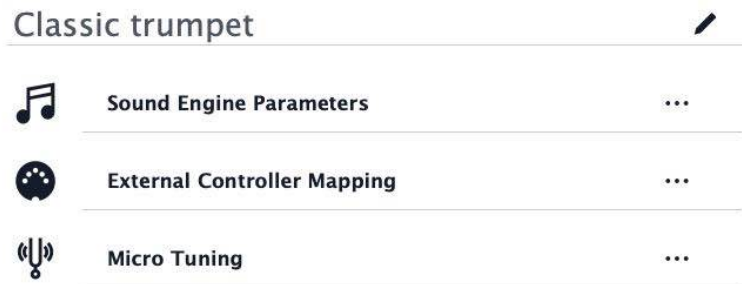
- <u>RESET</u>: reset parameters to the default state.

- <u>DELETE</u>: delete the user-selected preset.

- <u>PANIC BUTTON</u>: silence, use this in case of stuck notes.

- <u>Orientation and Scaling</u>: set the GUI orientation and zoom factor.

- <u>Settings</u>: setup of Audio and MIDI devices, License and About Section.
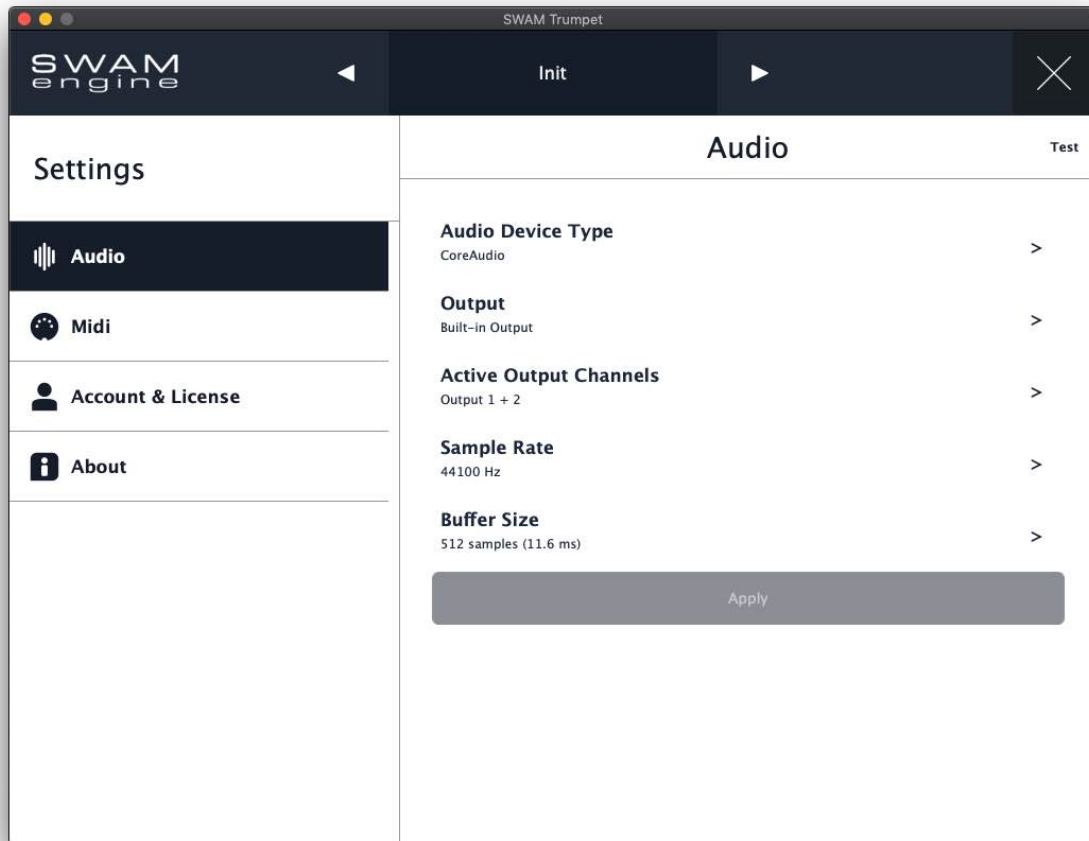
KeySwitches

Depending on the "KS Octave" parameter, Key Switches can be positioned beginning at any octave from C-1 to C2, or they can be disabled.

By default, the Key Switches are positioned starting from C1 (MIDI note 24)where C3 = Middle C (MIDI note 60). You can change the MIDI channel from which Key Switches receive note-events through the "KS Channel" setting. This can be useful when controlling Key Switches from a separate keyboard.

The Key Switch state depends on the note-on velocity. The velocity curve can be adjusted using the "KS Velocity Remap" parameter.

The Key Switches provided are:
- **C = Pipe Gesture**, depending on the selected Pipe Model at the next note-on:

Valves	Low Velocity = Norm Valve (overtones transitions).
	Mid Velocity = Half Valve Transitions.
	High Velocity = Half Valve.
Slide	Low Velocity = Fixed Slide (overtones transitions).
	Mid Velocity = Slide Follow Real (bend).
	High Velocity = Slide Follow +/-7 (extended).

- **C# = Fall Down**. Perform an immediate Fall Down starting from the currently playing note (where the pitch and volume drop rapidly):
  - Velocity controls Fall Down speed.
- **D = Doit**. Perform an immediate Doit starting from the currently played note (where the pitch rises rapidly and the volume decays):
  - Velocity controls Doit speed.
- **D# = Legato Priority** (at next note-on):
  - Low Velocity = OFF.
  - High Velocity = ON.

All parameters controlled by the Key Switches can be controlled by MIDI Control Change, After Touch and NRPN messages as well through the **Controller Mapping** section.

Range of instruments
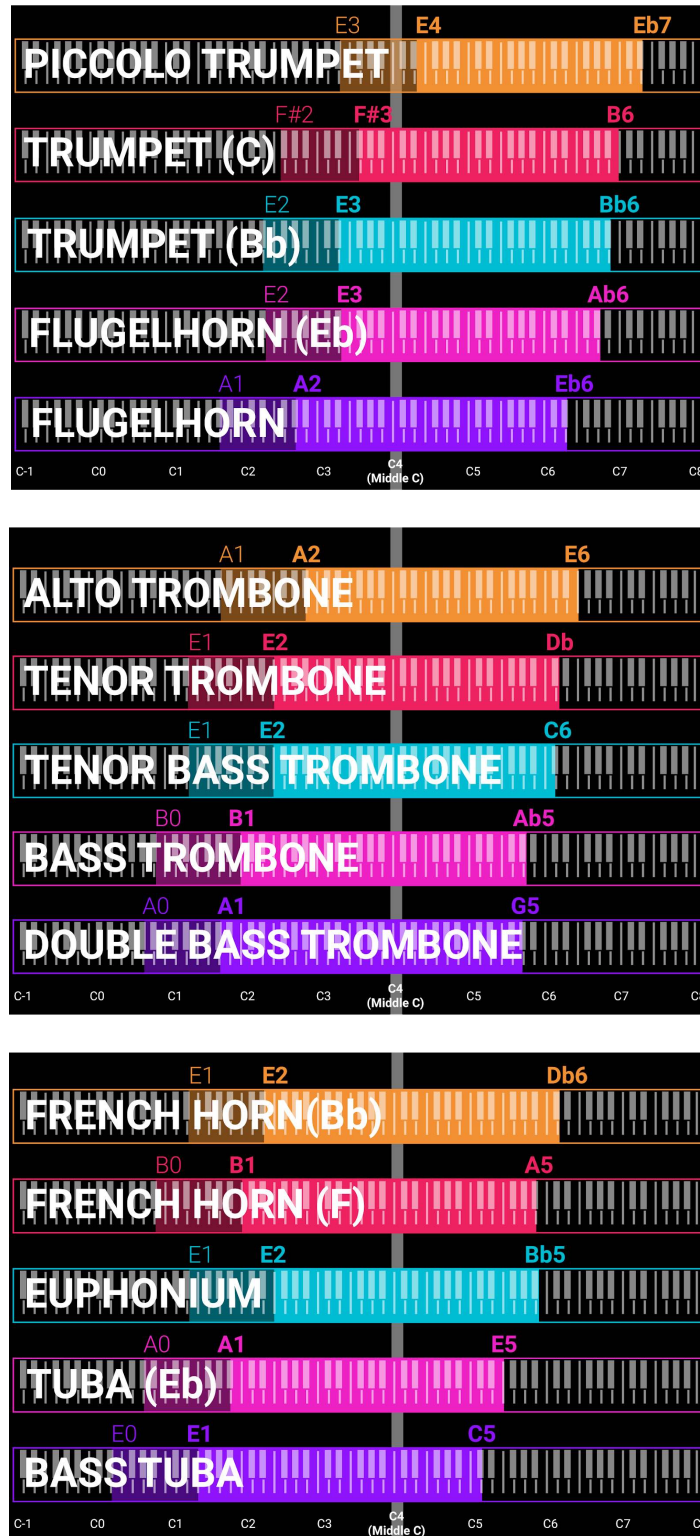
Known issues

- MPE MIDI profile: pitch-bend not working after a retriggered note, i.e. when releasing a note while the previous was held. Workaround: use your MPE controller in Single Channel mode, and set "Legacy" MIDI Profile on SWAM.
- Microtuning: selection of notes to detune by Key-Switches and External Controller not implemented yet.
- 0.5x and 0.75x display ratios can exhibit minor graphical issues.
- Window resizing for plugins: close and reopen the plugin window to apply the new size.

Technical Support

Before requesting technical support, please make sure that you have carefully read the User Manual and the FAQs on our Support Center: audiomodeling.com/support
There you will quickly find appropriate answers to most questions.
Should you still need technical support, please contact the SWAM support at support@audiomodeling.com or open a Ticket through the Support Center.

Note: Please ensure that you enter your email address carefully — it is not possible to reply to an incorrect email address.

When requesting technical support, please do not forget to provide as much system information as possible, including your type of computer, OS, audio interface, host application, software version, etc. If the problem can be replicated, a MIDI and/or an audio file is usually very helpful.

Please include a reference to either the order number or one of the License Keys.