

Loomer Shift User Manual

Contents

| | |
|--|-----------|
| Licences | 1 |
| End User Licence Agreement | 1 |
| SIL Open Font License | 2 |
| Requirements | 5 |
| macOS Requirements | 5 |
| Windows Requirements | 5 |
| Linux Requirements | 5 |
| Shift2 Overview | 6 |
| What is Shift? | 6 |
| Plug-in vs Standalone | 7 |
| Shift2 Formats | 7 |
| Supported Channel Configurations | 7 |
| Installation and Registration | 8 |
| macOS Installation | 8 |
| Windows Installation | 8 |
| Linux Installation | 9 |
| Product Registration | 9 |
| For Shift 1 Users | 10 |
| Using Shift | 12 |
| Input and Output | 14 |
| Dry Mix | 14 |
| Delay Voices | 14 |
| Modulation | 16 |
| XY Pad | 16 |
| Tracking | 17 |
| Time | 19 |
| Grains | 19 |
| LFO | 20 |
| Control Types | 20 |
| Rotary Controls | 20 |

| | |
|---|-----------|
| Button Controls | 20 |
| Setting the Interface Size | 21 |
| Preferences | 22 |
| Configure Audio and MIDI | 22 |
| Configure Appearance | 23 |
| Configure Key Bindings | 24 |
| Configure Default Preset Author | 24 |
| Configure MIDI Learn | 24 |
| MIDI Control | 25 |
| MIDI Controllers | 25 |
| Display Current MIDI Controller Mappings | 25 |
| Assign MIDI Controllers to Controls | 27 |
| Remove MIDI Controller Mappings From Controls | 27 |
| MIDI Program Change Lists | 27 |
| Preset Management | 29 |
| Parameters and Presets | 29 |
| Navigation Controls | 29 |
| Creating a New Preset | 30 |
| Comparing a Changed Preset to the Original Preset | 30 |
| Opening Presets | 30 |
| Saving Presets | 30 |
| The Preset Browser | 31 |
| Preset Hot-swap | 32 |
| Preset Meta Data | 32 |
| Searching for Presets | 32 |
| Categories | 32 |
| Preset Formats | 32 |
| Copying and Moving Presets | 33 |
| The Default Preset | 33 |
| Restoring Deleted Factory Presets | 33 |
| User Folder Management | 33 |
| Favourites | 33 |
| Partial Presets | 33 |
| Status display | 35 |
| Tempo | 35 |
| MIDI Input Monitor | 35 |
| Contact Details | 36 |
| Online | 36 |
| Email | 36 |

Licences

End User Licence Agreement

Software Licence Agreement for Shift2

1. **GRANT OF LICENCE:** Subject to the terms below, Loomer hereby grants you a non-exclusive, non-transferable licence to install and to use Shift2 ('Software'). Under this licence, you may: (i) install and use the Software for your personal, internal use (ii) copy the Software for back-up or archival purposes; (iii) use an unregistered or evaluation version of the Software for evaluation purposes only. (iv) You may not distribute the software to others without first obtaining the required licences, where applicable. Whether you are licensing the Software as an individual or on behalf of an entity, you may not: (i) reverse engineer, decompile, or disassemble the Software or attempt to discover the source code; (ii) modify, or create derivative works based upon, the Software in whole or in part without the express written consent of Loomer; (iii) distribute copies of the Software; (iv) remove any proprietary notices or labels on the Software; (v) resell, lease, rent, transfer, sublicense, or otherwise transfer rights to the Software; By installing, copying, or using the Software, you (either on behalf of yourself as an individual or on behalf of an entity as its authorized representative) agree to all the terms of this End User Licence Agreement ('Agreement') regarding your use of the software. If you do not agree with all the terms of this Agreement, you may not use the Software.
2. **SHIFT2:** You acknowledge that no title to the intellectual property in the Software is transferred to you. Title, ownership, rights, and intellectual property rights in and to the Software shall remain that of Loomer . The Software is protected by copyright laws and international treaty provisions.
3. **DISCLAIMER OF WARRANTY:** You agree that Loomer has made no express warranties, oral or written, to you regarding the product and that the products are being provided to you 'as is' without warranty of any kind. Loomer disclaims any and all other warranties, whether expressed, implied, or statutory. Loomer shall not be liable for indirect, incident, special, cover, reliance, or consequential damages resulting from the user of this product.
4. **LIMITATION OF LIABILITY:** You use this program solely at your own risk. In no event shall Loomer be liable to you for any damage, including but not limited to any loss, or

other incidental, indirect or consequential damages of any kind arising out of the use of the software, even if Loomer has been advised of the possibility of such damages. In no event will Loomer be liable for any claim, whether in contract, tort, or any other theory of liability, exceed the cost of the software. This limitation shall apply to claims of personal injury to the extent permitted by law.

5. **TERMINATION:** This Agreement shall terminate automatically if you fail to comply with the limitations described in this Agreement. No notice shall be required to effectuate such termination. Upon termination, you must remove and destroy all copies of the Software.
6. **MISCELLANEOUS:** In the event of invalidity of any provision of this Agreement, the parties agree that such invalidity shall not affect the validity of the remaining portions of this Agreement. You agree that this is the entire agreement between you and Loomer, which supersedes any prior agreement, whether written or oral, and all other communications between Loomer and you relating to the subject matter of this Agreement.

Reservation of rights.

'VST' is a trademark of Steinberg Soft - und Hardware GmbH. All other trademarks are the property of their respective owners. All rights not expressly granted in this Agreement are reserved by Loomer.

SIL Open Font License

This Font Software is licensed under the SIL Open Font License, Version 1.1. This license is copied below, and is also available with a FAQ at: <http://scripts.sil.org/OFL>

Lato.ttf: Copyright (c) 2010-2015, Łukasz Dziedzic (dziedzic@typoland.com), with Reserved Font Name Lato. This Font Software is licensed under the SIL Open Font License, Version 1.1.

Source Sans Pro: Copyright 2010, 2012, Adobe Systems Incorporated (<http://www.adobe.com/>), with Reserved Font Name 'Source'. This Font Software is licensed under the SIL Open Font License, Version 1.1.

Oswald: Copyright (c) 2012, Vernon Adams (vern@newtypography.co.uk), with Reserved Font Name Oswald. This Font Software is licensed under the SIL Open Font License, Version 1.1.

SIL OPEN FONT LICENSE Version 1.1 - 26 February 2007

PREAMBLE The goals of the Open Font License (OFL) are to stimulate worldwide development of collaborative font projects, to support the font creation efforts of academic and linguistic communities, and to provide a free and open framework in which fonts may be shared and improved in partnership with others.

The OFL allows the licensed fonts to be used, studied, modified and redistributed freely as long as they are not sold by themselves. The fonts, including any derivative works, can be bundled, embedded, redistributed and/or sold with any software provided that any reserved names are not used by derivative works. The fonts and derivatives, however, cannot be released under any other type of license. The requirement for fonts to remain under this license does not apply to any document created using the fonts or their derivatives.

DEFINITIONS “Font Software” refers to the set of files released by the Copyright Holder(s) under this license and clearly marked as such. This may include source files, build scripts and documentation.

“Reserved Font Name” refers to any names specified as such after the copyright statement(s).

“Original Version” refers to the collection of Font Software components as distributed by the Copyright Holder(s).

“Modified Version” refers to any derivative made by adding to, deleting, or substituting – in part or in whole – any of the components of the Original Version, by changing formats or by porting the Font Software to a new environment.

“Author” refers to any designer, engineer, programmer, technical writer or other person who contributed to the Font Software.

PERMISSION & CONDITIONS Permission is hereby granted, free of charge, to any person obtaining a copy of the Font Software, to use, study, copy, merge, embed, modify, redistribute, and sell modified and unmodified copies of the Font Software, subject to the following conditions:

- 1) Neither the Font Software nor any of its individual components, in Original or Modified Versions, may be sold by itself.
- 2) Original or Modified Versions of the Font Software may be bundled, redistributed and/or sold with any software, provided that each copy contains the above copyright notice and this license. These can be included either as stand-alone text files, human-readable headers or in the appropriate machine-readable metadata fields within text or binary files as long as those fields can be easily viewed by the user.
- 3) No Modified Version of the Font Software may use the Reserved Font Name(s) unless explicit written permission is granted by the corresponding Copyright Holder. This restriction only applies to the primary font name as presented to the users.
- 4) The name(s) of the Copyright Holder(s) or the Author(s) of the Font Software shall not be used to promote, endorse or advertise any Modified Version, except to acknowledge the contribution(s) of the Copyright Holder(s) and the Author(s) or with their explicit written permission.
- 5) The Font Software, modified or unmodified, in part or in whole, must be distributed entirely under this license, and must not be distributed under any other license. The

requirement for fonts to remain under this license does not apply to any document created using the Font Software.

TERMINATION This license becomes null and void if any of the above conditions are not met.

DISCLAIMER THE FONT SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF COPYRIGHT, PATENT, TRADEMARK, OR OTHER RIGHT. IN NO EVENT SHALL THE COPYRIGHT HOLDER BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, INCLUDING ANY GENERAL, SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF THE USE OR INABILITY TO USE THE FONT SOFTWARE OR FROM OTHER DEALINGS IN THE FONT SOFTWARE.

Requirements

macOS Requirements

- Requires macOS v. 10.7 or later, or macOS 11
- x86 based processor 1.0Ghz, or above, with SSE, or M1 with Rosetta 2
- 512 MB RAM

Windows Requirements

- Windows Vista or above
- x86 based processor 1.0Ghz, or above, with SSE
- 512 MB RAM

Linux Requirements

- x86 32-bit or or 64-bit based processor 1.0Ghz, or above, with SSE
- 512 MB RAM

The following shared object libraries are required:

- libfreetype
- libasound
- libXinerama

Shift2 Overview

What is Shift?

Shift is a real-time diatonic granular pitch shifting and delay effect. Shift has five independent true stereo delay voices with discrete tune, time, feedback, pan, filter, and volume controls. An XY Pad control gives at-a-glance visual feedback as to the state of the delay voices, and allows multiple parameters to be tweaked and played live.

Each voice can be transposed by as much as an octave up or down using both coarse semitone and finely grained cent amounts. In Echo Shift mode, echoes are fed back into the pitch shifter, continually transposing each individual repeat. In Diatonic mode, the accurate and responsive pitch tracker follows any monophonic audio source and tunes the pitch of the delay voice harmonies to remain in key and in scale.

Shift's echoes can either be synced to the host tempo (expressing delay times as musical subdivisions of a beat, with each echo exactly in time with the host) or in free-time mode (allowing fine tuning of the delay times, up to 2 seconds.) With four sync-able low frequency oscillator (LFO) components, each delay voice parameter can be independently modulated, generating a huge range of sounds, from subtle detuning to extreme audio mangling.

True independent stereo processing means that left and right channel separation is preserved. Shift is also capable of running in mono, or even mono to stereo.

Shift comes with over 100 built-in factory presets, each annotated and tagged so you can quickly locate them. Presets can even be 'hot-swap' previewed without losing your current sound. And with Partial Preset support, you can effortlessly share settings for the Delay Voices, Grain engine, and Diatonic Tracker between presets.

With optimised audio algorithms that won't overload your processor, rock-solid stability, and easy integration with any MIDI hardware controller, Shift2 is ideal for live work. With a simple and intuitive interface, flexible bank and program management, and total parameter automation, Shift2 fits right into your studio environment.

Plug-in vs Standalone

Depending upon your individual studio setup, Shift2 can either be used as a plug-in component of a compatible host application, or as a standalone application requiring no other dependencies. Generally, by using the host application's routing flexibility, running as a plug-in allows easier integration with existing plug-in effects and instruments. If this integration is not required, the standalone version, without the burden of the host, performs very slightly better.

Presets and MIDI mapping assignments are identical in both standalone and plug-in versions. This means any sounds created in one format can be opened in the other.

Shift2 Formats

For macOS, the following formats are provided:

- Standalone application (64-bit)
- Audio Unit (AU) plug-in (32-bit and 64-bit)
- VST2 plug-in (32-bit and 64-bit)
- VST3 plug-in (64-bit)
- AAX plug-in (64-bit)

These formats are available for Windows PC:

- Standalone application (64-bit)
- VST2 plug-in (32-bit and 64-bit)
- VST3 plug-in (64-bit)
- AAX plug-in (64-bit)

These formats are available natively for Linux:

- Standalone application (32-bit and 64-bit)
- VST2 plug-in (32-bit and 64-bit)

Supported Channel Configurations

For maximum flexibility, Shift2 can be used in one of several possible input and output channel configurations. Shift2 is a true stereo effect: left and right channel separation is preserved. The following configurations are possible:

- mono to mono (1 input, 1 output)
- mono to stereo (1 input, 2 outputs)
- stereo to stereo (2 inputs, 2 outputs)

Note that some host applications may not support one or more of these configurations; consult your host's documentation for further details.

Installation and Registration

macOS Installation

1. Start the installation process by double-clicking the Shift2 installer application.
2. Read the introduction screen dialog text. Press *Continue* when you are ready to proceed.
3. Read the licence agreement. Click *Continue*, then *Agree* to confirm you have read and agreed to the licence terms.
4. Select a destination volume into which to install Shift2, and then click *Continue*.
5. From the list of installable components, uncheck any formats that you do not wish to install. Click *Continue* to proceed.
6. To complete the installation, press *Install*.

The components are, by default, installed into the following directories:

- VST2 plug-in into */Library/Audio/Plug-Ins/VST*
- VST3 plug-in into */Library/Audio/Plug-Ins/VST3*
- Audio Unit plug-in into */Library/Audio/Plug-Ins/Components*
- AAX plug-in into */Library/Application Support/Avid/Audio/Plug-Ins*
- Standalone application into */Applications*
- Documentation into */Library/Documentation/Loomer*

Windows Installation

1. Start the installation process by double-clicking the Shift2 installer application.
2. Read the welcome screen dialog text. Press *Next* when you are ready to continue.
3. Read the licence agreement. Click *I Agree* to confirm that you have read and agreed to it.
4. From the list of installable components, uncheck any formats that you do not wish to install. Click *Next* to continue.
5. If you have chosen to include the VST plug-in format, select the directory into which it will install. Click *Next* to continue.
6. Select a directory into which the common files will install. The user documentation and the Standalone application (if selected in the the list of components), will be placed in this location. To complete the installation, press *Install*.

Unless any other directories are selected during the installation, the components are installed into the following directories:

- VST2 plug-in into the VST plug-ins folder, which is, unless configured otherwise, *C:\Program Files\Steinberg\VSTPlugins*
- VST3 plug-in into the VST3 plug-ins folder *C:\Program Files\Common\VST3*
- AAX plug-in into *C:\Program Files\Common Files\Avid\Audio\Plug-Ins*
- Standalone application, documentation and default Bank into *C:\Program Files\Loomer\Shift2*.

Linux Installation

Shift2 for Linux is distributed as a standard Linux tarball. To install, extract the package using any unarchiving utility; the following command-line invocation will suffice:

```
tar xzvf Shift2.tar.gz
```

If you have a Linux VST host and have configured your VST Path, the VST plug-in can be moved into the required directory with the following commands:

```
cd Shift2
mv Shift2VST.so $VST_PATH
```

Without the VST Path configured, you will need to ensure that your host uses the Shift2 directory when searching for VSTs; consult your host's documentation for information on how to do this.

Shift2 requires the following shared object libraries to be installed:

- libfreetype
- libasound
- libXinerama

Without these libraries installed, the application will not launch. Install the libraries using your distribution's particular package management system, such as apt-get; consult your Linux distribution documentation for more information.

Product Registration

Having installed Shift2, it will run in evaluation mode with the following limitations:

- User created presets can be saved, but not loaded.
- Output will be periodically interrupted, approximately every minute, by a short moment of silence.
- Audio will be stopped altogether after approximately 30 minutes of continuous use. At this point, Shift2 must be restarted.

These limitations can be removed by purchasing a licence and registering your licence information into the product. Note that registering Shift2 on a particular machine will remove the evaluation limitations for all Shift2 plug-in formats installed on this machine; you don't need to individually register all plug-in formats. Licence information will be in the form of a user name and licence key.

To purchase a Shift2 licence:

1. Launch Shift2. This can be either the standalone application, or as a plug-in.
2. From the *options* menu (the cog button on the top-right of the interface), choose *Purchase Shift2 Licence*. This will launch the shop website, from where a Shift2 licence can be purchased by clicking *Add To Cart*, followed by *Checkout*. Follow the on-screen prompts to enter your payment details and make a secure purchase.
3. Once you have purchased Shift2, you will receive your licence key information via email. It is important to keep this information safe because you will require the licence key if you ever need to reinstall and re-register Shift2. If you have lost your licence details, please [contact us](#). Licence keys are sent immediately upon purchase: if you haven't received yours within minutes of a purchase, either check your spam folder or [contact us](#).

To register your copy of Shift2:

1. Choose *Enter Shift2 Licence* from the *options* menu.
2. Enter your name in the *Name* field. This must match exactly the name that was used to purchase your Shift2 licence, including capitalization of letters.
3. Enter your licence key in the *Licence Key* field. This must match exactly the licence that you received when you purchased Shift2, including any hyphens. We recommend using *copy* and *paste* to ensure that the licence key is entered exactly as specified in your registration email.
4. Press *OK* to confirm that your name and corresponding licence key have been entered. You will be informed that the application must be restarted in order for registration changes to take effect. If you are currently running the standalone application, close and relaunch it. If Shift2 is currently running as a plug-in, remove it from the host and add a new instance of it.
5. Shift2 should now be registered. If the label on the bottom of the interface still reads *Unregistered Evaluation*, you must have entered the licence information incorrectly. Go back to step 1, paying careful attention that the name and licence key entered match exactly the licence information in the registration email.

If you are having problems registering your installation of Shift2, please consult the detailed step-by-step instructions at www.loomer.co.uk/support.htm.

For Shift 1 Users

Shift 2 will install alongside earlier versions of Shift. Both versions can be installed and used together, even in the same project.

Shift 2 will open presets created for Shift 1, but due to the improvements in Shift 2's synthesis engine, they are not guaranteed to sound absolutely identical. In most cases the changes will be minor, and for the better. Any projects you have previously created using Shift 1 will not be changed, even when Shift 2 is installed.

Using Shift

Shift2 can be used as either an insert or send effect. When used as an insert effect, Shift2 is placed directly in a host's audio channel. As a send effect, Shift2 is placed in a host's auxiliary or bus channel, and a portion of the original signal is fed into the effect. Consult your host's documentation to find out how to add a plug-in as either an insert or as a send effect.

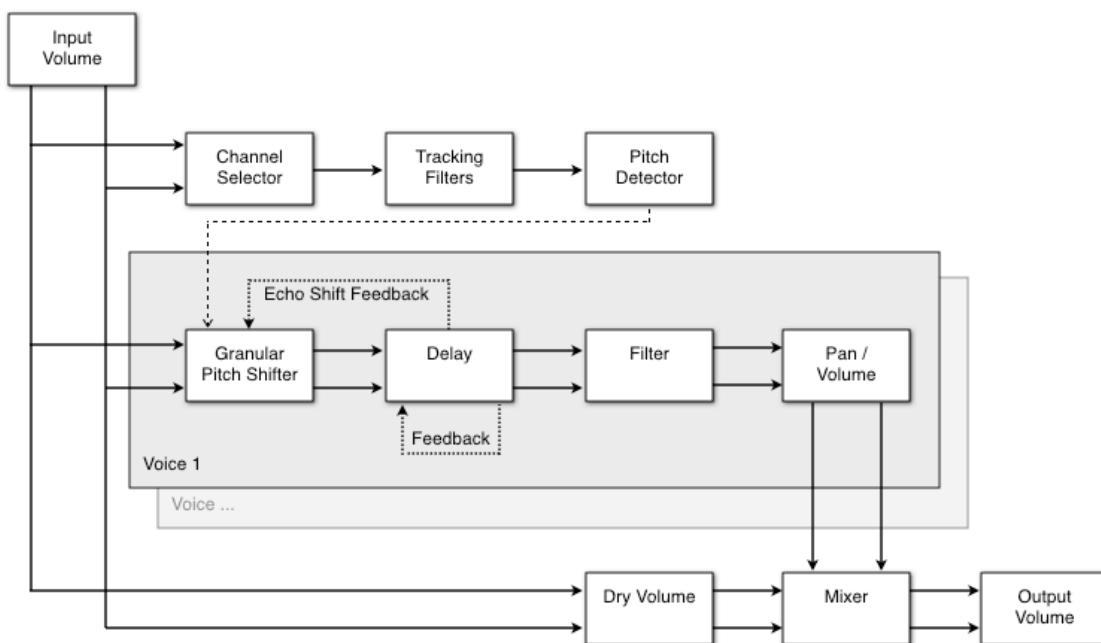


Figure 1: Shift's Audio Flow



Figure 2: Shift's Interface

Input and Output

The *INPUT* and *OUTPUT* section's controls balance the audio levels of signals as they enter and leave Shift. The *INPUT GAIN* control is used to boost or lower the input signal. An input signal that is too quiet can be amplified by increasing the *INPUT GAIN*. Likewise, a signal that is too loud can be attenuated by reducing it. The *diatonic pitch detection* works best on a clean, loud (but not clipped) signal.

The *OUTPUT GAIN* controls the overall loudness of Shift's audio output. An output signal that is too quiet can be amplified by increasing the Output. Likewise, a signal that is too loud can be attenuated by reducing it.

The *VU meters* can be used to provide visual cues to the current levels: the louder the signal, the higher the meter will register. Too loud of an output will produce digital clipping, a usually undesirable form of distortion. When this occurs, the meter will become red. Click the meter to reset the warning display. Note that output digital clipping only occurs at the end of a signal chain: even if the clip indicator shows, reducing the volume outside the plugin (by using the host's channel volume control, for example) will stop digital clipping.

Dry Mix

The *DRY* control specifies the amount of dry (unprocessed) input that is mixed into the output. Generally, when using Shift as a send effect, *DRY* will be set to its minimum value. The *freeze* button locks the *DRY* control to its current value, even when changing presets. This is useful when you are using Shift as a send effect (and so never want any unprocessed signal in the output) and are browsing presets which may have been saved with various values for *DRY*.

Delay Voices

Shift has five separate stereo delay voices. To select a voice to configure, click on the 1, 2, 3, 4, or 5 selector button. Each voice is entirely independent and has its own settings, which are:

- The *power* button turns the voice on and off. You can, at a glance, tell which voices are enabled by looking at the indicators above the voice selectors: they will be coloured if the voice is enabled, and grey otherwise.
- The *MODE* control selects the pitch-shifting and feedback modes for this voice, which can be:
 - *No Echo Shift*: the voice is not diatonic, the voice is pitch shifted, but delay repeats are not pitch shifted further.
 - *Echo Shift*: the voice is not diatonic, the voice is pitch shifted, and delay repeats are pitch shifted with each echo.

- *Diatonic*: the voice is shifted in harmony, according to the *TRACKING / TUNING* settings. Delay repeats are not pitch shifted any further. See the [TRACKING PANEL](#).
- The *TIME* parameter controls the length of time between repeats. When *TIME SYNC* is turned on, the delay time is based upon musical note divisions and will be in step with the host tempo. With it off, the time delay is expressed in milliseconds. When time is set to 0, the voice will have no delay at all, and so can be used as a real-time pitch-shifter or filter. The denominator for synced time is globally set using the *TIME QUANTIZE* control, and *TIME* will snap to the nearest multiple of this value.
- The *FEEDBACK* parameter controls the proportion of the signal to be fed back into the delay line. As the value increases, the delayed signals volume will increase. At higher values, it is possible to create a wall of sound using delays that don't decrease in volume when they are fed back into the delay line. Beyond this, it is even possible to create delays that increase in volume. **Warning: High feedback settings can produce dangerously loud signals that can damage both your ears and audio equipment.**
- *TUNE* controls select the interval by which the signal will be pitch shifted. *TUNE* is either specified in semitones (when *MODE* is set to *No Echo Shift* or *Echo Shift*) or in diatonic intervals (when *MODE* is *Diatonic*). By default, the *TUNE* control changes in steps of whole chromatic intervals; to make finely grained changes, hold down shift whilst dragging the control.
- The *FILTER TYPE* control selects the type of filter for this voice. The filter types, from left to right, are *OFF*, *LP* (lowpass), *BP* (bandpass), and *HP* (highpass). Selecting *OFF* bypasses the filter completely. A lowpass filter removes all frequencies above the cutoff point; a bandpass filter removes all frequencies either side of the cutoff; a highpass filter removes all frequencies below the cutoff.
- *CUTOFF* sets the frequency at which the filter response begins. *RES*, an abbreviation for “resonance”, controls the amount of amplification that occurs to frequencies at the *CUTOFF* point.
- The *PAN* parameter allows the delay voice to be balanced in the stereo panorama. Choose *C* to keep the signal centered, *L1%* to *L100%* to place the signal to the left (where *L1%* is slightly left of centre, and *L100%* is to the extreme left). Use *R1%* to *R100%* to place the signal to the right (where *R1%* is slightly right of centre, and *R100%* is to the extreme right).
- The *VOLUME* controls the relative loudness of the delay voice signal. 0.00dB is known as unity; at this point there is no change in volume entering or leaving a delay voice.

he settings for a delay voice can be stored in a *partial preset*; see [the section on partsets for more details](#).

Modulation

The *MODULATION* controls are used to add time varying changes to Shift. A modulation LFO (low frequency oscillator) produces a constantly wavering signal that can be routed, at various depths, to the delay voices parameter. Each delay voice has its own modulation matrix, allowing each voice to be modulated differently.

The possible modulation destinations for each voice are *TIME*, *FEEDBACK*, *TUNE*, *FILTER CUTOFF*, *FILTER RESONANCE*, *PAN*, and *VOLUME*. They are shown on the interface below each parameter.

With the *MODULATION* control for a particular parameter, select *Off* (displayed as -) to turn off modulation for this parameter, or *LFO 1*, *LFO 2*, *LFO 3*, or *LFO 4* to use the corresponding LFO.

The *depth* parameter controls the amount that the modulation source affects this parameter. At 0, no modulation occurs. The *depth* controls are bidirectional: parameters can be modulated in both the positive (by using a depth over 0) and negative (by using a depth below 0) direction.

XY Pad

Show the XY pad by clicking on the *XY PAD* button.

The XY Pad serves two purposes: to give an instant overview of the relative parameter settings of all the voices, and to enable multiple parameters to be manipulated and played in real-time.

Two parameters are displayed on the XY Pad, one horizontally, and one vertically. The possible vertical parameters are Feedback, Tune, Res, and Volume. The possible horizontal parameters are Time, Cutoff, and Pan. Click on a parameter's name to display the parameter on the pad.

Each voice's value for the selected parameters are represented by a single coloured node on the XY Pad. Each voice's node is uniquely numbered and coloured for easy identification. By moving the node in two dimensions, both parameters can be changed at once. For example, you may wish to tweak Cutoff and Res together.

Unless you have a very steady hand, it can be difficult to change a parameter on one axis without affecting the other axis. By enabling the Horizontal Lock or Vertical Lock, parameters can be frozen so that no more changes are made to that axis from the XY Pad. Note that Parameters on a locked axis can still be changed with the standard voice rotary controls.

Active voices can be disabled by double-clicking on their nodes. Likewise, a voice can be activated at a particular position by double-clicking anywhere on the XY Pad.

Tracking

Show the tracking panel by clicking on the *TRACKING* button.

The tracking panel options are used for configuring diatonic tracking. Diatonic pitch detection is a process in which the input audio signal is analyzed and pitch information extracted. This is used to tune the delay line transpositions to ensure that delays remain in scale. For example, when in the key and scale of C Major, if voice 1 is set to diatonic thirds, playing a C will produce an E (a major third interval, or 4 semitones). However, playing a D will produce an F harmony (a minor third interval, or 3 semitones.)

Diatonic pitch detection is a complex process that requires a cleanly played, monophonic (one note at a time) signal. The detection will struggle to deduce the pitch of very noisy signals. Pitch detection can be a very CPU intensive activity, particularly when confronted with ambiguously pitched or noisy material. If glitches become apparent in the audio stream when using diatonic pitch detection, you should allow Shift more CPU resources by freezing or bouncing any other intensive tracks in your arrangement. Consult your host's documentation for the steps required for this.

The *CHANNEL* parameter selects which stereo input channel to analyze for pitch information. *LEFT* or *RIGHT* should be chosen depending upon which channel has the cleanest signal. *MIX* can be used in cases where the signal moves across the stereo panorama, but this can be less accurate if the left and right input channels are significantly different. *SPEED* refines the responsiveness of the pitch detection algorithm. The default value of 40% will perform well for most audio sources, but certain materials may require slightly different values. Lower percentages will mean that the detection works very fast but is more sensitive to pitch deviations and input noise. A higher speed percentage a more relaxed detection, but can introduce slight delay to the detection.

The *KEY* and *SCALE* controls tell the detector which key and scale to use to generate harmonies. These should be set to the key and scale of the audio input. The following keys can be selected: C, C#, D, D#, E, F, F#, G, G#, A, A#, B. The following scales can be selected: Major (Ionian), Dorian, Phrygian, Lydian, Mixolydian, Natural Minor (Aeolian), Locrian, Harmonic Minor, Melodic Minor (Ascending), and Enigmatic scales.

The pitch display tells you at a glance what the pitch tracker thinks is the currently played pitch. It jitters wildly when it can't smoothly track, and settles confidently on one note when configured properly. Using this, it is quick and easy to configure tracking options that accurately track your playing style/sound.

Diatonic pitch detection is only enabled when one of more delay lines are set to *DIATONIC* mode.

The settings for the tracker can be stored in a *partial preset*; see [the section on partsets for more details](#).



Figure 3: Tracking

Time

The *TIME* panel's options set whether voice delay times are in milliseconds (when *SYNC* is off), or in division of a beat (when *SYNC* is on). When *SYNC* is on, the actual delay time will be snapped to the nearest multiple of the division set in *QUANTIZE*.

Grains

Shift's pitch shifter uses a type of processing called *granular synthesis*. This chops incoming audio into tidy fractions of audio called grains. Each grain can be individually pitched, transposing the audio in pitch, whilst preserving the audio's time scale. The *GRAINS* panel options configure the duration and shape of the granular synthesis engine.

- The *SIZE* parameter sets the average width of a grain. Longer settings help preserve the timbre of pitched material, but may soften transients on percussive sources.
- The *RANGE* parameter sets the average rate of grain generation.
- The *SHAPE* parameter sets the envelope shape of each grain. At 0%, each grain uses an approximately rectangular envelope: instantly on and off. At 100%, the grain uses a smooth raised cosine window. Values between 0 and 100% allow various envelope shapes between these extremes.

Particular grain settings work better with certain sound sources. A large *SIZE* and *RANGE* can help preserve pitched material, but generally causes larger latency. A smaller *SIZE* and *RANGE* works better on percussive sounds, or sounds with short attack transients.

The settings for the grains can be stored in a *partial preset*; see [the section on partsets for more details](#).

LFO

An LFO (low frequency oscillator) produces a constantly wavering signal that can be routed, at various depths, to the delay parameters to create continual changes. See [modulation](#). Shift has four individual LFOs. LFOs are shared between all delay voices. Each LFO has the following parameters:

- The *RATE* parameter sets the speed at which the LFO oscillates. With *SYNC* turned on, the LFO is based upon musical note divisions and will be in step with the host tempo. With *SYNC* off, the *RATE* is expressed in Hertz (or cycles per second.)
- The *SHAPE* parameter sets the cyclical pattern of the LFO. Choose from *Sine*, *Saw*, *Square*, *Triangle*, or *Random*. *Random* is equivalent to a bipolar sample & hold circuit: it produces a random value (which can be either positive or negative) at the specified rate, holding that value for the entire rate division.

Control Types

Rotary Controls

Click on a rotary control and drag either upwards to increase the value, or downwards to decrease it. Hold down *SHIFT* and drag to make smaller and more precise changes. Hold down *CMD* (on macOS) or *CTRL* (on Windows or Linux) and click to return the control to its default value. Double-clicking a control will also return it to its default.

Rotary controls can also be changed by hovering the mouse cursor over them and scrolling the mouse-wheel up or down. Holding *SHIFT* whilst scrolling the mouse-wheel will make more finely grained changes.

Button Controls

Click on a button control to toggle it between on and off. Hold down *CMD* (on macOS) or *CTRL* (on Windows or Linux) and click to return the control to its default value.

Setting the Interface Size

Shift2 has a fully resizable interface, allowing it to be scaled to accommodate your own preferences and screen resolution. If supported by the host, Shift2 can be resized by dragging the resizer on the bottom-right of the interface. Alternatively, several pre-defined size options can be selected under *options / Zoom*. See also: [configure appearance](#).

The interface size can be restored to the standard size either by choosing *options / Zoom / Default Size* or by holding *SHIFT + CMD/ALT + R* (see [key bindings](#)).

Preferences

Access *Preferences* by clicking the cog icon (on the top right of the application) and choosing *Preferences...* from the menu.

From here, you can configure the [audio and MIDI devices](#), the [application appearance](#), the [key bindings](#), the default [author name](#), and the channel used for [MIDI learn](#).

Configure Audio and MIDI

When running Shift2 as a standalone application, you will need to configure your audio and MIDI devices. When running as a plug-in, this option is not available because audio and MIDI routing is provided by the hosting application; consult the host's documentation for details. To access the *Devices* configuration panel, select *Preferences...* under the *options* menu (from the cog on the top right of the application).

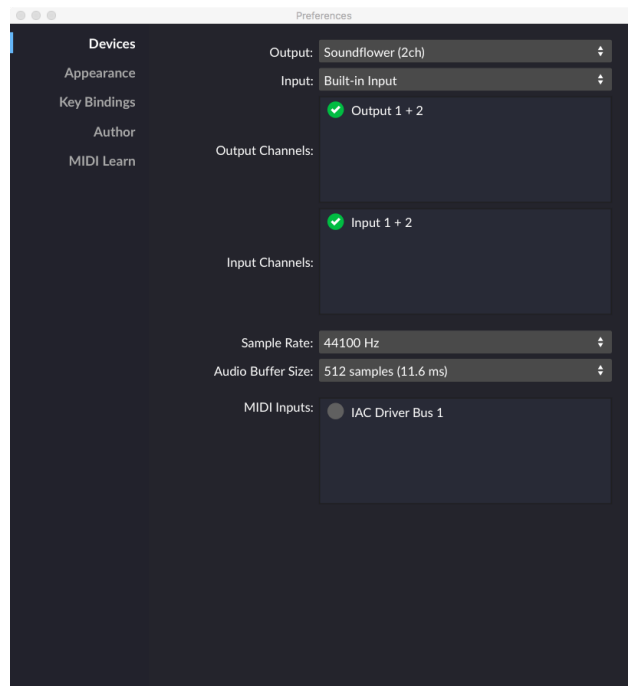


Figure 4: Devices Panel

From this dialog, the following details of your Audio and MIDI setup can be configured:

- Select the *Input* and *Output* audio device(s) you want to use from the list of available devices. Certain devices tend to perform better than others so if multiple devices are available, you should favour: on Mac, using Core Audio; on Windows, using ASIO; on Linux, using JACK.
- For devices that support multiple channels, select the required *Input Channels* and *Output Channels* by checking the box besides the channel name. The Shift2 standalone application can process only stereo audio channels.
- The *Sample Rate* dictates the overall quality of the audio output. Using a lower sample rate will reduce the presence of high-frequency components. Higher sample rates should therefore be preferred. However, be aware that the CPU usage is directly proportional to the sample rate. A good compromise between quality and CPU usage is 44100Hz, which is the sample rate of CD audio. Select the sample rate you require from the available list.
- The *Audio Buffer Size* governs latency; a smaller buffer means that Shift2 will respond more quickly to MIDI messages and parameter changes, and there will be less delay between input and output. However, a smaller audio buffer size will require more CPU usage. Select the required audio buffer size from the available list. Using too small of an audio buffer can overload your computer to the extent that audible clicks are heard. In this case, increase the audio buffer size until clicks are no longer present.
- Select in the *MIDI Inputs* list any external MIDI devices with which you want Shift2 to listen. MIDI devices can be mapped to parameters, and Shift2 can also respond to MIDI program change messages.

Configure Appearance

Changes that affect the appearance of the Shift2 user interface are configured here. To access these settings, select *Preferences...* under the *options* menu (from the cog on the top right of the application), and select *Appearance* from the items on the left.

Setting the *Magnification* scales the entire user interface. Any changes made to this option will not take effect until the dialog is closed.

The *Graphics Driver* options allow you to select a different rendering driver. An efficient graphics driver means that less of your processor's CPU is used in rendering the interface, leaving more CPU free to render audio and run plug-ins. Generally, 3d accelerated drivers such as OpenGL are the most performant. On macOS, the CoreGraphics renderer also delivers good performance.

Configure Key Bindings

Shortcut keys allow often-used actions to be performed quickly from the keyboard using a specific combination of key presses. These actions, and their required key combinations, are listed here. To access these settings, select *Preferences...* under the *options* menu (from the cog on the top right of the application), and select *Key Bindings* from the items on the left.

Each action can have any number of shortcuts assigned to it, including none.

To add a new shortcut key combination to a specific action:

1. Click the + button beside the action to which you wish to add a shortcut.
2. In the *New Key Binding* dialog, hold the key or combination of keys that you want to assign to the action. If these keys are already bound to another shortcut, a warning will appear; despite the warning, the binding can still be made, which may result in ambiguity when the keys are pressed.
3. Press *OK* to make the binding, or *Cancel* to discard the change.

Bindings can be deleted by clicking the *X* button on the key combination that you wish to remove. Some shortcuts are hard coded into the system (such as copy and paste), and cannot be removed.

You can restore all shortcuts to their default values by pressing *Set All To Default*, or restore only some shortcuts by selecting their actions and clicking *Set Selected to Default*.

Some shortcuts may not be available in certain hosts because the hosts themselves consume the key presses. In these cases, redefine the shortcut to something that does not conflict with keys used by the host.

Configure Default Preset Author

The name entered here will be used as the author name for any newly created presets. To access this setting, select *Preferences...* under the *options* menu (from the cog on the top right of the application), and select *Author* from the items on the left.

When saving a preset, you can override this, but setting it here saves you the hassle of having to put your name into every new preset.

Configure MIDI Learn

When using an external MIDI device to control Shift2, Shift2 can be set to listen to MIDI messages on all channels (*Omni mode*), or on a single channel. To access these settings, select *Preferences...* under the *options* menu (from the cog on the top right of the application), and select *MIDI Learn* from the items on the left.

MIDI Control

MIDI Controllers

Instead of configuring a preset using a mouse, you can change any parameter value using a MIDI keyboard or control surface. This is done by mapping each parameter to a MIDI continuous controller (CC). Each parameter can only be mapped to a single MIDI controller; the same MIDI controller can, however, be mapped to several different parameters.

MIDI controller mappings are global; once defined, the same mapping assignments will be used by all Shift2 Programs. This means that you only need define mappings once for your particular controller, and it will be usable in all your projects.

Display Current MIDI Controller Mappings

To view the current MIDI controller mappings:

1. Enter *MIDI Learn Mode* by choosing *Start MIDI Learn* under the options menu. Each parameter's mapped MIDI controller will now be displayed on an overlay. If room allows, the channel will also be displayed, or X for omni-channel mappings.
2. When you have finished viewing the MIDI controller mappings, choose *Stop MIDI Learn* under the options menu.

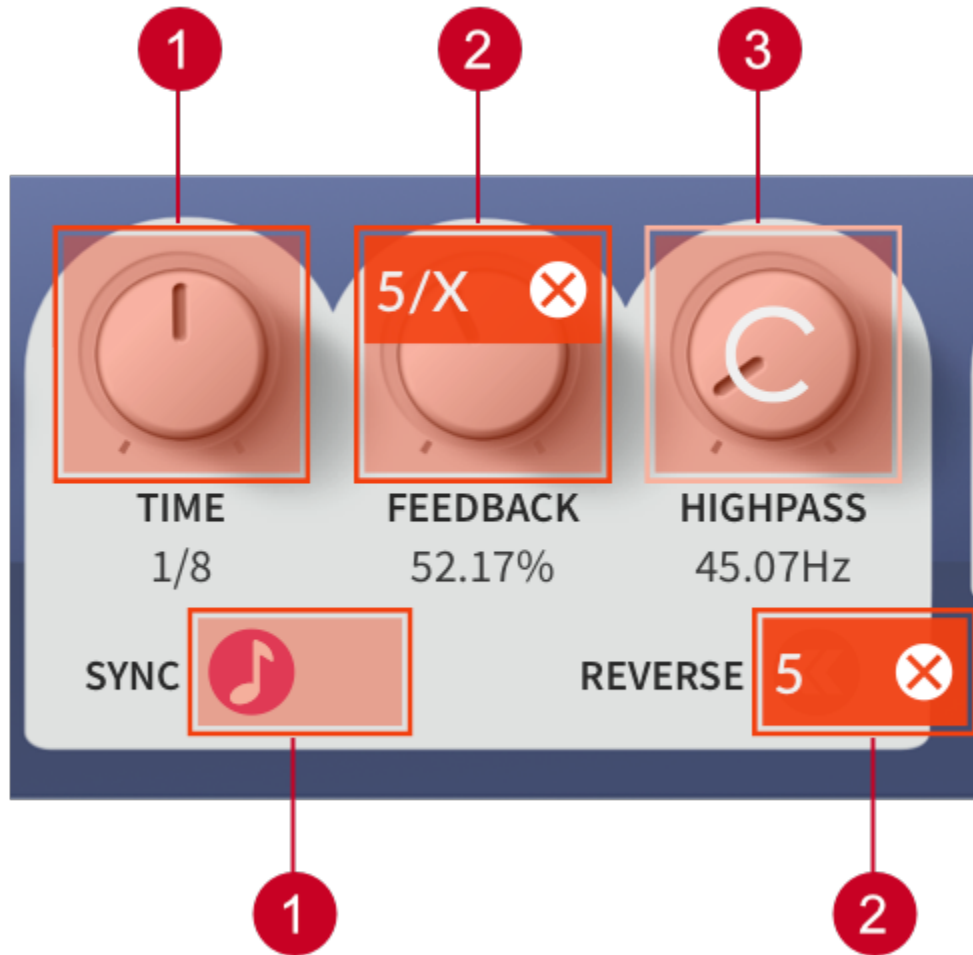


Figure 5: MIDI Mapping. (1) Unmapped Control; (2) Mapped Control; (3) Control Currently Being Mapped

Assign MIDI Controllers to Controls

To map a MIDI controller to a parameter:

1. Enter *MIDI Learn Mode* by choosing *Start MIDI Learn* under the options menu.
2. Click on the parameter you wish to map to a MIDI controller.
3. Turn your MIDI controller. The parameter will now be labelled with the MIDI CC number of this controller.

You can now either:

- Map another parameter by repeating these steps from Step 2.
- Finish mapping parameters by choosing *Stop MIDI Learn* under the options menu.

Remove MIDI Controller Mappings From Controls

To remove a mapped MIDI controller from a parameter:

1. Enter *MIDI Learn Mode* by choosing *Start MIDI Learn* under the options menu.
2. Click on the close button of the parameter from which you wish to remove the mapping. This parameter will become unmapped, and the CC number label on the parameter will disappear to reflect this.

You can now either:

- Remove the mapping from another parameter by repeating these steps from Step 2.
- Finish removing parameter mappings by choosing *Stop MIDI Learn* under the options menu.

MIDI Program Change Lists

You can change presets by using *MIDI program change* commands. This requires a MIDI keyboard or a control surface with the ability to send such MIDI messages; consult your controller's documentation for details. If using Shift2 as a plug-in, this functionality is dependent upon the host correctly forwarding MIDI messages to the plug-in; check the documentation provided with your host for details.

To select which presets are loaded in response to MIDI program change commands, you will need to create a MIDI program change list. Select *Edit MIDI Program Change List...* from under the options menu to display the MIDI program change list editor.

To add presets to the MIDI program change list, either double-click on a preset, or select a Preset and click the » button. Use the *info* and *list* button on the top-right of the window

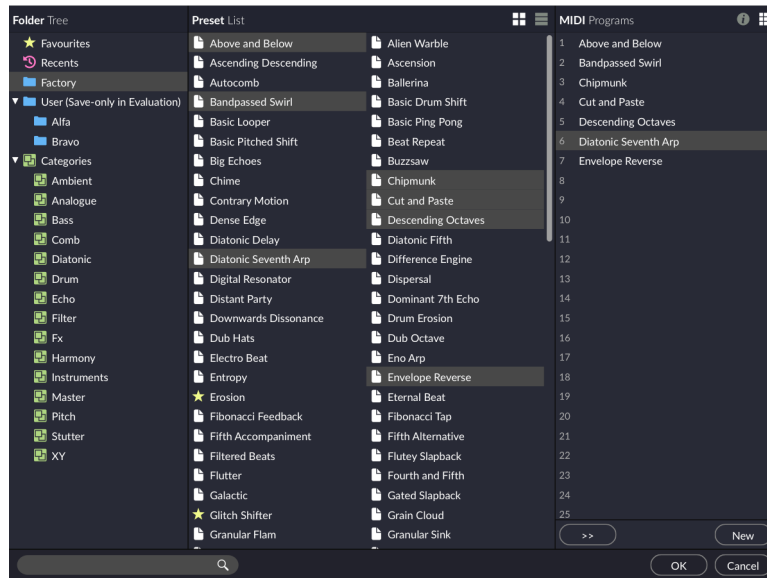


Figure 6: MIDI Program Change List

to toggle between viewing the list, and information on the selected preset.

Any presets in the MIDI program change Lists are automatically loaded and cached in memory. This means that Preset changes can be instant. There may be a slight pause after editing the MIDI program change list whilst the presets within it are loaded. When a preset is saved, any entries in the MIDI Program Change List are saved alongside it. Note that setting a preset with a MIDI Program Change List as the [default preset](#) will cause all presets within the list to be loaded when a new instance of Shift2 is loaded.

Preset Management

Parameters and Presets

You can modify the type of sound that Shift2 produces by setting the values of parameters. Each parameter will affect a specific element of the sound. The state of all parameters is collectively called a preset. Presets are given a suitable name, and the name of the currently selected preset is shown in the menu bar. If the preset has been modified without being saved, a * appears beside the name.

Navigation Controls

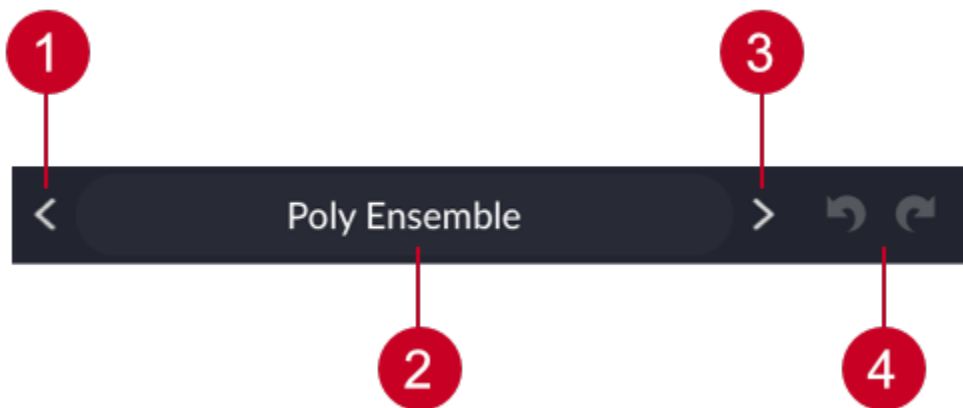


Figure 7: Navigation Controls. (1) Previous Button; (2) Preset Name; (3) Next Button; (4) Undo/Redo Buttons

If you wish to browse quickly through the presets, you can do so using the the *previous* and *next* controls. These controls are context sensitive, only displaying presets that are relevant to the last [search](#) you made. For example, if you had most recently searched for “analogue, bass”, only presets that match this will be selected. Scrolling the mouse-wheel when the mouse cursor is over the *preset name* will also load the next or previous preset, depending on the scroll direction.

Clicking on the *preset name* opens the [preset browser](#). By pressing *undo*, you can take back the most recent change made to a preset. *Redo* will re-apply the last undo changes. Note that only changes made via the Shift2 interface can be undone; changes made externally (such as from a host application, or from a MIDI controller) are not undoable.

Creating a New Preset

Select *New* to create a new preset. This preset will be in the default initialised state. If you've made a sound worth keeping, be sure to save the preset before you create a new one, as the undo history will be discarded when the preset state is reset.

Comparing a Changed Preset to the Original Preset

Often you'll want to compare a preset that you have amended to see if it is actually an improvement on the original. Pressing the *AB* button temporarily reverts a changed preset back to its original state. Pressing the *AB* button a second time returns to the changed preset. This method allows you to easily contrast the preset changes you have made to the original preset state.

Opening Presets

To select a preset from within your preset library, click on the preset name in the menu bar to open the preset browser.

Saving Presets

Click *Save* to save the current preset. Choose the location in which to save the preset in the folders window within the [preset browser](#). Click *OK* to actually save the preset.

The Preset Browser

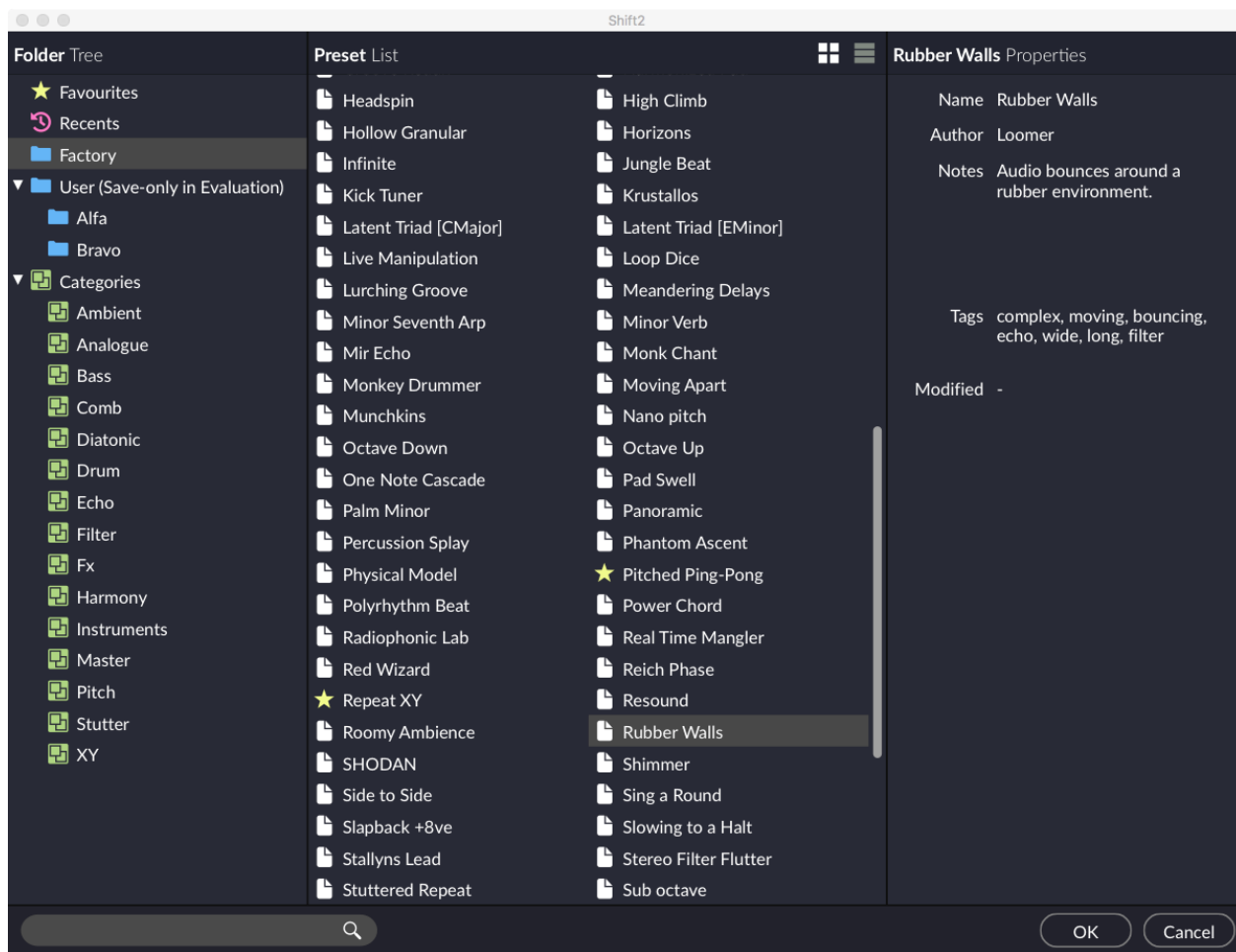


Figure 8: Preset Browser

Presets can be divided into two groups; factory, and user. Factory presets are a collection of example presets built into Shift2. Factory presets can't be overwritten, although you can, of course, edit and save your own presets derived from factory presets.

User presets are stored as individual files on your computer's hard drive. They are found in the following locations:

- **macOS:** `~/Library/Application Support/Loomer/Shift2/Presets`
- **Linux:** `$XDG_DATA_HOME/Loomer/Shift2/Presets`
- **Windows:** `Documents\Loomer\Shift2\Presets`

Only registered users can open user presets. Unregistered versions of Shift2 are limited to the factory presets. Unregistered versions of Shift2 can, however, still save presets. Any presets created in the unregistered evaluation of Shift2 can be opened by purchasing a licence for Shift2.

Preset Hot-swap

Selecting a preset in the browser will automatically load the preset: this functionality is called *preset hot-swap*. Preset hot-swap allows you to quickly preview presets in the context of the current project. If you decide to use the selected preset, close the browser by pressing *Return* or by clicking *OK*. To return to the preset you had open before you accessed the browser, close the browser by pressing *Escape* or by clicking *Cancel*.

Preset Meta Data

Presets can have meta data attached to them. Meta data doesn't influence the sound of the preset, but is used in categorizing, searching, or annotating them. The following meta data is available:

- **Author:** The name of the preset creator. You can enter your name into the [preferences dialog](#), and that name will automatically be used as the default author for all new presets.
- **Notes:** Any additional notes about the preset, such as influences, playing tips, description, etc.
- **Tags:** Tags are short words that describe the preset. Examples are: “bass”, “distorted”, “monophonic”, “trance”, “quiet”, etc. Tags are used to help quickly search for a specific sound.

Searching for Presets

Type keywords into the search field to locate all presets that match this description. The search will match the keywords in the Preset Name, Author, and Tags fields, and parent folder name.

Categories

Categories allow you to quickly access a subset of your presets. Categories are listed under the categories node in the preset browser. A category is simply a shortcut to searching for the category name; a category called “Bass” will list all presets that match the search criteria “Bass”. You are not limited to create categories based on the type of sound: you can, for example, create categories for preset authors, or indeed for any other search term. Provided you tag your own presets, they will automatically be added to the correct category (or categories: presets can belong to multiple categories; a preset could be both a “Bass” and “Lead” sound, for example.)

Preset Formats

Presets in the user presets folder need to be in either native .xml format, or VST .fxp or .fxb format. Standalone, and Audio Unit versions can also open .fxp or .fxb files within the browser. Please ensure any files in the user presets folder have the correct file extension.

As a general rule, you should prefer saving presets in Shift2's native .xml format over any proprietary host format, as this can make it easier to share presets with users on other hosts.

Copying and Moving Presets

Presets can be moved or copied to another folder by dragging and dropping a preset onto the destination folder. By default, presets will be moved. You can instead copy the preset by holding shift whilst dragging. Note that presets inside banks (either .xml or .fxb banks), can only be copied, not moved. Multiple presets can be moved or copied at once by selecting more than one preset.

The Default Preset

The default preset is automatically opened when a new instance of Shift2 is created. To specify the default preset, right-click on a preset and choose *Set as Default*. Note the AAX plug-ins do not support default presets: a new instance of Shift2 as an AAX plug-in will always begin with an initial preset state equivalent to a new preset.

Restoring Deleted Factory Presets

To reinstate any deleted factory presets, right-click on the factory branch in the [preset browser](#) and choose *Restore Factory Presets*.

User Folder Management

Folder management is performed by right-clicking on a user folder, and selecting an option from the pop-up menu. From here, you can create a *New Folder*, *Rename Folder*, or *Delete Folder*. On Windows or macOS, you can also quickly locate this folder in Finder or Explorer by choosing *Show In Finder / Explorer*.

Favourites

Favourite presets can be quickly located under the *Favourites* node in the preset browser. A preset can be added to or removed from the favourites list by right-clicking and choosing *Add to Favourites* or *Remove from Favourites*, respectively.

Partial Presets

As well as full presets containing the entire state of Shift2, you can also create partial presets (known as *partsets*). Partsets contain only the settings for a specified component of Shift2. User partsets are stored as individual files on your computer's hard drive. They are found in the following location:

- **macOS:** `~/Library/Application Support/Loomer/Shift2/Partsets`
- **Linux:** `$XDG_DATA_HOME/Loomer/Shift2/Partsets`
- **Windows:** `Documents/Loomer/Shift2/Partsets`

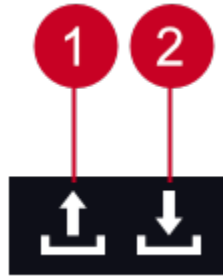


Figure 9: (1) Load Partset; (2) Save Partset

To save the current settings for a component into a partset template, click on the save icon next to the component. Give the partset an identifying name, and click *OK* to save it.

To load the current settings for a component from a Partset template, click on the open icon next to the component, and select the required partset from the browser list. Selecting a partset in the browser will automatically load it: this functionality is called partset hot-swap. Partset hot-swap allows you to preview a partset in the context of the current project. If you decide to use the selected partset, close the browser by pressing *Return* or by clicking *OK*. To return to your original partset, close the browser by pressing *Escape* or by clicking *Cancel*.

To reinstate any deleted factory partsets, right-click on the root branch node in the component's partset browser, and choose *Restore Factory Partsets*.

Status display

Status display information is displayed at the bottom right area of the Shift2 interface:



Figure 10: Status Display. (1) Tempo; (2) MIDI Input

Tempo

The *tempo control* only appears when running Shift2 as an application; when running as a plug-in, the host application will provide the tempo for Shift2. The tempo control displays the current tempo, in beats per minute (bpm). It can be changed by either:

- Double-clicking the tempo control, typing the required bpm and pressing *Return*.
- Clicking on the tempo control and dragging either upwards to increase the tempo, or downwards to decrease the tempo.

MIDI Input Monitor

The *MIDI input monitor* flickers to show that a MIDI message has been received. You can use this to confirm that your MIDI controller is configured correctly for Shift2.

Contact Details

Online

Website: www.loomer.co.uk

Support and FAQ: www.loomer.co.uk/support.htm

Email

Sales information: sales@loomer.co.uk

Technical support and feature requests: support@loomer.co.uk