

SYNTHETIC MATERIALS

Hello!

First and foremost many thanks for buying, trying or reviewing Synthetic Materials for the KONTAKT Free Player!

I've done my best to make this instrument as easy to use and intuitive as possible so you don't have to keep referring to a user manual. We want to make music, right, not read technical documentation!

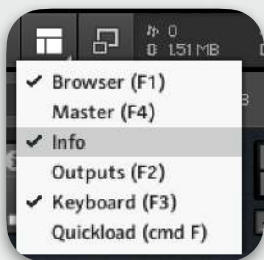
So... if you haven't already, dive straight in and have fun!

However, if you do find something that doesn't make sense, chances are, it might be explained somewhere in this guide. Also, I've tried to adopt a writing style that isn't too dry and techie, throwing in some background information and tips as a fellow sound designer and music maker that you may find interesting, and hopefully useful. If you can spare 15-20 minutes or so, it might be worth putting the coffee on and skimming through this guide at least once.

I sincerely hope you enjoy making music with Synthetic Materials!

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Help!



Pretty much all of the UI controls have associated help text from this user guide displayed in the Info panel at the bottom of the KONTAKT window. If you don't see that, it might be disabled, so I suggest you turn it on via the Workspace Management drop-down (shown here) while you're getting to know the instrument better.

What are / is Synthetic Materials?

Synthetic materials **are** nylon and Lycra, but that's not important right now.

Synthetic Materials **is** a sample-based instrument for KONTAKT Player. It does not require the full version of KONTAKT, but is compatible with both the FREE Player and Full version.

Once you've bought (or been given) a license key, you manage your instrument download via Native Access. If all this sounds a bit new and you're unfamiliar with the Native Instruments ecosystem, please head on over to their website for more details. I'll also help as best I can with any queries.

In short, Synthetic Materials is a simple, but powerful instrument fuelled by a rich assortment of modern-day classic analog and wavetable sounds, complete with a scale-quantised semi-generative sequencer and user sample import!

Instrument View



This is the main instrument view. It's what you should see when you load the instrument from the KONTAKT browser. Most of your editing will take place in this view. It might look a little busy at first, but all the instrument parameters are on this page. No menus, no "settings" or "advanced options" type screens etc. You should find your way around comfortably in no time.

Before detailing the controls in each section, please note the following...

Snapshots & Multis

Synthetic Materials is a single, snapshots-based KONTAKT instrument. There are several different categories of snapshots as shown in the menu below. The various categories will be discussed in more detail in the Sounds section. There are 200 snapshots, including effects, beats and sequencer demos. There are also 50 layered multis available in the Library browser, also shown below. **If you like complex and evolving layered sounds, please do check out the Multis!**



Sound Design with Synthetic Materials

Let's run through each section of the instrument controls as if we were designing our first patch (i.e. snapshot) from scratch.

First off, we probably want to initialise all the controls to “sensible” values, and select a base sound that doesn't have too much going on within the sample itself - otherwise you can get confused as to where the sound changes are coming from - I'm speaking from experience here!

Quickest and easiest way to do this, is to select the Init snapshot from the snapshot menu.

Second quickest and easiest way, is to click the INIT button and select the SAW sound in the BASIC group.



We now have a nice familiar starting point to explore the sound design possibilities within the instrument engine itself. However, please be assured that there are other, much more interesting sounds above and beyond what you see in the Instrument view. Those will be covered in more detail in the Sounds section.

DISPLAY

The central “LCD” display shows a representative waveform for the currently selected sound. It also shows parameter values as you adjust the instrument's controls. Here it is showing the current value of the master volume control.



AMP

Typically, this is a good section to start with for sound design as it controls some of the most defining characteristics of a patch.

This section has similar functions to the amplifier component of a synthesiser, hence its name.



Velocity Sensitivity: Controls the dynamic response to key / incoming note velocity. Lower settings have less dynamic range, but will be consistently louder. For classic synth or pad type sounds, lower values can work well. For more dynamic sounds, like a piano type patch for example, higher values will be more expressive. Your playing style and keyboard could also be a factor here, so please try tweaking this control if something doesn't feel right in terms of playing dynamics.

Drive: Controls the maximum amount of distortion drive applied to the signal post-filter. I've tuned the distortion effect so that it can be used to add some pleasing grit and additional harmonics to your chosen base sound. For added expression, the Drive effect has its own dedicated envelope and can also be controlled with aftertouch.

Volume: This is your master volume, right at the end of the AMP, FILTER and EFFECTS chain. Leaving it at around -6dB or below is recommended to avoid clipping.

Attack, Sustain & Release: This is a fairly traditional ADSR envelope, albeit with the decay and release parts of the envelope sharing the same control. This is because all the sounds have been sampled with their initial attack and decay transients intact. I think this makes for more interesting instruments instead of triggering seamless loops that are then shaped with an EG.

Drive Attack, Sustain & Release: This is a dedicated envelope for the Drive effect which can be used to add some additional movement to your patch as the amount of Drive rises and falls during sustained notes according to the envelope settings. For an example, check out *BA Frosty Morning Pad* where the drive envelope mirrors the AMP envelope to create a more intense tone as notes swell in.

FILTER

You have a choice between two different low pass filters which can be selected using the LP1 (single pole) and LP4 (four pole) mini buttons. The single pole filter has a gentle high frequency roll-off, whereas the four pole has a steeper slope so can sound generally darker and more like the VCF in a classic vintage analog synth.



Cutoff: Controls the cutoff frequency of the filter. The cutoff slope varies depending on the filter type.

Resonance: Controls the resonant peak of the filter. Please note that extreme settings can result in high and intense volume levels. While the built-in compressor can catch some of these, please bring levels down when experimenting and look after your ears!

Envelope Amount: Controls the amount the filter cutoff is affected by the filter envelope.

Envelope Attack: Controls the time taken for the filter envelope to reach its maximum value.

Envelope Hold: Controls the time the filter envelope's maximum value is held.

Envelope Decay: Controls the time taken for the filter envelope to return to its minimum value.

LFO Rate: Controls the filter LFO rate.

LFO Fade: Controls the fade-in time for the filter LFO depth to reach its maximum value. When this value is greater than zero, the LFO will re-trigger for each new note. When set to zero, the LFO will run free. If you want to do that classic sweep thing with the sequencer running, set it to run free!

LFO Depth: Controls the maximum depth of the filter LFO.

Please note - velocity and the filter

The filter cutoff is also controlled by key / note velocity, i.e. higher velocities open up the filter more. This is an intrinsic design feature and characteristic of the instrument.

The amount that the velocity varies the filter cutoff is scaled down, according to the values of the filter envelope and LFO depth. For example:

- Zero filter envelope or LFO depth - only velocity affects the filter cutoff. Please note this is independent of the velocity sensitivity control which does not affect the filter in any way.
- Setting either the filter envelope or LFO depth to the mid value, means that the effect of velocity is still there, but will be reduced.
- Setting filter envelope and LFO to max or so they combine to a max value, removes the velocity from the equation entirely and only the LFO and / or filter envelope affect cutoff.

EQ

At various points during your sound design journey, you may feel the need to adjust the overall tonal balance or EQ. Note that EQ changes are applied after the filter, but before the effects section. You can A/B test any adjustments you make by toggling the EQ bypass mini button.



Frequencies for each frequency band are as follows:

Bass: Low frequency bell at around 90 Hz.

Low Mids: 700 Hz - 1.5 octave Q.

High Mids: 2 KHz - 1.5 octave Q.

Treble: High frequency bell at around 8 KHz.

EQ Tip: To help sounds sit in a busy mix better or to mellow them out a little, try cutting the low and / or high mids by around 3dB.

PITCH SHIFTER

The pitch shifter was inspired by one of my favourite guitar pedals. Unlike like the pedal, the pitch shifting occurs at the MIDI note level. For each note you play, you can generate up to two additional notes at set semitone intervals up or down two octaves.



Master Transpose: Transposes played notes up or down in semitones. This works by adjusting incoming MIDI notes - it does not pitch adjust the samples themselves.

Pitch 1 or 2: Adjust the pitch of the generated notes relative to played notes (after master transpose) when not set to zero (off).

Velocity: Adjusts the velocity of the played / incoming note(s).

Velocity 1 or 2: Adjusts the velocity of the generated notes relative to the played note(s).

Note that when the velocity of P1 and P2 are close to one another (within 10%), the generated notes will be panned alternately for a nice spread effect. Also, if P1 and P2 are set to the same value as shown above, one will be slightly detuned for added fatty goodness.

Pitch Shifter tip: When vel p1 and / or p2 are set low and you play very gently, the generated notes may be very quiet or barely audible. This can be used to good effect when you want to emulate additional harmonics, or make the sound brighter when you strike the notes harder. For a couple of examples, check out *VA Dreamy Bells* and *WT Echo Chime* - note that pitch 2 is set to +19 semitones to simulate bell-like harmonics.

The generated notes are also shown in the KONTAKT plugin and KONTROL keyboards that have Light Guide support.

DRIFT



Drift: Introduces variations to various parameters when enabled.

Pitch: Randomises the pitch of incoming notes. This is useful for emulating unstable analog gear and can also combat the “machine gun effect” when repeatedly trigger the same notes with the same velocities.

Velocity: Randomises the velocity of incoming notes. This works especially well with sequencers or programmed MIDI when the velocities are the same.

LFOs: Adjusts the amount of delay modulation and random variations applied to the Filter and Pitch LFOs.

EXPRESSION & GLIDE

In this section you'll find a pitch LFO (aka vibrato) and some additional MIDI control settings and glide which is a legato-based portamento effect.



Vibrato Rate: Controls the pitch LFO rate.

Fade: Controls the fade-in time for the pitch LFO depth to reach its maximum value.

Depth: Controls the maximum depth of the pitch LFO. When this value is greater than zero, the LFO will re-trigger for each new note. When set to zero, the LFO will run free.

MIDI CC Volume: Adjusts the range of volume control via MIDI expression / CC #11.

Mod Filter: Adjusts the amount of filter cutoff variation applied via the mod wheel.

Aftertouch Drive: Adjusts the amount of drive variation applied via aftertouch.

Glide: When enabled, adds a pitch glide effect when notes are played legato style. Note this is not a traditional monophonic glide, so can be used to taste polyphonically when using longer release times.

Glide Time: When glide is enabled, sets the time taken to glide from the previous note to the new note when played legato style.

Velocity Trigger: This control sets the velocity threshold when a glide will occur. Only notes with a velocity greater than the threshold will trigger the glide. Setting the value to zero will result in all notes played legato style to trigger the glide.

Glide will also apply to any generated notes from the Pitch Shifter. Please note that Synthetic Materials does not have a monophonic mode option.

EFFECTS

The effects block sits at the end of the signal chain, and the order is as follows:

Amp -> Filter -> EQ -> **Rotary** -> **Delay** -> **Chorus** -> **Reverb** -> **Compressor** -> Main Output

With the possible exception of the delay, you might find the lack of parameters for each effect limiting. What I've tried to do here, is tune each effect to sound good with the included sounds, so in the case of all but the delay, there is only one mix or level control in the UI, but several effects parameters are actually being changed under the hood via that control.



Sync: Tempo synchronises delay time into musical note values when on. Delay time is set in milliseconds when off.

Delay Time: Adjusts the time of a ping-pong stereo delay effect. When the Sync button is on, the time can be set in musical note values determined by the host tempo.

Delay Feedback: Adjusts the delay effect feedback / number of repeats.

Delay Tone: Adjusts the high frequency cutoff applied to the delay repeats. Higher settings result in brighter repeats. Lower settings are darker.

Delay Mix: Adjusts the mix and overall level of the wet / delayed signal.

Rotary: Adjust the speed, mix and overall level of a stereo rotary speaker effect. Set the control to the left or right for slow (left) or fast (right) speed. The centre position is no effect.

Chorus: Adjust the mix and overall level of a stereo chorus / ensemble effect.

Reverb: Adjusts the mix, character and overall level of a stereo reverb effect. Increasing this value also affects the size, pre-delay and damping characteristics of the reverb effect.

Compression: Adjusts the input drive applied to a master compressor. Lower settings will be more subtle and higher settings can be quite noticeable but can also avoid harsh peaks and clipping caused by combinations of extreme filter, dynamics and drive settings.

Drum & Percussion Sounds

Synthetic Materials doesn't have a drum machine instrument in the traditional sense, but it does contain over 200 analog drum samples. To be honest, I added these sounds so I could create entire projects using just Synthetic Materials, but I hope you find them useful too!

The samples themselves come from a modern hardware interpretation of a classic drum machine released in 1978 that has been used on countless recordings in the 70's, 80's and even current day. It also happens to be my personal favourite analog drum machine as it has a different flavour to the usual suspects!

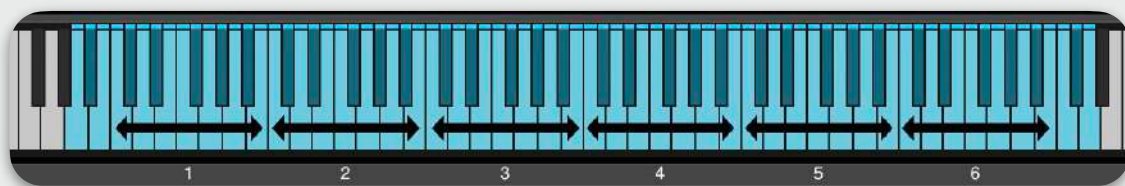


The drum machine sounds are loaded via the DM 78 button on the main instrument view.

KITS

The "DM 78" has the notion of drum kits split over 6 octaves. Each kit is essentially the same base sounds with additional processing - distortion, reverb, tape saturation etc. The first kit consists of the unprocessed original samples. Most of the sounds have velocity layers for slight variations in timbre which in most cases corresponds to the "tone" control on the original hardware machine. You can try different kits simply by transposing in octaves.

Here is a map of the kits on the KONTAKT keyboard for reference:



1. Dry unprocessed sounds (C0 - B0)
2. Room type reverb (C1 - B1)
3. Gated type reverb (C2 - B2)
4. Tape saturation (C3 - B3)
5. Misc effects such as echo and reverse (C4 - B4)
6. Large hall type reverb (C5 - B5)

Drums sounds are mapped to each note as follows:

- C - Kick drum 1
- C# - Kick drum 2 (longer release)
- D - Snare drum 1
- D# - Snare drum 2 (longer release / brighter)
- E - Hi hat (higher velocities introduce "metal" tone)
- F - Cymbal (higher velocities introduce "metal" tone)
- F# - Shaker
- G - Tambourine
- G# - Block
- A - Low conga
- A# - High conga
- B - Low / high bongo (depending on velocity)

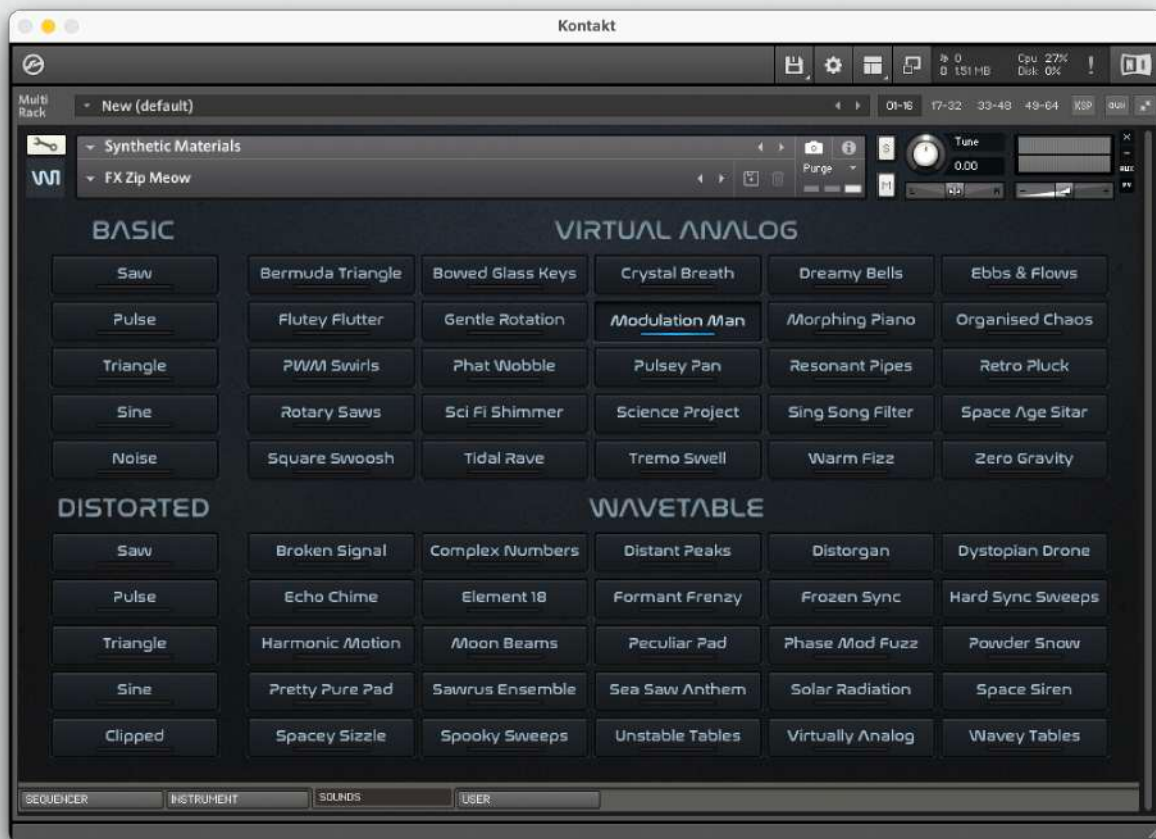
At the extreme ends of the map there are variations of guiro (< C0) and cowbell (> B5) sounds.

Tip: Check out the vintage and modern beats snapshots - you may recognise some of them!

Sounds View

You can see and select from all of the available sounds from this dedicated view. The sound you select is saved with the snapshot.

As part of the sampling process, I wanted to provide you with “synthetic materials” that on the one hand, are interesting, engaging, and maybe unlike what you’ve heard before, but on the other, also useful “ingredients” to feed into the instrument’s sound engine so you can create your own unique patches.



The sounds are grouped into four broad categories as follows.

Basic: While these sounds have been created using simple waveforms, they have been designed to sound anything but basic! In most cases each sample is actually up to 8 voices playing in unison, slightly panned and detuned to create a solid foundation for your own sound design.

Distorted: The distorted sounds are for when you need something like a basic waveform, but want a little extra edge or grit. The distortion applied isn't a conventional overdrive as you have in the Drive AMP section, but a “wave-shaping” distortion which you typically find in digital and wavetable synthesisers.

Virtual Analog: These sounds generally have a warm analog flavour but tend to be much more complex and evolving with pre-applied modulation and morphing. Use them as is, or make them your own using the additional sound-shaping capabilities of the instrument's sound engine.

Wavetable: Similar to the virtual analog sounds, these are derived from a wavetable synthesiser. They tend to be brighter and sometimes *colder*, although hopefully never excessively harsh.

The factory snapshots attempt to showcase each sound and also illustrate how you can achieve very different results even when using the same base sound. For example, *BA Corny Pops* and *BA Transistor Organ* both use the basic Pulse sound.

Sequencer View

It may sound like a bold claim, but I think the sequencer is unlike what you might typically see in a KONTAKT instrument. Of course, you can use it as you would a fairly traditional / old-school 16 step sequencer, and let's face it - who doesn't like old-school step sequencers! Alternatively, you can use the sequencer as a source of inspiration for new projects using its randomisation, scale quantisation and automated section features.

I had a lot of fun creating the sequencer and 4 Track Demos snapshots in an effort to showcase what the sequencer can do. Something worth trying, is getting something going running KONTAKT in standalone mode before saving your ideas as snapshots, then transferring operations to your DAW. There's also fun to be had sequencing your favourite hardware via MIDI. But, I digress...

On the face of it, the sequencer can be approached like a fairly traditional 16 step affair. But instead of giving you more steps to add variety, I've tried to give you more things to introduce variety to those steps.

Say what?

All will hopefully become clear. If you read one section of this guide more than once, this is probably the one!



4 TRACK DEMOS

Before diving into the sequencer in more detail, please do take a look at the **4 Track Demos** snapshots category. There are mixes of these demos on waverley-instruments.com. I put these together to show how you can almost sketch out a whole track using just the sequencer.

You are also free to use any sequence included with Synthetic Materials in your own projects completely royalty-free.

BASICS

This is where you set the number of steps (2-16) and the length of each step, from a 1/16th note, to 8 beats.



When the sequencer is ON, it will generate notes as determined by the sequence you've set up until you release a key. When HOLD is on, the sequencer will operate in "latch" mode and will keep the sequencer running even when you release a key. When you play a new note, the sequencer will generate new notes relative to the note you've played. For this reason, it's best to think of the sequencer as a "one note at a time" type machine when you're controlling it.

NOT SO BASIC

To create a new sequence from scratch and to set all controls to their default values, click the INIT button. For random mayhem (maybe...) click the RAND button!



Pitch quantise is totally optional, but can lead to surprisingly inspiring results and unlocks another layer of sequencer creativity.

By selecting a root note and a scale, you're basically telling the sequencer to *correct* the notes it generates so that it only plays notes from your chosen scale. Traditional sequencers will normally play steps according to set intervals in relation to the note you give it, which can result in notes "out of key". Pitch quantise gives you the option to "fix" that. We'll look at an example later.

There are 27 different scales to choose from, including traditional and not-so-traditional pentatonic scales, as well as various modes, diminished, whole-tone and even a Blues scale for when you're feeling down. If you need something more uplifting, try the Japanese Yo scale!

When the scale is set to chromatic, no pitch quantisation takes place.

ONE STEP AT A TIME...

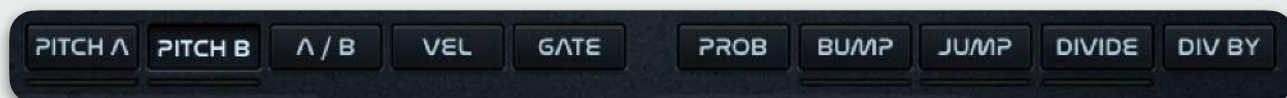
The main step view is where you edit step values. These could be pitch values, velocity or gate times and so on, depending on what mode you have selected using the buttons above the sliders. The "LEDs" above each slider will light-up during playback to show which step is currently active.



The numbered buttons below the sliders switch that step on or off. Note that the step is not skipped, it is muted. This allows you to add rests to you sequence so it doesn't sound like a 1/16th note machine-gun!

STEP PARAMETERS

Each step has several parameters associated with it. This could be the pitch of a step, the velocity, gate time and so on. We'll go through each of these parameters in turn.



PITCH A: Select Pitch A steps for editing. Whether Pitch A or B plays is determined by the A / B probability.

PITCH B: Select Pitch B steps for editing. Whether Pitch A or B plays is determined by the A / B probability.

A / B: Select Pitch A / B probability steps for editing. For added variation, select a value between 100% A and 100% B.

VEL: Select Velocity steps for editing. Add dynamics to your sequence by changing the velocity values for each step.

GATE: Select Gate time steps for editing. Note that the gate time goes up to 125%. This allows you to add glide effects between adjacent steps.

PROB: Select Probability steps for editing. Zero probability means the step will never play. 100% means it will always play.

BUMP: Select Bump probability steps for editing. When a Bump occurs, the sequence will change direction at that step. Selecting step 9 in a 16 step sequence generally works well.

JUMP: Select Jump probability steps for editing. When a Jump occurs, the sequence will randomly jump to another step and continue from there. If you like chaotic sequences, go ahead and jump!

DIVIDE: Select Divide probability steps for editing. Divide, also known as ratcheting, sub-divides and repeats the note on the selected step according to the value set by Divide By.

DIV BY: Select Divide By / count steps for editing. When a Divide occurs, the step note will be repeated the number of times set by this value. For example, a 16th note sequence with a Divide By value of 4, will result in 4 x 1/64 notes for that step.

For convenience, you can assign the currently displayed steps to default, random, min, mid or max values using the side buttons.

PITCH A / B MODES

The A / B mode determines how the sequencer calculates generated pitches according the settings for Pitch A, B and A / B probability.



- **A or B:** Pitch of step will be A or B depending on A / B probability.
- **A + B:** When B is true, pitch of step will be A plus B.
- **Random:** When B is true, pitch of step will be a random value between A and B.
- **A & B:** When B is true, both A & B pitches will occur on the step.

Note that A & B mode is useful for two note chords and beats. There are lots of examples of this mode in the factory snapshots.

SHIFT AUTOMATION SECTIONS

With shift automation, the sequencer almost becomes a mini musical idea generator! I was tempted to expand this feature more, but wanted to keep it relatively simple, the idea being that you can get something basic going in the sequencer, then develop it further in your DAW.

Here's how it works...



Auto Mode: Turn on Auto Mode to generate automated pitch shifts to the sequence for each of the four available sections selected using the numbered buttons. You can set the amount of shift from the played note and the duration in beats for each section using the shift and beats knobs.

Auto Shift: Sets the number of steps to transpose or *shift* the played note for the sequence for the currently selected Auto Mode section.

Auto Beats: Sets the duration in beats for the currently selected Auto Mode section. When the step length is 1/16, the sequence will be reset to zero at the start of each new section number.

Please take some of the demo sequencer and beats snapshots for a spin to get an idea of what you can do with the sequencer using pitch quantise, the various probability options, A / B mode and shift automation.

For each snapshot, I've added a suggested tempo and key to play (somewhere around the middle of your keyboard) so you can hear them in the context that I made them.

SEQUENCER TIPS

Here are a few ideas (random of course...) to get you going with the sequencer.

- Take it a step at a time. No pun intended. If you're trying to figure out how Bump works for example, start with a random 8 step sequence and increase the probability of Bump on one step with the sequencer running. Try a similar approach for A / B pitch modes.
- For randomised octave jumps, compose your main sequence in Pitch A, set all Pitch B to +12, set A / B mode to A + B, then increase the A / B probability towards B for randomised octave jumps.
- Sometimes wrong can come out right with Pitch Quantise! If you're working in say a major key and you're entering intervals of a major 3rd, put those in flat as minor 3rds. They will be corrected to a major 3rd, as the sequencer shifts notes up if it needs to when quantising to scale, but any minor chords will come out sounding in key as they'll be left as minor 3rds. Check out *Not Those Chords Again* for an example.
- Putting a Bump on step 9 tends to "just work" with rhythmic material. Check out *Four On The Factory Floor* for an example.
- Try experimenting with the A & B sequencer A/B mode when creating beats or more complex melodic sequences.
- The Divide feature should scratch your Berlin old-school itch (e.g. *Berlin Dream*) but can also introduce breakbeat style fills to rhythmic material as in the *Little Drummer Toy* example.
- If all this seems a bit too complicated to begin with, select your root note, scale, step count and duration and keep hitting Random. Sooner or later you'll end up with something groovy!

User Samples

You can import your own samples into Synthetic Materials via a simple drag and drop interface. User samples are handled in exactly the same way as factory sounds, giving you access to the full potential of the sample and sound processing engine.

Having said that, there are also some “limitations” worth noting based on design decisions to simplify the sampling process and amount of samples required.

If you have experience creating your own samples, you may be disappointed to hear there is no support for velocity layers or round-robins. Instead, the Synthetic Materials sound engine attempts to compensate for this “under the hood” by dynamically altering the tone and tuning of generated notes. You may be pleasantly surprised by the results, especially with more experimental type samples. However, don’t expect stunning realism from your Steinway grand piano samples - you might want to use the full version of KONTAKT for those!

The final “limitations” to be aware of is that sample notes are fixed to C and F# in the range of C0 to C6 and that they should be trimmed or at least have no silence at the beginning of the sample file.

With the disclaimers out of the way, we can now look at the interface in more detail!



The above screenshot shows the User view with some samples loaded. Samples are imported simply by dragging and dropping files into the waveform display area.

Synthetic Materials supports the following audio files:

- WAV
- AIF
- AIFF
- NCW (KONTAKT compressed)

USER SAMPLE ZONES

There are 13 available zones but you don't have to use them all. Each zone covers a pre-allocated range based on its designated root note. If you don't supply samples for all zones, Synthetic Materials will extend their range to "fill the gaps".

As you add samples to the zones, the range of notes covered by the sample is shown in the keyboard display. Please note this is not a playable keyboard - it's for illustration purposes only.

For example, in the screenshot, zone 6 is active. The root note for zone 6 is C3 (MIDI note 60) highlighted in blue and the sample will be used for notes A2 (green) to D3 (orange) inclusive. Zones 4 and 10, the lowest and highest populated zones will be extended down and up to cover the full instrument range of A-1 to D6.

Zones are selected by clicking the corresponding button.

To initialise and clear all zones, click the INIT button. To toggle between user samples and the previously selected factory sounds, click the ON button.

Once a zone has a sample, its corresponding LED will be illuminated.

WHY C AND F# NOTES?

Simple answer is that it's a compromise! Over the years I've developed a sampling approach that I think works reasonably well. Having the same notes over each octave can often make the process of sampling more straightforward compared to say perfect 5ths, which is also a popular method. The default range of the sample is also such that it's extended 2 semitones up and 3 semitones down, the reasoning being that you can "get away with" tuning samples down, more than you can when tuning up.

If you're sampling something that isn't a tuned / chromatic instrument such as a sound effect or drone, you can just place the sample in any zone you like, but keep in mind it will still be pitched up or down from its theoretical root note for the zone.

SAMPLE PARAMETERS

Once a sample is loaded you can make some adjustments to volume pan and tuning. For some instruments, panning lower notes and higher notes samples apart, can achieve a nice stereo spread - think of how a piano has lower notes to the left and higher notes to the right.

The INIT button will clear the sample for the currently selected zone.

LOOP PARAMETERS

Sample looping can be toggled on and off depending on whether your sample should be sustained or not. When looping is on, loop and crossfade indicators are updated in the waveform display as you adjust the parameters. Loop parameters are shown as percentages and in most cases, the default settings will work well.

A red crossfade indicator is shown if your loop start is too early for the chosen crossfade duration. If you see a red indicator, either reduce the loop length or crossfade, or increase the start point of the loop, otherwise your loop may sound glitchy for that sample.

The screenshot shows a good example of a trumpet sample where the loop endpoint has been pulled back into the sustained part of the waveform.

The INIT button will reset loop parameters to their default value.

SAVING YOUR INSTRUMENTS

Once you have created a new instrument with your samples, it can be saved as a snapshot - you don't need to save a new instrument.

When you load a snapshot in Synthetic Materials, it will check to see if there are user samples associated with it, and if so, attempt to load the audio files.

Depending on the complexity of your user samples it may take a little while to load and configure all the samples associated with a snapshot. To monitor and check progress, navigate to the USER tab view before loading the snapshot and observe the messages that appear on the waveform display as samples are loaded.

FILE LOCATIONS & MISSING SAMPLES

When you save a snapshot that has user samples, Synthetic Materials keeps a record of the original file location. Please note that these are file **references**, so the original audio files still need to be somewhere, so that Synthetic Materials can find them.

There are cases where you might want to re-organise your user sample files. For example, you may have created an instrument using only a subset of files from a larger library or a temporary download folder. It might also make sense to have all your user samples in the same location.

You may also want to share your instrument snapshot and samples (*) with other Synthetic Materials users and it's unlikely that the file references in the snapshot will be the same / work on different computers.

To cover the scenarios above, Synthetic Materials looks in several locations for sample files as follows:

1. The most obvious place to look is the original location! If you don't move your samples around, then all is good.
2. A "Samples" folder below the Synthetic Materials install location. For example, on a Mac, by default, this will be **Users/Shared/Synthetic Materials/Samples**. Note there will already be factory files in this location, so you may wish to use the next option.
3. A "User Samples" folder below the Synthetic Materials install location similar to the above. Please note that you will have to create this folder yourself. The advantage of using this location is that it keeps user and factory samples separate so is the recommended option.

Finally if Synthetic Materials can't find the referenced file in the above locations, the zone LED will light up red and the missing file will be shown in the waveform display, along with the last known location path in full, in the message area at the bottom of the KONTAKT window.

(*) Please note that if you share sample audio files, they should not be from commercial libraries - they should be your own creations! If you are sharing instruments with other Synthetic Materials, you only need to give them snapshot (.nksn) and audio files.

I hope you enjoy making your own instruments! I also plan on making ones I create available for download on www.waverley-instruments.com so your Synthetic Materials sonic palette can continue to grow! This is also a good resource for guidelines on distributing your own instruments. Please get in touch if you'd like to share your instruments with a wider community!

Acknowledgements

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