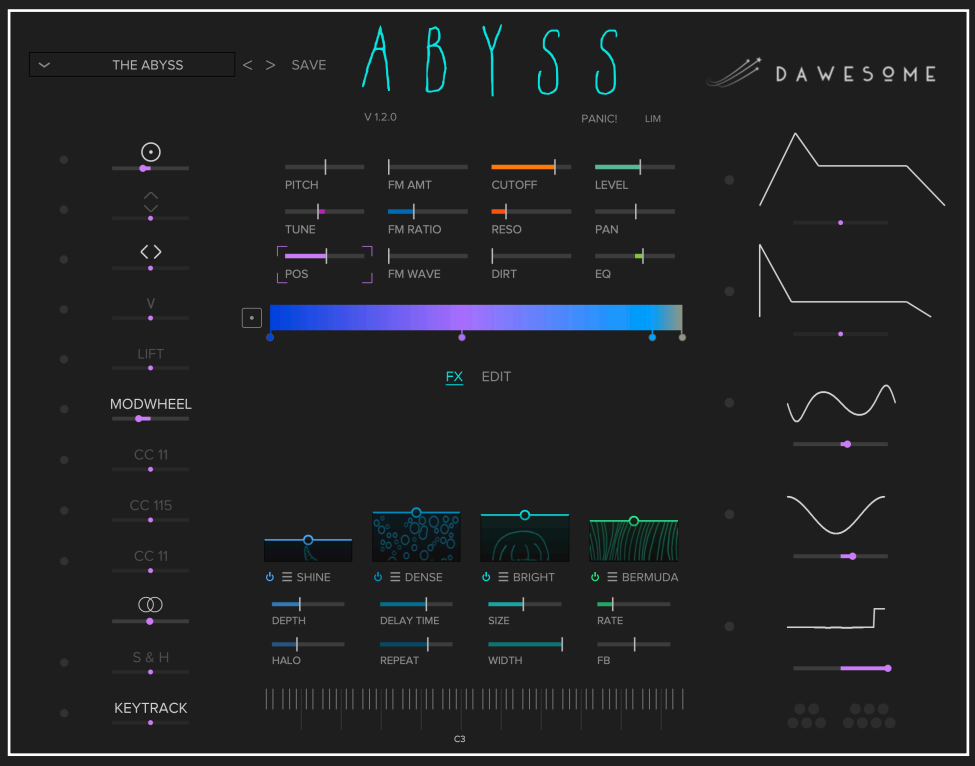


ABYSS - A Visual Synthesiser

Abyss is a **visual** synthesiser with character and a bit of fairy dust. It brings to you **dark, vibrating drones, vivid cinematic pads** and **rich evolving textures**. With Abyss you find instant inspiration for your music and sound design projects.

The innovative synthesis engine of Abyss represents timbres with colour, giving you unprecedented intuitive access - to **design your own signature sound** with ease. And with the powerful modulation system it is easier than ever to make any patch **nuanced and expressive -** even more so if you use an MPE controller like the ROLI Seaboard.

This is the manual for Version 1.2 - this brings a lot of small improvements and adds FM (Frequency Modulation) capabilities to Abyss.

Installation and Authorisation

Abyss supports AU and VST3 on macOS / OS X and VST3 for Win 10. Installation ist straightforward and works exactly like installations usually work. You can download the installer from tracktion.com.

We offer a free, unrestricted trial period. To start your free trial or authorise your purchased license, click the UNLOCK button in the lower right and enter your tracktion.com account credentials.

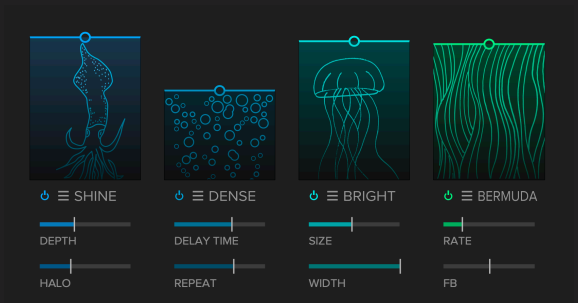
If the plugin is not registered, or your trial period is expired, Abyss will interrupt sound generation every few minutes for a few seconds.

Signal Flow

The signal flow in Abyss is pretty simple. In the center there is a coloured gradient, where each color represents a timbre - the gradient acts as an oscillator with the main parameters being the timbres placed on it and the playing position along the gradient.

A simple Gradient with four timbres and the playing position indicated.

The sound generated from the gradient-oscillator is fed into a resonating filter, a tilt-EQ, an amplitude envelope and from there through four audio effects, namely Shimmer, Delay, Reverb and Phaser.



The FX section featuring Shimmer, Delay, Reverb and Phaser.

The big sliders with images are for dry-wet.

Tipp: click the **DICE symbol** to randomise the gradient - a fast way to create sonic variations of the current patch.

The main section

Abyss user interface is presented in one **resizable** window. The upper half of the window shows a couple of parameters that can be used to influence the sound. All these parameters can be modulated in arbitrary ways.

PITCH, TUNE- offset pitch in semitones and the fine tuning. This works together with the PITCH-SNAP to allow constraining pitches to certain scales.

POS - the position on the gradient. The position is indicated with black lines on the gradient when notes are played. By modulating the position you can dramatically influence the generated sound.

Frequency modulation offers great sound opportunities with a specific character, pioneered by the Yamaha DX 7 in the 80s. In Abyss FM works via an intuitive interface that is as easy to use as a filter:

> **FM - AMT** - how much FM you want. When set to zero the FM section is skipped. With higher values the sound becomes more and more influenced by FM.
>
> **FM - RATIO** - this defines the character of the FM sound. Higher values correspond to sharper sounds. Integer numbers create only harmonic overtones, while “fractional” numbers like 1.3271 will create inharmonic overtones - like in bell sounds. You can select integer numbers with right click from a context menu.
>
> **FM - WAVE** - this is a second parameter to influence the sound character of the FM. Low values sound like classical FM. Medium values push the timbres more towards saw-like, this can be used for brass or classical synthesiser sounds. High values introduces spiky dirt and crackles.

PRO-TIPP: FM can sound very harsh when applied on tones that already contains a lot of high frequency content. Hence selecting Timbres for your gradient with low **DETAIL** and low **NOISE** often yields better results. When using timbres with low **DETAIL** and high values of **ORGANIC** you can create soft organic FM sounds, that are complicated to design in classical FM synths like DX7 or FM8.

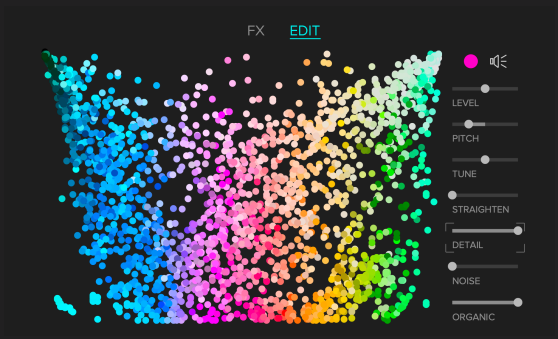
CUTOFF, **RESO**, **DIRT** - controls a virtual anlog lowpass filter.

EQ - a tilt EQ. Put to the left/right the bass/treble is emphasised.

NOTE: all parameters are per voice and can be arbitrarily modulated within Abyss (see below).

Timbre and Colours

The lower half of the window can display one of two views: FX and EDIT.



The EDIT view allows fast selection of timbres that can be placed on the gradient.

Pre-listen to any timbre by simply clicking it.

With shift engaged you can **drag-and-drop timbres to the gradient**. Alternatively, you can use right-click for drag-and-drop.

Timbres with a similar sound have similar colour and are placed close to each other. Less saturated colours are more noisy and dark colours represent lower pitch.
The fastest way to select a timbre is to **simply hold the mouse button down and move over the timbres**. Once you found a timbre to your liking you can drag-and-drop the timbre onto the gradient. There are three ways to initiate the drag-and-drop:

- Use any modifier key (eg. SHIFT) in conjunction with the mouse
- Perform the drag-and-drop with right-click
- Drag-and-drop the timbre from the coloured dot above the sliders

Double-click a tone-colour to remove it from the tone-colour gradient. Caution: when you remove all tone-colours from the gradient it shows black and Abyss generates only silence.

The sliders allow modification of the currently selected timbre.

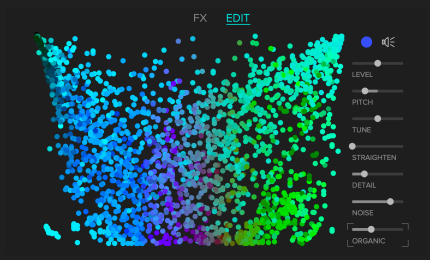
STRAIGHTEN - when pushed to the right the sound becomes more static, like a classical oscillator voice.

DETAIL - when pushed to the left the sound becomes softer, thinner and, well, less detailed.

NOISE - adds musical noise to the timbre. The tone-colour of the noise will vary depending on the timbre itself and the settings of all the other sliders.

ORGANIC - higher values create a slightly moving, chorused sound- lower values may either be static or introduce temporal variations.

Depending on the slider settings the colour of the timbre changes, both for the selected timbre and for the entire selection panel. This allows searching for a timbre with specific **NOISE**, **DETAIL**, **ORGANIC** etc settings.

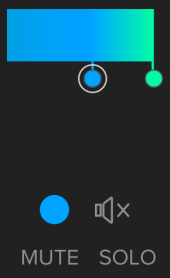


Different sounds are represented by different colours - here with low value for **DETAIL** and high value for **NOISE**.

After a bit of experimentation you will find the colours quite intuitive to work with - for good reason people use similar words like “dark”, “light”, “warm” or “cold” to describe tone-colours and (real) colours. No more need to browse through lengthy textual descriptions or drop-down menus for finding your sound.

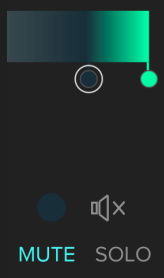
Muting and Soloing Timbres / Audition Mode

Sometimes it is desirable to fine tune timbre parameters. There are a couple of features that support editing of patches.



When a timbre in the gradient is selected you can **MUTE** or **SOLO** it.

Muted timbres are displayed with very dark colour, but do not generate sound.

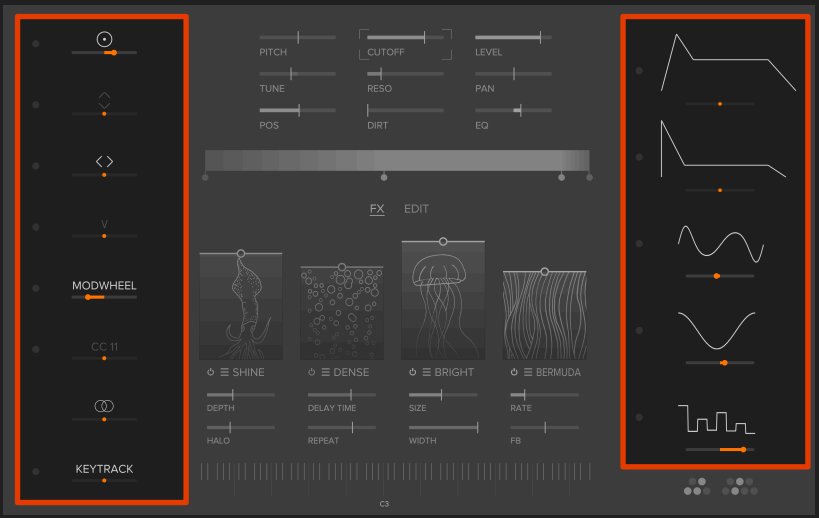


Normally you hear a timbre only when you click and hold it. As soon as you release the mouse button the sound stops.

By clicking on the loudspeaker symbol you switch to **AUDITION MODE**. In this mode the currently selected timbre does not stop playing. You can edit its parameters, or select a different timbre, but playback will continue. To leave **AUDITION MODE** simply click the loudspeaker symbol again.

Modulation

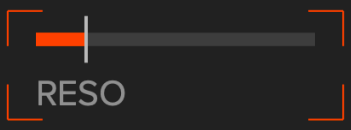
Great instruments offer nuanced response to your playing - hence Abyss is equipped with a powerful modulation system.



To the left you will find modulation sources of user input, like aftertouch, MPE slide and glide, velocity, mod-wheel etc.

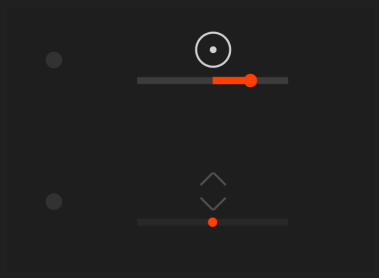
To the right you find two **ADSR** envelopes and three **LFOs**.

In order to modulate a parameter, you simply select it. The selection will be indicated by coloured corners around the slider.



Here the current selection is **RESO** (filter resonance).

Below each modulation source there is a slider for the amount of modulation applied to the currently selected parameter.



In this example **PRESSURE** has some positive influence on the selected parameter that is, with more pressure the parameter value will increase.

For **SLIDE** the modulation slider is centred - hence **SLIDE** does not modulate the currently selected parameter.

If you put any modulation slider to the left it will have negative influence on the parameter - for example, *more* **PRESSURE** would then lead to *less* **RESO**.

Additionally, you get visual feedback for the current state of modulation:

To the left of every modulator a dot depicts the current value. In this case the upper **LFO** currently is red, so has a negative value.

The lower **LFO** has a high value, indicated by a turquoise indicator left to it.

Any modulation of a parameter is indicated by the colour bar of the parameter's slider - so if a sound has a lot of movement you will also see a lot of movement in the user interface.

In this example the position on the gradient is modulated by an **LFO**. The purple bar indicates its current value taking all modulations into account.

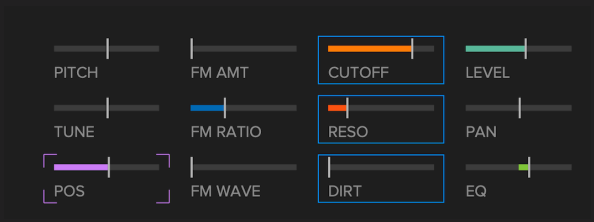
This gives you a full 'what-you-see-is-what-you-get' experience.

There are some additional features to make your life easier:

- Use double-click on any slider to move it to its default position
- hold CTRL (win) / COMMAND (mac) while moving a slider to have fine control
- hold CTRL/COMMAND and double-click the parameter to erase all all modulations for this parameter
- hold CTRL/COMMAND and double-click any modulation slider to erase all modulations for this modulator
- if a modulator does not modulate anything in the current patch it's displayed greyed out

In complex patches you it is sometimes handy to get an overview of the modulations:

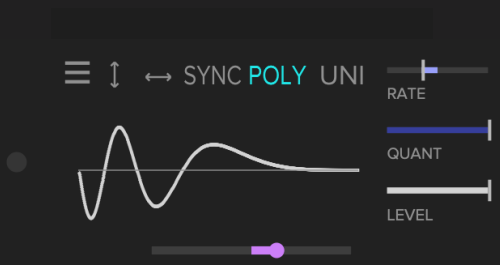
- hold CTRL/COMMAND and click any modulators slider to highlight all influenced parameters



- hold CTRL/COMMAND and click a parameter slider to highlight all active modifiers that influence this parameter

The LFOs

Abyss has three powerful LFOs. To edit the LFO itself just move the mouse over it.



RATE - sets the speed of the LFO. This parameter can also be modulated, allowing complex patterns.

SYNC - when active the LFO is synced to the DAW tempo. This is great for creating rhythmical textures.

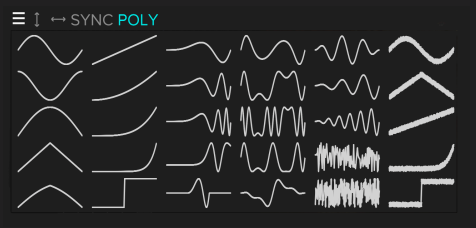
POLY - when active each note has its own LFO that starts from the beginning when a note is played. Deactivate this if you want all played notes to share one LFO that runs continuously.

UNI - Per default the LFOs are bi-polar, with UNI they are uni-polar.

QUANT - when you move the slider to the left the LFO becomes a step sequencer.

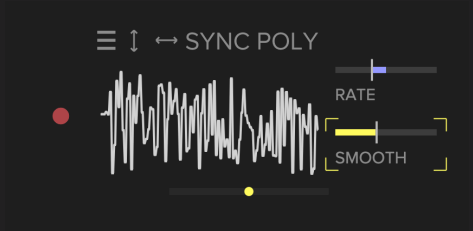
LEVEL - Adjust the level of the LFO. This becomes powerful when you modulate this parameter - as it allows you to modulate the modulation depth.

Use the arrows to flip the LFO curve.



Click the Burger Menu ☰ to chose from a selection of LFO waveforms.

Or simply **DRAW** freely with the mouse whatever waveform you need. When you engage the shift-key you can draw straight lines.



The first of the three LFOs does not have a QUANT slider, but a **SMOOTH** function. This works especially well in conjunction with the noisy LFO presets to create all kind of musical randomness.

The ADSR envelopes

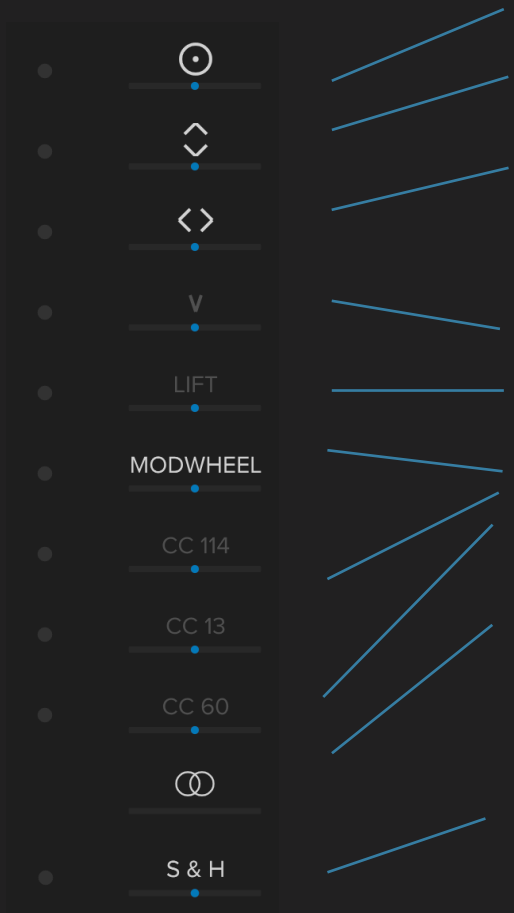
There are two ADSR envelopes. The first one *always* shapes the amplitude of the notes, but it can additionally modulate other parameters. The second envelope can be used for further modulation of parameters.

Edit the **ADSR** envelopes simply by dragging the dots around.

For fine control when adjusting the envelopes, simply hold any modifier key while dragging.

When the sustain level is put to zero, the envelope becomes an **AR** envelope.

The other modulators



PRESS - MPE Pressure / Aftertouch

SLIDE - (mainly used with MPE controllers, CC74)

GLIDE - Pitch-bend; MPE is supported. Click to set the range of pitch modification. You can also use this as modifier for any other parameter.

STRIKE / VELOCITY

LIFT - Release Velocity

CC - Midi Control Changes. mod-wheel is the default - click in order to assign any other midi control change

SPREAD - This can be used to modulate a parameter differently for the left and the right channels. Works great with POS, TUNE, DIRT, CUTOFF, or RESO to create width and depth.

S & H - Sample & Hold generates a random value on every note-on.

The final modulator is **KEYTRACK** and can be used to modulate a parameter depending on which key has been pressed. You can draw a curve by dragging the lines / dots over the depicted keyboard.

Pitch-snap, Scales and Arpeggios

When you apply a modulator on **PITCH** the results easily become very “avant garde-ish”. This is because all chromatic pitches will be used, and this is often not exactly what you want. This is where Pitch-Snap comes into play. It allows you to put constraints on the notes that are being played.

There are two modes: firstly, you can use the **SCALE** mode to constrain the absolute pitches that can sound.

Simply click to constrain the pitches that can be generated by the synthesiser. In this case only the notes C, D, Eb, G and Ab can be heard - no matter what keys you press or how **PITCH** is modulated.

Any other note will be mapped to one of these notes. This also is a great feature if you anyways work in a specific tonal scale, and want to create sounds that fit the emotional mood of this scale.

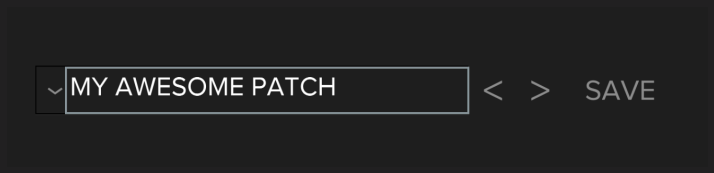
By right-clicking (or clicking between the circles) a popup menu opens that offers a collection of frequently used scales. These can be used as such or as a starting point to explore your own scales.

Secondly, the **ARPEGGIO** mode constrains the pitches that can sound *relative to the pressed key*.

In the example a major chord has been chosen. When you now modulate **PITCH** (let’s say with an LFO), and press, for example G, only notes of the G major chord will be heard. Use this for arpeggiated sounds.

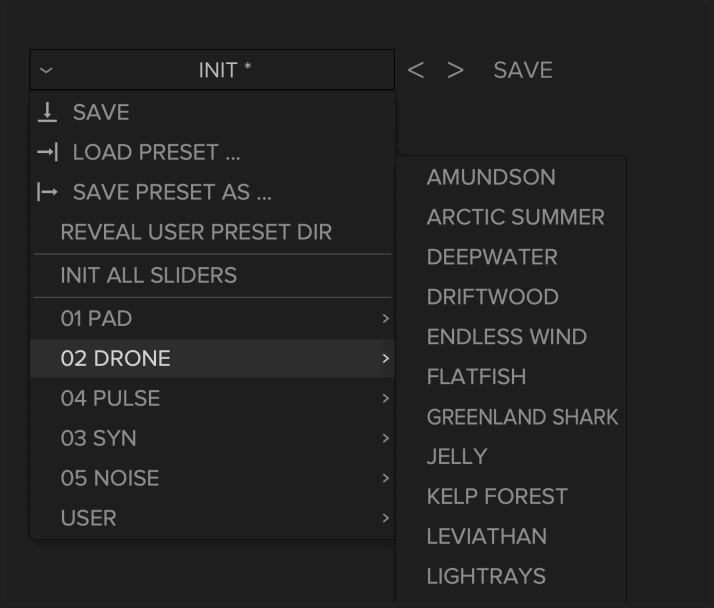
DEALING WITH PRESETS

The easiest way to store the current patch is by clicking the present name and enter a new name. The preset is automatically saved in your User Preset Directory with the name you entered.



Abyss comes with a selection of Factory Presets that are organised in categories. The **PREVIOUS** and **NEXT** arrows allow you to browse all presets.

Click on the downwards arrow to open the preset menu:



- **SAVE** … stores the current patch in the user presets.
- **LOAD PRESET** … opens a file chooser and allows you to load a preset file from the file system.
- **SAVE PRESET AS** … allows to store the current patch as a file.
- **REVEAL USER PRESET DIR** … opens the directory where Abyss stores all User Presets. You can use this to rename or delete user presets.
- **INIT ALL SLIDERS** … puts all sliders into their default positions, including all modulations. The gradient remains untouched.

SOUND DESIGN IDEAS

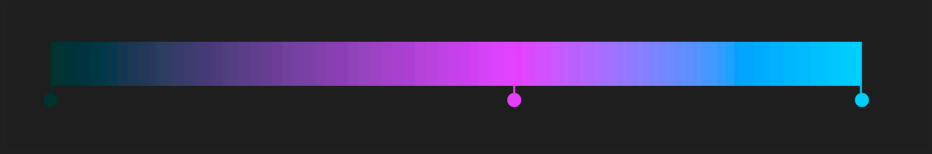
Abyss has been designed to be an intuitive instrument that allows for fast and simple creation of unique instrument patches, with that certain extra something. Here are a few ideas of how to get the most of Abyss.

Make it yours

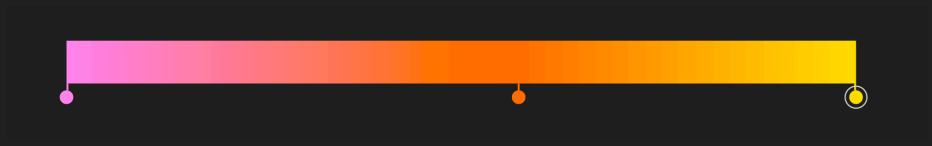
Abyss comes with more than a hundred handcrafted presets. If you find something that responds in a way that you like, simply go to the edit view and replace / add Timbres in the gradient.

Remember: if you want to have similar sounds chose similar colours.

Here is the gradient of the preset called SIRENS (in PADs).



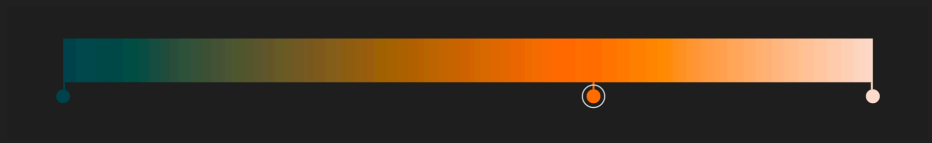
I like the soft sound and movement, but I quickly exchange all timbres:



Now I have a patch that has similar behaviour, but sounds completely different - and no one else is going to have exactly this patch. It's truly mine.

Expressive Tension

It is easy to make very expressive sounds that respond in a very nuanced way to your playing, by using the gradient as a "Tension Map". In this example I have created a simple gradient that starts with a soft, dark tone in the left, has strong tone at two thirds of the gradient and a more aggressive, noisier version of the same timbre at the very right. By assigning the **STRIKE/VELOCITY** modulator to the Gradient Position (**POS**) the patch reacts on my playing: soft when I play lightly, and progressively stronger and more aggressive when I hit my keys harder. Additionally, modulating **DIRT** with **PRESSURE** gives extra bite to the sound.



Expressive Tension II

Sometimes you want to have an expressive Sound, but you want it to stay in the realm of a certain timbre. In this way you work with shades of the same colour. As a starting point you can chose just one timbre and place it at multiple positions in the gradient.

Now use the timbre modifiers in the **EDIT** view: in the example, I reduced detail to 60% for the center timbre, and to 30% for the timbre on the very left. I increased noise to my taste for the timbre on the very right:

In this way the timbral spectrum of the patch is very consistent, yet fully nuanced and expressive.
To enable fine-tuning, you can hold some keys on your controller while adjusting the timbre sliders.

NOTE: changing the **DETAIL**, **NOISE**, **ORGANIC** or **STRAIGHTEN** involves a lot of heavy computation for the synthesis engine. You may notice increase CPU usage when moving these sliders a lot. These parameters don't support being modulated.

Dark Bionics

While classical oscillators create periodic waveforms Abyss has been designed to creates waves that are rich in detail, dirt, and variation - like natural sounds. There is a sweet spot that allows for very nuanced sounds when taking any timbre, setting **ORGANIC** to a high value, **STRAIGHTEN** to a very low value and **DETAIL** somewhere in the mid range. Especially when adding **DIRT**, you get very dark sounds that are incredibly rich in variation.

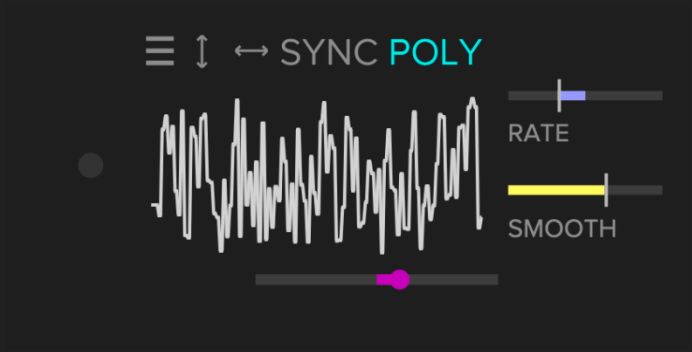
Stereo Field

Use the **SPREAD** modulator on **POS**. Thats also depicted in the gradient. Here a chord is played and due to **SPREAD** the position for the left and the right side is different, resulting in additional width and variation.

DETUNE, **CUTOFF**, **RESO** and **DIRT** also work quite well with **SPREAD**.

Back to the 80s

In the 80s, most media technology was still analog … with all of the idiosyncrasies. In order to give a touch of interest and 80s feeling to pads and drones you can do the following: take **LFO** number 1, chose a random curve, set **SMOOTH** somewhere in the middle. Then select **DETUNE** and dial in a bit of modulation by the LFO you just created. The smoothing creates a so called “drunken random walk”, as the **LFO** does not jump up and down but smoothly goes up and down in a random fashion. Applied on **DETUNE** it creates the same effect as a VHS video. If you don’t know what VHS is - just ask anyone over 45.



Haunting sounds

The same technique of “Back to the 80s” can be used to dial in some spooky mood - just increase the modulation of **DETUNE** to higher values. If you have an MPE controller (and you are as bad a keyboard player as I am) click on **GLIDE** and set it to a very high value. In this way any imprecision in your playing will lead to a detuned note, very much like playing a stringed or wind instrument. This allows for all kind of effects between natural musical expression and spooky ghosts haunting your studio.

Rhythmic Textures

When setting the **LFOs** to **SYNC** their **RATE** can be set relative to your DAW’s tempo. Use this to modulate **POS**, **CUTOFF**, **DIRT** or **PITCH** (together with **PITCH-SNAP**). Your sounds will be tempo-synced with the rest of your arrangement.

You can also explore polyrhythmic structures, by switching **SYNC** off and using **QUANT** on **LFO2** and **LFO3** with incommensurable small values (e.g. 5 and 11). Additionally, you may set them to different **RATE**. This creates rhythmic patterns that are structured, yet never repeat.

For arhythmic drones you can use two or more **LFOs** and modulate their **RATES** by something else (and of course multiple sources!). When you modulate the **RATE** of **LFO1** by **LFO2** you do FM on the **LFO**. If you also modulate the **RATE** of **LFO2** by **LFO1** you have created a chaotic dynamic system … enjoy, but don’t try to predict it without a team of mathematicians.

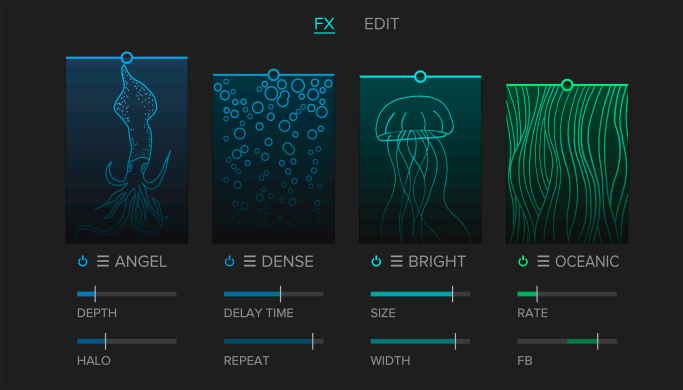
Pitch Variations

Each timbre that you place on the gradient can have its own **PITCH** and **DETUNE** values. By detuning the timbres on the gradient you gain another dimension of tone-colour variation to your sound - that changes together with the **POS**. This works great to add slight or rich inharmonics, e.g. to create nuanced bell sounds.

A variation of this technique is to have different **PITCH** values for the timbres on the gradient. For example, you can have **PITCH** in the center position for the timbre to the very left, and **PITCH** to a diatonic fifth (7 semitones) for the timbre on the very right. By doing so the **POS** changes the sound from the tonic via a power-chord (tonic + fifth) to the pure fifth. In this way you can blend the line between sound design and harmony.

Apply and modulate FX

Abyss contains four effects to further shape your sound or add movement and texture. Each effect has two parameters (these can also be modulated), and a couple of named presets that change the character of the effect.



For example, the **SHIMMER** effect (with the octopus) features presets that add a bright shimmer like **SHINE**, **PEARL** or **ANGLE**, but also presets that create a very dark shimmer (eg **AHAB**, **WRECK**, **SUNKEN**). Experiment to find what works best for your sound. In Abyss these **FX** are considered not to be a finalising add-on, but rather an integral part of the sound design.

Abyss also features a brickwall limiter. It is designed for maximum transparency when the signal level is not too hot. Even very hot signals won't exceed 0db output

Product Support

Abyss has been developed and tested with great care to be a premium quality instrument. However, complex software may have bugs or behave in unexpected ways. If you have questions, feedback or want to report a bug, please reach out to peter@dawesomemusic.com

I will try to answer in a timely manner, but please bear in mind that Dawesome Music is an indie company and hence can't offer 24/7 support.

Credits

Especially I'd like to thank my awesome beta testers for their detailed and valuable feedback:

Juan Juez-Sarmiento Ramos	
Florian Mrugalla	youtube - beats basteln
Gustav Scholda	https://gs-dsp.com
James Swift	https://gs-dsp.com
Andrew Madden	instagram.com/audilepsy
Frank Gesang	
Philip Rampi	
Leigh Howells	
Adam Wilson	

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DAWESOME