

Ruismaker Noir

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Version history

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Introduction

Ruismaker Noir is a different way of thinking about rhythm and percussion. There are plenty of iOS drum machines that let you construct beats using kicks, snares, hats, claps, and lots of other percussive sounds. Some use samples, others use synthesis, and most give you a multi-channel sequencer to construct complex patterns.

There are also rhythmic instruments, such as bass guitars and bass synthesizers which let you augment your drums with melodic rhythms. These are typically mono-timbral and trade multi-channel complexity for tonal flexibility.

Ruismaker Noir presents a hybrid approach - a way of creating monophonic rhythmic complexity by using pitch, tonality and velocity sensitivity to generate morphing sounds that seamlessly blend into each other.

Since Ruismaker Noir is an Audio Unit plugin you can obviously layer multiple instances of the synth for creating extra intricate rhythmic patterns, but its key strength lies in sculpting patterns as you go and make the sound come alive through direct interaction with the synth's knobs and parameters.

Standalone vs AU Plugin

Ruismaker Noir is primarily an AU plugin, meant to be run inside one of iOS' many flavors of plugin hosts. The Noir sequencer is built-into the plugin, and the rhythmic patterns are saved inside the presets you create (and the factory presets). Load a new preset, and you'll also change to the sequencer pattern that comes with the preset.

A very basic standalone app is also included. This app runs a single instance of the plugin, so you can jam without having to boot up a host app; e.g. if all you want to do is create some presets or drop some beats on the bus. The standalone app does not offer any connectivity however, so if you want to run Ruismaker Noir as part of a multi-app setup or use MIDI to control it, you'll need to load it in a host.

Note: plugins sync to their host's tempo, hence tempo information is not saved inside the AU presets. Therefore the standalone tempo is also not preserved when you save a preset.



Programming sounds

Let's go through all sections of the synth engine

Note: any knob in Ruismaker Noir can be reset to its 0-setting by double-tapping it

Oscillator section (VCO 1 + 2)

This is the part of the synth that generates the raw sounds. There are three sound sources which create sound in parallel: VCO1, VCO2 and a noise generator. All three are mixed together (based on their respective level settings) and sent into the filter.

- waveforms** VCO1 and VCO2 both have sinewave, triangle and squarewave oscillators. Additionally, VCO1 also has a hihat-circuit (loosely based on the TR808 hihat circuit, using 6 detuned pulse waves and a bunch of filters)
- vco freq** if pitch mod is enabled, this detunes the frequency of the VCO relative to the pitch that was triggered by the sequencer (or a MIDI note). If pitch mod is disabled, it sets an absolute frequency
- pitch mod** use this checkbox to determine if the oscillator frequency is set by the sequencer's pitch input, or whether a fixed absolute frequency is selected by the vco freq knob
- ring** applies ring modulation on VCO1 and VCO2 and sends the resulting output to VCO2
- xring** applies a more complex dual cross-ring modulation on VC1 and VCO2 and sends the result to VCO2 for a harsher, even more metallic effect than regular ring modulation
- FM** modulates the frequency of VCO2 using the output of VCO1 as modulator input. FM amount specifies the modulation index

- drop** sets the pitch envelope (PEG) for the oscillator. Positive values mean that the pitch starts higher and gradually drops towards the end-frequency. Negative values cause the pitch to start lower and gradually rise towards the intended end-frequency
- slope** sets the steepness of the pitch envelope (PEG). Low values will sound like a short click, higher values will sound like a chirp. For the noise source this will set the decay-time of the noise envelope

Filter section (VCF)

Ruismaker Noir features a multimode filter which is specifically modified for percussion sounds.

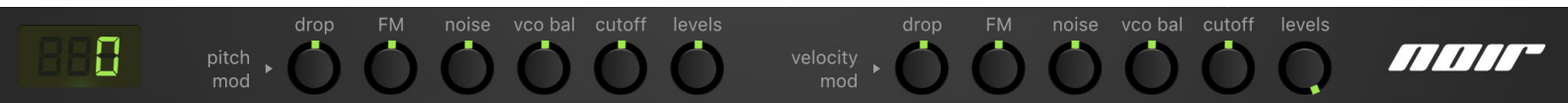
- LP HP** this toggle lets you switch between highpass mode and lowpass mode. Highpass mode cuts away low end frequencies (making the sound brighter) and lowpass mode removes high frequencies (making the sound duller, or muffled)
- cutoff** this sets the cutoff frequency of the filter
- filter decay** this sets the decay time of the filter envelope. High values let the cutoff frequency drop very slowly (long decay time). Low values cause a fast drop
- env mod** specifies how strong the effect of the filter envelope is applied to the filter. If set to zero, filter envelope is essentially disabled (cutoff frequency will remain fixed). Higher values cause the filter to have a strong influence on the cutoff frequency
- grit** this knob throws dirt in the machine, by infusing the filter with resonant noise. The higher the grit setting, the more the filter will have a grinding sound

Amp section (VCA)

This section regulates the volume levels and sound-color of the outgoing sound.

- attack** sets the attack time of the volume envelope. For most percussive sounds you'll want to keep this setting very low, however dialling in some attack may sometimes be useful if you want to layer multiple sounds with overly aggressive transients together
- decay** sets the time it takes for the envelope to go from full sound output to silence, ranging from short clicks to very long sounds
- f.boost** frequency boost applies a peaking filter to the signal, strongly emphasizing a section of the frequency spectrum and warming up the sound. Use this to boost bass, tune a snare, turn a snare into a clap-sound or create special effects
- bit driver** a combination of an overdrive and bit-reduction effect. The higher the setting, the harsher (and lo-fi) the sound will get, eventually generating very aggressive artifacts
- gain** sets the output volume. Low settings attenuate the signal, high settings boost the signal (very high settings may boost the output signal into saturation)

Pitch Mod & Velocity Mod



One of the core concepts of Ruismaker Noir is that the programmed sound can be modulated by pitch and velocity data coming in via the sequencer or via external MIDI input.

Setting up how the sound should respond to pitch data and velocity data is done using the “pitch mod” and “velocity mod” knobs.

These mod knobs are all “bipolar”, meaning that their middle value represents a neutral setting (i.e. no effect). Positive values are a normal effect and negative values are an inverted effect.

There are 6 key parameters which can each be simultaneously hooked to both pitch and velocity:

| | |
|----------------|---|
| drop | the VCO drop amount |
| FM | the frequency modulation index strength |
| noise | the level of the noise source |
| vco bal | the balance between the levels of VCO1 and VCO2 |
| cutoff | the cutoff frequency |
| levels | the levels of all the VCO sources combined |

Examples

Since the mod-settings are bipolar positive and negative effects can be programmed. For example, when the velocity mod > cutoff is set to the maximum (positive) setting, higher velocities will result in higher cutoff filter frequencies. However, the velocity mod > cutoff is set to the minimum (negative) setting, higher velocities will result in lower cutoff filter frequencies.

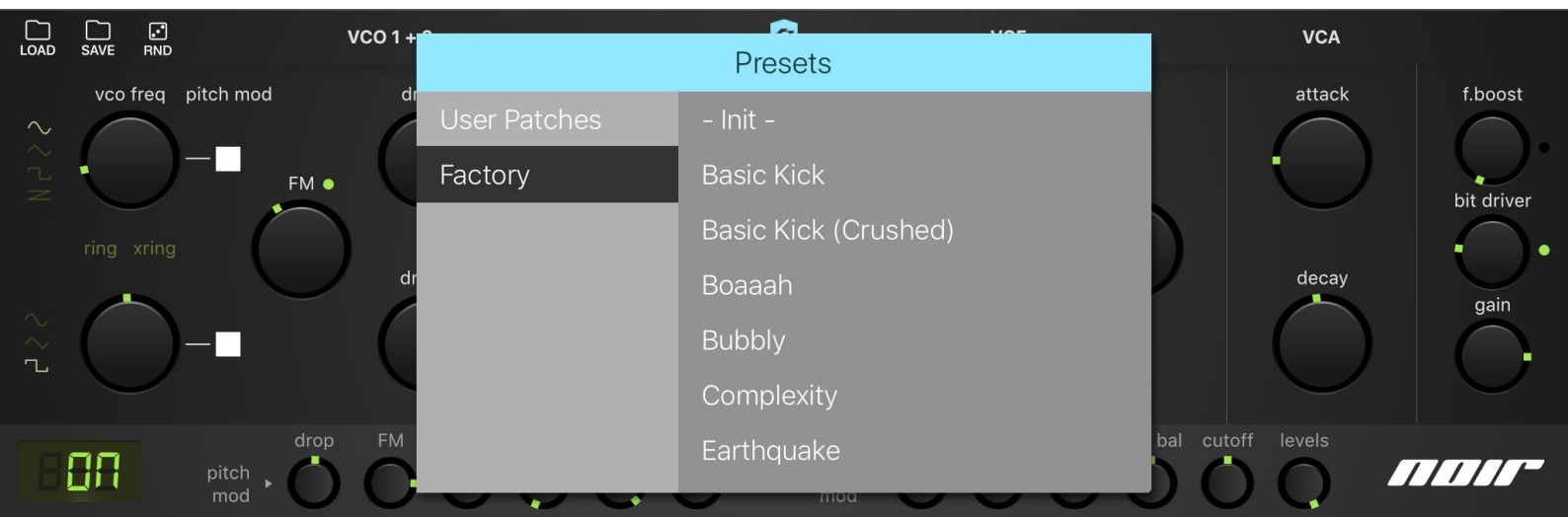
Note: by default, velocity mod > levels is always set to its maximum value, because the normal behavior of velocity is to affect volume levels. You can change this if you like.

Setting the pitch mod > osc bal setting to its lowest (negative) setting will change the balance of the two oscillators depending on the pitch values coming from the sequencer. Higher notes mean OSC1 will be dominant, lower notes mean OSC2 will sound more prominent. Use this trick to create sounds that morph depending on the incoming note.

Another example: if the velocity mod > noise setting is positive, triggering louder notes (with a higher velocity) will also mix in a stronger level of noise.

Although there are only 6 variables available to modulation, these are chosen to have a maximum impact on the sound character of the synth patch. Obviously, every parameter in the synth engine can also be modulated externally using AU parameters or MIDI CC (*plugin only, not in the standalone).

Note: the effects of pitch mod and velocity mod on the same parameter destination are combined intelligently. However, effects can sometimes be difficult to predict. Just experiment!



Preset Management

Loading a user preset or factory preset

To retrieve a previously saved user preset, or open a factory preset supplied with the plugin, simply press the “load” button in the top-left corner.

Saving a user preset

To add the current settings to the list of user presets, hit the “save” button in the top-left corner of the plugin window. You can then choose a new name for your preset

Deleting a user preset

If you want to delete a previously saved user-preset, simply look it up in the preset list and swipe it to the left (like in most other iOS apps that present lists of documents).

Exporting all user presets (standalone mode only)

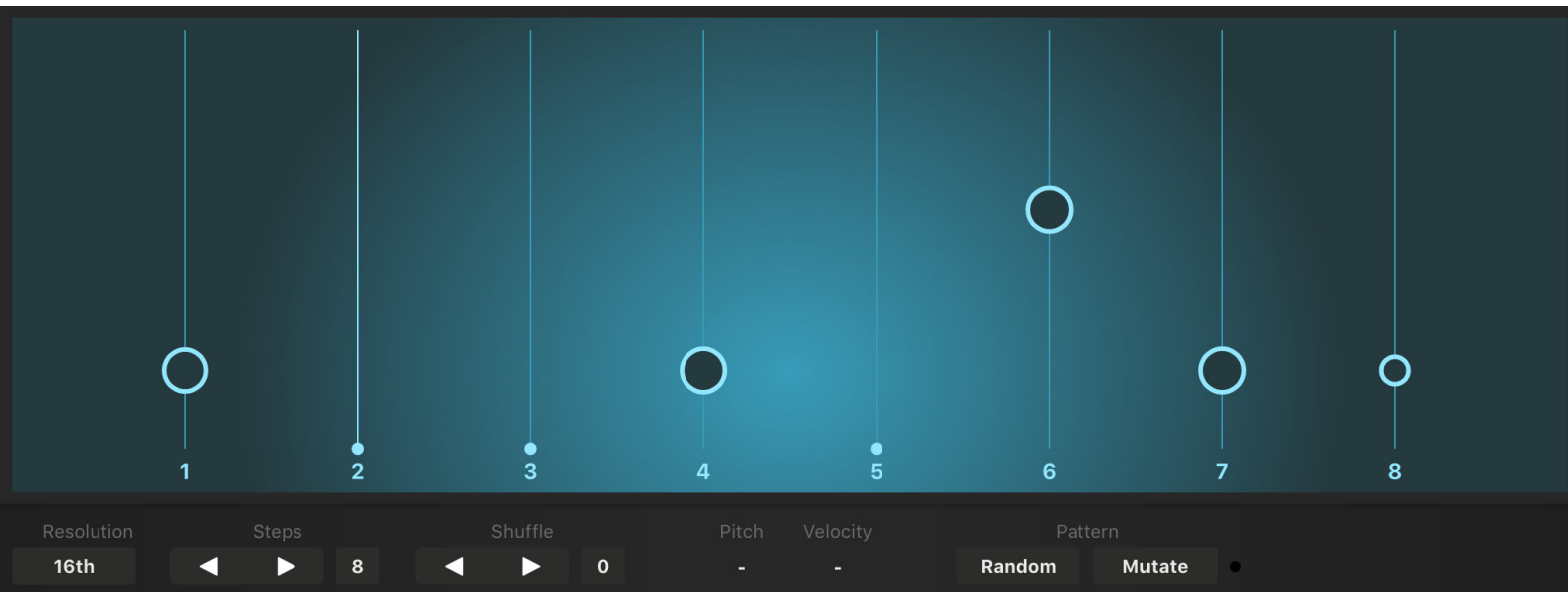
To export all your user presets, in order to back them up or move them to another device, start the app in standalone mode. Press the “export presets” button in the top-right corner. A pop-over will appear which will let you send the resulting zip-file anywhere you like.

Importing user presets (standalone mode only)

To import previously exported zip-file with user presets, simply send or open the zip-file on the iOS device. A list of apps will appear which can handle zip-files. Choose “Ruismaker Noir”, and all presets will be imported automatically. Occasionally, you may need to restart the app to see the imported presets.

Note: only zip-files with the name “noir_presets.zip” will be imported by Ruismaker Noir.

The Sequencer



In Ruismaker Noir, the sequencer is an integral part of the plugin. Technically, sound engines and sequencers are supposed to be separated in the plugin philosophy, but in this case the sequencer has such a fundamental role in the generation of the sound itself that it was most efficient to combine them into the same UI.

Note: when the plugin host doesn't give enough space to show the synth and the sequencer simultaneously, you can bring up the sequencer by pressing the "SEQ" button in the title bar

Sequencer basics

The Noir sequencer is an alternative take on the traditional step sequencer. Each vertical line represents a step. The duration of these steps depends on the selected resolution, but by default each step is a 16th note long. This means that (in typical 4/4 time signature) 16 steps make up a full measure/bar, and 4 steps represent one beat.

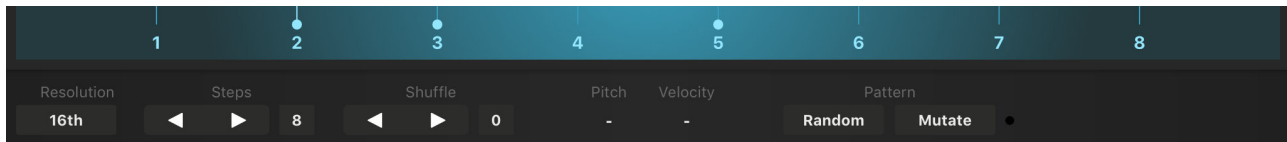
The number of steps in the sequence can be freely defined from 1-32. After the last step, the sequencer will automatically loop. Nothing stops you from creating odd time signatures by combining strange loop lengths with unusual time resolution settings. Experiment away!

Placing and removing notes

Placing a new note is simple: start dragging your finger near a line to place (or move) a note. By moving your finger up or down you can change the pitch of the note. Higher means a higher pitch, and vice versa. By dragging left or right (towards the line or away from it) you can change the velocity of the note. The diameter of the circle indicates the strength of the velocity: bigger means stronger.

Simply tap on a note to remove it, or reduce its velocity to zero for the same effect.

Note: when loaded as an AU plugin, the host's sequencer must be in playback mode to start Noir's sequencer. In standalone mode, there's a play button at the top of the screen.



Sequencer features

Timing, duration, and even randomization features can all be set directly on the sequencer view.

- Resolution** Lets you set the duration for all steps. The default is 16th, but there are also longer, shorter and triplet step resolutions available.
- Steps** Sets the number of steps for this pattern
- Shuffle** Adds a swing-feel to the sequence. Higher values add a more extreme effect
- Random** Generates a random pattern. Note: this will overwrite the existing pattern!
- Mutate** This sets the chance that any note will be changed in real-time, while playing the pattern. Note order adds a chance that another note from this pattern will be played instead of the current note. The other two settings add a chance for pitch and velocity to be mutated for the current step. Higher values mean a greater chance of any of these things happening.

AUv3 MIDI OUT from sequencer (Bonus Feature)

As a little nice-to-have additional feature you can use the Noir sequencer to record the pattern to MIDI, drive other apps or even MIDI hardware. This feature requires iOS11 or higher and an AU host which supports AU MIDI output (and routing or recording of the MIDI output).

The method for setting this up is different in all hosts - and more hosts which support this feature are added all the time.

The MIDI messages which are sent out are standard MIDI NOTE ON/OFF messages. No CC or other controller data are being sent.

Note: while sending MIDI OUT, the Noir synth engine is still playing as well. This obviously takes CPU. You may also want to dial down the output gain on the plugin.

AU & MIDI Parameters

When the plugin is hosted in an AU host, all aspects of the synth engine can be controlled using AU Parameters and/or MIDI CC. Obviously, it is recommended to use AU Parameters where possible, since those have a much higher resolution than old-fashioned MIDI CC (which are limited to values from 0 - 127).

All AU Parameters have conveniently descriptive names, so you shouldn't have problems identifying which ones are linked to their respective on-screen controls. As usual, MIDI CC codes are linked to fixed parameter destinations; which are listed in the tables below.

All regular values are 0-127. For bipolar knobs 64 represents the center/0-value. Exceptions are indicated with an asterisk (*).

Oscillator parameters

| | SHAPE 1* | SHAPE 2* | FREQ 1 | FREQ 2 | PITCH MOD1* | PITCH MOD2* |
|-----|----------|----------|--------|--------|-------------|-------------|
| CC# | 13 | 14 | 15 | 16 | 17 | 18 |

| | FM AMT | DROP 1 | DROP 2 | SLOPE 1 | SLOPE 2 | NOISE SLP. |
|-----|--------|--------|--------|---------|---------|------------|
| CC# | 19 | 20 | 21 | 22 | 23 | 24 |

| | LEVEL VCO 1 | LEVEL VCO 2 | LEVEL NOISE | RING MOD* | | |
|-----|-------------|-------------|-------------|-----------|--|--|
| CC# | 25 | 26 | 27 | 28 | | |

* Special values:

Shape 1: 0 - sine 1 - triangle 2 - square 3 - hihat circuit
 Shape 2: 0 - sine 1 - triangle 2 - square
 Pitch Mod 1/2: 0 - off 1 - on
 Ring Mod: 0 - off 1 - ring 2 - xring

Filter parameters

| | FLTR MODE* | CUTOFF | GRIT | DECAY | ENVMOD | |
|-----|------------|--------|------|-------|--------|--|
| CC# | 29 | 30 | 31 | 32 | 33 | |

*Special values:

Filter Mode: 0 - Lowpass 1 - Highpass

[table continued on the next page]

AMP & Output parameters

| | EG ATTACK | EG DECAY | F.BOOST | BIT DRIVER | GAIN | |
|-----|-----------|----------|---------|------------|------|--|
| CC# | 34 | 35 | 36 | 37 | 38 | |

Pitch Mod Parameters

| | PM > SLOPE | PM > NOISE | PM > CUTOFF | PM > LEVELS | PM > FM | PM > OSC BALANCE |
|-----|------------|------------|-------------|-------------|---------|------------------|
| CC# | 39 | 40 | 41 | 42 | 43 | 44 |

Velocity Mod Parameters

| | VM > SLOPE | VM > NOISE | VM > CUTOFF | VM > LEVELS | VM > FM | VM > OSC BALANCE |
|-----|------------|------------|-------------|-------------|---------|------------------|
| CC# | 45 | 46 | 47 | 48 | 49 | 50 |

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