FACTOID 2

LOOP REVAMPER
VST • AU • STANDALONE

USER MANUAL
v. 2.0.2
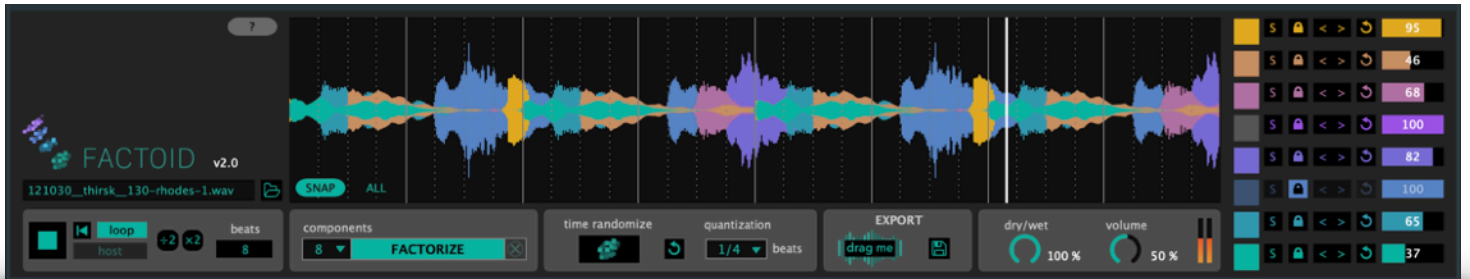
anemond

FACTOID 2
user manual

Factoid is a VST/AU plug-in and standalone application that allows you to create endless variations of audio clips. It decomposes a sound into up to 8 layers, each one with particular temporal and spectral structure. Those layers can then be manually or randomly shifted in time to change the rhythmical structure of the clip. The individual layers can also be added or removed from the mix.

Factoid uses the same decomposition engine than Factorsynth, but focuses on quickly and easily generating clip remixes and variations.

When a clip is loaded into Factoid, it is analyzed using a machine learning technique called matrix factorization. This produces a set of waveforms (the layers or elements) that are displayed superposed, each one with a different color. The interface allows to choose the number of desired layers for factorization, and to control the time position or randomization in terms of quantization and frequency contents.

Installation

MacOS

- Double click on the downloaded .dmg file. A window will open.
- Double click on the .pkg file in the window that just opened. This will launch the installer.
- Follow the instructions on the installer. At one point, you'll have the choice of which of the three MacOS versions you want to install: VST3, AU or standalone. You can install two or three of the versions at the same time:
    - The plugin versions (VST3, AU) will be installed on the system-wide folders that will be visible by your DAW.
    - The standalone version will be installed as an app in MacOS' Applications folder.

Windows

- Uncompress the downloaded .zip file (usually by double-clicking on it or by right-clicking and selecting "Extract all"
- Double click on the uncompressed .exe file. This will launch the installer.
- Follow the instructions on the installer. It will install the following two versions:
    - The plugin versions (VST3) will be installed on the system-wide folders that will be visible by your VST-compatible DAW.
    - The standalone version will be installed as a Program with Desktop and startup menu shortcuts.

Activation

The first time you open one of the plug-in or standalone versions, the following registration window will appear:
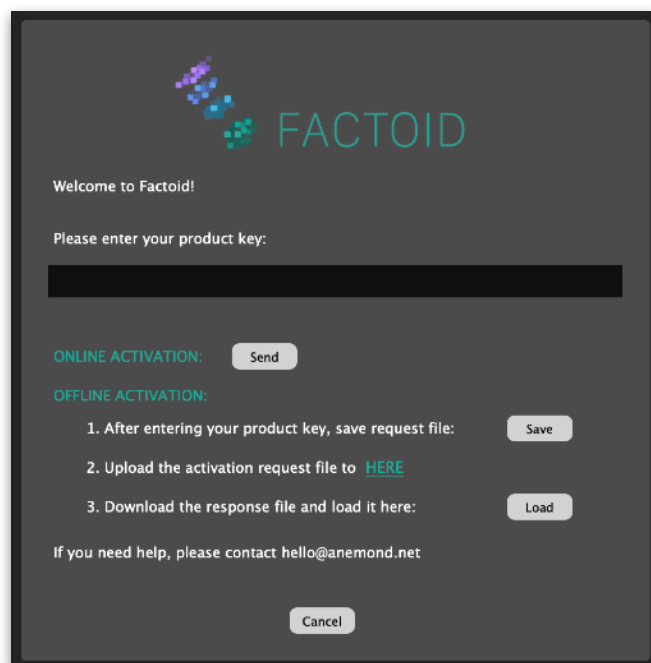
Enter the product key that you have received by email. You only need to register once on one of the versions.

- **Online activation:** enter your product key and click on "Send". If online activation doesn't work, please try offline activation.

- **Offline activation:**
    1. Enter your product key and click on "Save". A dialog window will appear to save a file called "Factoid2ActivationRequest.xml". Save this file to any desired location.
    2. When online, click on the link labeled "HERE" or open your browser and go to https://anemond.net/offline-activation/
    3. On the activation webpage, click on "Choose file" and select the file you just saved. Then click on "Activate" on the webpage. You should see an "Activated successfully" message and a link to download a file called "ActivationResponse.xml". Save this file to any desired location and go back to the Factoid registration window. Click on "Load" and select the file you just downloaded from the webpage.

If you encounter any problems during the registration process, please contact hello@anemond.net.

Versions

Your copy of Factoid 2 comes in three versions: two plug-in versions (VST3 and AU) and one standalone version:

VST3

The VST3 version will open in any DAW host compatible with the VST3 standard, such as Cubase, Ableton Live, Reaper, Bitwig, etc. Please refer to each DAW documentation to learn how to open VST3 plug-ins. Most DAWs allow loading Factoid into either an audio or a MIDI track.

> ⚠️ **Ableton Live (Windows)**: In the Windows version of Ableton Live, Factoid's interface might sometimes appear blurry. If this is the case, right-click on the plug-in window on the effects rack, and deactivate "Auto-Scale Plug-In Window"

AU

The AU version will open in any DAW host compatible with the Audio Unit (AUv2) standard, primarily Logic Pro, but also Ableton Live, Reaper, etc. Please refer to each DAW documentation to learn how to open AUv2 plug-ins.

> ⚠️ **Logic Pro**: In Logic Pro, Factoid will only work correctly when loaded into an Instrument track (not an Audio track). In the list of AU plug-ins, Factoid will appear under the category "AU MIDI-controlled effects". On the instrument track, it will listed in the "Instrument" box, not the "Audio FX" box. If an instrument is loaded by default when creating a new instrument track (such as "E-Piano"), click on the instrument name and replace it with Factoid.

Standalone

The standalone version of Factoid is an independent application that can work without a DAW. Most functionalities are available in the standalone version, with two exceptions:

- Factoid's playback cannot be synchronized or warped to match the global transport of the host (see section on **Host Mode**).
- You cannot use parameter automation or MIDI mappings.

Usage

To factorize (decompose) a clip, drag and drop any audio clip into the main display area, labeled "drop sample here", or click on the load button to select an audio file. Factorization will start immediately, with the number of components selected in the "components" drop-down menu (from 2 to 8 components). See the last section of this manual ("Factorization How-To") for some hints on how to select the number of components.

If you wish to re-factorize the same clip with a different number of components, change the number of components from the "components" drop-down menu and click on the "FACTORIZE" button.

During factorization, a cancel button will show up to the right of the factorize button: . Click on it to interrupt the ongoing factorization.

Once factorization is completed, you will see the extracted layers displayed as superimposed waveforms in different colors. Roughly, colors closer to green correspond to layers with predominantly low-frequency contents and colors closer to yellow correspond to layers with predominantly high-frequency contents. For example, with a drum loop, the kick will likely be displayed in green, and the hi-hat in yellow.
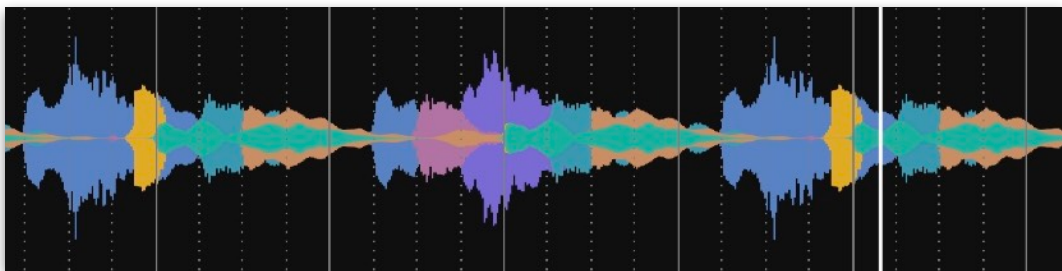
Right after factorization, the layers are in their original position: if you click on the playback button, you will hear the original sound.

> ⚠️ Factoid is designed to work efficiently with short loops (less than 30 seconds). In that case, factorization should only take a few seconds. You can however factorize any clip, without length limitation, but keep in mind that for long clips, it can be a CPU and memory-demanding process. If it takes too long, remember that you can always cancel factorization once started.

Interface zoom in/out
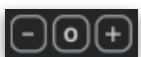
The three small buttons on the top-left corner of the main window control the global size of the Factoid interface. Click on the "+" button to zoom in, on the "-" button to zoom out, and on the "o" button to reset the zoom level to the original size.
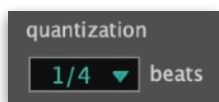
Time randomization

Once a clip has been loaded and factorized, you can randomize the temporal position of its layers to create endless rhythmical variations by clicking the "time randomize" button:
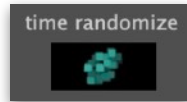
Randomization can be controlled in two ways: by choosing the possible target positions of the shifted layers (**quantization** setting) and by selecting which components are allowed to shift (see section "Component panel").

Quantization

The quantization setting, expressed in beats or fractions of a beat, determines the possible positions of the layers after randomization. For example, a 1/2 beat quantization means that the components are allowed to shift forward or backwards by a random number of half-beat steps. Quantization ensures that the resulting rhythm variation keeps the original underlying beat at the appropriate tempo. For short drum loops, it is most effective to use fractionary quantization settings.

The upper part of the quantization drop-down menu corresponds to duple meter fractions and multipliers, and the lower part of the menu to triple meter fractions and multipliers.

You can also choose to randomize without quantization ("none" in the quantization drop-down menu). In this case, the rhythm will be randomly scrambled and the original beat will likely be lost. It can be useful to create melodic or harmonic textures from non-percussive loops.

The quantization setting will also affect the possible manual shifts on the component panel (see section Component Panel), as well as the manual playback region selection (see section Playback Region Selection).

Reset button

The reset button next to the "time randomize" button undoes the random shifts and gets back the original sound without the need of re-factorizing.

Component panel

The component panel allows individual control of the clip layers (components). It will display as many control rows as components used to factorize the current sound.

The components are roughly sorted from high frequency contents (top, yellow) to low frequency contents (bottom, green), although this might not always be the case.
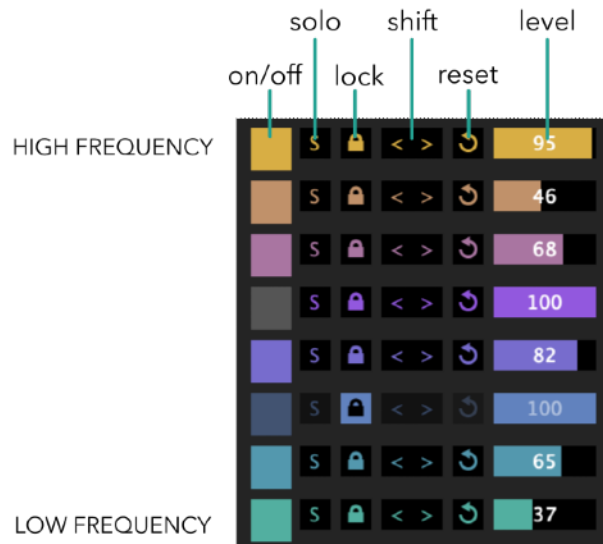
The controls available for each component are:

- **On/off:** turn the component on or off

- **Solo:** solo the current component and mute all the others

- **Lock:** do not allow any changes to the current component. This also affects the randomization button: if a component is locked, if won't be affected by randomization. This can be useful to keep the main beat (for example locking the bass drum components in a drum loop) while randomizing the rest.

- **Shift left (<) or right (>):** manually shift the current component in time to the left or to the right. The amount of shifting for each click is determined by the "quantization" setting (see section "Randomization"). When no quantization is selected, you can hold the shift button for a continuous, non-quantized shift. Shifting is circular: when shifting to the right, the vanishing right end of the component comes back on the left, and vice-versa.

- **Reset**: reset the current component to the original time position.

- **Level:** output volume of the current component.

Transport panel

To play Factoid's current output, use the play/stop button on the main transport panel. The panel also contains the following controls:

- **Rewind**: go back to the beginning of the clip. In host mode, this will happen at the beginning of the next measure.

- **Loop:** playback will loop around the output waveform.

- **Host:** (disabled in the standalone version) In "host" mode, Factoid's output will synchronize with the tempo and beats of the host DAW, otherwise it will play back at the clip's original speed. When clicking on play/stop in "host" mode while the DAW is playing, playback/stopping will happen at the next measure start (the button blinks meanwhile).

- **Beats:** the beat display window shows the number of beats that Factoid assumes the clip has. You can edit this number to correct or change at will. When playing in host mode, the change of beats will apply at the beginning of the next measure.

- **:2** and **x2** buttons: halve or double the number of beats of the clip. When in host mode, this will result in a playback at respectively double or half speed. To keep sync, the change will apply at the beginning of the next measure.

Playback region selection
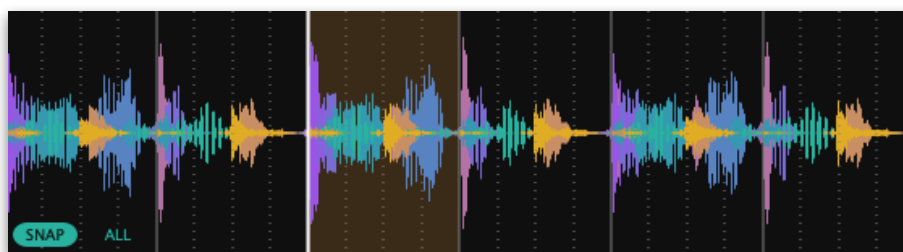
The current output waveform (the sum of all components) is displayed in multiple colors, corresponding to the individual components currently present.

Click anywhere on the output waveform to jump playback to that position.

You can select a playback region by dragging over the output waveform. If in loop mode, playback will loop inside that region. To go back to playing back the whole waveform, click on the (ALL) button above the waveform.

To quantize a playback region to subdivisions of the beats, as determined by the quantization drop-down menu, click on the (SNAP) button before selecting the region. Vertical bars corresponding to the beats and quantization sub-beats will be displayed. Note that, in order for this to align with the time measure of the DAW, the loop has to contain a whole number of beats, and playback must be in "host" mode.

Export panel
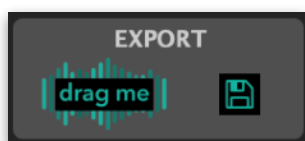
The export panel allow exporting the current output sound into a sound file or a clip on a DAW track. All sounds are exported as WAV files with the same sampling rate and bit number than the main sound.

There are two ways of exporting files: via drag and drop and via dialog windows.

Export by drag and drop

The easiest way to export the output mix from Factoid is by drag and drop. You can drag and drop components to tracks in your DAW, or to the Finder or File Explorer. When you drag and drop into the Finder or File Explorer, a WAV file will be generated at the target location. The exported audio corresponds to the currently selected region on the output waveform.

Note that you should drop the exported sounds into tracks other than the one Factoid is loaded, otherwise the exported clips will not play back (once Factoid is loaded as a plug-in into a track, it takes over the whole audio output of that track).

To use drag and drop export, click on the "drag me" icon on the export panel, drag it and drop it to the desired location.

Export by file dialog window

As an alternative to drag and drop, you can click on the save button 💾 to open a file save dialog window.

Mixer panel
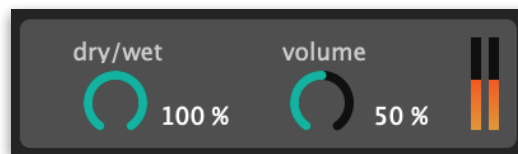
The mixer panel controls the main output volume of the plug-in.

- **Dry/wet:** mix of the original, unprocessed main sound, with Factoid's output.
- **Volume:** the global output volume of the plug-in. Double-click on the dial to get back to original (50%) gain.

Parameter automation and MIDI mapping

When using Factoid as a VST or AU plug-in, all buttons on the interface are visible as parameters to the host DAW, allowing parameter automation and control via MIDI hardware.

Parameter automation

Each DAW has a different way of displaying and handling parameter automation. Some DAWs, such as Ableton Live, require an interface button or slider to be clicked in order for the correponding parameter curve to appear on the automation track. Please consult your DAW documentation.

MIDI mapping

You can manually assign each button or slider on Factoid's interface to an external MIDI controller by using your DAW's MIDI mapping capabilities. The mapping process typically involves clicking a button or slider on Factoid's

interface and then pushing or moving the button, potentiometer or fader you wish to assign it to on the hardware controller. Please consult your DAW documentation.

Factorization how-to

Choosing the right number of components is crucial for obtaining good decompositions. Of course, this will depend on the complexity of the input sound and on the type of elements you would like to obtain. You'll see that it is mostly a trial-and-error process, but here are some guidelines that might help you:

- If your input clip contains a few simple sound events (for example, a drum loop or a sequence of a few notes), Factoid will likely separate them into components. For example, if you have a melody containing 7 different pitches (not counting the repeated ones), doing a factorization with 7 components will often (but not always!) result in one component per pitch.
- In the same scenario of a simple clip with few events, if you factorize into more components than events in the original sound, Factoid will start digging deeper to extract more underlying structures. For instance, if your clip contains 3 piano notes and you factorize into 8 components, some components will contain the noisy and impulsive parts of the attack phases, and other will contain the harmonic sustain and/or release parts of the different pitches.
- By the nature of matrix factorization (it groups similar patterns together), transients often end up grouped in a separate component. If you wish to keep the transients (e.g. attacks) together with their notes, choosing a lower number of components might help.
- For complex input clips (loops containing several instruments, song excerpts or full songs), the decomposition is more unpredictable, but can often detect interesting elements such as a rhythmical motif of the bass, a guitar lick, an underlying pad, impulsive noises, etc.
- If you decompose a song excerpt with few components, it is likely that all the drums will end up on one or two components.
- Factoid cannot separate full instruments or voices, except in very simple cases. You won't be able to do things like suppressing a singing voice or a guitar solo. That's the job of *source separation,* for which you typically use a large pre-trained neural network. In that sense, Factoid is not a "source separator", it is a tool for clip variation based on deconstructing sounds into interesting (and sometimes unexpected!) elements.

As you can see, using Factoid is a pretty exploratory process. After a bit of testing, you will a get a sense of how it reacts to the clips in your collection.

Support

For assistance, bug reports and any suggestions, please contact hello@anemond.net

If you're sending in a bug report, please include the following information:

- Your Factoid version
- Your OS version
- Your DAW version
- If possible, the audio clip that produced the issue
- If possible, a screen recording of the actions that produced the issue